destaque
press release

INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

10 November 2020

Well-being Index
2004-2019

Almost all the domains of the Well-being index showed a positive evolution between 2014 and 2019

The Portuguese Well-being index (WBI) evolved positively between 2004 and 2019, having registered an inflexion in 2007, 2008 and 2012. It recovered the following year, and growth is expected to continue to 2019.

The WBI illustrates developments of the well-being using ten synthetic indices. These indices reveal two dimensions: *Material living conditions* and *Quality of life*.

Between 2007 and 2008, and between 2010 and 2013, these two indices evolved in opposite directions. In the first period, the *Material living conditions* showed an increasing trend while *Quality of life* decreased, reversing this situation in the second period. From 2013 onwards, they changed in the same direction.

Among the ten domains integrating the WBI, *Personal Safety, Education, knowledge and skills* and *Economic Well*-being are the best performing components during the period under review.

Inversely, *Employment* and *Economic vulnerability* are the worst-performing components, although they have been recovering since 2013.

The most recent evolution of the ten domains reveals that between 2014 and 2019, nine of them showed a positive evolution.

Statistics Portugal releases the main results of the eighth edition of the *Well-being index for Portugal* (WBI), for the period 2004-2019. This index is based on methodologies and conceptual frameworks adopted by a group of international organisations, namely the OECD, Eurostat, and other statistics offices.

1. Global analysis

Preliminary data for 2019 point to a slight WBI increase, explained by an improvement in the *Quality of life*, and a large increase of *Living conditions*. In 2019, the WBI peaked at 50.0 (on a scale from 0 to 100), continuing the recovery started in 2013.

Figure 1 - Well-being index (IBE): global and by Perspective
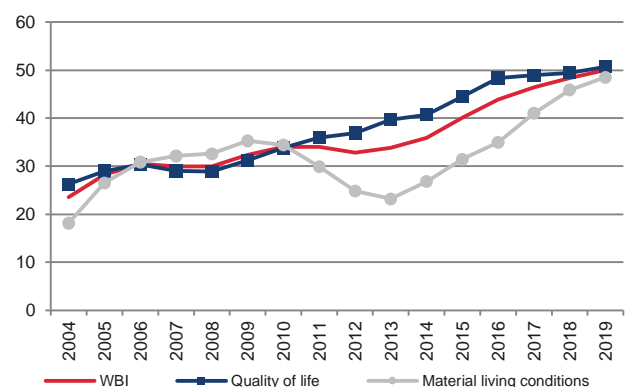
Between 2004 and 2018, the WBI changed from 23.5 to 50.0. This development was mostly due to progress in the *Quality of Life* (except in 2007-2008) and the *Material living conditions* (except in 2010-2013).

The WBI in Portugal recorded almost always positive developments between 2004 and 2019. It has only reduced in 2007 and in 2012.

The two perspectives of analysis of well-being – reflected in the composite indices *Material living conditions* and *Quality of life* – experienced different behaviours. *Quality of life* has always been higher than the *Material living conditions*, except for the 2006 to 2010 period, during which these indices reversed their positions.

Both indices evolved in opposite directions in the 2007-2008 and 2010-2013 periods. While the *Material living conditions* index developed negatively in the period 2010-2013, reaching its minimum value, of 23.2, in 2013, the *Quality of life* index showed a negative evolution in the years 2007-2008. From that period onwards, it showed a continuously positive evolution.

The *Material living conditions* index grew gradually less since 2004 and decreased effectively from 2010 to 2013. From 2014 it has grown, and it is estimated that the uplift continued in 2019l being around 30 points above the 2004 level.

On the other hand, from a *Quality of Life* perspective, the moderate positive evolution between 2004 and 2008 explained by a total variation of 2.6, was followed by an equally positive and sharper evolution, of 21.8, in the period 2008-2019. It is estimated that in 2019 the index quality of life is situated about 24.4 above the level found in 2004.

Obtained results originate from different evolutions in time, from the domains that underpin the two perspectives considered. In the evolution of material living conditions, there are three distinct periods. Between 2004 and 2009, the index shows a positive evolution, resulting from the contribution of the evolution of the *Economic well-being* domain. This change happened despite the decreases in the same period of the *Employment* and *Economic vulnerability* indices. A second period, from 2010 to 2013, in which the index shows a negative evolution, as an outcome of the very sharp decreases in the *Employment* and *Economic Vulnerability* indices. And finally, a period of positive evolution from 2014, as a result of the positive evolution of the indices of the three domains.

The *Economic well-being index* shows an approximately linear positive evolution, contrary to what happens to the other two domains of the *Material living conditions*.

This index has grown almost continuously since 2004 (only with the slight exception of the period from 2011 to 2012). It is the domain that in the period under review showed the most considerable growth (30.7).

In virtually every year since 2006, the *Economic Vulnerability* index has worsened, reaching the lowest level in 2013: 28.8[1]. The index has been growing since this year, and it is estimated that this growth continued in 2019. In the overall context of the review period (2004-2019), it showed a variation of 14.1.

The *Employment* domain with a decrease of 40.7 between 2004 and 2013, contributed significantly to the decrease in the synthetic index of *Material Living Conditions*. However, similarly to what happened with the domain of *Economic vulnerability*, the *Employment* index, after reaching a minimum value in 2013, grew in the following years, projecting new growth for 2019.

---

[1] A rise in the indexes always denotes an improvement in well-being, while a decline denotes the worsening of well-being. Thus, the decrease of the *Economic vulnerability* index means a greater economic vulnerability and therefore worsening of well-being.

Figure 2 - IBE: Material living conditions and their domains
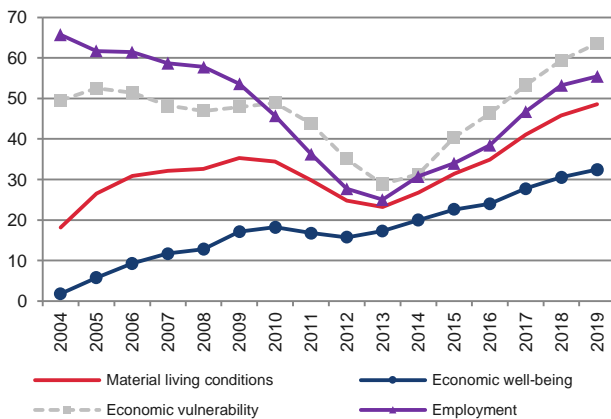
Four of the seven domains of *Quality of life* made a significant contribution to the overall positive developments of this component.

Figure 3 - IBE: Quality of life and their domains
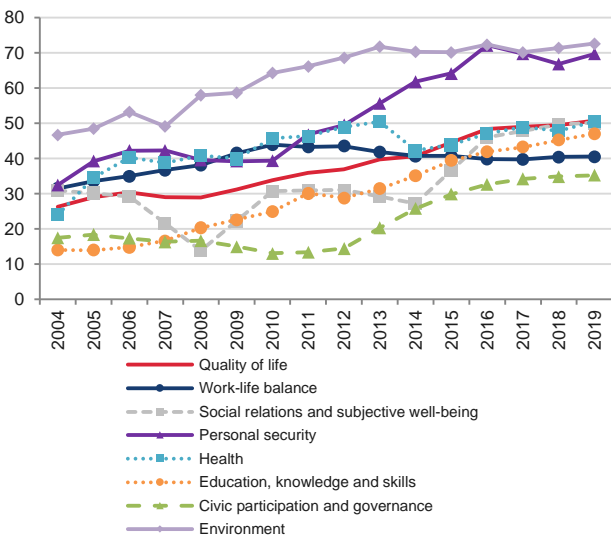
First, the *Personal security* domain, which since 2006 has come down to a minimum value in 2009, has grown from that year to a maximum in 2016, decreasing slightly from that year.

Second, the *Education, knowledge and skills* domain grew continuously in the period under study, except for the year 2012.

Third, the *Health* domain index also tended to increase with only a reduction in 2014.

Finally, the evolution of the *Environment* domain index showed a decrease only in 2007 and has remained relatively stable since 2013. Throughout the period, this domain had the highest index values, thus reflecting a relevant international position of Portugal in this matter.

The indexes of the remaining domains had an evolution below the overall performance of the *Quality of life* perspective.

In the 2004-2019 period, the domains *Civic participation and governance* and *Social relations and subjective well-being* exhibited similar behaviours.

Work-life balance is the domain of the perspective of *Quality of life* that grew less in the period remaining relatively constant since 2010

Overall, a review of the 2004-2008, 2008-2014 and 2014-2019 periods, highlights four groups of domains, depending on their behaviour, evidenced by the annual rate of change (Table 1): the group that showed a consistently positive trend in every period; those that went from a negative evolution in the first period to a positive evolution in the others; those that only had a positive evolution in the third period; and finally the *Work-life balance*, which went from an initial positive evolution to a null evolution in the last period.

Table 1 - Evolution of the annual rate of change by domain in 2004-2008, 2008-2014 and 2014-2019

Domains	2004-08	2008-14	2014-19
Economic well-being, Health, Education, Security, Environment	+	+	+
Social relations and subjective well-being, Civic participation	-	+	+
Economic vulnerability, Employment	-	-	+
Work-life balance	+	+	0

Legend: annual rate of change positive (+), negative (-) or null (<|0,4|) (0)

INSTITUTO NACIONAL DE ESTATÍSTICA
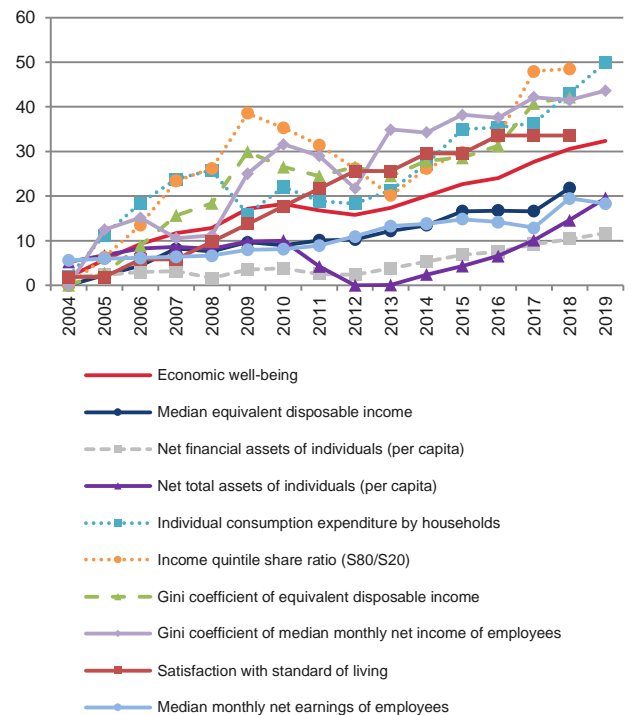STATISTICS PORTUGAL

2. Material living conditions

2.1. Economic well-being

The *Economic well-being* domain grew considerably up to 2010, reversed that trend until 2012 and beginning a recovery since then. It should be stressed in this recovery the favourable evolution of the inequality and concentration indicators and the individual consumption expenditure by households. These indicators and the satisfaction with standard of living showed the most favourable evolution between 2004 and 2019. The indicators on assets were not only the ones that had the slowest evolution, but also those that showed the lowest values during the period.

Although the *Economic well-being* index and its respective indicators have shown a generally positive trend, it should be noted that they start from shallow values in 2004, reaching in 2019 only to values that are, on average, in the vicinity of 30 (on a 0 to 100 scale). This fact reveals Portugal's position in this matter vis-à-vis the set of countries that serve as a reference in this analysis for the normalization of the indicators.

Figure 4 - Economic well-being and its indicators

Legend:
— Economic well-being
— Median equivalent disposable income
- - Net financial assets of individuals (per capita)
— Net total assets of individuals (per capita)
····· Individual consumption expenditure by households
····· Income quintile share ratio (S80/S20)
- - Gini coefficient of equivalent disposable income
— Gini coefficient of median monthly net income of employees
— Satisfaction with standard of living
— Median monthly net earnings of employees

2.2. Economic vulnerability

The *Economic vulnerability* domain ranks second among the domains with the worst performance throughout the period under review, reflecting a growing vulnerability of households, induced by their detachment from the labour market, and greater difficulty in meeting housing-related commitments. From 2004 to 2010, the indicators in this domain declined smoothly, and over the next three years, they decreased sharply. However, there have been positive developments since 2014, mainly due to the rate of material deprivation, to the rate of intensity of poverty and very low labour *intensity*. As of that year, all the indicators in this area showed a favourable evolution.

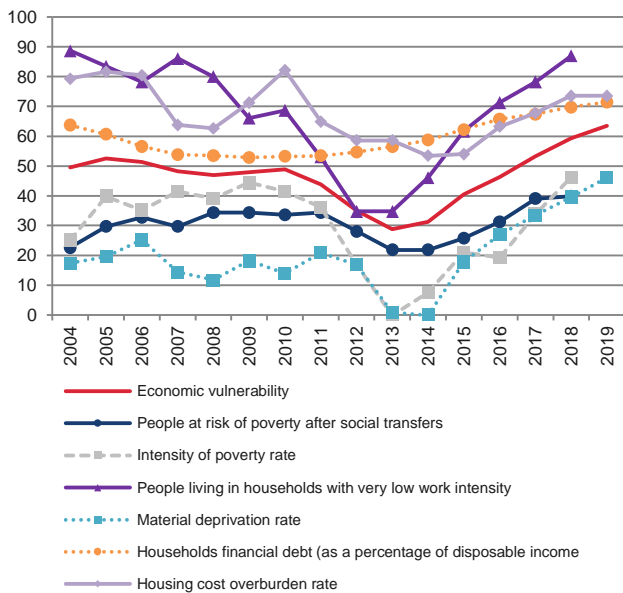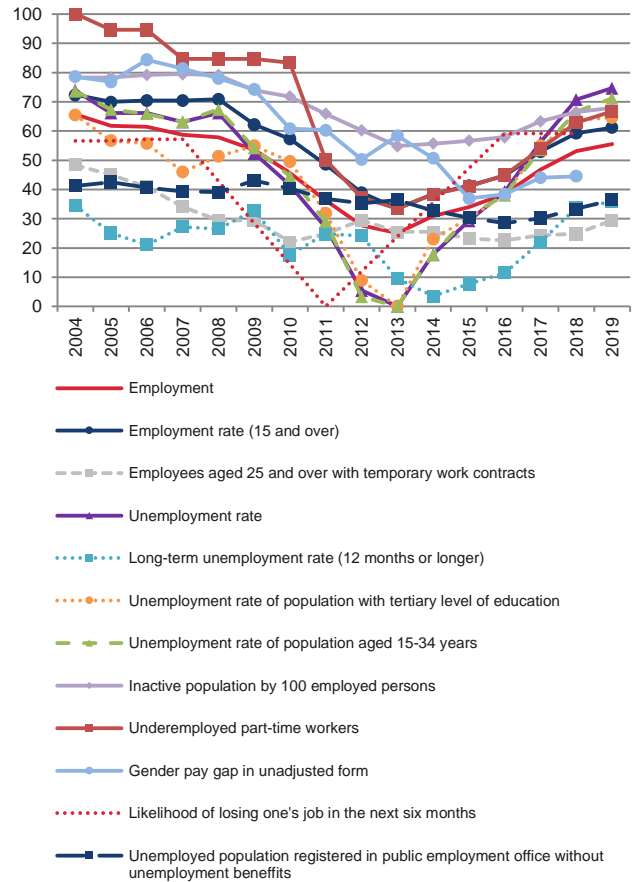## Figure 5 - Economic vulnerability and its indicators

- Economic vulnerability
- People at risk of poverty after social transfers
- Intensity of poverty rate
- People living in households with very low work intensity
- Material deprivation rate
- Households financial debt (as a percentage of disposable income
- Housing cost overburden rate

Figure 6 - Employment and its indicators

- Employment
- Employment rate (15 and over)
- Employees aged 25 and over with temporary work contracts
- Unemployment rate
- Long-term unemployment rate (12 months or longer)
- Unemployment rate of population with tertiary level of education
- Unemployment rate of population aged 15-34 years
- Inactive population by 100 employed persons
- Underemployed part-time workers
- Gender pay gap in unadjusted form
- Likelihood of losing one's job in the next six months
- Unemployed population registered in public employment office without unemployment beneffits

2.3. Employment

Employment is the well-being domain with the worst performance, mostly due to the gender pay gap rise, which has only recently been narrowing, and the underemployment of part-time workers. The indicator with the best improvement, although very slight, was the likelihood of losing one's job in the next six months.

This domain decreased continuously until 2013. From 2013 onwards there is a reversal of this trend. It is projected for 2019 the continuation of this improvement.

3. Quality of life

3.1. Health

Showing a favourable evolution in the period 2004-2019, it is estimated that the *Health* domain, occupies the third most favourable place of the seven domains that constitute the *Quality of Life* perspective. This evolution was very sharp until 2006, mildest since that year until 2013, with a steeper decline in 2014 (mainly due to the negative evolution of the self-reported limitation in activities because of health problems and of the healthy life years) and growing back smoothly from there. These four indicators outperformed the domain index, showing the best performance in the period 2004-2019: life expectancy
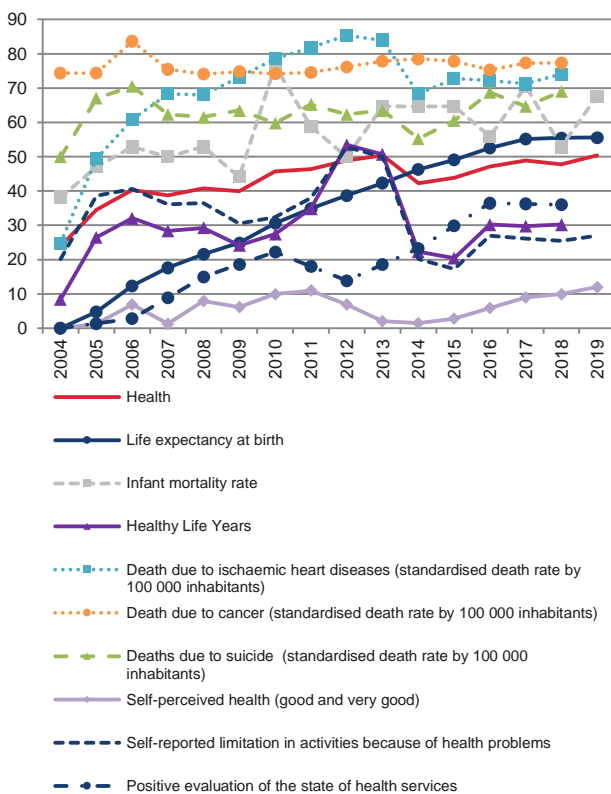
indicator, followed by death due to ischaemic heart diseases, the evaluation of the state of health services and infant mortality rate.

From another perspective, distinct from the analysis of the evolution of the indicators, which reflects Portugal's position vis-à-vis the countries taken as reference, it should be mentioned the higher rank of death due to cancer, and death due to ischaemic heart diseases and, therefore, positive in terms of well-being, since these indices have negative polarity. In the opposite position, it should be observed the low values of self-perceived health.

Figure 7 - Health domain index and its indicators

Health
Life expectancy at birth
Infant mortality rate
Healthy Life Years
Death due to ischaemic heart diseases (standardised death rate by 100 000 inhabitants)
Death due to cancer (standardised death rate by 100 000 inhabitants)
Deaths due to suicide (standardised death rate by 100 000 inhabitants)
Self-perceived health (good and very good)
Self-reported limitation in activities because of health problems
Positive evaluation of the state of health services

3.2. Work-life balance

Capacity to reconcile time dedicated to working with other aspects of personal life, such as family, friends or leisure in general, is a critical characterisation factor of well-being.

Work-life reconciliation evolved positively during the whole period, more pronounced until 2010. Since this year it has been decreasing slightly. This recent decrease results from the movement in opposite directions of the following indicators: the unfavourable evolution of the time spent for family activities index and work-life balance index; this development has not been sufficiently compensated by the evaluation of time spent for family and leisure activities index and the satisfaction with work, family and social life index. The improvement in the performance of the indicator of workers working more than 49 hours per week stands out for its positive effect.
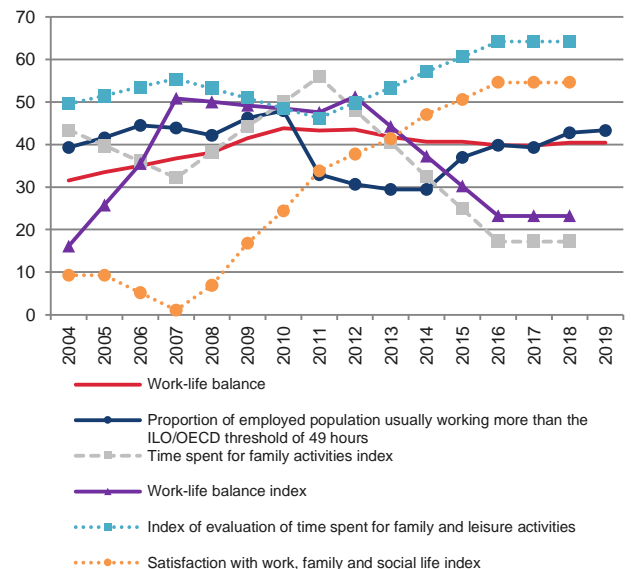

Figure 8 - Work-life balance and its indicators

Work-life balance
Proportion of employed population usually working more than the ILO/OECD threshold of 49 hours
Time spent for family activities index
Work-life balance index
Index of evaluation of time spent for family and leisure activities
Satisfaction with work, family and social life index

3.3. Education, knowledge, and skills

Education was the well-being component with the second-best performance. This index had a positive

evolution every year from 2004 to 2019, except for a small decrease in 2012.

The very sharp and positive evolution of the early leavers from education and training indicator is the main responsible for the positive progress of the index. This indicator is helped from 2013 onwards by the equally positive developments in the rate of young people neither in employment nor in education or training and by the index of cultural consumption. The role of indicators such as scientific publications, the tertiary educational attainment, and the average number of years of education of the labour force, should also be noted for their positive evolution. The evolution of the indicator on patents stands out for negative reasons, with small values, although growing, throughout the period.


Figure 9 - Education, knowledge and skills and its indicators
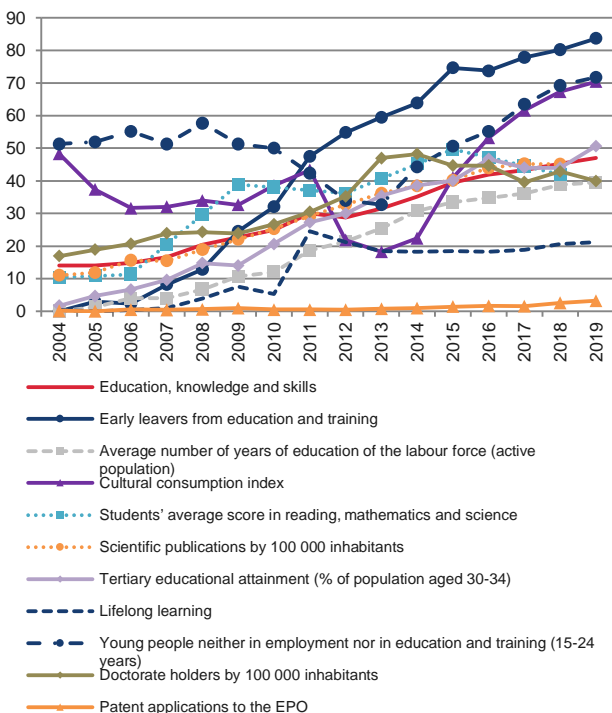
3.4. Social relations and subjective well-being

The change in the 2004-2019 period in the *Social relations and subjective well-being* domain was positive, although revealing oscillations (decrease between 2006 and 2008 and also 2012 and 2014). The favourable evolution since 2014 results mainly from the overall happiness and life satisfaction indicators. Regardless of the analysis of their contribution to the evolution of the index, it should be stressed the almost permanent low values of the social trust index and the regular high values of social meetings with family, friends, relatives or colleagues.

Figure 10 - Social relations and subjective well-being and its indicators
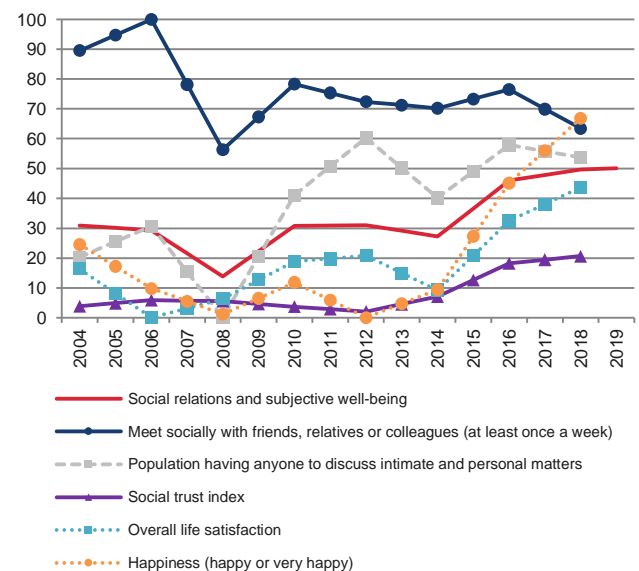
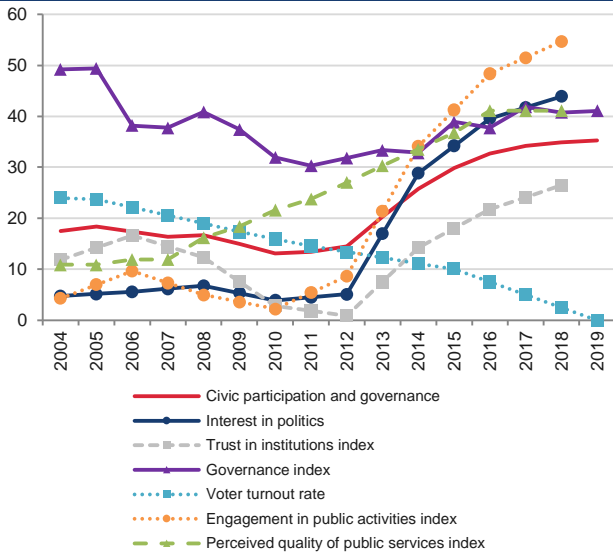## 3.5. Civic participation and governance

This domain decreases smoothly until 2010 and grows from thereon, increasingly from 2012.

This positive evolution, after 2012, results mainly from the engagement in public activities index and the degree of interest in politics.

From another perspective, the governance index should also be highlighted, as it is almost always higher than the other indicators in the period.

Figure 11 - Civic participation and governance and its indicators

- Civic participation and governance
- Interest in politics
- Trust in institutions index
- Governance index
- Voter turnout rate
- Engagement in public activities index
- Perceived quality of public services index

the period, thus contributing to higher values of the *Personal Security* index.

Figure 12 - Personal security and its indicators

- Personal security
- Crimes recorded by the police
- Reported homicides
- Deaths on road accidents
- Population feeling safe when walking alone in their area after dark
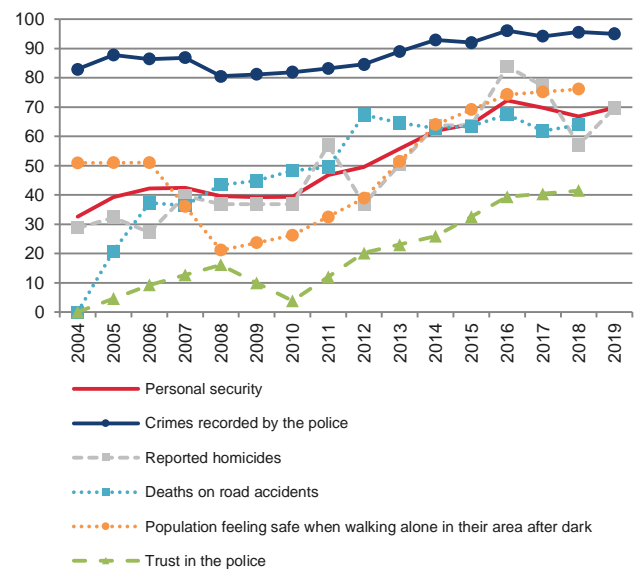- Trust in the police

3.6. Personal security

Personal safety is the domain with the best performance among the ten domains of the WBI.

There are three distinct phases in the variation of this domain: an initial growth until 2007, a second phase of relative stability between 2007 and 2010 and finally, as of 2010, most indicators show positive developments. In 2017, there was a decrease, with a slight recovery expected in 2019.

All indicators show a positive evolution. The main contribution is the evolution of deaths on roads accidents and to a lesser extent the trust in the police, and the homicide rate.

Likewise, the importance of the crime indicator should be highlighted, which assumes very high values over
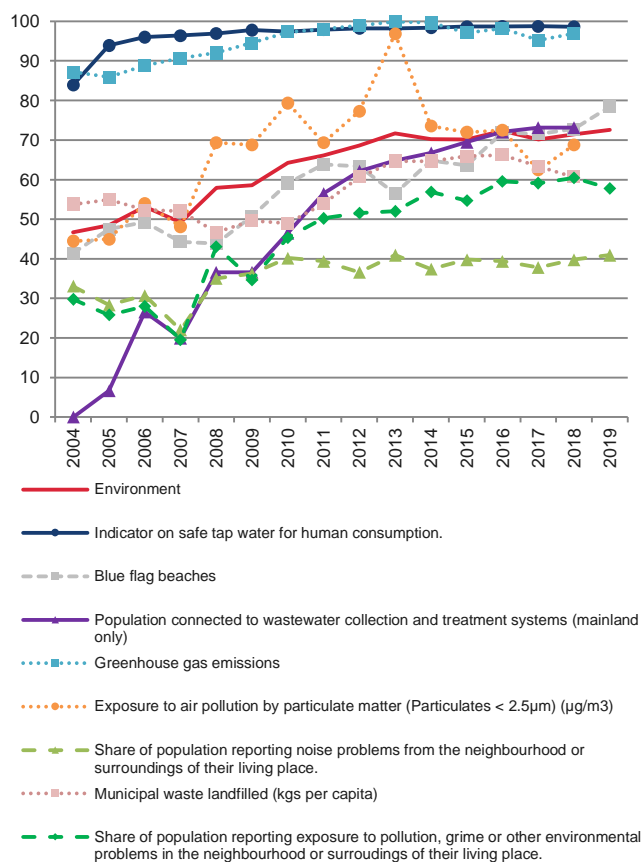
3.7. Environment

The *Environment* domain shows positive developments with small fluctuations (a slight decrease in 2007 due to the negative evolution of six of its eight indicators that year).

The indicator with the greatest contribution to the positive evolution of the index was the population connected to wastewater collection and treatment systems.

With positive, albeit minor, contributions, it is possible to point out the evolution of the indicators on Blue Flag beaches and the population reporting exposure to pollution, grime or other environmental problems in the neighbourhood or surroundings of their living place.

Finally, the values always very high over the period of safe tap water and greenhouse gas emissions should also be mentioned.

INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

Figure 13 - Environment and its indicators

— Environment

—●— Indicator on safe tap water for human consumption.

━ ━ ■ ━ ━ Blue flag beaches

—▲— Population connected to wastewater collection and treatment systems (mainland only)

•••■••• Greenhouse gas emissions

••••●•••• Exposure to air pollution by particulate matter (Particulates < 2.5μm) (μg/m3)

— ━ ━ Share of population reporting noise problems from the neighbourhood or surroundings of their living place.

••••■•••• Municipal waste landfilled (kgs per capita)

— ◆ ━ Share of population reporting exposure to pollution, grime or other environmental problems in the neighbourhood or surroudings of their living place.

TECHNICAL NOTE

Methodology

The Well-being index (WBI) is an annual statistical study whose geographical scope is the country. The variables integrating the construction of the WBI stem from administrative procedures and statistical operations developed within the scope of the National Statistical System, the European Statistical System, the World Bank, and others.

From the conceptual viewpoint, household material living conditions and quality of life were considered as key perspectives in the assessment of well-being change. In this context, the intention was that every perspective was represented with indicators, which can be found in the attached Tables, grouped into domains, which would correspond as faithfully as possible to the definition set out.

From the **Material living conditions** perspective, consideration has been taken of three domains, which aggregate 26 indicators:

- **Economic well-being** – capturing current and future possibilities of consumption, material well-being, and inequality in income distribution;

- **Economic vulnerability** – measuring monetary poverty, material deprivation, indebtedness and housing vulnerability;

- **Labour and income** – assessing participation and social inclusion, labour vulnerability, and gender pay gap, as well as quality of work.

From the **Quality of life** perspective, an account has been taken of seven domains, which aggregate 48 indicators:

- **Health** – through health result indicators and assessment of the provision of health services;

- **Work/life balance** – through assessment of the reconciliation of time allocated to family and work and the subjective assessment of the work/life balance;

- **Education, knowledge, and skills** – by characterising formal education, lifelong learning, quality of education and level of skills acquired and production of knowledge and innovation;

- **Personal security** – through assessment of crime and subjective assessment of personal security;

- **Civic participation and governance** – through assessment of civic and political participation and trust in institutions;

- **Social relations and subjective well-being** – through assessment of social subjective well-being and individual subjective well-being, dimensions that for being specific will not be subject to joint analysis;

- **Environment** – through assessment of water and air quality, perceived noise intensity, analysis of the final destination of waste and subjective assessment of environmental quality.

Part of these 74 indicators, defined after a coherence analysis of the ser of indicators in each domain, are the result of the aggregation of a second level of indicators.

The variables considered in each domain are expressed in different measurement units, amplitudes and scales. The adopted method of normalization was the min-max method.

Each indicator has a positive or negative polarity. If an indicator has a positive polarity such as employment rate, it has a direct relationship with well-being. If it has a negative polarity, such as unemployment rate, it has an inverse relationship with well-being: when unemployment increases, well-being decreases.

In this normalization method, each positive-polarity indicator for each year is calculated from the ratio of the difference between the value of that base indicator and the minimum value, and the total amplitude of the indicator value over the time period considered. In case the indicator has negative polarity, the result of normalization is the complement to the unit obtained in the before mentioned ratio. The values obtained in these operations are multiplied by 100.

(to be continued)

The maximum and minimum values used to normalize each indicator are derived from the same indicator data for a set of reference countries for the period under review: Denmark, Finland, Sweden, Austria, Belgium, Germany, France, Luxembourg, the Netherlands, Ireland, the United Kingdom, Italy, Malta and Spain. The definition of this set of countries resulted from a typology of countries created by Eurofound to study the quality of life in Europe. This means that the importance given to the indicators, after rescheduling, reflects Portugal's position in relation to this set of countries. The identification and exclusion of outliers (except when the outlier is Portugal) was performed prior to the determination of the definitive maximums and minimums.

Each normalized indicator ranges from 0 to 100. An indicator closer to 100, is an indicator that is near to the maximum value that the indicator may have, in the period under review, for the set of reference countries. On the contrary, if it is close to 0, it is near the minimum value for those countries.

All indicators and domain indices have the same weight. The aggregation functions used were the arithmetic mean for the aggregation of indicators in each domain index, and geometric mean for the aggregation of domains by perspective and domains in the WBI.

The projection of each domain for year $t+1$ result from the projections of the indicators belonging to this domain. From each indicator for which the value for year $t+1$ is unknown, a projection is computed using exponential smoothing based on the Holt method, using as a smoothing parameter $\alpha=0.98$, given that the most recent years have the greatest importance for the projection.

The methodological options underlying the design and operationalisation of the WBI are described in the Methodological Document available at www.ine.pt, under Metadata.

Roundings

Any calculations made from published figures may differ by decimal rounding.

Bibliography

Auke Rijpma; Michail Moatsos; Martijn Badir; Hans Stegeman. (2017). *Netherlands beyond a GDP: A Wellbeing Index.* unpublished, Munich Personal RePEc Archive, Munich. Retrieved in https://mpra.ub.uni-muenchen.de/78934/.

COIN - Competence Centre on Composite Indicators and Scoreboards, https://ec.europa.eu/knowledge4policy/composite-indicators_en

Eurofound. (2014). *Developing a country typology for analysing quality of life in Europe.* Luxembourg: Publications Office of the European Union.

Giovannini, E., Nardo, M., Saisana, M., Saltelli, A., Tarantola, A., & Hoffman, A. (2008). *Handbook on constructing composite indicators: methodology and user guide*. Organisation for Economic Cooperation and Development (OECD).

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress*.