BRAIN – MEqIn

Measuring Equivalent Incomes

End report

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Consortium

François Maniquet
Coordinator
Université Catholique de Louvain – CORE
Voie du Roman Pays, 34
1348 Louvain-la-Neuve
francois.maniquet@uclouvain.be

Erik Schokkaert
Department of Economics KU Leuven
Naamsestraat 69
B 3000 Leuven
erik.schokkaert.kuleuven.be

Bea Cantillon
University Antwerp
Herman Deleeck Centre for Social Policy
Sint-Jacobstraat 2
2000 Antwerpen
bea.catillon@ua.ac.be

Bram De Rock
Université libre de Bruxelles - ECARES
Avenue F.D. Roosevelt 50 CP 114/04
1050 Ixelles
bderock@ulb.ac.be

1. Motivation of the research

Well-being cannot be captured by a measure that only captures aspects of material welfare, such as the Gross Domestic Product (GDP) per capita. A large consensus has now emerged on this issue, both among scientists and policy makers. The former French president Nicolas Sarkozy established in 2008 a commission of renown scholars in social science, such as Anthony Atkinson, Daniel Kahneman, Joseph Stiglitz and Amartya Sen, to reflect on better indices of social welfare than the GDP. There is however much less of a consensus on the best alternative to be used. In our research we propose one such an alternative, "equivalent income", and confront it with some other proposals, such as life satisfaction, happiness, and multiple deprivation.

All those alternatives have in common the viewpoint that well-being is more than just a high income or a purely material living standard. Many non-material dimensions, such as health, an agreeable family life, a nice environment, meaningful time use, or a decent job, are as at least as important for having a good life. All those aspects may of course be positively correlated with happiness and life satisfaction. But these last measures are also profoundly affected by some purely subjective aspects, such as personal ambitions and personality traits. It may therefore be that highly ambitious persons feel less happy or satisfied than those who do less well in all objective dimensions of life, but have lower aspiration levels, simply because the former failed to fulfil their more demanding objectives. Furthermore, life satisfaction and happiness are also determined by personality traits: extravert persons on average report higher happiness scores than more introvert ones, all else being the same.

At the other side of the spectrum, some alternatives too exclusively focus on purely objective scores on different aspects of a good life. Cumulative deprivation, for example, focuses on the correlation between bad health, bad housing conditions, and a low level of resources to alleviate basic needs. These measures are, so to say, too objective, as they don't take into account the importance individuals attach to those different aspects of a good life. This might vary across individuals. Some are ready to accept a less exigent job in order to spare time for other activities, while others prefer the high income they can earn by working over more leisure. The purely objective measures of well-being cannot take into account these individual differences in opinion about what constitutes a good life.

The MEqIn project investigated an alternative measure of well-being, equivalent income, which tries to overcome those shortcomings. This measure encompasses different dimensions of life, but at the same time takes into account each person's own opinion on the importance of those aspects in life. It has three key characteristics. First, it takes account of both external (e. g., consumption of private goods) and internal (e. g., health) dimensions of the well-being of individuals. Second, it offers a promising compromise between the traditional objective approaches to well-being, which are known to fail to take the point of view of the people themselves sufficiently well into account, and subjective approaches to well-being, which are known to fail to account for the differences in the amounts of resources that are necessary to help different individuals reach the same subjective satisfaction level. Equivalent incomes, on the contrary, measure the value that different people assign to the quantities of external and internal resources they have access to. Third, equivalent incomes are measured at the personal level, dropping the assumption of an even distribution of well-being within the household, consistently with newly developed collective theories of household decision making.

Illustrating these theoretical well established points empirically for Belgium, was one of the main objectives of the project. Thereto a dataset with the following features was collected:

- information on different aspects of well-being: health, housing, time use, job characteristics, consumption, and income;

- in order to overcome the dominant paradigm of the even distribution of well-being in the household, information was gathered as much as possible at the individual level;

- to recollect information on the trade-offs people make between different aspects of their life, non-standard contingent valuation techniques had to be refined and implemented in the questionnaire;

- in order to able to compare our measure with the above mentioned subjective measures of well-being, more standard questions on life satisfaction and happiness were included.

As none of the existing datasets in Belgium satisfies all these criteria simultaneously, one of the major tasks was to develop a questionnaire and interview a representative sample of persons living in Belgium to construct this new dataset. The unique features of this dataset is (1) that it covers information on more dimensions of well-being than other existing datasets (Statistics on Living Conditions (SILC) and Household Budget Survey (both by Statbel), Health Survey (Federal Public Service Health and Sciensano), the Time Use Survey by TOR-VUB and Statbel, and the housing survey for Flanders by Steunpunt Wonen), and (2) that it collects both information on consumption and time use of individual household members. Admittedly, the information we have on each domain separately is less extended than the aforementioned special purpose surveys. But none of these surveys recollects as much information on all these domains together. Information on consumption at the individual level has never been collected before in Belgium.

In what follows, we first describe in more detail our data set, including how researchers can have access to our data source. Subsequently we briefly describe the main empirical findings for our data. Finally, we present some general conclusions of our research project.

2. Collection of the data

Questionnaire

The MEqIn questionnaire was developed during the year 2015 by the MEqIn research team. A French and a Dutch version of the survey was made and it was subjected to several pre–tests.

The final versions of the surveys are available upon request. There is a long and a short version of the survey. The long version was only presented to one person in the household, denoted as the reference person of the household.

In the summer of 2015, a professional survey agency (TNS, nowadays KANTAR) was designated to execute the survey in the field. They scripted the survey into a CAPI–instrument ((Computer assisted personal Interview).). This was subject to several pre–tests in December 2015–January 2016 by TNS in collaboration with the MEqIn research team.

MEqIn sampling strategy and gross sample

The target population were individuals of age 18 or older, living in Belgium. To that purpose a sample of households was drawn from the Belgian National Register (NR).

We excluded:

- households of which the reference person (by reference person we mean in the sequel of this paragraph the reference person of a household in the National Register) is inscribed in the *Wachtregister/Régistre d'Attente* (candidate refugees);
- persons with no fixed address in Belgium;

- households to which no person of 18 or older belongs;
- persons living in a collective institution who are younger than 60.

The thus limited subset of reference persons of households or persons living in a collective institution of the National Register constituted the sampling frame.

A gross sample of 5533 households was drawn from the sampling frame in December 2015. This implies that the situation of the NR on 01/01/2015 at 00:00h has been taken into account. It turns out that 10227 individuals of age 18 or older belonged according to the NR to those households. These individuals compose the gross sample.

Sampling followed a stratified and pseudo–clustered scheme.

1. *Stratification in 14 demographic groups.*

Households in the sampling frame were subdivided into 14 groups along the following lines:

- old *versus* young: a household belongs to the class 'old' if at least one person in the household is of age 60 or older, and it is a 'young' household otherwise;
- the size of the household: 1, 2, 3, 4, or more than 4 members (including persons younger than 18);
- within the group of young households, a distinction was made between single parent households and non single parent households.

For the determination of whether a household is a single parent household on the basis of the household composition information in the National Register, the algorithm that was developed by the Crossroad Bank Social Security, was used.

According to that algorithm a single parent household consists of at least two members. The reference person is at least 15 years old. No household member is a spouse of the reference person. No person in the household is a potential partner of the reference person. A potential partner is someone with no family ties to the reference person, of opposite sex, and at least 18 years old. At least one child belongs to the household. A child is someone who is child or stepchild of the reference person, or someone who has no family tie to the reference person and who is younger than 18. These relations with respect to the reference person were determined according to the field "relation to reference person" in the NR.

This gives the following 14 groups.

Household size	**Young**		**Old**
	Single parent	**Not single parent**	
1	–	group 1	group 2
2	group 3	group 4	group 5
3	group 6	group 7	group 8
4	group 9	group 10	group 11
4+	group 12	group 13	group 14

Table 1. Definition of groups

The distribution of the sampling frame over these 14 groups is represented in Table 2.

Household size	Young		Old
	Single parent	Not single parent	
1	–	18.2%	17.0%
2	4.5%	9.8%	16.8%
3	2.5%	9.1%	2.7%
4	0.8%	10.8%	0.9%
4+	0.3%	5.7%	0.8%

Table 2. Distribution sampling frame (population)

Single parent households were overrepresented in the gross sample (over–representation rate equals 2). Within the groups of old households, the group of household size equal to 2 was overrepresented in order to compensate such that the gross sample of individuals contains proportionally as much persons of age 60 or older as in the population. This results in the following sampling scheme.

Household size	Young		Old
	Single parent	Not single parent	
1	–	9.1%	16.0%
2	9.0%	10.5%	18.0%
3	5.0%	10.5%	2.6%
4	1.6%	10.5%	0.9%
4+	0.7%	4.8%	0.8%

Table 3. Drawing scheme gross sample

2. *Pseudo–clustering*.

- Within each province, large communes were selected with certainty. A commune is large if the number of households living in that commune relative to the total number of households in the sampling frame, surpasses a certain threshold.
- Brussels Capital Region is treated as a large commune.
- In each province a number of none large communes were selected randomly.
- Each of these entities (Brussels capital region, a large commune, or a selected set of small communes in a province) is called a pseudo–cluster.

Let ν be the number of households to be sampled, and ν_γ is a predetermined cluster size. In our case $\nu \equiv 5533$ and $\nu_\gamma \equiv 50$.

Furthermore the total population of households in the sampling frame is denoted by N, and the total number of households living in a large commune l, by N_l. The number of households living in none large communes of a province p, is denoted by $N_{nl,p}$. A commune is large if $N_l/N > \nu_\gamma/\nu$.

The sample is then drawn as follows. The number of households to be drawn form a large commune equals ($\nu N_l/N$). The number of households to be drawn from a selected set of small communes within a province p equals ($\nu N_{nl,p}/N$). The number of small communes to be drawn from a province p equals (ν/ν_γ)x($N_{nl,p}/N$). So, on average, ν_γ of households are drawn per small commune, but on average proportionally more so from the larger of these small communes, than from the smaller ones.

For each pseudo–cluster, the weighted sampling scheme of Table 3 has been applied. This means that the (expected) gross sample distribution over groups within each pseudo–cluster is apart from deviations due to rounding, equal to the distribution in Table 3.

Fieldwork

In December 2015–January 2016 a team of 150 surveyors was trained by TNS (KANTAR) in collaboration with the MEqIn research team. The fieldwork started in February 2016 and was completed in August 2016. Households of the gross sample were contacted by an invitation letter and by phone. All persons belonging to the household *at moment of contact*, and 18 years old or older, were asked to participate to the survey.

In the end, 3404 persons belonging to 2098 households were surveyed. This constitutes the final sample. The average duration of a long interview was 1h05min, and 41min for a short interview. The final dataset (Stata 13 format) is currently posted on a secured repository.

A public release is prepared and can be requested by researchers through the data tab on our website (https://sites.google.com/view/meqin/data). The principles along which this dataset currently has been constructed by the MEqIn team from the raw dataset transmitted as an SPSS-dataset by TNS, can be found in a "*Note on the preparation of the MEqIn dataset for public use*". The cōnstrucction of several aggregate income variables is documented in a note on the "*Construction of the household disposable income variable*". These documents are available on the website. The construction of scores for health, housing, work characteristics, and the construction of the personal consumption variable used in the contingent valuation questions are all documented in notes available on the website.

A codebook has been constructed (French\English\Dutch) containing a translation of the variable names in this dataset to the labels of the questions in the questionnaire, and the definition of a number of additional variables that were constructed by the MEqIn research team. Also the codebook is available on the website.

Response rates

The next table compares the composition of the final sample with that of the gross sample. Complete households refer to households of which all members who are 18 or older at the moment of interview, participated in the survey.

	Households	Complete households	Individuals
group 1	32.8%	31.4%	33.6%
group 2	32.4%	31.3%	32.9%
group 3	38.3%	28.5%	34.2%
group 4	33.7%	25.5%	28.9%
group 5	42.3%	33.2%	37.1%
group 6	44.6%	31.4%	38.9%
group 7	37.3%	26.2%	30.8%
group 8	37.2%	17.2%	24.4%
group 9	38.5%	31.9%	32.9%
group 10	42.9%	27.7%	35.5%
group 11	29.2%	20.8%	20.5%
group 12	38.9%	22.2%	32.9%
group 13	43.3%	25.4%	34.8%
group 14	38.1%	14.3%	21.3%
Total	37.9%	29.0%	33.1%

Table 4. Response rates

The second and third column of this table have to be interpreted with caution. The household composition and the age of the person at moment of extraction from the National Register may differ from the actual situation when persons were surveyed. Furthermore, even in real time the actual and National Register information do not have to correspond. Someone can *e.g.* actually live together with a partner whose official address is somewhere else. Therefore it is possible that single person households do have an individual response rate deviating from complete households' response rates.

Moreover there are some errors which we cannot explain (*e.g.* two cases where a single person household consists of someone younger than 60, but classified as belonging to group 2 by the National Register: either we dispose of the wrong birth date, or the birth date in the National Register is not correct, or the reference person in the National Register was someone who passed away at moment of consultation).

Also, the actual sample of individuals of age 18 or older, and the one belonging to the gross sample might deviate somewhat, so that these response rates may be somewhat misleading. As we have no information on the properties of the actual gross sample of individuals, we present the figures as number of individuals interviewed relative to number of individuals in the gross sample.

Statistical weights

We calculate two types of weights to gross up sample statistics at the national level. The first one is based on population numbers at the national level; the second one is based on region specific population numbers. Weights are calculated at household and individual level separately. Regions are large communes, provinces exclusive of large communes, and Brussels Capital Region. As such we have 19 regions.

It turns out that some single person households according to the algorithm used by NR are not single person households according to the observation collected by the interviewer. Hence, it might be that we have some according to the RN single person households in the sample, with more than one respondent. So the single person household weight is an upper bound for that of the individual. We have 298 cases in which the nationwide weights of households and individuals for single person households (according to the RN classification) coincide, and 163 for which they differ.

Children drop-off

A drop-off was left for all children belonging to the households in the sample (children are persons aged less than 18). There are 1089 children in the final sample, living in 614 different households. For 618 of them we received the drop-off back. They belong to 371 households. For 359 of these households a drop-off for all children has been delivered.

Sample Statistics

Number of Respondents: 3404 of which 2768 in complete households (that is, all 18+ members did complete an interview).

Number of households: 2098 of which 1605 are in complete households.

Children drop-off: 618

Household characteristics

Household type	N	%
Single	488	23.26
Married couple without children	499	23.78
Married couple with children	423	20.16
Unmarried couple without children	125	5.96
Unmarried couple with children	134	6.39
One parent household	331	15.78
Other	98	4.67

Table 5. Household type

Household types follow the LIPRO (Life Project) classification. They are based on household members' relation to the reference person. The reference person was determined at the moment of starting the first interview in a household, and is not necessarily equal to the reference person of the household according to the RN.

Region	N	%
Brussels	196	9.34
Flanders	1238	59.01
Wallonia	664	31.65

Table 6. Region

Household size	Average	Max
Number of household members	2.43	10
Number of adults per household (18+)	1.91	10
Number of children per household (<18)	0.52	7

Table 7. Household size

Individual characteristics

Gender	N	%
Male	1580	46.4
Female	1824	53.6

Table 8. Gender

Age class	N	%
18-29	495	14.54
30-39	525	15.42
40-49	613	18.01
50-59	653	19.18
60-69	554	16.27
70-79	358	10.52
80+	205	6.02
Missing	1	0.03

Table 9. Age

Region	N	%
Brussels	333	9.78
Flanders	2000	58.75
Wallonia	1071	31.46

Table 10. Region

Country of birth	N	%
Belgium	2,967	87.16
Industrialised countries	93	2.73
Southern Europe.	60	1.76
Eastern Europe	55	1.62
Morocco and Turkey	79	2.32
Rest of the world	149	4.38
Missing	1	0.03

Table 11. Country of birth

Position in household	N	%
Single	488	14.34
Spouse	1621	47.62
Child in married couple	161	4.73
Partner	452	13.28
Child with in unmarried couple	21	0.62
Single parent	331	9.72
Child in one parent household	117	3.44
Other	1	6.26

Table 12. Position in the household

Position in the household is determined on the basis of the type of household in which the respondent lives and his/her relation to the reference person

3. A short summary of the main findings for our data set

In this section we give a short summary of the main findings. A more extensive overview of the main results is published in the following book:

- Authors: Bart Capéau, Laurens Cherchye, Koen Decancq, André Decoster, Bram De Rock, François Maniquet, Annemie Nys, Guillaume Périlleux, Eve Ramaekers, Zoé Rongé, Erik Schokkaert et Frederic Vermeulen.
- Dutch version: *Wat heet dan gelukkig zijn? Geluk, welvaart en welzijn van de Belgen*, Garant uitgevers, ISBN 978-90-441-3633-3.
- French version: *En faut-il peu pour être heureux ? Conditions de vie, bonheur et bien-être en Belgique*, Éditions Anthemis, ISBN 978-2-8072-0510-9.
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Income

In the classic approach using household disposable incomes as the sole indicator of well-being, incomes are converted in per consumption units. The idea is to convert household income into the income a single person would need, in order to obtain the same welfare as the household members. This assumes two things: (1) household members obtain all the same welfare level, and (2) there is a readily available tool to measure household members' welfare in an interpersonally comparable way. The theory of equivalence scales tries to underpin these assumptions. A very commonly used conversion scheme is the OECD equivalence scale: the first person in the household counts for one unit, every additional person of 14 years or older counts for 0.5 units, and persons less than 14 for 0.3 units.

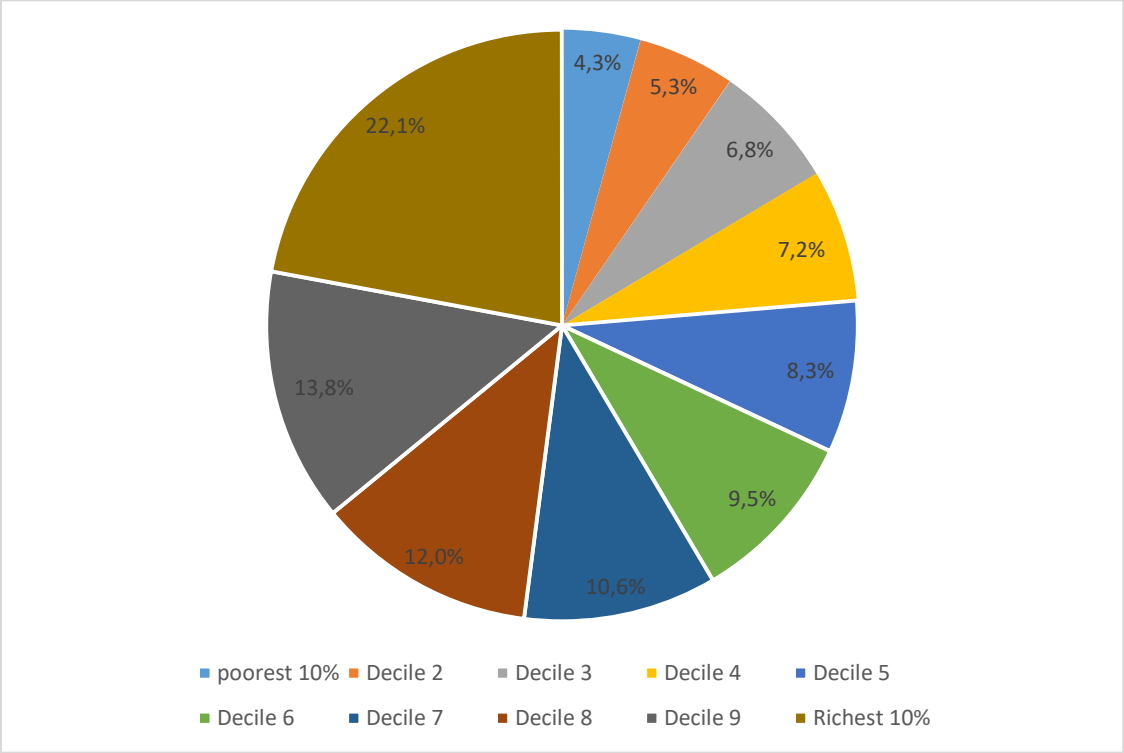

Figure 1. Income shares of 10 deciles

Following this standard approach, we estimate the mean disposable income per consumption unit to be 1836 euro in Belgium for the year 2016. It is not surprising to see that incomes are unequally distributed. Figure 1 shows the revenue shares of each of ten deciles. We see that the 10% poorest persons in Belgium dispose of about 4% of total revenues, while the richest 10% have more than one fifth of total income.

Classical poverty analysis and anti-poverty policies target at the percentage of people below the poverty line. A commonly used poverty line in Western countries is 60% of the median income. This is according to our data 972 euro. Just over 14% of people in Belgium live from an income that is lower than this 972 euro.

Income poverty is usually related to a number of socio-demographic characteristics. In Table 13, we divided the population of adult (aged 18 or more) Belgians in four groups according to their disposable income: very poor are those persons who have an income lower than 50% of the median income (less than 810 euro); poor are those who have an income between 810 and 972 euro (the poverty line); vulnerable are the people with an income above the poverty line but below 1134 euros. In the group of very poor there are relative more bachelors, more persons born in a foreign country, more unemployed, more lowly educated people (secondary education not completed), and more females. Surprisingly, pensioners are relatively more concentrated in the group of vulnerable people, and thus do not predominantly belong to the group of the poorest people in Belgium.

	Belgium	**Very poor**	**Poor**	**Vulnerable**	**Non-poor**
Female	50.4	54.8	52.7	57.4	49.3
Relationship	69.1	62.2	67.9	54.5	71.0
Born in foreign country	13.2	39.7	32.3	15.9	9.5
Low education	33.3	47.3	61.7	48.3	28.5
Unemployed	6.5	36.7	24.9	7.3	2.7
Pensionner	28.4	13.6	24.5	35.4	29.2

Table 13. Income poverty and sociodemographic characteristics (in %)

Note: The figures give the percentage of persons exhibiting the characteristics shown indicated in the first column within the population belonging to the groups indicated in the first row. For example, there are 54.8% of the persons who are very poor.

Health

A second dimension on which we collected information, was health. We measured health in five sub-dimensions (based on some standardised questionnaire): general health situation (own health situation as compared to others e.g.), physical limitations (not being able to do basic activities due to health), chronical diseases, emotional well-being (fatigue, depression, …) and physical wellbeing (absence of pain). For each of these five dimensions we constructed a score which ranges from 0 (very bad) to 100 (perfect).

We again consider the relationship between health and some sociodemographic categories. Obviously health is negatively correlated with age. One exception is however emotional well-being. Very poor people also have a poorer health, especially as it concerns physical limitations due to health, chronical illness, and physical well-being. Higher educated people are on average better in terms of health. People living in Wallonia have a lower emotional well-being than those in Flanders. Women are in poorer health than men. There are also differences according to country of birth.

Surprisingly people from Eastern Europe score on average better on all health domains than the whole population. Our results also confirm what social scientist become aware of the last decades: historical factors, and more in particular before birth, may have an influence on someone's current health situation. We illustrate this in Figure 2 by showing the relation between the education level of the father (low is less than secondary degree, high is having completed higher education) and the health situation of the currently adult people (of aged 18 or more): in all health domains those with a highly educated father score better.

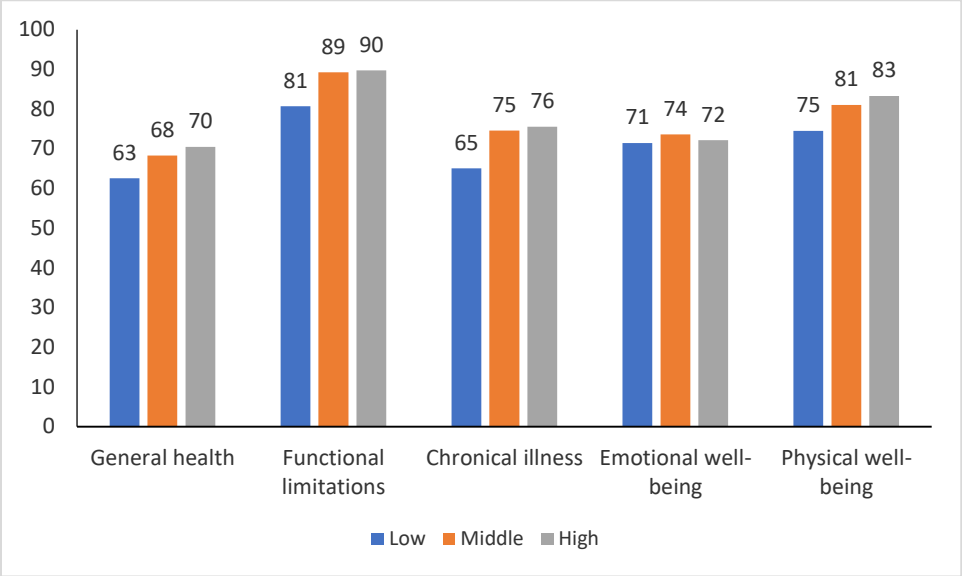

Figure 2. Health and education level of father

Housing and environment

According to our sample, the quality of housing and the neighbourhood is on average very good. The relation between sociodemographic characteristics and quality of housing is much less pronounced than for income and health. In this domain, the division line is situated primarily between renters and owners, where renters are mostly at the short side. They lack for example more outdoor space and have less green environment. Nevertheless, they do better with respect of the presence of a postal office or public transport in the close neighbourhood. These results might be explained by the fact that renters live disproportionally more in urban areas

Age does not seem to be much correlated with housing and environmental quality. Older people however do feel less safe in their neighbourhood, while young people complain more about living in too small houses. There is little doubt that these findings have to do with the change of needs through the lifecycle.

Cumulative deprivation

After having discussed the picture of three important dimensions of well-being, income, health, and housing, separately, we now present their correlation. To this end, we subdivide the respondents into three equally sized groups according to their score for each dimension separately. On that basis we can subdivide the sample into 27 groups, depending on whether they score low, middle or high in each of the three dimensions. A person is said to suffer from cumulative deprivation if she belongs to the group with the lowest scores in each of the three dimensions.

This is a measure of cumulative deprivation because it can be the case that there are no persons who are in the lowest group for each of the three domains, in which case there is no cumulative deprivation. If there would be no correlation at all between the scores on these three domains, about 4% (i.e. 1/27) would end up in the lower third for each of the three groups. It turns out that the biggest populated group among these 27 classes is the one where low scores on the three domains are cumulated. Almost 8% of the population belongs to that group, which is way more than one would expect if there were no correlation between the scores in these different subdomains.

Income	Health	Housing	Percent
Low	Low	Low	7.7%

Table 14. Cumulative deprivation

The correlation pattern of cumulative deprivation with several sociodemographic characteristics is very similar to that of income. People who suffer from cumulative deprivation are predominantly bachelor, female, lowly educated, unemployed, and/or born in a foreign country. Pensioners on the other hand, are relative overrepresented in the middle group, rather than among those who suffer from cumulative deprivation.

Don't worry, be happy

Cumulative deprivation however does not allow to compare persons who are for example in the middle group for housing, have low income, but good health, with those who have a nice dwelling, average income, but suffer from bad health.

One fast growing strand of the literature advocates to rely on people's subjective assessment on their living conditions for measuring well-being. How satisfied are people with their living conditions? Do they feel happy? The huge amount of survey nowadays on that subject allows to distil standard questions to measure these subjective well-being measures. A common finding of these studies is the rather strong correlation between subjective well-being measures such as life satisfaction and happiness, and cumulative deprivation measures. As a consequence, the sociodemographic characteristics of the worst of according to both measures is similar: relatively more unemployed and more bachelors feel not very satisfied with their life. This is however not the case for females, and the link with income is more complex. These last two findings indicate that subjective well-being measures and objective indicators do not reflect the same reality.

Such general correlations might in fact hide more critical aspects of purely subjective measures. Let us for example have a closer look at the relation between life satisfaction and the three more objective dimensions of well-being described above, material welfare, health and housing quality. For measuring material welfare we now no longer using disposable income per consumption unit and turn to an individual measure of consumption. One of the particular aspects of our survey was that we could distinguish between purely private expenditures (food, leisure, personal care) and public expenditures (on housing for example). For the former category we asked for the private expenditures of every household member separately which allows us to estimate personal consumption for each household member separately. We thus do not have to assume any more that material welfare is equally distributed within the household, which increases the reliability of our findings.

Table 15 presents life satisfaction for the group who exhibit cumulative deprivation in material welfare (personal consumption), health and housing, on the one hand, and those who belong the top third in each of those dimensions. It turns out that almost ten percent (8.8%) of those who belong to

the group of the worst off in each of those three dimension report a higher life satisfaction than more than 70% of those who are best of in each of those three dimensions.

Personal consumption	Health	Housing	Life satisfaction 0-8	Life satisfaction 9-10
Low	Low	Low	91.2%	8.8%
High	High	High	72.3%	27.7%

Table 15. Objective determinants of well-being versus life satisfaction

This might be explained by differences in ambitions and aspiration levels held by the persons in those groups. To motivate this conclusion we present the results respondents answers on three *vignettes*, which are descriptions of hypothetical situations in terms of material welfare and health. We considered the following scenarios: low welfare and bad health, middle welfare and middle health, high welfare and very good health. We asked the respondents to indicate how satisfied they would be with their life if they would be in such a situation. There was huge unanimity among the ranking of these three situations. But if we look at the exact scores on the life satisfaction question for the worst situation, it turns out that highly educated persons give on average a lower score than low educated people. Such a situation looks terrible to them, and they would feel very bad if they would have to face it. Of course, also lowly educated people do not like to be poor or in bad health. But they have learned to accommodate to the situation, and therefore do not give such low figures in terms of life satisfaction if they would have to live such a bad situation.

Those who would defend that we should define the poor in terms of a low degree of life satisfaction risk therefore to attach more weight to people who are in a better objective condition, because their high ambitions make them feel less satisfied with their life.

In a similar vein, in an objective situation extravert person tend to report on average higher satisfaction scores than introvert ones. It seems hard to defend that well-being should be conceived in terms of such personality traits.

A new well-being measure: equivalent income

Well-being encompasses many facets or dimensions. Inequality in achievements on each of those dimensions considered separately is high. Even though low income usually makes it more difficult to achieve a good life, only looking at income or material welfare would neglect persistent inequalities in other dimensions of well-being. A well-being measure should therefore best take into several aspects of well-being simultaneously. But how then should such a measure aggregate over the different dimensions, if neither subjective well-being nor cumulative deprivation is the right approach?

One option is to ask how important people find each of those different dimensions for their own well-being. Typically, people tend to give more weight to health than to other dimensions. But mostly the answers give no clue on how people trade off those different aspects if they have to choose between them. People say all of those dimensions are important or very important. Therefore we developed a series of questions which allow us to estimate more precisely how people makes such trade-offs.

We asked for example how much in terms of material welfare (personal consumption) people would want to give up in exchange for a perfect health such that they would feel equally well-off as in their current situation. Thereto we developed a tool of small steps to arrive at trustworthy answers, and foresaw in a number of control questions to evaluate in how far the question was rightly understood, and the answer was reliable. We presented for example first to the respondents their actual situation

in terms of consumption and health, according to their answers in the survey. Then we asked them to confirm that a situation in which their consumption was not affected but they would be in perfect health is an improvement. For those who did not confirm, we tried to figure out what caused this. For the others we asked how much of their personal consumption they would be willing to give up in exchange for a perfect health such that they would be equally well off as in their actual situation. For those who said that they would not give up any amount of personal consumption, we again tried to figure out what the reason was.

From those surprising answers (the new situation is not better or they want to give up no amount) we learned that some of them indeed did not understand the questions, did not want to answer to these type of questions, or simply found it too difficult. But for the vast majority of people we got trustworthy answers. In the end we tried to mimic choices which people face in their daily life: shall I work longer or rather spend more time with family or friends? Shall I enjoy diner in a good restaurant or rather adopt a more healthy life style?

On average people want to give 85 euros of their monthly personal consumption in exchange for a perfect health, and 102 euros in exchange for a perfect health and a dwelling without defects.

To arrive from these type of questions to a measure of well-being, we use in this project the so called "equivalent income". Equivalent income corrects the measure for material welfare (in our case: personal consumption) in function of the situation in other domains important for overall well-being, such as health and housing quality. The correction is exactly the willingness to pay for those other determinants of well-being. The correction thus depends on the importance people themselves attach to those other dimensions. For those who find housing more important than health, a bad quality dwelling will bear a higher correction than a poor health.

To grasp the intuition for this measure of well-being, let us consider the following example. We want to compare two persons. The first one has a monthly consumption of 800 euros and is in perfect health. The second one consumes more (1000 euros monthly), but faces considerable health problems. If this person would want to give up 300 euros for a perfect health and being equally well off as in her current situation, then this would mean she finds her health problems have a considerable impact on her overall level of well-being. We would then say that her situation is equivalent to one where she is in perfect health and consumes monthly 700 euros. She would therefore be worse off than the first person who is in perfect health and consumes 800 euros per month. If on the other hand she would only give up 100 euros, then we would conclude she would give less weight to health in her overall concept of a good life. Our equivalent income measure would reflect this by being equalt to 900 euros in this case. She would then be considered to be better off than the first person.

By using individual's own opinion on what is important for their well-being, one avoids to be paternalistic and to impose a specific concept of a good life, as is implicitly done by purely objective multidimensional measures of well-being. Nevertheless equivalent income is not a purely subjective measure either. When in good health, a person will have to give up less of personal consumption than when that same person would suffer from illness but have a higher income. So, objective circumstances play their role too.

Who are the worst off?

According to our data average monthly personal consumption is 800 euros. Average equivalent income taking into account health and housing is therefore almost 700 euros. In Table 15 we describe who are the poorest according the equivalent income measure (column 2), and compare the results with some other widely used alternatives: a purely material welfare measure (personal consumption, third column), and a purely subjective one (life satisfaction, fourth column). It should be stressed again that also our purely material measure of well-being is individual specific, and is

therefore able to overcome an important shortcoming of the standard approach to use incomes per consumption unit: assuming that welfare is equally distributed among all household members.

According to:	Equivalent income taking into account health and housing situation	Personal consumption (material welfare)	Life satisfaction (subjective well-being)
Personal consumption	345,92 euro	240,37 euro	714,12 euro
Health score (0-100)	64,20	68,41	52,00
Housing and neighbourhood quality (0-100)	79,65	79,77	75,99
Female	57%	62%	48%
Relationship	61%	59%	42%
Born in foreign country	19%	25%	17%
High Education	18%	14%	18%
Unemployed	16%	19%	12%
Pensioner	31%	33%	26%

Table 16. Composition of the 10% worst of group according to different measures of well-being
Note: The figures give the characteristics of the group with lowest welfare according to three well-being measures: equivalent income, material welfare, and life satisfaction.

The table shows the characteristics of the ten percent poorest according to each of those three measures. By definition the poorest according to equivalent income have higher personal consumption as compared to when we would only look at personal consumption per se. But they generally suffer from poorer health conditions. This stands to reason, as sick people and people who attach more weight to health will have a lower equivalent income than their personal consumption, and therefore have higher probability to fall into the lowest decile according to equivalent income as compared to the lowest decile according to personal consumption. Given our earlier results, we may in that respect also understand the finding that less persons born in a foreign country belong to the worst-off group according to equivalent income as compared to the poorest according to personal consumption.

A different story emerges if we look at the figures for those who are worst of according to life satisfaction in the fourth column. As we mentioned in the previous section, life satisfaction is not only determined by a person's living conditions, but also by their expectations and aspirations. This can explain that persons with the lowest life satisfaction, have a much higher material welfare (personal consumption) than the poorest according to equivalent income. Somehow surprisingly, those with the lowest life satisfaction are in turn less healthy than the ten percent poorest according to equivalent income. There are relatively more bachelors in this group, and, as we saw earlier, less females. Among the ten percent poorest according to equivalent income we find relatively more unemployed and pensioners as compared to the group with the lowest life satisfaction. On the other hand, there are less unemployed poor according to equivalent income as compared to what we get if we only consider material welfare.

Finally, there are more income poor persons (those with disposable income below the poverty line) among the poorest according to equivalent income, as compared to the group with the lowest life satisfaction. However, and surprisingly, there are more persons suffering from cumulative

deprivation among those with low life satisfaction than among the poorest according to equivalent income.

A look into the black box of the household

Table 15 also shows that females are largely overrepresented (62%) in the group of the ten person poorest according to personal consumption. This suggests that material welfare is unequally distributed among partners in heterosexual couple.

We knew already from other studies that male and female partners have different time use. This is confirmed by our study: wives spend more time to the children and to housekeeping than husbands. Nevertheless, it turns out that total time spent on market labour, housekeeping and education of the children is on average roughly the same for both partners. But such global averages tend to hide large discrepancies. In couples with children where both partners have job, it is again the wives who bear the highest total time cost of education, housekeeping and market labour. But it is not only in terms of time use that there are gender differences within the household. Also expenditures are unevenly distributed among partners.

As mentioned before, we collected figures on private consumption for all household members separately. If we only look at average private consumption of wives and husbands it turns out again that they are roughly equal. But again these averages hide large heterogeneity. This is illustrated in Figure 4, which splits up the sample of wives in four groups, from those with the lowest share of private consumption (first quartile) in total private consumption of both partners to those with the highest share (fourth quartile). In the first quartile the share of wives in total private consumption of both partners is on average 35%. Even in the third quartile, wives' share is hardly larger than 50%. It is only in the group of females with the highest share that wives obtain a substantially larger part of total private consumption than husbands.

Such figures on the distribution of consumption within the household have never been collected before in Belgium. They allow to go much beyond the usual inequality analysis on basis of disposable income per unit of consumption, which assumes per definition that the within household distribution is equal.

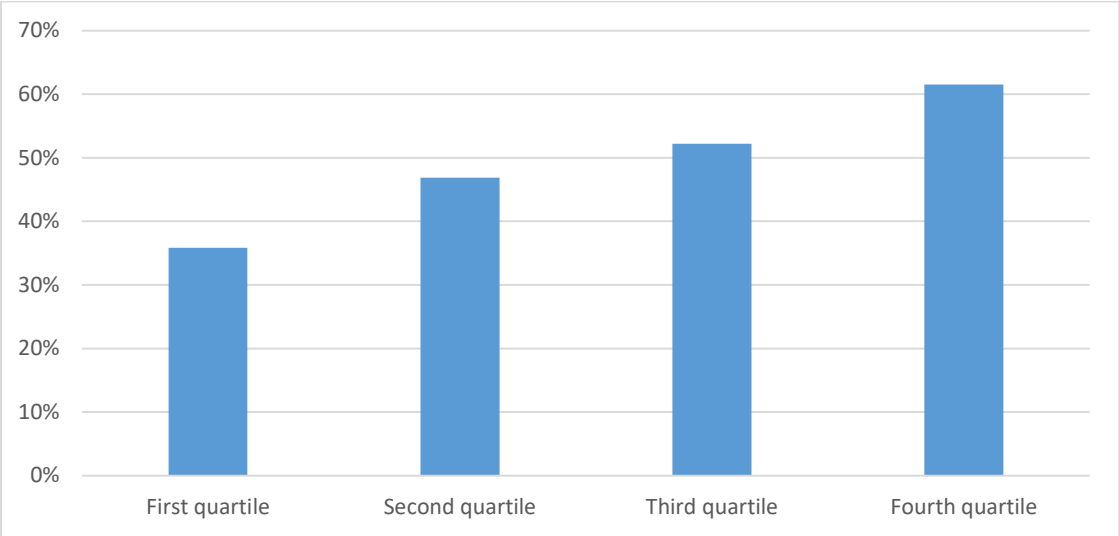

Figure 3. Wife's share in private expenditures

4. Conclusion

This research project had two objectives in mind. The first objective was to give an overview of the well-being of the Belgian population. To this aim, we designed a large-scale survey named MEqIn with the help of Federal Public Planning Service Science Policy (BELSPO). 3404 adults in 2098 randomly selected families throughout Belgium participated in the survey. This innovative survey covers a wide variety of information on these individuals on different life dimensions, such as health, individual expenditures, time use and living environment. This information allowed us to compile a multidimensional picture of Belgians' well-being. Interviewing all adult members of the selected families about their individual expenditures and time use provided us a unique insight into well-being and power distribution within these families. Another novelty of our research is that we asked all these individuals about the relative importance they attach to the different life dimensions. This information brought new perspectives on the recipe of a good life according to the people and the diversity of that recipe.

In this conclusion, we will further investigate the second objective of our research project. We did not only wish to give a precise picture of well-being in Belgium as a descriptive exercise. We also wanted to test how such an exercise can be useful for the design and evaluation of social policies. We asked ourselves how we could use this wealth of information on the Belgians' well-being to identify the main needs of our fellow citizens and to shape policy. From this exercise, we can derive four main lessons.

Only looking at averages can be misleading

The first main lesson to draw is that averages may be particularly misleading. We are convinced that social policies should give priority to the most disadvantaged people. Averages hide these people. An example was provided when we compared men and women's expenditures and time use. If Belgium seems to be – on average – a country with low gender inequality within couples, looking beyond averages taught us that huge inequalities between partners still prevail. Some husbands (and wives) have very high private consumption while their partners have very low individual expenditures. This latter group is hidden behind the average. Yet it's precisely this group, with low private consumption and lack of free time, that is a key target for social policy.

It's therefore important to look beyond averages or other simple statistics and to attempt to map the whole well-being distribution. To that end, we need an operational measure of well-being. The next question then is: how can we measure well-being?

Incomes are not a good measure of well-being

Sticking to a purely monetary measure, such as incomes or capital, to measure well-being and to define the priorities of social policy is not a good idea. We collected abundant evidence that there are needs and inequalities in many other non-monetary dimensions, such as health, jobs, housing quality and environment. By setting social policy priorities on the basis of a monetary measure alone, we sort of deny all non-monetary inequalities.

In addition, Belgians consider these non-monetary dimensions as important for their well-being. Health in particular seems to play a major role for many citizens. High income does not guarantee a good life. However, we were also able to confirm that a too low income stands often in the way of a good life. Monetary indicators such as monetary poverty or income inequality are therefore certainly not useless. But they should be combined with other indicators in order to avoid providing a partial picture of well-being and its distribution.

Happiness is not a good measure of well-being

Many observers have recently been tempted to use happiness or satisfaction data to measure well-being and to set the priorities of social policies. It is true that subjective well-being measures have several advantages: they are easy to collect and when people report their satisfaction levels, they take non-monetary dimension into account. Nevertheless, we do not deem it appropriate to use subjective measures of well-being to set policy priorities for two reasons.

Firstly, subjective well-being measures are relatively insensitive to the situation of the individuals. Indeed, people seem to demonstrate an incredible ability to adapt to their situation. We were able to demonstrate that there are no notable difference in the average life satisfaction levels between men and women. From this observation, there seems to be no reason to pay particular attention to women's situation. However, women are overrepresented in the group of people suffering from cumulative deprivation in different life aspects. This is partly related to the fact that the parent in one-parent households is much more often a female than a male and these households often suffer more from multiple deprivation.

Secondly, subjective well-being measures are also influenced by expectations and aspirations. We noticed that those with a higher education level reported a lower life satisfaction if they would imagine to be in a hypothetical situation of someone with very bad health and low income, than lowly educated people. Perhaps higher educated people have higher expectations and for that report a lower life satisfaction if things would turn out bad for them. This shows that using satisfaction to determine priorities of social policies would favour people with higher education (and associated income), which is hard to justify from an ethical point of view.

Well-being is best measured in a multidimensional way

To identify the poorest in society, we need to collate the information on the different dimensions of life to measure well-being in an attractive way. Income and happiness may be two of these dimensions, but others, such as health, social interactions, jobs and housing quality are also essential.

A first step towards a more comprehensive view of well-being is to study each dimension separately. We did so in this project. Next, we pulled the information on the different dimension together. A remarkably high proportion of Belgians turns out to suffer from cumulative deprivation: they not only have a low income, they also belong to the group with the poorest health status and to the one with the worst housing conditions. A separate analysis of life dimensions can never detect such cumulative deprivation. But not all life dimensions are viewed as equally important by the people. Health turned out to be more important to many compatriots than housing quality for instance. In order to take into account individuals own conception of the good life, a multidimensional measure of well-being which respects these differences is necessary.

We showed that it is possible to measure well-being in such a way by the equivalent income measure. In this regard, we consider the equivalent income as a promising new measure. This criterion corrects the individual's income or material well-being in function of his or her situation in other dimensions, such as health or quality of housing. What is attractive about this criterion is that the correction depends on the value individuals themselves attach to the other dimensions. For those for whom housing is more important than a good health, a worse housing situation will weigh more than a poorer health in the income correction. In this way, researchers and policymakers avoid adopting a paternalistic attitude and making interpersonal comparisons of well-being based on their own view of what is important in life. Especially unhealthy and income poor people are the least fortunate according to this equivalent income measure. They deserve, in our opinion, the priority of social policies. Implementing equivalent incomes requires a rich dataset and the methodology to

compute them can certainly be improved. Nevertheless, at the end of this project, we are optimistic about the possibility of having social policies in our country based on this kind of precise and rigorous measure of individual well-being. We are therefore confident that this project contributes to a scientific debate on a socially relevant topic.