

MULTIPLE DEPRIVATION, INCOME AND POVERTY IN ITALY:
AN ANALYSIS BASED ON EUROPEAN COMMUNITY
HOUSEHOLD PANEL

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1. INTRODUCTION

Poverty in rich countries, either in social or material terms, differs from poverty in developing countries, whose diseases, hunger and scarcity unanimously influence the public opinion of rich countries and urge public authorities to put aid policy for disadvantaged countries into practice. However, even if the fight against hunger and income redistribution has priority in the whole world, in developed countries, e.g. European countries, it legitimately takes the second place among our apprehensions (Atkinson and Cazes, 1990).

The aim of this article is to examine both the diffusion and intensity of poverty in Italy by utilising two kinds of approach. The first is the usual one, which employs a threshold defined in terms of income in order to identify the poor families. The second, referring to the definition of functioning introduced by Sen (1985), identifies the poor families on the basis of living conditions¹. The use of this specific approach allows us to identify new aspects of the phenomenon that the income approach overcame.

The article is organised as follows. In the second paragraph we briefly examine the problems connected with the definition and measurement of poverty. The following paragraph deals in details with the measurement of poverty according to living conditions, while in the fourth paragraph the used database is described. In the fifth paragraph we compare the results arising from both the income and the living conditions approach, while in the last paragraph some concluding remarks are proposed.

¹ While many researches have dealt with the first approach, we are aware of only two other papers concerning Italy that use the living conditions approach (see Betti and Cheli, 2004; Lemmi *et al.*, 2004).

2. BACKGROUND AND MOTIVATIONS

Measuring poverty means to define statistically the population of poor people and the intensity of their poverty. However poverty can't be defined in a unique way, even if the aim is merely descriptive. Therefore, the choice of the characteristics which allow to detect poverty and, consequently, the specification of its statistical domain have been (and still are) a highly debated and controversial issue (Sen, 1981). Inevitably, some conceptual ambiguities influence the measurement process which is necessary to assess the relevance of the phenomenon.

According to the most widespread interpretation, poverty is essentially synonymous with relative privation. Reasonably, this interpretation is connected to the historical background of western capitalistic countries, where the word poverty tends to substitute the word inequality. We must trace the idea of relative poverty back to the expectations of economic growth prevailing in western countries in the fifties and sixties, when it seemed to be taken for granted that, after having defeated poverty in terms of absolute privation, it was necessary to concentrate only on relative poverty. On the contrary, as in the last few years the economic growth has been very weak, beside the traditional concept of relative poverty it is necessary a definition taking into account the level of absolute privation. It is frequently thought that the monetary measurement as well, when expressed in relative terms by referring to the average national income (such as the poverty lines computed by the National Institute of Statistics (ISTAT) in the framework of the International Standard of Poverty Line), is too perfunctory to understand the characters that mark poverty in modern economies. Concerning Italy we must also point out that the measurements of poverty by ISTAT, besides showing the limits of the income approach, which we will discuss, don't allow to analyse the people's living conditions on such a thin territorial scale as a single town².

Relative poverty measures imply that the poverty threshold solely depends on the statistical characteristics of the distribution of the variable employed to represent household economic resources (disposable income) or welfare (consumption expenditures), and the choice is influenced by two distinct conceptions (Atkinson, 1985). The first is based on the level of welfare and leads to the analysis of the total expenditures for consumption (as well as the expenditures for consumption of special goods as food). This approach is extremely reasonable if the apprehension for poverty is the result of the consideration for other people. The second conception connects poverty with the right to have a minimum degree of resources. In this case, households are considered citizens with the right to have and make use of a minimum income³ considered a basic requirement to be part

² In Italy, official statistics have traditionally paid little attention to social exclusion and poverty. Apart the 1951-52 survey by the Parliament Inquiry Commission, the statistical information employed in the official surveys on poverty has been obtained from surveys with different purposes, e.g. the ISTAT Survey on Families Consumption and the Bank of Italy Survey on Households Income and Wealth.

³ This is for example the French *Revenu Minimum d'Insertion*. In our country, the Legislative De-

of a certain society. A parallel antinomy can be found in the choice of the interventions to face poverty, where financial aids is opposed to material aids (ISAE, 2000).

In the relative income approach the poverty line is defined as half the mean (median) of the indicating variable for a reference household. Afterwards, poverty lines for the various household types are computed by employing conversion coefficients, the so-called equivalence scales⁴, determined by measuring the relative levels of income (or spending) required by households of different composition to attain given levels of utility. This procedure allows to perform welfare comparisons⁵. Hence, relative poverty measures aim is not to identify a population by means of life style, but to investigate the shape of the distribution of the selected variable in connection with its smaller values (Ringen, 1988). Furthermore, the choice of the poverty threshold is certainly arbitrary: those who are classified as poor don't necessarily live in need and out of society, but they just have a low rank in the distribution of the variable considered. As a consequence, to discuss relative poverty measures which are based on family income or consumption expenditures is difficult⁶. For instance, when the average income decreases significantly (extensive crises, wars, famines), the number of the poor can vary even if the objective conditions of those who lie in the lower tail of the distribution have changed, except for what concerns their distance from the rest of the population. In this light, an indicator which properly takes into account changes in absolute privation has to be based on the concept of absolute poverty⁷.

cree n. 237 (18 June 1998) has started the experimental phase regarding the adoption of the Minimum Insertion Income as a specific and calibrated instrument to fight exclusion and privation (Turcio, 2000).

⁴ The poverty measurement with respect to the different household types in terms of the number and age of the family members depends on the choice of the equivalence scale: such a choice has strong consequences on what kind of policy should be adopted in order to fight poverty diffusion and degree. For an examination of the results that can be obtained by employing different equivalence scales, see for the Italian case De Santis (1997) and Bottiroli Civardi and Chiappero Martinetti (1999).

⁵ Pollak and Wales (1979) have shown that the examination of the consumption choices on cross-sectional data doesn't allow to compare the utility levels of families with different sizes and age structures. This comparison can only be performed if the analyst forms an identifying set of hypotheses that allows to connect the utility obtained by the reference family type with the utility obtained by families with different structures. Such hypotheses can't be empirically verified, hence representing a normative postulate.

⁶ On the use of income or consumption as a reference variable in the evaluation of poverty conditions, an extensive debate has risen in the literature. We must point out that the consumption expenditures (on which the analyses made by ISTAT and by Commission for the Study of Poverty of the Presidency of the Council are based) reflect both possible consumption levels and individual preferences on the income allocation among consumption and savings. If the individuals belonging to a specific age group have a relatively low consumption propensity, it follows that the use of consumption leads to overestimating poverty diffusion among such a group. For an examination of the various poverty profiles that arise from the utilisation of consumption or income, see for the Italian case Cannari and Franco (1997).

⁷ An attempt to compute absolute poverty lines for 1999 in Italy has been carried out by the researchers of the ISAE (2000).

The conceptual limits related to the use of income indicators and the adoption of a relative definition of poverty⁸ have favoured the development and the spread of new approaches to poverty definition and measurement: the subjective approach and the living conditions approach. Moreover, both conceptions can be declined by adopting an absolute or a relative definition of poverty. The subjective approach leads to a definition of the poverty line based on the opinions of interviewees (with different income levels) and on the relations between their subjective opinions and their welfare. Several versions of this approach have been drawn; the most consolidated are the Leida poverty line (van Praag *et al.*, 1982) and the subjective poverty line by Kapteyn *et al.* (1985). The subjective approach, founded on tastes and individual utilities, shows some irreparable *aporia* (Sen, 1985). In brief, people can get used to their poverty by changing their own expectations and perceptions, following a behaviour which marketing researchers know as reduction of cognitive dissonance (Festinger, 1957). There are several answers to this problem. By assuming that individuals are responsible for their own preferences, Rawls (1971) claims that it is sufficient to ensure that each individual gets a minimum set of resources⁹. On the contrary, Sen asserts that the individual responsibility depends on the degree of choice and control practised by the individual.

The measurement approach which considers poverty as privation in living conditions derives from the researches of Townsend (1993), who has introduced the concept of participation. This notion is connected to the idea of social exclusion, which is originating great interest within the European Union. In this approach the poors are the households who undergo the most difficult living conditions and aren't able to take part into social activities. In this light, poverty is seen as a generalised and multidimensional state of privation. This approach has become popular in the late seventies (Townsend, 1979) and, more recently, has been used in several european countries¹⁰. In these researches, on the basis of the data collected with *ad hoc* surveys, deprivation scores are computed through the (simple or weighted)¹¹ aggregation of the factors which show lacks or weaknesses in the family living conditions: from housing to food, from clothing to holidays, from social relations to health, from working conditions to security. The living

⁸ It can't be ignored that, even if the analysis is based on income as poverty indicator, two further conceptual and operational problems must be solved; or rather, which notion of income should be employed and which time horizon should be chosen in order to distinguish transitory poverty from structural poverty. For a discussion of these two topics see Houriez and Olier (1997) and Atkinson (1985) respectively.

⁹ It should be emphasized that from the principles stated by Rawls, the proposal of a radical reform of the Welfare State introduced by Atkinson (1995) followed.

¹⁰ See particularly the works of Dickes (1992); Hallerod (1995); Nolan and Whelan (1996); Lollivier and Verger (1997). For a discussion of the multidimensional approach to poverty measurement and to the analysis of poverty in developing countries see Ward (1999).

¹¹ The computation of the family privation scores as unweighted sum of the items which describe a privation has been adopted by Mack and Lansley (1985), by Nolan and Whelan (1996) and by Lollivier and Verger (1997), whereas weighted privation indexes have been proposed by Desai and Shah (1988) and by Muffels (1993).

conditions approach to poverty measurement can be related to the conceptualisation of poverty proposed by Sen (1985), who calls realisations the various activities and/or goods one uses to lead a satisfactory life. The basic abilities of one individual reflect the various combinations of the realisations that an individual can achieve, among which he/she can freely choose. In Sen's opinion, the personal ability to benefit from certain goods allows the individual to choose and act in order to improve his/her own status. Such an approach to absolute privation permits to interpret poverty as a situation where the empowerment on the resources falls (or remains) under a certain threshold.

Sen therefore looks at poverty as the failure of the basic ability to reach minimum acceptable standards. The privation indicators in living conditions can be considered direct though rudimentary measures of either the success or the failure in reaching particular concrete aspects in the whole of the operations considered. Similar arguments are supported by Fleurbaey (1995) who defines poverty as the necessary *quantum* (in terms of income, consumption or living conditions) allowing to lead a decent life in a historically determined society: also this definition refers to the idea of integration or social exclusion.

In our opinion these suggestions can be successfully, although not completely, followed either in the framework of the living conditions or the existence situation approach to poverty¹². We therefore consider relevant to focus on an actual application of poverty measurement methods which are different from the monetary measurement ones. In fact, though this last aspect is not irrelevant, the associated methodological options are well-established, and its heuristic capacities as well as its conceptual and operative limits are well known. Therefore it is convenient to reintroduce a notion of absolute poverty in the form of a minimum comfort in the everyday life in a broad sense, and not solely on food and housing requirements as in previous studies.

3. A RESEARCH PATH

The concept of poverty can't be stated in a unique way even though a merely descriptive purpose is chosen. Some ambiguities are inevitably transferred also to the measurement process necessary to express both the dimensions and certain aspects of the phenomenon.

The alternative is a pragmatic approach which aims at enlarging the basis of the knowledge of a phenomenon which presents itself under various aspects. In this section we will briefly examine the living conditions approach in describing poverty. This choice is not due to a low consideration of the income and subjective approaches, but due to our belief that this is the most appropriate way to better understand the worrying phenomenon of mounting poverty in middle-income and high-income areas.

¹² The works of Nolan and Whelan (1996) and Schokkaert and van Ootegem (1990) represent interesting attempts to make Sen's approach operational.

To identify poverty on the basis of the living conditions is a fascinating idea, but its actual implementation is difficult. It is known that the first studies dealt with the lack of food or proper housing. Nowadays we can't limit our observation to these aspects and, in order to define a minimum standard of living conditions, other phenomena must be taken into account. One of the main difficulties is to select the various aspects of everyday life and avoid reflecting the researcher's own preconceived ideas¹³. Moreover, one must specify which characteristics of the family and of every single member must be taken into account in order to be able to determine which demographic and social variables can be considered antecedent or at least concomitant with a condition of widespread privation and therefore allow a rather accurate description of the different forms of poverty. With regard to the selection of indicators Townsend and Dickes (1994) have suggested some rules in order to reduce the degree of subjectivity implied in such a choice. Poverty is considered as a latent *continuum*; the variable itself is not directly observable but it is revealed by a variety of indicators of harsh living conditions. These indicators:

- are referred to the family situation;
- are defined on the basis of elementary items which represent either conditions or behaviours;
- are observed while being gathered or they have recently become visible;
- are referred to a wide range of living conditions valid for all families;
- show a lack of material and social welfare, which is considered a disadvantage by the majority.

Therefore, poverty gets worse for families or singles as unfavourable living conditions accumulate. Starting from these considerations, a method of observation is worked out and it can be summarised as follows:

- the relevant statistical unit is the household (even one-member);
- only the characteristics and actions which directly involve the members of the family are considered indicators of prospective privation, and not the characteristics of more distant environments;
- subjective dimensions, that is perceptions and attitudes, are not examined;
- attention is paid to the present condition only, ignoring past and future conditions;
- the phenomena must be of a general kind. Consequently, widespread conditions which don't affect all families (working conditions, assistance and education of children) are excluded from observation.

The last point is actually controversial. While on one side it can remove distortions in favour of few population categories, on the other side it excludes important phenomena such as harsh working conditions or difficulties in financing the children's education. It is therefore advisable to be prudent in making use of this principle. In order to include an item in the observation field and therefore consider it as indicative of a privation situation, the following conditions must be met (Dickes, 1992):

¹³ For a survey on the indicators employed in the living conditions approach to poverty analysis see Whelan (1993) and Nolan and Whelan (1996).

- a) the item must concern the majority of the population (frequency control);
- b) it must be considered unfavourable by the vast majority of the population (consent control).

One example of how these criteria have been applied is in Nolan and Whelan (1996) research (the reference country is Ireland).

Items considered necessary by 90% of interviewees:

- a home free of humidity, equipped with heating, toilet inside;
- bath or shower, possession of a winter coat, possession of a fridge.

Items considered necessary by a percentage of interviewees between 80 and 90:

- possession of two pairs of shoes in good conditions;
- to be able to save up and to eat meat, chicken or fish at least every other day;
- possession of a washing machine.

Items considered necessary by a percentage of interviewees between 60 and 80:

- to be able to buy new clothes (not in the sales);
- to afford a hobby;
- to afford roast meat at least once a week;
- to be able to give presents to relatives or friends at least once a year.

However, each of these choices can be exposed to criticism, because they all reflect the opinions of researchers and survey planners. A particularly interesting question concerns the variables related to the accessibility to public utilities. According to some authors, distance offers more advantages than disadvantages when adequate vehicles of transport are available. In conclusion, empirical researches have shown great space-time variability in the items considered necessary by the majority of the population. For example, Dickes reports that taking at least a weekly holiday per year is considered necessary by 77% of the inhabitants of Luxembourg but only by 47% of the inhabitants of Denmark. This feature should not be judged particularly negative because it simply indicates that living conditions must be considered from both time and space points of view. Taking up Fleurbaey's conception, the score which represents the privation level and identifies the poor is a real minimum level, not a statistical threshold determined in an arbitrary way, but its social nature makes it a notion which must be considered in its cultural and social environment.

We have to point out that those authors who have investigated poverty from the point of view of the existence situation have made different choices with regard to the different aspects of poverty of a family. There is a clear distinction between authors such as Mack and Lansley (1985), Hallerod (1995), Nolan and Whelan (1996), Lollivier and Verger (1997) who have referred only to the degree of merely material privation and authors such as Townsend (1979), Gailly and Hausman (1984), Muffels (1993), Böhnke and Delhey (1999), Klasen (2000) who

have considered not only material aspects such as health conditions and the social aid the community is able to offer to the family. The rational support to the first guideline lies in the belief that the privation condition can be considered as a poverty indicator only if involuntary abstention (from consumption, endowments or behaviour) follows, due to lack of economic resources. In particular Mack and Lansley (1985) and Nolan and Whelan (1996) assert that the identification of the poor should be carried out by employing both the criteria of lack of material goods (i.e. consumption of durable and non durable goods) and the lack of income. Lollivier and Verger (1997) point out that health conditions and social relations should be considered not only achievements comparable to consumption activities, but also resources at each family disposal similar to income and wealth; moreover, they stress how difficult it is, from a logical point of view, to aggregate in the total score heterogeneous elements which are not mutually correlated. The authors who support the second guideline, on the contrary, maintain that privation and poverty are multidimensional and can't be measured only by consumption activities. On the other hand, the non-material conditions depend partially on the agent's behaviour and therefore can be partly considered as achievements. Particularly in an explorative study, it seems to be risky to exclude them in advance from the observation.

4. THE EUROPEAN COMMUNITY HOUSEHOLD PANEL

The European Community Household Panel was created by EUROSTAT in order to monitor the social consequences of the Maastricht Treaty in European countries and its aim is to analyse the dynamics of employment and income in the European Union. This panel refers to all families living in private homes and to their members. The reference family consists either of one single person or a group of people living together. From October 1994, information has been collected yearly on both the objective characteristics of the interviewee's situation (kind of job, economic resources, living conditions in the family) and the subjective aspects like the degree of satisfaction in relation to certain aspects of life. The sampled families in Italy are about 8,000.

While making a panel survey appropriate rules must be drawn up and followed for the whole period of the survey. The rules for the European Community Household Panel require that all members of the family sample should be contacted and interviewed again, in case they neither have joined any institutions nor have emigrated to a non-European country. Also children born or adopted after the first survey are granted the status of member of the family. Moreover, individuals which live within those families with at least one member belonging to the initial sample are considered as well.

The survey is made by using three different forms: the family record, the family questionnaire and the individual questionnaire. The family record allows to follow the family through the various interviews and provides basic demographic information. The family questionnaire provides information on the elements the

family members have in common (housing, durable goods, property and family income). All interviewees over 17 years are also requested to answer an individual questionnaire which includes information on occupation and education, in addition to an inventory of the monthly activities. Information are also asked about health and possible disabilities, and about participation in social life. For each of these aspects interviewees are also requested to express their level of satisfaction. Earners are requested to give detailed information about income both from employment and from money transfers. Notwithstanding its large amount of information, the source shows some limitations due to the observational extent and the wide range of situations found in Europe. Some aspects, such as the indicators of participation in social life and the information on durable goods, are highly synthetic.

5. DIFFUSION OF POVERTY IN ITALY ACCORDING TO LIVING CONDITIONS

The analyses refer to the results of the second wave of the European Community Household Panel, which was delivered in 1995. The questionnaire used in the survey allows to make the concept of poverty operational both in terms of privation and lack of money. From the privation indicators have been excluded all indicators concerning income and also those which report poor health conditions and social isolation: in accordance with Lollivier and Verger and Nolan and Whelan's guidelines, we concentrated on the indicators concerning privation in material life excluding those which reflect personal judgements on economic condition and standard of life. Also the indicators on working conditions have been excluded. In selecting indicators we have been driven by the available information; with regard to this, it is appropriate to recall that we haven't considered the lack of certain durable goods (mobile phone, personal computer, video-recorder, micro-wave oven, dishwasher) as indicator of poverty. Privation is considered involuntary privation, thus minimising the risk of taking into account one's own choice and personal tastes, even though this doesn't exclude that some answers may have been influenced by the mechanism of reduction in cognitive dissonance.

We must point out that the data collected in the European Community Household Panel don't allow consent controls as mentioned before. However, they allow to evaluate the frequency of the diffusion among the population (frequency control) (see table 1). It is clear that the aspects of material life are represented by the indicators examined by the panel with different detail. The housing conditions and possession of durable goods (which reflect the family property and past history) are assessed through a number of indicators, while other aspects are represented by one indicator. We can't fail to observe that several indicators which are based on the perception of lack in the interviewee can't be considered objective (for example the question concerning noises from the neighbourhood is affected by the different attitude of the interviewed people towards this phenomenon).

TABLE 1

Variables used to calculate the score of poverty in living conditions and their diffusion among the population (1995)

| Items showing living conditions | % |
|---|------|
| <i>The family can't afford</i> | |
| 1 - Proper heating | 16.7 |
| 2 - 7 days holiday a year | 40.2 |
| 3 - Purchase of new furniture | 65.6 |
| 4 - Purchase of new clothes | 15.2 |
| 5 - A meat or fish meal every two days | 6.9 |
| 6 - Inviting friends to lunch or dinner at least once a month | 20.3 |
| <i>The house doesn't have the following conveniences</i> | |
| 7 - A separate kitchen | 11.6 |
| 8 - A bath or a shower | 1.7 |
| 9 - A toilet inside the house | 1.1 |
| 10 - Hot running water | 2.5 |
| 11 - Central heating | 18.6 |
| 12 - Terrace, balcony or garden | 11.6 |
| <i>The house has the following inconveniences</i> | |
| 13 - Insufficient space | 19.5 |
| 14 - Noises from neighbourhood or outside | 26.4 |
| 15 - Poor lighting | 10.1 |
| 16 - Shortage of proper heating | 17.7 |
| 17 - Seepage from ceiling | 6.2 |
| 18 - Stains of damp on walls or floors | 5.4 |
| 19 - Decaying door or window frames or floors | 8.0 |
| 20 - Pollution or other environmental problems | 23.6 |
| 21 - Acts of vandalism or crimes in the area | 17.6 |
| <i>The family doesn't possess or can't afford</i> | |
| 22 - A car | 3.8 |
| 23 - A colour tv | 1.9 |
| 24 - A telephone | 3.4 |

Considering Nolan and Whelan's analysis, the items address three latent dimensions of poverty in terms of living conditions, i.e. basic poverty (items 1, 4-5), poor housing conditions (items 7-21) and secondary poverty (items 2, 3, 6, 22-24).

Another important problem concerns the method used to aggregate each privation regarding every family, or alternatively, to weight the privations following some rules or to make unweighted aggregation. As already said, the first approach was adopted by Hallerod (1995) who uses the percentage of families who consider a single item necessary as a weighting factor, by Muffels (1993) who uses the frequency of possession/non possession of the items and puts it in relation with a subjective evaluation of the economic situation of a family in comparison with the reference social group, and finally by Desai and Shah (1986) who make use of a method similar to Muffels's.

The data collected in the European Community Household Panel don't enable us to adopt weighting systems based on the importance given by each family to each privation and, on the other hand, the sample size advises us against referring to the frequency of privations in each social group. As a consequence we made use of an indicator of privations in living conditions consisting of the unweighted sum of the deficiencies observed in each family (CDV score). This solution, adopted by Lollivier and Verger, is robust and allows to calculate a compensatory type measure, while minimising the prescriptive aspect implied in the selection of

items made by the researcher. Moreover, though each item considered in itself gives quite a weak signal of harsh living conditions, we claim that the presence of many items is a strong signal of increasingly poor conditions. The distribution of families according to the CDV score is shown in table 2.

TABLE 2
Distribution of families according to the score of poverty in living conditions (1995)

| CDV Score | % | Cumulated % |
|-------------|------|-------------|
| 18 and more | 0.1 | 0.1 |
| 17 | 0.1 | 0.2 |
| 16 | 0.2 | 0.4 |
| 15 | 0.2 | 0.6 |
| 14 | 0.6 | 1.2 |
| 13 | 0.7 | 1.9 |
| 12 | 1.1 | 3.0 |
| 11 | 1.4 | 4.4 |
| 10 | 1.9 | 6.3 |
| 9 | 2.6 | 8.9 |
| 8 | 3.3 | 12.2 |
| 7 | 5.0 | 17.2 |
| 6 | 6.0 | 23.2 |
| 5 | 7.9 | 31.1 |
| 4 | 9.9 | 41.0 |
| 3 | 12.0 | 53.0 |
| 2 | 16.0 | 69.0 |
| 1 | 16.5 | 85.5 |
| 0 | 14.5 | 100.0 |

We observe that the median lies on value 3 and the ninth decile lies on value 8. Moreover we notice that the distribution follows a regular pattern, hence a threshold value is not immediately identifiable.

As the main purpose of our research is to make a comparative analysis of the social and economic characteristics of the families who turn out to be poor according to the living condition approach and the income approach, we have assumed a relative definitions fixing a score which considers a percentage of poor families close to the percentage resulting from the adoption of the income approach. If we consider as poverty threshold a score equal or greater than 8, in the examined year the percentage diffusion of poverty in living conditions is 12.2%¹⁴.

According to such indicator of privation in living conditions it is possible to identify poor families. In table 3 the rates of diffusion of poverty (head-count ratios) are reported across the classification of families suggested by EUROSTAT.

¹⁴ Such a percentage is substantially similar to the percentage given for the income poverty and slightly lower than the rates worked out in other researches referring to the Italian situation in the early nineties (see, for instance, Dagum and Costa, 2003).

TABLE 3
Diffusion of poverty according to living conditions for family types (1995)

| Family type | Number of families | % of poor families |
|---|--------------------|--------------------|
| Single over 65 | 578 | 23.5 |
| Single under 65 | 483 | 12.4 |
| Single parent with one or more children, all under 16 | 57 | 12.3 |
| Single parent with one or more children, at least one over 16 | 454 | 14.3 |
| Couple with no children, at least one member over 65 | 578 | 13.3 |
| Couple with no children, both members under 65 | 620 | 7.4 |
| Couple with one child under 16 | 662 | 9.4 |
| Couple with two children, both under 16 | 609 | 7.9 |
| Couple with three or more children, all under 16 | 150 | 21.3 |
| Couple with one or more children, at least one over 16 | 2,405 | 10.4 |
| Other | 532 | 16.0 |
| Total | 7,128 | 12.2 |

Three main points stem from this analysis:

- a) the diffusion of poverty is high in all types of families;
- b) families consisting of one elderly person and families with three children and more show the highest diffusion of poverty;
- c) the presence of three or more children or the presence of children in families different from full nesters is associated to - or perhaps is the cause of - a high increase in the diffusion of poverty in comparison with families consisting of a couple with one or two children.

A simultaneous analysis of the variables associated with the condition of poverty according to living conditions has been carried out (see Appendix, table 1A) by means of the logistic discriminant analysis performed by the stepwise forward method¹⁵. The results are encouraging because 89% of the considered units prove to be correctly classified.

In this model the financial situation of the family is represented by several indicators (the household equivalent income; the satisfaction with regard to the financial situation; whether the reference individual has got a job; kind of job; capital gains; renting/property of the house; type of house; level of education; professional position; job seeking). The overall situation of the family in comparison with the job market is also important: the probability of being in poor living conditions is higher for people living alone and for families where the housewife is jobless (if in working age) or she has never worked (if older).

Obviously not only economic situation affects the state of poverty in living conditions. Also social burden, state of health and social position do not play a minor part. With regard to social relations, concomitance with a state of privation can be considered either an effect or a cause of the state of poverty. In this regard, we point out that the living conditions approach shows some aspects which are not strictly material and are associated with poor living conditions from the point of view of consumption activities and economic resources.

Health indicators (being hindered by poor health and awareness of own state of health) show the inability of an individual to earn his/her living and at the

¹⁵ For a description of the applicability conditions of the logistic discriminant analysis see Anderson (1982).

same time they highlight that some families have more needs than others to achieve a satisfactory health condition. Therefore the state of health is relevant from two points of view: it reduces the potential income of the family and, at the same time, it increases the need for care and attention. The state of health is unequivocally associated to privations in living conditions, but the causal connection between these two phenomena can't be easily generalized; in other words, if the family is needy as a consequence of poor health conditions or viceversa.

The social burden that a family has to bear is represented in the model by several indicators, such as the number of children or teenagers in the family (positively related to the probability of experiencing privations) and the fact that the reference individual has to provide care and assistance for the other family members.

The type of family is also represented by several indicators, some of which are connected to the financial situation, i.e. the age of the reference individual and the number of adults in the family, which identify the standard of life of the family. Poor living conditions are especially connected to old age and a small number of adults in the family.

Individual attitudes are not observable. In our model, they are expressed by two variables which mainly reflect the career of the reference individual: the age when he/she started working and whether he/she was jobless in the last five years. Particularly, those who started working before 18 or after 24 years of age have a higher probability of living in poor conditions.

Finally, satisfaction for the family situation is an effective predictor of living conditions.

To sum up briefly, poor living conditions are connected to the financial situation through a variety of channels. With regard to the working position there are problems in finding jobs, and with regard to redistribution of income mainly people who live alone have economic problems. However, privation in living conditions is caused by the balance between the family income and its needs. From this point of view the living conditions approach shows the importance of dependency burden, state of health and social relations, identifying a wide range of aspects which can be considered either direct causes or contributory causes of the state of poverty. This has relevant implications from the economic and social politics point of view, which we will take up in the concluding paragraph.

As emphasised by Nolan and Whelan (1996), little attention has been paid in the literature to the relations among the indicators which are currently used to characterise a state of privation. In order to detect the existence of different dimensions of the privation state a factor analysis has been performed on the 24 indicators used to compute living conditions poverty scores; we have imputed the privations declared by interviewees to lacking resources. Factor analysis allows the identification of the most interrelated sets of variables. Each factor (or dimension) is represented by the items which are most correlated with each other and slightly correlated with the remaining items. The intensity of the link between a single item and one factor is the factor loading. As the items used to indicate variables are expressed on (or transformed into) a dichotomic scale, correlation has been measured by means of the polychoric correlation (Drasgow, 1982).

TABLE 4
Factor scores of the privation items (1995)

| Items | F1 | F2 | F3 | F4 | F5 | F6 |
|--|------|-------|------|-------|------|-------|
| HF003 - Can the household afford keeping its home adequately warm? | 0.75 | 0.19 | 0.20 | 0.03 | 0.14 | 0.42 |
| HF004 - Can the household afford paying for holiday? | 0.78 | 0.08 | 0.15 | 0.08 | 0.26 | 0.25 |
| HF005 - Can the household afford replacing worn-out furniture? | 0.88 | -0.08 | 0.12 | 0.13 | 0.25 | 0.17 |
| HF006 - Can the household afford buying new, rather than second-hand, clothes? | 0.81 | 0.23 | 0.08 | 0.11 | 0.09 | -0.04 |
| HF007 - Can the household afford eating meat or the like every second day? | 0.75 | 0.24 | 0.05 | 0.06 | 0.11 | 0.00 |
| HF008 - Can the household afford having friends or family for drink/dinner? | 0.84 | 0.18 | 0.08 | 0.13 | 0.19 | -0.01 |
| HA008 - Does the dwelling have separate kitchen? | 0.10 | 0.36 | 0.00 | 0.07 | 0.00 | 0.02 |
| HA009 - Does the dwelling have bath or shower? | 0.18 | 0.90 | 0.22 | 0.08 | 0.20 | 0.06 |
| HA010 - Does the dwelling have indoor flushing toilet? | 0.04 | 0.82 | 0.25 | 0.00 | 0.08 | 0.20 |
| HA011 - Does the dwelling have running water? | 0.15 | 0.79 | 0.22 | -0.07 | 0.27 | 0.07 |
| HA013 - Does the dwelling have a place to sit outside? | 0.15 | 0.52 | 0.08 | 0.16 | 0.16 | 0.20 |
| HA016 - Is the accommodation too dark/not enough light? | 0.11 | 0.34 | 0.24 | 0.38 | 0.16 | 0.20 |
| HA018 - Does the accommodation have leaky roof? | 0.16 | 0.21 | 0.77 | 0.18 | 0.07 | 0.12 |
| HA019 - Does the accommodation have damp walls, floors etc.? | 0.11 | 0.15 | 0.75 | 0.24 | 0.17 | 0.12 |
| HA020 - Does the accommodation have rot in window frames or floors? | 0.17 | 0.40 | 0.62 | 0.26 | 0.15 | 0.11 |
| HA014 - Does the accommodation have shortage of space? | 0.16 | 0.26 | 0.24 | 0.30 | 0.10 | 0.24 |
| HA015 - Does the accommodation have noise from neighbours or outside? | 0.06 | 0.03 | 0.08 | 0.73 | 0.01 | 0.08 |
| HA021 - Is there any pollution caused by traffic or industry? | 0.05 | 0.10 | 0.12 | 0.74 | 0.09 | -0.08 |
| HA022 - Is there crime or vandalism in the area? | 0.11 | -0.01 | 0.15 | 0.51 | 0.04 | 0.03 |
| HB001 - Possession of a car | 0.25 | 0.16 | 0.09 | 0.12 | 0.47 | 0.08 |
| HB002 - Possession of a colour TV | 0.25 | 0.17 | 0.15 | 0.01 | 0.81 | 0.03 |
| HB006 - Possession of a telephone | 0.23 | 0.18 | 0.09 | 0.11 | 0.54 | 0.20 |
| HA012 - Does the dwelling have heating or electric storage heaters? | 0.21 | 0.52 | 0.14 | -0.03 | 0.23 | 0.60 |
| HA017 - Does the accommodation have lack of adequate heating facilities? | 0.23 | 0.37 | 0.33 | 0.13 | 0.20 | 0.72 |

The results of the analysis¹⁶ are reported in table 4. Six factors explaining 72% of the trace of the sample variance-covariance matrix have been detected¹⁷. The large number of eigenvalues to be considered (6 out of 24 items) in order to explain an high percentage of the variability is a clear evidence of the complexity of the phenomenon. This is worth even if we restrict to the aspects of living conditions poverty reflecting a state of material privation. The factors are characterised as follows:

¹⁶ In the presence of dichotomic characters, the normal distribution hypothesis can't be sustained. Hence, factors have been extracted by means of the so-called principal factors method.

¹⁷ The extraction of the factors has been concluded by an oblique rotation with the Oblimin algorithm in order to detect the presence of correlation among the dimensions, but the correlations obtained are poor. Therefore an orthogonal Varimax rotation has been implemented to simplify the interpretation of the solution.

TABLE 5

Average scores of the items which indicate the factors on the basis of the CDV score (1995)

| CDV Score | F1 | F2 | F3 | F4 | F5 | F6 |
|-----------|------|------|------|------|------|------|
| 8 | 3.48 | 0.95 | 0.56 | 1.62 | 0.23 | 1.18 |
| 9 | 3.75 | 1.00 | 0.83 | 1.85 | 0.22 | 1.38 |
| 10 | 4.15 | 1.27 | 0.88 | 1.87 | 0.35 | 1.55 |
| 11 | 4.27 | 1.43 | 1.09 | 2.26 | 0.42 | 1.56 |
| 12 | 4.51 | 1.68 | 1.33 | 2.39 | 0.40 | 1.74 |
| 13 | 4.70 | 2.10 | 1.57 | 2.45 | 0.47 | 1.73 |
| 14 | 4.52 | 2.60 | 1.89 | 2.60 | 0.67 | 1.76 |
| 15 | 5.18 | 2.56 | 1.76 | 2.59 | 1.00 | 1.94 |
| 16 | 5.27 | 3.33 | 1.78 | 2.50 | 1.33 | 1.78 |
| 17 | 5.33 | 3.91 | 2.25 | 3.25 | 0.33 | 1.92 |
| 18 | 5.25 | 4.75 | 2.50 | 3.25 | 0.25 | 2.00 |
| 19 | 6.00 | 4.67 | 2.67 | 2.33 | 1.33 | 2.00 |
| 20 | 5.50 | 5.50 | 2.50 | 2.50 | 2.00 | 2.00 |
| 21 | 5.80 | 4.80 | 2.60 | 4.00 | 1.80 | 2.00 |

- 1) the first factor denotes the basic poverty, which depends on lack of income preventing the elementary functioning;
- 2) the second factor is connected to the quality of the available conveniences (running water, bathroom inside the house, etc.);
- 3) the third factor denotes the state of the house maintenance (seepage from the roof, damp, decaying door and window frames, etc.);
- 4) the fourth factor shows house location (low quality environment, unpleasant noises, pollution, acts of vandalism and unsafeness);
- 5) the fifth factor is linked to the most widespread durable goods privation, *i.e.* it expresses secondary poverty;
- 6) finally, the sixth factor is related to the privation caused by insufficient heating (utilisation of electric heaters, lack of central heating); note that the lack of proper heating, when included in the first factor, has a high weight on this last factor too.

It is important to point out that high scores on the first factor (basic poverty, whose maximum value is six) and on the sixth factor (insufficient heating, whose maximum value is two) are combined with rather high CDV scores: this fact can be inferred from table 5, where the total CDV score is decomposed into the six previously detected factors. From table 5 it can also be understood how the (relative) house quality (expressed by the second and the third factors) increases (but not proportionally) the CDV score, while the fifth factor (which is detected by three items) is characterised by fairly low scores (in most cases below one third of its maximum value).

6. INCOME POVERTY

As we have previously shown, the income approach to the analysis of poverty requires to establish both an equivalence scale and the statistical index which is used to define the poverty line. It is to be stressed that these choices are necessarily conventional. We have here adopted the modified OECD scale, which assigns a unit weight to the first adult of the household, 0.5 to each further adult and 0.3

to each member under 16 years. This particular choice of the equivalence scale satisfies two requirements: firstly, it is generally employed in developed countries; secondly, coefficients are constant across sex and age, with the sole distinction between members under 16 and the others. In our opinion, this is an important merit: more articulated scales, which take the various demographic attributes too deeply into account, excessively depend on the estimation sample. Moreover, the sample size used to estimate such scales (which can be interpreted within a strictly microeconomic framework) is often too small to guarantee a proper representation of all the family types which are identified by the scale¹⁸. Once the family income is expressed in terms of equivalent units, the poverty line is set to half the median of the distribution of the equivalent family income (the median is chosen because it is less influenced by extreme values than the arithmetic mean). The poverty line is 7,222 thousand current liras in 1995. Since not all the families who formed the panel answered the question, the actual sample size is 6,978 families and the diffusion of income poverty is 12.2%. The missing answers in the question about income show that families that don't respond live in poor conditions, according to CDV score. The profile of poor families stemming from the income approach greatly differs from the profile obtained by using the living conditions approach (see jointly tables 3 and 6).

TABLE 6
Diffusion of income poverty for family types (1995)

| Family type | Number of families | % of poor families |
|--|--------------------|--------------------|
| Single over 65 | 547 | 14.4 |
| Single under 65 | 455 | 9.0 |
| Single parent with one or more children under 16 | 55 | 18.2 |
| Single parent with one or more children, at least one under 16 | 439 | 16.2 |
| Couple with no children, at least one member over 65 | 574 | 6.1 |
| Couple with no children, both under 65 | 611 | 6.5 |
| Couple with one child under 16 | 649 | 9.6 |
| Couple with two children, both under 16 | 598 | 8.7 |
| Couple with three children, all under 16 | 144 | 22.9 |
| Couple with one or more children, at least one over 16 | 2,378 | 15.1 |
| Other | 528 | 12.5 |
| Total | 6,978 | 12.2 |

To sum up, poverty among old people appears greatly reduced (it is only slightly higher than the average) and, conversely, it is extremely high for families with three or more children, one parent families with young children and families with at least one child over 16 years. Also regarding income poverty, a logistic discriminant analysis has been performed (see Appendix, table 2A) in order to detect the significantly connected variables, as for the living conditions approach. The stepwise forward method allows to classify with precision 88% of the families.

In our model, the financial condition of the family is represented by several indicators: the state of activity of the reference individual, the satisfaction for the financial situation, the main income source, the kind of working activity, the number of working hours. Only one variable enters the model to represent health

¹⁸ A comparable choice has been made by Trivellato (1998).

conditions: the fact that the everyday life of the reference individual is hindered by poor health. The demographic conditions are measured by the number of family members - the probability of being under the income poverty line, in terms of equivalent income, is higher for individuals who live alone or in large families - and the family type. Regarding income poverty, higher risks are associated with families composed by elderly individuals and with families with three or more children; lower risks are associated with not elderly individuals who live alone. Finally, individual attitudes are reflected into the variables connected with past unemployment: the first variable indicates the presence of a period of unemployment in the past, while the second variable indicates the length of past unemployment.

Synthetically, a clearer description arises with respect to the living conditions approach: the demographic condition and the labour market condition (both of the reference individual and his/her partner) are the most significant factors associated with the probability of being under the poverty line.

7. A HARD CORE OF POVERTY?

As we have previously shown, the income approach and the living conditions approach diverge in the identification of the family types which are most exposed to the risk of poverty. In Italy, results of this kind have been obtained also by Cannari and Franco (1997) and Bottiroli Civardi and Chiappero Martinetti (1999) who have performed some comparative analyses by using data from the Bank of Italy panel, in France by Lollivier and Verger (1997) on data from the European Community Household Panel, in Germany by Rendtel *et al.* (1998). With the exception of Lollivier and Verger's research, however, these studies employ the concept of income poverty, using different equivalence scales or different indicators of the family economic resources.

Briefly, the utilisation of consumption as the indicating variable of the family economic resources might show a greater spread of poverty among the families with an elderly reference individual, while the utilisation of income might show poverty diffusion among younger families, with many dependants and one earner only. Table 7 shows the diffusion of the various sorts of poverty in the observed sample (the analysis refers to the sub-sample of the families that have provided information about their income in the survey). The results of our analysis can be interpreted as follows: most of the items which have been employed to compute the CDV scores belong more to the sphere of realisations than to the sphere of resources, and therefore are closest to measures based on the family consumption rather than to those based on the disposable resources.

The correlation between CDV scores and equivalent income (-0.34) also confirms that the two measures detect distinct dimensions. However, we must point out that according to this interpretation poverty is regarded as lack of resources rather than as lack of realisations. What is interesting in this framework is the analysis of the families which are poor under both the living conditions and the

TABLE 7
Poor families on the basis of the poverty symptoms (1995)

| Number of symptoms | In sample | % |
|---|-----------|-------|
| No symptoms | 5,574 | 79.9 |
| One symptom | 1,129 | 16.1 |
| <i>Including poverty in living conditions</i> | 555 | 7.9 |
| <i>Including income poverty</i> | 574 | 8.2 |
| Two symptoms | 275 | 4.0 |
| Total | 6,978 | 100.0 |

income criteria. The resort to living conditions approach shows that deprivation and exclusion mostly affect three social and demographic groups: single elderly people, one parent families, full nesters with three or more children not in working age. From the results of our empirical analysis we can see two principal types of poverty: the first one is poverty as incapability, that is spread mainly among elderly people; the second one is poverty as disequilibrium between needs and resources, which affects mainly young families with children.

Beside, it is to be pointed out that the diffusion of poverty in a country as Italy, which is among the first countries in the world according to average *pro-capite* income, is quite high: about 18% considering the two symptoms together. The challenge the Italian society will have to meet in the next few years will be on two fronts: the first (young families with children) requires new policy instruments which should be different from those traditionally used to grant social security to the second one (elderly people).

Finally, it seems important to remark that the living conditions approach is more effective in the detection of the family state of privation than the income approach. In fact, as it has been shown by examining the logistic regression results, poor living conditions are certainly connected with income privations, and such privations are not determined in terms of an exogenous threshold - although related to the demographic composition of the family - but they are determined conditionally on the social burden of the family, especially with regard to health and number of children.

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APPENDIX

TABLE 1A

Results from the logistic regression analysis with regard to poor living conditions

| Characteristic | Coeff. | Std Err. | Wald test | df |
|---|--------|----------|-----------|------|
| <i>Working activity of the reference individual</i> | | | | |
| Employee, apprentice | ref. | ref. | ref. | ref. |
| Self-employed, coadjutor | -0.50 | 0.20 | 6.35 | 1 |
| Inactive | | | | |
| Unemployed | | | | |
| Retired | | | | |
| Housewife | | | | |
| <i>Interaction between working activity and profession of the r. i.</i> | | | | |
| Inactive and employee | 2.82 | 1.68 | 2.80 | 1 |
| Unemployed and manager or specialist | 3.39 | 1.67 | 4.14 | 1 |
| <i>Annual household equivalent income</i> | | | | |
| Until 6.499 million liras | 1.12 | 0.27 | 17.84 | 1 |
| From 6.5 to 9.099 million liras | 1.21 | 0.26 | 21.68 | 1 |
| From 9.1 to 11.229 million liras | 0.99 | 0.26 | 14.34 | 1 |
| From 11.23 to 13.599 million liras | 0.64 | 0.27 | 5.74 | 1 |
| From 13.6 to 16.399 million liras | 0.53 | 0.27 | 3.89 | 1 |
| From 16.4 to 19.899 million liras | 0.41 | 0.28 | 2.08 | 1 |
| From 19.9 to 24.799 million liras | | | | |
| Above 24.8 million liras | ref. | ref. | ref. | ref. |
| <i>Job seeking</i> | | | | |
| Empl. working > 15 hours per week looking for a new job | 0.55 | 0.17 | 9.96 | 1 |
| Empl. working > 15 hours per week not looking for a new job | ref. | ref. | ref. | ref. |
| Empl. working < 15 hours per week looking for a new job | | | | |
| Empl. working < 15 hours per week not looking for a new job | | | | |
| Unemployed looking for a job | | | | |
| Unemployed not looking for a job | | | | |
| <i>Number of children</i> | | | | |
| None | ref. | ref. | ref. | ref. |
| One | | | | |
| Two | | | | |
| Three | 0.78 | 0.28 | 7.82 | 1 |
| <i>Age at the beginning of the working period</i> | | | | |
| Never worked | 0.48 | 0.20 | 5.92 | 1 |
| Until 14 | | | | |
| From 15 to 18 | ref. | ref. | ref. | ref. |
| From 19 to 23 | | | | |
| 24 or more | 0.31 | 0.13 | 5.61 | 1 |
| <i>Age</i> | | | | |
| Until 29 | -0.42 | 0.19 | 4.88 | 1 |
| From 30 to 39 | -0.26 | 0.16 | 2.47 | 1 |
| From 40 to 49 | -0.44 | 0.15 | 8.82 | 1 |
| From 50 to 64 | ref. | ref. | ref. | ref. |
| From 65 to 74 | -0.30 | 0.20 | 2.29 | 1 |
| 75 or more | -0.43 | 0.22 | 3.84 | 1 |
| <i>Residence</i> | | | | |
| House | -0.46 | 0.13 | 12.92 | 1 |
| Small detached house | -0.72 | 0.20 | 13,30 | 1 |
| Flat in a building with less than 10 flats | ref. | ref. | ref. | ref. |
| Flat in a building with 10 flats or more | -0.31 | 0.11 | 7.28 | 1 |
| <i>Family condition</i> | | | | |
| Widower | | | | |
| Widow | | | | 1 |
| Male single | 1.16 | 0.59 | 3.87 | 1 |
| Female single | 0.83 | 0.58 | 2.04 | 1 |
| Couple with woman who does not work or has never worked | ref. | ref. | ref. | ref. |
| Couple with woman who works < 15 hours per week | | | | |
| Couple with woman who works from 16 to 39 hours per week | -0.61 | 0.19 | 10.33 | 1 |
| Couple with woman who works at least 40 hours per week | -0.58 | 0.20 | 8.08 | 1 |
| Couple with at least 1 child and families with > 2 adults | -0.23 | 0.14 | 2.61 | 1 |

| Characteristic | Coeff. | Std Err. | Wald test | df |
|---|--------|----------|-----------|------|
| <i>Health</i> | | | | |
| Very good | ref. | ref. | ref. | ref. |
| Good | | | | |
| Quite good | | | | |
| Bad | | | | |
| Very bad | 0.95 | 0.28 | 11.27 | 1 |
| <i>Number of people attending the interview</i> | | | | |
| One | | | | |
| Two | ref. | ref. | ref. | ref. |
| Three | 0.38 | 0.12 | 9.90 | 1 |
| Four | -0.08 | 0.20 | 0.17 | 1 |
| Five | | | | |
| Six or more | | | | |
| <i>Current activity</i> | | | | |
| Agriculture | 0.33 | 0.19 | 2.93 | 1 |
| Industry | | | | |
| Services | ref. | ref. | ref. | ref. |
| <i>Number of adults (over 16)</i> | | | | |
| One | -0.92 | 0.54 | 2.93 | 1 |
| Two | ref. | ref. | ref. | ref. |
| Three | | | | |
| Four | | | | |
| Five or more | 0.48 | 0.18 | 6.82 | 1 |
| <i>Level of education</i> | | | | |
| Degree or diploma | -0.76 | 0.27 | 8.11 | 1 |
| Certificate of secondary education | -0.38 | 0.13 | 8.79 | 1 |
| Less | ref. | ref. | ref. | ref. |
| <i>Taking care of other people</i> | | | | |
| Children | 0.25 | 0.12 | 4.44 | 1 |
| Adults | 0.34 | 0.20 | 2.90 | 1 |
| Both children and adults | 0.45 | 0.23 | 3.86 | 1 |
| None | ref. | ref. | ref. | ref. |
| <i>He/she has spoken with someone outside the family during the last week</i> | | | | |
| Yes | -0.48 | 0.18 | 7.51 | 1 |
| No | ref. | ref. | ref. | ref. |
| <i>Career hindered by poor health or handicap</i> | | | | |
| Seriously | 0.42 | 0.19 | 5.14 | 1 |
| Moderately | 0.35 | 0.12 | 8.46 | 1 |
| Not at all | ref. | ref. | ref. | ref. |
| <i>Satisfaction for the financial situation</i> | | | | |
| High | 0.68 | 0.10 | 44.23 | 1 |
| Medium | ref. | ref. | ref. | ref. |
| Low | | | | |
| <i>Satisfaction for the family condition</i> | | | | |
| High | ref. | ref. | ref. | ref. |
| Medium | 0.83 | 0.12 | 47.52 | 1 |
| Low | | | | |
| <i>Unemployment during the last 5 years</i> | | | | |
| Yes | 0.57 | 0.12 | 22.57 | 1 |
| No | ref. | ref. | ref. | ref. |
| <i>Capital gains</i> | | | | |
| Yes | -0.55 | 0.24 | 5.47 | 1 |
| No | ref. | ref. | ref. | ref. |
| <i>House</i> | | | | |
| Owns | ref. | ref. | ref. | ref. |
| Rents | 0.45 | 0.10 | 19.43 | 1 |
| Neither owns nor rents | 0.45 | 0.15 | 8.67 | 1 |
| <i>Income from properties or leases</i> | | | | |
| Yes | -0.80 | 0.39 | 4.09 | 1 |
| No | ref. | ref. | ref. | ref. |
| Constant | -3.33 | 0.36 | 87.30 | 1 |

TABLE 2A
Results from the logistic regression analysis with regard to income poverty

| Characteristic | Coeff. | Std Err. | Wald test | df |
|---|--------|----------|-----------|------|
| <i>Type of family</i> | | | | |
| Single over 65 | -0.75 | 0.57 | 1.73 | 1 |
| Single between 30 and 64 | | | | |
| Single under 30 | | | | |
| Single parent with at least one child over 16 | | | | |
| Couple over 65 without children | | | | |
| Couple under 65 without children | -0.62 | 0.35 | 3.12 | 1 |
| Couple with one child under 16 | | | | |
| Couple with two children under 16 | ref. | ref. | ref. | ref. |
| Couple with three or more children, all under 16 | -0.51 | 0.18 | 8.18 | 1 |
| Couple with children, at least one over 16 | | | | |
| Other | | | | 1 |
| <i>Working activity</i> | | | | |
| Employee, apprentice | ref. | ref. | ref. | ref. |
| Self-employed, coadjutor | 0.99 | 0.15 | 42.07 | 1 |
| Non-worker | 1.01 | 0.36 | 7.92 | 1 |
| Unemployed | 1.71 | 0.28 | 37.09 | 1 |
| Retired | 0.80 | 0.29 | 7.73 | 1 |
| Housewife | 1.12 | 0.38 | 8.56 | 1 |
| <i>Profession</i> | | | | |
| Inactive | -0.83 | 0.26 | 9.97 | 1 |
| Manager or specialist | -0.80 | 0.16 | 23.83 | 1 |
| Employee | -0.46 | 0.15 | 9.75 | 1 |
| Farmer, artisan, tradesman | ref. | ref. | ref. | ref. |
| Factory worker or different manual worker | 0.45 | 0.13 | 12.29 | 1 |
| <i>Satisfaction for the financial condition</i> | | | | |
| High | -0.21 | 0.15 | 2.13 | 1 |
| Medium | ref. | ref. | ref. | ref. |
| Low | 0.94 | 0.09 | 104.63 | 1 |
| <i>Main income source</i> | | | | |
| Wages | -0.23 | 0.16 | 2.04 | 1 |
| Income from self-employment | ref. | ref. | ref. | ref. |
| Pensions | 0.57 | 0.19 | 9.29 | 1 |
| Social benefits | 0.97 | 0.21 | 21.50 | 1 |
| Capital gains | 1.56 | 0.23 | 48.22 | 1 |
| <i>Family size</i> | | | | |
| One member | | | | |
| Two members | -0.70 | 0.29 | 5.71 | 1 |
| Three members | -0.78 | 0.15 | 26.12 | 1 |
| Four members | ref. | ref. | ref. | ref. |
| Five members | 0.56 | 0.15 | 14.07 | 1 |
| Six members or more | 0.91 | 0.18 | 25.60 | 1 |
| <i>Interaction between work hours per family and family condition</i> | | | | |
| Work hs. per family < 40 and couple with woman work. 16-39 | -0.34 | 0.22 | 2.50 | 1 |
| Work hs. per family > 40 and couple with woman work. 16-39 | -1.20 | 0.25 | 22.68 | 1 |
| Work hs. per family > 40 and couple with woman work. > 40 | -0.56 | 0.18 | 9.39 | 1 |
| <i>Months of unemployment before current employment</i> | | | | |
| None | ref. | ref. | ref. | ref. |
| Under 21 | 0.53 | 0.19 | 7.32 | 1 |
| 21 or more | 0.33 | 0.19 | 3.12 | 1 |
| <i>Unemployment before current employment</i> | | | | |
| Yes | -0.51 | 0.17 | 8.82 | 1 |
| No | ref. | ref. | ref. | ref. |
| <i>Career hindered by poor health or handicap</i> | | | | |
| Seriously | 0.38 | 0.15 | 6.64 | 1 |
| Moderately | 0.16 | 0.11 | 2.25 | 1 |
| Not at all | ref. | ref. | ref. | ref. |
| <i>Cohabitant</i> | | | | |
| Yes | 0.55 | 0.16 | 12.33 | 1 |
| No | ref. | ref. | ref. | ref. |
| Constant | -2.12 | 0.30 | 50.09 | 1 |

REFERENCES

- J.A. ANDERSON (1982), *Logistic discrimination*, in P.R. KRISHNAIAH, L.N. KANAL (eds.), "Handbook of Statistics", vol. 2, North Holland, Amsterdam, pp. 169-191.
- A. ATKINSON (1985), *How should we measure poverty? Some conceptual issues*, Economic and Social Research Council Programme, Discussion Paper n. 82, London.
- A. ATKINSON (1995), *Public economics in action. The basic income/flat tax proposal*, Clarendon University Press, Oxford.
- A. ATKINSON, S. CAZES (1990), *Mesures de la pauvreté et politiques sociales: une étude comparative de la France, de la RFA et du Royaume-Uni*, "Observations et diagnostics économiques", Revue de l'OFCE, n. 33, pp. 105-130.
- G. BETTI, B. CHELI (2004), *Analisi multidimensionale della povertà*, in IRPET, "Indagine sulle condizioni di vita delle famiglie toscane", Firenze.
- P. BÖHNKE, J. DELHEY (1999), *Poverty in a multidimensional perspective. Great Britain and Germany in comparison*, Forschungsschwerpunktes Sozialer Wandel, Institutionen und Vermittlungsprozesse des Wissenschaftszentrums Berlin für Sozialforschung, Berlin.
- M. BOTTIROLI CIVARDI, E. CHIAPPERO MARTINETTI (1999), *Strutture familiari e povertà: un raffronto tra metodi di analisi*, in BANCA D'ITALIA, "Ricerche quantitative per la politica economica 1997", Roma.
- L. CANNARI, D. FRANCO (1997), *La povertà tra i minorenni in Italia: dimensioni, caratteristiche, politiche*, in BANCA D'ITALIA, Temi di discussione del Servizio Studi, n. 294, Roma.
- C. DAGUM, M. COSTA (2003), *Analysis and measurement of poverty. Univariate and multivariate approaches and their policy implications. A case study: Italy*, in C. Dagum, G. Ferrari (eds.), "Household Behaviour, Equivalence Scales, Welfare and Poverty", Physica-Verlag, Heidelberg, pp. 221-271.
- F. DELBONO (1984), *Su alcune difficoltà concettuali nell'analisi della povertà*, "Rivista internazionale di scienze sociali", XCII, n. 2-3, pp. 296-314.
- M. DESAI, A. SHAH (1988), *An econometric approach to the measurement of poverty*, "Oxford Economic Papers", 40, n. 3, pp. 505-522.
- G. DE SANTIS (1997), *La misura della povertà in Italia: scale di equivalenza e aspetti demografici*, Commissione d'indagine sulla povertà e sull'emarginazione, Presidenza del Consiglio dei Ministri, Roma.
- P. DICKES (1992), *Pauvreté en termes de conditions d'existence*, Rapport de recherche menée pour le comte de la MiRE, ADEPS - Université Nancy 2 et CNRS.
- F. DRASGOW (1982), *Polychoric and polyserial correlations*, in S. KOTZ, N.L. JOHNSON (eds.), "Encyclopedia of Statistical Sciences", vol. 8, Wiley, New York, pp. 68-74.
- L. FESTINGER (1957), *A theory of cognitive dissonance*, Harper & Row, New York.
- M. FLEURBAEY (1995), *Equal opportunity or equal social outcome?*, "Economics and Philosophy", 11, n. 1, pp. 25-55.
- B. GAILLY, P. HAUSMAN (1984), *Désavantages relatifs à une mesure objective de la pauvreté*, in G. SARPELLON (ed.), "Understanding Poverty", Franco Angeli, Milano.
- B. HALLEROD (1995), *The truly poor: Direct and indirect consensual measurement of poverty in Sweden*, "Journal of European Social Policy", n. 11, pp. 25-55.
- J.M. HOURIEZ, L. OLIER (1997), *L'approche monétaire de la pauvreté: méthodologie et résultats*, "Economie et Statistique", n. 306-307-308, pp. 65-94.
- ISAE (2000), *Povertà e disagio: analisi e rimedi*, Bollettino trimestrale, n. 1, pp. 183-274.
- A. KAPTEYN, S. VAN DE GEER, H. VAN DE STADT (1985), *The impact of changes in income and family composition on subjective measures of well-being*, in M. DAVID, T. SMEEDING (eds.), "Horizontal Equity, Uncertainty and Economic Well-Being", Chicago University Press, Chicago.

- S. KLASSEN (2000), *Measuring poverty and deprivation in South Africa*, "The Review of Income and Wealth", 46, n. 1, pp. 33-58.
- A. LEMMI, N. PANNUZI, P. VALENTINI, B. CHELI, G. BETTI (2004), *Estimating multidimensional poverty: a comparison of three diffused methods*, Report n. 259, Dipartimento di Statistica e Matematica Applicata all'Economia, Università di Pisa.
- S. LOLLIVIER, D. VERGER (1997), *Pauvreté d'existence, monétaire ou subjective sont distinctes*, "Economie et Statistique", n. 306-307-308, pp. 113-142.
- J. MACK, S. LANSLEY (1985), *Poor Britain*, Allen and Unwin, London.
- R.J.A. MUFFELS (1993), *Deprivation standards and style of living indices*, in J. BERGHMAN, B. CANTILLON (eds.), "The European Face of Social Security", Avebury, Aldershot.
- B. NOLAN, C. WHELAN (1996), *Resources, deprivation and the measurement of poverty*, Clarendon University Press, Oxford.
- R.A. POLLAK, T.J. WALES (1979), *Equity: the individual versus the family. Welfare comparisons and equivalence scales*, "American Economic Review", 69, n. 2, pp. 216-221.
- J. RAWLS (1971), *A theory of justice*, Harvard University Press, Harvard.
- V. RENDTEL, R. BERNSTEN, R. LANGHEINE (1998), *The estimation of poverty dynamics using different measurements of household income*, "The Review of Income and Wealth", 44, n. 1, pp. 81-98.
- S. RINGEN (1988), *Direct and indirect measures of poverty*, "Journal of Social Policy", 17, n. 3, pp. 351-365.
- E. SCHOKKAERT, L. VAN OOTEGEM (1990), *Sen's concept of the living standard applied to the belgian unemployed*, "Recherches économiques de Louvain", 56, n. 3-4, pp. 429-449.
- A. SEN (1981), *Poverty and famines*, Clarendon Press, Oxford.
- A. SEN (1985), *Commodities and capabilities*, North Holland, Amsterdam.
- A. SEN (1999), *The possibility of social choice*, "American Economic Review", 89, n. 3, pp. 349-378.
- P. TOWNSEND (1979), *Poverty in the United Kingdom*, Penguin, Harmondsworth.
- P. TOWNSEND (1993), *The international analysis of poverty*, Harvester Wheatsleaf, Hemel Hempstead.
- U. TRIVELLATO (1998), *Monitoraggio della povertà e della sua dinamica: questioni di misura e evidenze empiriche*, "Statistica", LVIII, n. 4, pp. 549-575.
- S. TURCIO (2000), *Verso l'istituzione del reddito minimo d'inserimento: l'avvio della fase sperimentale*, in A. BARBIERI ET AL., "Lo stato sociale in Italia. Rapporto Iridiss-CNR 1999", Donzelli, Roma.
- B.M.S. VAN PRAAG, A. HAGENARS, H. VAN DE STADT (1982), *Poverty in Europe*, "The Review of Income and Wealth", 28, n. 3, pp. 345-359.
- M. WARD (1999), *Different dimensions of poverty*, in F.G. PYATT, M. WARD (eds.), "Identifying the Poor", International Statistical Institute, IOS Press, Amsterdam, pp. 107-122.
- B. WHELAN (1993), *Non-monetary indicators of poverty*, in J. BERGHMAN, B. CANTILLON (eds.), "The European Face of Social Security", Avebury, Aldershot, pp. 24-42.

RIASSUNTO

Deprivazione multidimensionale, reddito e povertà in Italia: un'analisi sulla base dei dati del Panel Europeo delle Famiglie

L'obiettivo di questo articolo è di esaminare diffusione ed intensità della povertà in Italia alla luce di due diversi approcci. Il primo è quello più tradizionale, che fa ricorso ad una soglia relativa definita in termini monetari per individuare le famiglie povere. Il se-

condo, che si richiama alla nozione di “funzionamento” introdotta da Sen, identifica le famiglie povere sulla base delle loro condizioni di vita. L'uso di questo specifico approccio permette di cogliere aspetti del fenomeno povertà che l'altro trascura. Le analisi svolte prendono spunto dai dati rilevati in occasione della seconda ondata del Panel Europeo delle Famiglie nel 1995. Sia nel caso della povertà in senso monetario sia nel caso di quella basata sulle condizioni di vita, si è applicata ai dati l'analisi discriminante logistica con l'obiettivo di far emergere le più significative variabili esplicative (o concomitanti) della condizione di povertà nelle due diverse accezioni. Il secondo approccio si è rivelato più efficace nel cogliere l'effettivo stato di privazione delle famiglie.

SUMMARY

Multiple deprivation, income and poverty in Italy: an analysis based on European Community Household Panel

The aim of this article is to examine both the diffusion and intensity of poverty in Italy by utilising two kinds of approach. The first is the usual one, which employs a threshold defined in terms of income in order to identify the poor families. The second, referring to the definition of functioning introduced by Sen, identifies the poor families on the basis of living conditions. The use of this specific approach allows us to take into account new aspects of the phenomenon that the income approach overcame. Our analyses refer to the results of the second wave of the European Community Household Panel, which was delivered in 1995. Regarding income poverty, a logistic discriminant analysis has been performed in order to detect the significantly connected variables, as for the living conditions approach. The latter approach is more effective in the detection of the family state of privation than the former.