A new index to measure the human well-being in Wallonia and its communes (South of Belgium)

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Abstract

In 2012, the Walloon Government ordered the Walloon Institute for Prospective, Evaluation and Statistics (IWEPS) to calculate five indexes in order to guide and evaluate the public actions, together with the GDP. The index for the conditions of human well-being (CWBI) is presently the first step in the elaboration of the well-being index. The methodology is the one used by the Council of Europe. Actually, the CWBI is calculated by using 60 basic indicators, gathered into 8 families. After normalisation, the CWBI is the arithmetic mean of the 60 basic indicators, each of them having the same weight. The CWBI was calculated for the 262 communes of Wallonia and varies from 0.428 to 0.674, with a regional mean of 0.572. An opposition between urban and rural communes clearly appears, the last ones having the best scores. Communes along the borders of Germany and Luxemburg have the highest indexes, while communes in the old industrial areas have the lowest scores. Employment, income, family relations and security are the factors which are the most narrowly linked to the CWBI. At the communal level, social and security expenses per capita have a significant and negative correlation coefficient with the CWBI. In the future, in order to elaborate a finer index, new data, up to now not directly available, will be collected at the communal level, about quantitative and qualitative aspects.

Keywords: well-being index, Wallonia, local development

7. Introduction

During the period 2009-2014, the Walloon Government included in its "declaration of regional policy" and in its priorities action plan, the "Marshall Plan 2. Vert" (in reference to the economic plan developed in Europe by the US general G. Marshall just after the Second World War), a specific action devoted to the development of new indicators complementary to the Gross Domestic Product (GDP). On November 8, 2012 the Walloon Government ordered the Walloon Institute for Prospective, Evaluation and Statistics (IWEPS) to calculate five indexes in order to guide and evaluate the action of the government, together with the GDP: an index of the social situation, a well-being index, an index evaluating the ecological print and the bio-capacity, an index of environmental situation and an economic capital index. The index for the conditions of human well-being (CWBI) is a step to lead to the well-being index (WBI), which is still under elaboration. This paper presents the methodology to build the CWBI as it is defined in 2015, the results at the regional and communal levels and the discussion of these results, leading to further research.

8. Elaboration of the CWBI

The perception of well-being depends on many factors and also on personal experiences. It is a relative notion. So, the approach which has been adopted is the concept proposed by the Council of Europe in its Social Cohesion Strategy (Council of Europe, 2010). The concept of well-being is considered as "the product of complex interrelations between material and immaterial goods, between private and public goods, between private and public life, between personal and social equilibrium". This interpretation of human well-being means that there is interdependence between individual well-being and social fairness within a sustainable perspective.

In practice, the SPIRAL methodology used by the Council of Europe was implemented in fifteen cities and communes representative of the Walloon territorial diversity. Groups of persons from different social origins were surveyed about their meaning of well-being (Ruyters et al., 2011).

The collected information and data were analysed and then organised into "families", which gather "dimensions", which are themselves composed by "under-dimensions", elaborated by gathering all the expressions of the citizens which have the same meaning, though delivered in different ways (Laffut and Ruyters, 2014). Finally, 60 indicators are gathered into 19 dimensions and 8 families (Table 1).

Table 5 List of basic indicators and their gathering into dimensions and families

Families	Dimensions	Basic indicators
Family 1: means of living	Dimension 1: Health	Life expectancy-Years of life lost at 70-Chronic diseases-Handicapped persons-Consumption of anti-diabetic drugs- Pedestrian access to a pharmacy-Access to a hospital with emergency service-Access to a medical house.
	Dimension 2: Housing	Mean price of land for housing-Mean price of houses as a share of the mean income-Houses without bathroom nor central heating-Households candidates for social housing.
	Dimension 3: Teaching/Education	Persons with no diploma or a diploma from the primary school-Pupils on time at the secondary school – Access to a nursery or a primary school.
	Dimension 4: Employment	Employment rate for the 15-64 year old-Involuntary part time workers-Occasional workers-Unemployment rate of the 15-64 year old-Long term unemployment-Median salary-Professional diseases.
	Dimension 5: Income and purchasing power	Median income-Children in households without income from work-Beneficiaries of social support-Failing borrowers- Indebted persons.
	Dimension 6: Mobility	Access to public transport.
Family 2: Living environment	Dimension 7: Natural spaces and environment	Air polluted accommodation-Soil-polluted accommodation-Waste-Pedestrian access to a green area-Accommodation near a green area.
	Dimension 8: Small scale trade	Pedestrian access to a food shop.
	Dimension 9: Security	Heavy accidents-Badly injured or killed persons-Car robbery-Burglaries-Attacks on physical integrity.
Family 3: Relations with the institutions	Dimension 10: Communication	Quality of commune website
	Dimension 11: Institutions way of working and public management	Measures in favour of employment implemented by the communes- Measures in favour of employment implemented by the state-Percentage of public subsidised accommodation-Percentage of social loans in housing borrowing-Popularity of digital public spaces.
	Dimension 12: Democratic process	Percentage of non-voters-Openness to use the internet to express opinion.
Family 4: Personal relations	Dimension 13: Family relations	Single-parent households-Old isolated households-Divorce rate.
Family 5: Social equilibrium	Dimension 14: Equity of access to health care	Difference of lost years of life between men and women.
	Dimension 15: Equity of access to a good job	Difference of unemployment rate between the 18-24 year old and the 25-49 year old-Salary differences-Median salary differences between men and women.
	Dimension 16: Equity of access to a reasonable salary	Taxable total income differences.
Family 6: Personal	Dimension 17:	Relative capacity of nurseries-Number of places

Families	Dimensions	Basic indicators
equilibrium	Time management	subsidised in nurseries.
Family 7: Well-being feeling	Dimension 18: Feeling of (un)happiness	Rate of suicide.
Family 8: Values/attitudes/ initiatives/involvement	Dimension 19: Involvement in the society	Percentage of gifts in the tax declaration-Importance of the declared gifts.

The building of an index based on many variables is recommended by the OECD (2014): "to elaborate a multidimensional system of well-being indicators, which takes into account the advantages of specific location, is a crucial part of the way which public policies must follow to reach a better realization of the goals of the society".

So, the index for the conditions of human well-being is a synthetic index combining 60 indicators, which is calculated for the Walloon Region as a whole, but also for each of its 262 communes.

How is the CWBI calculated?

Firstly, all the values of the 60 basic indicators are normalised, thanks to the Min-Max normalisation method. So, the values of all the indicators vary from 0 to 1. For the indicators which have a negative impact on well-being, like the unemployment rate for example, it is the complement to 1 which is used.

The CWBI is simply the arithmetic mean of the transformed values of the 60 basic indicators. So, this method gives the same weight to each of the 60 basic indicators.

The collection of the basic data at the regional and the communal levels is uneasy, so a first synthetic index was calculated in 2014 and a second one in 2015, with finer and more relevant indicators.

9. Results

Among the 262 communes of the Walloon Region, the CWBI varies from 0.428 to 0.674 (Figure 1), the regional mean reaching 0.572 and the median being a little bit higher (0.579).
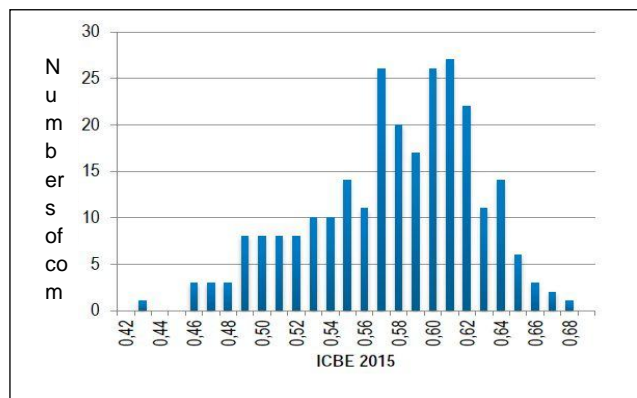

Figure 5 Distribution of the CWBI calculated for the 262 communes of the Walloon Region

Among the communes, 43% have a CWBI between 0.57 and 0.61; and 39% have a CWBI between 0.48 and 0.56 (Ruyters et al., 2015).

The minimal value is obtained for Charleroi (0.428), one of the two biggest cities of the region, which was prosperous in the past but which declined later with the progressive disappearance of the coal mines and the steel industry. The highest CWBI is registered in Amel (0.674), a rural commune with large forest areas, near the German border.

The value of the CWBI for each commune in Wallonia is illustrated in Figure 2.
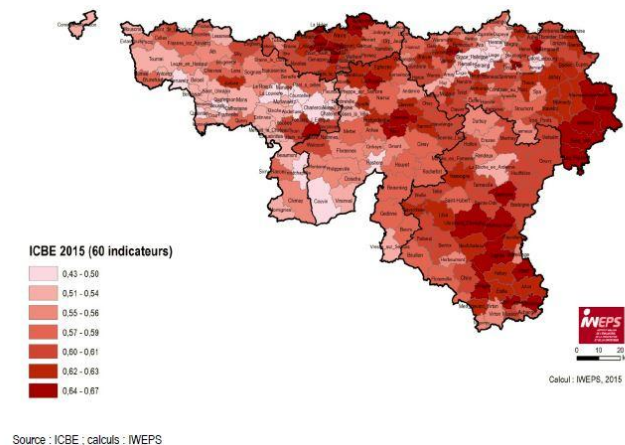
Figure 6 Value of the CWBI in the communes of Wallonia

The clearest areas represent the weakest CWBI: they essentially correspond to the old industrialised areas, from Verviers, Dison and Liège in the East, to Charleroi, La Louvière and Mons in the West, together with Froidchapelle, Couvin and Hastière along the French border.

On the contrary, the highest CWBI are observed in the communes belonging to the German-speaking Community and the communes along the borders of Germany and Luxemburg. High CWBI are also noted in rural communes of all provinces, residential communes (South of Brabant, Hesbaye, around the biggest cities), touristic communes of the valley of the Meuse and along the North-South axis Brussels-Namur-Arlon.

As far as "dimensions" are taken into account, it can be observed:

- that the level of well-being considerably varies in a given region, according to the considered "dimensions", the variation being weakened in the global index;
- the multidimensional approach, implemented at each specific territory, allows a better understanding of the equilibrium between different factors and the possible synergies through their corresponding policies.

9.1 Correlations between the CWBI and the "dimensions" of indicators

The correlation coefficients calculated between the CWBI and the dimensions of indicators are presented in Table 2.

It appears clearly that economic aspects are very important to explain the feeling of well-being: employment, income and purchasing power are narrowly linked to the CWBI. However, a qualitative and entirely non-economic variable, family relations, is also strongly linked to the feeling of well-being. Security, involvement in the society, education and the environmental factors are also important. The equity of access to a reasonable income is strongly, but negatively correlated to the well-being. It is explained by the fact that when income increases, the inequality also increases.

Some indicators, like time management or communication, have a low correlation with the well-being index. Some of them represent factors which are not distributed in all communes.

Table 6 Correlation coefficients between the CWBI and the dimensions of indicators

Dimensions	Correlation coefficients
Employment	0.896
Income and purchasing power	0.878
Family relations	0.730
Equity of access to a reasonable salary	-0.730
Security	0.694
Involvement in the society	0.644
Teaching/education	0.571
Natural spaces and environment	0.525
Small scale trade	-0.423
Institutions way of working and public management	-0.408
Democratic process	0.359
Equity of access to health care	0.353
Mobility	-0.352
Housing	0.320
Health	0.286
Feeling of (un)happiness	0.225
Equity of access to a good job	-0.120
Time management	0.106
Communication	0.034

9.2 Correlation between the CWBI and the basic indicators

The basic indicators which are the most correlated, positively or negatively, with the well-being index are presented in Table 3.

Table 7 Basic indicators the most correlated with the CWBI

Indicators	Correlation coefficients
Unemployment rate 15-64 year old	-0.890
Failing borrowers	-0.868
Children living in households without labour income	-0.863
Involuntary part time job	-0.819
Employment rate 15-64 year old	0.808
Pupils on time at secondary school	0.783
Median income	0.767

With no surprise, unemployment and financial difficulties have a highly negative correlation with the CWBI. On the contrary, employment, income and a good schooling have a positive impact on the well-being.

On the opposite, some basic indicators are weakly linked to the CWBI (Table 4).

Table 8 Basic indicators the least correlated with the CWBI

Indicators	Correlation coefficients
Access to hospital with an emergency service	-0.087
Access to green spaces	0.082
Measures in favour of employment implemented by the state	-0.051
Difference of the median salary between men and women	0.044
Quality of the commune's website	0.034
Use rate of digital public spaces	-0.025

Several of these indicators have a weak correlation with the conditions for well-being index because they do not have a complete cover of the Walloon territory.

9.3 Correlation between the communal budget and the CWBI

Two components of the communal budget have a significant correlation coefficient with the CWBI: expenses per capita for security purpose (-0.36) and expenses per capita for social support (-0.47). The correlation is negative: when expenses for security and social support are high, it means that there are social problems, which have a negative impact on well-being, of course.

10.Conclusions

Well-being is a complex concept, including many dimensions: income, human relations, natural environment, security… Individual perception of well-being is also very variable. So, it is necessary to be cautious when general conclusions are drawn from a global index. However, such a multidimensional index can be interesting and useful in order to define and evaluate public policies which do not take into account the Gross Domestic Product only. Pure economic aspects are of course very important, but the concept of well-being is much larger and other aspects deserve the attention of the policy makers in our post-industrial society. Even in a region of a small West European country like Belgium, significant differences appear from one commune to another. The feeling of well-being is lower in big cities from the old industrial zones, with low income and high unemployment rate, while it is the highest in residential areas where the income is higher and the natural environment better. Such observations should help to define public policies which are better adapted to local conditions. So, further work will be done in the future in order to improve such tools like well-being indexes.

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