Tomasz Kwarciński, Paweł Ulman

A hybrid version of well-being: An attempt at operationalisation[1]

Abstract

Objectives: This paper aims to investigate the possibility of constructing a hybrid version of well-being and making an attempt at its operationalisation.

Research Design & Methods: The theoretical framework is based on the capability approach of Amartya Sen and Martha Nussbaum, while the empirical part of the paper refers to a fuzzy set theory.

Findings: We propose three measures of hybrid well-being, referring to (1) the minimum formula, (2) a mobility index, and (3) the concept of internalities.

Implications / Recommendations: We are convinced that it is not only possible to create a philosophically informed measure of well-being, but also that this kind of measure can be crucial in the context of public policy due to its sensitivity to autonomy and adaptation problems.

Contribution / Value Added: Findings of this research can be seen as an attempt to merge philosophical investigation with economics theories and applications.

Article Classification: Conceptual article

Keywords: well-being, hybrid well-being, capability approach, autonomy, adaptation

JEL classification: I31, I39

Introduction

According to Valerie Tiberius (2014, 71110) "Well-being is what is achieved by someone living a life that is good for him or her." Well-being, therefore, is something non-instrumentally good for people, something which is in their interest.[2] Since Derek Parfit's book *Reasons and Persons* (1984), philosophers have been distinguishing between least three kinds of well-being theories:

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[2] Well-being as a prudential value should be distinguished from moral values, such as the concept of Aristotelian perfectionism, which stated that someone's life is an ideal and good as such, and not good for somebody.

[3] Some philosophers and psychologists indicate a fourth kind of well-being theory which is human flourishing (Kraut 2007; Seligman 2011). They usually refer to Aristotelian eudemonism which also inspired the objective list approach to well-being.

hedonistic theories, desire-fulfilment theories, and objective list theories.[3] According to Hedonistic Theorists "What would be best for someone is what would make his life happiest. On Desire-Fulfilment Theories, what would be best for someone is what, throughout his life, would best fulfill his desires. On Objective List Theories, certain things are good or bad for us, whether or not we want to have the good things, or to avoid the bad things" (Parfit, 1984, p. 493). Following Anna Alexandrova (2017), we will refer to these as the Big Three theories of well-being.

There are two main problems related to well-being theory that the approaches to well-being such as hedonism, preference fulfilment theory, and the objective list theories have to deal with. The first one concerns maintaining the agent's autonomy and the second breaking the vicious circle of personal adaptation to living in poor conditions. While the hedonism and preference fulfilment theories can tackle the autonomy problem efficiently, they cannot overcome the problem of personal adaptation. In contrast, the objective list theories can solve the adaptation problem, but encounter difficulties as far as the agent's autonomy is concerned. Thus, not surprisingly, many philosophers start to investigate the possibility of constructing a hybrid version of well-being theory.

The hybrid approach to well-being has been, for example, advocated by prominent philosophers such as Derek Parfit, Shelly Kagan, Richard Kraut and Władysław Tatarkiewicz. In a short but famous appendix to his book Parfit points out "What is good for someone is neither just what Hedonists claim, nor just what is claimed by Objective List Theorists. We might believe that if we had either of these, without the other, what we had would have little or no value" (Parfit, 1984, p. 502).

Kagan's remarks are similar in spirit but she highlights the subjective constraint of otherwise objective goods: "Instead of going all the way back to hedonism, and holding that well-being consists simply in the presence of pleasure, perhaps we could retain the thought that well-being involves various objective goods – things like accomplishment, or knowledge, or love – but insist nonetheless that one is well off only if one also takes pleasure in having these things. That is to say, I am well off if and only if there are objective goods in my life and I take pleasure in them, I enjoy having them" (Kagan, 2009, p. 255). A complementary approach is presented by Kraut who points out to an objective constraint of subjective goods "(…) what makes a desire good to satisfy is its being a desire for something that has features that make it worth wanting. Notice the difference between this approach and the one that lies behind the desire theory. It says that we confer goodness on objects by wanting them; by contrast, my idea is that the objects we desire must prove themselves worthy of being wanted by having certain characteristics. If they lack features that make them worth wanting, then the fact that we want them does not make up for that deficiency" (Kraut, 2013, p. 289).

Even before all of these discussions, Tatarkiewicz, in his impressive book *Analysis of Happiness*, indicated that "A subjective satisfaction is the condition of happiness, but it also has to be objectively justified. This invests the notion of happiness with a double nature, combining the subjective and the objective" (Tatarkiewicz, 1976, pp. 15–16).

This paper aims to investigate the possibility of constructing a hybrid version of well-being (HWB for short) and making an attempt at its operationalisation. This is a mainly methodological aim which has two aspects: first of all, we would like to develop an analytical strategy to calculate hybrid well-being, then we want to show how the Big Three theories of well-being can inform empirical research. Our work can also be seen as an attempt at merging philosophical investigation with economics theories. The central concept of HWB rests on a philosophical analysis and is inspired by the aspiration to tackle adaptation and autonomy problems pointed out by philosophers. At the same time, we refer to economics and apply econometric techniques to operationalise this

concept. We would like to propose static as well as dynamic measures of HWB. Our research is to be based on an empirical analysis of datasets from the European Quality of Life Survey Integrated Data File, 2003–2012. The depositor of the data is The European Foundation for the Improvement of Living and Working Conditions. The data was downloaded from the UK Data Service.

In the first section of this paper, the basic theoretical ideas and selected approaches are presented. The second section is devoted to data analysis. The results are discussed in the third section. The fourth section includes some modifications applied to the initial procedure. At the end of this paper we discuss objections, replies, and clarifications.

Theoretical framework

The hybrid version of well-being is a trade-off between subjective and objective well-being. To calculate the HWB index initially we need to find some measure of subjective and objective well-being.

In this paper we treat subjective well-being (SWB) as happiness or life satisfaction, measured by the use of a questionnaire, the European Quality of Life Survey (EQLS), where respondents answer the following question: "Taking all things together on a scale of 1 to 10, how happy would you say you are?" This kind of research is an example of renowned studies of well-being within the economics of happiness.

While SWB is a kind of self-evaluation of the subjective state of happiness, the objective aspects of HWB refer to the capability approach of Amartya Sen and Martha Nussbaum. According to Sen (2005), the personal capability is defined as a set of valuable "doing" or "being" that a particular person is able to do or to be. For instance, it is not only important that someone has a car (commodity), and he/she actually drives it (functioning), but also his/her personal characteristics (e.g. health) and natural and social environment (e.g. distance to work, income) and his/her ability to use a car

when he/she needs and wants to (capability). Sen is convinced that establishing a complete, all-purpose useful list of human capability is impossible and unnecessary. Depending on our particular objectives (e.g. poverty eradication or gender inequality prevention), when we look for the most important capability set each time we have to rely on the process of public deliberation. Nussbaum takes a different view. According to her there are fundamental human capabilities related to life, health, relationships, etc. All of them secure personal autonomy and dignity, which is why they are universally important.[4] This leads her to propose a list of central human capabilities comprising ten categories: (1) life; (2) bodily health; (3) bodily integrity; (4) senses, imagination and thought; (5) emotions; (6) practical reason; (7) affiliation; (8) other species; (9) play; and (10) control over one's political and material environment (Nussbaum, 2003, pp. 41–42). According to Nussbaum (2003, p. 40) this specific "Decalogue" is focused on both "the comparative quality-of-life measurement and the formulation of basic political principle of the sort that can play a role in fundamental constitutional guarantees".

In this paper we try to operationalise Nussbaum's list, linking each category to a specific variable or variables from the European Quality of Life Survey. Based on the fuzzy sets theory we calculate an index of objective well-being. Then the index is rated on the scale of 1 to 10, similarly to SWB. Thus there are two measures of well-being: subjective self-evaluation (SWB) and objective calculation. The former is called S (subjectivity), while the later is known as Q (quality of life). Before more details are provided, two issues are worth mentioning. The first one is that to use a survey to operationalise Nussbaum's approach we have to focus on personal functionings rather than capabilities, due to the fact that surveys

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[4] Of course, the list's content is still debatable, there are also discussions regarding weights assigned to particular categories of well-being. Nonetheless, the list approach has gained some popularity among empirical researchers (Alkire, 2002).

usually contain information regarding actual and not potential doings or beings. The second issue concerns the question of objectivity. We treat the list of central human functionings as an objective in the sense that it consists of the functionings which are impartially worth wanting. Therefore objectivity is related to impartiality and not to independence from personal perspectives and attitudes (evaluations, opinions). For instance, feelings are included among central human functionings and, even if they are experienced as purely personal (subjective), they are also a part of objectively (impartially) valuable human life.[5]

Based on subjective (S) and objective (Q) well-being we use two different approaches to calculate the HWB index. Firstly HWB is defined as a minimum value of S or Q, according to the formula HWB = min (S, Q). The mobility index which measures the distance between S and Q is also calculated. Secondly, we refer to the economic concept of "internalities", measuring them by subtracting S from Q.

Defining HWB as the minimum value of S or Q might yield three possible outcomes: either Q is less than S (Q < S) or S is less than Q (S < Q) or S is equal to Q (S = Q). We suggest the following interpretation of each of these solutions. If Q < S it means that someone chooses goods which are not worth wanting, or she/he adapts to bad living conditions (has cheap tastes). In such a case his/her well-being remains at level Q. If, on the other hand, S < Q, then someone does not want to choose the goods which are worth wanting or she/he adapts to luxury (has expensive tastes). At this time his/her well-being remains at level S.[6] When S = Q it means that someone chooses only the goods which are worth wanting.

We are convinced that in order to enhance a person's well-being two separately justified and independent conditions should be satisfied: a first one, the outcome which is that the object of personal desire should be worth wanting (an objective condition); and a second, that the subject should want to achieve this outcome (a subjective condition). Both conditions are independently necessary and jointly sufficient. At this stage our approach is an exemplification of what according to Woodard (2015, p. 7) is called a joint necessity model of well-being.

Giving priority to Q when it takes the lower value enables us to be sensitive to the adaptation problem, while favouring S when it becomes lower is a way to respond to the problem of personal autonomy. In other words, if someone feels very happy (i.e. S is high) while his/her quality of life is reduced (i.e. Q is low), we suggest that his/her well-being is in fact at level Q. But if someone feels extremely dissatisfied (i.e. S is low) while his/her quality of life is excellent (i.e. Q is high), we think that his/her personal experience should have priority. In such a case nobody should be able to force another person to choose goods which he/she does not want. Thus, to highlight his/her autonomy, in our approach, the level S indicates his/her well-being.

Another way to operationalise hybrid well-being refers to the concept of internalities, which is particularly popular among behavioural economists (Raj, 2015). The basic idea is analogical to the concept of externalities. If, for example, a factory pollutes a river, causing diseases among the locals, we say that this company externalises some of its costs and that the local community unfairly bears at least part of the burdens of the factory operations. Similarly, if someone is an enthusiastic, heavy smoker, and might develop lung cancer in the future, we can say that their present-self imposes some burdens on his/her more objective future-self creating some internalities. Therefore, internalities are considered as the differences between self-evaluation of well-being (S) and the objective quality of life (Q) indicated, for example, by the state of one's health. It is calculated by subtracting S from Q.

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[5] In the fourth section we will check how sensitive our conclusions are regarding different concepts of variables objectivity.

[6] Therefore our approach is sensitive to what is known as the satisfaction paradox (Q < S) and the satisfaction dilemma (Q > S) (Boelhouwer & Noll, 2014, 4437).

Positive and negative internalities can be distinguished. Positive internalities are observed if somebody has higher objective living conditions (Q) than his/her self-evaluation of happiness (S). In such a case some positive opportunities can be utilised. Conversely, negative internalities are observed if somebody's living conditions are lower than his/her level of happiness (Q < S). Similarly to the case of a heavy smoker, people can feel happy even if they have weak health or low income (negative internalities). We do not speculate what potentially caused such a situation due to its variability. Namely, it could be their own decision or decisions taken by others or simply bad luck. Nonetheless, this gap is treated as a negative state of affairs.

Data analysis

Procedure

The source of our statistical data was the European Quality of Life Survey (EQLS) gathered between 2003 and 2012. The data file contained 484 variables collected for 34 countries in three waves. In this paper we only focus on data for Poland collected in the third wave. There are 2,262 observation units (individuals). After checking the data for completeness, and eliminating missing data, the number of observation units was reduced by almost a half. Thus we decided to complement the missing data. To do that we chose the variables which had the fewest deficiencies and were relevant to well-being research. These variables became the basis for completing missing data for other variables. For this purpose a procedure based on the *k*-nearest neighbours algorithm implemented in a Statistica package was used. In the end the data contained 2,226 observation units and accounted for 35 variables without missing data.

The variables were grouped into six areas, which are the dimensions of central human functionings: (1) life, (2) health, (3) education, (4) emotions, (5) relationships, and (6) income. The variables are the indicators of objective well-being (Q).

Usually there is an objective-subjective distinction concerning indicators. The objective indicators are focused on a measure of a situation, while the subjective indicators are used as an evaluation of a situation (Boelhouwer & Noll, 2014, 4436). In our case a different concept of objectivity was applied.[7] As mentioned previously, objectivity is equal to impartiality and directly related to the theoretical framework of Nussbaum's capability approach. For instance, due to the fact that health and education are goods essential to the respondents (goods put on the list of central human functionings), the reports regarding chronic illness and the levels of education, as well as the self-evaluation of health or the satisfaction derived from education, were included in indicators. There is also an entire category of indicators regarding subjective feelings and emotions which are treated as objectively valuable to people.

The selection of indicators depended on the theoretical framework, mainly Nussbaum's proposal for an objective list, as well as the availability of data. Due to a shortage of data we narrowed Nussbaum's list down to six areas of objective well-being instead of original 10 (Table 1). All indicators of well-being included in particular dimensions were collected via self-reporting.[8]

To obtain a single, aggregated assessment of respondents' objective well-being (Q) we referred to the fuzzy sets theory proposed by Zadeha (1965), which is often applied to evaluate people's degree of poverty risk. It is worth noting that this theory has been successfully applied to form a membership function of poverty in both monetary and non-monetary approaches. Among those who used the fuzzy sets theory were Cerioli, Zani (1990), Cheli (1995), Betti, Cheli, Lemmi, Verma (2005), and in Poland Panek (2011) and Ulman & Šoltés (2015). In contrast to the classic approach to the identification of poor people, when

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[7] In the fourth section we will return to the traditional subjective/objective distinction regarding indicators.

[8] Another way of data collection is via independent registration (Boelhouwer & Noll, 2014: 4436) but in the EQLS this method was not used.

Table 1. The indicators included in the central human functionings

Dimensions of central human functionings	Set of indicators
Life	Problems with the neighbourhood – noise
	Problems with the neighbourhood – air quality
	Problems with the neighbourhood – the quality of drinking water
	Problems with the neighbourhood – crime, violence or vandalism
	Problems with the neighbourhood – traffic congestion
	Problems with accommodation – a shortage of space
	Problems with accommodation – lack of an indoor flushing toilet
	Problems with accommodation – lack of a bath or shower
	In my daily life I seldom have time to do the things I really enjoy
	I feel that the value of what I do is not recognised by others
	Own hobbies, interests
	My daily life is filled with things that interest me
Health	General self-evaluation of health
	Chronic (long-standing) physical or mental health problem, illness or disability
	Distance to doctor's office/hospital/medical centre
	Waiting time to see a doctor on the day of the appointment
Education	Satisfaction from education
	The highest level of education
Feelings/ Emotions	Some people look down on me because of my job situation or income
	I feel close to people in the area where I live
	I have felt lonely
	I have felt downhearted and depressed
	I am optimistic about the future
	Life has become so complicated today that I almost can't find my way
Social relationships	Face-to-face contact with friends or neighbours
	Contact with family members
	Other social contact (not family)
	Take part in sports or physical exercise
	Participate in social activities of a club, a society or an association
	Attended a meeting of a trade union, a political party or a political action group
	Attended a protest or a demonstration
	Signed a petition, including an e-mail or an online petition
	Contacted a politician or a public official
Income	OECD equivalised household income in PPP

Source: own analysis based on Nussbaum's list of central human capability.

the membership function takes only two values (1, when someone is poor, or 0, when someone is not poor), the fuzzy sets approach assesses a person's degree of poverty risk by means of a function which takes values from a range of [0:1].

The membership function of poverty is based on symptoms or indicators of poverty, distinguishing a monetary element (based on incomes or expenses) and a non-monetary element (various factors which can point to a poverty risk). Due to the fact that poverty can be treated as a low level of well-being, we can apply this approach to research on levels and diversities of well-being (referring to persons, families or households). Thus we create a membership function of well-being instead of poverty.

The first step to obtaining an aggregate measure of well-being is to standardise individual variables (well-being indicators). There is the following formula of the membership function of well-being:

$$e_{hj,i} = 1 - \frac{1 - F\left(c_{hj,i}\right)}{1 - F(1)}, \ h = 1, 2, \ldots, m; \ j = 1, 2, \ldots, k_h, \ i = 1, 2, \ldots, n, \tag{1}$$

where: $c_{hj,i}$ is a rank of a variant of j-variable (factor of poverty/well-being) from h-area of poverty/well-being for i-household (individual); and $F(1)$ is a value of cumulative distribution function of ranks of j-variable from h-area of poverty/well-being for ranking equal 1 (a variant of j-variable indicating the lowest level of well-being/the highest level of poverty risk).

The values of this measure are obtained for each variable (indicator) and are normalised into a range of [0:1]. The higher the value of (1), the higher the well-being level indicated by a given indicator. In the next step an aggregation of assessments of well-being (lower level of poverty) membership (for each individual) was performed by calculating the arithmetic or weighted mean for each h-area, then the arithmetic or weighted mean was calculated for an overall assessment of well-being. We decided to use weights in the second case when we calculated the weighted mean to obtain the overall (aggregated) normalised value of the well-being assessment using the following formula:

$$e_i = \frac{\sum_{h=1}^{m} w_h e_{h,i}}{\sum_{h=1}^{m} w_h}, \tag{2}$$

where: $e_{h,i}$ is aggregated assessment of well-being for i-individual (person) in the h-area; and w_h is a weight for h-area.

The system of weights is based on the comparison of the level of variation using the formula:

$$w_h = (ln(V_h)^{-1})^{-1}, \tag{3}$$

where: V_h is a coefficient of variation calculated for $e_{h,i}$.

Such a system of weights rewards those areas of well-being which differentiate the surveyed population more.

Finally, the calculation of the membership function of well-being (lower level of poverty risk) for i-person was made using the following formula:

$$\lambda_i = (F_i * L_i)^{\alpha}, \tag{4}$$

where: F_i is a value of cumulative distribution function of the assessments of well-being membership $F(e_i)$ for each area or in total; L_i is a value of a Lorenz function of the assessments of well-being membership $F(e_i)$ for each area or in total; and α is a parameter.

The values of the λ_i function fall into a range of [0:1]. The higher value of the function, the higher personal well-being is. The α parameter allows for the calibrating of the λ_i function in such a way that its values become comparable to the values of the base variable (S), which is a subjective evaluation of happiness.

To summarise, applying formula (1) the value of $e_{hj,i}$ was calculated for each variable. Then all these values were aggregated by taking the arithmetic mean for each h-area of well-being and after applying the formula (2) for all areas together. Finally, based on the aggregated values, the membership function of well-being (4) was calculated for each of six areas and in total.

Because we wanted to compare our calculation to subjective evaluations of happiness (S), which was our base variable, we decided to calibrate the function (4) in such a way that the mean of the function (4) was equal to the mean of the base variable (S).[9] To achieve that goal we had to adjust the α parameter and its estimated value, which ensured the equality of the means was 0.1608.

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[9] The variable (S) represents the level of happiness, on a scale of 1 to 10, while the function (4) takes values from 0 to 1, so the average of the variable (S) was divided by 10 to compare with the average of the values of the function (4).

To compare the base variable (S) to objective well-being (Q) we grouped the values of the function (4) into ten categories. We assumed that the interval of the function variability would be divided into ten intervals of equal length. Finally, based on the particular interval of the value of the function (4), the numbers from 1 to 10 were assigned to each observation unit (individuals).

To indicate the transition between S and Q or S and HWB we used Bartholomew's mobility index (B), which in the present context can be defined as

$$B = \frac{1}{s-1} \sum_{i=1}^{s} \sum_{i=1}^{s} w_i p_{ij} |i-j|, \qquad (5)$$

where: s is the number of categories; w_i is a fraction of people belonging to the i-th category of the base variable (S); p_{ij} is the probability of each element mobility, which is calculated using the following formula

$$p_{ij} = \frac{n_{ij}}{\sum_{j=1}^{s} n_{ij}} \text{ for } i, j = 1, 2 \dots, s, \qquad (6)$$

where n_{ij} is the number of people belonging to the i-th category of the base variable (S) and the j-th category of the objective well-being assessment (Q or HWB).

Finally, we presented the relationship between the subjective and objective evaluation of well-being by focusing on differences between them. Thus, the internalities were calculated (Q – S).

Results

The subjective and objective evaluations of well-being are compared in Table 2. Respondents' degree of happiness (S) was compared to objective assessment of well-being (Q). For instance, 13 people in total claimed to be very unhappy; however, according to our calculated assessment of well-being, none of these respondents fell into the lowest level of well-being. Instead all of them were included in the higher categories of well-being: category 2 (three persons), 3 (two persons) 4 (three persons), 5 (two persons), 6 and 7 (one person each), and 10 (i.e. very happy) (one person).

Table 2. Happiness vs objective well-being

| Degree of happiness (S) | Objective well-being (Q) | | | | | | | | | | Total |
	1	2	3	4	5	6	7	8	9	10	
1 (very unhappy)	0	3	2	3	2	1	1	0	0	1	13
2	2	1	5	5	6	2	2	1	1	0	25
3	0	5	8	12	12	6	12	4	3	2	64
4	0	3	5	11	10	16	6	12	9	1	73
5	0	3	12	18	33	35	47	42	36	22	248
6	0	1	10	17	23	43	39	38	53	20	244
7	0	2	6	12	28	43	54	67	81	86	379
8	1	1	2	16	28	42	73	117	143	156	579
9	0	1	1	4	7	20	30	45	66	126	300
10 (very happy)	0	1	2	1	8	14	33	53	70	119	301
Total	3	21	53	99	157	222	297	379	462	533	2,226

Source: own analysis of EQLS data.

The main downwards diagonal shows the number of people whose subjective evaluation of happiness (S) was equal to the objective assessment of well-being (Q) calculated by function (2). The number of people whose subjective evaluation was lower than the objective assessment of well-being (S < Q) were allocated above the main downwards diagonal, whereas individuals whose happiness was higher than their objective evaluation of well-being (S > Q) were allocated below the main downwards diagonal. Thus, having both S and Q, the hybrid version of well-being (HWB) was calculated according to the formula HWB = min (S, Q). For instance, HWB at level 5 consisted of 33 cases when Q = S, 182 cases (35 + 47 + 42 + 36 + 22) when S < Q, and 94 cases (23 + 28 + 28 + 7 + 8) when S > Q. There were a total of 309 cases, as shown in Table 3.

Taking aggregate numbers of S and HWB in each category of happiness and well-being, HWB exceeded S for the lower and middle categories (from 1 to 7), while S exceeded HWB for the higher categories (from 8 to 10) (see Figure 1). This means that according to HWB there were more people in the lower and middle levels of well-being than were indicated by self-evaluation of happiness (S).

Since HWB is focused on the lowest levels of S or Q, when calculating HWB it is important to be sensitive not only to the aggregate number of HWB in each category but also to the movement between higher and lower categories of well-being. For this reason the mobility index was calculated. Table 4 shows the outcomes of the mobility index when the subjective evaluation (S) is higher than the objective assessment of well-being (S > Q), and when the subjective evaluation (S) is lower than the objective assessment of well-being (S < Q), as well as the total value. Due to the fact that S is the base variable, the mobility index is a measure which captures the movement from S to Q. The value of the mobility index depends on the frequency of transitions between the compared categories of well-being assessment, as well as the size of these transitions (differences in well-being evaluations).

Table 3. Happiness vs hybrid well-being

Degree of happiness (S)	Hybrid well-being (HWB)										Total
	1	2	3	4	5	6	7	8	9	10	
1 (very unhappy)	13	0	0	0	0	0	0	0	0	0	13
2	2	23	0	0	0	0	0	0	0	0	25
3	0	5	59	0	0	0	0	0	0	0	64
4	0	3	5	65	0	0	0	0	0	0	73
5	0	3	12	18	215	0	0	0	0	0	248
6	0	1	10	17	23	193	0	0	0	0	244
7	0	2	6	12	28	43	288	0	0	0	379
8	1	1	2	16	28	42	73	416	0	0	579
9	0	1	1	4	7	20	30	45	192	0	300
10 (very happy)	0	1	2	1	8	14	33	53	70	119	301
Total	16	40	97	133	309	312	424	514	262	119	2,226

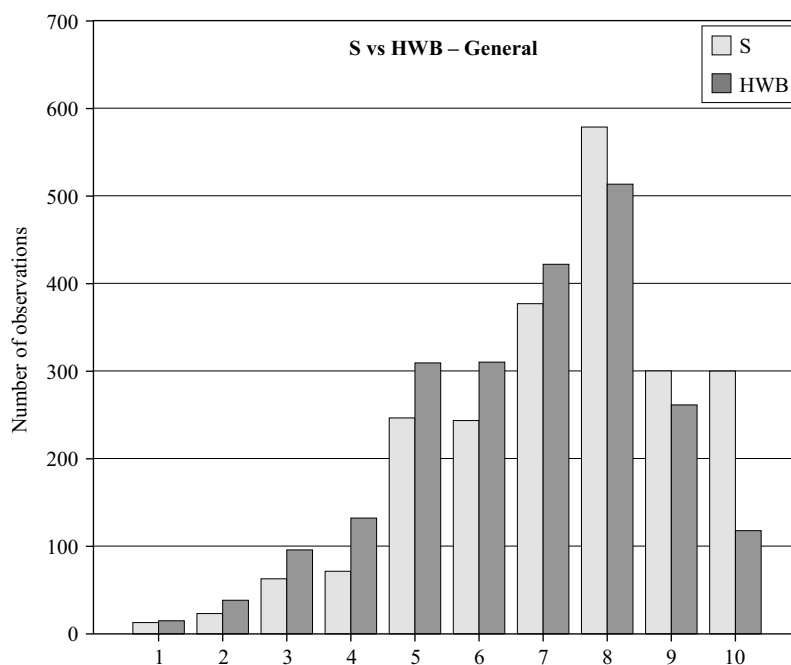Source: own analysis of EQLS data.

Figure 1. Happiness (S) vs hybrid well-being (HWB)

Source: own analysis of EQLS data.

As shown in Figure 2, the same pattern was presented concerning all six dimensions (areas) of central human functionings.

Table 4. Mobility index

	Total	1. Life	2. Health	3. Education	4. Emotions	5. Relationships	6. Income
ind. S > Q (HWB index)	0.060832	0.081567	0.074171	0.083037	0.061101	0.061834	0.116602
ind. S < Q	0.120140	0.144177	0.136709	0.120745	0.108100	0.167307	0.109241
ind. Total	0.180972	0.225745	0.210880	0.203781	0.169202	0.229140	0.225843

Source: own analysis of EQLS data.

In general, the movement from lower subjective declarations to higher objective evaluations of well-being S < Q (0.120140) was more important in comparison to the movement from higher subjective assessment to lower objective calculation S > Q (0.060832). This means that the objective quality of life appeared to be better than the self-evaluation of happiness. For instance, out of 248 cases at level 5 in the happiness evaluation (S) 182 cases were put higher on the objective scale of well-being (Q). Due to the fact that HWB concentrates on the lowest levels of S or Q, the mobility index when S > Q reflects the idea of hybridisation. In such a case the mobility index
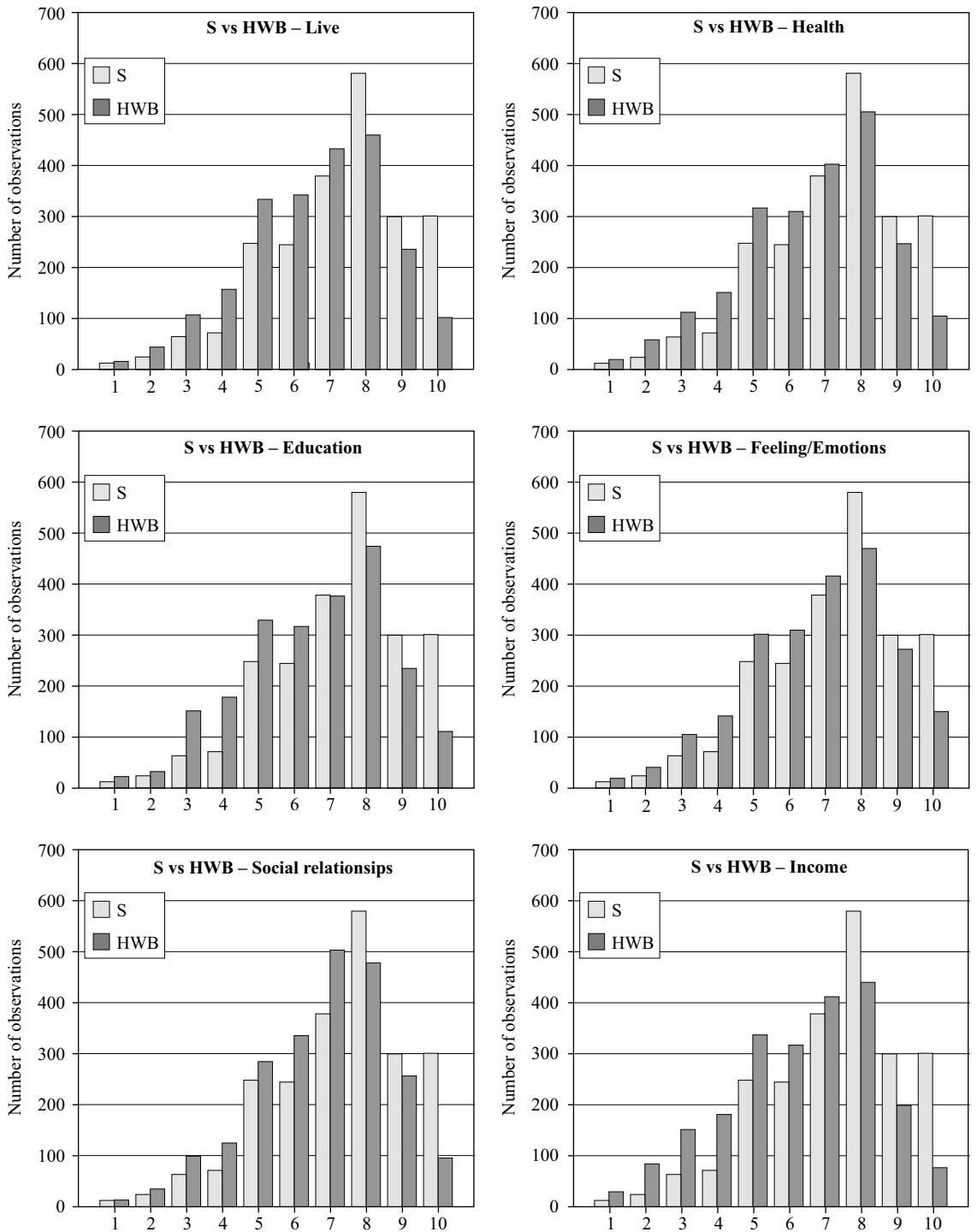
Figure 2. Six areas of HWB

Source: own analysis of EQLS data.

is sensitive to the movement from a higher S to a lower Q and ignores the movement from a lower S to a higher Q. If Q is higher than S, the hybrid well-being should remain at level S.[10]

Among the six areas of evaluation the mobility index when S > Q was the lowest in emotion and relationships areas (0.061) and the highest in income area (0.116602). These results may indicate that the respondents were more satisfied with their income than one could expect taking into account objective conditions.

The lower the mobility index, the more accurate personal self-evaluation of happiness is in relation to the objective assessment, and the highest well-being. Thus we have to tendency to minimise HWB measured as a mobility index. Although HWB regarded both as a static (levels) as well as a dynamic (movements) measure gives us

information about personal well-being, it is also important to know by how much Q exceeds S and S exceeds Q in each category (levels of evaluation) and area (dimensions of functionings). This leads us to consider the third possible measure of HWB referring to the concept of "internalities", which are defined as the differences between S and Q (see Figure 3).

In 452 out of 2,226 cases no internalities were detected, which indicates that S was equal to Q, and HWB was equal to S and Q (S = Q = HWB). In other cases positive or negative internalities were found. There were 643 positive internalities (S < Q, HWB = S), and 1,131 negative internalities (Q < S, HWB = Q). In total there were 1,774 internalities. Thus in this interpretation the HWB index was close to 80%. As shown in Figure 4, negative internalities dominated in all areas.
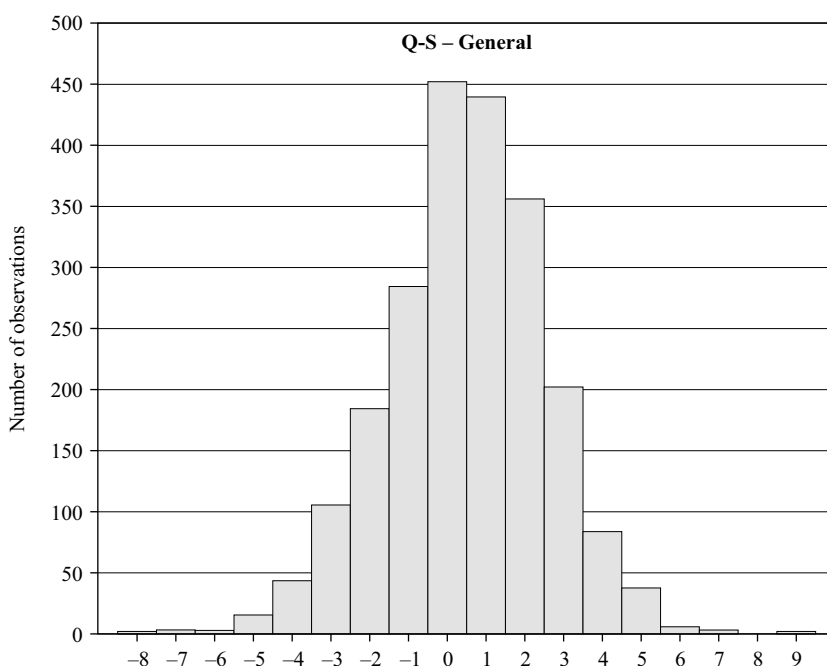

Figure 3. Internalities

Source: own analysis of EQLS data.

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[10] It is also possible to measure the movements from higher Q to lower S, but in such a case the base variable should be Q and the HWB index would be calculated for Q.
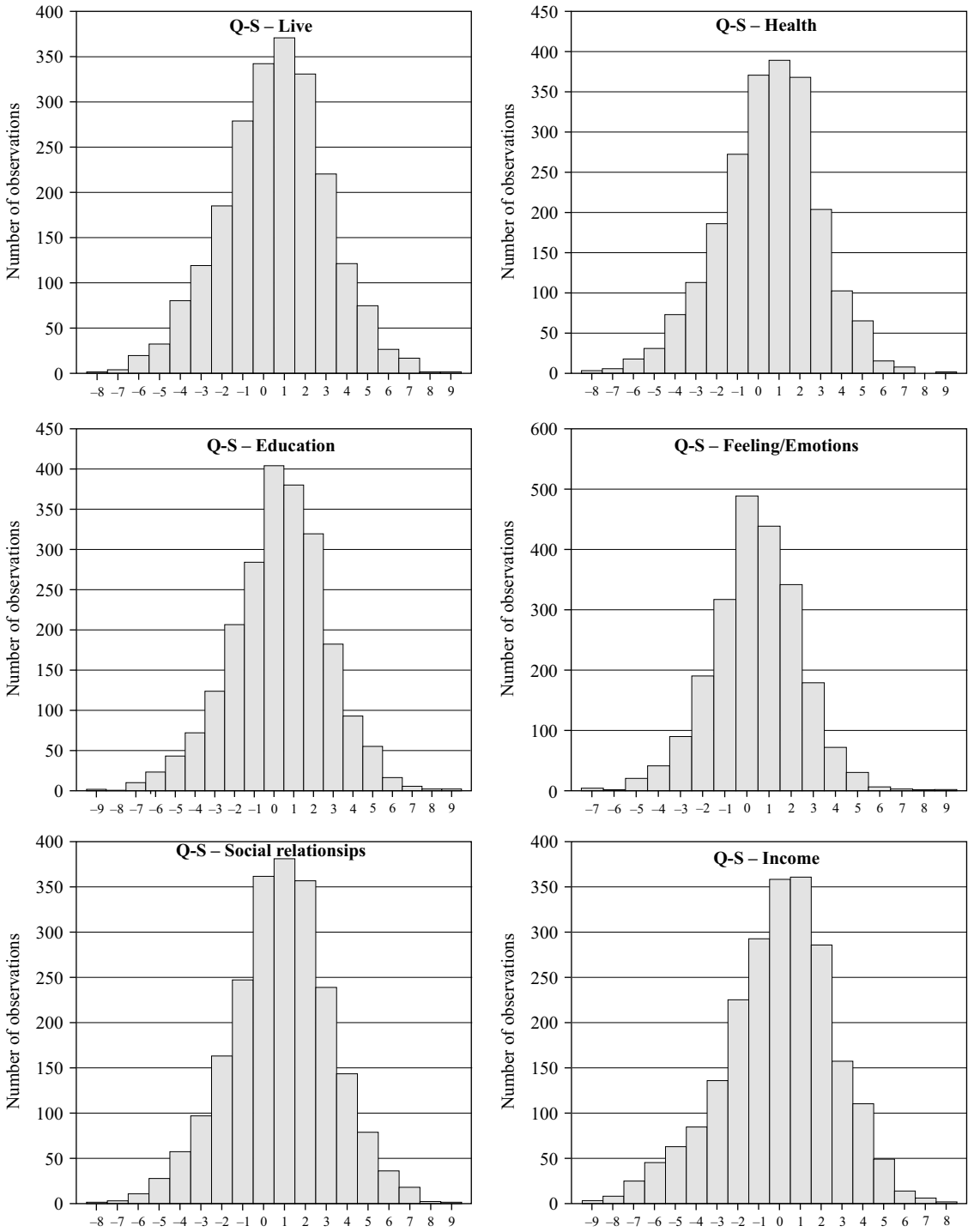
Figure 4. Six areas of internalities

Source: own analysis of EQLS data.

In summary, three measures of HWB were calculated, one static and two dynamic: three measures of HWB were calculated: the first, category aggregation, when HWB = min (S, Q), the second, category movements, when HWB = mobility index for S > Q, and the third, internalities, when HWB = (Q – S). It is worth noticing that the category aggregation is a static measure and the other two measures are dynamic. As a result we have four kinds of information regarding personal well-being which are useful for policy purposes: (1) levels of subjective well-being; (2) levels of objective well-being; (3) movement from S to a lower Q (potential adaptation problems); and (4) movement from S to a higher Q (potential cost efficiency taste problems).

Potential modifications

So far different variants of HWB calculation have been investigated. Now we would like to examine how far the results would change if some modification of HWB procedure and variables segregation were introduced. First of all,

the procedure of HWB calculation is modified in such a way that HWB* takes the value Q if and only if Q is lower than S by more than 2 levels ($|S - Q| > 2$), otherwise it remains at the same level of declared happiness (S). For instance, let us assume that for some respondent S = 5 and Q = 8, then HWB* will take the lowest value (i.e. 5). If for the same respondent Q = 4, then his/her HWB* will remain at level 5. Only if Q = 2, will his/her HWB* index be equal to Q and will take the value of 2. Table 5 shows the result of HWB*.

As shown in Figure 5, the main difference between HWB and HWB* is that HWB* is slightly below HWB for lower and middle categories of well-being (from 1 to 7) and above for higher categories (from 8 to 10). However, in relation to subjective well-being (S), the general pattern remains the same.

Due to the fact that in the HWB* calculation the variable S less frequently moves to the lower Q in comparison to HWB, the dynamic measure of HWB* (the mobility index for HWB*) takes a lower value too (see Table 6). For instance, HWB = 0.060832 in total, while HWB* = 0.028473.

Table 5. Happiness vs hybrid well-being, HWB* with condition $|S - Q| > 2$

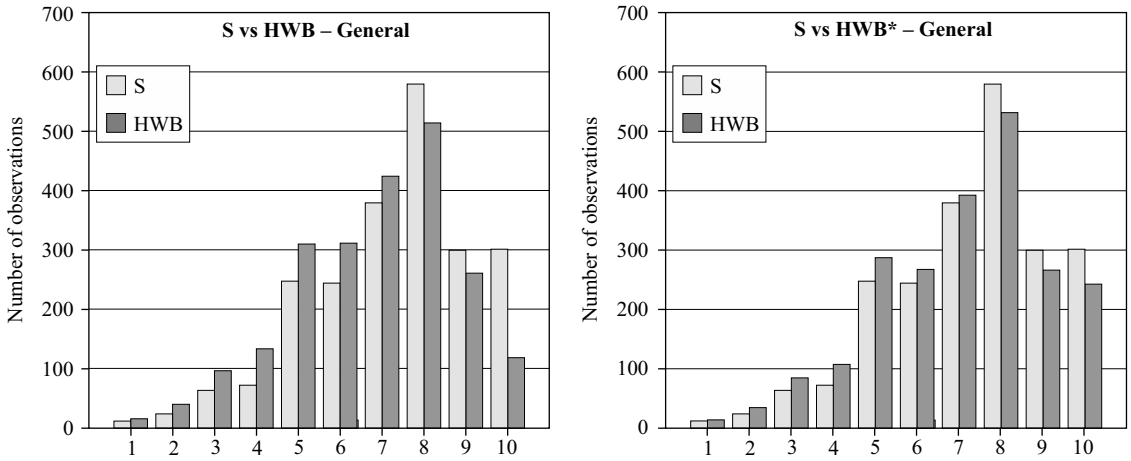| Degree of happiness (S)	Hybrid well-being (HWB*)										
	1	2	3	4	5	6	7	8	9	10	Total
1 (very unhappy)	13	0	0	0	0	0	0	0	0	0	13
2	0	25	0	0	0	0	0	0	0	0	25
3	0	0	64	0	0	0	0	0	0	0	64
4	0	0	0	73	0	0	0	0	0	0	73
5	0	3	0	0	245	0	0	0	0	0	248
6	0	1	10	0	0	233	0	0	0	0	244
7	0	2	6	12	0	0	359	0	0	0	379
8	1	1	2	16	28	0	0	531	0	0	579
9	0	1	1	4	7	20	0	0	267	0	300
10 (very happy)	0	1	2	1	8	14	33	0	0	242	301
Total	14	34	85	106	288	267	392	531	267	242	2226

Source: own analysis of EQLS data.

Figure 5. Happiness (S) vs hybrid well-being (HWB vs HWB*)

Source: own analysis of EQLS data.

Table 6. Mobility index for HWB

	Total	1. Life	2. Health	3. Education	4. Emotions	5. Relationships	6. Income
ind. S > Q (HWB* index)	0.028473	0.049431	0.043579	0.048388	0.026402	0.034764	0.079891
ind. S < Q	0	0	0	0	0	0	0
ind. Total	0.028473	0.049431	0.043579	0.048388	0.026402	0.034764	0.079891

Source: own analysis of EQLS data.

It is worth noting that HWB* measured by the internalities remains equal to HWB, because both are based on the same variables Q and S.

The second modification concerns changes in the variables combination. As shown in Table 7, instead of grouping the variables into six areas (dimensions), they are divided into two groups: subjective and objective indicators. While subjective indicators consist of feelings and personal evaluation of situations, the objective ones account for the measure of important factors of situations. Then Q is calculated in the subjective and objective areas respectively, and in total.

As a result, we receive quite similar patterns of the relationship between S and HWB measured in subjective as well as objective areas of indicators for lower and middle categories of well-being (from 1 to 7) and slightly different for higher categories (from 8 to 10). When HWB is based exclusively on subjective indicators its value is closer to S for the two highest categories (see Figure 6).

Regarding the dynamic measure of HWB (and HWB*), the mobility index takes a lower value in the case of a subjective area as compared to an objective one (see Table 8). This result complies with our expectations, as we rarely observed movements from a higher S to a lower Q if we took subjective variables into account only.

HWB measured by internality also confirms this conclusion. As shown in Figure 7, there are

Table 7. The indicators included in the central human functionings (Objective – facts, Subjective – opinions)

Dimensions of central human functionings	Set of indicators
Objective	Problems with the neighbourhood – noise
	Problems with the neighbourhood – air quality
	Problems with the neighbourhood – the quality of drinking water
	Problems with the neighbourhood – crime, violence or vandalism
	Problems with the neighbourhood – traffic congestion
	Problems with accommodation – a shortage of space
	Problems with accommodation – lack of an indoor flushing toilet
	Problems with accommodation – lack of a bath or shower
	Chronic (long-standing) physical or mental health problem, illness or disability
	Distance to doctor's office/hospital/medical center
	Waiting time to see a doctor on the day of the appointment
	The highest level of education
	Face-to-face contact with friends or neighbours
	Take part in sports or physical exercise
	Participate in social activities of a club, a society or an association
	Attended a meeting of a trade union, a political party or a political action group
	Attended a protest or a demonstration
	Signed a petition, including an e-mail or an online petition
	Contacted a politician or a public official
	OECD equivalised household income in PPP
Subjective	General self-evaluation of health
	Satisfaction from education
	In my daily life I seldom have time to do the things I really enjoy
	I feel that the value of what I do is not recognised by others
	Own hobbies, interests
	My daily life is filled with things that interest me
	Some people look down on me because of my job situation or income
	I feel close to people in the area where I live
	I have felt lonely
	I have felt downhearted and depressed
	I am optimistic about the future
	Life has become so complicated today that I almost can't find my way
	Contact with family members
	Other social contact (not family)

Source: own analysis of EQLS data.

Table 8. Mobility index for HWB and HWB* in subjective – objective dimensions

	HWB			HWB*		
	Total	subjective	objective	Total	subjective	objective
ind. S > Q	0.053637	0.053672	0.07443	0.025258	0.023174	0.043633
ind. S < Q	0.117939	0.111102	0.134323	0	0	0
ind. Total	0.171576	0.164775	0.208753	0.025258	0.023174	0.043633

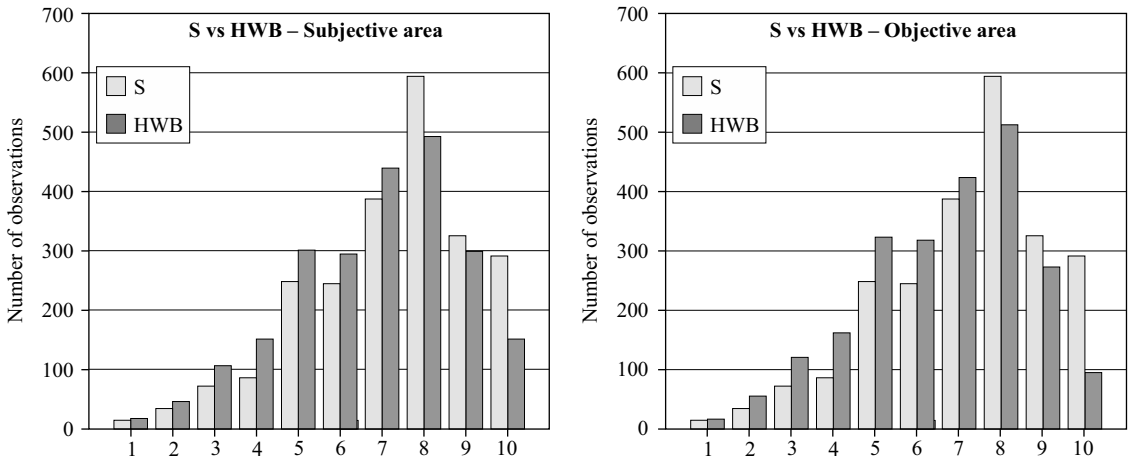Source: own analysis of EQLS data.

Figure 6. Happiness (S) vs hybrid well-being (HWB) in subjective – objective dimensions

Source: own analysis of EQLS data.

fewer internalities (negative and positive) especially in the higher categories (from 6 to 9) when Q is based only on subjective indicators.

Objections, replies, and clarifications

What are the pros and cons of the analysis presented in this paper? Firstly the ability to combine into one outcome two kinds of information: subjective evaluation of happiness (S) and objective, calculated well-being assessment (Q). Secondly the assumption that hybrid well-being (HWB) takes the minimum value of S or Q enables us to be sensitive to the problem of adaptation and autonomy. If people feel worse than they in fact are, according to the calculated value of well-being, then the HWB index gives priority to their feelings. In such a case their autonomy is highlighted. However, if their happiness is higher than their objective well-being allowed, then the HWB index
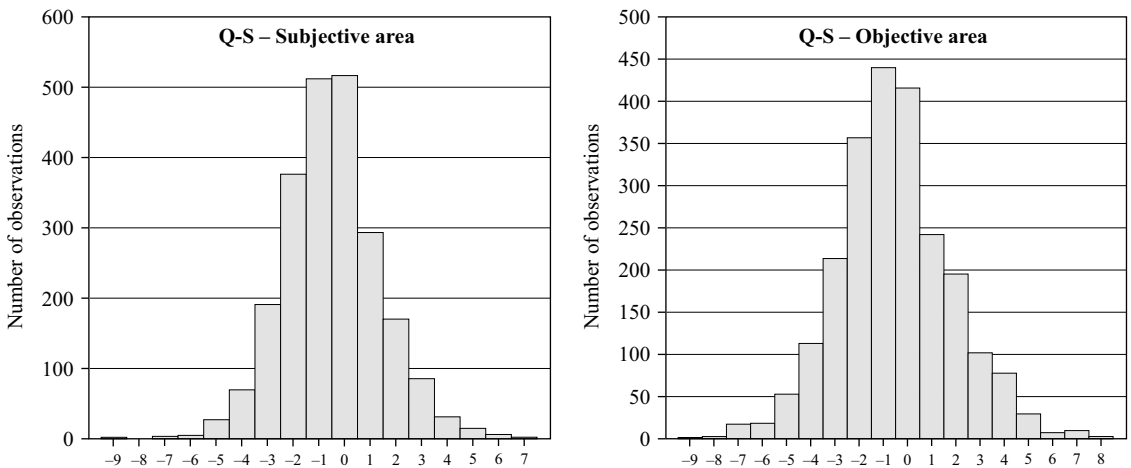

Figure 7. Subjective and objective areas of internalities

Source: own analysis of EQLS data.

gives priority to objective well-being. Thirdly the approach developed in this study provides us with a precise measure of the differences occurring between S and Q, on the one hand, and S and HWB, on the other hand. The movement from a higher S to a lower Q can be calculated by the mobility index, while the gap between S and Q can be yielded by internalities. Fourthly, our proposed measure of HWB meets some of the criteria of the good well-being measure for policy purposes stated by Dolan and Peasgood (2008, p. 58). HWB is conceptually appropriate (i.e. is a complete measure of prudential value) because it attempts to combine both subjective and objective components of well-being. The HWB index can be used as an indicator to compare HWB in time and across different populations (e.g. communities, countries, etc). Thus it seems to be a valid measure. HWB is also sensitive to the satisfaction paradox and the satisfaction dilemma (Boelhouwer & Noll, 2014, 4437). And it is also a reasonably useful tool for collecting and calculating data, which means it is empirically valuable. Fifthly, although the approach adopted in this study is data-driven, it also refers to a philosophical background. People's actual feelings and actions should be taken into consideration. At the same time, we have to be aware of normative reasons justifying objective lists of personal goods. A combination of normativity with empirical views sensitises researchers to the problems of well-being, which itself is both normative and positive in nature. Finally, our approach is flexible and has the features of modifiability, as has been shown in the fourth section.

Although HWB analysis has significant advantages, it is not free of weaknesses. Some objections can be related to (1) the theoretical framework, (2) the quality of empirical data and (3) the calculation procedure.

First and foremost, critics may doubt that Nussbaum's objective list theory is the proper basis for the analysis. Next they can object to the ascribing of particular variables to each of the ten categories indicated by Nussbaum. We can address those doubts by highlighting the fact that the goal of our analysis is mainly methodological and calculations have illustrative character. The reasons behind choosing Nussbaum's theory were its generality and clarity. At the same time, we want to stress that the strategy of creating objective lists is becoming more and more popular among researchers (Alkire, 2002; Cummins, 2000). To carry out the calculation we used previously collected data. Thus not all selected variables fitted Nussbaum's list perfectly.

The second objection relates to the data gathered in the survey regarding personal self-evaluation of happiness. It seems evident that the context in which people were asked to evaluate their happiness could affect their answers. For instance, the view of a person in a wheelchair or experiencing lousy weather at the moment of completing the survey might have influenced the respondent's answers. Nevertheless, there is no agreement between scholars whether such kinds of contextual dependence make a questionnaire survey unusable or uninformative (Alexandrova, 2017, XXVI, XXVII).

The third set of objections can be raised with regard to the procedure concerning Q, HWB, and internalities calculation. Some doubts could occur due to the fact that personal assessments were included among the variables used to calculate Q. Thus the objective value of well-being seems to be based on subjective judgments. We are fully aware of this issue. However, it is important to highlight the fact that our concept of objectivity does not refer to the concept of being subjectively independent, but to being objectively worth wanting. For instance, we are not only willing to accept information concerning the respondent's chronic mental or physical health problems, but also their general self-evaluation of health. Therefore we posit that there are good reasons to believe that health is something worth wanting and we have tried to collect as much different information about health as it was possible.

Another criticism could be directed at the HWB formula, in particular at the fact that we decided to take a minimum value of S or Q, and not the maximum value or the sum of both values.

Perhaps it is reasonable to consider the introduction of some weighting into the formula. As far as the minimum approach is concerned, the choice was driven by the aspiration to pay attention to two main problems of well-being theories: autonomy and adaptation. Thereby the introduction of weighting should be taken into account; however, in our attempt to operationalise the hybrid well-being we focused on the most straightforward formula when weights were equal.

Last but not least, critics could say that the present calculation of internalities seems unreliable, as neither the error regarding calculation (Q) nor the error regarding self-evaluation (S) could be excluded from it. Thus it is not certain whether the difference between Q and S is due to real disparities between the personal evaluation of well-being and objective conditions or to errors on both sides: the survey and calculation process. Similar concerns can be raised with regard to the mobility index. Although it is difficult to overcome this objection entirely, we attempted to address this issue by some modifications of the HWB formula. For instance, restrictions such as $|S - Q| > 2$ can be imposed on HWB, giving priority to the self-evaluation of happiness and ensuring that accidental changes in Q will not be taken into account. What is more, different variants of Q based on different variables and grouping dimensions can be calculated. Then, to test the reliability of HWB, its alternative measures can be compared.

Summary

Our primary objective was to show some possibilities of hybrid well-being operationalisation. In order to do that three measures of HWB have been proposed: the first, the formula HWB = min(S, Q), when S is a subjective state of satisfaction (happiness) and Q is the calculated measure of objective well-being; the second, HWB as the mobility index, when S > Q; and the third, HWB as an internality, when Q – S. Possible modifications of these measures have also been investigated. We are convinced that it is not only possible to create a philosophically informed measure of well-being but also one which is crucial in the context of public policy. The HWB index has advantages over purely subjective or solely objective measures of well-being, in terms of its sensitivity to autonomy and adaptation problems.

Acknowledgments

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