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press release
INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

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Resident Population Projections
2015 - 2080

The demographic ageing will continue to increase in Portugal, and only stabilises in about 40 years

Between 2015 and 2080, according to the *central scenario*:

- Portugal will lose population, from the present 10.3 to 7.5 million residents, and falling below the threshold of 10 million in 2031.
- The population aged under 15 will decline from 1.5 million to 0.9 million; even considering increases in the total fertility rate, a decrease in the number of births still occurs, due to the reduction of women at childbearing age, given the low fertility levels of the past years.
- The number of elderly will increase from 2.1 to 2.8 million.
- Given the decrease of the young population, along with the increase in the elderly population, the aging ratio more than doubles: from 147 to 317 elderly people for every 100 young people.
- The aging ratio will only tend to stabilize in the 2060s, when the generations born in a context of fertility levels below the replacement level enter the 65 and over age group.
- These trends will in general occur in all NUTS 2 regions (Norte, Centro, Área Metropolitana de Lisboa, Alentejo, Algarve, and autonomous regions of Madeira and the Açores).
- The working age population will decline from 6.7 to 3.8 million people.
- The potential sustainability ratio (number of persons aged 15-64 per 100 persons aged 65 and over) may decline sharply, due to the decrease of the working age population and the increase of the elderly population. This ratio will drop from 315 in 2015 to 137 in 2080.

Statistics Portugal releases the results of the most recent Resident Population Projections exercise – published every three years – broken down by sex and age, for Portugal and the NUTS 2 regions.

This exercise of 'Resident population projections 2015-2080' followed the cohort-component method and was based on the provisional estimates of resident population as at 31 December 2015.

Four scenarios of population projection were considered: *low scenario*, *central scenario*, *high scenario*, and *no migration scenario*, based on alternative assumptions on the future evolution of each demographic component – pessimistic, central, and optimistic assumptions for the fertility; central and optimistic assumptions for the mortality; and, pessimistic, central and optimistic assumptions for the migrations, to which was added still an assumption of no migrations[1].

The results should not be understood as forecasts, but are rather conditional in their nature, of the type "***if x, then y***", since these are conditioned, on the one hand, by the dimension and structure of the population at the starting point (2015) and on the other, by the different patterns of behaviour of fertility, mortality and migration considered in each scenario over the projection period.

[1] For details see methodological note at the end of this press release.

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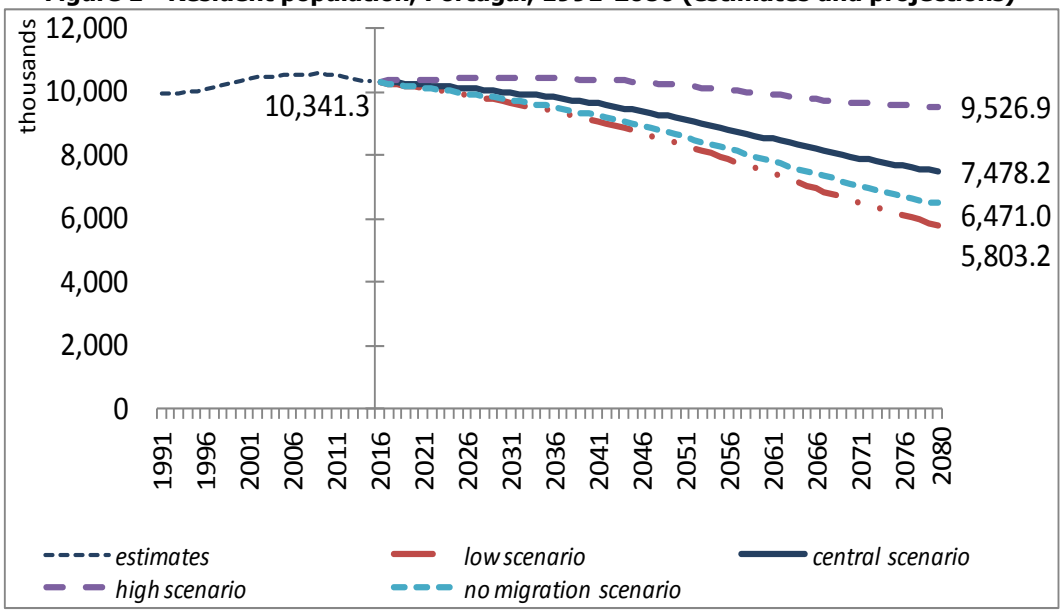
The resident population in Portugal will tend to decline

According to the results obtained in the *central scenario*, Portugal will lose population up to 2080, from the present 10.3 million to 7.5 million residents.

In the *central scenario*, the population would be below the threshold of 10 million inhabitants in 2031 (9,976,827), 9 million in 2053 (8,999,636) and 8 million in 2070 (7,959,778).

Figure 1 - Resident population, Portugal, 1991-2080 (estimates and projections)



This downward trend of the population is observed in all the projection scenarios taken into consideration. However, in the *low scenario* the population loss will be even more marked, as a result of the maintenance of low fertility levels and negative net migration. The resident population in Portugal may thus reach 5.8 million residents in 2080.

In the *high scenario* the loss of population will be lower than in the *central scenario*, especially due to a sharper recovery of fertility levels in combination with positive but also high net migration, with a projected resident population of 9.5 million people for 2080.

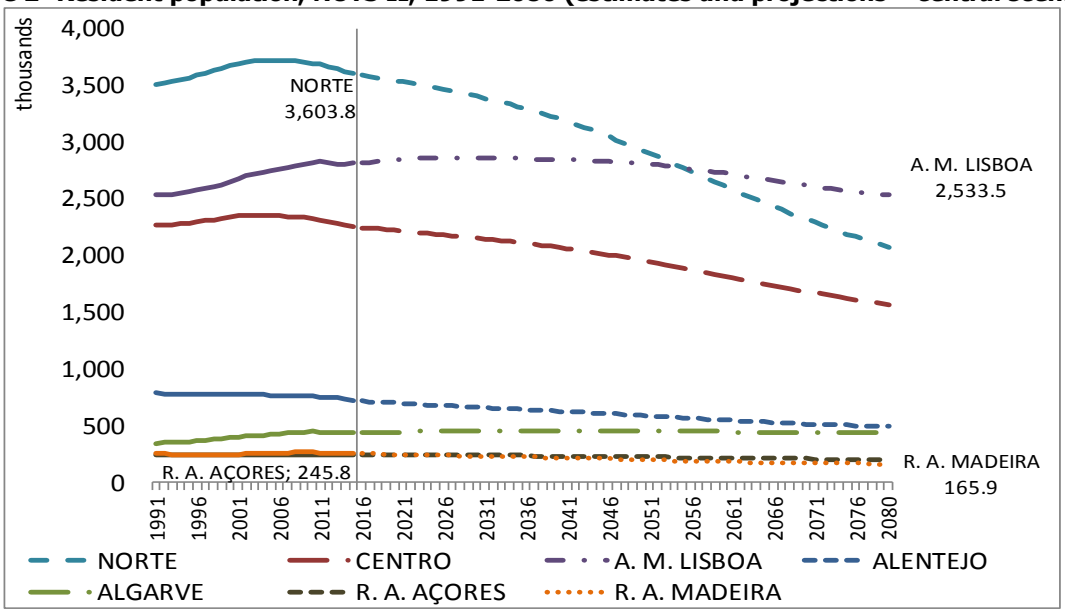
In the *no migration scenario* – where the assumptions of the evolution of fertility and mortality are those adopted in the central scenario, and which assumes the absence of migration flows – a population of around 6.5 million people would be expected in 2080.

In the *central scenario* the downward trend of population between 2015 and 2080 will occur in all NUTS 2 regions, with the greatest reduction in the NUTS 2 Norte, while the number of residents in the Algarve will remain almost unchanged.

As a result, the NUTS 2 Norte would no longer be the region with the largest resident population in the middle of the 2050's, becoming the NUTS 2 Área Metropolitana de Lisboa the most populous region.

In the same scenario, the autonomous regions remain as the NUTS 2 with less population. In 2080 the NUTS 2 Região Autónoma da Madeira would be the least populated region of the country

Figure 2 -Resident population, NUTS II, 1991-2080 (estimates and projections – *central scenario*)



The decrease of the number of inhabitants occurs in all regions NUTS 2 in any of the scenarios considered, with the exception of the Área Metropolitana de Lisboa, Algarve and Região Autónoma dos Açores in the *high scenario.*

Decline in the young population

The population aged under 15 residing in Portugal will decline, in the *central scenario*, between 2015 and 2080, from the current 1.5 million to less than 1 million in 2080.

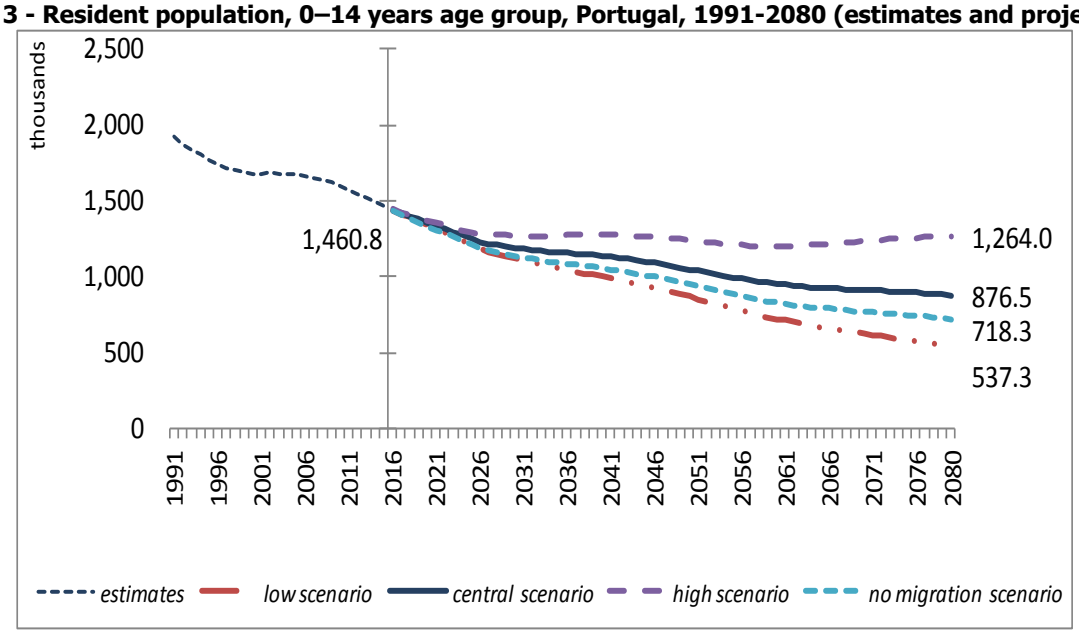
Still in the *central scenario*, the young population would be below the threshold of 1.4 million in 2018 (1,396,366), 1.3 million in 2023 (1,290,266), 1.2 million in 2030 (1,191,634), 1.1 million in 2046 (1,090,695) and the threshold of 1.0 million in 2055 (994,294).

Even considering, in this scenario, an increase in fertility as well as a change to positive net migration, the reduction of women of childbearing age (15-49), observed since 2003, will inevitably result in a decrease in the number of births and, consequently, in the young population in the coming years, a process that spreads over the projected period.

This downward trend of the young population is observed in all projection scenarios considered, and varies from 1.3 million in the *high scenario* to 0.5 million in the *low scenario* in 2080.

The differences in the evolution of this age group relate mainly to the impact of net migration, of fertility levels and the combination of both in the different scenarios.

Figure 3 - Resident population, 0–14 years age group, Portugal, 1991-2080 (estimates and projections)



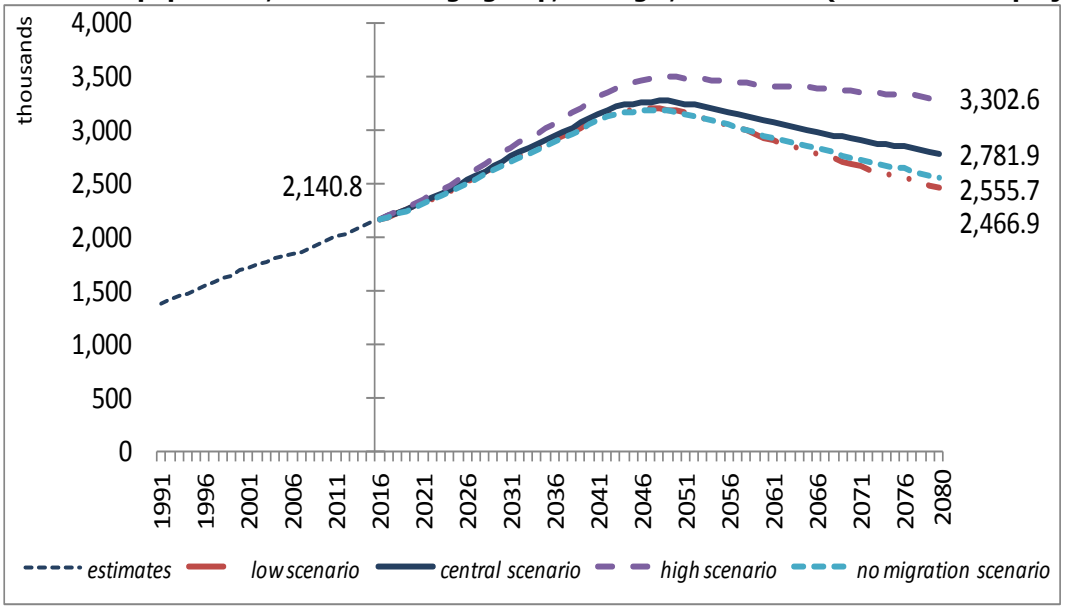
This trend also occurs in all NUTS 2 regions in every scenario, with the exception of Área Metropolitana de Lisboa and the Algarve in the *high scenario*.

Increase in the elderly population

The population aged 65 and over residing in Portugal will increase from 2.1 to 2.8 million people in the *central scenario* between 2015 and 2080.

However, the number of elderly will reach the highest value in the late 2040s, when it will begin to decline. This happens since smaller generations already born in a context of fertility levels below the replacement level enter this age group.

Figure 4 - Resident population, 65 and over age group, Portugal, 1991-2080 (estimates and projections)



In 2080 the elderly population may reach 3.3 million in the *high scenario* and 2.5 million in the *low scenario*. The most marked increase in the elderly population occurs in the *high scenario* and chiefly results from a higher rise in life expectancy considered in this scenario.

The upward trend of the elderly population occurs in all NUTS 2 regions and in any scenario under review, with the exceptions of the NUTS 2 Centro in the *no migration scenario*, and the NUTS 2 Alentejo in the *low, central* and *no migration scenarios*.

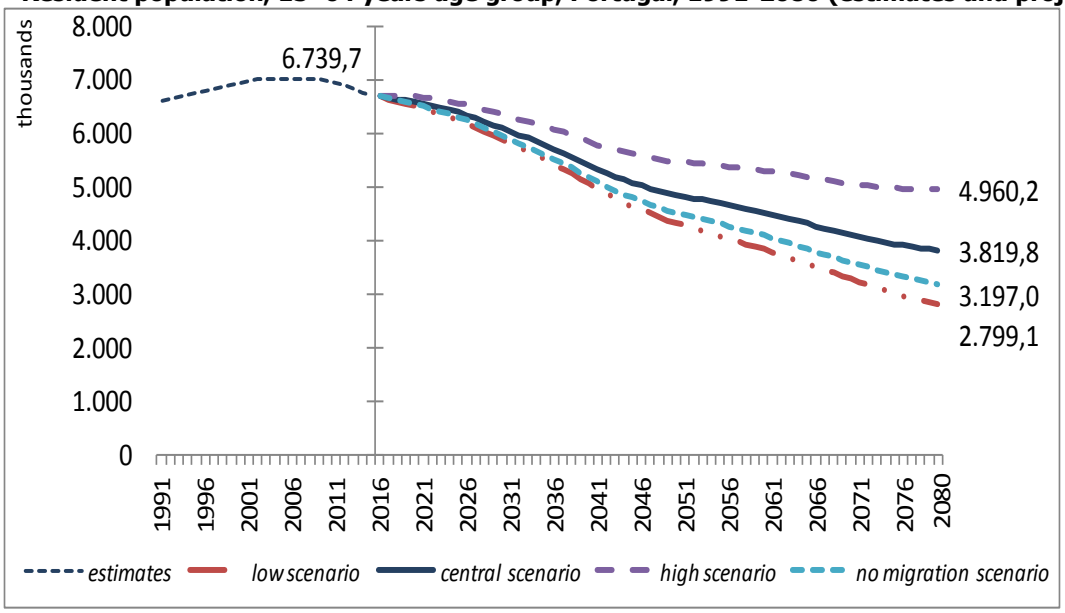
Decline of the working age population

The working age population (aged 15-64) residing in Portugal will decline from 6.7 million in 2015 to 3.8 million in 2080 in the *central scenario.*

Still in this scenario, the working age population would fall below the threshold of 6.7 million (6,675,996) in 2017, 6.0 million (5,979,659) in 2032, 5.0 million (4,983,068) in 2047, and the threshold of 4.0 million (3,983,644) in 2074.

In 2080, the working age population may reach 5.0 million in the *high scenario* and 2.8 million in the *low scenario.*

Figure 5 - Resident population, 15–64 years age group, Portugal, 1991-2080 (estimates and projections)



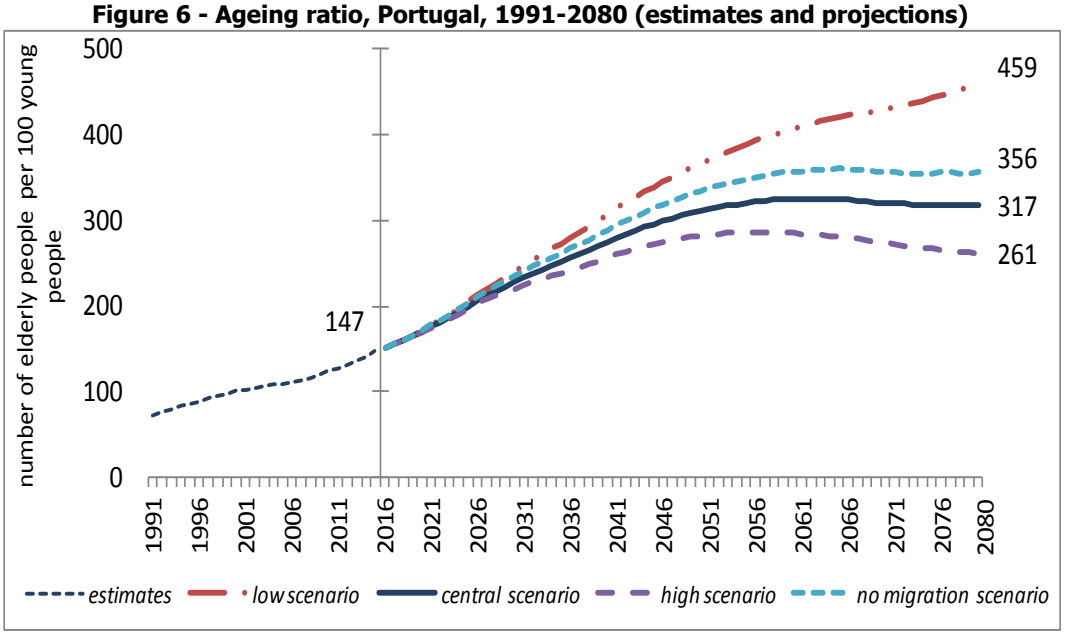
The decrease in the working age population occurs in all NUTS 2 regions and every scenario, with the exception of the NUTS 2 Algarve in the *high scenario*.

Population ageing will become more marked

In Portugal, in the *central scenario,* the ageing ratio could more than double between 2015 and 2080, from 147 to 317 elderly people for every 100 young people.

It should also be noted that the population aging process will tend to stabilise somewhat, when the generations already born in a context of fertility levels below the replacement level enter the 65 and over age group. In the *central scenario*, this stabilisation will occur around 2060. In the *high scenario*, it may occur in the middle of the 2050s, and in the *no migration scenario* in the middle of the 2070s.

Figure 6 - Ageing ratio, Portugal, 1991-2080 (estimates and projections)



This ratio may reach 459 elderly people for every 100 young people in the *low scenario* or increase less sharply to 261 elderly people for every 100 young people in the *high scenario*.

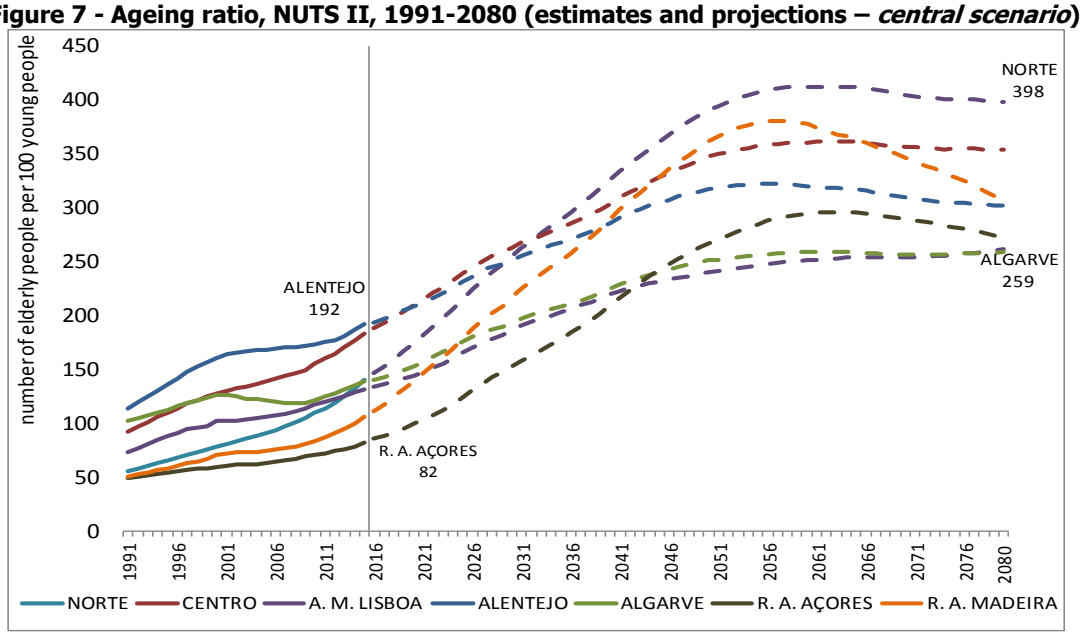
The combination of positive net migration and higher fertility levels, albeit associated with higher life expectancy as envisaged in the *high scenario*, although not sufficient to halt the pace of population ageing, would allow for its mitigation.

Although population ageing will eventually occur in all NUTS 2 regions, it may be more marked in the autonomous regions of Açores and Madeira, currently less aged regions.

In the *central scenario*, the aging ratio in the NUTS 2 Região Autónoma dos Açores was, in 2015, 82 elderly people for every 100 young people, increasing to 272 elderly people for every 100 young people in 2080. In the NUTS 2 Região Autónoma da Madeira, the aging index was, in 2015, 105 elderly people for every 100 young people, increasing to 307 elderly people for every 100 young people in 2080.

However, the oldest region in this scenario, in 2080, will be the NUTS 2 Norte (in 2015 it was the Alentejo), and the less-aged region will be the Algarve (in 2015 it was the Região Autónoma dos Açores).

Figure 7 - Ageing ratio, NUTS II, 1991-2080 (estimates and projections – *central scenario*)

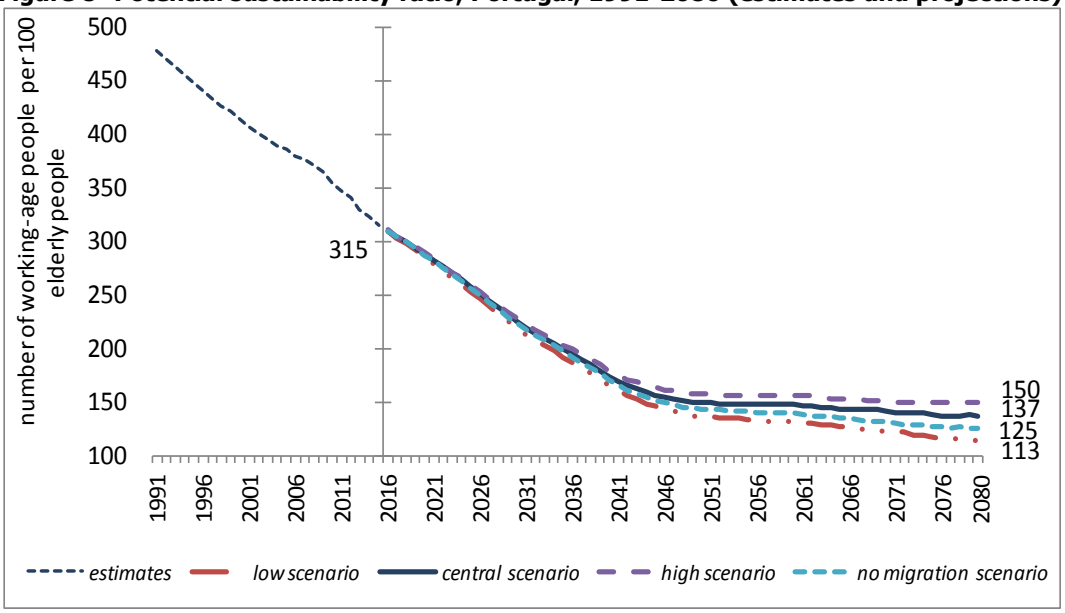


The potential sustainability ratio may decrease to less than half

Given a decrease in the working age population in parallel with an increase in the elderly population, the potential sustainability ratio (the ratio of the number of persons aged 15-64 to the number of persons aged 65 and over) may decline sharply until the 2050s, stabilising thereafter.

In Portugal, in the *central scenario*, this ratio will be less than half the present value, dropping from 315 to 137 in 2080.

Figure 8 -Potential sustainability ratio, Portugal, 1991-2080 (estimates and projections)



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The values of the potential sustainability ratio in the different scenarios remain very close, ranging, in 2080, between 113 and 150 persons in the working age for every 100 persons aged 65 and over.

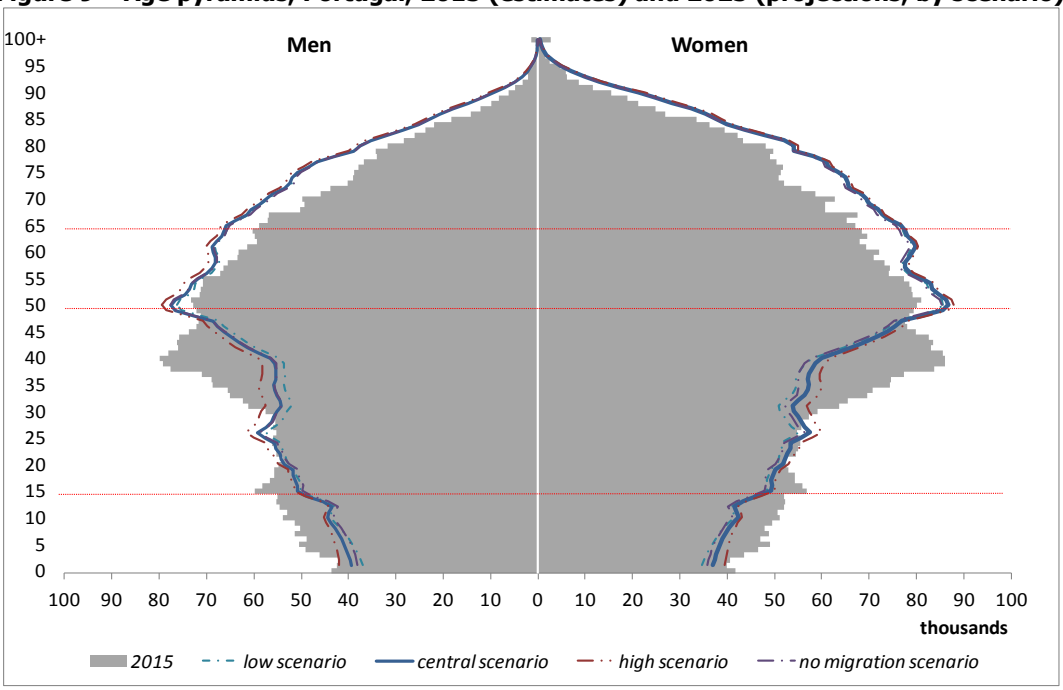
The result of the combination of downward trends and population ageing is noticeable through the evolution of the age pyramids for Portugal over the projection period.

In 2025 and in the central scenario, the resident population in Portugal will be 10.1 million

In 2025, the resident population in Portugal may change between 9.9 million in the *low scenario* and 10.4 in the *high scenario*.

The effects of the different scenarios, when compared with the population of 2015, are reflected at all ages. However, the differences between scenarios are particularly noticeable at younger ages, mainly due to the influence of the different fertility assumptions considered in each scenario. Differences are also evident in the 15-64 age group, especially between ages 25 and 40 years old, mainly due to the influence of different trends of net migration.

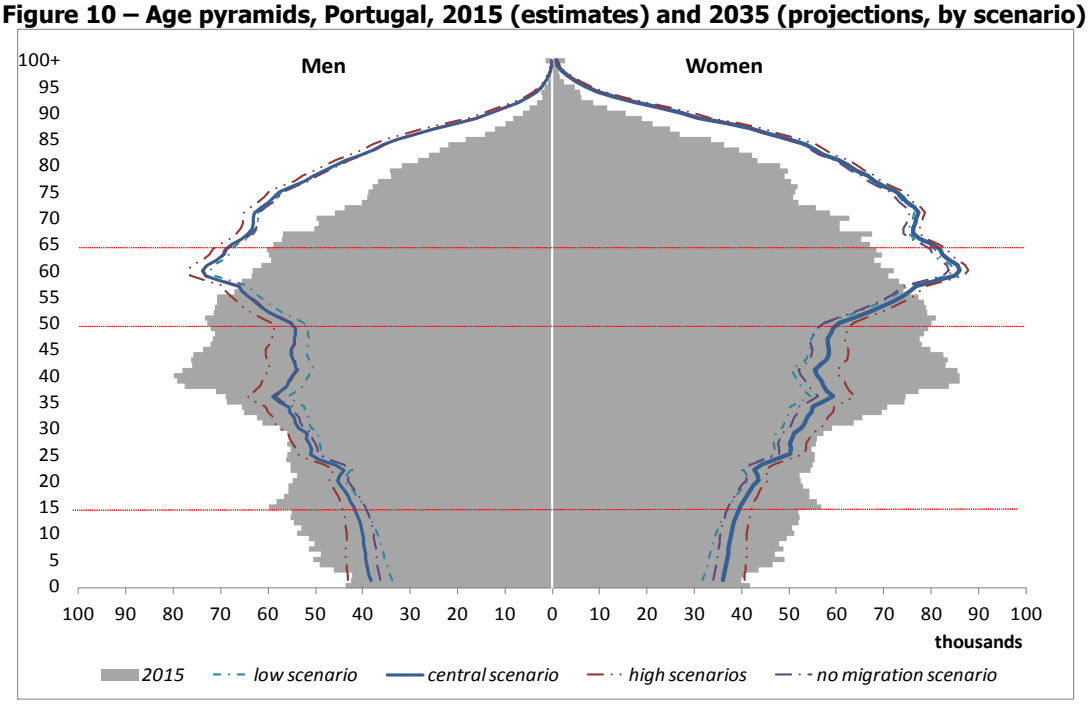
Figure 9 – Age pyramids, Portugal, 2015 (estimates) and 2025 (projections, by scenario)



In 2035 and in the central scenario, the resident population in Portugal will be 9.9 million

In 2035, the resident population may change between 9.4 million in the *low scenario* and 10.4 in the *high scenario*. The differences between scenarios are now also evident at almost all ages, with a further increase in the elderly population in the *high scenario*, as a result of greater longevity combined with positive net migration in previous years, as well as the reduction and aging of the working age population and women of childbearing age.

Figure 10 – Age pyramids, Portugal, 2015 (estimates) and 2035 (projections, by scenario)

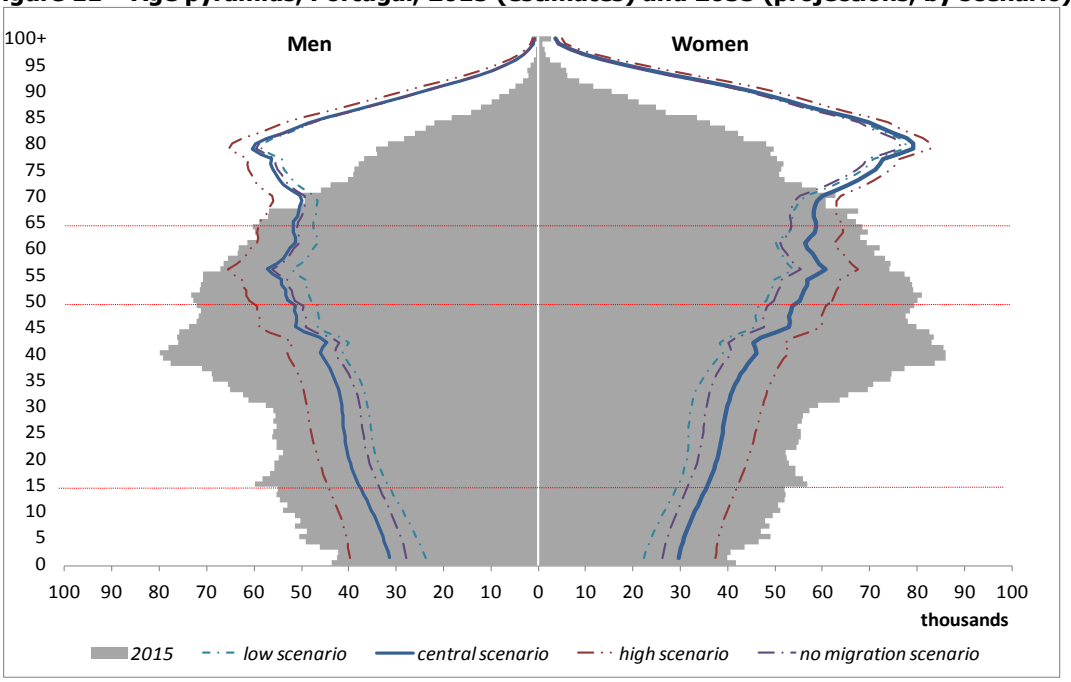


In 2055 and in the central scenario, the resident population in Portugal will be 8.9 million

In 2055, the population may change between 8.0 million in the *low scenario* and 10.1 in the *high scenario*. The differences between scenarios are emphasized.

The age pyramid shows an increasingly aging population, with a narrowing base, particularly in the *low scenario*; a sharp widening top; and marked reduction and aging of the working age population and of the women of childbearing age.

Figure 11 – Age pyramids, Portugal, 2015 (estimates) and 2055 (projections, by scenario)

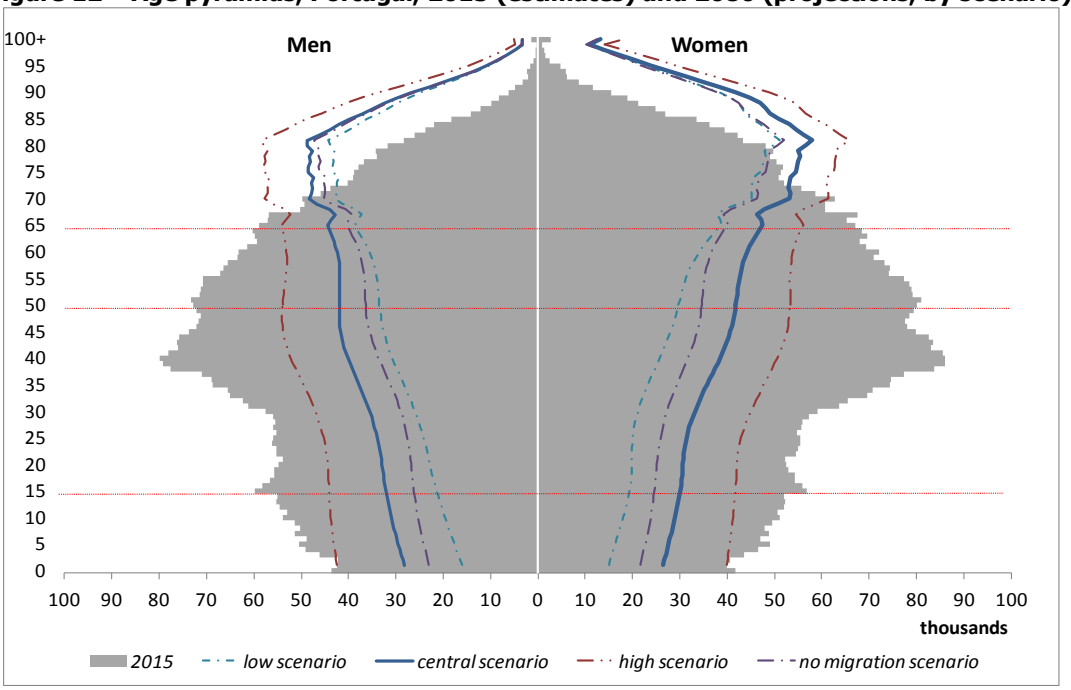


In 2080 and in the central scenario, the resident population in Portugal will be 7.5 million

In 2080, the population may change between 5.8 million in the *low scenario* to 9.5 million in the *high scenario*. Whatever the scenario, the population will become smaller and aged.

It should be noted that in 2080, although the *high scenario* shows the largest number of elderly people, this scenario presents the lowest aging ratio, which is explained by higher birth levels.

Figure 12 – Age pyramids, Portugal, 2015 (estimates) and 2080 (projections, by scenario)



It is also worth noting that in 2080 the pyramids became narrower than the 2055 pyramids, as a result of the decrease in the number of elderly people since the late 2040s.

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Figure 13 – Main results, Portugal and NUTS II, 2015 (estimates) and 2080 (projections)

Portugal and NUTS II regions	Projection scenarios	Total population		Population 0-14 years		Population 15-64 years		Population 65 years and older		Ageing index		Potential Sustainability Index	
		2015	2080	2015	2080	2015	2080	2015	2080	2015	2080	2015	2080
		no.											
Portugal	*Low*	10,341,330	5,803,217	1,460,832	537,265	6,739,674	2,799,087	2,140,824	2,466,865	147	459	315	114
	Central		7,478,186		876,510		3,819,812		2,781,864		317		137
	High		9,526,857		1,264,012		4,960,229		3,302,616		261		150
	No migration		6,470,986		718,337		3,196,989		2,555,660		356		125
Norte	*Low*	3,603,778	1,665,833	489,458	140,022	2,431,418	742,692	682,902	783,119	140	559	356	95
	Central		2,076,808		217,062		995,571		864,175		398		115
	High		2,506,853		296,639		1,218,198		992,016		334		123
	No migration		2,135,253		218,430		1,019,531		897,292		411		114
Centro	*Low*	2,256,364	1,216,667	286,949	102,898	1,443,401	574,058	526,014	539,711	183	525	274	106
	Central		1,567,229		172,815		782,587		611,827		354		128
	High		2,029,439		256,718		1,040,900		731,821		285		142
	No migration		1,251,907		129,209		597,469		525,229		407		114
A. M. Lisboa	*Low*	2,812,678	2,002,149	445,953	210,438	1,779,426	1,034,018	587,299	757,693	132	360	303	137
	Central		2,533,503		327,145		1,351,278		855,080		261		158
	High		3,234,247		465,249		1,744,008		1,024,990		220		170
	No migration		2,032,598		252,382		1,053,936		726,280		288		145
Alentejo	*Low*	724,391	382,157	93,558	35,178	451,611	186,727	179,222	160,252	192	456	252	117
	Central		493,813		58,952		257,015		177,846		302		145
	High		641,713		87,574		343,202		210,937		241		163
	No migration		415,944		46,560		207,339		162,045		348		128
Algarve	*Low*	441,929	307,113	66,629	30,878	283,083	155,526	92,217	120,709	138	391	307	129
	Central		435,731		56,038		234,644		145,049		259		162
	High		614,328		89,502		339,507		185,319		207		183
	No migration		305,366		36,469		155,125		113,772		312		136
R. A. Açores	*Low*	245,766	135,998	40,389	11,603	172,108	66,101	33,269	58,294	82	502	517	113
	Central		205,420		25,153		111,818		68,449		272		163
	High		266,579		37,048		148,351		81,180		219		183
	No migration		173,603		19,148		88,216		66,239		346		133
R. A. Madeira	*Low*	256,424	93,300	37,896	6,248	178,627	39,965	39,901	47,087	105	754	448	85
	Central		165,682		19,345		86,899		59,438		307		146
	High		233,698		31,282		126,063		76,353		244		165
	No migration		156,315		16,139		75,373		64,803		402		116

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METHODOLOGICAL NOTE

Resident population projections were calculated using the cohort-component method, where the initial population is grouped into sex and cohorts, defined by the year of birth, and updated on an ongoing basis according to the scenarios resulting from the different combinations of the evolution assumptions established for each population change component – fertility, mortality and migration – and the natural annual ageing until the last year of the projection period is reached (2080), with 2016 as the first projection year.

The provisional estimates of resident population as at 31 December **2015,** calculated by Statistics Portugal and disseminated on June 2016, are the base population for population projections, calculated up to 31 December **2080**, and are therefore called "Resident population projections, by sex and age, Portugal and NUTS 2, **2015-2080**".

Assumptions on the future evolution of the fertility, mortality and migration components were based on the observation, analysis and modelling of the past trends of each component, including the latest trends, and on expert judgement on their future evolution based on the information available to date. The analysis of past behaviour focused on the 1980-2015 period.

Two or more evolution assumptions were considered for each component, since the future levels of fertility, mortality and migration cannot be accurately forecast. These alternative assumptions intend to illustrate a domain of possible future results, although it is not established that there will be any future result, or that future results are necessarily included in this domain of figures.

The assumptions and modelling of the evolution of each component only considered the time dynamics of demographic indicators, and no other type of exogenous variable was incorporated in the models.

Finally, the results are conditioned by the dimension and structure of population at the starting point (2015) and by the different patterns of behaviour of the fertility, mortality and migration established in each assumption over the projection period (2016 to 2080), considered in each scenario, with a different starting population and the assumptions now outlined taking into account the latest demographic information the results obtained in this exercise are different and not directly comparable with those of other previous exercises.

Given the conditional nature of the results, these should not be understood as forecasts, but rather read with a conditional character "***if x, then y***".

In addition, the longer the projection period, the greater the associated uncertainty, and thus the reading of results in the long term should be handled with increased caution.

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FERTILITY

The methodology adopted for projecting fertility involved specifying assumptions on the expected evolution of the total fertility rate (TFR) and the average age at birth of a child. The specific fertility rates were modelled by age, resorting to the method proposed by Schmertmann (2003, 2005) according to the assumptions established for 2080. Thereafter, each fertility rate estimated and modelled for 2015 was subject to linear interpolation to the corresponding fertility rates modelled for 2080.

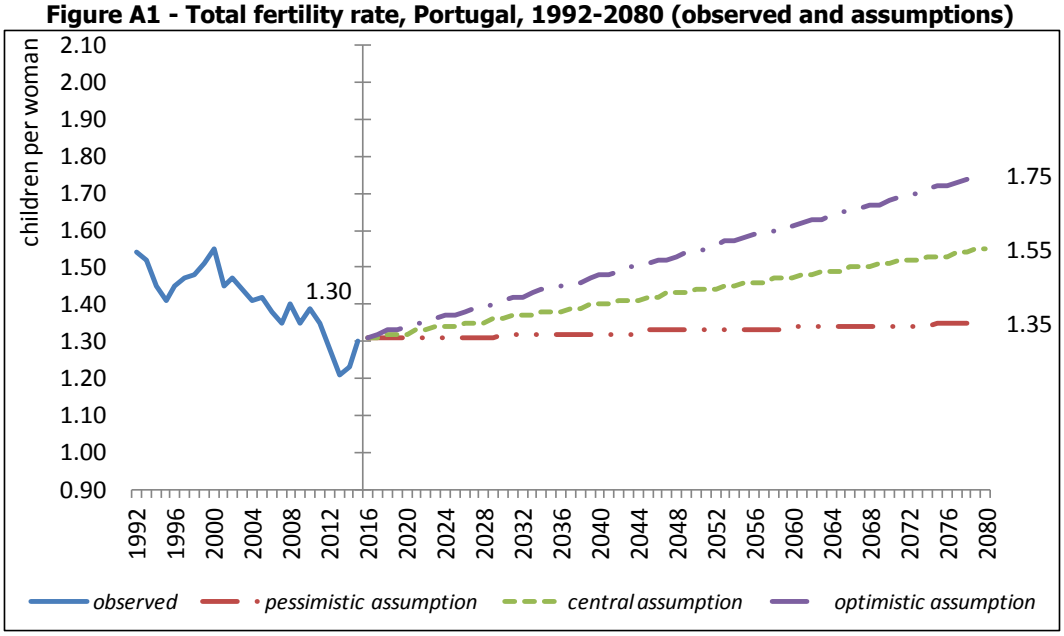
With regard to the TFR forecast, three assumptions were made, relying on the results obtained by applying the method proposed by Hyndman and Ullah (2007):

(1) *Pessimistic assumption*, envisaging the maintenance at 1.35 of the TFR for Portugal by 2080;

(2) *Central assumption*, envisaging the recovery of the TFR to 1.55 children per woman by 2080;

(3) *Optimistic assumption*, envisaging the recovery of the TFR to 1.75 children per woman by 2080.

Figure A1 - Total fertility rate, Portugal, 1992-2080 (observed and assumptions)



The NUTS 2 projections took into account regional asymmetries and assumed a possible convergence of the behaviour of fertility in each region with Portugal. This assumption relied on the one hand on the proximity of the figures on *final expected fertility* between NUTS 2 regions and Portugal observed in the 2013 Fertility Survey, and on the other on the observation of a certain degree of convergence across NUTS 2 regions, especially in the 1992-2011 period. Hence, it is plausible to expect a convergence of fertility behaviours. This convergence was ensured through recourse to the linear interpolation of each specific fertility rate by age estimated and modelled for each NUTS 2 region for 2015 and the equivalent fertility rate projected for Portugal and for each assumption, in a chosen convergence year, i.e. moving towards a point in the distant future and outside the projection period.

MORTALITY

Life expectancy at birth reflects the mortality levels of a population across all ages.

This synthetic indicator of a population's mortality conditions is widely used to measure improvements in a country's mortality levels both over time and in comparison with other countries.

Over the course of several decades there has been an ongoing increase in life expectancy at birth in developed countries, and particularly in Western Europe. The upward pace of life expectancy at birth changes over time, however, and, in general, life expectancy at birth did not grow as much in the most recent years.

Life expectancy at birth increases as a result of the progress vis-à-vis mortality at all ages. Over time, however, the relative contributions from the different age groups have changed, impacting on the growth pace of average life expectancy. If in a distant past the main contribution to the increase in life expectancy at birth came chiefly from improvements in infant mortality and mortality among the younger population, currently the greatest contributions to the increase in life expectancy are from adult and elderly ages, with a lower impact on the increase in the value of life expectancy at birth. The greater share of deaths occurs presently at increasingly more advanced ages.

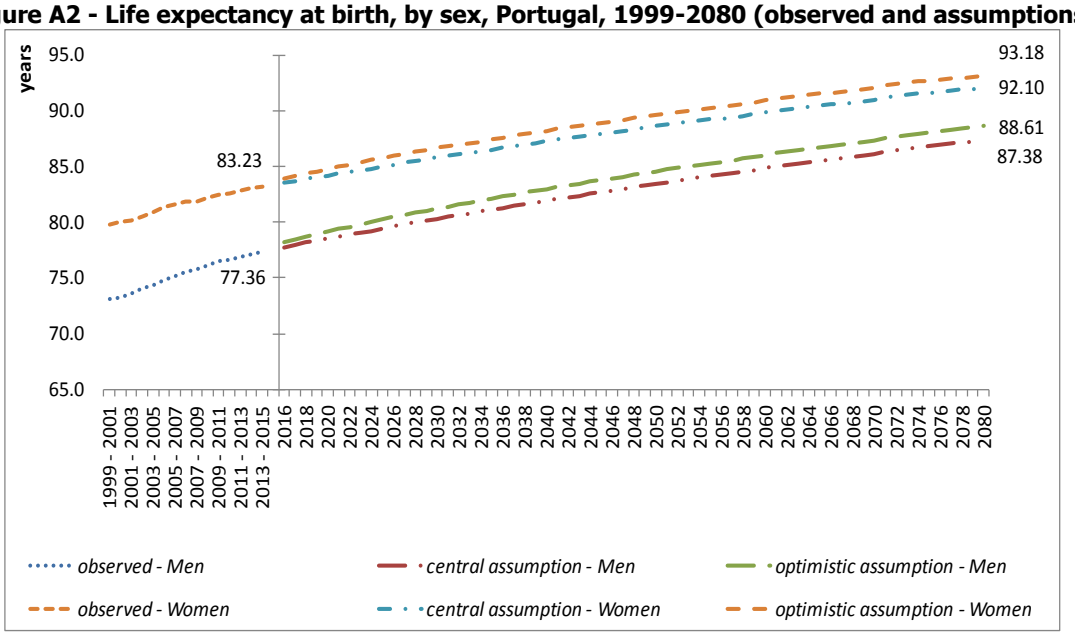
In the current context of population ageing, where the greater share of deaths is concentrated on advanced ages, with relatively low mortality rates among the infant and young population and where increases in life expectancy stem chiefly from improvements in mortality at adult and advanced ages, the growth pace of life expectancy at birth is not forecast to increase substantially.

Against this background, two assumptions were taken into account regarding the future of mortality in Portugal:

(1) *Central assumption*, envisaging the maintenance of the recent improvement trends of mortality and the growth pace of life expectancy, with life expectancy at birth reaching 87.38 years for men and 92.10 years for women in 2080, i.e. an increase of 10.02 years for men and 8.87 years for women (compared to the figures estimated for 2013-15, which corresponds to the reference period of the last available mortality table).The projected figures for the mortality rates were been obtained by extrapolating past figures based on application of the Poisson-Lee-Carter method (Brouhns, N., Denuit, M. and Vermunt, J., 2002) to the 1980-2015 period. This assumption is based on projected point estimates of mortality rates and life expectancy at birth;

(2) *Optimistic assumption*, envisaging a more marked increase in life expectancy at birth compared to the central assumption, with life expectancy at birth reaching 88.61 years for men and 93.18 years for women in 2080, i.e. an increase of 11.25 years for men and 9.95 years for women. The projected figures for the mortality rates correspond in this assumption to the lower limit of the 95% prediction interval obtained through simulation with recourse to the semiparametric bootstrap methodology proposed by Brouhns et al. (2005), resulting in the figures projected for life expectancy.

Figure A2 - Life expectancy at birth, by sex, Portugal, 1999-2080 (observed and assumptions)



For the NUTS 2 regions, relational models were applied (Brass, 1971, 1973), within the framework of generalised linear models, as well as non-parametric methods considering the mortality rates estimated in the 1991-2015 period and taking the prospective mortality tables derived by the Poisson Lee-Carter method for Portugal as reference population for each NUTS 2 region. The idea underlying the application of this methodology is to find a simple relationship that associates the mortality features of the country and NUTS 2 regions. Once this relationship – which is admittedly stable in time – is found, it will be possible to obtain the projected mortality ratios of each NUTS 2 region from the mortality rates projected for the Portuguese population.

INTERNATIONAL MIGRATION

Portuguese demographic growth is strongly influenced by international migration. In spite of the importance of the migration component, forecasting it is somewhat difficult. On the one hand, the volatility of the behaviour of international migration flows, influenced by economic and political events, as well as demographic and social imbalances between countries of origin and of destination, leads to possible sudden changes in the population size, demographic features and dominant direction. On the other hand, information has weaknesses and the coverage of the phenomenon is poor in terms of the available data sources.

A number of steps were considered when making assumptions at national level.

On a first stage, net migration figures were analysed as a whole for the years 1960 to 2015. However, the social and economic conditions on which the strongly negative net migration figures relied, almost exclusively due to the strong outflows observed in the 1960s, will hardly be repeated.

On the other hand, the peaks recorded in the post-revolution years were caused by strong return flows from the former colonies, which is also not expected to be repeated. Hence, on a second stage, an ARIMA model was applied to net migration figures estimated for the years 1976 to 2015, resulting in a point forecast of net migration, which in 2080 and within a 80% prediction interval could range between -37,559 and +37,559. These were considered as the possible lower and upper limits for assumptions on the future evolution of net migration.

However, net migration results from the combination of two types of migration flow: emigration (or outflow – emigrants) and immigration (or inflow – immigrants).

Hence, with regard to immigrants, an ARIMA model was applied to the figures estimated for 1991 to 2015, resulting in a point forecast of 33,294 in 2080. In addition, the possibility was considered of inflows both decreasing and increasing, given the results obtained in the point forecast.

With regard to emigrants, an ARIMA model was applied to the figures for 1991 to 2015, resulting in a point forecast of 24,356 in 2080. Considering the high emigration figures recorded in the years following the 2008 economic and financial crisis, with a stronger impact as of 2010, and assuming that they are not likely to be repeated in the future, in spite of the high volatility associated with migration behaviours, an ARIMA model was applied to the figures for 1991 to 2009, resulting in a point forecast of 13,857 in 2080. The possibility of an intermediate evolution of the annual figures for emigrants was also considered.

To obtain the not unlikely future net migration, the emigrants' and immigrants' forecast results were combined, smoothed and rounded up, resulting in net migration figures within the aforementioned forecast ranges, in the following assumptions of evolution of the migration component:

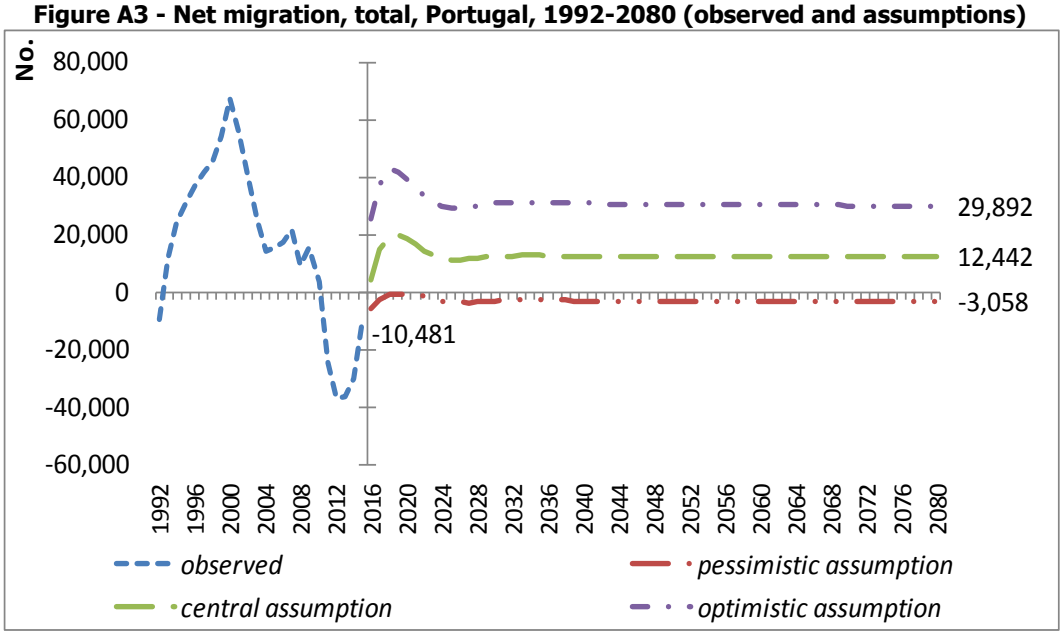
(1) Pessimistic assumption – possibility of maintenance of negative net migration, based on the figures estimated for the base year (-10,481), to reach negative net migration (-3,058) in 2080;

(2) Central assumption – possibility of recovery to positive net migration, to reach positive net migration (12,442);

(3) Optimistic assumption – possibility of recovery of net migration to higher positive figures than in the central scenario, to reach positive net migration (29,892) in 2080;

(4) No migration assumption – a fourth assumption was also considered, admitting a possible absence of international migration flows, which, although very unlikely, makes it possible to measure the impact of migration flows in the population dynamics.

Figure A3 - Net migration, total, Portugal, 1992-2080 (observed and assumptions)



Subsequently, migration flows were broken down into NUTS 2 regions, and the distribution of outflows and inflows resulted in a gradual change from a distribution by regions in the last year observed to a distribution relying on the proportionality of that region's population in the national total, obtained after a preliminary exercise with no migration flows, ensuring consistency between the value for Portugal and the sum of all NUTS 2 regions.

At both the national and regional level, in the distribution of inflows and outflows by sex a gradual change was assumed from the distribution in the last year to an equitable distribution in 2080.

SCENARIOS

The combination of alternative assumptions on the future evolution of each component makes it possible to set out population projection scenarios, with four scenarios having been established in this exercise:

LOW SCENARIO - this scenario considered the pessimistic assumption for fertility, the central assumption for mortality and the pessimistic assumption for migration;

CENTRAL SCENARIO - this scenario considered the assumptions of central evolution of fertility, mortality and migration;

HIGH SCENARIO - this scenario results from a combination of assumptions of an optimistic evolution of fertility, mortality and migration;

NO MIGRATION SCENARIO - identical to the central scenario, but envisaging the absence of migration, in spite of its unlikelihood and for comparison purposes.

Figure A4 – Assumptions and scenarios, Portugal and NUTS II, 2015 and 2080

Portugal and NUTS II regions	Projection scenarios	Total Fertility Rate		Life expectancy at birth				Net migration	
		2015	2080	2013-2015		2080		2015	2080
				Men	Women	Men	Women		
		No.		years				No.	
Portugal	*Low*	1,30	1.35	77.36	83.23	87.38	92.10	-10.481	-3,058
	Central		1.55			87.38	92.10		12,442
	High		1.75			88.61	93.18		29,892
	No migration		1.55			87.38	92.10		
Norte	*Low*	1.17	1.31	77.70	83.42	87.39	91.99	-11,716	-3,510
	Central		1.52			87.39	91.99		813
	High		1.73			88.35	92.95		2,506
	No migration		1.52			87.39	91.99		
Centro	*Low*	1.18	1.31	77.71	83.54	87.36	92.38	3,748	231
	Central		1.52			87.36	92.38		2,415
	High		1.73			88.51	92.74		6,080
	No migration		1.52			88.36	92.38		
A. M. Lisboa	*Low*	1.56	1.40	77.43	83.19	87.40	91.92	2,441	384
	Central		1.61			87.40	91.92		3,910
	High		1.82			88.40	92.96		9,875
	No migration		1.61			87.40	91.92		
Alentejo	*Low*	1.33	1.35	77.05	82.70	87.07	91.63	-4,016	-63
	Central		1.56			87.07	91.63		1,437
	High		1.77			88.27	92.62		3,479
	No migration		1.56			87.07	91.63		
Algarve	*Low*	1.49	1.38	77.19	83.31	87.95	92.27	1,203	59
	Central		1.60			87.95	92.27		1,528
	High		1.80			89.23	93.16		3,817
	No migration		1.60			87.95	92.27		
R. A. Açores	*Low*	1.25	1.33	73.38	80.65	84.33	90.30	-543	-85
	Central		1.54			84.33	90.30		1,226
	High		1.75			85.62	91.02		2,178
	No migration		1.54			84.33	90.30		
R. A. Madeira	*Low*	1,10	1.29	73.65	81.19	85.24	90.91	-1,598	-74
	Central		1.51			85.24	90.91		1,113
	High		1.71			86.70	92.06		1,957
	No migration		1.51			85.24	90.91		

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Detailed methodological information available at:

Methodological Document - Resident Population Projections

Detailed statistical information available at:

Ageing ratio (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

Fertility rate (projections 2015-2080 - ‰) by Place of residence (NUTS - 2013), Age and Scenario

Life expectancy at birth (projections 2015-2080 - Year) by Place of residence (NUTS - 2013), Sex and Scenario

Net migration (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

Old-age dependency ratio (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

Potential sustainability ratio (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

Probability of dying (projections 2015 - 2080) by Place of residence (NUTS - 2013), Sex, Age and Scenario

Resident population (projections 2015-2080 - No.) by Place of residence (NUTS - 2013), Sex, Age and Scenario

Total fertility rate (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

Young-age dependency ratio (projections 2015-2080 - No.) by Place of residence (NUTS - 2013) and Scenario

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