



26 December 2022

WELL-BEING INDEX

2004-2021

## **THE COVID-19 PANDEMIC IN 2020 HAS REDUCED WELL-BEING, HAVING AFFECTED MATERIAL LIVING CONDITIONS MORE THAN THE QUALITY OF LIFE**

The Portuguese Well-being Index (WBI) evolved positively between 2004 and 2020. It is estimated that the 2020 value remained in 2021.

The WBI illustrates developments in well-being using ten synthetic indices. These indices reveal two dimensions: Material Living Conditions and Quality of Life.

Between 2009 and 2013, these two indices evolved in opposite directions, with Material Living Conditions showing a downward trend and Quality of Life an increasing trend. Between 2013 and 2016, they changed in the same direction. After that year, Quality of Life maintained a smooth downward trend, and Material Living Conditions grew until 2019 and decreased slightly from that year onwards.

Considering only the period after 2013, nine of the ten domains that make up the WBI showed a tendentially positive evolution. The three domains belonging to Material Living Conditions presented the most favourable evolution, despite the reduction observed in 2020 due to the COVID-19 pandemic (see Box “Some results related to the impact of the COVID-19 pandemic”).

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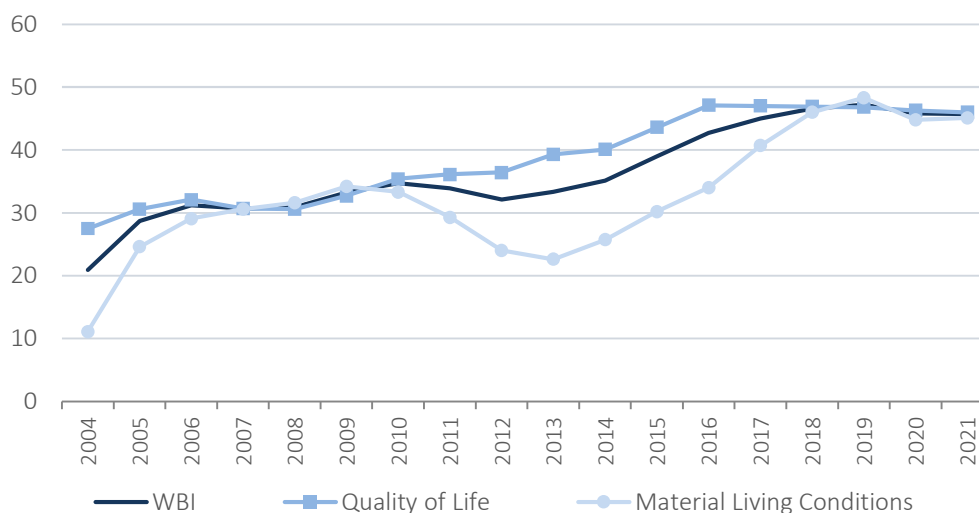
### **1. Global analysis**

Preliminary data for 2021 point to the maintenance of the previous year's WBI value.

Between 2004 and 2020, the WBI changed from 20.9 to 45.8. This development was primarily due to the progress observed in Material Living Conditions, although the change in the Quality of Life was also, in general, positive.

The two perspectives of well-being analysis – reflected in the composite indices of Material Living Conditions and Quality of Life – even so, experienced different behaviours throughout time. Quality of Life has always been higher than the Material Living Conditions, except for the 2008 to 2009 period and 2019.

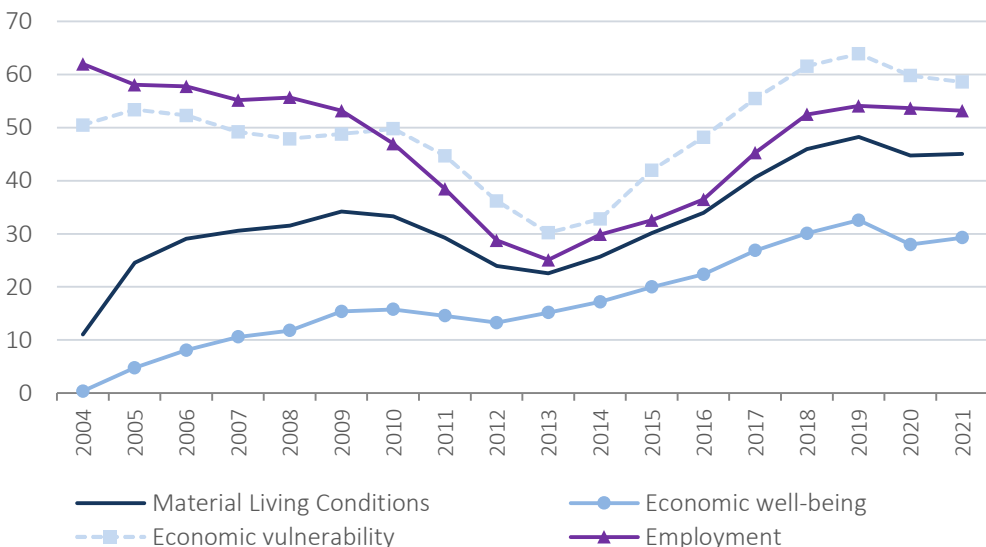
Figure 1. Well-being index (IBE): global and by perspective



The Quality of Life showed a positive trend until 2016, maintaining approximately constant values from that year onwards. The index that explains the evolution of Material Living Conditions recorded a negative development in 2010-2013, reaching a minimum value in 2013. From that year on, it grew until 2019, having suffered a decrease in 2020.

These 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 four distinct periods: between 2004 and 2009, the index shows a positive development, 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 sharp decreases in the Employment and Economic Vulnerability indices. And finally, a period of positive evolution from 2014, as a result of the also positive evolution of the indices of the three domains, and finally, an inflection in 2019, resulting from the negative behaviour of these domains.

**Figure 2. IBE: Material Living Conditions and their domains**



The Economic well-being shows an approximately linear positive evolution, contrary to what happens to the other two domains of Material Living Conditions. This index has grown almost continuously since 2004 (only with a slight exception in 2011-2012 and 2020). This is the domain that showed the most considerable growth in the period under review.

The Employment and Economic Vulnerability indices showed very similar behaviours throughout the period: a sharp decrease until 2013, an increase from that year until 2019 and a slight decline thereafter.

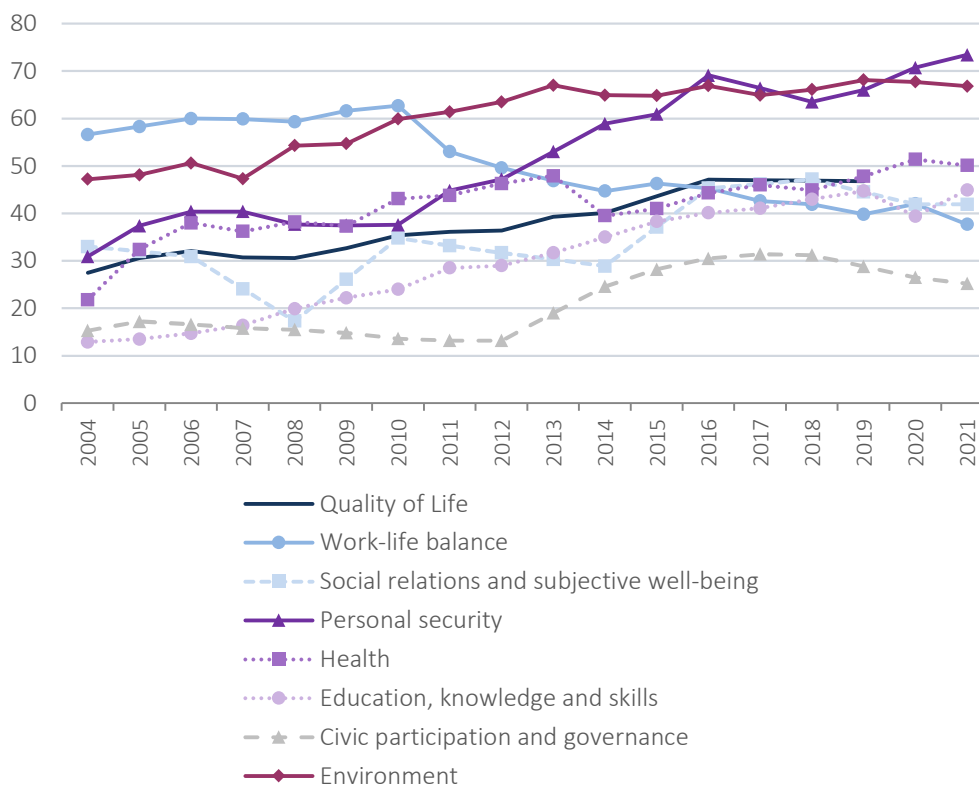
The positive evolution of the Personal security, Education, Environment and health indices explains the growth up to 2016 of the Quality of Life index. The stagnation observed after 2016 can be attributed to the decrease in the Work-life balance domain, to the stagnation from 2013 of the Environment index, and the inflection in a negative direction, of the Civic participation and governance domain, as of 2017.

Finally, particularly from 2012 onwards, the Environment and Personal security domains have recorded the highest values, thus reflecting Portugal's relevant position in these areas internationally<sup>1</sup>.

In the opposite direction, the low values assumed by the Civic participation and governance domain should be highlighted.

<sup>1</sup> The indices have been normalized based on the values of a group of European countries, as explained in the Methodological note. As a result, a high value of an indice indicates that Portugal's performance for that particular indicator is close to the highest values observed among the reference group of countries.

Figure 3. IBE: Quality of Life and their domains

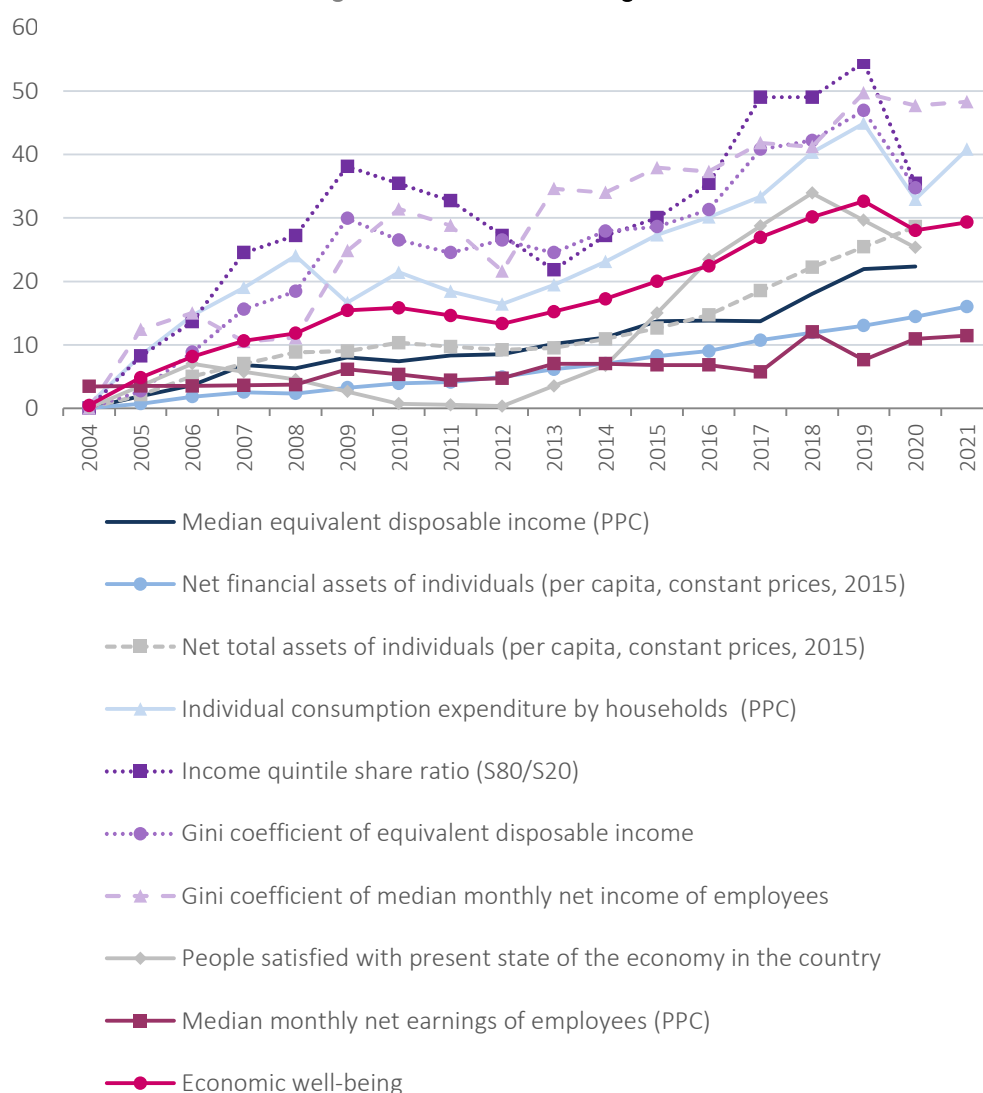


## 2. Material Living Conditions

### Economic well-being

The Economic well-being domain grew considerably up to 2010, reversed that trend until 2012 and began a recovery since then, only interrupted in 2019, the year in which there was a decrease, with an estimated recovery in 2021. The favourable evolution of the inequality and concentration indicators and the final consumption expenditure of the families should be highlighted in the behaviour of this index, which had the best behaviour in the period. The indicators relating to equity and net monthly remuneration were not only those with the most contained evolution but also those that presented the lowest values during the period<sup>2</sup>.

Figure 4. Economic well-being and its indicators



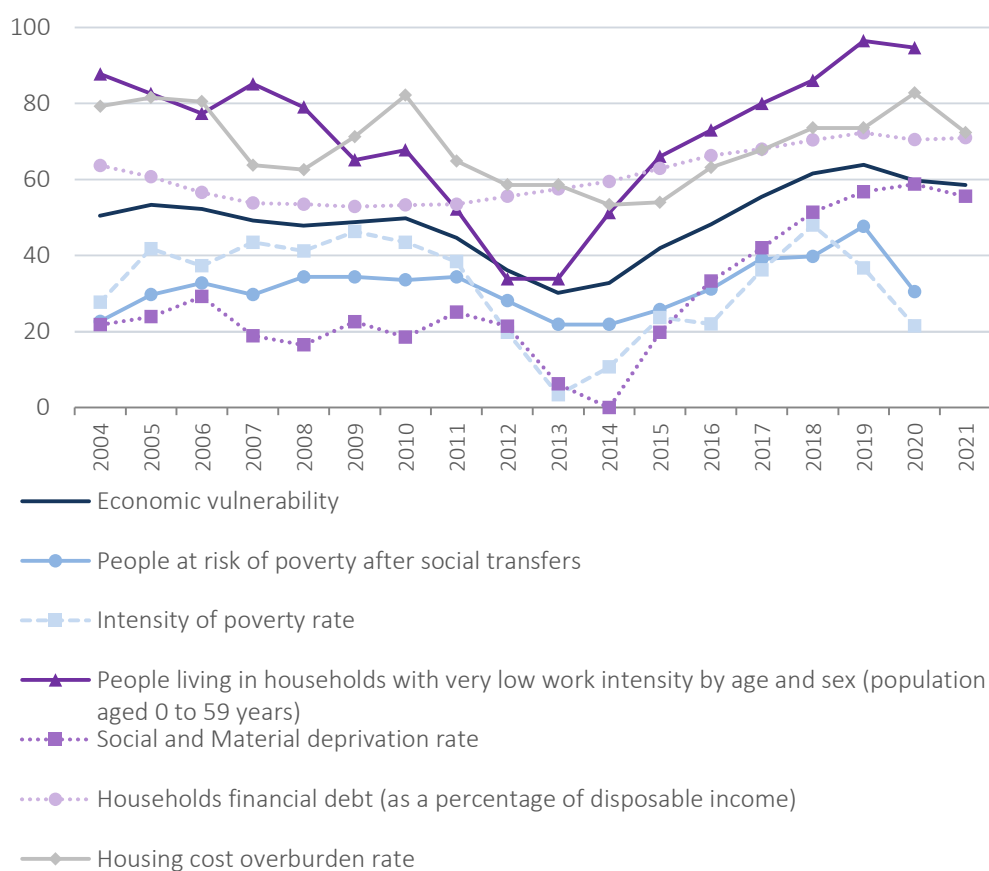
<sup>2</sup> Some of the indicators do not have actual values for 2021. As mentioned in the Methodological note, a projection of these indicators for 2021 was carried out, with only the value of domain indices being disclosed.

Although the domain of Economic well-being and its respective indicators have shown a generally positive evolution, they started from shallow values in 2004 and reached, at the end of the period, values that are, on average, close to 30 (on a scale of 0 to 100). This fact reveals Portugal's position in this domain vis-à-vis the set of countries that serve as a reference in this analysis for the normalisation of the indicators.

## Economic vulnerability

The Economic vulnerability domain ranks third among those with the worst performance throughout the period under review, reflecting the poor values of the poverty indicators. Most indicators decreased in a less noticeable way until 2010 and abruptly in the following three years. However, there have been positive developments since 2014, mainly due to the reduction in the material deprivation rate, the poverty intensity rate, and the very low work intensity. From that year until 2019, when there was a turning point, all indicators in this area showed a favourable evolution.

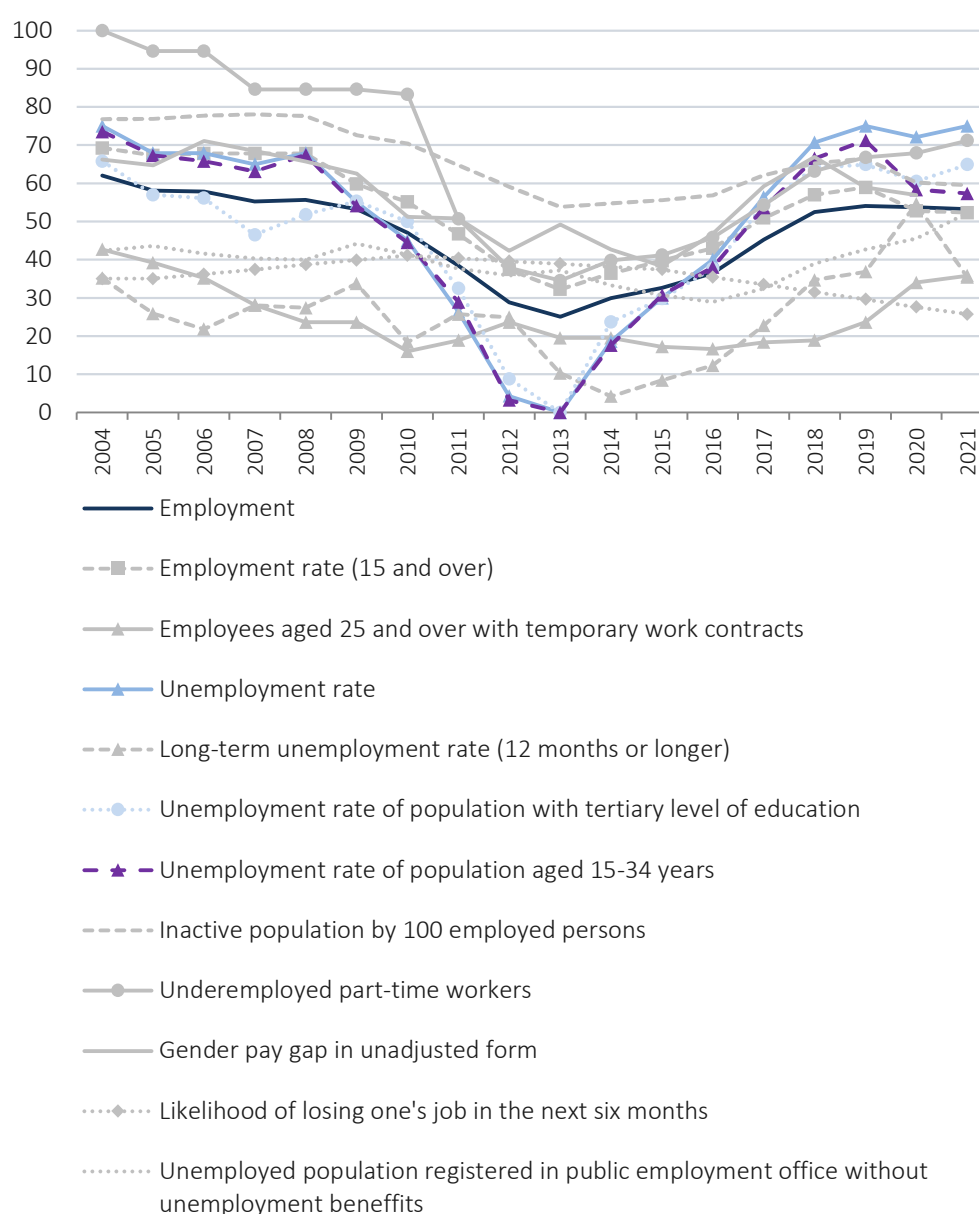
Figure 5. Economic vulnerability and its indicators



## Employment

Employment is the well-being domain with the worst performance considering the entire period 2004-2021. However, if only the period after 2012 is considered, it is the domain that shows the most pronounced positive variation. For this evolution, both in the downward phase until 2013, and in the upward phase, from that year onwards, the indicators of unemployment rates of the active population, young people, and those with a higher education level contributed above all.

Figure 6. Employment and its indicators



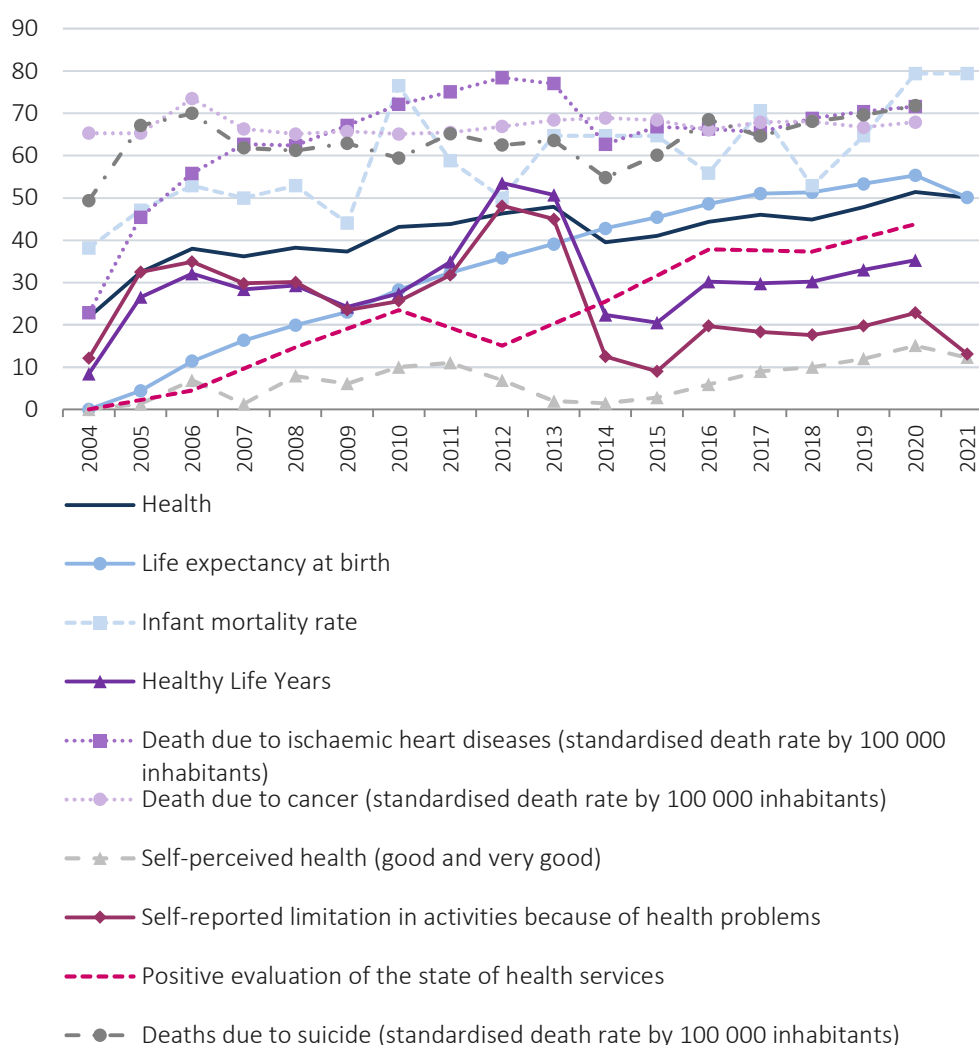


### 3. Quality of Life

#### Health

It is estimated that the Health domain occupies the third most favourable place concerning the seven domains that constitute the Quality of Life perspective in 2004-2019. This evolution was very sharp until 2006, milder from that year until 2013, decreased in 2014 (mainly due to the strongly negative evolution of self-reported activity limitation because of health problems and Healthy life years) and grew back from there. Life expectancy at birth, positive assessment of health services, mortality from diseases of the circulatory system, and infant mortality, were the indicators that showed an evolution more favourable than the domain index.

Figure 7. Health domain index and its indicators



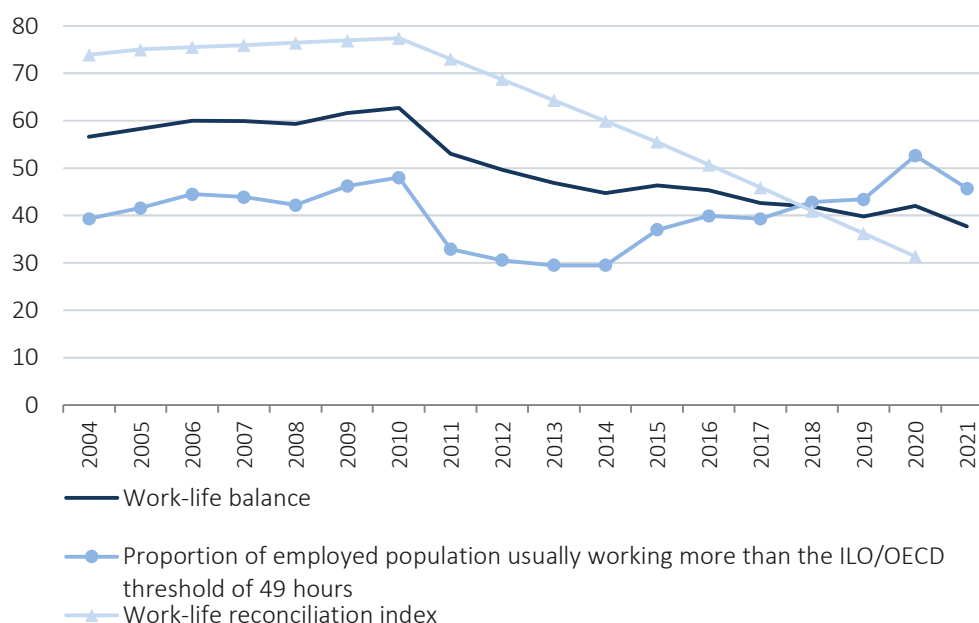
From another perspective, distinct from the analysis of the evolution of the indicators, which reflects Portugal's position vis-à-vis the countries taken as a reference, it should be mentioned the higher rank of death due to cancer and death due to ischaemic heart diseases and, therefore, positive in terms of well-being, since these indices have negative polarity<sup>3</sup>. In the opposite position, the low values of self-perceived health should be stressed.

## Work-life balance

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

Work-life balance evolved positively until 2010. From this year onwards, it has been decreasing. This decline results from movement in opposite directions of the following indicators: the unfavourable development of the Work-life reconciliation index, not sufficiently compensated by the improvement, from 2014 onwards, of the performance of the indicator of workers working more than 49 hours per week.

Figure 8. Work-life balance and its indicators



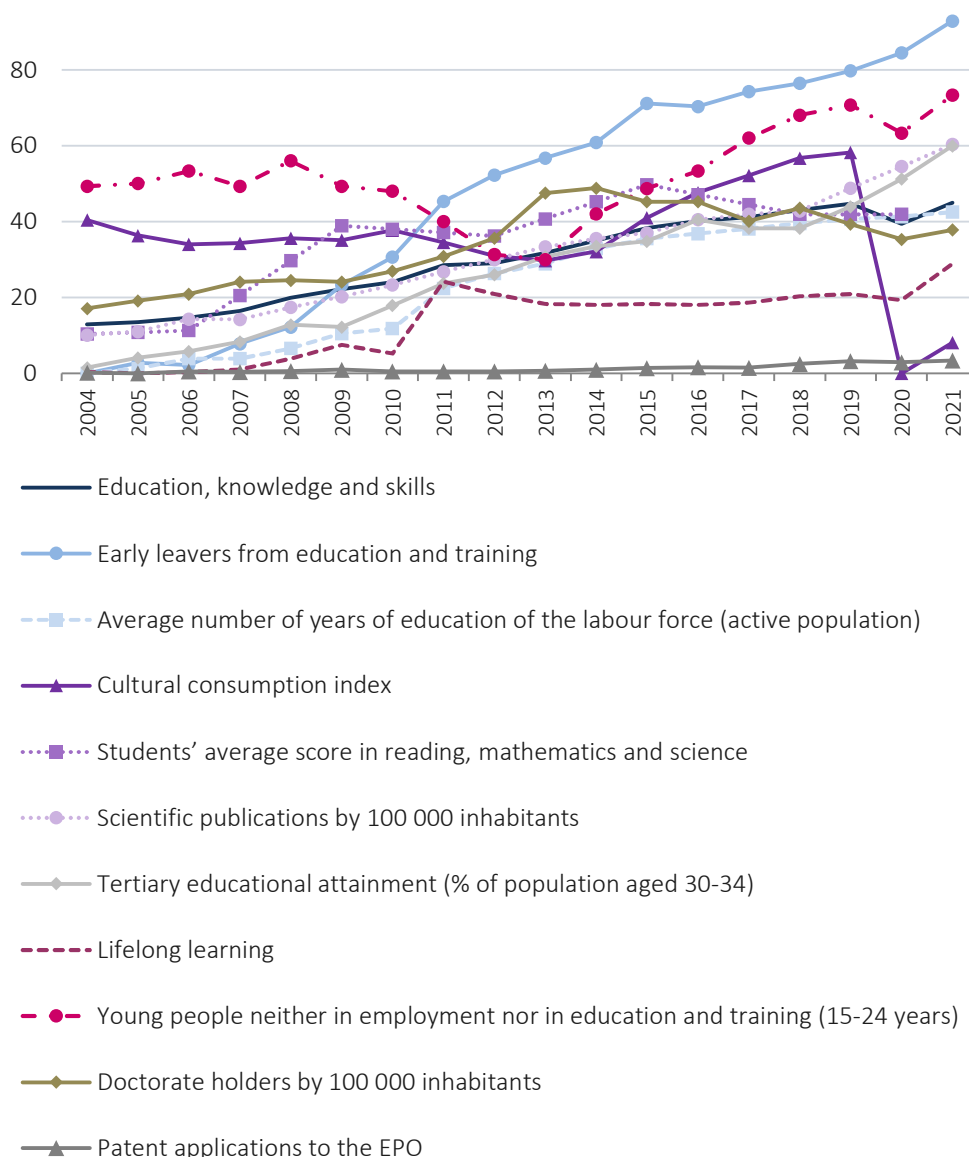
<sup>3</sup> A rise in the indices always denotes an improvement in well-being, while a decline denotes the worsening of well-being. Thus, the decrease of the Economic vulnerability index means a greater economic vulnerability and therefore worsening of well-being.

## Education, knowledge and skills

Education was the well-being component with the second-best performance. This index had a positive evolution, except for a decrease in 2020, which is estimated to have fully recovered in 2021.

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, followed by the evolution of the indicators related to the Proportion of people (30-34 years old) with a completed level of schooling corresponding to higher education and the Average number years of schooling completed by the active population. Also noteworthy is the positive evolution of Scientific publications.

Figure 9. Education, knowledge and skills and its indicators



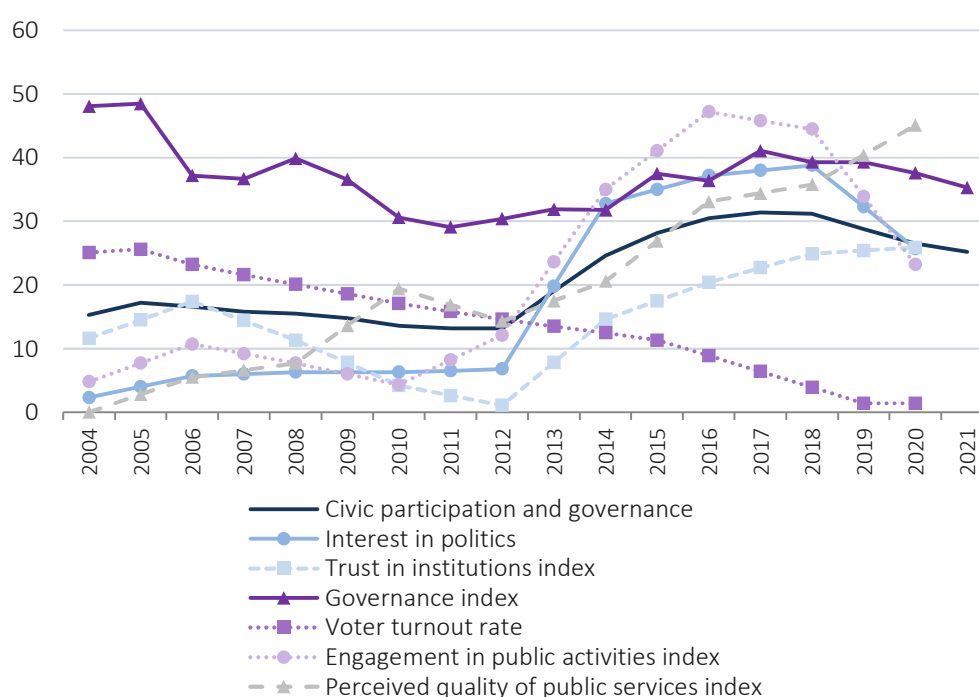


## Civic participation and governance

This domain decreased smoothly until 2011 and grew from 2012 to 2017, the year after which it showed a negative evolution.

The positive evolution after 2012 results from the evolution of all domain indicators, except the governance index, which grew only slightly, and electoral participation, which decreased throughout the period.

Figure 11. Civic participation and governance and its indicators



A positive note for the governance index, which almost always assumes higher values in the period than the other indicators. A negative note for the electoral participation index that has been decreasing almost linearly throughout the period, assuming at the end minimum values when compared to the group of reference countries.

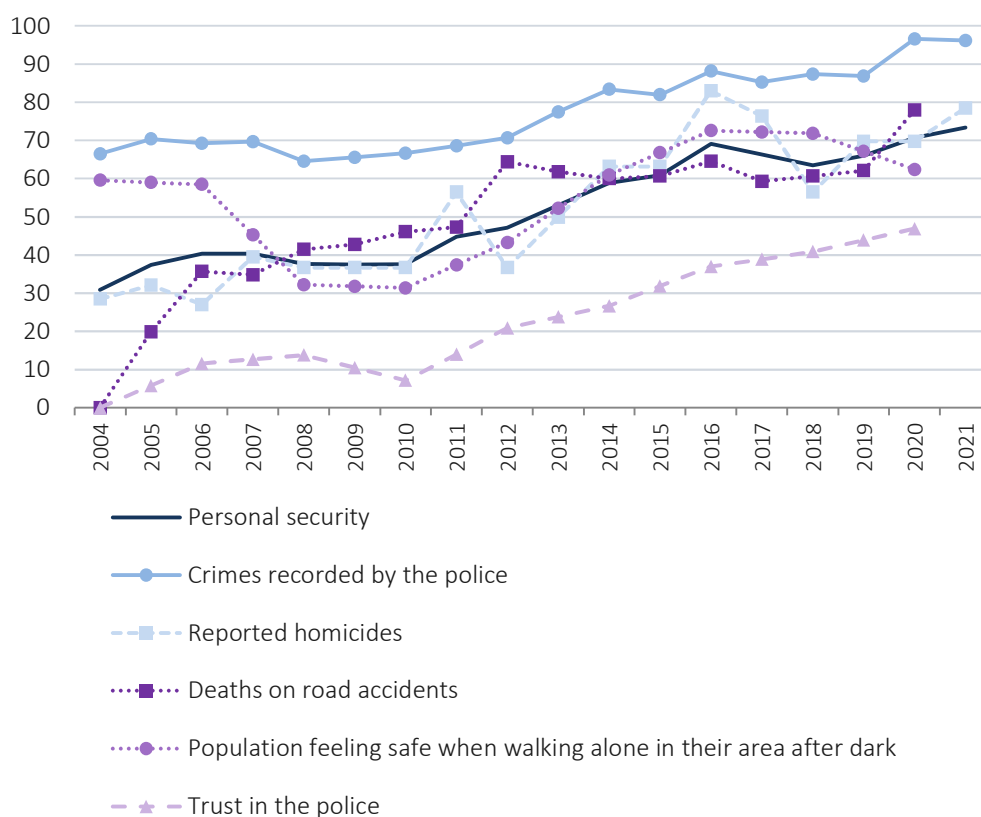
## Personal security

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

The trend of this domain is positive, although with two sharp decreases between 2007 and 2009 and 2016 and 2018.

All indicators showed a positive evolution. Those relating to deaths in road accidents, the homicide rate and, to a lesser extent, the indicator of trust in the police should be highlighted.

Figure 12. Personal security and its indicators



Similarly, the importance of the crime indicator should be highlighted, which assumes very high values throughout the period, contributing to higher values of the Personal Security index.

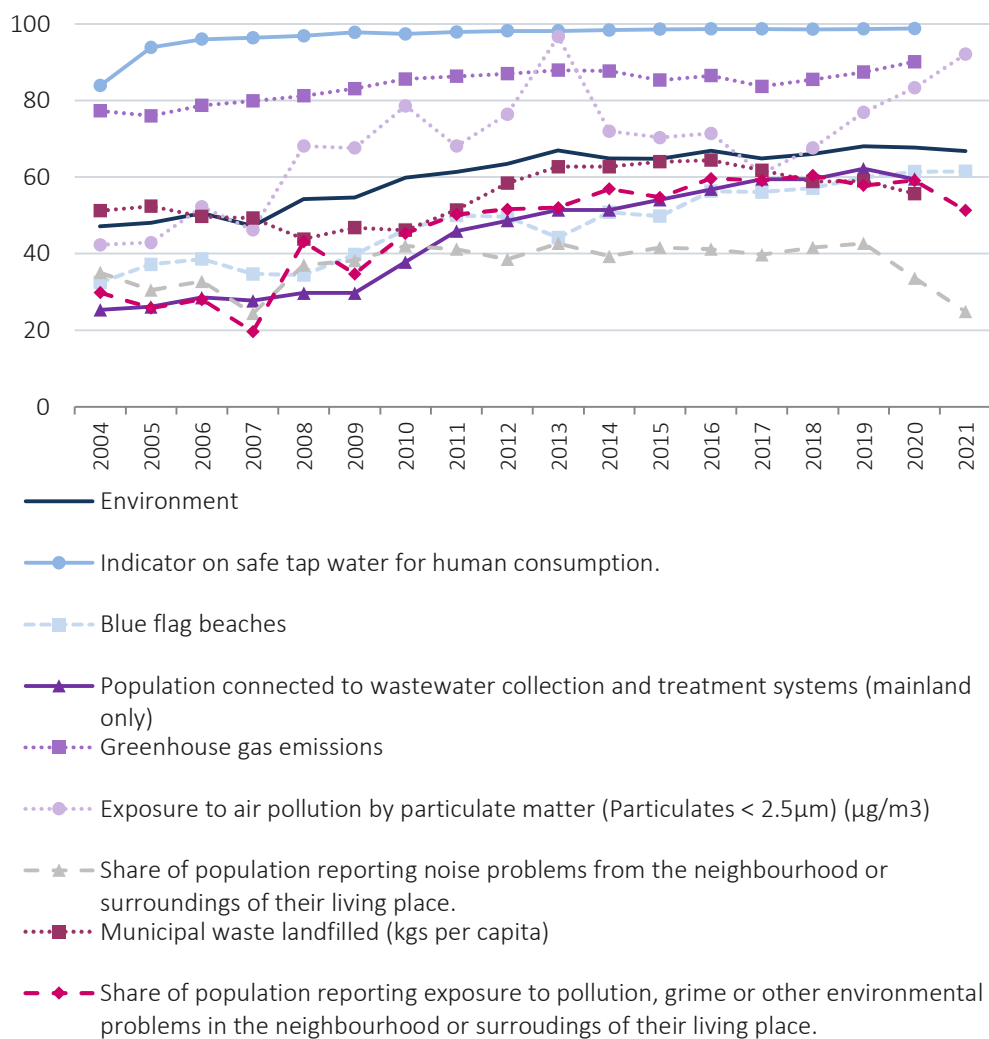
## Environment

The Environment domain shows positive developments with small fluctuations such as a slight decrease in 2007. It showed a tendentially continuous growth until 2013, when it practically stagnated.

The indicator that contributed the most 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 such as the Population reporting exposure to pollution, grime, or other environmental problems in the neighbourhood of their living place, Exposure to air pollution, and the indicator of Blue Flag Beaches.

In recent years, the sharp positive evolution of Exposure to air pollution (from 2017) and the negative evolution of the Population that reports noise problems (from 2019) should be highlighted.

Figure 13. Environment and its indicators



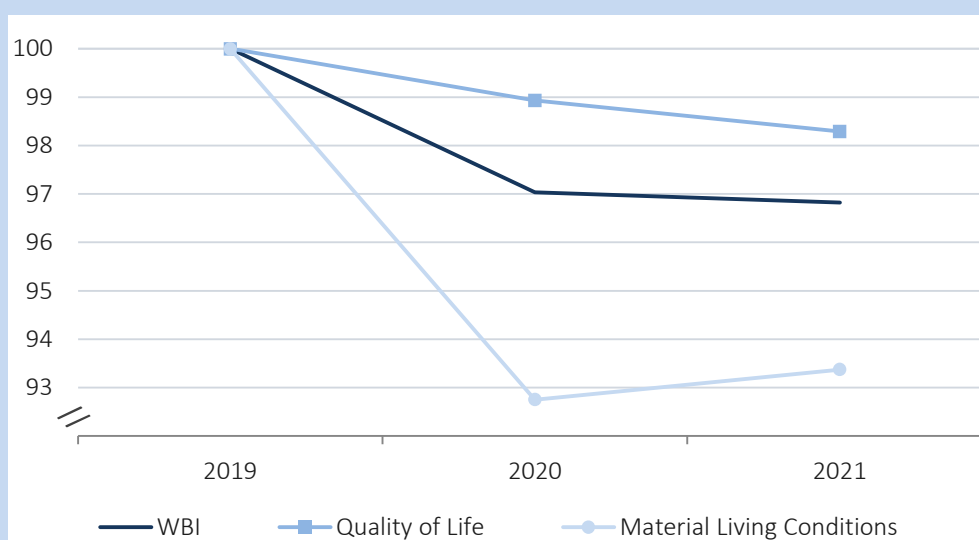
Finally, reference should be made to the consistently very high values over the period of the indicators relating to safe water and total greenhouse gases.



## Some results related to the impact of the COVID-19 pandemic

The COVID-19 pandemic affected the evolution of some indicators and indices between 2019 and 2021<sup>4</sup>.

Figure 14 Well-being index (IBE): global and by perspective (COVID-19)

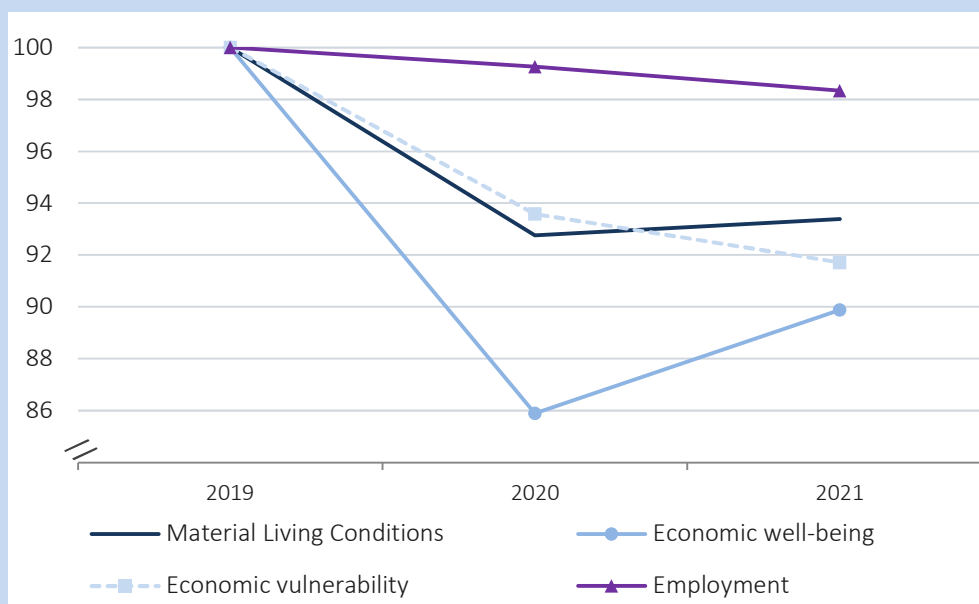


Comparing the evolution of the two main perspectives of the WBI, it appears that the Material Living Conditions showed the greatest decrease in 2020, having recovered slightly in 2021, contrary to what happened with the Quality of Life domain, which did not recover in 2021.

<sup>4</sup> Some of the indicators do not have actual values for 2021. As mentioned in the Methodological note, a projection of these indicators for 2021 was carried out, with only the value of domain indices being disclosed.



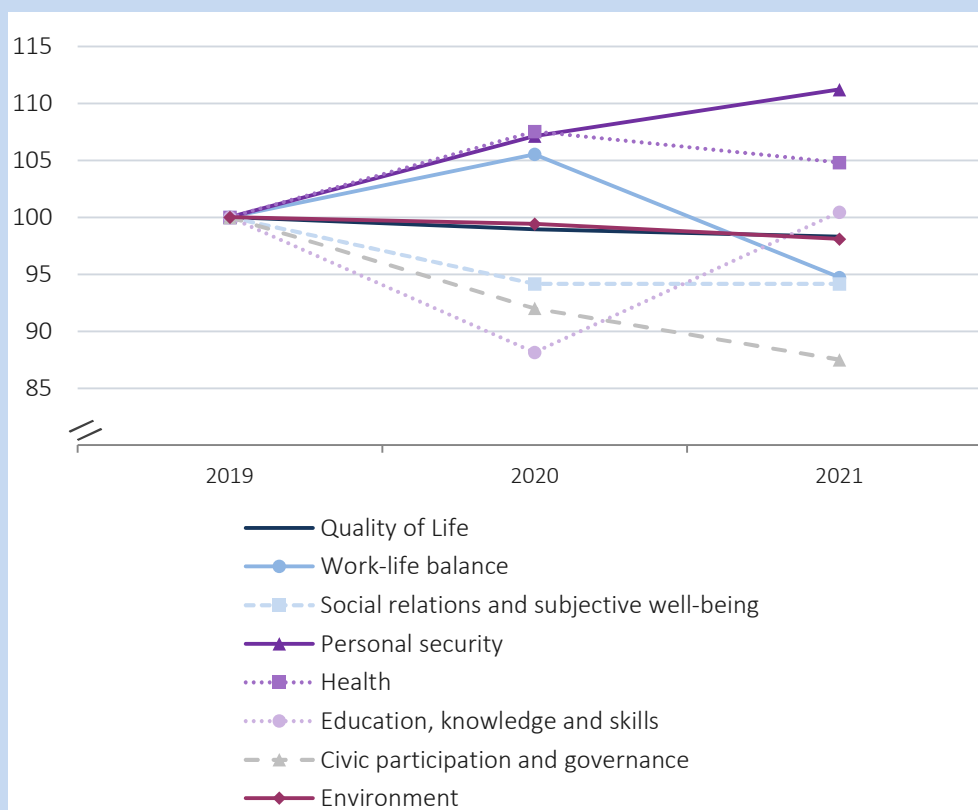
Figure 15. IBE: Material living conditions and their domains (COVID-19)



All indices of the domains of the Material Living Conditions decreased in 2020. The Economic well-being domain is the one that presents the most negative evolution, but it is also the one that is estimated to have recovered the most in 2021. On the contrary, the Economic vulnerability domain was the only domain that did not recover in 2021.



Figure 16. IBE: Quality of life and their domains (COVID-19)



Concerning the Quality of Life perspective, in 2020, only the indices of Education, Civic participation and governance, and Social relations and subjective well-being decreased.

The analysis of the evolution between 2019 and 2020, by indicator, highlights the five indicators that suffered the most from the COVID-19 pandemic: in order and at a great distance from the other indicators, is the Cultural consumption index, followed by the Intensity of Poverty Rate, the People at Risk of Poverty, the S80/S20 inequality indicator and the Engagement in public activities index.

## TECHNICAL NOTE

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 45 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 71 indicators, defined after a coherence analysis of the set 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.

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  $\alpha=0.9$ , 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](http://www.ine.pt), under Metadata.

## Roundings

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

## Bibliography

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COIN - Competence Centre on Composite Indicators and Scoreboards, [https://ec.europa.eu/knowledge4policy/composite-indicators\\_en](https://ec.europa.eu/knowledge4policy/composite-indicators_en)



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