Demographic old-age to working-age ratio

Key Results

There are 31 individuals aged 65 and over for every 100 persons of working age (ages 20 to 64) on average across all OECD countries while there were only 20 thirty years ago and 16 sixty years ago. Population ageing has been accelerating as this average old-age to working-age demographic ratio – computed by keeping age thresholds constant – is projected to reach 54 over the next 30 years.

The evolution of old-age to working-age ratios depends on mortality rates, fertility rates and migration. OECD countries have seen prolonged increases in life expectancy that most analysts project to continue, implying an increasing number of older people and of pensioners.

Currently, the demographically oldest OECD country is Japan, with an old-age to working-age ratio equal to 55.4 (meaning 55 individuals aged 65 and over for 100 persons of working age defined as 20 to 64). Finland and Italy also have high old-age ratios, over 40. By 2052, the old-age to working-age ratio is expected to reach more than 70 in Greece (70.7), Italy (78.1), Japan (80.0), Korea (82.3) and Spain (77.2).

By contrast, Colombia, Mexico and Türkiye are the youngest countries based on this indicator, with old-age to working-age ratios of 14.5, 14.2 and 14.2 respectively, In the second half of this century, however, these countries are expected to age considerably. By 2080, the old-age ratio is projected to be much nearer to the OECD average for all three countries (64.2, 63.1 and 60.9 respectively compared to average of 66.1).

There have also been substantial declines in fertility, which, of course, will eventually diminish the number of workers entering the labour market. For example, fertility rates fell below the replacement level on average in OECD countries around the mid-1980s, implying shrinking populations in the long term. In the future, however, there is a great deal of uncertainty over how fertility rates will evolve (see Figure 6.1 above).

For the OECD as a whole, the increase in the old-age to working-age ratio is projected to continue at a faster pace according to the medium forecast of United Nations Populations Prospects, from 31.3 in 2022 to 53.8 in 2052 and 66.1 in 2082. By far, Korea is facing the most rapid population ageing among OECD countries. The old-age ratio would increase from (7.5 in 1962) 26.3 in 2022 to 117.0 in 2082 and Korea would move from being the tenth youngest country in the OECD in 2022 to the oldest in 2082.

The projected working-age population (20-64) will decrease by 11% in the OECD on average by 2062, i.e. by 0.28% per year. It will fall by over 35% in Korea, Latvia, Lithuania and Poland, and also by more than 30% in Greece, Italy, Japan, the Slovak Republic and Spain. It is projected to increase by more than 10% in Australia, Canada, Israel and Norway, with Israel being a clear outlier with an increase of 67% (Figure 6.5). EU countries are heavily represented amongst the list of countries with large declines, resulting in an average fall of 21% by 2062, nearly double that of the OECD. This will have a significant impact on the financing of pay-as-you-go (PAYG) systems as it is closely related to their internal rates of return. Even funded pension systems might be negatively affected by rapidly declining working-age populations through its effect on labour supply, in turn potentially lowering output growth and equilibrium interest rates.

Projections of the old-age to working-age ratio vary by source, as shown when comparing those obtained from UN and Eurostat data (Figure 6.6). On average for the EU22 countries in the OECD, projections based on UN data leads to an old-age to working-age ratio which is 3 percentage points higher in 2050 than based on Eurostat data, with large country variation. For Italy and Spain, the projected ratio is 12 percentage points lower and for Germany it is 8 percentage points lower based on Eurostat compared with UN data. Only five countries – Czechia, Denmark, Greece, Latvia and Lithuania – show a higher future ratio based on Eurostat versus UN data:

Definition and measurement

The old-age to working-age demographic ratio is defined as the number of individuals aged 65 and over per 100 people of working age defined as those at ages 20 to 64.

Further reading

Boulhol, H., M. Lis and M. Queisser (2022), “Trends in Pension Reforms in OECD Countries”, in Bloom, D., A. Sousa-Poza and U. Sunde (eds.), *Handbook on the Economics of Ageing*, Routledge, Abingdon.

Boulhol, H. and C. Geppert (2018), *Population ageing: Pension policies alone will not prevent the decline in the relative size of the labour force*, https://cepr.org/voxeu/columns/population-ageing-pension-policies-alone-will-not-prevent-decline-relative-size.

Table 6.2. Demographic old-age to working-age ratio: Historical and projected values, 1952-2082

	1952	1962	1992	2022	2052	2082		1952	1962	1992	2022	2052	2082
Australia	14.2	16.2	19.3	28.6	43.7	59.1	Mexico	7.0	7.2	9.1	14.2	34.0	63.1
Austria	18.1	21.8	24.4	32.5	59.0	66.0	Netherlands	14.7	17.6	20.9	34.7	51.0	63.0
Belgium	18.5	21.5	25.5	34.0	52.2	63.9	New Zealand	17.0	17.0	19.6	27.7	44.9	62.0
Canada	14.5	15.3	18.9	31.7	46.3	59.5	Norway	16.6	20.8	28.1	31.3	46.5	61.0
Chile	6.4	7.3	11.6	20.9	48.6	73.0	Poland	9.5	11.5	18.2	30.3	59.9	68.7
Colombia	7.5	7.7	8.0	14.5	37.7	64.2	Portugal	13.3	15.1	24.6	39.0	69.7	74.7
Costa Rica	6.9	7.4	9.9	17.5	43.7	74.8	Slovak Republic	12.0	13.5	18.4	27.3	56.8	62.4
Czechia	14.1	17.2	21.9	35.3	49.0	46.3	Slovenia	13.5	14.0	18.3	35.3	65.7	66.9
Denmark	16.3	19.7	25.7	35.6	44.3	55.9	Spain	13.0	15.2	24.3	33.4	77.2	84.7
Estonia	18.4	17.9	20.7	35.6	57.9	64.7	Sweden	17.4	20.9	30.8	35.9	46.0	60.4
Finland	12.2	13.9	22.5	41.5	52.4	69.6	Switzerland	16.1	18.0	23.4	31.8	56.4	62.0
France	19.7	21.5	24.9	39.3	57.1	68.4	Türkiye	8.4	9.7	9.7	14.2	39.3	60.9
Germany	16.9	19.8	23.7	38.0	59.1	64.8	United Kingdom	18.3	20.7	26.9	33.2	49.1	63.8
Greece	12.9	14.9	24.1	39.3	70.7	79.4	United States	14.9	18.1	21.0	29.4	43.4	57.7
Hungary	13.6	16.3	23.3	33.2	51.8	57.5	**OECD**	**13.8**	**15.7**	**20.4**	**31.3**	**53.8**	**66.1**
Iceland	14.4	17.2	19.2	25.5	45.7	64.9							
Ireland	20.7	23.1	21.7	25.8	51.2	61.4	Argentina	7.6	9.9	17.3	20.8	34.4	57.4
Israel	7.8	10.9	19.3	23.1	31.1	40.9	Brazil	5.5	6.3	9.1	15.8	40.1	62.3
Italy	14.6	16.9	25.4	41.0	78.1	83.4	China	9.6	8.0	9.7	21.6	58.8	92.9
Japan	9.9	10.8	21.6	55.4	80.0	85.7	India	6.5	7.3	8.6	11.7	26.2	50.4
Korea	6.3	7.5	8.6	26.3	82.3	117.0	Indonesia	4.0	5.4	8.3	11.5	26.2	39.4
Latvia	17.9	17.7	21.2	38.0	56.4	60.8	Saudi Arabia	7.7	8.4	5.5	4.4	39.5	49.6
Lithuania	14.8	15.1	19.4	35.1	56.8	60.9	South Africa	8.3	7.6	8.0	10.3	19.7	29.6
Luxembourg	16.0	18.0	21.2	23.5	48.2	59.4	EU27	14.8	16.6	22.3	34.6	58.2	66.7

Note: The demographic old-age to working-age ratio is defined as the number of individuals aged 65 and over per 100 people aged between 20 and 64.
Source: United Nations, Department of Economic and Social Affairs (2022), World Population Prospects 2022, Online Edition (for future periods: medium-variant forecast).

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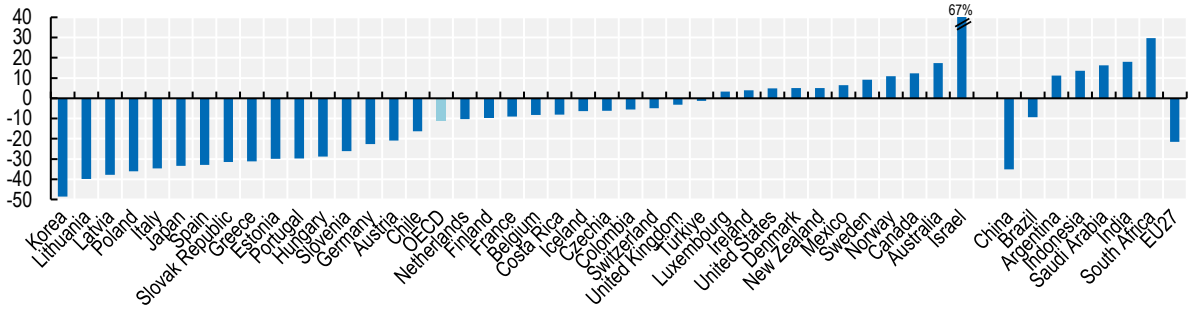
Figure 6.5. The working-age population will decline in a large number of OECD countries

Change in the working age population (20-64), 2022-62, percentage



Source: United Nations World Population Prospects: The 2022 Revision.

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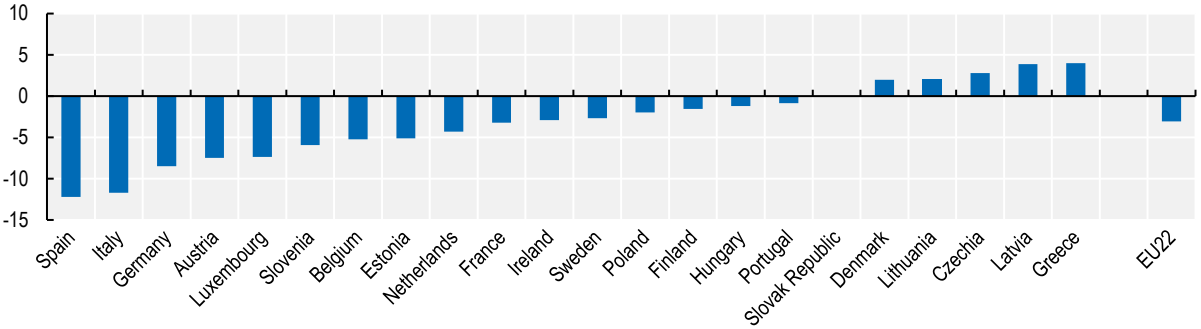
Figure 6.6. Future demographic old-age to working-age ratio projections differ based on data sources

Difference in projections for 2050 (EU – UN data source), in percentage points



Note: The demographic old-age to working-age ratio is defined as the number of individuals aged 65 and over per 100 people aged between 20 and 64.
Source: United Nations, Department of Economic and Social Affairs (2022), World Population Prospects 2022, Online Edition (for future periods: medium-variant forecast). Eurostat population projections, EUROPOP 2023.

StatLink https://stat.link/s7504z