A Special Issue in Honor of Professor A. SEN
Alternatives to Welfarism.

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1 Introduction

Economists are concerned about the present unemployment situation in Western Europe, because it amounts to a huge underutilization of productive capacity. Yet this efficiency consideration is only one aspect of the problem. Another reason for concern, much more dominant among non-economists, is the well-being of the unemployed and their families. Different groups of unemployed have a different living standard and this may have important policy consequences.

Research on the well-being or on the living standard of different groups of unemployed has grown rapidly among sociologists and psychologists, but it never has become popular among economists. This is somewhat surprising, because the concept of the standard of living plays such an important role in almost all discussions on economic policy. One gets the impression that the traditional economic framework is not fully adequate to treat this kind of questions. This is a regrettable situation, because economists surely could make a more useful contribution to the policy debate, if they succeeded in integrating better the aspect of the living standard into their analysis.

In recent years the economic debate on the concept of the living standard has been revitalized by many publications of A. Sen (see, e.g., Sen, 1983, 1984, 1985, Sen et al., 1987). His theoretical treatment is attractive, but, at this moment, its empirical applicability remains an open question 1. In this paper we try to make some progress towards the operationalization of Sen's concepts. These concepts are briefly summarized in Section 2. In Section 3 we present the questionnaire data on which our work has been based and we discuss the possibilities

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1 Sen (1985) gives some examples in appendices. A critical, but rather crude, application is given by de Vos and Hagenmaars (1988). Sen also refers to the related work by the so-called "Scandinavian Welfare School" (e.g., Allardt, 1973, 1981).
and limitations of these data. “Functionings” play a crucial role in Sen’s concept of the living standard. In Section 4 we suggest a factor analytic method to identify these functionings and in Section 5 we use them to describe the living standard of different unemployed groups. Some concluding remarks are given in Section 6.

We think that this paper reveals some interesting insights into the living standard of different unemployed groups in Belgium and may lead to useful policy advice. However, we are well aware that we have remained very far removed from an adequate and complete operationalization of Sen’s concept of the living standard. Moreover, it has not been our intention to discuss the concept of living standard itself, or to take Sen’s interpretation as an ideal, beyond all criticism. We will continuously use it as a reference point, however, because we think that a positively prejudiced attempt to apply it empirically may help in seeing better its advantages and limitations. Paraphrasing Sen (1987, p. 84), we can only hope that our approach has been “vaguely right” and that this is preferable to being “precisely wrong”.

2 Sen’s Concept of the Standard of Living

Sen starts from the straightforward fact that someone’s standard of living is a matter of the kind of life he or she is living, i.e., what the person is succeeding in “doing” and “being”. These doings and beings are called functionings. Obviously, observations on the income level or the consumption bundle of different groups of unemployed are not sufficient to get an adequate insight into these functionings. Interpersonal differences indeed will imply a different relationship between commodities and functionings for different people: an illiterate unemployed person will participate less in the social life of the community, even if he disposes of the same consumption goods (books, newspapers, television set) as an unemployed person with a university degree. On the other hand, it is also important not to reduce the functionings to a purely subjective feeling of happiness. This will become clear when we have a closer look at Sen’s theory.

The formalized version of this theory, as given in Sen (1985), runs as follows. Call $\mathbf{z}_i$ the vector of commodities possessed by person $i$, $f(\cdot)$ the function converting a commodity vector into a vector of characteristics of those commodities and $f_i(\cdot)$ a personal “utilization function” of $i$ reflecting one pattern of use of commodities that $i$ can actually make (in generating a functioning vector out of the vector with the characteristics of the commodities possessed). Then, the achieved functionings $b_i$ of person $i$ will be given by

$$b_i = f_i(c(x_i))$$

(1)

This vector $b_i$ gives content to the notion of the person’s being and Sen (1985, p. 12) gives some examples: it reflects whether the person is well-nourished, well-clothed, mobile, taking part in the life of the community. The living standard then is an evaluation of this $b_i$-vector, reflecting a ranking of the set of $b_i$, and under well-known conditions this ranking can be represented through a valuation function $v_i$:

$$v_i = u_i(f_i(c(x_i)))$$

(2)

This valuation function is not a utility function in the traditional sense: valuing a life and measuring the happiness generated in that life are two different exercises (Sen, 1985, p. 12). We can write the utility function as

$$u_i = u_i(f_i(c(x_i)))$$

(3)

but then $u_i$ and $v_i$ are two different functions. It is perhaps interesting to elaborate somewhat on the limitations of $u_i$ before turning to the more complicated concept of “capabilities”.

The utility function is the traditional economic solution to the problem of measuring the standard of living. If consumer behaviour is consistent, one can define a utility function, which reflects the consumer’s choices. According to Sen, the usefulness of such a function for the evaluation of the living standard is limited, however. Indeed, it is obvious that an individual’s choices follow from a whole set of motivations and not only from his perception of his own well-being: therefore, choice is a far from perfect indicator of living standards.

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2 These characteristics are of the Gorman (1989)-Lancaster (1986) kind. Sen considers them to be characteristics of the commodities themselves, unrelated to personal characteristics of the consumer.

4 Of course, unemployment is not freely chosen by the involuntarily unemployed. The traditional economic approach then would advocate the calculation of the welfare loss due to rationing or the estimation of equivalence scales, based on observed consumption behaviour. The limitations of the latter approach are discussed in Pollak and Wales (1979) and Fisher (1987).
An alternative interpretation of utility would see it as a measure of happiness (or desire), but such concepts are too “subjective” to be acceptable as a measure of the living standard:

“Consider a very deprived person who is poor, exploited, overworked and ill, but who has been made satisfied with his lot by social conditioning (through, say, religion, or political propaganda, or cultural pressure). Can we possibly believe that he is doing just well because he is happy and satisfied? Can the living standard of a person be high if the life that he or she leads is full of deprivation?”

This problem is particularly relevant for our subject, since it is well known from psychological research that the unemployed often sink away in apathy and adapt their expectations and desires to their actual situation. Of course, this argument does not imply that subjective feelings of happiness are completely to be neglected when defining the standard of living, but it does imply that they can not be the only relevant aspect for the exercise of valuing a life.

It has now become clear that the “being” of an individual is conceptualized by Sen in terms of “functionings” and that these functionings have to be situated somewhere between the “objective” income and consumption level and the purely “subjective” feelings of happiness. However, it is not straightforward to give a priori an empirical content to these functionings. Sen notes (e.g., Sen (1985), p. 46) that in richer countries the “material” functionings involving, e.g., nourishment and basic health, may show little variation from person to person and that the most important interpersonal differences might be found with respect to “psychological” functionings, such as, e.g., the ability to entertain friends, be close to people one would like to see, take part in the life of the community, etc. The latter feelings obviously are less objective, however, and the distinction between these psychological functionings and happiness is less clear-cut. We return to this problem in the next section.

The problem of finding an operational interpretation of the living standard does not become easier because Sen even goes further. Until now we have defined it as the valuation of a realized vector of functionings. More important than these achievements, however, are the opportunities of a person, because they define her positive freedoms. If we call $X_i$ the consumption set of individual $i$ and $F_i$ the set of

\[ Q_i(x_i) = \{ k : k \in F_i(x_i) \text{ for some } f_i(\cdot) \in F_i \text{ and for some } x_i \in X_i \} \] (4)

The idea of capabilities is meant to represent a notion of freedom, and therefore it is not straightforward how to define the value of the set $Q_i$. The notion of freedom gets somewhat lost by simply equating the value of $Q_i$ to the value of its highest valued element. Apart from this theoretical problem, there are also practical problems arising when we try to give a concrete content to the notion of capabilities. Basu (1987) therefore suggests to evaluate the living standard on the basis of functionings, but to be content with achievements, instead of capabilities. In the next section we will return to this second problem also.

3 The Use of Questionnaire Data

Sen (1985) argues that three types of data might be used to assess the living standard: a) market purchase data, b) responses to questionnaires, and c) non-market observations of personal states. His empirical applications mainly illustrate the use of the third type of data. For our own work, we did not dispose of direct non-market observations; we used data obtained from a survey among the Belgian unemployed. There were 517 respondents. This survey was organized in 1979 by the RVA (a government agency, set up to improve the working of the labour market and to pay out the unemployment benefits). The survey questions analyzed are shown in appendix A. For a careful interpretation of our results, it is important to have a closer look at the nature of these data.

Answers on a questionnaire are necessarily subjective. There could therefore be a problem of perception bias. We mentioned already that the unemployed might adapt their expectations and desires to their actual situation. In fact, this has been one of the main examples used to illustrate the overly subjective character of the traditional utility concept. The possibility of perception bias is a real problem: it must continuously be kept in mind, but we think that it does not completely invalidate our approach.

In the first place, the use of questionnaire data seems to be almost unavoidable, once one accepts that the most important differences between people in industrialized countries are found with respect to psychological functionings. After all, psychological tests are also based
on this kind of information. Moreover, the questionnaire used does not mainly investigate subjective feelings of happiness (without, on the other hand, completely neglecting them), but it also contains a lot of very concrete questions with respect to actual “doings” and “beings”. The psychological dimensions present in the questionnaire certainly are not reducible to the one dimension of utility or happiness.

By and large, our data material is very close to the “broad” concept of the living standard, defended in Sen (1987, e.g., pp. 26–29 and pp. 109–110). He there rejects the notion of a purely “economic” or “material” interpretation and argues:

"Being psychologically well-adjusted may not be a ‘material’ functioning, but it is hard to claim that that achievement is of no intrinsic importance to one’s standard of living. In fact, any achievement that is rooted in the life that one oneself leads (or can lead), rather than arising from other objectives, does have a claim to being directly relevant to one’s standard of living."

A closer look at the questionnaire we used will reveal that it indeed boils down to an assessment of the nature of the life the persons themselves lead and may therefore be a good starting point for the evaluation of the living standard (in Sen’s interpretation). It seems that, if our data are deemed too subjective, then the same is true for Sen’s theoretical concept of the living standard itself.

In the second place, we will perform in Section 5 a regression analysis to explain the level of functioning of our subjects by their socioeconomic characteristics. Of course, this does not solve the problem of perception bias, if this bias holds for all subjects within a group and is related to the socioeconomic variables in the regression. However, purely idiosyncratic elements in the answers of the subjects are “removed” by this regression analysis, where they will be captured by the disturbance terms as an unexplained stochastic element.

A third advantage of our data is the formulation of the questions themselves. In most cases, the questions start with the phrase: “Since my being unemployed, ...”. This certainly reduces the “adaptation of expectations” bias, because it forces the respondents to compare their actual unemployment situation with their previous situation. It could even induce the opposite bias by evoking negative feelings, which did not exist (or remained implicit) before the respondent was confronted with the questionnaire. It is not possible to weigh these different influences unambiguously against each other from a theoretical point of view. However, we feel that by imposing such a comparison, the formulation of the questions leads to a more objective perception stance.

The formulation of the questions is also relevant with respect to the distinction between functionings and capabilities, emphasized in the previous section. At first sight, the questionnaire gives only information on functionings (“doings” and “beings”). However, we can go somewhat further in our interpretation. It seems reasonable to accept that most respondents in the sample are involuntarily unemployed: being unemployed is not a choice factor but in a certain sense reduces the capabilities to function. Through the formulation of the questions, respondents basically reveal this reduction of capabilities. Indeed, if there would be no reduction in their capabilities, they could answer that their level of functioning was not changed “since their being unemployed”. The answers therefore give us a better insight into the reduction of capabilities of the unemployed in comparison to the employed: differences among different groups of unemployed then point to differences in the reduction of the living standard. One could perhaps say that the questionnaire through the introduction of freedom-type considerations, in a certain sense measures a kind of “refined functionings”.

4 Identification of Functionings

The answers on the questionnaire give us an idea about the level of functioning of our unemployed respondents for 46 “doings” and “beings”. Even though this list probably does not contain all important aspects of the living standard, it is already too extensive to be practically useful. It is difficult to get an overview of the results and surely it would be impossible to make an adequate valuation of these vectors of 46 elements. Moreover, some items on the list obviously overlap, which means that double counting of these functionings would result. In one way or another we have to reduce the number of relevant functionings and avoid overlap as much as possible. So doing...
we also want to escape the danger of "trivialization" of functionings, emphasized by Williams in Sen et al. (1987, p. 98).

Since there is no previous scientific experience in this field, it seems appropriate to use an exploratory statistical technique. Factor analysis is an obvious choice\textsuperscript{11}, although we will return to its limitations at the end of this section. By this technique we try to "explain" the answers of the respondents on the 46 items by their level of functioning on $m$ unknown dimensions. The answer of respondent $i$ on item $j$ is explained as

$$z_{ij} = \sum_k a_{jk} f_k + u_{ij} \quad i = 1, \ldots, 517; \quad j = 1, \ldots, 46 \quad (5)$$

where all variables have been standardized. In matrix notation and for all individuals, this gives

$$Z = AF + U \quad (6)$$

where $Z$ is the $46 \times 517$-matrix with the answers of the respondents, $A$ is the $46 \times m$-matrix of so-called "factor loadings", showing the correlations between the answers on the items and the position of the respondents on the basic functionings, $F$ is the $m \times 517$-matrix of so-called "factor scores", giving the position of the respondents on the $m$ basic functionings and $U$ is the $46 \times 517$-matrix of residual terms. Factor analysis aims at estimating $A$ and $F$ on the basis of the observed matrix $Z$. For an exploratory analysis such as this one, the number of functionings, $m$, cannot be considered to be given a priori. Instead, it is determined in an empirical way through the factor analytic procedure itself. One takes the minimal number of dimensions, such that the introduction of an additional dimension would not increase significantly the percentage of total variance explained.

The remainder of this section will be devoted to the matrix $A$. This will give us a better insight into the identification of the functionings: the basic functionings will be interpreted on the basis of the individual items, loading strongly on them. In the next section, we will use the matrix $F$ to give a description of the living standard of the respondents, because it shows how well they function for the $m$ identified dimensions.

\textsuperscript{11}In fact, it can be argued that the state of the research with respect to the living standard is very similar to the state of the psychological research with respect to intelligence at the time when factor analysis was introduced.

Assuming $A$ to be non-stochastic and $U$ and $F$ to be uncorrelated, we derive from (6)

$$E(ZZ') = A E(FF') A' + E(UU') \quad (7)$$

or, defining $R_Z$ and $R_F$ as correlation matrices,

$$R_Z = A R_F A' + U' \quad (8)$$

If we accept an initial (diagonal) estimate of $U'$, and assume that the basic functionings are orthogonal, i.e. $R_F = I$, we get

$$R_Z - U' = AA' \quad (9)$$

and $A$ can then be defined as

$$A = Q \Lambda^{1/2} \quad (10)$$

where $Q$ is the matrix with the eigenvectors of $R_Z - U'$ and $\Lambda$ the matrix with the corresponding eigenvalues. There is an obvious identification problem, of course: take any orthogonal matrix $K$ and define $A' = AK$. Then

$$A'T A' = AK K' A = AA' \quad (11)$$

The choice of $K$ is called the rotation problem. For our purely exploratory research, the varimax procedure is the most popular solution and we have followed it. This procedure maximises the variance of the loadings on each factor. In practice, this leads to a limited number of high factor loadings on each dimension and thus to an easily interpretable structure. Note that we keep to the assumption of orthogonality of the basic functionings, making sure that the basic functionings in our list do not overlap. We will not go into the technical details (for which see, e.g., Harman, 1976), but turn immediately to the interpretation\textsuperscript{12}.

Table 1 shows the matrix $A$, obtained through the varimax rotation. The six factors explain 92\% of the total variance in the individual items. It is not difficult to give a nice interpretation to the different factors in terms of basic functionings.

\textsuperscript{12}Use was made of the factor analytic possibilities of the SAS-package. We have taken the squared multiple correlation coefficients as an initial estimate of the communalities in the matrix $I - U'$. Factor extraction was stopped when the eigenvalues became smaller than 1.
Table 1

<table>
<thead>
<tr>
<th>FACTOR1 (%)</th>
<th>FACTOR2 (%)</th>
<th>FACTOR3 (%)</th>
<th>FACTOR4 (%)</th>
<th>FACTOR5 (%)</th>
<th>FACTOR6 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G30 0.645</td>
<td>-0.559</td>
<td>-0.137</td>
<td>0.115</td>
<td>-0.021</td>
<td>0.005</td>
</tr>
<tr>
<td>G36 0.615</td>
<td>-0.551</td>
<td>-0.004</td>
<td>-0.086</td>
<td>-0.019</td>
<td>1.989</td>
</tr>
<tr>
<td>G32 0.598</td>
<td>-0.504</td>
<td>0.185</td>
<td>0.006</td>
<td>-0.090</td>
<td>0.207</td>
</tr>
<tr>
<td>G33 0.572</td>
<td>-0.402</td>
<td>-0.399</td>
<td>-0.022</td>
<td>-0.032</td>
<td>1.784</td>
</tr>
<tr>
<td>G36 0.516</td>
<td>-0.232</td>
<td>0.221</td>
<td>0.026</td>
<td>0.030</td>
<td>0.191</td>
</tr>
<tr>
<td>G37 0.501</td>
<td>-0.012</td>
<td>0.322</td>
<td>0.186</td>
<td>0.133</td>
<td>0.131</td>
</tr>
<tr>
<td>G38 0.425</td>
<td>-0.039</td>
<td>0.118</td>
<td>0.126</td>
<td>-0.239</td>
<td>0.057</td>
</tr>
<tr>
<td>G37 0.422</td>
<td>-0.321</td>
<td>0.029</td>
<td>0.234</td>
<td>0.183</td>
<td>0.073</td>
</tr>
<tr>
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<td>-0.050</td>
<td>0.264</td>
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<td>-0.235</td>
<td>0.038</td>
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<td>G34 0.083</td>
<td>0.587</td>
<td>-0.184</td>
<td>0.082</td>
<td>0.059</td>
<td>0.085</td>
</tr>
<tr>
<td>G32 0.067</td>
<td>0.624</td>
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<td>0.005</td>
<td>0.198</td>
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<td>0.587</td>
<td>0.012</td>
<td>-0.102</td>
<td>0.013</td>
<td>0.149</td>
</tr>
<tr>
<td>G36 0.051</td>
<td>-0.559</td>
<td>0.005</td>
<td>-0.007</td>
<td>0.005</td>
<td>0.045</td>
</tr>
<tr>
<td>G34 0.024</td>
<td>0.589</td>
<td>-0.081</td>
<td>0.000</td>
<td>0.014</td>
<td>0.025</td>
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<td>0.230</td>
<td>0.049</td>
<td>0.047</td>
<td>-0.139</td>
<td>0.089</td>
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<td>0.091</td>
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<td>-0.010</td>
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</tr>
<tr>
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<td>0.078</td>
<td>-0.057</td>
<td>-0.111</td>
<td>0.045</td>
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<tr>
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<td>0.325</td>
<td>-0.216</td>
<td>-0.228</td>
<td>0.193</td>
<td>0.052</td>
</tr>
<tr>
<td>G31 0.119</td>
<td>-0.197</td>
<td>0.106</td>
<td>-0.239</td>
<td>0.008</td>
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<td>0.286</td>
<td>-0.278</td>
<td>0.027</td>
<td>0.007</td>
<td>0.006</td>
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<td>0.106</td>
<td>0.036</td>
<td>0.006</td>
<td>0.003</td>
<td>0.005</td>
</tr>
<tr>
<td>G53 0.070</td>
<td>-0.154</td>
<td>0.506</td>
<td>-0.111</td>
<td>-0.010</td>
<td>0.005</td>
</tr>
<tr>
<td>G32 0.035</td>
<td>0.013</td>
<td>0.506</td>
<td>-0.020</td>
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</tr>
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<td>0.002</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
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<td>0.010</td>
<td>0.006</td>
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<td>0.538</td>
<td>-0.005</td>
<td>0.003</td>
</tr>
<tr>
<td>G38 0.158</td>
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<td>-0.004</td>
<td>0.004</td>
<td>0.001</td>
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<tr>
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<td>0.568</td>
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<td>0.011</td>
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</tr>
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<td>-0.033</td>
<td>0.079</td>
<td>0.416</td>
<td>0.026</td>
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<td>0.058</td>
<td>0.388</td>
<td>0.344</td>
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<td>F1 0.105</td>
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<td>0.054</td>
<td>-0.468</td>
<td>0.055</td>
</tr>
</tbody>
</table>

Note: percentage of variance explained by the factor between brackets.

Factor 1 collects a number of items, related to the general social functioning of the respondent. Typical examples are "Since my being unemployed, I feel more lonely", "..., I feel humiliated because I am on the dole" and "..., I feel pushed in a corner of society". A higher score on this factor indicates a growing feeling of social isolation.

Factor 2 is related to a feeling of relaxation and relief. The unemployed people with a high score on this factor are more relaxed, have a better family life and a better general health situation, they are less tired and sleep better. This psychological functioning may be interpreted as a general feeling of happiness and satisfaction and is perhaps closely related to utility.

Factor 3 can be seen as representing a kind of physical functioning. Highly scoring respondents drink more alcohol, have less appetites, gain in weight and generally feel that their health situation has worsened. We obviously have here a collection of psychosomatic complaints.

Factor 4 Respondents with a high score on factor 4 talk more often about their unemployment situation with friends and acquaintances. We can interpret this basic functioning as a kind of microsocial contact. Remember that factor 1 was situated at a macrosocial level.

Factor 5 gives an indication about the time perspective and the activity level of the unemployed: highly scoring respondents make more plans for the future, have more activities and feel optimistic about their chances to get a job soon.

Factor 6, finally, obviously reflects the level of economic or financial functioning. A high score on this factor points to problems of financing basic expenditures on food and clothing.

It is obvious that the basic functioning found through the factor analysis are closely related to Sen’s examples given earlier: material functioning, the ability to entertain friends, be close to people one would like to see, take part in the life of the community. Factor 1 even reminds us of his favourite example of not being ashamed to appear in public, an example taken from Adam Smith. We therefore feel that the factor analysis has led to a useful identification of some basic functioning. However, it is important to emphasize that in this context factor analysis has been used as a mere data reduction technique. It only summarizes the information contained in the original questionnaire, it does not add any information. It helps solving the problem of defining...
a limited number of well interpretable and non-overlapping functionings (which must be considered an important achievement) but in no way guarantees that our original list of functionings is a complete one. Of course, neither does it give us any indication whatsoever about the valuation of the functionings. The weights obtained through this technique give only an idea about the statistical importance of the factors (the functionings) for the explanation of the observed response patterns. It would be completely wrong to derive from this an indication about the form of the valuation function \( \psi \).

5 The living standard of different unemployed groups

The identification of the functionings is only a preliminary step in the analysis of the living standard. The next step is the measurement of the level of functioning of our respondents. Within the factor analytic framework, these functioning levels are given by the matrix \( F \), i.e. the factor scores. Assuming the matrix \( A \) and the vector \( \mathbf{x} \) (the answers of the subjects on the individual items) to be known, the vector \( f \) can be estimated (for each respondent separately) using a least squares technique (see (5)). The complete matrix \( F \) gives us the factor scores for all subjects on all factors, i.e. the level of functioning of all subjects for all the identified functionings.

We could now try to aggregate the different functionings into a general valuation of the living standard. However, as was emphasized at the end of the previous section, factor analysis does not offer a solution to this problem. Nor did the original questionnaire contain any information which could be useful in this respect. We will therefore stick to the definition of the living standard as a vector \( f \), without trying to aggregate the elements of that vector. As a matter of fact, such a vector provides a richer description than could be obtained through any aggregation procedure. For policy purposes, it might sometimes be necessary to have an idea about the weights to be attached to the different functionings: but even for the policy-maker a differentiated view on the living standard can be useful. Sen (1987, p. 33) defends a similar position:

"The passion for aggregation makes good sense in many contexts, but it can be futile or pointless in others. Indeed, the primary view of the living standard is in terms of a collection of functioning and capabilities, with the overall ranking being the secondary view."

Again, our operationalization seems quite close to the spirit of Sen's concepts.

It is perhaps good to note here that the lack of an aggregation procedure does not imply that the problems of identification and valuation can be completely separated. Before the identification, the analysis already starts with an implicit valuation. Indeed, the items which are included in the questionnaire normally will all refer to functionings, which a priori have been deemed relevant ("valuable")\(^{13}\).

The matrix \( F \) as such is too large to allow for an interesting interpretation. Normally, we are not really interested in the individual living standards, but we want to get a better insight into the living standard of different groups. Certainly from a policy point of view, this latter information is crucial. To structure the information in the matrix \( F \), we estimated the following (linear) regression model:

\[
f_k = c_k + \sum_j c_{kj}x_j + u_k \quad k = 1, \ldots, 6.
\]

(12)

where \( f_k \) is the vector with all the individual observations for the level of functioning \( k \), \( x_j \) is a vector with the observations of all individuals for the socioeconomic characteristic \( j \), \( u_k \) is a vector with disturbance terms and the \( c \)'s are coefficients to be estimated. The following socioeconomic characteristics were included:

- \( Y \): net disposable household income per month;
- \( R \): the ratio unemployment benefits per month/previous wage per month, capturing the income loss\(^{14}\);
- \( AGE \) (in years);
- \( SEX \): a dummy taking the value 1 for male respondents;
- \( LIFE1 \): a dummy for the unmarried, living with their parents;
- \( LIFE2 \): a dummy for the unmarried, living alone;
- \( LIFE3 \): a dummy for the unemployed, who live together with a partner, without children;
- \( LIFE4 \): a dummy for the unemployed, who live together with a partner, with children;
- \( LIFE5 \): a dummy for the unemployed, who are divorced, without children;
- \( LIFE6 \): a dummy for the unemployed, who are divorced, with children.

\(^{13}\) Moreover, this problem is not specific to the use of questionnaire data. Direct non-market observations will also necessarily be selective.

\(^{14}\) Since \( Y \) is in levels and \( R \) is a ratio, there is no strong a priori reason to expect multicollinearity between these two variables.
Table 2
Functionings and Social Characteristics

<table>
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<tr>
<th>FACTORS 1</th>
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<th>FACTORS 3</th>
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* Y: net disposable household income per month
  R: the ratio unemployment benefits per month/previous wage per month; capturing the income loss
  AGE: age in years
  SEX: a dummy taking the value 1 for male respondents
  LIFE1: a dummy for the unmarried, living with their parents
  LIFE2: a dummy for the unmarried, living alone
  LIFE3: a dummy for the unemployed, who live together with a partner, without children
  LIFE4: a dummy for the unemployed, who live together with a partner, with children
  LIFE5: a dummy for the unemployed, who are divorced, without children
  LIFE6: a dummy for the unemployed, who are divorced, with children
  FACTOR 1: social isolation;
  FACTOR 2: general feeling of happiness;
  FACTOR 3: bad physical functioning;
  FACTOR 4: interpersonal contact;
  FACTOR 5: degree of activity;
  FACTOR 6: financial problems.

(Standard errors of coefficients between brackets. Coefficients with an asterisk are significant at a 5% level)

The reference case for the latter dummies is the situation LIFE2, and this dummy has been omitted. The results of the regression are shown in Table 2. It is obvious that only a small part of the variance of the realized functionings can be explained by these broad socioeconomic characteristics. The idiosyncracies in response patterns are important.

However, the description of the situation of different unemployed groups, as suggested by the table, is intuitively very appealing. Let us try to tell a story, based on the significant coefficients (p < 0.05). The material factors are almost irrelevant, emphasizing strongly the need for a broad concept of the living standard. The income level only mitigates the financial problems (quite logically), but has no effect on any of the other functionings. A large income loss (a low value of R) leads to more social isolation. Compared to women, unemployed men have a stronger general feeling of unhappiness and more psychosomatic problems. They perceive the financial limitations as more important. However, at the same time they also are more active and make more plans for the future. The older unemployed have less social contact, both from a microsocial and from a macrosocial point of view. Their time perspective is shorter (again, a reasonable result) and they have less financial problems. Living together with a partner has important effects on the living standard: although it leads to a more acute financial problem, it also increases the general feeling of happiness and decreases the probability of health problems. Divorced people with children also have more financial problems, but in their case these are not "compensated" by a better psychological adjustment. Finally, the divorced unemployed without children are more pessimistic and less active than the other groups.

We feel that this sketch of the living standard of different unemployed groups contains some interesting information. Of course, some a priori important variables are missing in Table 2. We have experimented with proxies for some of these variables. The results are shown in Appendix B. The interpretations given earlier all remain valid for this broader specification. A priori one would expect the duration of unemployment (and possibly the duration of employment in the last job) to be important. They did not have much explanatory value in our regressions, however. Another important factor is the voluntary or involuntary character of unemployment. For obvious reasons, it was difficult for the RVA to collect useful information on this variable. We have used as a proxy the number of applications by the respondent in the last two months. People who look more actively for a job seem to

15 For the interpretation of the results of the variables SEX and AGE, it is good to keep in mind the possibility of perception bias.
be more isolated and less happy. They also have a more acute financial problem. The interpretation of these results is not easy, however: given that the number of applications refers to a behavioural reaction and not to a stable characteristic, there can be serious doubts about the direction of causality. It stands to reason that unemployed with more financial problems will look more actively for a job; it is difficult to explain why the activity of looking for a job would lead to a (significant) reduction in income. We therefore feel that it is advisable to concentrate on the results in Table 2.

From this table it is obvious that income levels or measures of 'happiness' (and utility) tell only part of the story. The vector-interpretation of the living standard leads to policy conclusions, which could not have been derived from the more traditional approaches. It suggests that the use of non-financial instruments, directed towards specific groups, may be worthwhile. Increasing the financial compensations for the older unemployed, e.g., will not solve their problems: it is more efficient to concentrate all efforts on their social integration. Of course, one should be careful in drawing such policy conclusions. Our results are based on a comparison between different groups of unemployed and not on a comparison between employed and unemployed people.

The results in Table 2 could also be used to go beyond the vector-interpretation. Sen suggests to look for cases of vector dominance (which would point to an unambiguously lower standard of living): in our results, however, it seems not to be the case that some groups of unemployed are dominated by other groups for all functionings. However, it may be hypothesized that rather extreme sets of weights would be necessary, e.g., to reject the statement that the living standard of divorced unemployed men is lower than that of most other groups. If one really wants to arrive at a scalar measure of the living standard, one could go further with analogous thought experiments. However, as was already argued, we feel that the vectors of functionings as such give most of the interesting information and that for many purposes aggregation and overall valuation are not necessary.

6 Concluding Remarks

In this paper we started from Sen's definition of the living standard to structure our description of the economic situation of the Belgian unemployed. Of course, the richness of the theoretical argumentation is only very partially reflected in our empirical exercise. Moreover, such an empirical application can never be a definitive argument for or against the value of a theoretical concept. Yet it is clear that a descriptive concept can only be useful if it helps in describing, i.e., if it contributes to a better structuring of the problem. In our case, the concept of (refined?) functionings certainly has given us an attractive line of approach. At least it helped us formulate the questions to ask when going beyond the traditional income or utility framework. More empirical work along these lines therefore seems to be eminently useful.

Starting from questionnaire data, we suggested that exploratory factor analysis could be an adequate technique to reduce the number of basic functionings and to avoid the possible overlap between the different items. The vector of factor scores yields an interesting description of the living standard of the unemployed. It was shown that these factor scores are related in a meaningful way to the socioeconomic characteristics of the respondents. More experience with this kind of data would make it possible to formulate prior hypotheses about the functionings to be found and this would pave the way for the use of more sophisticated techniques. The specification of a model with latent variables readily suggests itself. Further applications also should be more explicit about the valuation problem.

Perhaps the questionnaire data we used are somewhat too subjective and we cannot be sure to have escaped the problem of perception bias. It seems that a closer approximation to Sen's ideal could be obtained by combining questionnaire information with direct observations of personal states, e.g., health or degree of activity.

We are well aware that work such as we presented here, is only a very first step. However, it is a step which has to be taken. Only through the accumulation of empirical results will it be possible to proceed towards the implementation of a rich concept of the living standard. Moreover, even these preliminary results already offer us insights into reality, which could not easily have been obtained within a more traditional utility framework.
APPENDIX A
Data on Functionings

We selected from the questionnaire 57 questions about (refined?) functionings. Eleven items were removed, because their estimated communalities in the factor analysis were very low. For each question, the respondent could choose among five answers:

1) I completely agree;
2) I agree;
3) Sometimes I would agree and sometimes disagree;
4) I disagree;
5) I completely disagree.

The following 46 items were used:
G21: I do not mind being unemployed, because it simply is impossible to find a job.
G22: At this moment, I am unemployed for such a long period that I do no longer look for a job.
G23: Since my being unemployed, I feel pushed into a corner of society.
G24: Since my being unemployed, I am less capable of bearing criticism.
G25: Since my being unemployed, I feel like being of less importance within my family.
G26: Being on the dole gives me a feeling of humiliation.
G27: Since my being unemployed, I think more about my future.
G28: I do not want to face the possibility of one more year of unemployment.
G29: Since my being unemployed, my leisure time is less valuable than before.
G30: Since my being unemployed, I feel more relaxed when staying at home.

A positive aspect of my unemployment situation is:
G31: I have more leisure time.
G32: My health situation is better.
G33: I am not so busy.
G34: I am more relaxed.
G35: My family life is better.
G36: I have the opportunity to do all kinds of things that are valuable to me.

I talk about my unemployment situation with:
G37: my family.
G38: my neighbours.
G39: my friends and acquaintances.
G40: other unemployed people.
G41: my partner.

G42: Since my being unemployed, I have more contact with my friends than before.
G43: I have the feeling that through becoming unemployed I have disappointed my family.
G44: Most of my friends were colleagues.
G45: I feel more lonely than before.
G46: I have lost contact with my former mates and colleagues.
G47: Since my being unemployed, I am more alone.

Since my being unemployed,
G52: My health situation has worsened.
G54: I sleep better.
G55: I have less appetite.
G56: I feel less tired than before.
G57: I drink more alcohol.
G58: I eat too much.
G59: I suffer from indigestion.
G60: I have gained weight.
G61: I get more sleep than before.
G62: I have more money than before.
G63: Since my being unemployed, I feel more dependent on the income of other people (parents, partner).

Since my being unemployed,
T1: Time moves faster.
T2: I have difficulties to structure my days.
T3: I have more activities.
T4: I make more plans for the future.
T5: I tend to put off things more often.

W6: I feel optimistic about my chances to get a job soon.
**APPENDIX B**

Results for the Broader Specification

<table>
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<tr>
<th>FACTOR1</th>
<th>FACTOR2</th>
<th>FACTOR3</th>
<th>FACTOR4</th>
<th>FACTOR5</th>
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$R^2 = .072$ .081 .056 .047 .257 .131

- APPL: number of applications during the last two months;
- Y: net disposable household income per month;
- R: the ratio unemployment benefits per month/previous wage per month, capturing the income loss;
- AGE (in years);
- EMPL: duration of employment in the last job (in months);
- DURATION: duration of unemployment spell (in months);
- SEX: a dummy taking the value 1 for male respondents;
- LIFE1: a dummy for the unmarried, living with their parents;
- LIFE2: a dummy for the unmarried, living alone;
- LIFE3: a dummy for the unemployed, who live together with a partner, without children;
- LIFE4: a dummy for the unemployed, who live together with a partner, with children;
- LIFE5: a dummy for the unemployed, who are divorced, without children;
- LIFE6: a dummy for the unemployed, who are divorced, with children.

(Standard errors of coefficients between brackets. Asterisked coefficients are significant at a 95%-level).

**REFERENCES**


