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LIFE TABLES – NUTS 2

2018-2020

## **NORTE CONTINUED TO RECORD THE HIGHEST LIFE EXPECTANCY AT BIRTH AND ÁREA METROPOLITANA DE LISBOA THE HIGHEST LIFE EXPECTANCY AT 65 YEARS**

Life expectancy at birth in Portugal was estimated at 81.06 years for total population, 78.07 years for men and 83.67 years for women, for the period 2018-2020.

At birth, life expectancy continues to be higher for women, but the difference for men has been declining and is now 5.60 years (compared to 6.02 in 2008-2010).

By regions NUTS 2, the Norte recorded the highest values of life expectancy at birth for total population (81.46 years) and for men (78.55 years), and Centro had the highest values for women (84.00).

The greatest differences in longevity between men and women were observed in the Região Autónoma da Madeira (6.89) and Região Autónoma dos Açores (6.82), while the lowest were observed in Área Metropolitana de Lisboa (5.41) and Norte (5.44).

By regions NUTS 3, the highest life expectancies at birth were recorded in Cávado (82.10 years), Região de Coimbra (81.58 years) and Região de Leiria (81.57 years).

Life expectancy at age 65 in Portugal reached 19.69 years. Men aged 65 may expect to live on average 17.76 years more and women 21.11 years more.

By regions NUTS 2, the highest values of life expectancy at age 65 were recorded in Área Metropolitana de Lisboa (19.97 years), and for both men (18.05 years) and women (21.54 years).

The three regions NUTS 3 with the longest longevity at 65 age 65 were: Região de Coimbra (20.39 years), Terras de Trás-os-Montes (20.28 years) and Alto Tâmega (20.25 years).

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Statistics Portugal, following the release in May 2021 of the 2018-2020 complete life table for Portugal, releases the complete life tables 2018-2020 for NUTS 2 regions, by sex and both sexes, and life expectancy at birth and at age 65 for NUTS 3 regions for both sexes. The analysis is carried out in comparison with the 2008-2010 results, the first period for which life expectancies at birth and at age 65 are available for the regions NUTS 3, version of NUTS 2013.

The regional life tables, now published, like the 2018-2020 complete life table for Portugal, do not fully reflect the effects of mortality that occurred in 2020, as the total number of deaths registered in 2020 will only be used in the calculation of the probabilities of dying of the 2019-2021 life tables.

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In the 2018-2020 period, life expectancy at birth for Portugal was estimated at 81.06 years for both sexes, 78.07 years for men and 83.67 years for women, which accounted for a gain of 1.90 and 1.48 years respectively, in comparison with the values estimated for 2008-2010. The gap between male and female life expectancy at birth narrowed by 0.42 years, from 6.02 to 5.60 years.

Life expectancy at age 65 reached, in the 2018-2020 period, 19.69 years for both sexes. Men aged 65 may expect to live on average 17.76 years more and women 21.11 years more, which represented gains of 1.02 and 1.08, respectively, vis-à-vis 2008-2010. The gap between male and female longevity at age 65 was of 3.35 years.

Figure 1: Life expectancy at birth and at age 65, Portugal, 2008-2010 to 2018-2020

	Life expectancy at birth (years)			Life expectancy at age 65 (years)		
	Total	Males	Females	Total	Males	Females
2008 - 2010	79.29	76.17	82.19	18.59	16.74	20.03
2009 - 2011	79.55	76.47	82.43	18.75	16.92	20.20
2010 - 2012	79.78	76.67	82.59	18.84	16.94	20.27
2011 - 2013	80.00	76.91	82.79	18.97	17.07	20.40
2012 - 2014	80.24	77.16	83.03	19.12	17.23	20.55
2013 - 2015	80.41	77.36	83.23	19.19	17.32	20.67
2014 - 2016	80.62	77.61	83.33	19.31	17.44	20.73
2015 - 2017	80.78	77.74	83.41	19.45	17.55	20.81
2016 - 2018	80.80	77.78	83.43	19.49	17.58	20.88
2017 - 2019	80.93	77.95	83.51	19.61	17.70	21.00
2018 - 2020	81.06	78.07	83.67	19.69	17.76	21.11

Source: Statistics Portugal, Life tables.

### Life expectancy at birth in NUTS 2 regions

Life expectancy at birth recorded increases in all regions between 2008-2010 and 2018-2020; largest increase recorded in the Autonomous Regions

The region Norte recorded the highest values of life expectancy at birth for total population (81.46 years) and for men (78.55 years). The highest longevity at birth for women was recorded in region Centro (84.00 years). By contrast, Região Autónoma da Madeira and Região Autónoma dos Açores recorded the lowest values for life expectancy at birth, for total population and for men and women.

In the last ten years, life expectancy at birth improved in all regions. However, the largest increases occurred in autonomous regions of Madeira and Açores with longevity gains of more than 2 years.



The greatest differences in longevity between men and women were recorded in Região Autónoma da Madeira and Região Autónoma dos Açores, where women could expect to live, on average, 6.89 and 6.82 years more than men respectively. The Área Metropolitana de Lisboa and Norte showed the lowest differences in longevity between the two sexes (5.41 and 5.44 years respectively).

### **Life expectancy at age 65 in NUTS 2 regions**

**Área Metropolitana de Lisboa with the highest values for men and women; greatest increases in the last ten years in Alentejo for males and Região Autónoma dos Açores for females**

In 2018-2020, the region Área Metropolitana de Lisboa recorded the highest values of life expectancy at age 65 for the total population, men and women (19.97 years, 18.05 and 21.54 years, respectively).

However, Região Autónoma dos Açores recorded the greatest increase in this indicator, in the last ten years, for the total population and for women: from 16.18 to 17.63 years and from 17.71 to 19.24 years, respectively. The greatest increase in life expectancy at age 65 for men occurred in Alentejo: from 16.33 years in 2008-2010 to 17.68 years in 2018-2020.

The biggest differences in longevity at age 65 between men and women were recorded in Região Autónoma da Madeira and Algarve, where women could expect to live, on average, 4.38 and 3.77 years more than men respectively. The region Alentejo experienced the lowest differences in longevity at age 65 between the two sexes (3.17 years).

Figure 2: Life expectancy at birth, NUTS 2, 2008-2010 to 2018-2020

	Norte	Centro	A.M. Lisboa	Alentejo	Algarve	R.A. Açores	R.A. Madeira
Life expectancy at birth (years) - Total							
2008 - 2010	79.64	79.59	79.29	78.58	78.90	75.86	76.13
2009 - 2011	79.97	79.90	79.52	79.01	79.43	76.01	76.54
2010 - 2012	80.14	80.09	79.65	79.26	79.67	76.32	77.03
2011 - 2013	80.32	80.24	80.00	79.45	80.02	76.49	77.49
2012 - 2014	80.55	80.55	80.32	79.81	80.22	76.82	77.68
2013 - 2015	80.69	80.80	80.50	80.03	80.38	77.15	77.76
2014 - 2016	80.99	80.98	80.71	80.04	80.34	77.28	78.02
2015 - 2017	81.13	81.07	80.85	80.19	80.17	77.48	78.18
2016 - 2018	81.18	81.11	80.94	80.24	79.93	77.85	78.30
2017 - 2019	81.33	81.23	81.01	80.35	79.99	77.87	78.36
2018 - 2020	81.46	81.36	81.14	80.42	80.14	78.00	78.52
Life expectancy at birth (years) - Males							
2008 - 2010	76.65	76.52	75.92	75.47	75.62	72.21	71.85
2009 - 2011	76.94	76.84	76.21	75.95	76.05	72.28	72.67
2010 - 2012	77.05	77.05	76.53	76.40	76.36	72.80	73.19
2011 - 2013	77.36	77.12	76.85	76.29	76.74	72.80	73.41
2012 - 2014	77.52	77.42	77.14	76.91	77.17	73.05	73.62
2013 - 2015	77.70	77.71	77.43	77.05	77.19	73.38	73.65
2014 - 2016	78.07	78.05	77.65	77.07	76.99	73.72	73.96
2015 - 2017	78.21	78.15	77.95	77.27	76.72	73.89	74.25
2016 - 2018	78.25	78.16	77.99	77.31	76.46	74.26	74.34
2017 - 2019	78.44	78.27	78.11	77.37	76.49	74.27	74.39
2018 - 2020	78.55	78.39	78.26	77.38	76.66	74.51	74.63
Life expectancy at birth (years) - Females							
2008 - 2010	82.43	82.43	82.34	81.49	82.22	79.41	79.68
2009 - 2011	82.82	82.71	82.38	81.89	82.59	79.73	79.74
2010 - 2012	82.90	82.94	82.54	82.02	82.90	79.88	80.27
2011 - 2013	83.01	83.07	82.77	82.24	83.01	79.99	80.91
2012 - 2014	83.24	83.37	83.10	82.57	83.03	80.27	81.12
2013 - 2015	83.42	83.54	83.19	82.70	83.31	80.65	81.19
2014 - 2016	83.64	83.66	83.30	82.72	83.48	80.75	81.41
2015 - 2017	83.74	83.74	83.42	82.83	83.37	81.00	81.43
2016 - 2018	83.77	83.74	83.49	82.90	83.14	81.31	81.44
2017 - 2019	83.85	83.87	83.54	83.03	83.24	81.33	81.48
2018 - 2020	83.99	84.00	83.67	83.27	83.32	81.33	81.52

Source: Statistics Portugal, Life tables.



Figure 3: Life expectancy at age 65, NUTS 2, 2008-2010 to 2018-2020

	Norte	Centro	A.M. Lisboa	Alentejo	Algarve	R.A. Açores	R.A. Madeira
Life expectancy at age 65 (years) - Total							
2008 - 2010	18.61	18.63	18.83	18.20	18.79	16.18	16.40
2009 - 2011	18.88	18.89	18.91	18.32	19.03	16.07	16.65
2010 - 2012	18.95	19.03	18.86	18.48	19.09	16.30	17.11
2011 - 2013	19.04	19.08	19.11	18.65	19.17	16.62	17.45
2012 - 2014	19.21	19.32	19.35	18.74	19.33	16.66	17.53
2013 - 2015	19.25	19.45	19.43	18.87	19.66	16.84	17.67
2014 - 2016	19.45	19.55	19.52	19.05	19.66	17.06	17.67
2015 - 2017	19.65	19.61	19.66	19.18	19.46	17.12	17.75
2016 - 2018	19.71	19.75	19.81	19.20	19.08	17.24	17.69
2017 - 2019	19.78	19.75	19.91	19.31	19.36	17.52	17.65
2018 - 2020	19.86	19.79	19.97	19.42	19.58	17.63	17.72
Life expectancy at age 65 (years) - Males							
2008 - 2010	16.84	16.74	16.74	16.33	16.89	14.22	13.86
2009 - 2011	17.12	16.94	16.85	16.45	16.87	13.99	14.11
2010 - 2012	17.08	17.08	16.97	16.69	17.03	14.19	14.97
2011 - 2013	17.24	17.16	17.16	16.77	17.31	14.37	15.07
2012 - 2014	17.38	17.33	17.36	16.84	17.34	14.44	15.08
2013 - 2015	17.48	17.43	17.49	16.99	17.66	14.76	15.15
2014 - 2016	17.70	17.60	17.57	17.26	17.67	14.98	14.99
2015 - 2017	17.89	17.78	17.85	17.28	17.34	14.92	15.12
2016 - 2018	17.92	17.82	17.91	17.35	16.92	15.07	15.04
2017 - 2019	17.98	17.79	18.00	17.43	17.25	15.46	15.00
2018 - 2020	18.02	17.82	18.05	17.68	17.50	15.48	15.08
Life expectancy at age 65 (years) - Females							
2008 - 2010	20.08	20.15	20.39	19.68	20.44	17.71	18.05
2009 - 2011	20.31	20.41	20.38	19.83	20.69	17.67	18.24
2010 - 2012	20.42	20.58	20.34	19.98	20.82	18.06	18.51
2011 - 2013	20.46	20.56	20.63	20.14	20.75	18.23	18.89
2012 - 2014	20.55	20.81	20.81	20.20	20.89	18.29	18.99
2013 - 2015	20.64	20.95	20.86	20.28	20.99	18.41	19.17
2014 - 2016	20.83	20.99	21.03	20.48	21.04	18.69	19.35
2015 - 2017	21.00	21.03	21.11	20.69	21.06	18.84	19.40
2016 - 2018	21.01	21.14	21.37	20.70	21.09	18.93	19.37
2017 - 2019	21.13	21.24	21.48	20.85	21.12	18.97	19.39
2018 - 2020	21.26	21.37	21.54	20.85	21.27	19.24	19.46

Source: Statistics Portugal, Life tables.



### **Life expectancy at birth in NUTS 3 regions**

Nine regions NUTS 3 exceeded the national value (81.06 years); Beira Baixa recorded the highest increase in the last ten years

Results for the 2018-2020 period showed that, out of the 25 NUTS 3 sub-regions, nine exceeded the national level of life expectancy at birth (81.06 years).

However, eleven regions NUTS 3 (Cávado, Região de Coimbra, Região de Leiria, Ave, Viseu Dão-Lafões, Área Metropolitana do Porto, Região de Aveiro, Médio Tejo, Área Metropolitana de Lisboa, Terras de Trás-os-Montes and Alto Minho) recorded values of life expectancy at birth above 81 years. By contrast, the lowest life expectancies at birth were recorded in Região Autónoma da Madeira, Região Autónoma dos Açores, and Baixo Alentejo, with the expected longevity below 79 years.

In the last ten years, life expectancy at birth improved in all regions NUTS 3. The highest gains in longevity at birth occurred in Beira Baixa (2.57 years) and the lowest were recorded in Terras de Trás-os-Montes (0.95 years).

### **Life expectancy at age 65 in NUTS 3 regions**

Seventeen regions NUTS 3 surpassed the national value (19.69 years); Alentejo Litoral recorded the highest increase in the last ten years

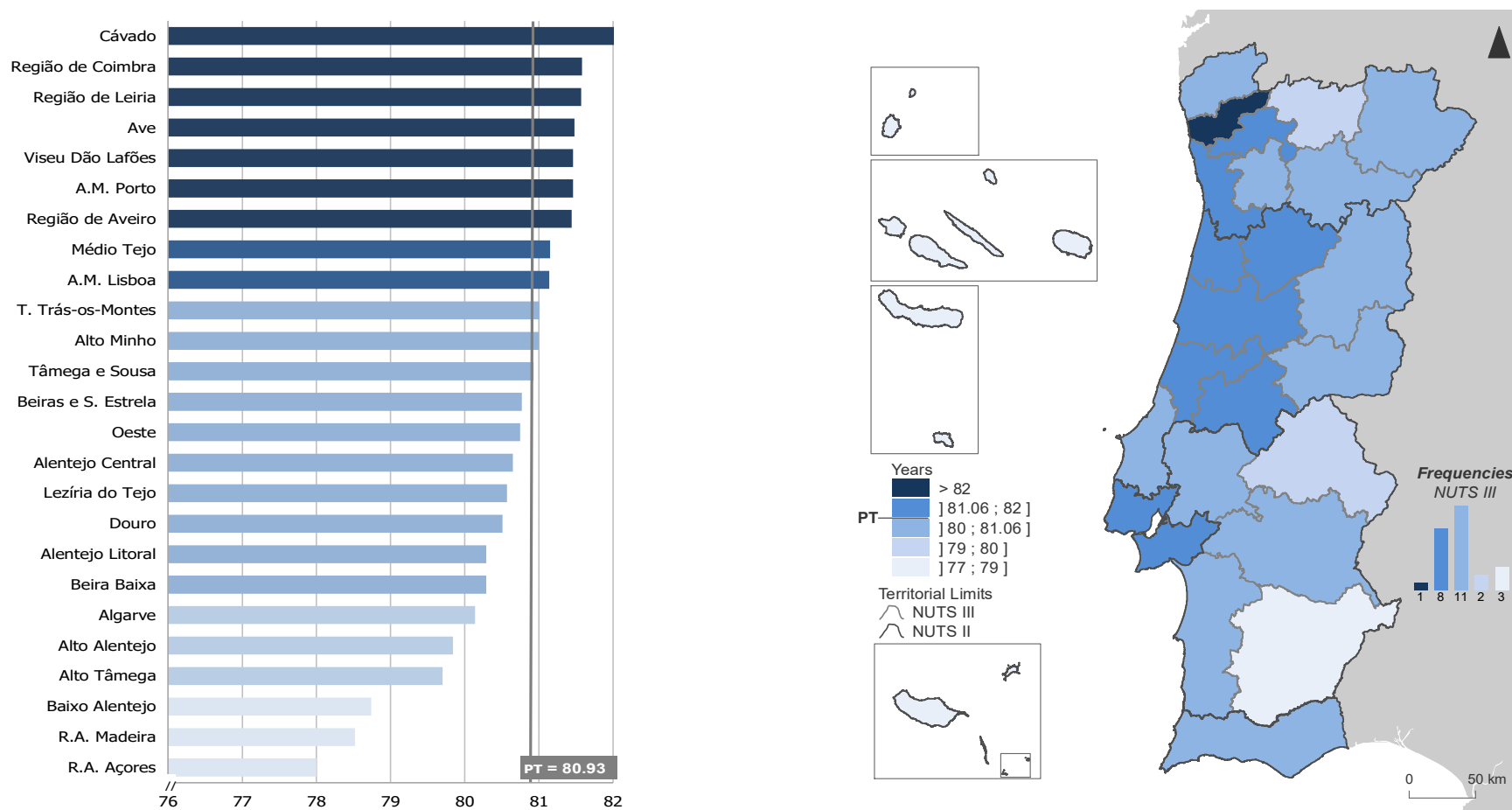
Results for the 2018-2020 period showed that seventeen regions NUTS 3 exceeded the national value (19.69 years). Of these, nine regions NUTS 3 recorded values above twenty years: Região de Coimbra (20.39 anos), Terras de Trás-os-Montes (20.28 anos), Alto Tâmega (20.25 anos), Viseu Dão Lafões (20.23 anos), Região de Leiria (20.22 anos), Cávado (20.20 anos), Beiras e Serra da Estrela (20.10 anos), Alto Minho (20.06 anos) and Alentejo litoral (20.02 anos).

The lowest life expectancies at age 65, below nineteen years, were recorded in the Região Autónoma dos Açores (17.63 years), Região Autónoma da Madeira (17.72 years) and Baixo Alentejo (18.47 years).

Between the 2008-2010 and the 2018-2020, life expectancy at age 65 improved in all regions NUTS 3. The highest increase in longevity at age 65 occurred in the Alentejo Litoral (1.73 years) while the lowest was recorded in Algarve (0.79 years).



Figure 4: Life expectancy at birth, NUTS 3, 2018-2020

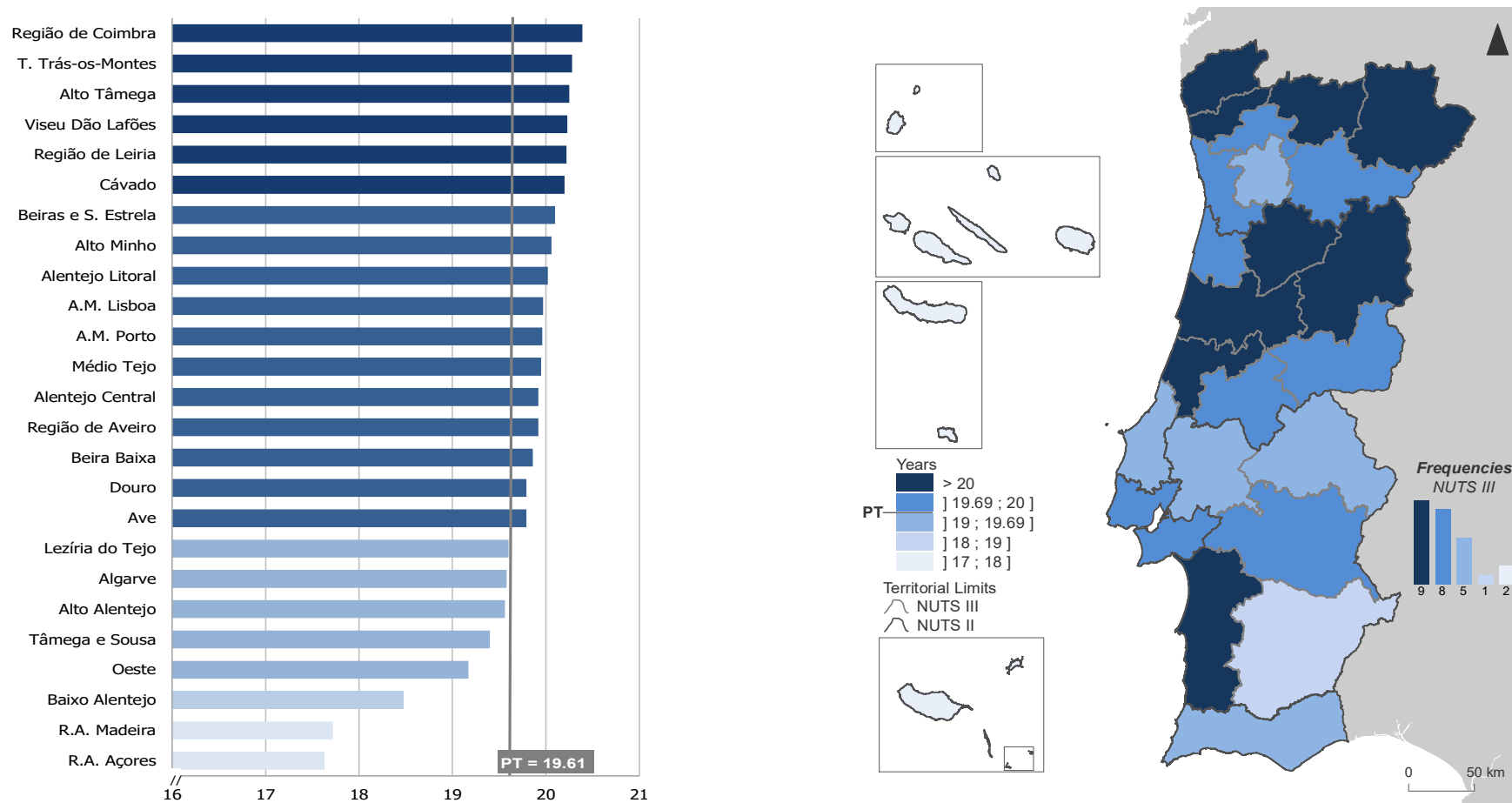


Source: Statistics Portugal, Life tables.

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Figure 5: Life expectancy at age 65, NUTS 3, 2018-2020



Source: Statistics Portugal, Life tables.

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Figure 6: Life expectancy at birth and at age 65, NUTS 1, 2 and 3, 2008-2010 and 2018-2020

	Life expectancy at birth (years)		Life expectancy at age 65 (years)	
	2008 - 2010	2018 - 2020	2008 - 2010	2018 - 2020
<b>Portugal</b>	<b>79.29</b>	<b>81.06</b>	<b>18.59</b>	<b>19.69</b>
<b>Continente</b>	<b>79.38</b>	<b>81.23</b>	<b>18.60</b>	<b>19.82</b>
<b>Norte</b>	<b>79.64</b>	<b>81.46</b>	<b>18.61</b>	<b>19.86</b>
Alto Minho	79.37	81.00	18.75	20.06
Cávado	80.07	82.10	18.71	20.20
Ave	79.49	81.48	18.44	19.79
Área Metropolitana do Porto	79.72	81.46	18.79	19.96
Alto Tâmega	78.09	79.70	18.55	20.25
Tâmega e Sousa	78.90	80.93	18.23	19.40
Douro	78.79	80.51	18.38	19.79
Terras de Trás-os-Montes	80.06	81.01	19.42	20.28
<b>Centro</b>	<b>79.59</b>	<b>81.36</b>	<b>18.63</b>	<b>19.79</b>
Oeste	78.79	80.75	17.78	19.17
Região de Aveiro	79.64	81.44	19.00	19.92
Região de Coimbra	79.87	81.58	18.83	20.39
Região de Leiria	79.16	81.57	18.66	20.22
Viseu Dão Lafões	79.87	81.46	19.08	20.23
Beira Baixa	77.72	80.29	18.98	19.86
Médio Tejo	79.47	81.15	18.96	19.95
Beiras e Serra da Estrela	79.11	80.77	18.81	20.10
<b>Área Metropolitana de Lisboa</b>	<b>79.29</b>	<b>81.14</b>	<b>18.83</b>	<b>19.97</b>
Área Metropolitana de Lisboa	79.29	81.14	18.83	19.97
<b>Alentejo</b>	<b>78.58</b>	<b>80.42</b>	<b>18.20</b>	<b>19.42</b>
Alentejo Litoral	78.36	80.29	18.29	20.02
Baixo Alentejo	77.12	78.74	17.43	18.47
Lezíria do Tejo	78.62	80.57	18.04	19.60
Alto Alentejo	77.97	79.84	18.67	19.56
Alentejo Central	79.10	80.65	18.91	19.92
<b>Algarve</b>	<b>78.90</b>	<b>80.14</b>	<b>18.79</b>	<b>19.58</b>
Algarve	78.90	80.14	18.79	19.58
<b>Região Autónoma dos Açores</b>	<b>75.86</b>	<b>78.00</b>	<b>16.18</b>	<b>17.63</b>
<b>Região Autónoma dos Açores</b>	<b>75.86</b>	<b>78.00</b>	<b>16.18</b>	<b>17.63</b>
Região Autónoma dos Açores	75.86	78.00	16.18	17.63
<b>Região Autónoma da Madeira</b>	<b>76.13</b>	<b>78.52</b>	<b>16.40</b>	<b>17.72</b>
<b>Região Autónoma da Madeira</b>	<b>76.13</b>	<b>78.52</b>	<b>16.40</b>	<b>17.72</b>
Região Autónoma da Madeira	76.13	78.52	16.40	17.72

Source: Statistics Portugal, Life tables.



## TECHNICAL NOTE

Following the release in May 2021 of the 2018-2020 complete life table for Portugal, Statistics Portugal releases the complete life tables for NUTS 2 regions for the same period for the total population and by sex, and life expectancy at birth and at age 65 for NUTS 3 (NUTS 2013) sub-regions for the total population.

The regional life tables, now published, like the 2018-2020 complete life table for Portugal, do not fully reflect the effects of mortality that occurred in 2020, as the total number of deaths registered in 2020 will only be used in the calculation of the probabilities of dying of the 2019-2021 life tables.

The life table is a mathematical model of demographic analysis composed by a set of basic functions which provide a basis for measuring longevity in a given population. Statistics Portugal calculates complete, that is, by single years of age, life tables for Portugal, NUTS 1, 2 and 3 regions with a reference period of three consecutive years. Regarding NUTS 3 from the mainland ('Continente'), only life expectancy at birth and at age 65 are released.

In the construction of complete life table for Portugal and NUTS 1 the probabilities of dying are estimated based on the observed number of deaths for a period of three consecutive years and on the respective estimates for the population exposed-to-the risk of death. Due to the variability in the probabilities of dying at advanced ages (over 85 years) the method proposed by Denuit and Goderniaux (2005) is applied for smoothing and extrapolation to the last applicable age (closing age of the life table).

Given the rarity of mortality at some ages in small regions, the complete life tables for NUTS 2 regions are calculated by applying graduation and smoothing methods to mortality rates. For the 'Continente' NUTS 3 sub-regions the Brass relational model (1971, 1974) is applied for obtaining these rates. In both cases, the same method of closing and extrapolating old age mortality rates is applied.

Values for life expectancy and other life table functions correspond to estimates calculated from statistical data and models and should not be interpreted as deterministic indicators. However, assuming that the empirical mortality conditions observed in the reference period for the life table remain constant, it is possible, in a given population, to make probabilistic judgments on the evolution of mortality. In this sense, slight movements in these indicators between different periods should be interpreted in the methodological context explained, especially when analyzing indicators with higher regional detail.

## REFERENCES:

Brass, W. (1971). On the scale of mortality. In: Biological Aspects of Demography, London Taylor and Francis.

Brass, W. (1974). Mortality models and their uses in demography. Transactions of the Faculty of Actuaries, 33, 123-132.

Denuit, M. and Goderniaux, A. (2005). Closing and projecting life tables using log-linear models. Bulletin de l'Association Suisse des Actuaries, 1, 29-49.



## DEFINITIONS

**Life expectancy at birth:** The mean number of years that a newborn child can expect to live if subjected throughout his life to the current mortality conditions (age specific probabilities of dying).

**Life expectancy at age 65:** The mean number of years still to be lived by a person who has reached the exact age 65, if subjected throughout the rest of his life to the current age specific probabilities of dying.

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Detailed methodological information available at: [www.ine.pt](http://www.ine.pt), option Products, Metadata system.

Detailed statistical information available at: [www.ine.pt](http://www.ine.pt), option Products, Statistical data, database, theme Population, subtheme Mortality and life expectancy.