

A multidimensional approach to the analysis of individual deprivation: the model and the results of an empirical investigation

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“The capability approach is not a theory to explain poverty, inequality, or well-being, although it does offer concepts that can be used in such explanations. Instead, it provides concepts and, in its broader forms, normative frameworks within which to conceptualize, measure, and evaluate these phenomena as well as the institutions and policies that affect them” (Crocker and Robeyns, 2010).

1. Introduction

The purpose of this paper is to present a model of poverty analysis based on (the) measurement the individual capabilities deprivation. Consistently with the hypothesis that “*poverty must be seen as deprivation of basic capabilities rather than merely as lowness of incomes*” (Sen, 2000), the model is based on the development of a multidimensional indicator of deprivation and the creation of a conceptual space for the analysis of the relationship between the level of functioning achievement and the availability of commodities and conversion factors. The model has been tested through the observation of a list of functionings in a sample of more than 500 individuals, covering different dimensions of human life. As a matter of fact, a pilot survey has been created in order to provide insight into the controversial issue of whether the capability approach (CA) can be effectively operationalized (Burchard, Vizard, 2011).

The starting point of our reasoning was in fact to understand not only the difficulties related to the implementation and application of the CA but also, once you have found a way to overcome these difficulties, if this approach could be effective in representing and explaining poverty a multidimensional phenomenon in some local contexts. From this point of view, this is an exploratory research based on original data (not institutional data) specifically collected to measure functionings and capabilities in six Italian areas called *Piano Sociale di Zona* (Local Social Planning)¹. As demonstrated by the latest data on absolute and relative poverty in Italy², it seems to be a phenomenon deeply rooted in some regions, particularly in the South. However, we need a broader diagnosis of the reasons for the critical issues that goes beyond standard measurements. In addition to elements closely related to income, we have considered issues related to material deprivation (taken in part from the EU-SILC survey) and to achievement and activation of functionings.

The paper is structured as follows: the first section presents an analytical definition of the concept of functioning and explains the choice of the relevant capabilities in order to assess individual

¹ The Local Social Planning is an integrated program of financial and human resources for the social services organization and management within an administrative territorial unit.

² See ISTAT 2009

deprivation. The second section explains how our multidimensional indicator works. The third section shows how the survey results can be represented and (partly) explained.

2. Between functionings and capabilities

Operationalizing the CA means first of all to have clear in mind what concepts like functioning, capability and agency mean. To this end, we analyzed the relevant literature and the various translations made, and we developed the following definitions:

- A functioning is a state of being and doing, or in other words, an individual condition in a given time and characterized by a given action. We consider a set of functionings as the space of opportunities available to individuals' choice, with reference to states of being and doing, in defining the kind of life he/she wants to lead.
- A capability is defined as the real power of choice that a person has with respect to a fixed system of states of being and doing (functionings) actually available and alternative among them. As **potentiality**, capabilities reflect the real degree of internal freedom of the personal choice of living one kind of life rather than another. They represent the freedom to choose, among a functionings' set, the best functionings combination for the life that the individual wants to live.
- The agency covers both the individual's freedom to decide and its power to act effectively and "his or her deciding and acting on the basis of what he or she has reason to value" (Crocker D.I. Robeyns 2010).

Then, we selected a list of relevant capabilities for poverty analysis that has been created taking into account material and intangible dimensions of life as it can be seen in the following table 1.

TAB . 1 - LIST OF CAPABILITIES

Label	Description in terms of Capabilities
Living in a decent house	to be able to manage the house (to be able to sustain expenditures,)
Generating income	to be able to manage and improve income source (to find a new job, to increase professional skills, investing savings etc.);
Being part of a community	to be able to maintain relationships with friends, neighbors, to attend churches, cinema, sporting clubs, to improve the environment.
Developing skills and improving education	to be able to improve one's educational level, to attend courses, to be well informed, to read books.
Being healthy	to be able to improve health conditions (to be able to take care of oneself and of the other members of the family and not having dangerous or risk behaviors);
Thinking about the future	to be able to plan the future, (to have a clear idea of how would you like the life to be);
Expressing emotions and talents	to be able to express feelings of love, anger, gratitude in all the dimensions of life, to be able to use imagination, rationality and creativity, to be able to use skills and talents in the workplace

Measuring capabilities means to be able to measure the real freedom of people to choose between different functionings or in other words between different kind of life style. However, having a

complete set of information about the substantive freedom and opportunities of individuals requires to analyse not only if and how someone is part of a community but also if he/she has chosen to be part of that community or if he/she would live somewhere else. The latter kind of information need a more specific survey that was quite complex to run considering its direct relation with the concept of freedom.

On the other hand the observation of functionings is obviously easier because it is based on observation of behaviour and the actual conditions of individuals.

However, from our point of view, there is a close connection between the linguistic structure of capabilities and functionings that allows a transition from one to the other depending on the needs of empirical operationalization. In every list of capabilities as well as on every list of functionings it is possible to recognize the following linguistic structure:

- a. the core meaning expressed by the main verb accompanied by a direct object;
- b. declination of the main verb;
- c. introduction to the main verb through a verbal form that is present in the case of capabilities and absent in the case of functionings.

If we consider the example “*to be able to express my emotions (capability), I express my emotions (functioning)*”, then:

- a. the core meaning is given by the verb "to express" in both formulations; the direct object is given by the phenomenon of emotions;
- b. the declination of the verb is the infinite tense in regard to the capabilities and the present tense regarding the functioning because of his being a state of being and doing in a given time;
- c. the introductory verb form is "to be able to" that is present in the formulation of capabilities and absent in the formulation of functionings because of the use of present tense.

In this sense, the list of capabilities that we take as reference and we proposed in table. 1 can be reformulated in the following ways (tab. 2):

TABLE 2 - LINGUISTIC STRUCTURE OF CAPABILITIES AND FUNCTIONINGS

<i>Label</i>	<i>Capability</i>	<i>Core meaning</i>	<i>Functioning</i>
EXPRESSING EMOTIONS AND TALENTS	to be able to express emotions...	<i>to express emotions...</i>	(I/he/she) express emotions...
LIVING IN A DECENT HOUSE	to be able to manage the house...	<i>to manage the house...</i>	(I/he/she) manage(s) the house...
GENERATING INCOME	to be able to manage and improve income source...	<i>to manage and improve income source...</i>	(I/he/she) manage(s) and improve income source...
BEING PART OF A COMMUNITY	to be able to maintain relationships with....	<i>to maintain relationships with....</i>	(I/he/she) maintain(s) relationships with....
DEVELOPING SKILLS AND IMPROVING EDUCATION	to be able to improve one's educational level...	<i>to improve one's educational level...</i>	(I/he/she) improve(s) one's educational level...
BEING HEALTHY	to be able to improve health conditions...	<i>to improve health conditions...</i>	(I/he/she) improve(s) health conditions...
THINKING ABOUT THE FUTURE	to be able to plan the future...	<i>to plan the future...</i>	(I/he/she) plan(s) the future...

This linguistic structure makes it easy to find what we call a linguistic channel of transition "from capabilities-to functionings-to capabilities" within a single list "capabilities-functionings". This is

even more evident when one considers that freedom, capabilities and functionings are in this framework a conceptual network whose nodes play a mutual explanation. Moreover they are hardly separable: the individual freedom is expressed by the set of capabilities available to deliberative action; the capabilities are real potentiality to the extent that they reflect the substantial freedom of the individual, her actual freedom of choice: they are notions of freedom; the functionings, or rather the set of functionings, are the space of functionings vectors effectively available to individual choice oriented to the realization of the life that people want to lead. As in a mirror play, freedom, agency, capabilities and functionings refer to each other through a semantic crossing, oriented to describe the amount of freedom inscribed in the individual biographies.

To some extent it is possible to say that the space of capabilities and the space of functionings tend to coincide, almost to overlap, widening the deliberative potential of the individual. The more the freedom of choice - and thus its deliberative potential - is characterized by its actual feasibility, the more the space of functionings and the space of capabilities tend to coincide.

See the figure 1 and 2. The subsets A, B, C and D represent combinations of functionings – or rather, ordered lists of functionings – among their alternatives, and however constituted within the same space defined by the set of functionings.

It is clear that if the set of capabilities available to the individual was represented by the totality of the possible capabilities, this set would coincide with that of functionings.

Fig. 1 – Set of functionings

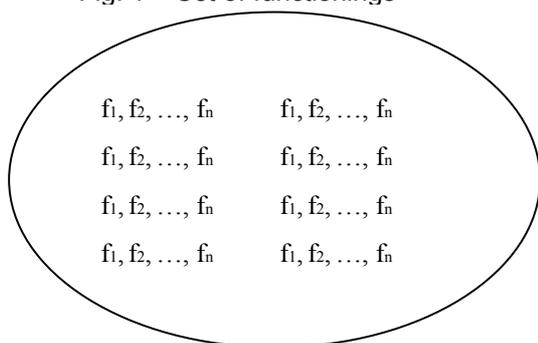
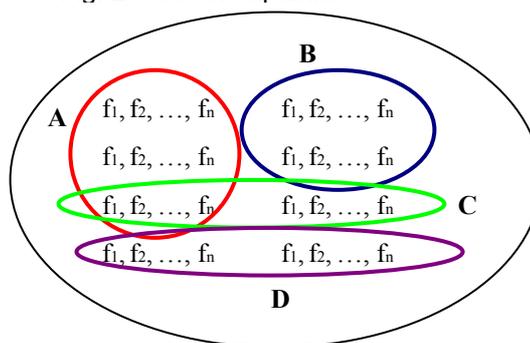


Fig. 2 – Set of capabilities



But then, which explicative surplus the set of capabilities produce over those of functionings?

Well, this surplus is inside the core mean of the capabilities concept: it is the appearance of freedom of choice, actually accessible by the individual generating own biography and leading the life that he wants to lead. Stated differently, the set of functionings becomes the set of capabilities to the extent that it is crossed by the individual deliberative potential. Otherwise, without such crossing, it remains a formal structure that it is not in any way referable to the existential space of individuals.

In view of these considerations, our choice was to follow the linguistic channel of transition and to pass from level of capabilities to that of functionings.

Stated differently, we conceptualized each capability in order to understand what we could measure and what we could not. In this sense we decided to focus our attention on individual choices, observable through behavior and objective conditions. This means observing in the individuals conditions the availability of commodities or services, the degree of achievement of certain functionings and the presence of certain conversion factors. Certainly this shift toward the space of functionings loses the reference to freedom, which is a feature of capabilities. But, as we explain below, we can recover this dimension through the development of our model of analysis, so that we can speak of a capabilities space³.

³ This representation seems dialogues with some degree of consistency with the one proposed by Ingrid Robeyns (Robeyns I., 2005, p. 93-117), through which the author represents the set of capabilities related to an individual and the connection with its social and personal context.

For conversion factors we mean those factors which influence the relation between the possession of a good and the achievement of certain functionings. Crocker and Robeyns (2009) reported analytically three categories of conversion factors: personal, social and environmental conversion factors. The following table describes more in detail each category.

TAB. 3 – DEFINITION OF CONVERSION FACTORS

Personal conversion factors	metabolism, physical condition, sex, reading skills, or intelligence
Social conversion factors	public policies, social norms, practices that unfairly discriminate, societal hierarchies, or power relations related to class, gender, race, or caste
Environmental conversion factors	physical or built environment in which a person lives

Our elaboration from Crocker and Robeyns 2009

As pointed out by the two authors: “*all stress that it is not sufficient to know the goods a person owns or can use in order to be able to assess the well-being that he or she has achieved or could achieve; rather, we need to know much more about the person and the circumstances in which he or she is living*” (Crocker and Robeyns 2009, p. 68).

These aspects define our space of capabilities where it is possible to find the coordinates of each individuals in terms of what we called functioning variables and status variables. These variables have been processed by a multidimensional indicator and the results represented in a conceptual space called capabilities space where individual capability deprivation can be analysed.

Before going into details of the index and the conceptual representation, we present here the result of the second step of our operationalization process with respect to the concept of functioning. The importance of this process is twofold: first, it clarifies the transition from the category of capability to the category of functioning; second, it supported the creation of the questionnaire for the survey.

As a matter of fact, we define a functioning as:

- a. a physical, cognitive and mental frame of individuals (I can say if I’m healthy or how often use imagination or reasoning in my daily life);
- b. placing individuals in a position to perceive a problem or to set objectives and desires (1), and to attribute a value to that problem or that objective (a member of my family is sick and I can say how much is difficult to deal with this situation) (2);
- c. to express the aim to act, to choose to act and to act consistently in view of the management of the problem or achieving the objective (my house has a relevant problem and I found a way to solve it).

And within this framework, a functioning can be recognized when:

- a. is observable through behaviors and/or attitudes;
- b. is potentially or actually acted in order to solve a given problem or to reach a prevalent goal within the system of individual preferences.

The above mentioned formulation of functioning seems to show more clearly the conceptual grid that holds together the three concepts of freedom, choice and agency. This **agency-based concept of functioning** captures individual’s conditions that range from the propensity to act to the complete functioning achievement, according to the notion of ‘agency achievement’ (Crocker and Robeyns, 2010). In addition, the proposed definition seems to be close to that of ‘refined functioning’ according to which “*Choosing A when B is also available is a different “refined” functioning.... from choosing A when B is not...*” (Sen 1985a, p. 36 - 37). Or in other words, “*Corrisponding to functioning x, a ‘refined’ functioning (x/S) takes the form of ‘having functioning x through choosing it from the set S’*” (Sen 1993, p.40).

In this sense our definition is sensitive:

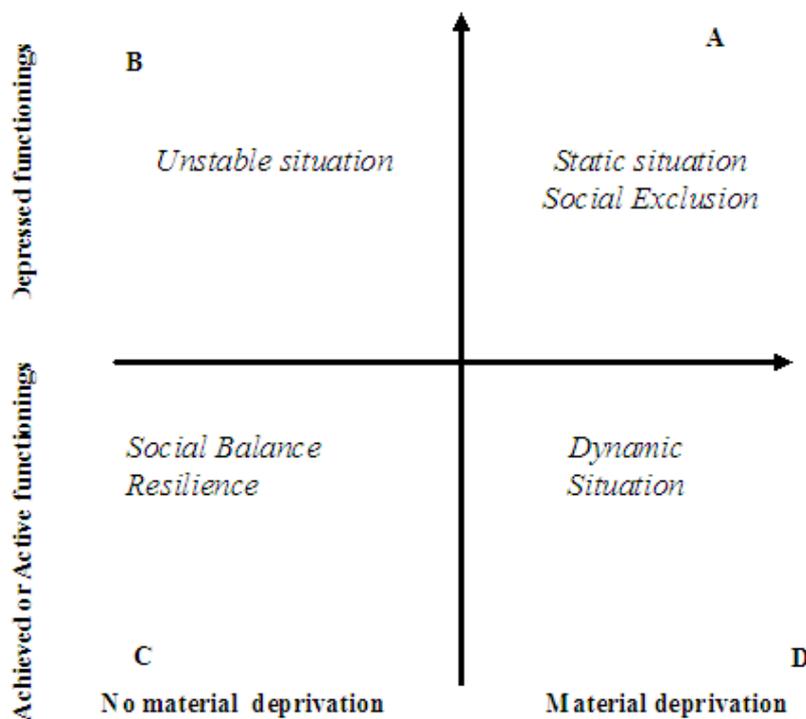
- a. to the set of objectives that express individuals ideal of "good life" (point b1);
- b. to the attribution of value and thus to the dynamics of rational weighting (point b2);
- c. to the choice between alternatives and to the choice to act (point c).

Finally, according to our definition it is possible to have different degree of functioning achievement since a state of being or doing can be not fully achieved depending on other factors. In other words, it is not enough to observe that someone is part of a community or that the functioning is achieved. In fact, this functioning in turn is composed by a certain amount of states of being and doing that may be present even if only partially, and therefore it can refer to a functioning only partially achieved in relation to the number of states of being and doing actually experienced. The number of states of being and doing that compose a functioning in its general definition (for instance, *being part of community*) from our point of view are the variables that we have tried to capture through our questionnaire.

3. The space of capability deprivation

As mentioned before, the process of operationalization has led us to imagine a conceptual space in which the interplays between the achieved or active functionings (or, in other words, the degree of functioning achievement related to the number of variables recorded), the possession of certain goods and the presence of some conversion factors, can be effectively represented (see the figure 3 below).

FIG. 3 – SPACE OF CAPABILITY DEPRIVATION



The vertical axis represents the level of achievement of the functionings, the horizontal axis represents the availability of goods and conversion factors. Let's consider the definition of capability that contains the relationship among possession of goods, conversion factors and functionings: it is possible to say that the capability is the real potentiality to transform goods

owned in functionings through the use of conversion factors. Referring to the well-known example of the bicycle, in order to be real the capability "to be able to move around without a car" needs the possession of the good (the bicycle), an appropriate physical condition (conversion factor) and safe streets (conversion factor). Back to our figure, if we register on the vertical axis the presence of a number of states of being and doing related to going by bike, and on the horizontal axis the variables related to the possession of the good and to the safety in the streets (conversion factor), the individual will place in quadrant C. By virtue of the interaction between variables related to functionings, to the possession of goods and to the presence of positive conversion factors, this individual's position can be explained in terms of presence of a certain capabilities degree. Conversely, in the opposite quadrant we may recognize a certain degree of capability lack.

According to these explanation, we define the cartesian space represented in figure 3 as a space of capabilities. It is within this space that we think it is possible the transition from functionings to capabilities, in the opposite direction along the linguistic channel of transition which have been discussed above.

More specifically, the interaction between these aspects produces four possible situations corresponding to the four quadrants (A, B, C, D):

1. Quadrant A. Individuals placed in this quadrant are depressed both in terms of functionings and availability of commodities and conversion factors. It's a condition of deprivation that also expresses a significant degree of loss of capabilities.
2. Quadrant B. Individuals placed in this quadrant are depressed in terms of functionings but not in terms of commodities availability. It's a condition of unstable inclusion with risk of impoverishment, mainly in case of adverse or unexpected events (illness, divorce, loss of income, etc ...). The people placed in this quadrant express a compromised degree of capabilities because of the low agency level owned.
3. Quadrant C. Individuals placed in this quadrant are in condition of stable social inclusion. their level of capabilities is high.
4. Quadrant D. Individuals placed in this quadrant are depressed in terms of commodities availability but not in terms of functionings. It's a condition of material deprivation, that compromises the individual capabilities degree because it deprives their agency potential of goods and conversion factors necessary for their conversion into functionings.

The analysis of the process of impoverishment in all its forms is directly affected by this view. As far as we are concerned, deprivation can be understood either as a gradual slipping of individuals and families from an evident risk of losing a condition of well being - basically perceived in terms of level of consumption – into a certified 'state of poverty' (and this process is usually a consequence of some unexpected and devastating event as a divorce or a serious illness) or as an intergenerational phenomenon.

4. The multidimensional indicator

The indicator presented here is intended precisely to highlight the several dimensions of poverty. It is based on the counting approach" (Atkinson 2003), developed among others by Alkire and Foster (2007) and Bossert, Chakravarty and D'Ambrosio (2009). This last formulation is the one used for the index. As specified by the Bossert et al (2009), the index employs ...*"the intermediate identification method⁴, which regards a person as poor if it is deprived in at least m dimensions, where $1 \leq m \leq K$, with K being the number of dimensions on which human well-being depends..."*.

Defined "n" as the population size and "r" as the parameter that makes the indicator sensitive to the distribution of poverty (Bossert, Chakravarty and D'Ambrosio 2009), the index is represented as follows:

$$\bar{P}_r = \left(\frac{1}{n} \sum_{i=1}^n P_i^r \right)^{\frac{1}{r}}$$

The index aggregates individual multidimensional poverty measures that satisfies the zero normalization and additivity properties⁴.

The aggregate multidimensional poverty index represents poverty conditions of a society or a group of individuals. It satisfies the following conditions: equality normalization, monotonicity, strict s-convexity, linear homogeneity, strict separability and the poverty Wicksell population principle⁵

The indicator is a symmetric mean of order “r” and changes according to the level of inequality. For values of “r” approaching unity the index becomes the arithmetic significant of the individual levels of poverty. The higher “r”, the greater the weight given to the poorest. This means that policy makers give a greater degree of attention to situations of greater deprivation.

In addition, considering the general index, it’s possible to weight each dimension through a value which is the mean of weights assigned by two groups of people: individuals of the sample and policy makers and social workers. At the end of the section 2 we shall present a table with the weight distribution for each dimension, which confirm the importance of using subjective weights in a multidimensional approach to deprivation.

The indicator takes into account binary variables (if ‘1’ deprivation; if ‘0’ no deprivation’) which belong to two different categories:

- **Status variables and conversion factors:** describe the individual material deprivation at present and capture conversion factors
- **Functioning variables:** explain how, when and why a functioning is active or not.

The general indicator is composed by 47 status and conversion factors variables and 37 functionings variables. The interactions between these two kinds of variables can be viewed in a cartesian space representing the four possible situations (see graph 1 ‘Space of capability deprivation’).

The multidimensional indicator: an empirical application

The survey took place in six regions in the South of Italy (Basilicata, Campania, Calabria, Puglia, Sicilia and Sardegna) and polls a sample of 523 households.

In each region we selected a specific territorial area, called Social Plan Area, belonging to metropolitan and rural areas. The adoption of a **spatial perspective writing** about poverty is justified by some significant evidence both internationally and nationally. If at the international level, it has been developed a wide-ranging discussion about poverty in rural and metropolitan areas⁶ (especially concerning the developing countries), at European level, this debate does not seem to be particularly exhaustive⁷. In the specific case of Italy, for example, the OECD classification of rural and metropolitan areas has been adapted taking into account that according to this methodology, most of the Italian territory can be considered significantly and predominantly rural⁸. As it will be shown later, outputs of our survey point out some important differences in poverty perception and functionings activation according to the households territorial belonging.

It was not possible to carry out significant sample extraction for lack of registry lists and shortage of funds. The results have therefore the sole purpose of presenting a new experimental model. The

⁴ As specified by Bossert et al. (2009), “...Additivity entails a separability property: the contribution of any variable to the overall index value can be examined in isolation, without having to know the values of the other variables...”.

⁵ For a description of these properties see Blackorby, Primont and Russell (1978).

⁶ See *Rural poverty report 2010*, IFAD available at www.ifad.org and Ravailon M., Chen S. and Sangraula P., *New Evidence on the Urbanisation of Global poverty*, World Bank Policy Research Working Paper 4199, April 2007, www.worldbank.org.

⁷ There are some interesting research among which we point: 'Indicators of poverty and social exclusion in rural England: 2009', report for the Commission for Rural Communities, Guy Palmer at www.poverty.org.uk and 'Pauvreté, précarité, solidarité en milieu rural (2009)', Conseil General de l'Agriculture, de l'Alimentation et des Espaces Rurax at <http://lesrapports.ladocumentationfrancaise.fr/BRP/094000616/0000.pdf>.

⁸ More information available at www.reterurale.it

sample is a stratified one: in each region half of the questionnaires are directed to families who apply to social services and half to households that do not apply for them⁹. For both types of families we try to follow a distribution that considered the composition of households by type (families with children, with older people with disabilities and other types of situation such as childless, single parenting, singles, etc...). The selection of individuals is assigned to interviewers. Another step of the survey focused on public social services in the six regions in order to understand how public institutions deal with poverty and how poverty is perceived by people working in social services¹⁰.

The sample of interviewed people shows some peculiarities that deserve to be highlighted and which help in understanding the results of the survey as well as to define more detailed individuals' family background. However we want to underline that the questionnaire was filled out by individuals who live in specific familiar and environmental contexts. It is possible to obtain such background information from the questionnaire, although it is not the main objective of this study. One interesting result is the one related to the families' dimension to which respondents belong.

TABLE 4 – COMPOSITION OF HOUSEHOLDS.

Family members	n.	%
1	68	13
2	73	14
3	114	21,8
4	144	27,5
5	84	16,1
6	29	5,5
7 and more	11	2,1

Table 4 shows that a large proportion of households is composed of four or more members.

As mentioned above, we decided to focus the analysis on two main groups of individuals: persons who use social services and individuals that do not access to them. On the contrary, these two groups differs significantly when considering the educational level and working status.

With respect to the level of education Table 5 shows significant differences in the composition of the two groups, presenting a critical situation for service users. About 75% of service users have completed secondary school, while 47.1% of non-users have obtained a diploma. Significant differences also emerge for graduation: only 5.4% of service users graduated, compared with 20.1% of non-users.

⁹ The households' questionnaire is divided into seven sections corresponding to each dimension considered. A total of 240 variables are created. Of these, 84 variables are used for construction of status and functionings indicators. In addition to the seven sections there are a registry and a description of benefits and services that have benefited the individuals interviewed and their families. The questions are formulated to encourage the emergence of behaviors and conditions related to one side to the concrete situation experienced by the interviewees and his family and, on the other side, to the willingness to do actions that allow the full realization of the objectives assigned to single dimension of functionings.

¹⁰ At this stage we realized six regional focus groups with the involvement of social workers and policy makers and we administered 34 questionnaires to social workers. The idea of focusing the attention on social services came from the report New indicators for a better understanding of local poverty developed by DIISES (Délégation Interministérielle, à l'Innovation Sociale et à l'Expérimentation à l'Economie Sociale).

TABLE 5 – EDUCATIONAL LEVEL OF USERS AND NON USERS (% VALUE)

Education level	Users	Non users
No title	5,4	1,5
Primary education	21,8	7,7
Lower secondary education*	47,5	23,6
Upper Secondary education	19,9	47,1
Tertiary education	5,4	20,1
Totale	100,0	100,0

* In Italy it corresponds to a three years period called Scuola Media

If we consider the employment status (table 6) it is possible to notice the greater vulnerability of users compared to non-users. A higher percentage of users are unemployed (26,7% of users and 7% of non users). There is also a higher percentage of users that are housewives (22,5%) with respect to non users (16,2%), and a lower percentage of clerk (8,4%) with respect to non users (25.3%).

TABLE 6 – WORKING STATUS FOR SOCIAL SERVICES USERS AND NON USERS (% VALUE)

Working status	Social services users	Non users
Housewife	22,5	16,5
Unemployed	26,7	7
Blue collar	15,7	5,8
White collar	8,4	25,3
Student	0,4	5
Retired	13,8	14,7
Self - employed	2	6,7
Other*	9,5	19,3
Total	100	100

*Other contains not specified occupations or occupations not present in the categories considered.

The set of variables describing the population of our study became part of the indicator of multidimensional poverty, which is constructed by taking into account the seven dimensions. It is composed of two layers: the first that represents a multidimensional indicator for the state variables and the second one which is also a multidimensional indicator for functioning variables. The capability space is generated graphically through a system of axes and it is used to calculate the percentage distribution of individuals, as is shown in Table 7 and in Figure 4. The theoretical model proposed allows to visualize the placement of individuals in the four quadrants described, where the axis represent the average values (figure 4). The choice of using the average value for these axis is justified by the fact that these values represent the index value for $r = 1$.

The majority of interviewed households are positioned in the two quadrants that represent the two extreme conditions: from top right and proceeding counter-clockwise, the first quadrant, which expresses the worse condition, with material deprivation and depressed functionings (34,6% of the population), and the third quadrant, which expresses the best condition, with material wealth and active functionings (35.3% of the population). This position is partly due to the characteristics of the population surveyed that is composed half part of people asking for local social services and half part not. However, precisely because of this structural characteristic of the sample, it is of particular relevance the high number of individuals who are placed in the two intermediate quadrants: quadrant B, which expresses a form of unstable inclusion with poverty and non-depressed functionings, where are positioned 12 % of individuals; in quadrant D, which expresses a condition of poverty and active functionings, where are positioned 18% of individuals. In particular, we draw attention to the population that is positioned in quadrant B, which in the categories of our

model of analysis is potentially at risk of slipping into a state of social exclusion.

Figure 4 also highlights the distribution of the population relating to service users, by highlighting how this subset is almost entirely distributed in quadrant A. The difference between users and non-users shows which is the real actual condition. In addition it should be noted that this type of representation can be used for different targets of individuals (sick / not sick worker / unemployed, men / women, etc..).

The information made available by the comparison of population distribution in the four quadrants of the model and the value for the overall index, with $r = 1$ (table 7 below), allow us to show more concretely the potential application of the model.

FIGURE 4 – POPULATION DISTRIBUTIONS FOR $R = 1$

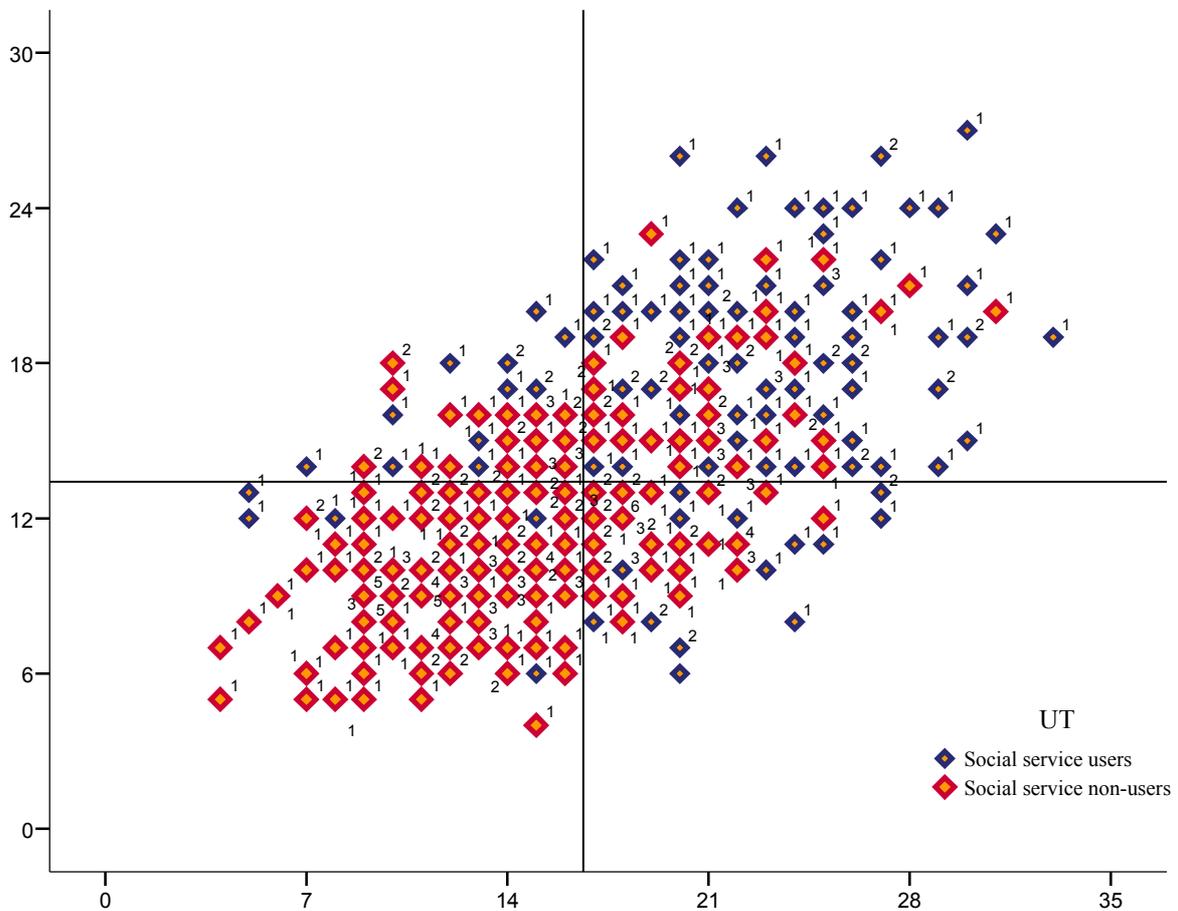


TABLE 7. POPULATION DISTRIBUTIONS FOR R = 1

	Living a house	Generating income	Being part of a community	Developing skills and improving education	Being healthy	Expressing emotions and talents	Thinking of the future/Projecting life	General
A. Static situation and risk of social exclusion	18,7	19,8	36,0	40,8	20,1	24,7	22,2	34,6
B. Unstable situation	16,5	7,3	17,6	18,8	6,4	20,7	9,9	12,0
C. Social Balance - Resilience	43,5	31,4	19,7	34,2	65,2	40,7	64,4	35,3
D. Dynamic Situation	21,3	41,4	26,7	6,2	8,2	13,9	3,5	18

If we look at table 7, and in particular quadrant C, we can see that income is not the main instrument to ensure resilience conditions, but the possession of other capabilities/functionings. In quadrant A income has a secondary role: it is not the main instrument you can use in order to move people towards condition of resilience. This result is consistent with our model of analysis and the definition of capabilities given above. However, income has a primary role in quadrant D: people who are in this position are essentially deprived from the material point of view. It would seem that the people interviewed, even though they are in a state of material goods deprivation and conversion factors absence, they have a propensity to act in order to change their status. This evidence is coherent with the Italian social service system: it mainly delivers monetary subsidies instead of services, but it is acting on health, work and knowledge that produce positive externalities in terms of earning capacity of individuals.

Finally, by reading table 6 by columns it is evident a tendency to concentrate in a specific quadrants, as in the case of the dimension *thinking about the future* in which 64% of individuals is present in quadrant C.

The model allows to focus on the analysis of those dimensions that more than others are involved in generating the overall condition of individuals (table 8).

TABLE 8. WEIGHTS FOR SINGLE DIMENSION (PERCENTAGE)

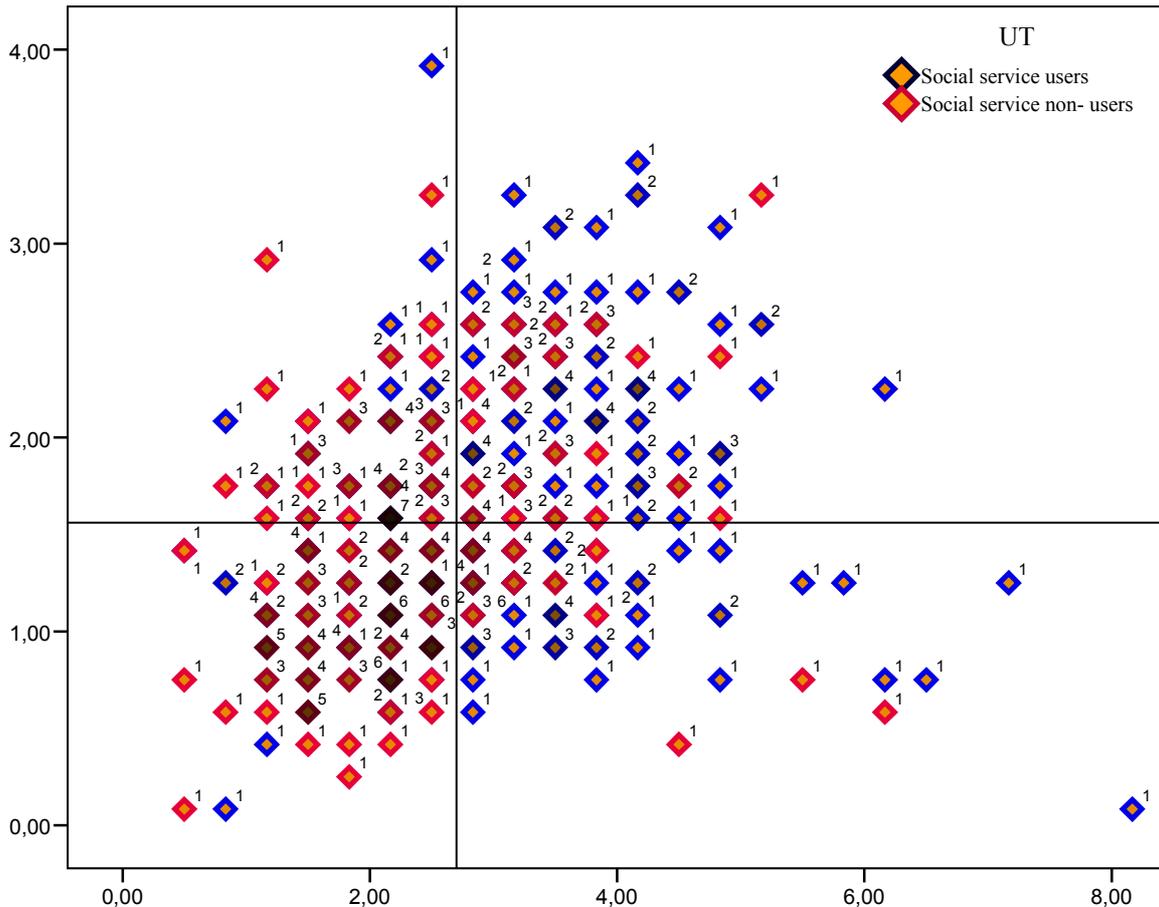
	Individuals			Social workers		
	Urban Area	Rural Area	General	Urban Area	Rural Area	General
Living a house	15,3	18,5	16,4	24,4	24	24,3
Generating income	21,4	23,3	22,1	25,2	20,8	23,4
Being part of a community	10,9	9,7	10,5	10,2	11	10,6
Developing skills / Improving education	13,9	11,2	13,0	14,9	11,9	13,6
Expressing emotions and talents	11,1	8,4	10,3	7,3	7,3	7,4
Being healthy	16,5	21	18,0	8,8	12,3	10,3
Thinking about the future / Planning life	10,8	7,8	9,8	8	13,5	10,4
Total	100	100	100	100	100	100,0

Reading the table it is possible to point out some significant issues:

- how significant are the differences between the weights expressed by the two group to each dimension (see the general values of living a house, expressing emotions and talents and being healthy); ;
- how significant are the differences between the weights expressed by the two group to each dimension according to the geographical area;

We present the multidimensional poverty indicator taking into account the weights assigned by the interviewed individuals to the questionnaire dimensions (Figure 5), as showed in table 8.

FIGURE 5 – POPULATION DISTRIBUTIONS SENSITIVE TO THE WEIGHTS ASSIGNED



Some differences emerge in the distribution of interviewed people. In particular, what occurs is an increase in the percentage of individuals in quadrant A (44,8%), and a decrease in the number of persons present in quadrant C (22,2%). The percentages of individuals in the quadrants B and D are almost unchanged (12,5% and 20,6% respectively).

The percentage increase in quadrant A is mainly due to the displacement of individuals coming from quadrant D (28 individuals) and quadrant B (26 individuals). Two other important movements are those involving 30 subjects (who move from quadrant C to quadrant B) and 25 individuals (who move from quadrant C to quadrant D). All these shifts are towards worse conditions in terms of state and functioning variables, and it wroths notice that there is a high concentration of individuals around the axes. This distribution is maybe due to the composition of the sample (half users and half non users of social services), and to the weights assigned by the interviewed individuals.

To understand the movements from one quadrant to another is also necessary to take into account two factors: the weight given by interviewed individuals to the questionnaire dimensions, and the individuals indicators in terms of well-being and functioning. A first explanation of the shift is due

to the interaction of these two components: when the subjects obtain high values in terms of state and/or functioning variables in specific dimensions (condition of deprivation), multiplying them with a higher weight assigned to these specific dimensions, this product determines a shift from a quadrant to another, generating in this case an worsening in terms of achieved functioning or well-being.

If we look both at Figure 4 and 5 it is evident the different distribution of the population, much more concentrated around the axes in Figure 4 with respect to Figure 5. Even when considering the two groups user / non-users there is a different distribution in the four quadrants. The non-users would seem less likely to be active in terms of functionings, while no great changes appears in users' condition.

A final consideration can be made concerning the correlation between the various dimensions that are part of the indicator. Through the creation of a distance matrix (table 9) we can appreciate how the "Developing skills" dimension is among the most correlated with each other dimensions¹¹. In particular, there seems to be proximity to the dimension regarding the ability to express emotions and talents.

TABLE 9. DISTANCE AMONG DIMENSIONS

	...living a house	Being part of a community...	developing skills...	thin-king about the future	genera-ting income	being healthy	expressing emotions and talents
...living a house	1,00	0,62	0,80	0,12	0,82	0,00	0,48
living in the community...	0,62	1,00	0,78	0,14	0,76	0,35	0,47
developing skills...	0,80	0,78	1,00	0,38	0,93	0,13	1,00
thinking about the future	0,12	0,14	0,38	1,00	0,20	0,10	0,89
generating income	0,82	0,76	0,93	0,20	1,00	0,11	0,66
being healthy	0,00	0,35	0,13	0,10	0,11	1,00	0,19
expres-sing emotions and talents	0,48	0,47	1,00	0,89	0,66	0,19	1,00

Final Remarks

We present a model of capabilities measurement tested through an *ad hoc* questionnaire, which is divided into seven dimensions considered relevant to individual well-being.

One of the strengths of our model is the positioning of interviewed individuals in the Cartesian space. Each one of the four quadrants defines a situation of deprivation / well-being according to the theoretical framework outlined above. The ability to display the results of the survey reinforces the potential of the model in at least two ways: first, it allows to share the results with policy makers (improves the accountability of the administration) and, eventually, with the population directly affected by the survey (increasing empowerment of the population; secondly, through repetition over time of the survey involving a cohort of individuals, it will be possible to study any transitions between quadrants.

¹¹The results of the distance matrix seem to be confirmed even by the application of the Pearson correlation. The Pearson correlation is +1 in the case of a perfect positive (increasing) linear relationship (correlation), -1 in the case of a perfect decreasing (negative) linear relationship.

In the latter case, the multidimensionality of the phenomenon and the large number of variables considered do not allow us to associate these transitions to the effect of specific policy interventions. However these movements provide a basis for evaluating policies aimed at fighting poverty and social exclusion. The proposed model of analysis can be considered either as an ex-ante policy evaluation tool since it allows to photograph the distribution of households in relation to different degree of material deprivation and functionings activation, or as an ex post policy evaluation tool once we can assure a follow up of the survey. In any case, it is necessary to associate further econometric analysis (such as difference-in-difference) in order to explain the causality link between policy interventions and final positions of individuals.

In this sense, the analysis model provides a framework for qualitative analysis important in the production process of political decision.

Furthermore we believe that our model of analysis is able to deliver an important value as a tool for the development of public debate around issues of social policy. In his recent “The Idea of Justice” Sen highlights:

The importance of public reflection as a tool to increase the range and reliability of assessments and make them more solid. [...] The public discussion and the decisions can promote a better understanding of the role, scope and importance of the individual operations and their combinations. (Sen, 2009, p. 251 trad. It.)

The functioning concept we focus on is agency-based, which means that a lack of achieved functionings does not imply a complete lack of agency. This opens the way for an improvement of our survey through a formulation of a questionnaire that takes into account the different levels of agency, refining consequently the meaning of the axis of ordinates as shown in the above figures.

ISFOL - Social Policies Department survey

1. Family records

001 Household identification number

A1 Region

A2 Province

A3 City

A4 Year

A5 How many people live in your family?

A6 How many people have a job in your family?

A7 family member	Age	education	Working status	Type of job
Member n.1				
Member n.2				
Member n. 3				
Etc..				

2. Public benefits received

SU1 How did you gain knowledge about public benefits provided by your local community?

- Call for tender
- Public employment services
- Friends, family, neighbourhoouds
- Other

SU2 Since how any years/months do you turn to social services? ****

- < six months
- between six months and one year
- more than one year

SU3 Have your family received any of the following benefits/supports during the 2008 and 2009?

	2008	2009
Supports for children (education, holiday camp, transport, etc.)		
Benefits for rent, mortgage and bills		
Supports for elderly people		
Supports for disabled people		
Employment services (ex: out of work benefits)		
Minimum income standard		

SU4 Are you satisfied with the benefits/supports received?

unsatisfied	Lightly satisfied	satisfied	Very satisfied
-------------	-------------------	-----------	----------------

SU5 If you are not satisfied, which benefits do you need the most?

Supports for children (education, holiday camp, transport, etc.)	
Benefits for rent, mortgage and bills	
Supports for elderly people	
Supports for disabled people	
Employment services	
Minimum income standard	

3. Living in a house

AB1 The house where you live with your family is:

- your own house
- a rented house
- shared flat/apartment
- care home/retirement home
- other

AB2 In your house/apartment there are

- heating
- two or more bathroom
- a shower
- a garden
- warm water
- a washing machine/refrigerator
- a park for your car

AB3 How many bedrooms are there in your house?

- 1
- 2
- 3 or more

AB4: Does your house present the following problems?

- bad condition of windows, floor, ceiling, doors
- dump
- low amount of light

AB5 Do you think these problems are relevant?

- no
- yes a little
- yes enough
- yes a lot

AB6 Have you tried to solve the problems?

- yes
- no

AB6.1 How did you try to solve the problems (possible more answers)?

- by myself
- asking for help from friends or relatives
- asking for a loan
- asking for a public support
- applying to the commonhold responsible

AB6.2 If there was a problem in the future , will you manage to solve it?

- yes
- no

AB6.3 How will you try to solve the problems (possible more answers)

- by myself
- asking for help from friends or relatives
- asking for a loan
- asking for a public support
- applying to the common hold responsible
- I don't know

AB7 Why do not you want to solve these problems?

- the house is not of my own property
- I do not have enough money
- I have nobody who can help me

AB8 Did you change/move from your house/apartment in the last year?

- yes
- no

AB8.1 If yes, why?

- The house was too little for our family
- the utility bills were too expensive
- the rent was too high
- I found a more comfortable house
- I found a place closer to my office/job

4 Generating income

GR1 How do you consider your housing costs (water/electricity/gas bills, rent, home loan)?

- not affordable
- affordable
- easily affordable

GR2 In the last 12 months did it happen that the household was unable to pay

- Utility bills (heating, electricity , gas, refuse collection etc.)
- mortgage or rent
- other loans

GR3 Given your income, your family can sustain/face/afford monthly expenditures:

With difficulties	With some difficulties	Easily	Very easily
-------------------	------------------------	--------	-------------

GR4 Can you quantify your monthly household average income this year?

- More than 5000 euros
- 5000 euros
- 4000 euros
- 3000
- 2500
- 2000
- 1800
- 1600
- 1400
- 1200
- 1000
- 800
- 600
- 500
- less than 300 euros

GR5 During the year, your family manages to...

- go on holiday for at least one week
- have a healthy diet
- heat up the apartment/flat/house

GR6 Nowadays, what do you consider a heavy unexpected expenditure for your family/household?

- 200 euros
- 300 euros
- 400 euros
- 500 euros
- more than 500 euros

GR7 Do you think your income/salary is enough to face the household needs?

Not at all	It's not enough	It's quite enough	It's enough
------------	-----------------	-------------------	-------------

GR8 Given your household needs, how do you think to improve the situation?

- I don't need to improve the situation, i'm satisfied;
- I don't think it is possible to change the situation;
- I or a member of the family could seek for a better paid job;
- I or a member of the family could start a second job;
- I could have a career development;
- Investing savings
- Improving my education or professional skills or ones of a family member;
- I don't know.

GR9 Give your opinion on the actual chances/opportunities to improve your household income (semantic opposition)

existing _____	not existing
various _____	limited
available _____	not available
simple/clear _____	tricky/complicated
proper _____	improper

GR 10 Considering your present/current income/salary, your condition/situation in 2008 was:

worse	almost the same	the same	better	much better
-------	-----------------	----------	--------	-------------

5. Being part of a community

AM1 In the neighbourhood where you live with your family you can find (multiple choice):

- Bookshops
- Libraries
- Restaurants
- Pubs
- Cinemas
- Theatres
- Gyms
- Cultural or benefit associations
- Voluntary organizations
- Churches
- Green areas / Common parks /public parks

AM2 How often do you do the following activities in your family?

	Once or more in a week	Once or more in a month	Rarely	Never
Playing with children				
Spending time with the neighbours				
Doing social activities (cinema, voluntary, sport)				
Welcoming / Visiting friends or relatives				
Going to church				

AM3 Please choose between the following problems you can find in your neighbourhood/community:

- Pollution and/or dirtiness;
- Noise caused by traffic, industrial activities etc
- Crime
- Lack of services (ex: postal services, sanitation, banking etc)

- Lack of transport facilities
- Uneven roads
- Low lighting

AM4 There are different ways of trying to improve such problems or help prevent such things from going wrong. During the last 12 months, have you (or a member of your family) done any of the following?

- Contacted a politician or local government official
- worked in a political party or action group
- worked in another organization
- signed a petition
- taken part in a lawful public demonstration
- I haven't done anything because they are not problems that can be solved
- I haven't done anything because there are no organizations/action groups where I/we live
- I haven't done anything because I'm not interested in such problems.

AM5 Give your opinion on the neighbourhood where you live / you live in (semantic opposition):

liveable _____ unliveable
 rich _____ poor
 good _____ bad
 safe _____ unsafe

AM6 Taking into account the problems you have outlined (pointed out), the situation last year / in the 2008 was.....

Worse	Almost the same	The same	Better	Much better
-------	-----------------	----------	--------	-------------

6. Developing skills / Improving education / Improving knowledge

AC1 Thinking about families and persons your family usually meet.....

- they have a lower/worse education;
- they have the same education;
- they have a better education.

AC2 According to your opinion, what is the best way to improve the members education of your family?

- Attending evening schools
- Attending vocational training courses
- Attending informatics and/or languages courses/lessons
- Attending university
- There is no way to improve....

AC3 And do you believe your family could/can afford such activities?

- Yes
- No, we don't have enough time
- No, we don't have enough money

AC4 How often do you do the following activities?

	Every day	Twice a week or more	Once a week	Once a month	Sometimes during the year	Never
Reading newspapers and/or magazines						
Reading books						
Net surfing						
Watching Tv						

AC5 What of the following goods do you have in your house?

- TV
- Telephone (mobile, others)
- PC
- Internet
- Books
- Subscription to magazines/reviews

AC 5.1 If you don't have/own some of those goods, can you explain why?

	I can't afford the expenditure/charge	Other reasons (ex: I'm not interested)
TV		
Tel / Mobile		
PC		
Internet		
Subscriptions		
Books		

7. Being healthy

SA1 At present, are you or a member of your family in poor health?

- Yes (if yes, go to the question SA3)
- No

SA1.1 If no, what kind of problem /illness / disease is she/he suffering for?

- Elderly person who needs support / care
- Disabled person who needs support / care
- Person with chronic disease
- Person with no serious pathology

SA2 Does the problem/illness/disease mentioned above require dedicated time care?

- Yes
- No

SA 2.1 How many hours a day does the support / care require?

- Less than 2 h
- from 2 h to 5 h
- 24 h
- other _____

SA2.2 In your opinion, your family can bear the situation.....

- .with great troubles
- with some difficulty
- easily
- very easily

SA2.3 What kind of services/help would you like to receive in order to take care of family members who need special assistance? (possible more answers)

- Monetary subsidy
- Psychological assistance
- Help from voluntary associations
- Other
- I do not need any help/assistance

SA2.4 In your opinion, how does your family feel with respect to other families?

- No vulnerable
- A little more vulnerable
- As vulnerable as other families
- Much more vulnerable

SA3 If you have health problems, what do you usually do?

- We ask to a doctor
- We ask to friends and family
- We look for information
- We wait for the solution of the problem

SA4 which kind of difficulties have you found in solving these problems?

- High costs
- Long queue
- Problems in living job
- Absence of information
- Distance of hospital/doctor

SA5 In the last year did any member of your family have dangerous behaviour?

- yes
- no

SA5.1 If yes, what kind of behaviour?

SA6 In the area where you live how are health services?

Present _____ absent
Efficient _____ inefficient
Accessible _____ inaccessible
Adequate _____ inadequate
Comfortable _____ Uncomfortable

SA7 Taking into account the problems you have outlined (pointed out), the situation last year / in the 2008 was.....

Worse	Almost the same	The same	Better	Much better
-------	-----------------	----------	--------	-------------

8 Thinking about your future / Designing your own life

PF1 How much do you agree with this statement: 'I have a clear plan of how I would like my life to be'

Not at all	A little	enough	Very much
------------	----------	--------	-----------

PF1.1 How often in your family do you cope with the expectations that each member has of his own life? :

Never	Rarely	Sometimes	Often
-------	--------	-----------	-------

PF2 Would you like to change anything in your life?

- yes
- no

PF2.1 What Three things would you most like to change?

1. _____
2. _____
3. _____

PF2.2 Who do you think will contribute most to any change in your own life?

- Myself
- My family
- Our community
- The local government
- The state government
- Others

9. Expressing emotions and talents

E1. In your daily life are you able to express your emotions and talents?

Not at all	A little	Enough	A lot
------------	----------	--------	-------

E2 How much do you use in your daily life the following abilities:

	Not at all	A little	Enough	A lot
Imagination				
Reasoning				

E3 Do you feel free to express your feelings in your family?

Not at all	A little	Enough	A lot
------------	----------	--------	-------

E4 Do you receive help and support from your family?

Not at all	A little	Enough	A lot
------------	----------	--------	-------

100 You have 100 points. Shared them among the following dimensions, according to the relevance you attach to each dimensions in order to avoid deprivation and poverty:

- Being able to manage the house _____
- Being able to generate an income _____
- Being able to be part of a community _____
- Being able to improve skills and educational level _____
- Being able to improve health conditions _____
- Being able to project the your own life _____
- Being able to express emotions and talents _____

100

THANK YOU FOR TAKING THE TIME TO ANSWER THESE QUESTIONS.

The survey is part of a research project led by ISFOL-Social Policies Department. The researchers are: Matteo D'Emilione, Giovanna Giuliano, Paolo Raciti and Simona Tenaglia.

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