Population structure and ageing

Statistics Explained

Data extracted in June 2017. Most recent data: Further Eurostat information, Main tables and Database . Planned article update: June 2018.

This article looks at the impact of demographic ageing within the European Union (EU) , which is likely to be of major significance in the coming decades. Consistently low birth rates and higher life expectancy are transforming the shape of the EU-28's age pyramid ; probably the most important change will be the marked transition towards a much older population structure, a development which is already apparent in several EU Member States.

As a result, the proportion of people of working age in the EU-28 is shrinking while the relative number of those retired is expanding. The share of older persons in the total population will increase significantly in the coming decades, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, lead to an increased burden on those of working age to provide for the social expenditure required by the ageing population for a range of related services.

Main statistical findings

Population structure

The population of the EU-28 on 1 January 2016 was estimated at 510.3 million. Young people (0 to 14 years old) made up 15.6 % of the EU-28's population (see Table 1), while persons considered to be of working age (15 to 64 years old) accounted for 65.3 % of the population. Older persons (aged 65 or over) had a 19.2 % share (an increase of 0.3 % compared with the previous year and an increase of 2.4 % compared with 10 years earlier).

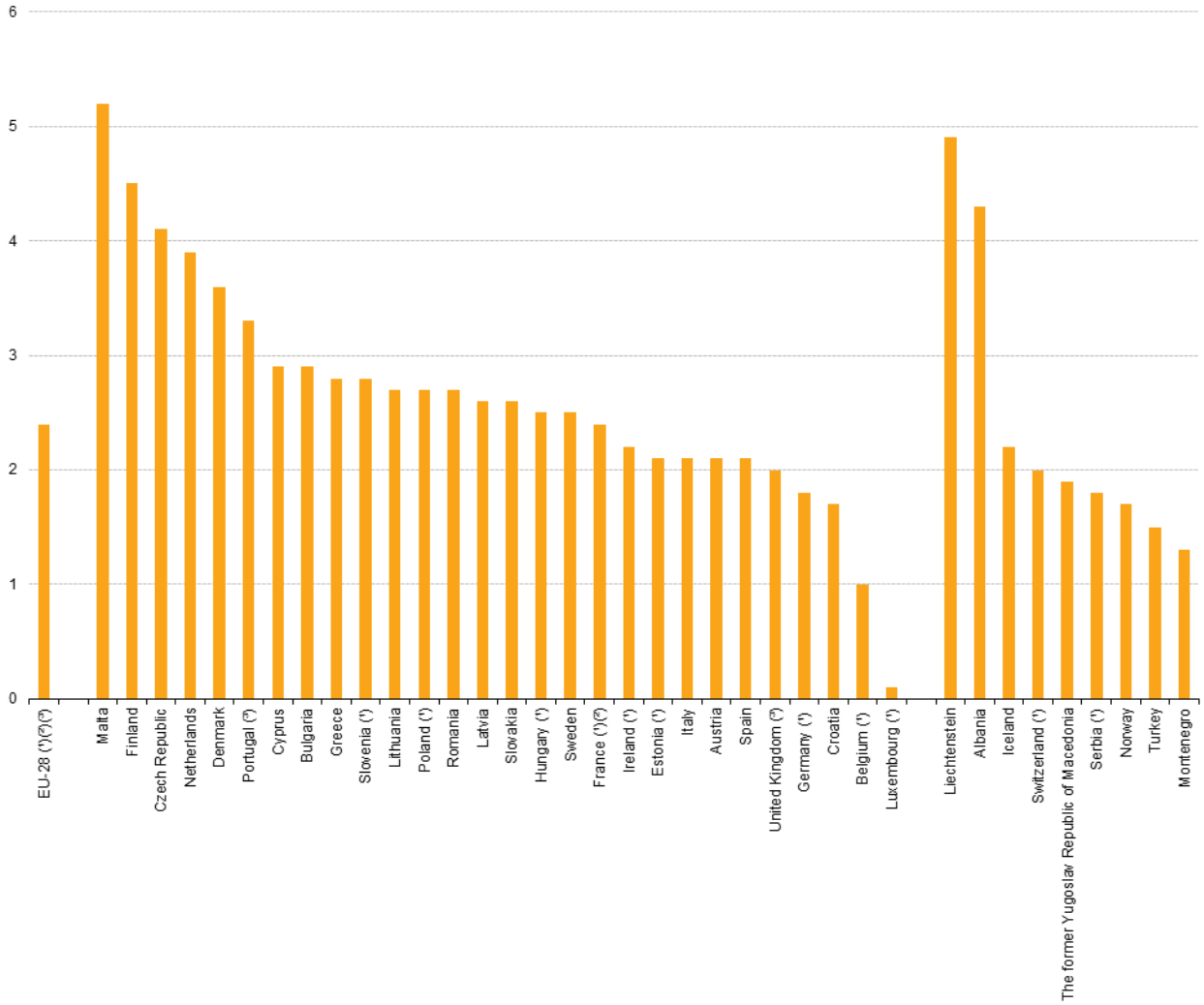
Across the EU Member States, the highest share of young people in the total population in 2016 was observed in Ireland (21.9 %), while the lowest share was recorded in Germany (13.2 %). Regarding the share of persons aged 65 or older in the total population, Italy (22.0 %), Greece (21.3 %) and Germany (21.1 %) had the highest shares, while Ireland had the lowest share (13.2 %).

	0–14 years old		15–64 years old		65 years old or over	
	2006	2016	2006	2016	2006	2016
EU-28 (') (²)	16.0	*15.6*	67.1	*65.3*	16.8	*19.2*
Belgium (')	17.1	17.0	65.7	64.7	17.2	18.2
Bulgaria	13.4	14.0	69.2	65.6	17.5	20.4
Czech Republic	14.6	15.4	71.1	66.2	14.2	18.3
Denmark	18.7	16.8	66.1	64.3	15.2	18.8
Germany (')	14.1	13.2	66.7	65.7	19.3	21.1
Estonia (')	15.0	16.1	68.1	64.9	16.9	19.0
Ireland (')	20.5	21.9	68.5	64.9	11.0	13.2
Greece	14.9	14.4	66.6	64.3	18.5	21.3
Spain	14.5	15.1	68.8	66.1	16.6	18.7
France (')	18.5	*18.5*	65.1	*62.8*	16.4	*18.8*
Croatia (²)	15.8	14.6	66.7	66.2	17.5	19.2
Italy	14.1	13.7	66.0	64.3	19.9	22.0
Cyprus	19.4	16.4	68.5	68.4	12.2	15.1
Latvia	14.5	15.2	68.5	65.1	17.0	19.6
Lithuania	16.6	14.7	67.2	66.3	16.3	19.0
Luxembourg (')	18.4	16.5	67.5	69.3	14.1	14.2
Hungary (')	15.4	14.5	68.8	67.2	15.8	18.3
Malta	17.1	14.2	69.1	66.7	13.8	19.0
Netherlands	18.3	16.5	67.5	65.3	14.3	18.2
Austria	15.9	14.3	67.6	67.2	16.4	18.5
Poland (')	16.2	15.0	70.4	69.1	13.3	16.0
Portugal	15.9	*14.1*	66.8	*65.1*	17.4	*20.7*
Romania	16.9	15.5	68.4	67.0	14.7	17.4
Slovenia (')	14.1	14.8	70.3	66.7	15.6	18.4
Slovakia	16.7	15.3	71.5	70.2	11.8	14.4
Finland	17.3	16.3	66.8	63.2	16.0	20.5
Sweden	17.3	17.4	65.4	62.8	17.3	19.8
United Kingdom	18.0	*17.7*	66.1	*64.4*	15.9	*17.9*
Iceland	21.8	20.0	66.5	66.1	11.7	13.9
Liechtenstein	17.4	14.9	71.1	68.6	11.6	16.5
Norway	19.5	17.9	65.8	65.6	14.7	16.4
Switzerland (')	16.0	14.9	68.0	67.2	16.0	18.0
Montenegro	20.4	18.3	66.8	67.6	12.8	14.1
The former Yugoslav Republic of Macedonia (²)	19.5	16.7	69.4	70.3	11.1	13.0
Albania	25.7	17.7	65.7	69.5	8.6	12.9
Serbia (')	15.7	14.4	67.1	66.6	17.2	19.0
Turkey	27.0	24.0	66.3	67.7	6.7	8.2

(') Break in time series in various years between 2006 and 2016
(²) The population of unknown age is redistributed for calculating the age structure.
Source: Eurostat (online data code: demo_pjanind)

Table 1: Population age structure by major age groups, 2006 and 2016(% of the total population)Source: Eurostat (demopjanind)

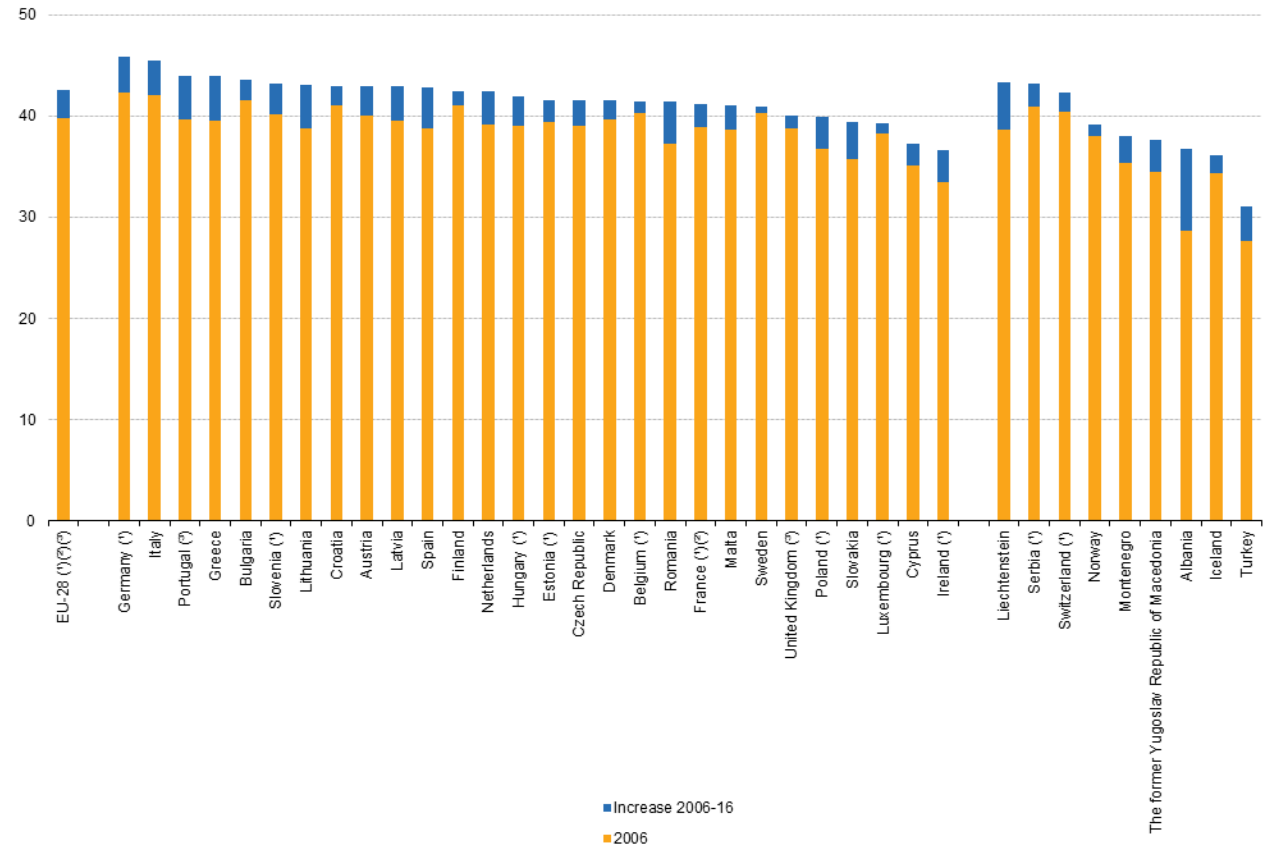
The population structure of the EFTA and candidate countries was similar to that generally observed in the EU, the main exceptions being Turkey and Iceland (where the population structure was similar to that of Ireland): in these two countries, the proportion of the youngest age group was high (24.0 %, and 20.0 %, respectively) and persons aged 65 and above accounted for a comparatively low share of the total population (8.2 % and 13.9 %, respectively). Albania and the former Yugoslav Republic of Macedonia also had a relatively low share of people aged 65 and above (12.9 % and 13.0 %, respectively). Nevertheless, the trend of an ageing population is also visible in these countries.



(1) Break in time series in various years between 2006 and 2016.
(2) Provisional.
(3) Estimate.
Source: Eurostat (online data code: demo_pjanind)

Figure 1: Increase in the share of the population aged 65 years or over between 2006 and 2016(percentage points)Source: Eurostat (demopjanind)

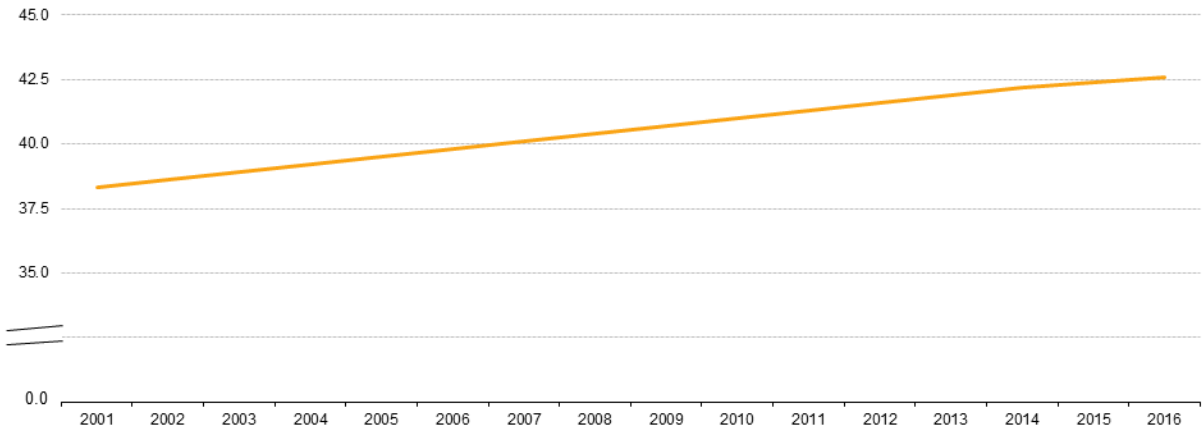
The median age of the EU-28's population was 42.6 years on 1 January 2016 (see Figure 2). This means that half of the EU-28's population was older than 42.6 years, while half was younger. Across the EU Member States the median age ranged between 36.6 years in Ireland and 45.8 years in Germany, confirming the relatively young and relatively old population structures recorded in each of these two Member States. The median age recorded in Turkey (31.1 years), as well as Iceland (36.1 years) in 2016 was lower than in any of the EU Member States. Albania also had a low median age (36.7 years) and further experienced the biggest increase in the median age over the past 10 years: this raised of 27.9 % (or 8 years, from 28.7 years in 2006 to 36.7 in 2016).



(1) Break in time series in various years between 2006 and 2016.
(2) 2016: Provisional.
(3) 2016: Estimate.
Source: Eurostat (online data code: demo_pjanind)

Figure 2: Median age of population, 2006-16(years)Source: Eurostat (demopjanind)

The median age in the EU-28 increased by 4.3 years (on average, by 0.3 years per annum) between 2001 and 2016, rising from 38.3 years to 42.6 years (see Figure 3). Between 2006 and 2016 the median age increased in all of the EU Member States, rising by 4.0 or more years in Portugal, Greece, Lithuania, Romania and Spain. (see Figure 2).



Note: 2010, 2011, 2012, 2014,2015 and 2016: break in series. 2014, 2015 and 2016: estimate, provisional.
Source: Eurostat (online data code: demo_pjanind)

Figure 3: Median age of population, EU-28, 2001-16(years)Source: Eurostat (demopjanind)

Age dependency ratios may be used to study the level of support given to younger and/or older persons by the working age population; these ratios are expressed in terms of the relative size of younger and/or older populations compared with the working age population. The old-age dependency ratio for the EU-28 was 29.3 % on 1 January 2016 (see Table 2); as such, there were almost four persons of working age for every person aged 65 or over . The old-age dependency ratio ranged across the EU Member States from a low of 20.4 % in Ireland, 20.5 % in Luxembourg and 20.6 % in Slovakia to highs of 34.3 % in Italy, 33.1 % in Greece, 32.4 % in Finland and 32.0 % in Germany, thus with approximately three working age people for every person aged 65 or over.

	Young-age dependency ratio	Old-age dependency ratio	Total age dependency ratio	Share of population aged 80 or over
EU-28 (')	*23.9*	*29.3*	*53.2*	*5.4*
Belgium	26.2	28.2	54.4	5.5
Bulgaria	21.3	31.1	52.4	4.7
Czech Republic	23.2	27.6	50.8	4.0
Denmark	26.1	29.3	55.4	4.3
Germany	20.2	32.0	52.2	5.8
Estonia	24.8	29.3	54.1	5.1
Ireland (')	33.8	20.4	54.2	3.1
Greece	22.5	33.1	55.5	6.5
Spain	22.9	28.3	51.2	6.0
France	*29.4*	*30.0*	*59.4*	*5.9*
Croatia	22.0	29.0	51.1	4.8
Italy	21.2	34.3	55.5	6.7
Cyprus	24.0	22.1	46.1	3.3
Latvia	23.4	30.2	53.6	5.0
Lithuania	22.1	28.6	50.7	5.3
Luxembourg	23.8	20.5	44.3	4.0
Hungary	21.6	27.2	48.7	4.3
Malta	21.4	28.6	49.9	4.1
Netherlands	25.2	27.8	53.0	4.4
Austria	21.3	27.5	48.8	5.0
Poland	21.8	23.1	44.9	4.1
Portugal	*21.7*	*31.8*	*53.4*	*5.9*
Romania	23.1	25.9	49.0	4.2
Slovenia	22.2	27.6	49.8	5.0
Slovakia	21.8	20.6	42.4	3.2
Finland	25.8	32.4	58.2	5.2
Sweden	27.8	31.5	59.2	5.1
United Kingdom	*27.5*	*27.9*	*55.4*	*4.8*
Iceland	30.3	21.0	51.2	3.7
Liechtenstein	21.7	24.0	45.7	3.4
Norway	27.3	25.0	52.3	4.2
Switzerland	22.1	26.7	48.8	5.0
Montenegro	27.1	20.8	47.9	2.8
The former Yugoslav Republic of Macedonia	23.7	18.5	42.1	2.3
Albania	25.4	18.5	43.9	2.2
Serbia	21.7	28.5	50.2	4.3
Turkey	35.4	12.2	47.6	1.7

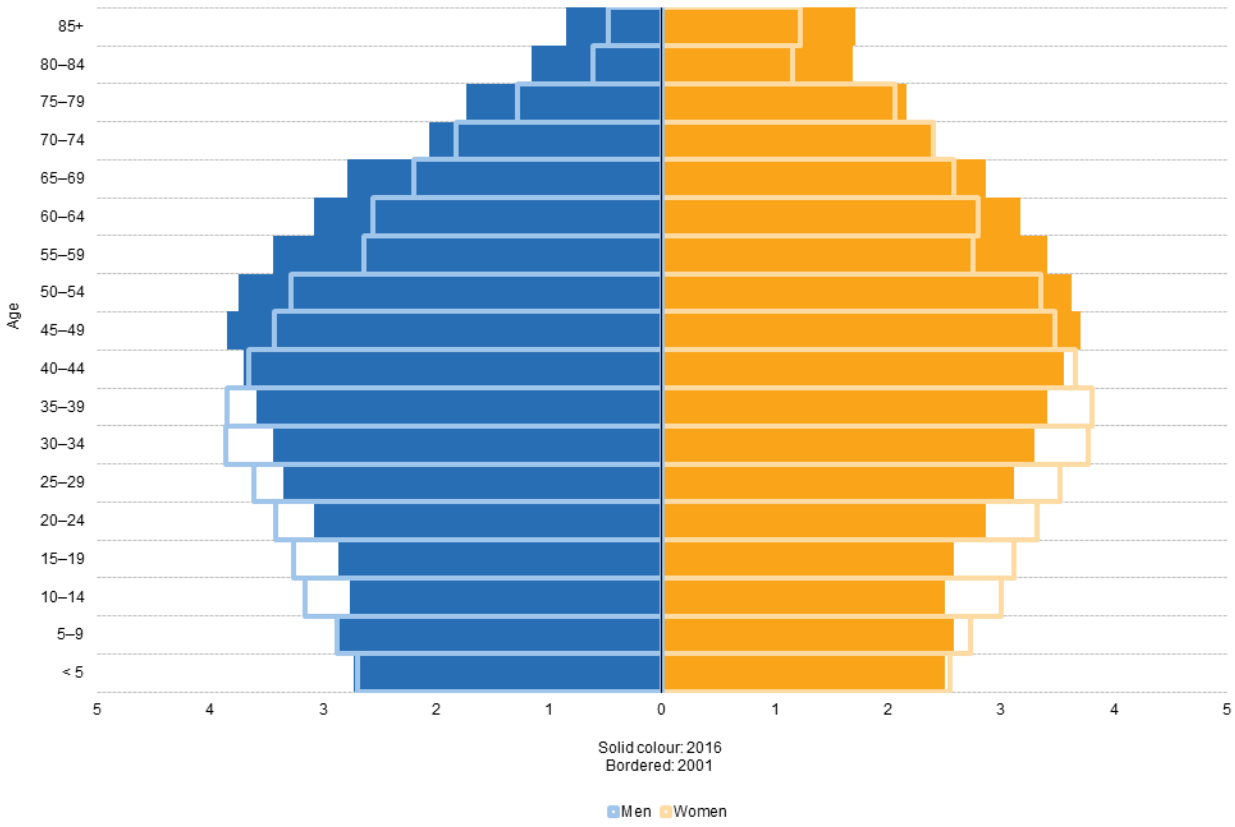
(') Break in time series
Source: Eurostat (online data code: demo_pjanind)

Table 2: Population age structure indicators, 1 January 2016(%)Source: Eurostat (demopjanind)

The combination of young and old-age dependency ratios provides the total age dependency ratio (calculated as the ratio of dependent people, young and old, compared with the population considered to be of working age, in other words 15 to 64 years old), which in 2016 was 53.2 % in the EU-28, indicating that there were approximately two working age persons for every dependent person. In 2016, the lowest total age dependency ratio among the EU Member States was observed in Slovakia (42.4 %) and the highest in France (59.4 %).

A generally increasing trend can be observed for the EU-28's old-age and total dependency ratios. For example, the old-age dependency ratio increased by 4.3 percentage points (or by 17.2 % of its former value) during the past decade (from 25 % in 2006 to 29.3 % in 2016).

Population pyramids (see Figures 4 and 5) show the distribution of the population by sex and by five-year age groups. Each bar corresponds to the share of the given sex and age group in the total population (men and women combined). The EU-28 population pyramid on 1 January 2016 is narrow at the bottom and is becoming more like a rhomboid due to the 'baby boomer' cohorts resulting from the high fertility rates in several European countries in the mid-1960s (known as the 'baby boom'). These 'baby boomers' continue to represent a major part of the working-age population. The first of these large cohorts born over a period of 20–30 years are now reaching retirement age, as illustrated by the comparison with the 2001 population pyramid. The 'baby boom' bulge is moving up the population pyramid, leaving the lower part of the working-age population and the base narrower — as can be seen in Figure 4.



Note: Break in series. 2016: estimate, provisional.
Source: Eurostat (online data code: demo_pjangroup)

Figure 4: Population pyramids, EU-28, 2001 and 2016(% of the total population)Source: Eurostat (demopjangroup)

Past and future population ageing trends in the EU

Population ageing is a long-term trend which began several decades ago in Europe. This trend is visible in the transformations of the age structure of the population and is reflected in an increasing share of older persons coupled with a declining share of working-age persons in the total population.

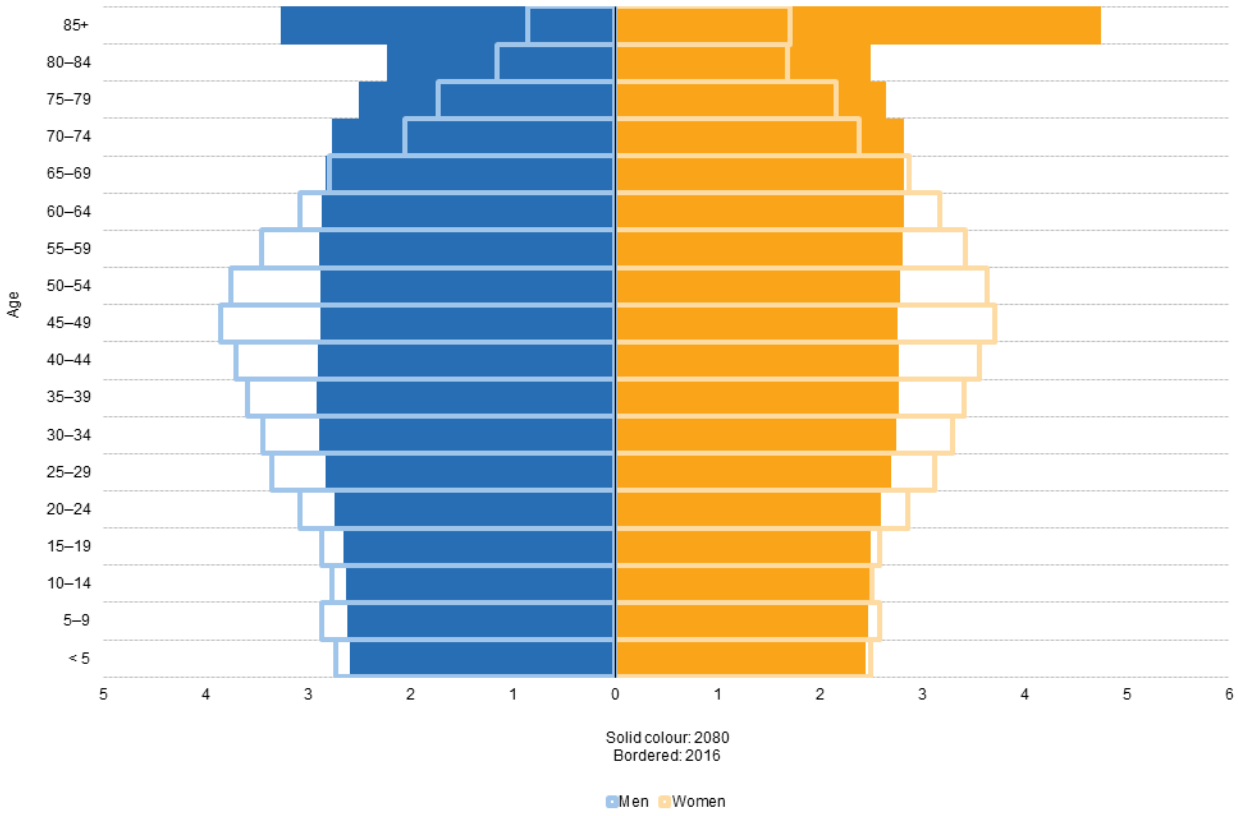
The share of the population aged 65 years and over is increasing in every EU Member State, EFTA country and candidate country. The increase within the last decade ranges from 5.2 percentage points in Malta and 4.5 percentage points in Finland, to 1.0 percentage points or less in Belgium and Luxembourg . Within the last decade (2006–16), an increase of 2.4 percentage points was observed for the EU-28 as a whole (see Figure 1). On the other hand, the share of the population aged less than 15 years in the EU-28 population decreased by 0.4 percentage points.

The growth in the relative share of older people may be explained by increased longevity, a pattern that has been apparent for several decades as life expectancy has risen (see mortality and life expectancy statistics); this development is often referred to as 'ageing at the top' of the population pyramid.

On the other hand, consistently low levels of fertility over many years have contributed to population ageing, with fewer births leading to a decline in the proportion of young people in the total population (see fertility statistics). This process is known as 'ageing at the bottom' of the population pyramid, and can be observed in the narrowing base of the EU-28 population pyramids between 2001 and 2016.

In an attempt to look at future trends for population ageing, Eurostat's latest set of population projections (EUROPOP2015) were made covering the period from 2015 to 2080. In EUROPOP2015 the EU-28's population is projected to increase to a peak of 528.6 million around 2050 and thereafter gradually decline to 518.8 million by 2080.

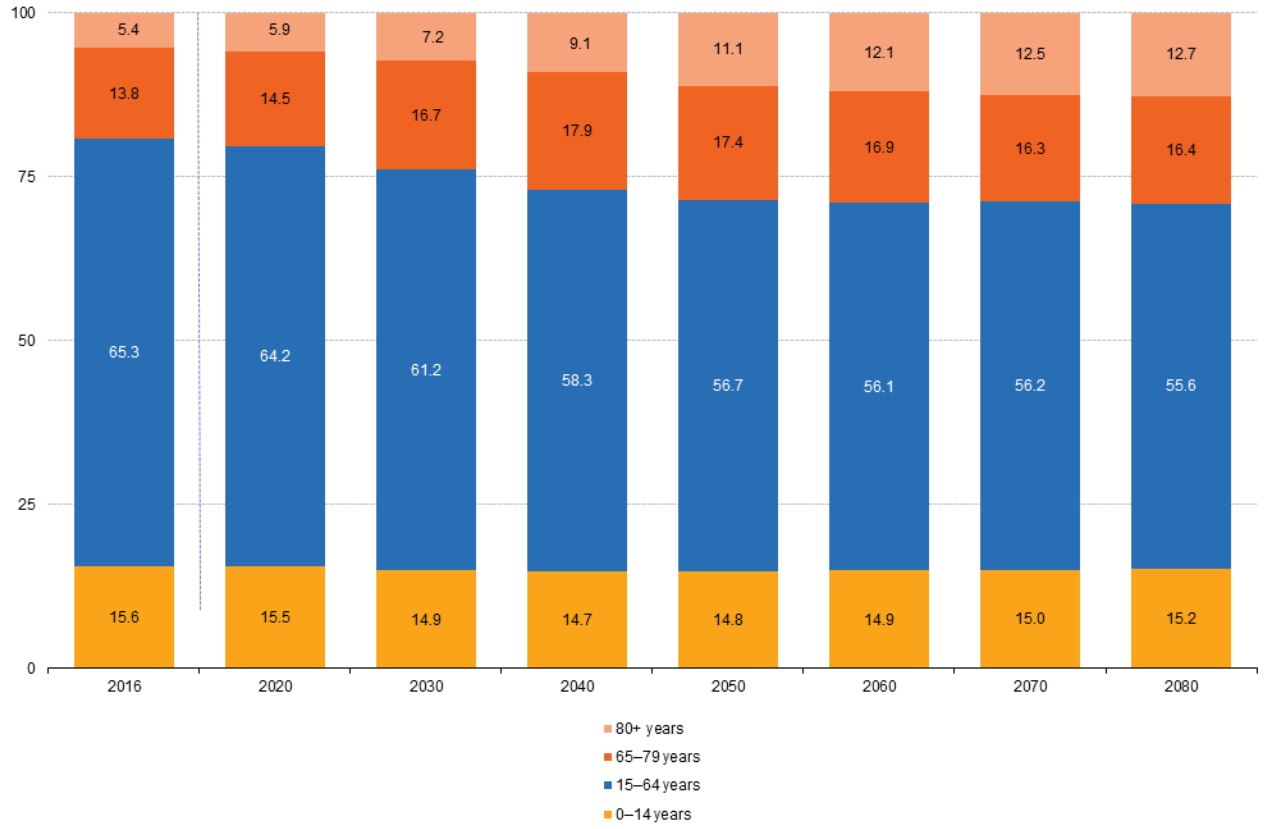
The comparison of age pyramids for 2015 and 2080 (see Figure 5) shows that the EU-28's population is projected to continue to age. In the coming decades, the high number of 'baby boomers' will swell the number of elderly people. However, by 2080, the pyramid will take more the shape of a block, narrowing considerably in the middle of the pyramid (around the age 45–54 years).



Note: 2016: estimate, provisional. 2080: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_pjangroup and proj_15npms)

Figure 5: Population pyramids, EU-28, 2016 and 2080(% of the total population)Source: Eurostat (demopjangroup) and (proj13npms)

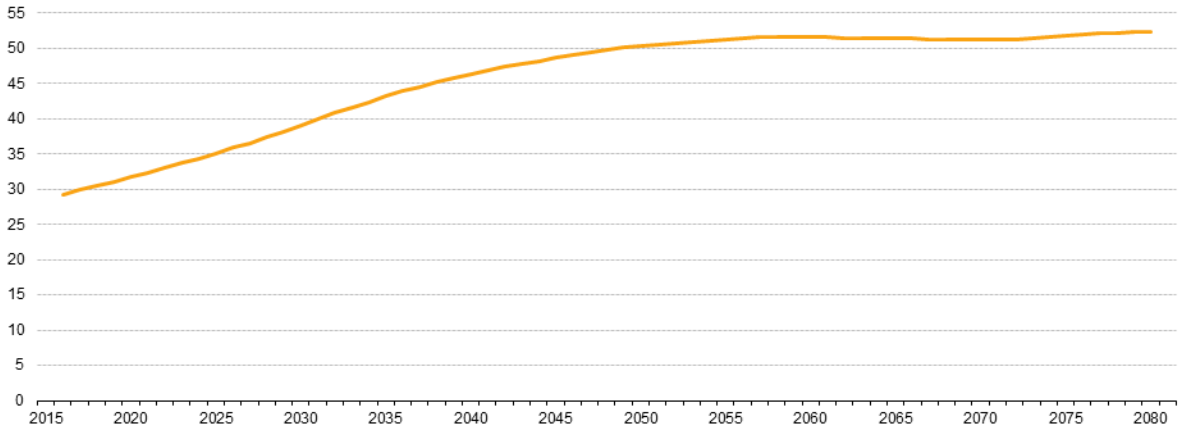
Another aspect of population ageing is the progressive ageing of the older population itself, as the relative importance of the very old is growing at a faster pace than any other age segment of the EU's population. The share of those aged 80 years or above in the EU-28's population is projected to more than double between 2016 and 2080, from 5.4 % to 12.7 % (see Figure 6).



Note: 2016: estimate, provosional. 2020–80: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_pjangroup and proj_15ndbims)

Figure 6: Population structure by major age groups, EU-28, 2016-80(% of total population)Source: Eurostat (demopjangroup) and (proj13npms)

During the period from 2016 to 2080 the share of the population of working age is expected to decline steadily through until 2050 before stabilising somewhat, while older persons will likely account for an increasing share of the total population: those aged 65 years or over will account for 29.1 % of the EU-28's population by 2080, compared with 19.2 % in 2016. As a result of the population movement between age groups, the EU-28's old-age dependency ratio is projected to almost double from 29.3 % in 2016 to 52.3 % by 2080 (see Figure 7). The total age dependency ratio is projected to rise from 53.2 % in 2016 to 79.7 % by 2080.



Note: 2016: estimate, provosional. 2017–80: projections (EUROPOP2015).
Source: Eurostat (online data codes: demo_pjanind and proj_15ndbims)

Figure 7: Projected old-age dependency ratio, EU-28, 2016-80(%)Source: Eurostat (demopjanind) and (proj13ndbims)

Data sources and availability

Eurostat collects data from EU Member States and other countries participating in its demography data collection exercise in relation to populations as of 1 January each year. The recommended definition is the 'usual resident population' and represents the number of inhabitants of a given area on 1 January of the year in question (or, in some cases, on 31 December of the previous year). In accordance with the United Nations international recommendations, the definition of the 'usual residence' is based on a 12 month reference period, in other words, those included should have lived in their place of usual residence for a continuous period of at least 12 months before the reference date, or arrived in their place of usual residence during the 12 months before the reference date with the intention of staying there for at least one year. However, countries may report to Eurostat population figures based on data from their most recent census, adjusted by the components of population change that have been produced since the last census, or alternatively population figures that are based on the registered/legal population.

A population and housing census was conducted in all EU Member States, EFTA countries and EU candidate countries in 2011. It is usual practice for countries to revise their annual population estimates once the results of the population and housing census have become available. Population estimates based on the results of the census may introduce breaks in series for the size and structure of populations.

Eurostat provides information for a wide range of demographic data. Data on population includes breakdowns by several characteristics, such as age, sex, marital status and educational attainment.

Eurostat produces population projections at a national level every three years. These projections are what-if scenarios that aim to provide information about the likely future size and age structure of the population based on assumptions of future trends in fertility, life expectancy and migration ; the latest projection exercise was EUROPOP2015.

Context

Eurostat's population projections are used by the European Commission to analyse the likely impact of ageing populations on public spending. Increased social expenditure related to population ageing, in the form of pensions, healthcare and institutional or private (health)care, is likely to result in a higher burden for the working-age population.

A number of important policies, notably in social and economic fields, use demographic data for planning actions, monitoring and evaluation programmes — for example, population ageing and its likely effects on the sustainability of public finances and welfare provisions, or the economic and social impact of demographic change.

See also

- Fertility statistics
- Mortality and life expectancy statistics
- Population and population change statistics
- Population statistics at regional level

Further Eurostat information

Publications

- People in the EU: who are we and how do we live — 2015 edition
- Short analytical web note 3/2015 — Demography Report
- Demographic statistics: a review of definitions and methods of collection in 44 European countries
- Being young in Europe today — 2015 edition
- Towards a 'baby recession' in Europe? — Statistics in focus 13/2013
- The greying of baby boomers — Statistics in focus 23/2011
- Fewer, older and multicultural? Projections of the EU populations by foreign/national background
- Work session on demographic projections, Lisbon 28–30 April 2010 (jointly by Eurostat and UNECE)
- Work session on demographic projections, Bucharest 10–12 October 2007 (jointly by Eurostat and UNECE)

Main tables

- Population (tdemopop)
- Population projections (tproj)

Database

- Population (demopop)
- Population projections (proj) , see:

EUROPOP2015 - Population projections at national level (proj15n)

Dedicated section

- Population (Demography, Migration and Projections)

Methodology / Metadata

- Population projections (ESMS metadata file — projesms)
- Fertility (ESMS metadata file — demoferesms)
- Mortality (ESMS metadata file — demomoresms)
- Marriages and divorces (ESMS metadata file — demonupesms)
- Population (ESMS metadata file — demopopesms)

Source data for tables and figures (MS Excel)

- Population structure and ageing: tables and figures

Other information

- The 2012 Ageing Report: Underlying Assumptions and Projection Methodologies

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