WELL-BEING INDEX RECOVERS PRE-PANDEMIC LEVEL

It is estimated that the Portuguese Well-being Index (WBI) has increased in 2022, remaining higher than in 2019.

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

The two indices evolved in opposite directions in 2007 and in the periods 2010 to 2013 and 2017 to 2019, as well as in 2021. From 2017 onwards, the evolution of Quality of Life stagnated and Material Living Conditions always grew in these years, with the exception of the year 2020.

The Quality of Life index showed a positive trend until 2016, having maintained approximately constant values from that year onwards. The Material Living Conditions index recorded a negative evolution in 2010-2013, reaching a minimum in 2013. From that year it grew until 2022, having only decreased in 2020.

In the period 2004-2022, eight of the ten WBI domains showed positive evolution. Education, knowledge and skills and Personal security were those that showed the most favourable evolution.

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1. Global analysis

Preliminary data for 2022 point to an increase in Well-being Index (WBI) compared to the previous year, maintaining a period of continuous growth from 2012, only interrupted in 2020. This year, which was heavily marked by the COVID-19 pandemic, saw a decrease of 1.8 percentage points compared to the previous year, even lower than in 2012 (2.2).

The WBI in Portugal almost always evolved positively between 2004 and 2022, decreasing in 2007, 2011, 2012 and 2020. In that period, the WBI went from 25.0 to 46.9, primarily due to the progress observed in Material Living Conditions.

The two perspectives of well-being analysis – reflected in the composite indices of 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 2007 to 2009 period and 2022, during which these indices reversed their positions.
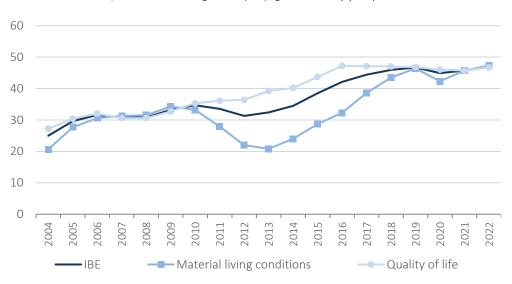
Figure 1. **Well-being index (IBE): global and by perspective**

The two indices evolved in opposite directions in 2007 and in the periods 2010 to 2013 and 2017 to 2019, as well as in 2021. From 2017 onwards, the evolution of Quality of Life stagnated and Material Living Conditions always grew in these years, with the exception of the year 2020.

In summary, the Quality of Life index showed a positive trend until 2016, having maintained approximately constant values from that year onwards. The Material Living Conditions index recorded a negative evolution in 2010-2013, reaching a minimum in 2013. From that year, it grew until 2022, having only decreased in 2020.

As of 2018, as had happened between 2007 and 2010, the two indices began to show very similar values. 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 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;

- 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 inflexion in 2020, resulting from the negative behaviour of these domains.

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 Material Living Conditions 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 recovery in the last two years after the decrease seen in 2020.
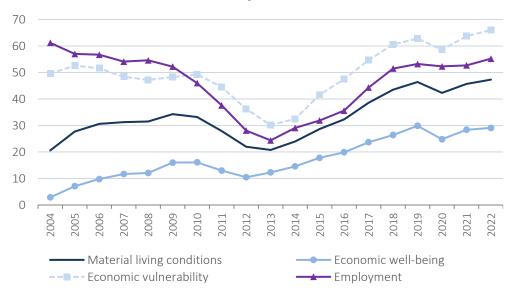
Figure 2. **Material Living Conditions and its domains**

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 slight decrease in the Work-life balance and Civic participation domains, and to the stagnation of the Environment and Personal security indices. Only the Education and Health domains showed positive average variations from 2016 onwards.
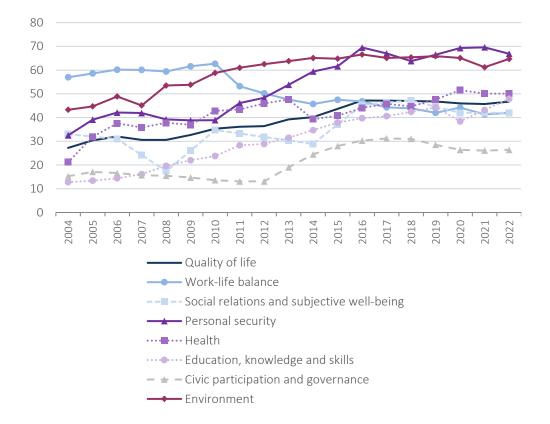
Finally, from 2012 onwards, the Environment and Personal security domains have recorded the highest values, thus reflecting Portugal's relevant position in these areas internationally[1].

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

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[1] The indices have been normalised 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. **Quality of Life and its domains**

- Quality of life
- Work-life balance
- Social relations and subjective well-being
- Personal security
- Health
- Education, knowledge and skills
- Civic participation and governance
- Environment

2. Material Living Conditions

Economic well-being

Economic well-being domain grew considerably up to 2010, reversed that trend until 2012 and began a recovery since then, only interrupted in 2020. In the last two years, although there have been increases, the value of this index was still lower than that of 2019. The evolution of the inequality and concentration indicators and the household's final consumption expenditure stand out in the behaviour of this index, which took on the highest values in the period. The indicators relating to net assets and employees net income were not only the ones with the most contained evolution, but also the ones with the lowest values during the period[2].
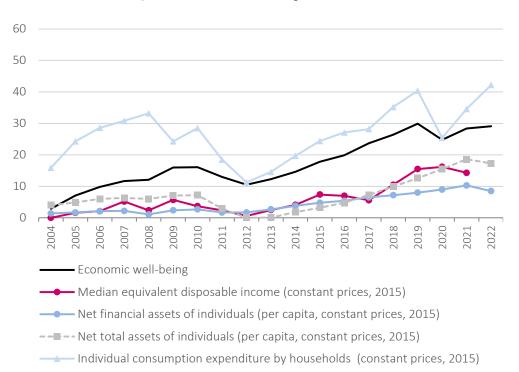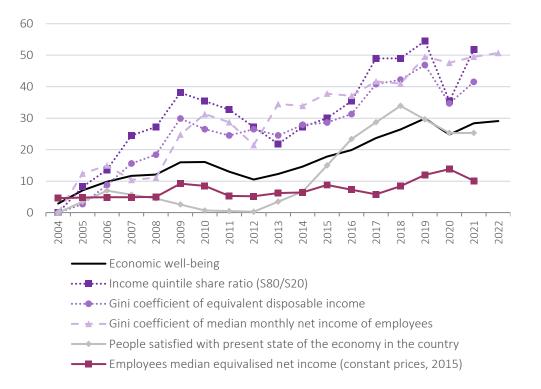
Figure 4A. **Economic well-being and its indicators**

— Economic well-being

—●— Median equivalent disposable income (constant prices, 2015)

—●— Net financial assets of individuals (per capita, constant prices, 2015)

--■-- Net total assets of individuals (per capita, constant prices, 2015)

—▲— Individual consumption expenditure by households (constant prices, 2015)

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[2] Some of the indicators do not have actual values for 2022. As mentioned in the Methodological note, a projection of these indicators for 2022 was carried out, with only the value of domain indices being disclosed.

Figure 4B. **Economic well-being and its indicators**

Although the domain of Economic well-being and its respective indicators have shown a generally favourable evolution, they reached values in 2022 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 are the reference in this analysis for the normalisation of the indicators.

Economic vulnerability

The Economic vulnerability domain evolution was unfavourable until 2013 and showed an increasing trend until 2022. Most indicators decreased sharply between 2011 and 2013. There have been positive developments since 2014, mainly due to the improvements in the material deprivation rate, the intensity of poverty rate, and the very low work intensity. From that year, and with the exception of 2020, most indicators in this area showed a favourable evolution.
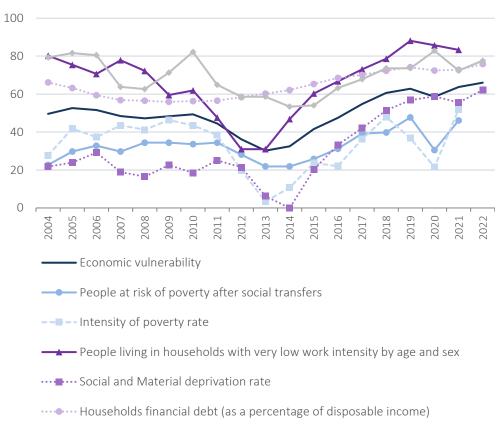
Figure 5. **Economic vulnerability and its indicators**

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

Employment

Employment is the well-being domain with the second worst performance considering the entire period 2004-2022. However, if only the period after 2012 is considered, it is the domain that shows one of the most pronounced positive variations. For this evolution, both in the downward phase until 2013 and in the upward phase from that year onwards, the highest contributions came from the unemployment rates of the active population, young people, and those with a higher education level.
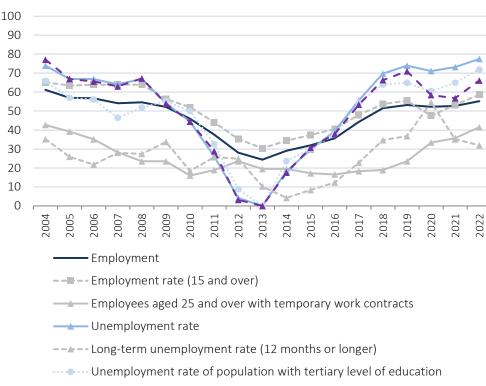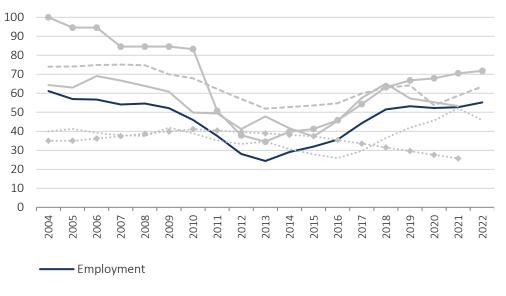
Figure 6A. **Employment and its indicators**

Legend:
- 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

Figure 6B. **Employment and its indicators**

- ——— Employment

- ----- 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

3. Quality of Life

Health

It is estimated that the Health domain occupies the third most favourable place among the seven domains that constitute the Quality of Life perspective in 2004-2022. The generally positive evolution of this domain showed a decrease in 2014 (mainly due to the strongly negative evolution of self-reported limitation in activities 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 significantly more favourable than that of the domain index.
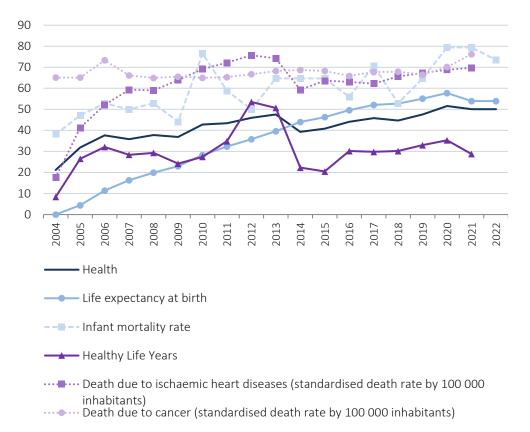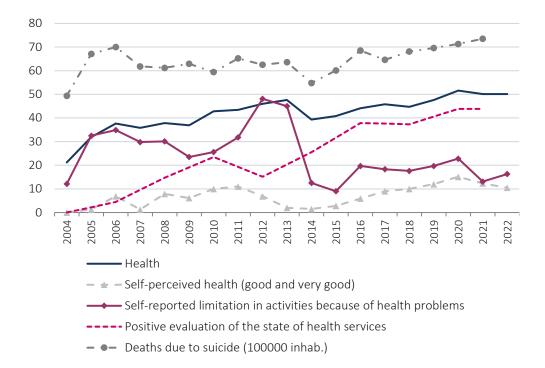
Figure 7A. **Health and its indicators**

— 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)

Figure 7B. **Health 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 infant mortality rate, death due to cancer and deaths due to suicide, having a positive effect on well-being, since these indices have negative polarity[3]. Conversely, the low values of self-perceived health or self-reported limitation in activities because of health problems should be stressed.

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[3] 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.

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 decreased. This decline results from the movement, in opposite directions, of the following indicators: the unfavourable development of the work-life balance 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.
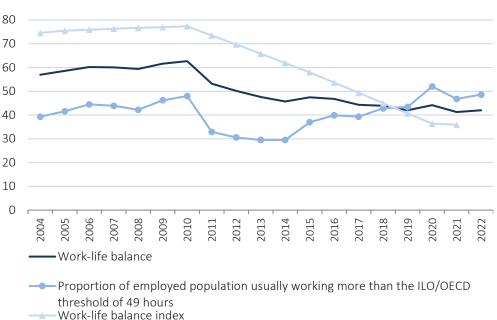
Figure 8. **Work-life balance and its indicators**

— Work-life balance

—●— Proportion of employed population usually working more than the ILO/OECD threshold of 49 hours

—▲— Work-life balance index

Education, knowledge and skills

Education was the well-being component with the best performance between 2004 and 2022. This index had a positive evolution, except for a decrease in 2020 from which it recovered with the increases observed in the following two years.

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 tertiary education attainment, the scientific publications and the average number of years of schooling completed by the active population.
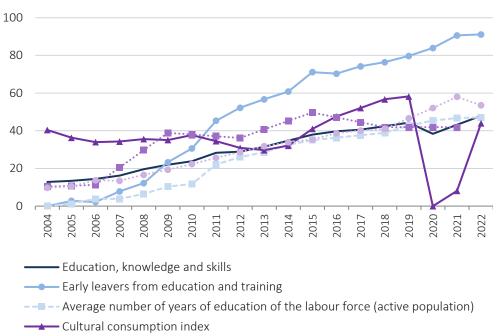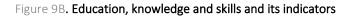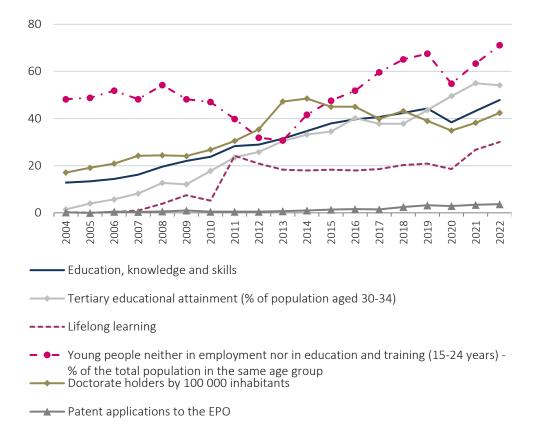
Figure 9A. **Education, knowledge and skills and its indicators**

Education, knowledge and skills

Early leavers from education and training

Average number of years of education of the labour force (active population)

Cultural consumption index

Students' average score in reading, mathematics and science

Scientific publications by 100 000 inhabitants

Figure 9B. **Education, knowledge and skills and its indicators**

Legend:
- Education, knowledge and skills
- Tertiary educational attainment (% of population aged 30-34)
- Lifelong learning
- Young people neither in employment nor in education and training (15-24 years) - % of the total population in the same age group
- Doctorate holders by 100 000 inhabitants
- Patent applications to the EPO

The evolution of the indicator on patents stands out for negative reasons, with small values, although growing, throughout the period. Reference should also be made to the evolution of the indicator of doctorate holders, which, after a positive evolution up to 2014, has decreased since then, although with oscillations. In the last two years there has been an increase in its values. The abrupt reduction in the index of cultural activities consumption in 2020 was due to the pandemic situation experienced at the time. This index has recovered in the following years, especially in 2022.

Social relations and subjective well-being

The variation in the index over the 2004-2022 period in the Social relations and subjective well-being domain was positive, albeit with fluctuations (decrease between 2005 and 2008, from 2011 to 2014, and 2019 to 2020). The favourable evolution from 2014 until 2018 results mainly from the overall happiness and life satisfaction indicators. Regardless of the analysis of their contribution to the evolution of the index, the almost permanent low values of the social trust index and the regular high values, although showing a decreasing trend, of meetings with family, friends, or colleagues should be stressed.
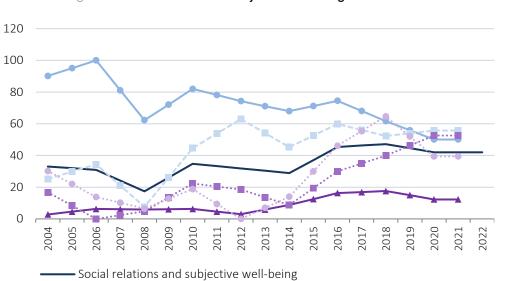
Figure 10. **Social relations and subjective well-being and its indicators**

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 voter turnout, which decreased throughout the period.
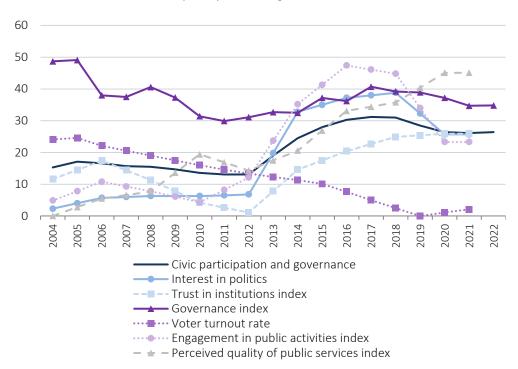
Figure 11. **Civic participation and governance and its indicators**

The governance index almost always assumes higher values in the period than the other indicators. The voter turnout rate, which has been decreasing almost linearly throughout the period, assumed at the end minimum values when compared to the group of reference countries.
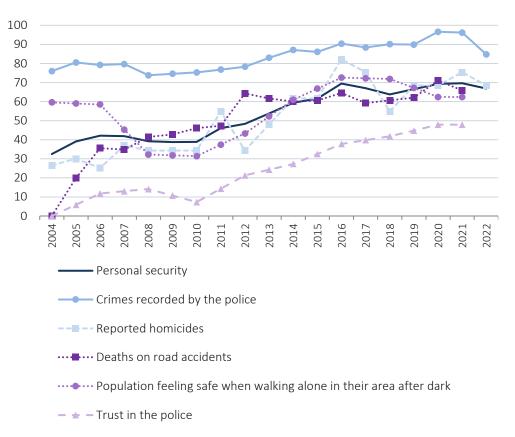
Personal security

Personal security was the second 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 between 2017 and 2018. After reaching the highest values in the years most affected by the pandemic, in 2022 it decreased and is slightly above the 2019 level.

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 crimes recorded by the police indicator should be highlighted, which assumes very high values throughout the period, contributing to higher values and the behaviour 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 continuous growth trend until 2016, since 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 exposure to air pollution, Blue Flag beaches and the population reporting exposure to pollution, grime, or other environmental problems in the neighbourhood of their living place.

Since 2020, the negative evolution of the indicator related to population reporting noise problems stands out, following the pandemic situation.

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

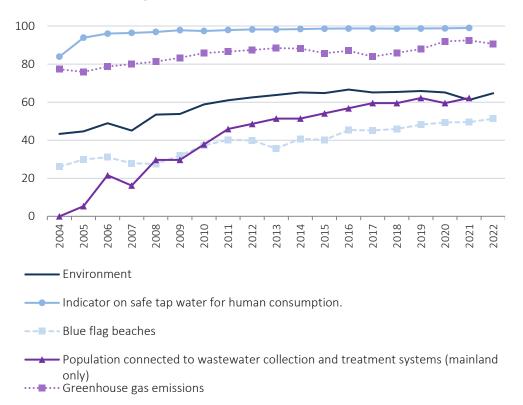Figure 13A. **Environment and its indicators**

- 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

Figure 13B. **Environment and its indicators**

Legend:
- **Environment** (solid dark blue line)
- 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.

WELL-BEING INDEX — 2004-2022

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 key perspectives in assessing 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, three domains have been considered:

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, seven domains have been considered:

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.

These indicators, defined after a coherence analysis of the set of indicators in each domain, result from aggregating a second level of indicators.

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

WELL-BEING INDEX − 2004-2022

Each indicator has a positive or negative polarity. If an indicator has a positive polarity, such as the 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 normalisation 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 period considered. In case the indicator has negative polarity, the result of normalisation 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 normalise 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 concerning this set of countries. The identification and exclusion of *outliers* (except when the outlier is Portugal) were performed before determining the definitive maximums and minimums.

Each normalised 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 the geometric mean for the aggregation of domains by perspective and domains in the WBI.

The projection of each domain for year t+1 results 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 as a smoothing parameter α=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, under Metadata (Methodological Document).

ROUNDINGS

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

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