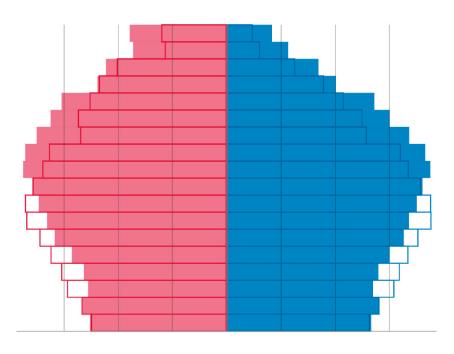


Demographic outlook for the European Union 2019



# **IN-DEPTH ANALYSIS**

EPRS | European Parliamentary Research Service

Lead author: David Eatock Members' Research Service PE 637.955 – May 2019 This is the second edition of this EPRS publication, intended to highlight and explain major demographic trends as they affect the European Union.

The paper has been compiled under the lead authorship of David Eatock. The other contributors were Vasileios Margaras, Ionel Zamfir and Anita Orav.

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## **Executive summary**

Demography matters. The economy, labour market, healthcare, pensions, the environment, intergenerational fairness and election results – they are all driven by demography. The European Union (EU) has seen its population grow substantially – by around a quarter since 1960 – and it currently stands at over 500 million people. However, the world population has grown faster, more than doubling over the same timeframe and reaching nearly 7.4 billion today. And whilst the EU population is now growing only slowly and is even expected to decline in the longer term, the world population continues to grow strongly. Indeed, it is projected to pass 10 billion in 2055. And despite its growth being expected to slow, the world population is nonetheless forecast to be over 11 billion people in 2100. So, the EU represents an ever-shrinking proportion of the world population, at just 6.9 % today (down from 13.5 % in 1960), and is projected to fall further to just 4.1 % by the end of this century.

In common with many other developed (and developing) parts of the world, the EU population is also ageing, as life expectancy increases and fertility rates drop compared to the past. At the EU level, both men and women have seen their average life expectancy increase by over 10 years between the early 1960s and today, although women continue to live longer than men on average. Meanwhile, the numbers of children being born has fallen from an EU-28 average of around 2.5 children per woman in 1960, to a little under 1.6 today. This is far below the 2.1 births per woman considered necessary in developed countries to maintain the population in the long term, in the absence of migration. Indeed, migration has become increasingly important for expanding or maintaining the EU population. In both 2015 and 2017, the natural population change (live births minus deaths) was slightly negative, and net inward migration was therefore key to the population growth seen in those years.

Combined, these trends result in a dramatically ageing EU-28, whose working population (aged 15 to 64) shrank for the first time in 2010 and is expected to decline every year to 2060. In contrast, the proportion of people aged 80 or over in the EU-28 population is expected to more than double by 2050, reaching 11.4 %. In 2006, there were four people of working age (15-64) for each person aged 65 or over; by 2050, this ratio is projected to be just two people. This outlook is essentially set in the shorter term, at least, meaning the focus is on smoothing the transition to an older population and adapting to its needs.

Whilst the starting point, speed and scale of ageing varies between the Member States depending on their different fertility rates, life expectancy and migration levels, all will see further ageing in the coming years. Free movement, as well as external migration, will also play a role, in both the population size and age profile of countries, and regions within them. The 'in-focus' section of this edition looks at pension systems and how they are being impacted by demographic change. It highlights that national reforms have largely successfully addressed issues around the sustainability of pension systems in the face of ageing populations. However, concerns remain about the adequacy of pensions for certain groups, including some women and older pensioners, and in particular the situation of future pensioners. For the latter, much will depend on the success of efforts to encourage and enable longer working lives, balancing longer life expectancy.

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#### Glossary and list of main acronyms used

**A demographic dividend** appears when, after a period of demographic growth, the fertility rate substantially declines and, as a result, there are fewer children than working-age adults. This, coupled with a small number of older people, leads to a low dependency rate, which can boost economic development.

**G20**, or the Group of Twenty, brings together the world's major advanced and emerging economies, comprising the EU and 19 countries-members.

**Life expectancy**: the mean additional number of years that a person of a certain age can expect to live if subjected throughout the rest of their life to the current mortality conditions (age-specific probabilities of dying, i.e. the death rates observed for the current period) (<u>Eurostat</u>).

**Migrants**: People arriving or returning from abroad to take up residence in a country for a certain period, having previously been resident elsewhere. The term **EU-citizen** is based on the notion of **citizenship** that is defined as the particular legal bond between an individual and her or his state, acquired by birth or naturalisation, either by declaration, choice, marriage or other means under national legislation. **Third country national** is defined as any person who is not a citizen of the EU, including stateless persons – see Article 2.1(i) of Council Regulation (EC) No 862/2007 (<u>Eurostat</u>).

**Natural replacement rate**: the average number of live births needed per woman to keep the population size constant in the long run, in the absence of migration. According to <u>Eurostat</u>, 'a <u>total fertility rate</u> of around 2.1 live births per woman is considered to be the replacement level in developed countries'.

Pension taxonomy: A typical three-pillar approach as outlined below:

'First pillar' (public) pensions: Public statutory pensions administered by the state and usually financed from social insurance contributions and/or general tax revenues on a pay-as-you-go (PAYG) basis. In central and eastern European Member States in particular, statutory mandatory funded individual plans, (pillar lb pensions), have been introduced alongside pillar I.

'Second pillar' (occupational) pensions: Private supplementary plans linked to an employment relationship. Contributions are made by employers and/or employees, often with state support via tax advantages. These plans may be mandatory or quasi-mandatory and commonly established via employment contracts or by social partners in sector- or profession based collective agreements. Normally pre-funded.

'Third pillar' (personal) pensions: Personal pensions, that is pre-funded private voluntary supplementary plans, in which contributions are invested in an individual account managed by a pension fund or financial institution. They may be tax-incentivised.

**The total age-dependency ratio** relates the number of individuals who are likely to be 'dependent' on the support of others – the young and the elderly – to the number of working age individuals who are capable of providing this support. It is the sum of the two ratios, the **young-age-dependency ratio** and the **old-age-dependency ratio**, which, respectively, compare i) the number of those aged 0-14 to the number of those aged 15-64, and ii) the number of those aged 65 and over to the number of those aged 15-64 (<u>Eurostat</u>).

**Total fertility rate**: the mean number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates that have been measured in a given year (<u>Eurostat</u>).

**UNDESA**: United Nations Department of Economic and Social Affairs.

Youth bulge: a large share of the population comprised of children and young adults (World Bank).

# 1. Introduction

The demographic structure of the European Union (EU) and its development are of huge consequence for the EU and its citizens in a host of areas, including: healthcare; pensions; the labour market; the economy; the environment; intergenerational fairness; election results; and the EU's very place in the world. So, demography and how it is changing matter – indeed, 'demography is destiny'.<sup>1</sup>

# 1.1. Historical population growth in EU-28 now levelling off

The population of the EU-28 has grown from 406.7 million in 1960 to 512.7 million in 2018. Yet, there were only 5.06 million live births in 2017 compared to the 7.60 million in 1961. With 4.14 million deaths in 1961, the natural population increase at that time was nearly 3.5 million people. In contrast, the 5.26 million deaths in 2017 meant there was a slight decline in the natural population for that year.<sup>2</sup> Eurostat's baseline projections suggest that the EU-28 population will grow more slowly than in the past, peaking at 528.6 million in 2050, before declining to 518.8 million by 2080.<sup>3</sup>

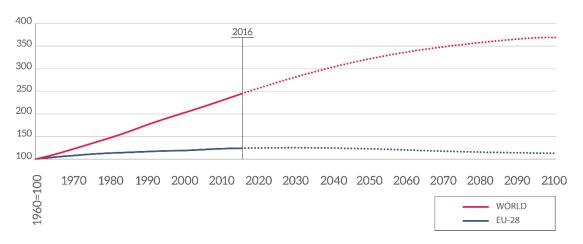


Figure 1 – EU-28 and world population (1960=100)

Source: EPRS based on UNDESA data.

Note: Projections (2016 onwards, shown with dotted line) use the UN 'medium fertility variant' scenario.<sup>4</sup>

At the same time, the world population has risen much more dramatically, from a little over 3 billion in 1960, to nearly 7.4 billion in 2015, and is projected to rise further still, passing 10 billion in 2055 to over 11 billion in 2100 (see Figure 1). Therefore, even when it was growing strongly, the EU-28 population comprised an ever-shrinking proportion of the world population, down from 13.5 % in

<sup>&</sup>lt;sup>1</sup> The quote is often attributed to the French philosopher <u>A. Comte</u> (1798-1857), although <u>some</u> suggest it was coined much more recently.

<sup>&</sup>lt;sup>2</sup> Figures from <u>Eurostat [demo\_gind]</u>. <u>Natural population change</u> is the difference between the number of live births and deaths during a given time period (usually one year), which can be either positive or negative.

<sup>&</sup>lt;sup>3</sup> Figures from Eurostat [proj 15npms].

<sup>&</sup>lt;sup>4</sup> The medium fertility variant scenario assumes that fertility in each country will converge towards replacement level (<u>Population Analysis for Policies & Programmes</u>). The results presented above for future years are based on the medium fertility variant projections of the UN' World Population Prospects: 2017 Revision, according to which global fertility is projected to fall from just over 2.5 births per woman in 2010-2015, to around 2.2 in 2045-2050 and 2.0 in 2095-2100 (for further information, see <u>World Population Prospects: 2017 Revision, UNDESA, 2017</u>).

1960 to 6.9 % in 2015 – and it is projected to be smaller still at just 4.9 % in 2055 and 4.1 % in  $2100^5$  (see Section 2.3 for more on the EU in the world).

## 1.2. Dramatic and continuing ageing of the EU population

Within the EU population, the age profile has undergone massive change and is expected to evolve still further. In short, Europe is ageing dramatically, driven by significant increases in life expectancy and lower birth rates:

- The median age in the EU-28 has risen from 38.3 years in 2001 to 42.8 in 2017:<sup>6</sup> a 4.5year increase in just 16 years.
- In 2004, there were, for the first time ever, as many elderly people (age 65+) as children (0-14) in the EU-28.<sup>7</sup>
- The EU-28 working population (defined as those aged 15 to 64) shrank for the first time in 2010 and is expected to decline every year to 2060.<sup>8</sup>

## 1.3. Focus on adapting to ageing demographics

Policies to alter future demographics are limited and take time to produce an impact. Examples include policies seeking to encourage people to have, or have more, children through better support for families, or encouraging young people from third countries with sought-after skills to migrate to the EU. The demographic outlook is essentially set, at least in the short to medium term; therefore, over this period the focus will be on smoothing the transition to an older EU and adapting to its needs.

# 2. Current situation

# 2.1. An ageing EU population

Figure 2 below shows the population pyramid for 2001 and 2017, giving the distribution of the population of women and men across various age groups. Such figures get their name from the classic shape they often take, with longer bars at the bottom (representing large numbers of people in the younger age groups), and shorter bars at the top (representing the older age groups, containing fewer people). However, in 2001 the shape of the EU-28 population was far from the classic pyramid. In 2017, it was further away still, with the top parts of the pyramid being broader, due in part to people living longer on average than previously<sup>9</sup> (see Section 2.2.1 on 'Increasing life expectancy'). The lower parts of the pyramid are also narrower due to people having fewer children than in the past, including total fertility rates falling below the natural replacement rate. However, the similar size of the bottom two age bands show this has stabilised in recent years (see Section 2.2.2 on 'Low fertility rates').

The UNDESA figures for the EU-28 are: 409.1 million (1960) 507.5 million (2015), 497.7 million (2055), and 462.0 million (2100).
Source Eurostat [demo\_pjanind].

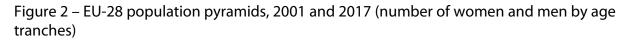
<sup>&</sup>lt;sup>7</sup> Eurostat, <u>Being young in Europe today – demographic trends</u>, March 2015.

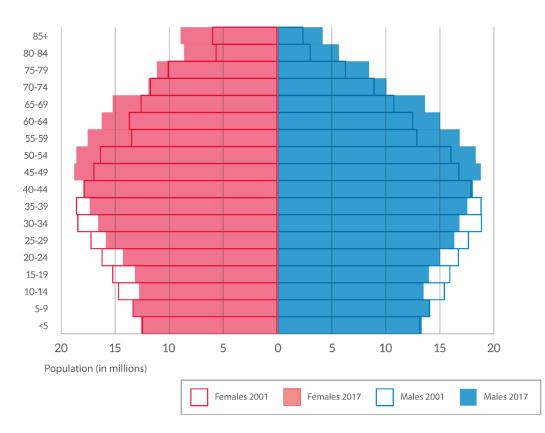
<sup>&</sup>lt;sup>8</sup> According to <u>Demography Report 2015</u>, p. 43, Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL), European Commission.

<sup>&</sup>lt;sup>9</sup> Note: the very top bar on the pyramid also represents the only open-ended age group, covering all those aged 85 and over, whereas all the other bars represent age groups covering fixed five-year spans.

The impact of higher past fertility rates is also clearly seen in the figure, in the bulge caused by the so-called 'baby-boomer' generation. The baby-boomer cohort stems from high fertility rates in a number of EU countries in the years following World War II. Subsequent declines in fertility rates meant fewer children joining the bottom of the pyramid after the baby-boomer cohort, hence the boomer cohort formed a population bulge that moved up the pyramid as they aged. As this outsized cohort have now reached, or are reaching, retirement age, they have expanded the numbers in the older age groups, skewing the age structure of the EU population towards an older Europe.<sup>10</sup>

Another notable feature of the older age groups is the prevalence of women in them, reflecting their greater longevity (on average) than men. Although this gender disparity in life expectancy has narrowed somewhat, it is currently expected to continue, with the EU-28 average life expectancy at birth in 2016 estimated at 83.6 years for women, but only 78.2 for men.<sup>11</sup>





Source: EPRS based on Eurostat data.

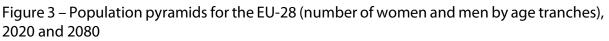
Looking at projections of the age structure in the EU for 2020 and 2080 (see Figure 3 below), we can see that the shape is expected to change further as the baby-boomer bulge leaves the picture. Together with longer lifespans enlarging the proportion of the population in the older age group, a more rectangular shape associated with a stagnating or slow growing population takes hold. The

<sup>&</sup>lt;sup>10</sup> Whilst there is no agreed definition of 'baby-boomer', it typically refers to those born in the final years of the Second World War, up until around the mid-1960s, a period which saw high birth rates in many EU and other western countries. More information: <u>The greying of the baby boomers</u>, Eurostat, 2011.

<sup>&</sup>lt;sup>11</sup> Eurostat <u>life expectancy by age and sex</u> [demo\_mlexpec].

open-ended nature of the oldest age group of 85 years and over (rather than the fixed five year spans of all the others) accounts for the fact this age group is the most numerous.





Source: EPRS based on Eurostat data.

An important measure of the age structure of a population is the total age-dependency ratio (see Glossary). In 2001, the total dependency ratio for the EU-28 was 48.9 %, meaning there were around two people of working age (15-64) for every younger or older person likely to be dependent on them (i.e. aged 0-14 or 65 and over). Breaking this down, the old-age dependency ratio (those 65 and over compared to those 15-64) was 23.5 %, so there were more than four people aged 15-64 for each person aged 65 or over. The young-age dependency ratio (those aged 0-14 compared to those 15-64) was 25.2 %, meaning there were four people of working age for each person aged 0-14.<sup>12</sup>

In 2017, the total dependency ratio for the EU-28 had increased to 53.9 %. Breaking this down, the old-age dependency ratio was now 29.9 %, meaning around seven working age (15-64) people for every two people aged 65 or over. The young-age dependency ratio was 24.0 %, meaning more than four people of working age for each person aged 0-14.<sup>13</sup> Not only was there a growing proportion of people likely to be dependent on the working age population overall, but this was therefore skewed towards those aged 65 plus, rather than towards children aged 0-14, who would at least in the future form part of the working age population potentially supporting others.

Projections suggest that the worsening of the total age-dependency ratio will accelerate dramatically, with the ratio reaching 63.5 % as soon as 2030. It will continue to increase rapidly,

<sup>&</sup>lt;sup>12</sup> Eurostat [demo\_pjanind]

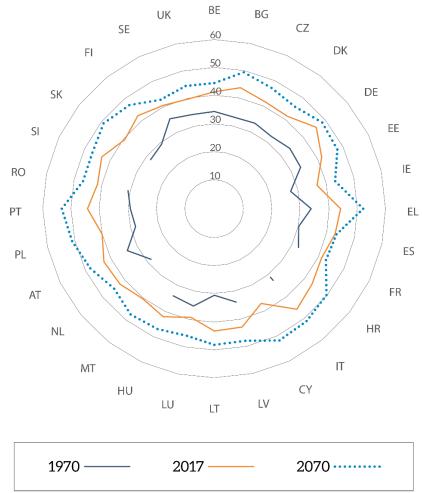
<sup>&</sup>lt;sup>13</sup> Eurostat [demo\_pjanind]

reaching 76.5 % in 2050 before increasing more slowly, nudging 80 % (projection 79.7 %) in 2080. At these levels, there would only be around five people of working age (15-64) for every four people older or younger than this age band. This shift has serious implications across a range of areas, including the economy, labour market, healthcare and pensions.

Once again, the main driver for changes in the total age-dependency ratio is the old-age dependency ratio, which is projected to reach 39.1 % in 2030 and 50.3 % in 2050. This means that by 2050, there will then be just two people of working age (15-64) for every person aged 65 or over, a dramatic shift from the situation in 2001, when there were over four working-age people for each person aged 65 or over. In contrast, the young-age dependency ratio is projected to increase relatively slowly, to 24.4 % in 2030, 26.2 % in 2050 and 27.4 % in 2080.<sup>14</sup>

These EU-28 level figures convey a clear message of population ageing, on aggregate; without exception, this also holds true for each of the 28 Member States, with differences existing in terms of degree and timing.

Figure 4 – Median age of the population (years) in each of the EU-28 Member States in 1970 and 2017, and projected median age in 2070



Source: EPRS based on Eurostat data [demo\_pjanind].

Notes: 1) The data for France in 1970 is for metropolitan France; 2) East and West Germany presented identical data in 1970; and 3) data for 1970 is not available for Cyprus, Malta, Croatia and Slovenia.

<sup>&</sup>lt;sup>14</sup> Eurostat [proj 15ndbims]

Figure 4 above shows the median age of the population in each of the EU-28 Member States in 1970 (where data is available) and in 2017, and the baseline projections for the median age in 2070. This shows the rather different starting points in 1970, ranging from Ireland with a median age of just 27.4 years, to the comparatively old – 35.5 years – median age in Sweden. By 2017, the median age of the population had increased in all Member States. Ireland's population remains the youngest in the EU-28, at 36.9 years, despite having aged substantially. However, Italy and Germany now have the highest median age at 45.9 years, having both seen a substantial increase in the median age of their populations (13.2 and 11.9 years respectively) since 1970. In contrast, Sweden, having seen an increase in the median age of just 5.3 years, now has the eighth-youngest median age in the EU-28, at 40.8 years. These variations in ageing between Member States will continue in the future. Eurostat projects that Italy will be the first to reach a median age of 50, in 2029,<sup>15</sup> followed closely by Greece and Portugal, in 2031. Indeed, in 2050 Portugal is projected to have the oldest median age in the EU-28 at 52.4 years, with Greece just behind at 52.3; the two countries will maintain this position in 2070. These past and (projected) future differences are the product of the varying starting points and evolutions of fertility rates, life expectancy and migration in the Member States (see Section 2.2 below).

# 2.2. Drivers of population change

Population change is driven by changes in how long people live (life expectancy), birth-rates (fertility rates) and the movement of people within and between regions and countries (free movement and migration). These factors are briefly discussed below, along with the regional dimensions of population change.

## 2.2.1. Increasing life expectancy

In recent decades, life expectancy has increased continuously in most developed countries, including in the EU, due to a number of reasons.<sup>16</sup> Whether this trend will continue concerns not only individual citizens, but also their governments, given the impacts across a range of public policy areas.

#### Life expectancy

Life expectancy at birth is the average number of years a new-born is expected to live, under the assumption that prevailing patterns of mortality stay the same throughout her or his life.

Any other age may be used to calculate the life expectancy from that point on, using current conditions. That age plus the remaining life expectancy then equals the total expected life span.

See Figures 5 and 6 below for the change in female and male life expectancy from 1960 onwards.

Eurostat data for the EU-28 is currently available from 2002 to 2017<sup>17</sup> for the commonly used 'life expectancy at birth' indicator. Figures show an initial slowing of the growth rate, <sup>18</sup> followed by a

<sup>&</sup>lt;sup>15</sup> <u>Eurostat [proj 15ndbims]</u>. More discussion on Member States' histories of ageing and future developments using various metrics (and noting the need to treat projections with caution) is available here: <u>The greying of the baby boomers</u>, G. Lanzieri, Eurostat, 2011.

<sup>&</sup>lt;sup>16</sup> These gains in life expectancy can be attributed to a number of factors, including improved education, socioeconomic conditions and lifestyle, as well as progress in health care. OECD/European Union, <u>Health at a Glance:</u> <u>Europe 2016</u>, 2016, p. 56.

<sup>&</sup>lt;sup>17</sup> Eurostat, Life expectancy by age and sex, [demo-mlexpec].

<sup>&</sup>lt;sup>18</sup> This is a trend seen to varying degrees in most EU countries as well as other developed countries such as Australia, Canada and the USA. See, for instance, <u>Changing trends in mortality: an international comparison: 2000 to 2016</u>, Office for National Statistics, UK, 2018.

slight fall in life expectancy in 2015. While this decline is small – less than the change from 2013 to 2014 for the EU-28 – it has stoked debate about slowing gains in life expectancy and their future direction and rate and the possible causes for these changing trends. However, 2016 data once again showed growing life expectancy, which reached a level more than making up for the previous year's fall. Some are suggesting the decline seen in the 2015 data may have been partly driven by a virulent flu season, among a number of other factors.<sup>19</sup> The debate continues, informed by ongoing research and new data. The very latest figures from 2017 once again show a fall in life expectancy, albeit only small (from 81.0 years to 80.9 years – EU-28 average. The EU-27 average remained flat at 81.0 years). In the meantime, it is yet to be determined whether life expectancy will revert to former trends of regularly increasing (indefinitely, or at least to a certain age, at present only reached by few people) or whether slower and more patchy increases, or even regular reversals, can be expected in future.

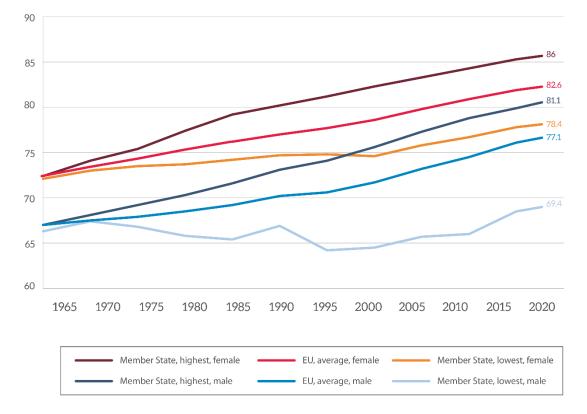


Figure 5 – Average female and male life expectancy at birth

Source: EPRS based on UNDESA data (from 2015 onwards: the 'medium fertility variant' scenario).

Taking a look further back, with data from UNDESA's World Population Prospects 2017,<sup>20</sup> life expectancy has risen rather dramatically (see Figure 5 above). On average for the EU-28, women's life expectancy at birth increased from 72.4 years (1960-1965 period) to 82.6 years (2015-2020 period) – an increase of 10.2 years. The equivalent figures for men are 67.0 years and 77.1 years – an increase of 10.1 years.

<sup>&</sup>lt;sup>19</sup> See, for instance, V. Raleigh <u>Is the problem of excessive winter deaths unique to the UK?</u> The King's Fund, 2018, and OECD/European Commission, <u>Health at a Glance: Europe 2018</u>, p. 82.

<sup>&</sup>lt;sup>20</sup> The 2017 Revision of <u>World Population Prospects</u> is the 25th round of official United Nations population estimates and projections that have been prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.

As briefly mentioned in Section 2.1 above, women have a greater life expectancy than men. This gap is a worldwide phenomenon,<sup>21</sup> indicating that gender specific characteristics, biological as well as behavioural, social and life circumstances, have an influence. Life expectancy also varies significantly between EU Member States today. Women born in the 1960-1965 period started out with approximately 72 years of life expectancy in all EU Member States. However, for the 2015-2020 period there is up to 7.6 years difference between Member States' life expectancy averages for women. Figure 5 shows a similar if even more distinct scenario for men, with a difference of 11.7 years for 2015-2020.

There is also a growing focus on life expectancy for later age brackets. A reason for this is the increase<sup>22</sup> in the proportion and absolute number of older people in the population and the impact of this increase on society and economies. People aged 60 or over made up 25.6 % of the population of the EU-28 on 1 January 2017.<sup>23</sup>

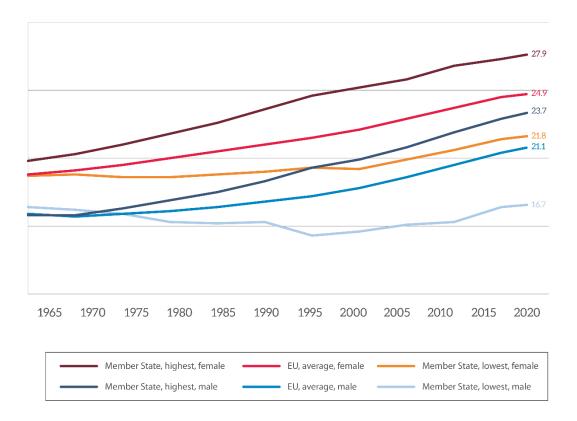


Figure 6 – Average female and male life expectancy at age 60 (years)

Source: EPRS based on UNDESA data (from 2015 onwards: the 'medium fertility variant' scenario).

As seen in Figure 6 above, life expectancy at age 60 years has also risen rather dramatically. On average for the EU-28, women's life expectancy at age 60 increased from 18.8 years (1960-1965 period) to 24.9 years (2015-2020 period) – an increase of 6.1 years. The equivalent figures for men are 15.9 years and 21.1 years – an increase of 5.2 years.

<sup>&</sup>lt;sup>21</sup> 'Gender, aging and longevity in humans: an update of an intriguing/neglected scenario paving the way to a genderspecific medicine', R. Ostan et al., *Clinical Science*, 130(19), 2016, pp. 1711-1725.

<sup>&</sup>lt;sup>22</sup> United Nations, 2017 <u>World Population Ageing Report</u>.

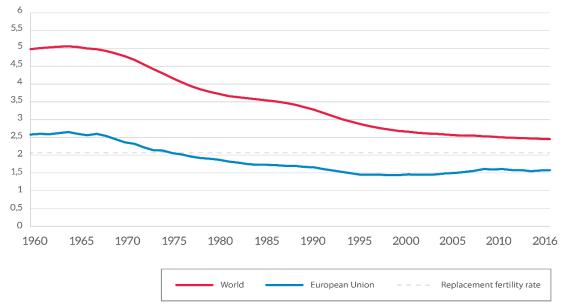
<sup>&</sup>lt;sup>23</sup> Eurostat, <u>Population structure and ageing</u>, [demo\_pjanind].

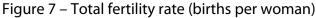
Once again, life expectancy also varies significantly between EU Member States today, with the 2015-2020 period showing a 6.1-year difference between the highest and lowest Member State averages of life expectancy for women. It is a similar scenario for men, with a difference of seven years for the same 2015-2020 period.

It is possible to tie variations in life expectancy to education,<sup>24</sup> income and occupation.<sup>25</sup> For example, life expectancy by educational attainment is one of the European Core Health Indicators (ECHI). Causes for change in life expectancy at an older age can be considered broadly in six categories<sup>26</sup> of diseases. Among other factors, developments in medicine and healthcare have an impact on the prevalence of these health issues.

#### 2.2.2. Low fertility rates

Fertility rates have declined in the EU-28 since the mid-1960s (see Figure 7 below). The EU-28 as a whole had a total fertility rate above 2.1 live births per woman until the mid-1970s, falling below this level in 1975. Rates continued to decline further, bottoming out at 1.44 in 1998 and 1999, until the mid-2000s saw a modest recovery, reaching 1.50 in 2005 before climbing to 1.61 in 2010. Subsequently, total fertility rates for the EU-28 have fallen back slightly, dipping to 1.55 in 2013; they currently stand at 1.57 (in 2016). Total fertility rates in the world as a whole have also been on a generally declining trend, albeit from a much higher starting point of around 5 live births per woman in 1960. They fell below four in 1977 and to under three by 1993, and currently (2016) stand at 2.44. See Section 2.3 below for more on the EU situation in comparison to other parts of the world.





Source: EPRS based on Word Bank World Development Indicators data.<sup>27</sup>

<sup>&</sup>lt;sup>24</sup> W. C. Sanderson, S. Scherbov,' <u>A New Perspective on Patterns of Aging in Europe by Education and Gender</u>', *Journal of Population Ageing*, Vol. 9, Issue 3, September 2016, pp. 207-225.

<sup>&</sup>lt;sup>25</sup> Evidence shows that higher socio-economic groups live longer than lower socio-economic groups, <u>OECD Business</u> and Finance Outlook 2016, 2016, p. 177.

<sup>&</sup>lt;sup>26</sup> Communicable diseases and nutritional deficiencies, cancers, cardiovascular diseases and diabetes mellitus, chronic respiratory diseases, other non-communicable diseases, and injuries. C.D. Mather et al., '<u>Causes of international increases in older age life expectancy</u>', *The Lancet*, Vol. 385, 2015, pp. 540-548.

<sup>&</sup>lt;sup>27</sup> 1) United Nations Population Division: World Population Prospects Report; 2) census reports and other statistical publications from national statistical offices; 3) Eurostat: demographic statistics; 4) United Nations Statistical Division:

In terms of number of live births, during the 1961–2017 period, the highest annual total in the EU-28 was recorded in 1964, at 7.8 million. By contrast, in 2017 there were under 5.1 million live births – less than two thirds of the 1964 peak – despite the EU-28 population having grown in the meantime by around one quarter, to 512.7 million people.<sup>28</sup> With almost 5.3 million deaths in the EU-28 in 2017, this meant a reduction in the natural population of the EU-28 that year for only the second time since the data series began in 1961.<sup>29</sup> However, whilst the gap between births and deaths has been substantial in the past, reaching nearly 3.6 million in 1964, it has long been narrowing, halving to under 1.8 million in 1976 and nearly halving again by 1990 at just over 900 000. It then narrowed considerably by the mid-1990s to under 200 000. Since then, the gap has remained narrow, barring a period in the mid to late-2000s, where increasing live births, peaking in 2008, widened the gap somewhat before falling back. The last three years of data (2015 to 2017) have seen a tiny increase in the natural population in 2016 and reductions in the other two years.

With falling numbers of children being born in the EU-28, the relative importance of migration in increasing or maintaining the size of the EU-28 population has grown (see Section 2.2.4 on 'International migration'). Migration can also have second order effects, at least for a period, by raising the total fertility rate, where, for a variety of reasons, migrants may display fertility rates higher than the native population.<sup>30</sup> Numbers of new-borns may also be boosted by the migrant population being disproportionately of child-bearing age compared to the native population as a whole, thereby adding to the stock of potential parents.

Lower fertility rates compared to past periods not only mean slower (or no) population growth, but they also affect the age profile of the EU-28 (see Section 2.1 above). Together with increasing life expectancy (see Section 2.2.1 above) these past falls in fertility rates drive the dramatic ageing of the EU population.

Looking below the EU-28 level (see Map 1 below), we see considerable variation in fertility rates. France (at 1.92) had the highest total fertility rate in 2016, whilst Italy and Spain had the lowest (at 1.34). Other Member States with relatively high fertility rates included Sweden (1.85), Ireland (1.81), and Denmark and the United Kingdom (both 1.79). At the other end of the scale, with Italy and Spain, were Portugal (1.36), Malta and Cyprus (both 1.37), Greece (1.38) and Poland (1.39). Fertility rates are falling worldwide and are associated with growing economic and social development. However, research suggests that once a certain level of development is achieved, fertility rates may stabilise or recover to some extent. Some argue that the idea that fertility rates, having declined alongside economic and social development, remain broadly stable or recover only slightly, does not take proper account of evolutionary biology, with heritable fertility. This posits that fertility tends to increase, as children from larger families represent a larger share of the population and partly share their parents' trait of having more offspring.<sup>31</sup>In terms of policy actions, however, the interactions between policies to support families and diverging fertility rates do not suggest clear solutions for

Population and Vital Statistics Report (various years), (5) US Census Bureau: international database; and 6) Secretariat of the Pacific Community: Statistics and Demography Programme.

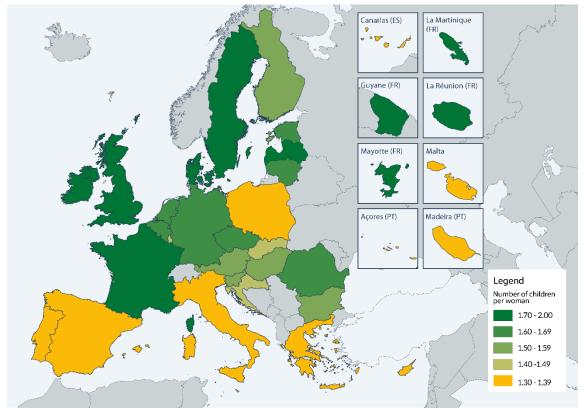
<sup>&</sup>lt;sup>28</sup> All figures from Eurostat [demo\_gind], population total (estimated, provisional) as at 1 January 2018.

<sup>&</sup>lt;sup>29</sup> The other year seeing a reduction in the natural population was 2015. Revised 2016 data now shows that year as having had a very small increase in the natural population of under 20 000 people.

<sup>&</sup>lt;sup>30</sup> For instance, page 45 of the <u>Eurostat regional yearbook 2017 edition</u> notes that '...several of these regions [those with the highest fertility rates] were characterised by relatively high levels of migrants'.

<sup>&</sup>lt;sup>31</sup> J. Collins, L. Page, '<u>The heritability of fertility makes world population stabilization unlikely in the foreseeable future</u>', *Evolution and Human Behaviour*, Vol. 40, Issue 1, 2019, pp. 105-111.

raising fertility levels, although a common characteristic among countries with stable or even increasing birth rates is a high degree of female labour force participation.<sup>32</sup>



Map 1 – Total fertility rates in the EU-28, 2016

Data source: Eurostat.

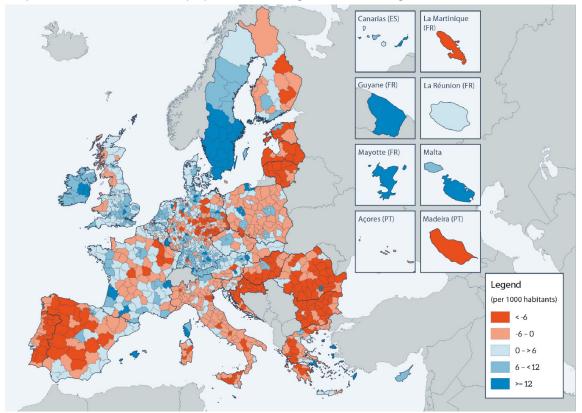
## 2.2.3. Demographic implications at the EU regional and local levels

Demographic trends affect EU regions in a variety of ways, and hence there is no 'one size fits all' description of demographic developments. Nevertheless, a few basic demographic generalisations can be made.

Population decline can be observed across parts of eastern/southern Europe – the Baltic states, Bulgaria, Romania, the eastern part of Germany, Portugal, Greece, Spain, Italy, Croatia and the central regions of France. However, recent immigration trends stemming from non-EU countries have altered the demographic balance in various EU regions. Map 2 below presents the crude rate of total population change in 2016. The blue-coloured areas show the EU NUTS level 3 regions<sup>33</sup> where the population grew, whereas the red areas show those where populations declined.

<sup>&</sup>lt;sup>32</sup> '<u>Mission not Accomplished</u>', Population Europe, 2011; '<u>Policies for families: is there a best practice?</u>' Population Europe, 2016.

<sup>&</sup>lt;sup>33</sup> <u>NUTS</u> is the Nomenclature of Territorial Units for Statistics, a geographical nomenclature subdividing the economic territory of the EU into regions at three different levels (NUTS 1, 2 and 3 respectively, moving from larger to smaller territorial units).



Map 2 – Crude rate of total population change in NUTS 3 regions, 2016

Data source: Based on Eurostat Regional Yearbook, 2018, p. 39.

Important demographic contrasts can be observed between the core and periphery, both at EU and Member State level. In the EU, considerable population growth has been recorded in Ireland, the United Kingdom, Belgium, the Netherlands and Austria, and in metropolitan centres such as Paris and London. Parts of Germany also seem to benefit from population growth, as do Austria, parts of the Czech Republic and Scandinavia.

Overall, trends show that there is a population increase in certain urban areas (especially capital cities) and coastal areas. Conversely, peripheral, rural, mountainous and sparsely populated areas are affected by depopulation, as are towns and cities in economically backward EU regions, as well as post-industrial urban and mountain areas.<sup>34</sup>

Regions that lose population tend to be rural, already sparsely populated and remote. Declining industrial areas and various peripheral towns are also affected by depopulation trends. However, rural regions that are close to dynamic urban centres or to areas within commuting distance, or that enjoy good transport connections with them, can experience good population development. Regions with high unemployment often have declining and ageing populations. Highly skilled professionals are often attracted to regions of considerable economic growth. Therefore, people tend to move to wherever there are jobs, career opportunities and favourable economic prospects. For instance, within Europe, movements of young educated professionals from southern Europe to north-western Europe have been recorded since the beginning of the economic crisis.

<sup>&</sup>lt;sup>34</sup> How can regional and cohesion policies tackle demographic challenges?, Directorate-General for Internal Policies, European Parliament, 2013.

The appeal of a particular region matters when it comes to keeping and attracting population. This relates not only to job prospects and growth, but also to wider quality-of-life factors. For instance, various parts of the Mediterranean, such as certain coastal towns, have been successful in increasing their share of the population, although they did not initially constitute poles of economic growth.

In recent years, more than three quarters of the total population increase in the EU has resulted from net inward migration.<sup>35</sup> A 2018 European Court of Auditors report on the free movement of workers in the EU<sup>36</sup> indicates that in 2015, within a total EU working-age population of 306 million, 3.7 % (around 11 million people) were living on a long-term basis in an EU Member State other than their country of citizenship. Germany was the top destination country followed by the UK, while Luxembourg, Cyprus and Ireland had the highest share of mobile workers within their working-age population. In addition, according to Eurostat, about 3.1 million first-residence permits were issued to non-EU citizens in the EU in 2017. One out of five first-residence permits was issued in Poland (or 22 % of total permits issued in the EU, mainly due to migration from Ukraine), followed by Germany (17 %), the UK (16 %), France (8 %), Spain (7 %), Italy (6 %) and Sweden (4 %).<sup>37</sup>

Germany reported the largest total number of immigrants (1 029 900) in 2016, followed by the UK (589 000), Spain (414 700), France (378 100) and Italy (300 800). Germany also reported the highest number of emigrants in 2016 (533 800), followed by the UK (340 400), Spain (327 300), France (309 800), Poland (236 400) and Romania (207 600). A total of 21 of the EU Member States reported more immigration than emigration in 2016, but in Bulgaria, Croatia, Latvia, Lithuania, Poland, Portugal and Romania, the number of emigrants outnumbered the number of immigrants.<sup>38</sup>

Eurostat data provide an interesting regional account of longevity. Life expectancy in the EU ranged from a high of 85.2 years in the Spanish capital-city region, down to 73.3 years in the Bulgarian North-Western (Severozapaden) region – a difference of 11.9 years. This reinforces the link between life expectancy and income and living conditions, insofar as the Bulgarian North-Western region also recorded the lowest level of economic activity in the EU. When it comes to the top regions in terms of life expectancy, aside from nine regions in Spain and Italy, the two remaining ones were both capital-city regions, namely, Île de France (84.2 years) and Inner London – West (84.1 years). The relatively high level of life expectancy in the capital-city regions of Spain, France and the Inner London – West area may be attributed, among other reasons, to the close proximity and wide range of healthcare services that are available, alongside relatively high levels of income and living conditions. On the other hand, the majority of the regions with relatively low levels of life expectancy were predominantly located in the easternmost parts of the EU.<sup>39</sup>

In certain EU areas (situated along borders and being predominantly of a rural character) the oldage dependency ratio (see Glossary) was higher than 50.0 % on 1 January 2017. In other words, there were fewer than two people of working-age for every elderly person.<sup>40</sup> If such trends continue to affect more EU regions, they too may see adverse impacts such as declining business activity, reduced local/regional tax collection and reduced economic growth.

<sup>&</sup>lt;sup>35</sup> Op. cit., p. 21.

<sup>&</sup>lt;sup>36</sup> Free Movement of Workers – the fundamental freedom ensured but better targeting of EU funds would aid worker mobility, special report No. 06, European Court of Auditors, 2018.

<sup>&</sup>lt;sup>37</sup> See Eurostat <u>news release</u>, October 2018.

<sup>&</sup>lt;sup>38</sup> Eurostat, <u>Migration and migrant population statistics 2016</u>.

<sup>&</sup>lt;sup>39</sup> Eurostat Regional Yearbook 2018, p. 29.

<sup>&</sup>lt;sup>40</sup> <u>Op.cit.</u>, p. 36.

Population trends may cause a number of issues. For instance, overconcentration of population in certain urban areas has already led to undesirable side-effects: congestion, rising housing/transport prices, pollution, deterioration of the quality of life, urban sprawl, or exclusion of less well-off people and families from the city centres. On the other hand, certain EU areas that suffer from depopulation may encounter problems such as a stagnating economy, lack of professional opportunities and increasing poverty. In addition, certain of these areas may face issues of inadequate health coverage, as public health provisions tend to decline and private health service practitioners find operations in these areas unprofitable.<sup>41</sup> Ageing population trends may also lead to new needs such as provision of specific health and long-term care services, specially outfitted homes for the elderly, digitalised services, etc.<sup>42</sup>

Other less predictable factors, such as natural disasters and climate change, may also have a considerable impact on the population of EU regions.<sup>43</sup>

## 2.2.4. International migration

Migration to Europe from third countries has been substantial over the past few decades, and plays a significant role in shaping the demographics of both the EU and the individual Member States. Historically, the main pull factors to Europe are considered to be the relative economic prosperity and political stability of the EU. Between 1960 and 2018, the population of the EU increased by 106 million people, growing from 407 million to 513 million. According to research estimates, the net population growth resulting from international migration to the EU-27 (excluding Croatia) from 1960 to 2009 was nearly 26 million people, of whom 57 % arrived post-2000.<sup>44</sup> The scale of global migration is still on the rise, as evidenced by an International Labour Organization (ILO) report from December 2018,<sup>45</sup> which revealed an approximately 11 % increase in the global number of migrant workers between 2013 and 2017, from 150 million to 164 million. Considering the ageing European population and the assumption that fertility rates in Member States remain relatively low, the growth or decline in EU population numbers is expected to heavily depend on net migration from third countries. The effects are perceptible even now, as in 2017 the overall positive population growth for the EU as a whole was due to net positive migration, given that the natural population change (more deaths than births registered) was negative. This was the case, for example, in Germany, Estonia, Spain, Poland, Slovenia and Finland, which all recorded a population increase in 2017, despite their negative natural population change.<sup>46</sup>

In addition to legal migration, i.e. people arriving in Europe to work, pursue studies or join family members, the EU faced an unprecedented surge of irregular migration in 2015, with 1.8 million detections of illegal entries.<sup>47</sup> The inflow started to gradually subside in 2016 as a result of combined measures to secure the external border of the EU and to increase cooperation with third countries along the main migratory routes, such as Turkey and some African countries. According to Frontex, the number of illegal border crossings in 2018 was at the lowest level since 2013.

<sup>&</sup>lt;sup>41</sup> See, V. Margaras, <u>Sparsely populated and underpopulated areas</u>, EPRS, European Parliament, 2016.

<sup>&</sup>lt;sup>42</sup> See, D. Eatock, <u>The Silver Economy: Opportunities from Ageing</u>, EPRS, European Parliament, 2015.

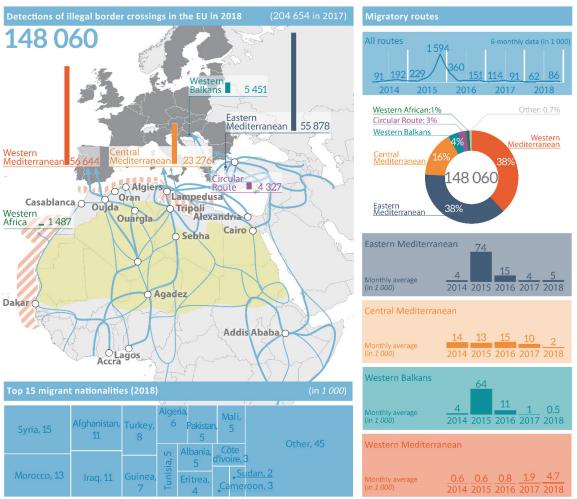
 <sup>&</sup>lt;sup>43</sup> 'Increasing risk over time of weather-related hazards to the European population: a data-driven prognostic study',
G. Forzieri, A. Cescatti, F. Batista e Silva, L. Feyen, *The Lancet*, Vol. 1, No 5, pp. 200-208, August 2017.

<sup>&</sup>lt;sup>44</sup> '<u>Diverse, Fragile and Fragmented: The New Map of European Migration</u>', R. King, M. Okólski, Central and Eastern European Migration Review, pp. 1-24, September 2018.

<sup>&</sup>lt;sup>45</sup> <u>ILO Global Estimates on International Migrant Workers – Results and Methodology</u>, ILO, 5 December 2018.

<sup>&</sup>lt;sup>46</sup> <u>Population and population change statistics</u>, Eurostat overview, November 2018.

<sup>&</sup>lt;sup>47</sup> <u>Risk Analysis for 2016</u>, Frontex, 2016.

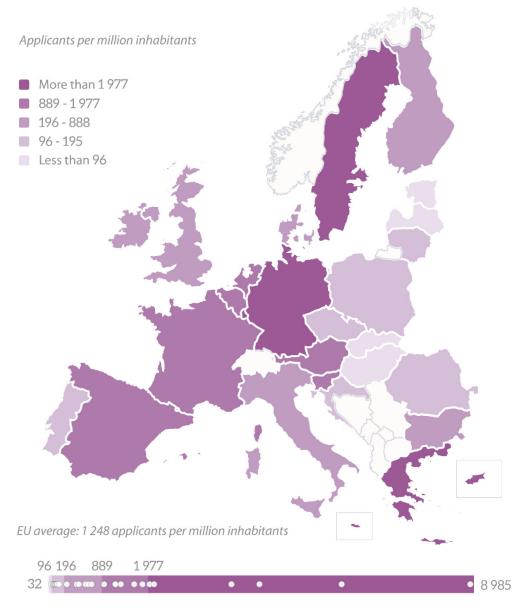


Map 3 – Detection of illegal border crossings in the EU, top migrant nationalities and main migratory routes in 2018

Data source: Frontex.

The large number of third-country nationals that entered the EU irregularly in recent years included a significant proportion of asylum-seekers. Eurostat data indicates that from January 2014 to October 2018, almost 4.4 million asylum applications were recorded in the EU-28. However, asylum pressure is uneven across the EU, with a handful of countries receiving the bulk of the applications (Germany, France, Greece, Spain, the UK and Italy accounted for 80 % of all first-time applicants in the EU-28 in 2018).<sup>48</sup>

<sup>&</sup>lt;sup>48</sup> <u>Asylum quarterly report</u>, Eurostat, 14 December 2018.



#### Map 4 - Asylum applicants per million inhabitants, 2018

#### Data source: Eurostat.

This means that these countries also have to make greater efforts to ensure the <u>integration</u> of refugees into their societies, including their labour markets. While integration can prove challenging, it can also be seen as an opportunity for the EU.<sup>49</sup> From an economic point of view, migration flows have been observed to contribute to the labour market of their host society by:

- Filling gaps in low and high-skilled occupations;
- > addressing labour market imbalances;
- > contributing more in taxes or benefits than what they receive;
- spurring innovation and thereby economic growth.<sup>50</sup>

This potential is all the more important in the context of an ageing society, and can contribute to inter-generational fairness. The European labour force (aged 20-64) is expected to decline by 8.2 %

<sup>&</sup>lt;sup>49</sup> <u>Migration and the EU. Challenges, opportunities, the role of EIB</u>, European Investment Bank, March 2016.

<sup>&</sup>lt;sup>50</sup> <u>Third-country migration and European labour markets. Integrating foreigners</u>, EPRS, European Parliament, 2015.

(around 19 million people) between 2023 and 2060. This shrinking working-age population will have to provide the financial support needed for securing the pensions and health care services for the rapidly growing number of retired people. Moreover, a predominantly older workforce might translate into a deficit of new skills required for innovation alongside serious labour shortages and great difficulties in sustaining the European welfare states.<sup>51</sup> While the share of third-country nationals legally residing in EU Member States is not high (21.6 million or 4.2 % of the EU-28 population in 2017<sup>52</sup>), they tend to be younger and more mobile than EU nationals. A recent joint publication by the OECD and the European Commission reports that around 80 % of foreign-born residents in the EU are of working age (15-64-year-olds), as compared to two-thirds of the nativeborn.<sup>53</sup> As regards applicants for international protection, in 2017 more than four in five applicants were under 35 years-old, with nearly one third of all first-time applicants being under 18 years of age.<sup>54</sup> Also taking into account the main countries of origin of the recent migrant surge, the scenario of an ageing Europe and a youth bulge in the Middle East and North Africa seems to have a potential for beneficial cooperation across the Mediterranean. If these people are successfully included in European host societies and labour markets, migration can be an important tool to enhance the sustainability of EU countries' welfare systems and to ensure the sustainable growth of the EU economy.

However, current employment rates of migrants leave room for improvement. A comparison between non-EU nationals and EU nationals over the past eight years reveals that the former have systematically recorded lower activity rates than the latter. The above-mentioned OECD and Commission study indicates that in 2017, the majority (55 %) of working-age third-country nationals legally resident in the EU were in employment, as compared to 68 % of EU nationals. The wide employment gap between native-born and non-EU migrants is especially pronounced in most Nordic countries and in longstanding immigration destinations in the EU. At the same time, migrants are more likely to work on temporary contracts and, when unemployed, are less likely to receive unemployment benefits. Research also consistently shows that migrant women face a double barrier to employment, both as migrants and as women.<sup>55</sup> The gap increases even more in the case of refugees, whose employment rates are even lower than those of labour migrants and, in some Member States, of migrants' family members.<sup>56</sup>

Another aspect to consider is whether migrants have the skills and qualifications required by the future EU labour market. As confirmed by the afore-mentioned OECD and Commission study, in all European countries except the UK, Ireland and Hungary, non-EU born migrants are more likely to have low-skilled occupations than EU-born citizens. In fact, more than one in every four low-skilled jobs in the EU is held by a migrant, with this proportion exceeding 40 % in countries likes Austria, Germany, and Sweden, and reaching even 60 % in Luxembourg. The European economy is expected to generate employment for skilled workers and see a decline in low-skilled categories of employment. Automation, artificial intelligence and digitalisation are areas where Europe has a significant underexploited opportunity. According to research estimates, in 2017 Europe had

<sup>&</sup>lt;sup>51</sup> See <u>The 2015 Ageing Report</u>, European Commission, 2015; '<u>Building a People's Europe</u>', European University Institute, May 2017.

<sup>&</sup>lt;sup>52</sup> <u>Population on 1 January by age and sex</u>, Eurostat database.

<sup>&</sup>lt;sup>53</sup> <u>Settling in 2018: Indicators of Immigrant Integration</u>, European Commission and the OECD, December 2018.

<sup>&</sup>lt;sup>54</sup> Asylum statistics, Eurostat, 2018.

<sup>&</sup>lt;sup>55</sup> Integration of migrant women, European Commission, November 2018.

<sup>&</sup>lt;sup>56</sup> The 12 European countries examined are Austria, Belgium, Finland, France, Germany, Italy, Norway, Portugal, Spain, Sweden, Switzerland and the UK, see <u>Migrant integration – 2017 edition</u>, Eurostat, October 2017.

captured just 12 % of its potential held by digital technologies.<sup>57</sup> If the potential remains untapped, migrants may not necessarily have the skills profile that the knowledge economy will need. Such factors, combined with the sheer scale of the ageing challenge the EU faces, suggest that increasing immigration *per se* cannot fully compensate for the effects of ageing societies.<sup>58</sup>

# 2.3. EU in the world

As noted in the introduction, while the EU faces demographic decline and ageing, the world's population continues to grow (see Section 1.1 and Figure 1). How does the EU stand demographically, in relation to its main economic competitors – the non-EU G20 countries (see Glossary)? What can the EU learn from other ageing societies? What will the global demographic growth impact be upon the EU?

## 2.3.1. Demographic evolution in the G20

The non-EU G20 countries provide an interesting reference point for comparison with the EU. An informal forum for international cooperation composed of 19 major economies, including the four biggest EU ones – Germany, the UK, France, and Italy – plus the EU itself, the G20 currently produces around 85 % of the world's GDP and is home to two thirds of the world's population. According to the UN Population Division's medium-variant estimates in its most recent report,<sup>59</sup> the EU's population will decline this century, in contrast to the majority of the non-EU G20 countries, whose population will grow (see Figure 9). When taking Brexit into account, this trend is even more pronounced.

Comparing the EU with other G20 'advanced economies'<sup>60</sup>, its population is shrinking, albeit at a slower pace than Japan's and South Korea's, for instance.<sup>61</sup> Among the non-EU G20 advanced economies (Australia, Canada, Japan, South Korea and the US), Japan, the most intensely ageing country in the world, is expected to experience the strongest population decline by the end of the century, and is already witnessing a shrinking of its working-age population. Therefore, it is worth exploring how the country responds to the challenges posed by this trend. For instance, it is introducing automation and robotics in a number of sectors and is selectively keeping older members of the workforce in employment for longer, to compensate for a shrinking work force. The Japanese are also enjoying the benefits of a shrinking population, such as greater housing availability. However, the challenges ageing brings are undeniable, and for the first time in history the country is considering opening up to migration, particularly in the health sector.

<sup>&</sup>lt;sup>57</sup> <u>10 imperatives for Europe in the age of AI and automation</u>, report, McKinsey Global Institute, October 2017.

<sup>&</sup>lt;sup>58</sup> See E. Noonan, <u>Migration and the EU: A long-term perspective</u>, EPRS, European Parliament, May 2016; '<u>Building a People's Europe</u>', European University Institute, May 2017.

<sup>&</sup>lt;sup>59</sup> The demographic data in this section are based on the <u>2017 Revision of World Population Prospects</u>, UN Population Division, June 2017.

<sup>&</sup>lt;sup>60</sup> The term 'advanced economies' was coined by the <u>IMF</u>.

<sup>&</sup>lt;sup>61</sup> Nevertheless, note that demographic forecasts for the three G20 countries expected to record the highest relative demographic growth – the US, Canada and Australia – are based on the assumption that growth will be driven mainly by migration. This cannot be taken for granted in the current political context.

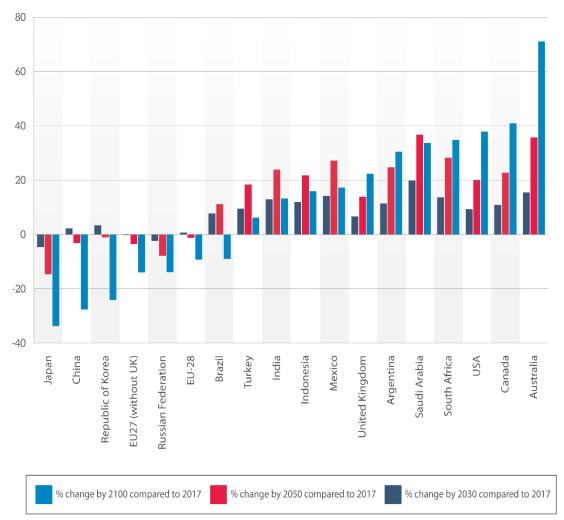


Figure 8 – EU and other G20 countries, demographic forecasts for the 21st century

Data source: <u>World Population Prospects: The 2017 Revision</u>, UN Population Division.

Looking at the emerging non-EU G20 countries, they are generally expected to see their populations grow further, with the notable exceptions of China and possibly Brazil. China stands in strong contrast to India, the other demographic giant in the group, and demographic trends do not bode well for China's economy.<sup>62</sup> China's working-age population is expected to start contracting by 2020. The recent abolition of the one-child policy failed to increase births to the level expected by the government. The UN predicts that India's population will outgrow China's in 2024, and will continue to grow for some time, albeit slowly. Nevertheless, it is a matter of debate whether India will be able to exploit its 'demographic dividend' as a driver of economic transformation. A skilled workforce is believed to be an essential prerequisite, and India has the largest illiterate population in the world.

## 2.3.2. Developing countries: between ageing populations and youth bulges

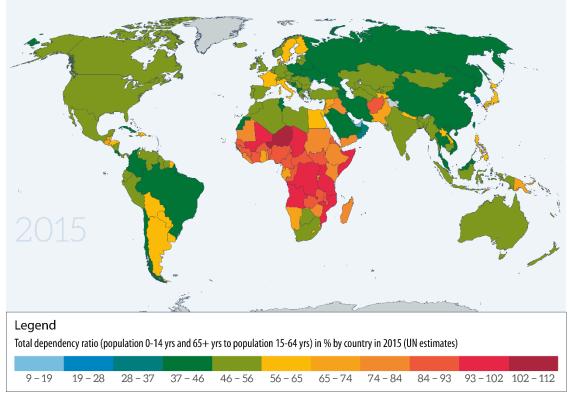
Many of the developing countries, particularly in Latin America and South-East Asia, will see their population get older and more or less stagnate or shrink, and this could happen before these countries become wealthy.<sup>63</sup> In the global picture, however, one entire continent – Africa – stands

<sup>&</sup>lt;sup>62</sup> According to US economist N. Eberstadt, quoted in <u>Why Demographic Trends Spell Trouble for China and Russia, –</u> <u>and Prosperity for US</u>, November 2015.

<sup>&</sup>lt;sup>63</sup> See, for example, <u>Emerging Asia risks growing old before becoming rich</u>, Y. N. Lee, CNBC, April 2017.

apart. Sub-Saharan Africa in particular will be the demographic engine of the world in the 21st century. Its population is projected to more than double, from 1.02 billion in 2017 to 2.17 billion by 2050, and then to almost double again by the end of the century. One in four working-age persons in the world could be African by 2050 – a chance for Africa to reap the demographic dividend for developing its economy. However, the right conditions have to be in place: a well-educated and highly-skilled young workforce, on the one hand, and a sufficient supply of jobs (which is becoming more difficult to accomplish in the current age of declining manufacturing and increasing automation), on the other. Unemployed and marginalised young people may contribute to continued political instability, including terrorism.<sup>64</sup>

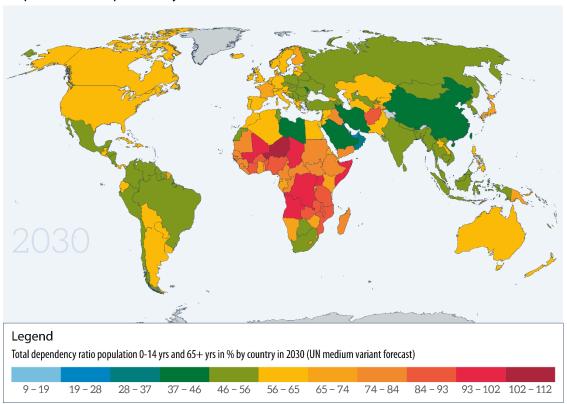
On the whole, not only the EU but also the entire planet is ageing. Even in regions still experiencing high birth rates, the number of elderly persons is rising rapidly. The number of those aged 65 or more is projected to grow from an estimated 612 million in 2015 to over 1.5 billion in 2050. Most of this increase will take place in developing countries. As this trend combines with lower fertility, most world regions will see their share of old people relative to their working populations increase sharply, which will lead to higher old-age dependency ratios. The EU is therefore not alone in this situation. However, very young societies, such as those in sub-Saharan Africa, also record, and will continue to do so, high young-age dependency ratios, as numerous children are to be supported by working adults (see Maps 5 and 6 below).



Map 5 – Total dependency ratio in 2015

Source: EPRS based on UN World Population Prospects, June 2017.

<sup>&</sup>lt;sup>64</sup> On the issue of youth bulges and conflict, see, for example, <u>Population Action International</u>, <u>The Security demographic. Population and conflict after the Cold War</u> and H. Urdal, 'The Demographics of Political Violence: Youth Bulges, Insecurity and Conflict', in *Too Poor for Peace? Global Poverty, Conflict and Security in the 21st Century*, 2007.



Map 6 – Total dependency ratio in 2030

Source: EPRS based on UN World Population Prospects, June 2017.

## 2.3.3. Pensions in the world

Universal social protection in old age remains an objective yet to be achieved in many parts of the world. Target 3.1 of the UN sustainable development goals<sup>65</sup> calls for the implementation of nationally appropriate social protection systems and measures for all, particularly for the poor and the vulnerable. According to the data provided by the ILO in its most recent report on pensions in the world,<sup>66</sup> pension coverage rates (including all types of pensions) in higher-income countries are close to 100 %. In sub-Saharan Africa, on the other hand, they are only 22.7 %, and in southern Asia 23.6 %. The vast majority of countries (186 out of 192 countries examined by the ILO) provide pensions, but most of them only for those who contribute to pension schemes. The ratio of those contributing to such schemes varies greatly among regions: 34.5 % of the labour force contributes to a pension insurance scheme worldwide, but this ratio is as low as 9 % in sub-Saharan Africa, 13.7 % in southern Asia, and 20.4 % in south-eastern Asia. This is due to the informality of employment relations in many lower-income countries, to contribution evasion and to the lack of institutional capacity to ensure the enforcement of laws.

Not only Europe will face challenges with the sustainability of its pension systems because of growing dependency ratios. According to a World Economic Forum white paper<sup>67</sup> (2017) given the increasing life duration in 2050, worldwide there will be 4 workers per retiree, compared to 8 per

<sup>&</sup>lt;sup>65</sup> See <u>UN sustainable development goal 1</u>.

<sup>&</sup>lt;sup>66</sup> Social protection for older persons: Policy trends and statistics 2017-19, ILO, 2018.

<sup>&</sup>lt;sup>67</sup> <u>We'll Live to 100 – How Can We Afford It?</u>, white paper, World Economic Forum, May 2017.

retiree today, which will pose a serious threat to the sustainability of many pension systems if no reforms are undertaken.

# 3. Focus on pensions

# 3.1. Pension systems under pressure from demographic trends

## 3.1.1. Pensions are a vital, but costly social protection

Pensions are a vital part of social protection systems. Around one in four EU citizens currently relies on them for their income, at least to some extent.<sup>68</sup> Younger citizens will also come to rely on pensions when their turn comes to retire. Current workers' taxes and social insurance contributions also help to support existing pensioners, given that most pensions are funded on a pay-as-you-go basis.<sup>69</sup> So, pensions are or will be of interest to everyone, whether they are receiving one now, hoping to be receiving one in the future, or helping to fund other people's pensions currently. However, pensions are also expensive to provide: they accounted for 11.2 percentage points (p.p.) of EU Member States' GDP in 2016.<sup>70</sup>

Pension systems need to be adequate and sustainable, both now and in the longer term. Whilst pension systems are largely a national competence, the European Pillar of Social Rights<sup>71</sup> stipulates that '(a) Workers and the self-employed in retirement have the right to a pension commensurate to their contributions and ensuring an adequate income. Women and men shall have equal opportunities to acquire pension rights. (b) Everyone in old age has the right to resources that ensure living in dignity'. Nonetheless, demographic trends have made the provision of adequate pensions more challenging.

# 3.1.2. Changing age structure and longer lives put pension systems under pressure

The changing age structure of the population in the EU puts pension systems under pressure. As noted in Section 2.1, there were over four working-age people (aged 15-64) for each person aged 65 or over in 2001. By 2050, there will be just two people of working age for every person aged 65 or over. With pension systems primarily relying on existing workers to pay for current pensioners, this presents a serious challenge to the adequacy, sustainability and inter-generational fairness of pension systems.

Increasing lifespans also mean, for a fixed retirement age, longer retirements and hence higher total costs of pensions paid out over these longer periods. Indeed, looked at this way, pensions have in general been getting more and more generous, even though monthly pension levels may have remained broadly similar to the past. As noted in Section 2.2.1, in the last half century life expectancy at birth has on average increased by over 10 years for both men and women in the EU-28. It is clearly more difficult to adequately fund longer retirements from working lives of a fixed duration.

<sup>&</sup>lt;sup>68</sup> According to Eurostat data for 2015.

<sup>&</sup>lt;sup>69</sup> In the case of pay-as-you-go (PAYG) pensions, revenue from current contributions is used directly to pay for current retirement benefits, so they are not pre-funded, barring, in some cases, small reserve funds. Most public pension schemes are PAYG.

<sup>&</sup>lt;sup>70</sup> On a weighted average basis for the EU-28 (10.2 % on a non-weighted average basis) under the baseline scenario, see Table 1, p. 12, <u>The 2018 Ageing Report</u>, European Commission and Economic Policy Committee.

<sup>&</sup>lt;sup>71</sup> See principle 15 of <u>the European Pillar of Social Rights</u>, 2017.

# 3.2. Trends in resulting pension reforms

Member States have sought to reform their pension systems in response to the building pressures described above. Their reforms have been supported and encouraged at EU level through approaches such as agreeing common aims and indicators, sharing best practices and adopting EU-level fiscal rules and notably pension-related country-specific recommendations agreed through the European Semester<sup>72</sup> (see box below on the EU's role in pension systems).

#### The EU's role in Member States' pension systems

The EU has limited competence with regard to the Member States' pension systems, as these are largely determined by the Member States themselves. With pillar I (public) pensions (see Glossary for pension taxonomy), the EU's role is essentially limited to ensuring that people exercising their right to free movement do not lose out, and to adopting some anti-discrimination rules. The EU adopts further rules covering pillar II (occupational) and III (personal) pensions, given their pre-funded nature and interactions with the single market. In essence, these rules relate to minimum prudential standards and worker and consumer protection. There are also EU-level initiatives aimed at encouraging the voluntary sharing of best practices and developing common objectives and indicators. Fiscal rules and notably the European Semester process can also bring pensions into the EU level ambit.

At EU level, the policy prescriptions to maintain adequate and sustainable pension systems were developed by the Commission through its consultation for the green paper on pensions of 2010 and its subsequent white paper on pensions of 2012. The two main themes were: 1) better balancing the time spent in work and retirement; and 2) developing complementary private retirement savings.

These policy prescriptions were generally welcomed by the Member States, the Council and the European Parliament. The social partners and civil society organisations also generally welcomed the analysis, whilst in some cases stressing the importance of adequacy and solidarity and the situation of vulnerable groups.

Country-specific recommendations (CSRs) agreed each year as part of the European Semester have also featured pensions heavily from the start. Over half of Member States agreed a pension-related CSR in 2011, or agreed pension reforms as part of financial adjustment programmes (bailouts). Furthermore, pensions have featured regularly in CSRs and adjustment programmes ever since. Key topics have included:

- Increasing the statutory pension age (pensionable age) to reflect changes in life expectancy;
- Equalising the state pension age for men and women;
- Limiting early retirement and integrating special pension schemes into the mainstream;
- Increasing the employability and participation of older workers, including through life-long learning and active ageing;
- Promoting active labour markets including for older groups; and
- Encouraging private saving.

Generally speaking, these topics have been reflected in national debates and decisions on pension reform, with some Member States being quicker in adapting their pension systems than others. Some remain outliers in their approach, for instance, taking only limited and very gradual action on setting higher retirement ages or equalising the pension age for men and women, or even (partially) reversing previously planned changes.

<sup>&</sup>lt;sup>72</sup> The <u>European Semester</u> is a yearly cycle of economic policy coordination that culminates in the European Commission proposing country-specific recommendations (CSRs). These are ultimately endorsed by the Council of the EU in June each year.

As noted in the box above, Member States have endorsed in general EU-level policy prescriptions for pension systems, and their national reform efforts have been consistent with these prescriptions. The centrepiece of national pension reforms can be summarised as attempts to increase *effective* retirement ages, meaning the actual age that people retire as opposed to simply the age from which they can access certain pension benefits (known as pensionable age). This has meant raising not only the pensionable age, cutting back on early retirement programmes and equalising the pension age for men and women, but also introducing various measures to encourage and enable employment of older workers. These include measures related to active labour markets, active and healthy ageing, life-long learning, combining work and (part) pension, and in some cases changing rules to make it harder to fire older workers simply based on their age.

Raising the effective retirement age is a powerful way to increase the sustainability of pension systems without jeopardising the adequacy of retirement income, while even enhancing it. People staying in work continue to pay taxes and social insurance contributions, which helps to support those already retired. Moreover, people retiring later also have more time to accumulate pension rights and supplementary savings, which will in turn need to cover a shorter retirement period than would otherwise be the case.

There are a host of factors that influence effective retirement ages beyond the policy measures related to pension reform that have been implemented. These factors have had a combined impact on raising the average effective retirement age since around the turn of the century, after they had witnessed a long period of decline (see Figure 10 below). Women have also narrowed the gap with men, with the structural rise in labour force participation and employment rates for women being one factor behind this.<sup>73</sup>

Some Member States, which have been hit hard by the economic crisis, have also cut pensions in payment and increased taxes or reduced indexation of pensions, in order to support pension sustainability, including more immediately, albeit at some cost to pension adequacy.

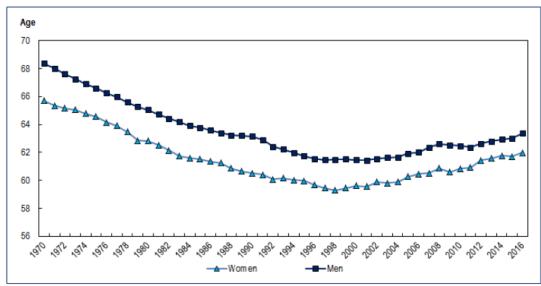


Figure 9 – Average effective labour market exit age, EU-28 by gender, 1970-2016

Source: OECD estimates for EU-28 based on the results of national labour force surveys; Labour Force Survey and, for earlier years in some countries, national censuses.

<sup>&</sup>lt;sup>73</sup> See Section 3.6.1, p. 85 <u>Pension Adequacy Report 2018 – Current and future income adequacy in old age in the EU (Volume 1)</u> (PAR 2018), European Commission and Social Policy Committee.

Efforts to encourage supplementary pension saving have been less widespread and more mixed, reflecting the different national starting points and traditions when it comes to such schemes.<sup>74</sup> Some Member States have built on substantial existing occupational pension systems (pillar II pensions), and put in efforts to enhance coverage and funding levels and/or to increase intergenerational fairness. As existing schemes mature, supplementary pension schemes will continue to not only naturally gain importance in many countries but also in relative terms, given public pillar I schemes are typically expected to become less generous in the future in one way or another, all else being equal. Private voluntary personal pensions (pillar III pensions) are, and will remain, the least important element of retirement income everywhere. There have been, however, efforts to increase take-up in some countries using co-payments, a step beyond the more typical fiscal incentives. At European level, the recently agreed Pan-European personal pension product (PEPP)<sup>75</sup> proposal seeks to give European citizens another option to save in safe, good value supplementary pensions. National decisions on whether to grant PEPPs equivalent tax incentives to those granted to existing similar national products will likely be a key driver of its success or otherwise.

# 3.3. The impact of pension reforms

## 3.3.1. Adequacy and sustainability, the two sides of pensions

Pension systems need be both adequate and sustainable, now and in the future. In other words, they need to fulfil their essential purpose of providing people with sufficient retirement income, whilst also being and remaining affordable. These two things can be in tension. All else being equal, more adequate (generous) pensions are less sustainable (more expensive), whilst more sustainable (affordable) pensions are less adequate. Successfully balancing this tension is vital to ensuring that pension systems can stand the test of time. As already noted in Section 3.2, reform efforts to address pressure from demographic change have sought to tackle sustainability (without threatening adequacy unduly), through focussing on raising effective retirement ages and boosting supplementary pension saving.

## 3.3.2. Positive impact of national pension reforms on sustainability

As already noted, demographic change and increasing longevity put growing pressure on the sustainability of pension systems, and this situation has been a key driver of national pension reform. The Ageing Report, <sup>76</sup> a major report co-produced every three years by the European Commission and the Member States (though the Economic Policy Committee) seeks to shed light on pension sustainability (amongst other things).

The report sets out long-term budgetary projections based on the latest population projections. A key metric for pension sustainability is the percentage points (p.p.) of GDP) currently spent on

<sup>&</sup>lt;sup>74</sup> Broadly speaking, according to page 80 of the PAR 2018 (op. cit.), coverage of supplementary pensions is generally higher in northern and western EU Member States and low to non-existent in southern and eastern ones. Detailed information about each national pension system and recent reform efforts is available in the individual country reports available in <u>Volume II</u> of the PAR 2018.

<sup>&</sup>lt;sup>75</sup> <u>COM(2017) 343 final</u>. See also EPRS 'EU Legislation in progress' briefing '<u>Framework for a pan-European personal pension product (PEPP)</u>, November 2018.

<sup>&</sup>lt;sup>76</sup> The most recent report is <u>The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States</u> (2016-2070). Earlier reports referred to in this text are from 2009, 2012 and 2015. Key information quoted is contained in Table 1 of these reports.

pensions and the projected p.p. of GDP to be spent in future years based on various assumptions under the baseline scenario.

The 2009 Ageing Report noted average pension expenditure for the EU-27 was 10.2 p.p. of GDP in 2007 (national variance 5.2-14 p.p.) and was forecast to increase by 2.4 p.p. of GDP by 2060. At Member State level, eight Member States had forecast increases of over 5 p.p., with three of these over 10 p.p.

In the 2012 report, average pension expenditure for the EU-27 was higher at 11.3 p.p. of GDP in 2010 (national variance 6.8-15.3 p.p.) whilst the EU increase in pension expenditure was forecast at 1.5 p.p. of GDP. Six Member States were expecting increases of over 5 p.p., of which the highest was 9.4 p.p.

In the 2015 report, average pension expenditure for the EU-28 was 11.3 p.p. of GDP in 2013 (national variance 6.9-15.7 p.p.). The report showed notable progress on future sustainability, with EU pension expenditure forecast to fall slightly by 0.2 p.p. of GDP by 2060, despite the adverse demographic backdrop. The highest increase now forecast for a Member State was 4.1 p.p., while 15 Member States were expected to see a decrease in the long term.

The most recent report was published in 2018 and showed that average pension expenditure for the EU-28 was slightly lower at 11.2 p.p. of GDP in 2016 (national variance 5.0-17.3 p.p.). EU pension expenditure was forecast to fall slightly by 0.2 p.p. of GDP by 2070 (the new longer-range forecast date). The highest increase now forecast for a Member State was 8.9 p.p. by 2070, though this was very much an outlier, with no others expected to have increases over 2.9 p.p. of GDP and 12 Member States expected to see a decrease in expenditure by then.

In summary, these four ageing reports clearly show the serious scale of the sustainability challenge faced by pension systems and that, according to the forecasts, this has for the most part been tackled quite successfully. Current costs of pension systems increased a little before stabilising. Meanwhile, future costs are now expected to be largely contained or even reduced. That is quite a contrast from what were initially, in some cases, forecast to be alarming and clearly unsustainable double digit p.p. of GDP increases in expenditure.

## 3.3.3. Pension adequacy for current pensioners mostly maintained

The essential purpose of pension systems is to provide adequate income in retirement. Adequacy focuses not only on the key task of avoiding poverty in old age, but also on broadly maintaining preretirement living standards for those further up the income scale and comparing the situation of older people with the rest of the population.

The Pension Adequacy Report (PAR) is a major report co-produced every three years by the European Commission and the Member States (through the Social Protection Committee), which looks at pension adequacy, both now and in the future, using a range of metrics. A second volume covers detailed reports on the individual Member States' pension systems and their reforms.<sup>77</sup> The report takes a multi-dimensional look at pension adequacy, including three key aspects:

- 1) poverty protection;
- 2) income maintenance; and
- 3) pension duration.

<sup>&</sup>lt;sup>77</sup> The most recent report is the <u>Pension Adequacy Report 2018 – Current and future income adequacy in old age in the EU (Volume 1)</u> (PAR 2018), and <u>Volume II</u>, European Commission and Social Protection Committee. Earlier iterations of this major tri-annual report are available for <u>2012</u> and <u>2015</u>.

Measuring pension adequacy is complex given its multi-faceted nature and the PAR uses a suite of metrics in order to look at the various aspects of adequacy from a variety of perspectives. Three of the key measures, which are referred to in this section, are outlined in the box below.

#### Measuring pension adequacy

For **assessing poverty protection**, a key metric is the composite poverty measure '**at-risk of poverty or social exclusion**' for those aged 65 or over ('**AROPE** 65+'). The AROPE measure is composed of three subindicators. It covers people either 'at-risk-of-poverty' (AROP – essentially those with income below 60 % of national median income), or 'severely materially deprived' (essentially those unable to afford some items considered by most people to be desirable or even necessary to lead an adequate life), or 'living in a household with very low work intensity'. Obviously, there is some overlap between these three groups. The first two are most relevant to elderly (age 65+) poverty, as the 'very low work intensity' measure excludes households composed only of children, students aged below 25 and/or people aged 60 or over.<sup>78</sup>

For the **income maintenance** aspect of pension adequacy, one key metric is the **relative median income ratio**. This compares the median equivalised disposable income of those aged 65+ to those aged below 65. Equivalised disposable income is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members (converted into 'equalised adults' using a set scale).<sup>79</sup> Another important measure for assessing income maintenance are the **theoretical replacement rates (TRRs)**, defined as the level of pension income the first year after retirement as a percentage of individual earnings at the moment of take-up of pension. The TRRs measure uses a number of representative examples (cases) based on assumed career paths, e.g. average wage earners retiring at 65 after 40 years of work and contributions. Importantly, TRRs can be calculated on a prospective (as well as current) basis, and so they provide a key insight into future adequacy.<sup>80</sup>

On average, current pensioners have broadly seen their living standards maintained or even improved<sup>81</sup> in recent years, albeit despite there being considerable variance between and within Member States. Some groups (women, older pensioners, pensioners living alone, those who had atypical careers) in particular remain at greater risk of inadequate income in retirement (see box below).

Poverty rates (as measured by AROPE 65+) have in fact been declining for people aged 65 or over in the last decade, from 24.4 % in 2007 (for EU-27) to 18.2 % in 2017 (for the EU-28; the EU-27 figure is 18.1 %) – a substantial fall. Whilst not directly comparable (given the 'low work intensity' component of AROPE does not apply for those 65 and over), poverty rates for those under the age of 65 have not fallen to the same extent. In 2007, the AROPE rate for those under the age of 65 was 24.5 % (EU-27), and after seeing both decreases and increases over the past decade, it stood at 23.5 % in 2017 (EU-28; EU-27 figure is 23.4 %).

Despite the welcome improvement in poverty rates seen for those aged 65 or over in the EU-28, 17.5 million of them remained at risk of poverty or social exclusion in 2017, and women were more at risk, comprising 11.1 million of these people. Older pensioner and single pensioners were also at greater risk. There are also very large national differences, with AROPE 65+ rates ranging, in 2017, from a low of 9.5 % to a high of 48.9 %. See Figure 11 below (from the PAR 2018), which uses 2016

<sup>&</sup>lt;sup>78</sup> More information available from Eurostat on the composite AROPE indicator can be found here: <u>At-risk-of-poverty or social exclusion</u> (AROPE). More details on the three elements it is made up of can be found here: <u>at-risk-of-poverty</u> (AROP), <u>severely materially deprived</u>, <u>living in a household with very low work intensity</u>, plus information on the <u>overlap</u> between these three groups.

<sup>&</sup>lt;sup>79</sup> More information available from <u>Eurostat</u> on the relative median income ratio.

<sup>&</sup>lt;sup>80</sup> For more information on TRRs and the various cases, see Annex 1 of the PAR 2018, p. 144 onwards.

<sup>&</sup>lt;sup>81</sup> For more on this, see D. Eatock, <u>Elderly people and poverty – Current levels and changes since the crisis</u>, EPRS, European Parliament, 2016.

figures, and clearly demonstrates the range of national differences and that women are more at risk everywhere.<sup>82</sup>

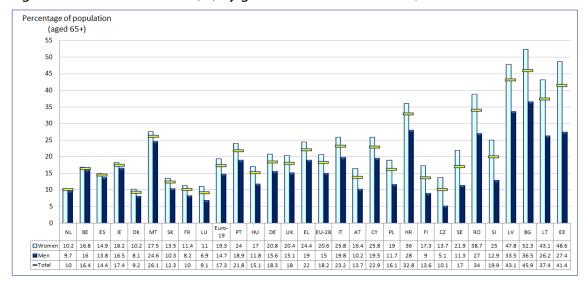


Figure 10 – AROPE 65+ rate (%) by gender and Member State, 2016

Source: Eurostat. Note: Sorted by differences between the AROPE rate for women and the AROPE rate for men.

#### Pension adequacy - groups at greater risk

Some groups, such as **women**, **older pensioners**, **single pensioners and those who have non-standard working lives** (e.g. non-standard employment and self-employment), face particular challenges when it comes to pension adequacy; these groups overlap to various degrees.

Women are a prime example of these overlaps and are impacted by a number of factors. A key one is women's different labour market experiences over their working lives (gender pay gap, part-time working, time out of the labour market for caring responsibilities, and earlier retirements than men) which can impact on their pension entitlements and opportunities to save and build up other financial resources. According the 2018 Pension Adequacy Report, whilst the gender pension gap has declined somewhat in recent years, it remains very high. **On average, women aged 65-79 in the EU-28 got pensions 37.2 % lower than those of men in 2016**. Whilst there is considerable variation between Member States, women's pensions are lower than men's in every EU country on average.<sup>83</sup>

The report also notes women live 3-5 years longer than men and take up pension benefits slightly earlier than men, so they receive their (lower) pensions for longer. These longer retirements mean other resources (e.g. savings) need to last over these longer periods, during which time pension indexing may also not keep up with rising incomes in the rest of the population. Another factor is household composition, with women often outliving male partners and living alone; this results in resources often diminishing more than outgoings. Two-person households are considered to need only 1.5 times the resources of a single-person household for the same living standard.

Turning to the income replacement aspect of pension adequacy for current pensioners, the 2018 PAR notes that in 2016 on average across the EU-28, people aged 65 or over had relative median disposable incomes that were 93 % of those of younger people.<sup>84</sup> This is the same level as noted in

<sup>&</sup>lt;sup>82</sup> Source for AROPE rates <u>Eurostat [ilc peps01]</u>. Detailed discussion on current poverty risks and severe material deprivations among older Europeans is available in Section 2.1 of the 2018 PAR, p. 27 onwards.

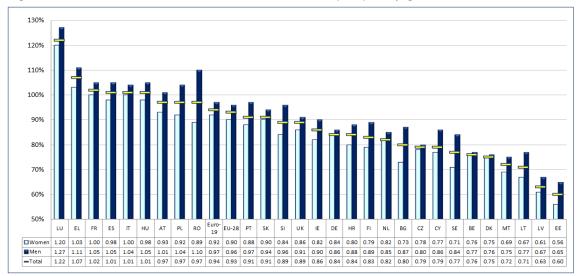
<sup>&</sup>lt;sup>83</sup> See section 3.4 on page 68 "<u>Pension Adequacy Report 2018 – Current and future income adequacy in old age in the EU (Volume 1)</u>" (PAR 2018), European Commission and Social Policy Committee.

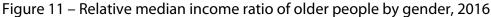
<sup>&</sup>lt;sup>84</sup> Or, put another way, older people's incomes were 7 % lower than those of people aged below 65. Other wider elements, notably wealth but also home ownership, access and costs of health and long-term care, amongst other

the 2015 PAR (using data from 2013). However, looking further back we see this represented an improvement from the 88 % reported in the 2012 PAR (data from 2010) and further still from 2007 data when the level was just 84 %.<sup>85</sup>

Once again these averages hide large differences between Member States. For nine countries, the total relative median income ratio was below 80 % in 2016. In contrast, also in 2016, people aged 65 or over in six Member had higher median incomes than people below age 65 in those countries.

Again, women did less well than men on average. In 2016, the median income for older women was 6 p.p. lower than that for men in the EU-28, relative to younger people of the same gender (90 % for women, 96 % for men). Seven Member States had differences of between 10 and 21 p.p. to the detriment of women. At the other end of the scale, differences below five p.p. were found in seven Member States.





Source: Eurostat. Notes: persons aged 65 years and over compared to persons under 65 years of age. Relative median net disposable income from all sources. Sorted by total.

Notwithstanding these important variations between countries and genders, on average the overall story at the EU-28 level can be broadly said to be one of older Europeans maintaining (or even improving) their income levels in recent years, when compared to younger people.

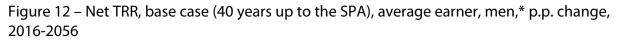
## 3.3.4. Pension adequacy for future pensioners: a challenging task

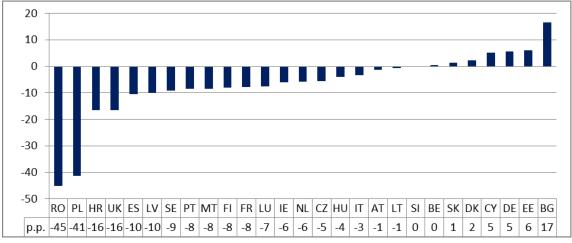
Assessing likely pension adequacy in the future is extremely difficult. However, it is clear that as the impact of pension reforms feeds through, all else being equal, state pensions are expected to be less generous (on an annual basis) in the future. As the 2018 PAR notes, 'People retiring in 2056 will have lower pensions compared to their work income than a similar career would have earned them in 2016'.

services, also play a key role in the living standards of older people. More information on this can be found in Section 2.3 of the PAR 2018, p. 41 onwards.

<sup>&</sup>lt;sup>85</sup> 2007 figure from <u>Eurostat [ilc\_pnp2]</u> for EU-27.

As noted in the box on measuring pension adequacy, a key metric used for assessing future adequacy are TRRs.<sup>86</sup> There are a range of different 'cases' used. To take one important example, the 'base case' represents the pension of a male worker who retires at the standard pensionable age,<sup>87</sup> after an uninterrupted 40-year career on a standard employment contract. Under this case, most Member States will have lower pension outcomes in 2056 compared to what the same career would have produced in 2016. In 14 Member States, outcomes will be worse by more than 5 p.p., with four of these countries seeing reductions over 15 p.p. Just two Member States will see increases above 5 p.p. based on this TRR case (see Figure 13).





Source: OECD and Member States' projections. Notes: in some countries, 40 years do not qualify one for a full pension. EL no data. \*Note TRRs for women are the same in almost all countries.

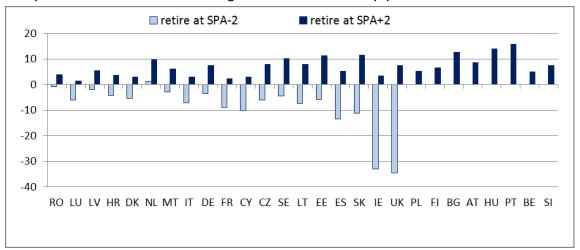
Whilst TRRs are a useful tool in considering the difficult question of future adequacy, they should be considered indicative, and results for different Member States should be compared with caution. As the PAR 2018 notes, a 40-year career corresponds to an incomplete career (and hence a lower pension) under the rules in some countries, whilst in others it will represent the maximum possible pension. Nonetheless, it is clear that 'standard career' pension benefits are set to decrease for most countries.

A variety of cases varying assumptions compared to the TRR base case seek to shed light on the incentives for longer careers/later retirements and the disincentives in place for shorter careers and earlier retirements. As would be expected, these cases in general demonstrate that outcomes in terms of higher or lower replacement rates are broadly in line with the overall policy of encouraging longer careers, even though the scale may not be actuarially neutral. One example is Figure 14 below, which compares the net TRR for someone retiring two years before (meaning a 38-year career) or two years after (meaning a 42-year career) the state pension age, compared to the base case (retiring at state pension age after a 40-year career). As can be seen, in most cases, a longer career means a higher replacement rate (pension) and a shorter one reduces the replacement rate (pension).

<sup>&</sup>lt;sup>86</sup> The PAR 2018 also discusses and develops other complementary approaches to assessing future adequacy, including micro-simulation models available in a few Member States. For more information, see Section 5, p. 111 onwards.

<sup>&</sup>lt;sup>87</sup> The earliest age at which a person may retire without incurring pension penalties linked to their age.

Figure 13 – net TRR, differences between the cases retiring 2 years earlier, 2 years later, compared to the base case, average earner, men, 2056, p.p.



Source: OECD and Member States' projections. Notes: the eight rightmost countries do not allow drawing a pension before the SPA after a 38-year career; in IE and the UK, only occupational pensions may be drawn. The SPA+2 case in LU is not comparable, due to its SPA being artificially set at 65. Countries are ordered by total difference in TRR. EL no data.

Looking at the men's and women's pensions in the future, differences in retirement outcomes between men and women are likely to persist, according to the 2018 PAR. On the positive side, the female career length gap is set to decrease. Women (and men) can also benefit from credits to mitigate the impact on their pensions of career breaks for social reasons, for example disability, child or elderly care or unemployment. However, generally lower earnings combined with various other factors (e.g. part-time working, career breaks for caring, shorter overall career duration) combine to mean the gender pension gap is not expected to be eradicated.

Older pensioners also remain vulnerable – they suffer from pension erosion over time, as pension indexation fails to keep up with the income of younger people. TRR calculations comparing a man 10 years after his retirement, with a man retiring today with an identical career, show net TRRs lower in nearly all cases – by up to 19 p.p.

Overall, it is clear that future pensions will be lower, all else being equal. The actual outcomes for future pensioners will therefore depend to a large degree on how far people are able and willing to have longer and less interrupted careers and respond to incentives to working longer (and disincentives to retiring earlier). Clear challenges to positive outcomes based on longer careers include not only end-of-career aspects, but also high youth unemployment, later labour market entry and more precarious work contracts during working life. Hence, minimum guarantees for those falling short of a full pension entitlement will play an important role for some in supporting future retirement income, particularly in avoiding poverty. Opportunities for greater and more widespread supplementary pension saving may also provide an important adequacy boost for increasing numbers of people.

# 4. Prospects

As noted in Section 1.3 on 'Focus on adapting to ageing demographics', the broad demographic outlook at the EU level is essentially set in the short to medium term. Fertility rates and life expectancy in the EU are unlikely to change suddenly, and even if they did, the effect would not be

immediate. As we have seen in recent years, migration flows can change rapidly and dramatically. However, even at the unprecedented levels seen in some recent years, they cannot, at EU level at least, radically change demographic destiny on their own. The EU population will be slow in growing and will continue to age significantly for now, whilst also forming a decreasing proportion of the world population.

However, whilst this demographic outlook is relatively set in the shorter term, changes in fertility rates, life expectancy and migration, which may happen in the coming years, can build up over time to change the situation in the longer term. EU-level fertility rate averages have recovered a little from their mid-1990s lows, and the wide variation between Member States suggests there is nothing inherently 'fixed' about current levels. EU average life expectancy gains have been slowing somewhat, and the 2015 data saw a (small) surprise drop in life expectancy, albeit the latest (2016) data show that this has already been more than recovered. How life expectancy will develop and the possible causes underpinning this will continue to be debated and informed by new research and data. Indeed, the very latest data for 2017 again shows a small drop in life expectancy, so the debate remains strong. Developments on migration are also, by their nature, rather uncertain. With an ageing EU and significant population growth in the form of a 'youth bulge' expected in some other parts of the world, notably Africa, the potential for substantial migration inflows nevertheless clearly remains.

Below the EU level, free movement and external migration also influence demography at Member State and regional level. This affects both the size of the population in countries and regions, and their age profile, for instance, as younger people move to more economically dynamic areas for work. These interact with the different patterns of fertility and life expectancy across the EU.

Looking at the impact of demographic change in one key area, the outlook for pension systems is clearly important both to individuals and governments. National efforts to reform pension systems have largely managed to control the rising expenditure that would otherwise be associated with dramatically ageing populations, and so keep systems sustainable. However, pension adequacy, whilst largely maintained for current pensioners (though not everywhere, or for all groups), looks more challenging in future. Much will depend on people's willingness and ability to work longer and save more.

# 5. Main references

The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070) and earlier iterations of the Ageing Report from 2009, 2012 and 2015, European Commission, jointly with the Economic Policy Committee.

Pension Adequacy Report 2018 – Current and future income adequacy in old age in the EU (Volume 1) (PAR 2018) and earlier iterations of the PAR from 2012 and 2015, European Commission, jointly with the Social Protection Committee.

This paper is the second in a series that EPRS is producing on the demographic outlook for the European Union (EU).

Demography matters. The economy, labour market, healthcare, pensions, the environment, intergenerational fairness and election results - they are all driven by demography. The EU has seen its population grow substantially – by around a quarter since 1960 - and currently stands at over 500 million people. However, it is now beginning to stagnate, before its expected decline from around the middle of the century. With the world population having risen still more substantially and growth continuing, the EU represents a shrinking proportion of this population. The EU population is also ageing dramatically, as life expectancy increases and fertility rates fall below their levels in the past. This has serious implications across a range of areas including the economy, healthcare and pensions. Free movement within the EU and migration from third countries also play an important role in shaping demography in individual Member States and regions. The 'in-focus' section of this year's edition looks at pensions. It highlights that, whilst national reforms have largely successfully addressed issues around the sustainability of pension systems, concerns about the adequacy of pensions, particularly in the future, still remain.

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