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Vienna Institute of Demography

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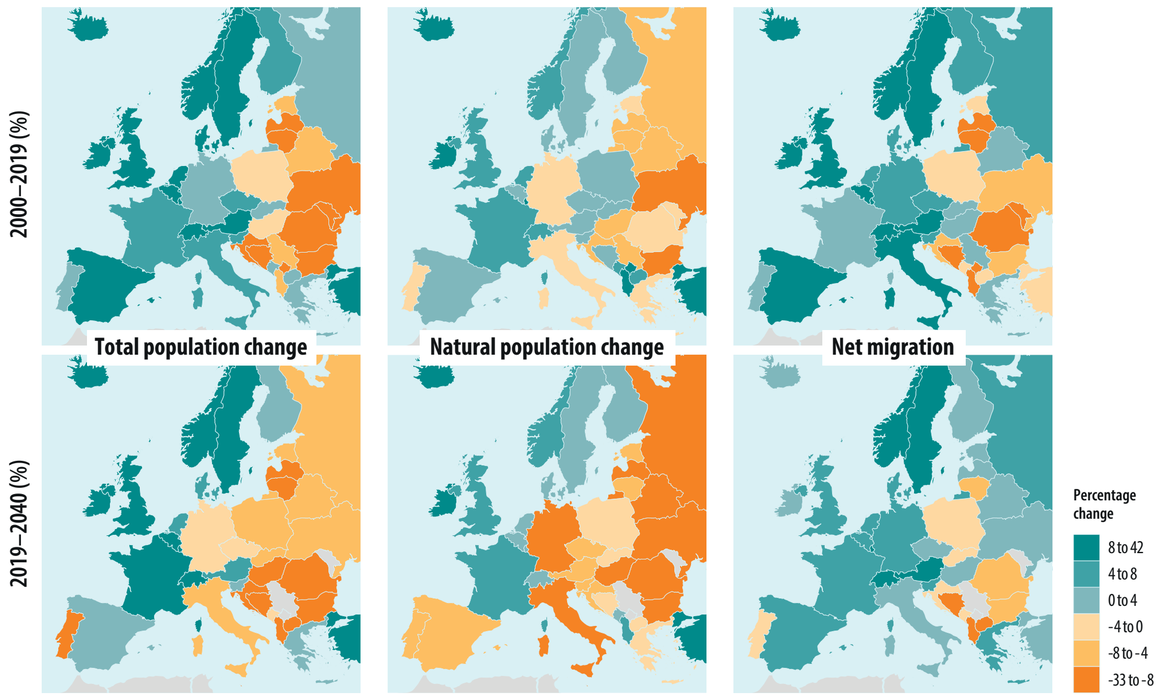
European Demographic Data Sheet 2020

Observed and projected population trends in Europe, 2000–2040



Population – Well-being – Human Capital

Data, rankings, maps, definitions, sources and notes: **www.populationeurope.org**

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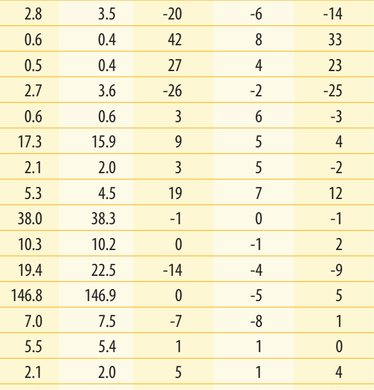
Country	Population (millions)	Population (millions)	Total population change (%)	Natural population change (%)	Net migration (%)	Projected population SSP2	Projected population SSP2 – Zero migration	Proportion of foreign-born population (%)	Old-age dependency ratio 65+/20–64 (%)	Total fertility rate (TFR)	Tempo and parity adjusted TFR	Mean age at first birth (years)	Completed cohort fertility	Cohort childlessness (%)	Life expectancy at birth (years), Women	Life expectancy at birth (years), Men	Change in life expectancy (years)	Years of good life at age 50, Women	Years of good life at age 50, Men	Human life indicator (years)	Aggregate crude internal migration intensity	Mean years of schooling	Skills-adjusted mean years of schooling	Inequality-adjusted healthy life-time income (M$PC)	Equivalised income (% change), age 20–39	Relative equivalised income (% change), age 20–39	Country
	1.1.2019	1.1.2000	2000–2019	2000–2019	2000–2019	2060	2060	1.1.2019	1.1.2019	2018	2016	2018	Women born 1978	Women born 1978	2018	2018	Change 2014–2018	2017	2017	2015–2020	various years	2015	2015	2016	Change 2008–2017	Change 2008–2017	
Albania	2.9	3.1	-6	12	-19	1.9	2.8	2	23	1.73	–	26.4	2.29	–	80.5	77.4	0.7	–	–	73.6	13.7	10.6	8.4	0.5	–	–	Albania
Armenia	3.0	3.2	-8	7	-15	2.2	2.9	6	19	1.57	1.72	24.8	2.16	10	79.7	73.4	–	–	–	68.9	15.3	11.0	10.7	0.3	–	–	Armenia
Austria	8.9	8.0	11	0	10	9.4	7.5	19	30	1.47	1.63	29.5	1.64	20	84.1	79.4	0.2	25.8	24.7	78.5	8.2	12.2	12.5	2.3	3	-3	Austria
Azerbaijan	10.0	8.0	25	22	2	10.2	10.7	3	11	1.73	–	23.9	1.87	–	78.3	73.5	1.2	–	–	63.6	–	11.0	10.6	0.7	–	–	Azerbaijan
Belarus	9.5	10.0	-5	-6	0	8.3	7.7	11	24	1.45	1.84	25.8	1.66	12	79.5	69.3	1.2	–	–	71.4	5.7	11.6	12.3	0.8	–	–	Belarus
Belgium	11.5	10.2	12	3	9	12.8	11.1	17	32	1.62	1.85	29.0	1.90	–	83.9	79.4	0.3	26.1	25.0	78.6	10.3	11.9	12.5	2.3	5	-1	Belgium
Bosnia and Herzegovina	3.3	3.8	-12	0	-12	1.7	2.9	1	–	–	–	–	1.77	18	–	–	–	–	–	73.2	14.5	11.2	10.9	0.5	–	–	Bosnia and Herzegovina
Bulgaria	7.0	8.2	-15	-9	-5	4.5	5.3	3	36	1.56	1.74	26.2	1.67	–	78.6	71.5	0.5	13.3	14.0	70.5	4.5	11.7	12.3	0.8	12	-6	Bulgaria
Croatia	4.1	4.5	-9	-5	-5	3.4	3.4	13	34	1.47	1.76	28.8	1.69	18	81.5	74.9	0.3	15.6	15.5	75.1	2.7	12.0	12.7	1.1	14	4	Croatia
Cyprus	0.9	0.7	27	10	17	–	–	21	26	1.32	1.50	29.8	1.82	–	84.8	80.9	0.6	19.6	20.6	78.0	3.8	13.0	13.4	1.6	-19	-7	Cyprus
Czechia	10.6	10.3	4	0	4	9.7	9.1	5	33	1.71	1.67	28.4	1.71	14	82.0	76.2	0.2	20.2	19.8	76.9	4.2	13.0	13.6	1.6	12	3	Czechia
Denmark	5.8	5.3	9	3	6	6.5	5.8	12	34	1.73	1.88	29.5	1.92	13	82.9	79.1	0.3	28.1	26.0	77.9	14.8	12.6	13.0	2.5	3	-5	Denmark
Estonia	1.3	1.4	-5	-3	-2	1.2	1.1	15	33	1.67	1.93	27.7	1.87	14	82.7	74.0	1.1	18.7	14.5	75.8	4.8	13.3	13.9	1.3	35	-1	Estonia
Finland	5.5	5.2	7	2	4	5.7	5.5	7	38	1.41	1.84	29.2	1.87	21	84.5	79.1	0.5	28.1	25.3	79.3	16.3	13.0	14.3	2.2	-3	-5	Finland
France	64.8	60.5	7	7	0	76.2	68.4	13	36	1.88	2.08	28.7	2.06	15	85.5	79.6	0.0	25.9	23.7	79.5	18.8	12.1	12.1	2.0	1	-1	France
Georgia	3.7	4.4	-16	3	-19	2.3	3.7	2	25	2.09	–	25.5	1.92	–	78.2	69.7	-0.1	–	–	67.9	15.8	12.7	11.8	0.4	–	–	Georgia
Germany	83.0	82.2	1	-4	5	79.6	66.1	16	36	1.57	1.66	29.7	1.61	21	83.3	78.6	-0.2	25.4	23.2	78.2	9.0	13.7	14.1	2.3	7	-1	Germany
Greece	10.7	10.8	0	-1	1	10.8	9.5	12	38	1.35	1.49	30.4	1.51	24	84.4	79.3	0.4	20.7	21.5	79.2	8.1	11.8	11.4	1.2	-40	-6	Greece
Hungary	9.8	10.2	-4	-7	2	8.0	7.6	6	32	1.49	1.54	28.2	1.60	–	79.6	72.7	0.2	14.9	16.7	73.6	8.6	12.4	12.5	1.2	-7	3	Hungary
Iceland	0.4	0.3	28	16	12	0.4	0.4	17	23	1.71	2.09	28.3	2.24	9	84.5	81.3	0.0	–	–	80.9	19.1	13.6	12.9	2.6	-13	-1	Iceland
Ireland	4.9	3.8	30	18	11	5.7	5.5	17	24	1.75	2.06	30.5	2.03	15	84.1	80.5	0.9	–	–	79.4	8.1	12.6	12.8	3.1	-4	-6	Ireland
Italy	60.4	56.9	6	-2	8	53.3	48.4	10	39	1.29	1.47	31.2	1.43	21	85.6	81.2	0.2	22.3	23.0	80.8	5.1	11.9	11.3	1.7	-9	-6	Italy
Kosovo	1.8	2.0	-10	22	-33	–	–	–	14	–	–	26.9	–	–	81.6	75.9	–	–	–	–	–	–	–	–	–	–	Kosovo
Latvia	1.9	2.4	-19	-8	-12	1.6	1.5	13	34	1.60	1.78	27.2	1.67	18	79.7	70.1	0.6	15.5	13.6	71.5	5.1	12.6	13.6	1.0	24	5	Latvia
Lithuania	2.8	3.5	-20	-6	-14	2.1	2.4	5	33	1.63	1.90	27.8	1.79	13	80.7	70.9	1.3	14.5	12.1	71.6	5.5	13.5	13.7	1.2	21	-1	Lithuania
Luxembourg	0.6	0.4	42	8	33	0.9	0.6	47	22	1.38	1.74	30.9	1.81	–	84.6	80.1	0.0	24.0	23.6	79.4	–	13.2	12.7	4.9	9	-3	Luxembourg
Malta	0.5	0.4	27	4	23	0.4	0.4	20	30	1.23	1.56	29.2	–	–	84.6	80.4	0.4	23.2	22.9	78.7	4.7	11.2	9.6	1.9	6	6	Malta
Moldova	2.7	3.6	-26	-2	-25	–	–	3	22	1.82	–	–	–	–	75.0	66.2	–	–	–	65.3	–	11.1	10.2	0.3	–	–	Moldova
Montenegro	0.6	0.6	3	6	-3	0.6	0.6	11	25	1.76	–	–	1.95	19	79.3	74.5	0.4	–	–	74.0	14.4	12.0	12.0	0.8	–	–	Montenegro
Netherlands	17.3	15.9	9	5	4	18.4	16.6	13	33	1.59	1.85	30.0	1.78	16	83.4	80.3	0.1	–	–	79.7	8.8	12.4	13.4	2.5	5	1	Netherlands
North Macedonia	2.1	2.0	3	5	-2	1.6	1.9	6	22	1.42	1.57	26.9	1.91	–	78.8	74.6	1.2	–	–	69.9	1.0	10.6	9.6	0.6	–	–	North Macedonia
Norway	5.3	4.5	19	7	12	6.7	5.8	16	29	1.56	1.97	29.5	1.98	12	84.5	81.1	0.6	–	–	79.9	13.1	13.1	13.9	3.5	-6	-4	Norway
Poland	38.0	38.3	-1	0	-1	31.9	33.3	2	28	1.46	1.45	27.4	1.51	–	81.7	73.7	-0.1	17.7	16.0	75.2	1.3	13.0	13.2	1.3	10	1	Poland
Portugal	10.3	10.2	0	-1	2	8.3	8.6	9	37	1.42	1.62	29.8	1.57	–	84.5	78.3	0.2	19.1	21.4	79.0	11.2	9.3	8.3	1.3	-1	-1	Portugal
Romania	19.4	22.5	-14	-4	-9	12.9	15.7	3	31	1.76	1.87	26.7	1.50	–	79.2	71.7	0.3	14.6	14.4	71.3	1.7	11.7	11.5	1.0	22	3	Romania
Russia	146.8	146.9	0	-5	5	131.7	117.5	8	24	1.58	1.86	25.9	1.67	12	77.6	67.6	1.0	–	–	67.5	2.0	10.9	11.4	1.0	–	–	Russia
Serbia	7.0	7.5	-7	-8	1	–	–	9	34	1.49	1.64	28.1	1.72	–	78.4	73.5	0.5	–	–	72.2	–	12.1	12.2	0.7	–	–	Serbia
Slovakia	5.5	5.4	1	1	0	4.7	4.9	4	25	1.54	1.50	27.1	1.64	17	80.8	73.9	0.4	18.9	18.5	73.6	2.7	13.2	13.8	1.5	11	-5	Slovakia
Slovenia	2.1	2.0	5	1	4	2.1	1.8	13	33	1.60	1.62	28.8	1.64	17	84.4	78.5	0.3	21.3	19.9	78.8	2.5	12.2	11.9	1.6	-2	-2	Slovenia
Spain	46.9	40.5	16	3	13	47.6	40.2	14	32	1.26	1.43	31.0	1.36	25	86.3	80.7	0.2	21.7	20.7	81.0	3.1	11.5	11.0	1.6	-14	-4	Spain
Sweden	10.2	8.9	15	3	12	12.4	10.5	19	35	1.76	1.99	29.3	1.94	14	84.3	80.9	0.3	28.6	27.0	80.3	13.9	12.8	13.6	2.5	8	-4	Sweden
Switzerland	8.5	7.2	19	4	15	10.4	8.0	29	30	1.52	1.64	30.9	1.65	18	85.7	81.9	0.5	30.1	28.5	80.7	10.7	13.4	14.0	3.0	44	-3	Switzerland
Turkey	82.0	66.9	23	25	-2	95.8	95.1	7	15	1.99	–	26.3	–	–	81.6	76.2	0.8	–	–	71.4	7.1	9.2	7.9	0.9	–	–	Turkey
Ukraine	42.0	49.1	-15	-10	-5	36.2	33.9	11	26	1.30	1.50	25.4	1.57	14	78.0	68.1	1.4	–	–	66.8	2.6	11.0	11.3	0.4	–	–	Ukraine
United Kingdom	66.6	58.8	13	5	8	76.8	69.4	14	32	1.68	1.99	29.0	1.94	18	83.1	79.5	-0.1	–	–	78.0	10.6	13.3	13.8	1.9	7	-2	United Kingdom
European Union (27)	**444.7**	**428.6**	**4**	**0**	**4**	**430.1**	**390.8**	**11**	**34**	**1.54**	**1.69**	**29.4**	**1.65**	**19**	**83.8**	**78.3**	**0.1**	**22.4**	**21.4**	**78.3**	**8.2**	**12.4**	**12.5**	**1.8**	**1**	**-2**	**European Union (27)**
United States	328.2	282.2	16	10	6	411.6	349.5	15	28	1.73	2.16	27.3	2.21	11	81.1	76.1	-0.4	–	–	74.1	14.7	12.9	13.3	2.3	–	–	United States
Japan	126.3	125.6	1	-1	2	100.4	97.4	2	51	1.42	1.54	30.1	1.47	27	87.3	81.2	0.6	–	–	82.2	7.9	13.8	15.6	1.9	–	–	Japan

Note: The Data Sheet does not cover European countries with population below 100 thousand (Andorra, Liechtenstein, Monaco, and San Marino). Data for Azerbaijan, Cyprus, Georgia, Moldova, and Ukraine exclude territories that are not under government control. For data sources, country-specific definitions and notes see www.populationeurope.org
Human life indicator expresses well-being in terms of years of life, similar to life expectancy at birth, taking the inequality in longevity into account. Other non-standard indicators are explained in the specific boxes. More detailed definitions of all indicators are available at www.populationeurope.org

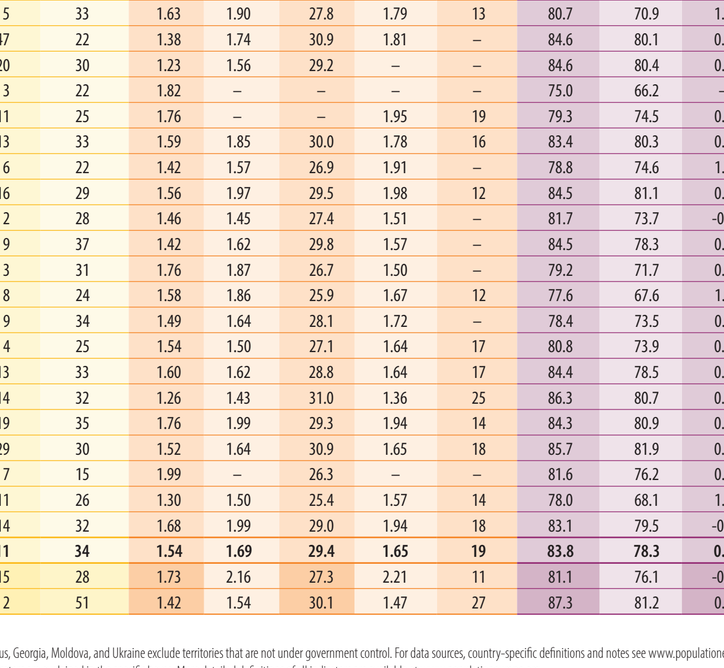
Years of Good Life: A novel indicator to measure well-being



Years of Good Life (YoGL) is a newly developed indicator that takes a demographic approach to directly measure multi-dimensional human well-being and its change over time. In the longer run, it can also be used as a criterion to assess whether societal development can be considered sustainable. In order to enjoy any quality of life, one has to be alive; but since mere survival does not capture well-being, "years of good life" are made conditional on meeting minimum standards as depicted in the circular chart. Years of life are counted as "good" if they are spent above a threshold with respect to objectively observable conditions (being out of poverty, being without cognitive limitations, and having no serious physical disabilities), as well as subjective life satisfaction.

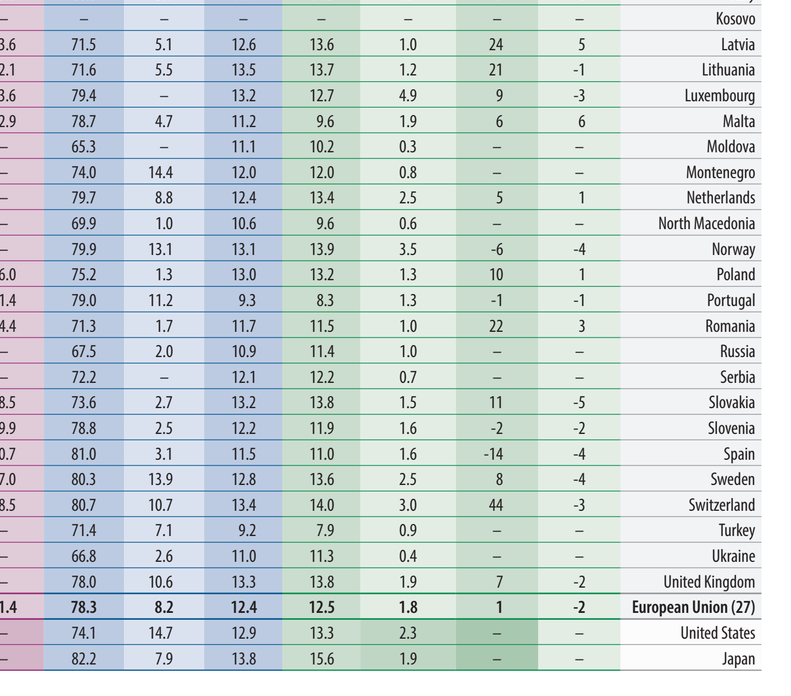
In Europe, YoGL varies considerably between countries – particularly for older age groups. In 2017, Swiss men aged 50 could expect to live another 33.1 years, of which 28.5 are considered "good" years (86%). By contrast, Lithuanian men of the same age could only expect to live another 24.8 years, of which only 12.1 years are considered "good" years (49%). Generally, Southern and Western European countries such as Spain, Italy, France, and Switzerland have exceptionally high life expectancy at age 50. However, it is mostly Northern European countries, but also Switzerland and Belgium, whose populations are expected to spend their remaining life years to a great extent in good years. Central and Eastern European countries have both low life expectancy and low YoGLs. While male life expectancy is consistently lower than female life expectancy, gender differences in YoGL are less pronounced: YoGL at age 50 for the EU-27 in 2017 was 22.4 for females (life expectancy of 35 years) and 21.4 for males (life expectancy of 30.2 years).

References:
Lutz W., Lijadi A., Strießnig E., Dimitrova A., and Caldeira Brant de Souza Lima M. (2018). Years of Good Life (YoGL): A new indicator for assessing sustainable progress. IIASA Working Paper, WP-18-007.
Reiter, C., and Lutz, W. (2020). Survival and Years of Good Life in Finland in the very long run. Finnish Yearbook of Population Research, 54, 1–27.



Remaining years of life at age 50

Country rankings (top 5 and bottom 5 countries)



Note: Ranking plots include European countries only. They exclude countries with population below 100 thousand, Turkey, Armenia, Azerbaijan and Georgia, and countries for which the particular indicator is not available.

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Regional overview: key indicators

Region	Population (millions)	Net migration (%)	Projected population SSP2	Proportion of foreign-born population (%)	Total fertility rate (TFR)	Tempo and parity adjusted TFR	Cohort childlessness (%)	Life expectancy at birth (years), 2018		Change in life expectancy (years)	Skills-adjusted mean years of schooling	Inequality-adjusted healthy lifetime income (M$PC)
	1.1.2019	2000–2019	2060	1.1.2019	2018	2016	Women born 1978	Women	Men	Change 2014–2018	2015	2016
Nordic countries	27.2	9	31.7	14	1.64	1.93	15	84.1	80.2	0.4	13.7	2.6
Western Europe	165.7	5	190.8	14	1.75	2.00	16	84.2	79.6	0.0	13.0	2.1
Germany, Austria, Switzerland	100.4	6	99.4	17	1.56	1.66	21	83.6	79.0	-0.1	13.9	2.4
Southern Europe	129.7	9	120.4	12	1.29	1.47	23	85.7	80.6	0.2	11.0	1.6
Central-Eastern Europe	76.1	-1	64.7	4	1.52	1.55	16	81.4	73.9	0.1	13.2	1.3
South-Eastern Europe	44.1	-8	30.9	4	1.66	1.78	18	79.1	72.8	0.5	11.4	0.8
Eastern Europe	201.0	2	176.2	9	1.52	1.78	12	77.7	67.8	1.1	11.4	0.9
Caucasus	16.7	-6	14.7	3	1.78	1.72	10	78.5	72.6	0.8	10.9	0.6
European Union (27)	444.7	4	430.1	11	1.54	1.69	19	83.8	78.3	0.1	12.5	1.8

Authors: Tomáš Sobotka and Kryštof Zeman (data collection and coordination; main data table; maps; boxes on Population trends, Tempo effect, Regional overview, Period Total Fertility Rates); Sonja Spitzer and Claudia Reiter (box on Years of Good Life); Vanessa di Lego (box on Stagnating period life expectancy at birth; maps); Claudia Reiter, Dilek Yildiz, Caner Özdemir and Anne Goujon (box on Skills-adjusted mean years of schooling); Bernhard Binder-Hammer (box on Economic well-being) David E. Bloom, Victoria Y. Fan, Vadim Kufenko, Osondu Ogbuoji, Klaus Prettner, Gavin Yamey (box on Inequality-Adjusted Healthy Lifetime Income); Francisco Rowe, Martin Bell, Aude Bernard, Elin Charles-Edwards (box on Internal migration); Sergei Scherbov (Human Life Indicator). Copy editing: Nicholas Gailey. Administrative assistance: Lisa Janisch. Graphic design: Christian Högl, creativbox.at. Website: Bernhard Rengs.

Definition of regions

Definition of regions in the regional overview takes into account geographical, historical and geopolitical divisions, as well as similarity in demographic trends in countries they cover. Countries are grouped into regions as follows: **Nordic countries** (Denmark, Finland, Iceland, Norway, Sweden); **Western Europe** (Belgium, France, Ireland, Luxembourg, Netherlands, United Kingdom); **Germany, Austria and Switzerland; Southern Europe** (Cyprus, Greece, Italy, Malta, Portugal, Spain); **Central-Eastern Europe** (Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia); **South-Eastern Europe** (Albania, Bosnia and Herzegovina, Bulgaria, Kosovo, North Macedonia, Montenegro, Romania, Serbia); **Eastern Europe** (Belarus, Moldova, Russia, Ukraine); **Caucasus** (Armenia, Azerbaijan, Georgia); Turkey is not included in any region. **European Union** refers to the current territory of 27 member states, without the United Kingdom. The Data Sheet does not cover European countries with population below 100 thousand (Andorra, Liechtenstein, Monaco, and San Marino). Data for Azerbaijan, Cyprus, Georgia, Moldova, and Ukraine exclude territories that are not under government control. Indicators for regions are computed as weighted averages.

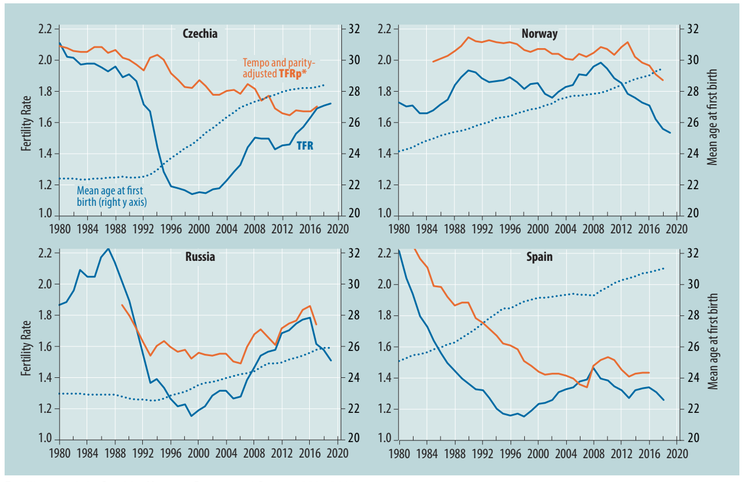
The tempo effect and adjusted indicators of total fertility

Fertility over a given time is commonly measured by the Total Fertility Rate (TFR). However, TFR is sensitive to changes in the average age of childbearing, which has been rising in Europe for several decades. As births shift to later ages, they are both postponed into the future and spread over a longer period of time. This "stretching" of reproduction results in a depressed period TFR, even if the number of children that women have over their lifetimes does not change.

Alternative indicators to TFR have been developed to provide a more accurate measure of the mean number of children per woman in a calendar year. Here we use Tempo- and Parity-adjusted Total Fertility (TFRp*; Bongaarts and Sobotka 2012), which is based on age- and parity-specific fertility rates, as well as changes in mean ages at birth. When available, this data sheet displays the TFRp* of 2016. For countries lacking the required data, we use Tempo-adjusted TFR (TFR-BF) proposed by Bongaarts and Feeney (1998), averaged over the 3-year period of 2015–2017.

The graphs compare conventional TFR and TFRp* from 1980–2019 in four countries with different fertility patterns: Czechia, Norway, Russia and Spain. They also show the rise in the mean age at first birth. In some cases fertility postponement has resulted in unstable ("roller-coaster") TFR trends and a huge gap between conventional and tempo-adjusted fertility, especially in Czechia in the late 1990s when the TFR fell below 1.2, while the TFRp* stayed above 1.8. This decrease in TFR was followed by a robust recovery in the last two decades, when it converged with the TFRp* at 1.7 in 2017. For Russia, data suggest that pro-natalist policies introduced in 2006 had a strong effect, although more on conventional TFR (and thus also on the timing of births) than on the tempo- and parity-adjusted TFRp*. The fertility boost given by pro-natalist policies has recently lost its steam, with the TFR and TFRp* plummeting after 2015.

By contrast, the TFR in Spain and Norway started falling earlier, soon after the start of the Great Recession in 2008. In Spain, this slide was briefly interrupted around 2013–2015, but in Norway it continued until 2019, resulting in a lowest-TFR on record. The TFRp* also followed a downward trend, albeit milder than the conventional TFR. This suggests that the TFR declines have reflected a renewed postponement of fertility (especially of first births), as well as a fall in family size. A similar trend has taken place in many other countries across Europe, especially in Southern Europe, Nordic countries, and parts of Western Europe.



Fertility trends in Czechia, Norway, Russia, and Spain, 1980–2019

References:

Bongaarts, J., and Feeney, G. (1998). On the quantum and tempo of fertility. Population and Development Review 24(2): 271–291.

Bongaarts, J., and Sobotka, T. (2012). A demographic explanation for the recent rise in European fertility. Population and Development Review 38(1): 83–120.

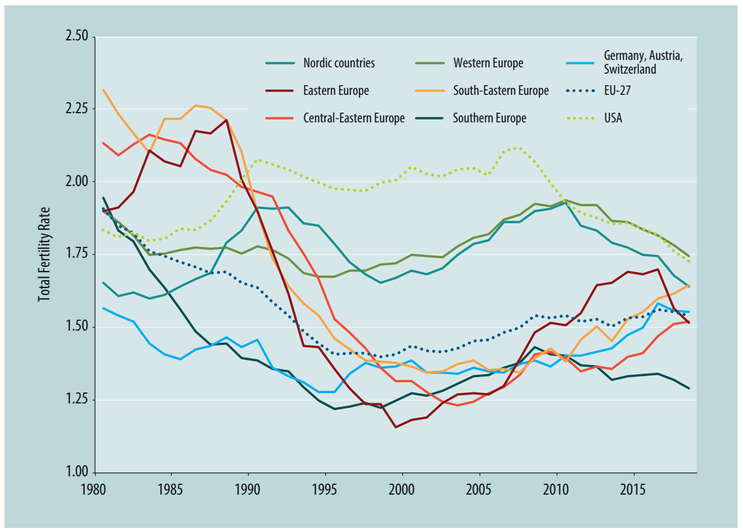
Period Total Fertility Rates: Contrasting regional trends across Europe

Following turbulent changes in period fertility in the 1980s and 1990s, when fertility declined in many regions, a North-West vs. South-East divide emerged. Northern and Western Europe (aside from the German-speaking countries) had moderately low fertility rates, with the period Total Fertility Rate (TFR) at 1.7–2.0. All other regions in Europe had low or very low TFR, typically reaching between 1.2 and 1.4. This regional differentiation was retained during the period of gradual recovery in fertility during the 2000s.

However, this fertility divide began to unravel during the Great Recession in 2008–2013, as different regions took contrasting fertility paths that often continued after the recession had ended.

Period TFR increased vigorously in Eastern Europe, supported by pro-natalist policies in Russia, Belarus and Ukraine before taking a dip in 2017–2019. Fertility also recovered in Central-Eastern Europe, South-Eastern Europe as well as in Austria, Switzerland and Germany, where it stays close to the highest levels since the 1970s. By contrast, the TFR declined over the last decade in Western Europe and in the Nordic countries, bringing their fertility well below the peaks reached around 2008–2010. Several countries including Ireland, Finland and Norway reached their lowest TFRs on record in 2018, in part due to a renewed postponement of first births to later ages (see Box on tempo effect and adjusted fertility). Outside Europe, a similar downturn in fertility to a record-low level has taken place in the United States. After a brief stabilization, fertility also declined further in Southern Europe: with an average TFR just below 1.3, Southern Europe has emerged as the lowest-fertility region in Europe.

These contrasting regional trends in recent years have led to the narrowing of regional and cross-country fertility differences across the continent. The TFR in most parts of Europe now occupies the previously "empty" middle position, around 1.4–1.7.

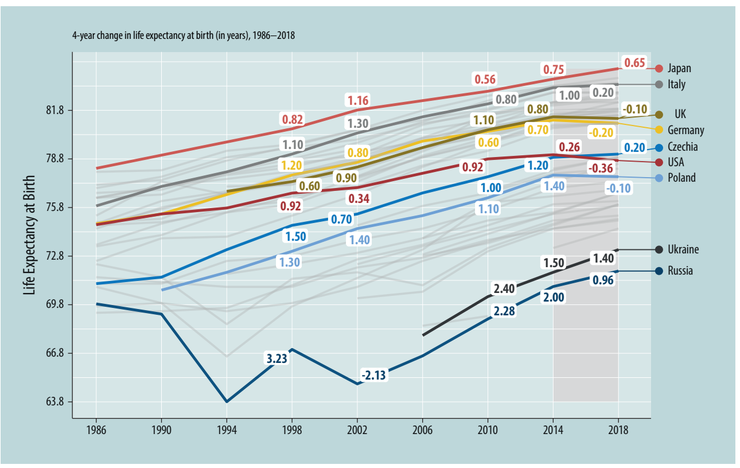


Total Fertility Rate (TFR) in European regions and the United States, 1980–2018

Stagnating period life expectancy at birth: A cause for concern?

Many highly developed countries have experienced decelerating improvements or even slight declines in life expectancy. How did this trend evolve over time and between countries? The figure shows the trends in *Total Period Life Expectancy* at birth (hereby called TPLE) for selected European countries, together with Japan and the United States from 1986 until 2018, with the labels highlighting a 4-year interval of absolute change in TPLE. The overall trajectory since 1986 is one of consistent increase in TPLE, with the exception of countries - like Russia - that experienced profound discontinuities in their gains after the fall of the Berlin Wall, consistently improving their TPLE only after 2002. Breaking from the general trend, the pace of increase in Japan and Italy started to slow down in the 2000s. More recently, in 2014–2018, most countries recorded a dramatic deceleration in their gains, with Germany, United Kingdom, United States, and Poland even reporting declines in TPLE. This trend has brought attention to the causes of TPLE stagnation, commonly interpreted as an indication of failing to improve mortality rates. However, the evidence does not allow such a straightforward interpretation.

First, mortality patterns by age and cause of death that bring stagnation in TPLE vary between countries. While in Japan, Italy, UK and Germany, the primary driver is mortality at older ages (65+), in the United States it is mortality of people below age 65. Deaths related to respiratory, cardiovascular, Alzheimer's and other nervous system diseases explain most of these trends for European countries, whereas external causes and opioid drug overdose had the largest impact in the United States (Ho and Hendi 2018). In addition, seasonal fluctuations in flu waves affect TPLE trends, with below-average mortality in 2014 and the excess mortality in 2015 impacting the trend in the last decade. Lastly, the TPLE is a period measure of the average number of years that a hypothetical cohort of newborns is expected to live, should current age-specific death rates remain constant. However, current age-specific death rates are sensitive to cohort, heterogeneity, and tempo effects, possibly leading to temporary inflation or deflation of TPLE (Luy et al. 2019; Vaupel 2008). Hence, further research is needed to determine the extent to which diminished gains in the TPLE are the result of worsening health conditions, past progress in survival, or a shifting of deaths.



Trends in life expectancy at birth for selected countries, 1986–2018

Being in school is not the same as learning: Estimates of skills-adjusted mean years of schooling

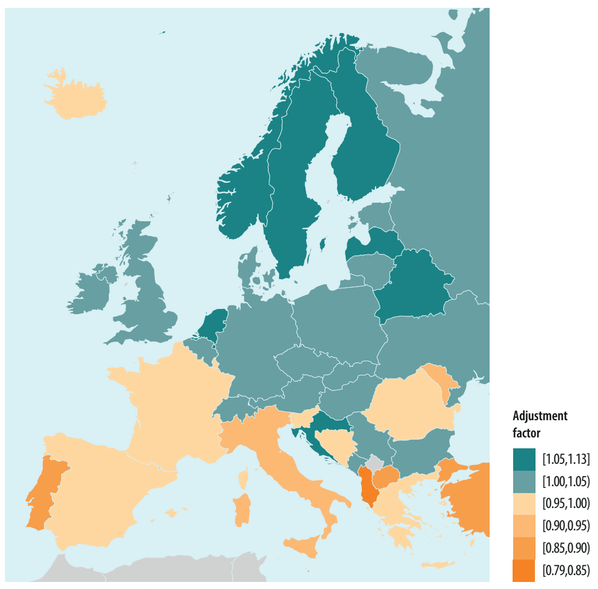
Attending school does not necessarily equate to learning and some of the skills learned at younger ages can be lost later in life. However, efforts to merge qualitative and quantitative measures of human capital are so far rare and have only covered a limited number of countries or focused solely on skills measured with school tests. To remedy that, the Wittgenstein Centre for Demography and Global Human Capital has started a new initiative to provide a global historical database for Skills-Adjusted Mean Years of Schooling (SAMYS) of adults.

Quantitative data on years of schooling are merged with qualitative adult skills assessments, such as the OECD's PIAAC or the World Bank's STEP Skills Measurement Program, to obtain a measure of human capital that considers both access to and outcomes of education. To make SAMYS comparable across countries and over time, the 2015 population-weighted OECD average PIAAC literacy score is used as the standard of comparison. Accordingly, a skills adjustment larger than 1 means the respective country doing better than the OECD average. If the skills adjustment is below 1, the opposite is true: the skills of people correspond, on average, to fewer years of schooling than they actually went through when compared with OECD average.

The map depicts the estimated skills adjustment for the population aged 20–64 in Europe in 2015 – without considering the mean years of schooling for each country. The composite indicator, SAMYS, is included in the data table on the front side.

Results reveal a considerable North-South divide in Europe. Nordic countries and some Post-Soviet countries (notably Latvia, Belarus, Estonia, and Russia) perform comparably well in large-scale literacy assessments. By contrast, human capital is lagging behind in terms of skills formation in the countries in South-Eastern Europe and in the Caucasus region, but also in Portugal, Italy, and Spain. Particularly low values were estimated for Albania, Malta, and Turkey – in all three countries the average skills level, adjusted for the years of schooling received, constitutes only 80–85% of the OECD average.

Note: For those countries, where no empirical adult assessment data exist, our estimates are based on a regression model taking into account educational attainment, adult illiteracy rates, old-age dependency ratios, and years (time).



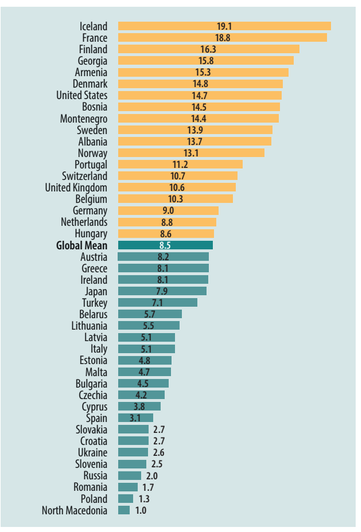
Skills adjustment for population aged 20–64, 2015

The intensity and impact of internal migration

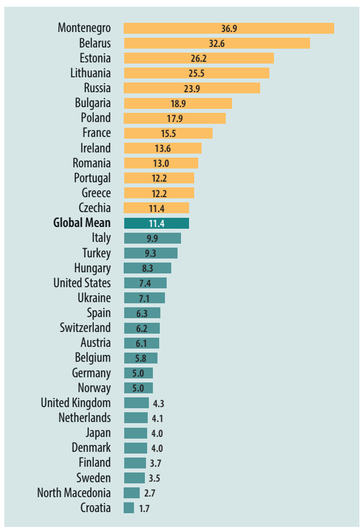
Globally, internal migrants outnumber international migrants by 4 to 1 (Bell et al 2015) and recent years have seen significant progress in understanding internal migration in a comparative framework. The IMAGE project (Internal Migration Around the GlobE) developed a rigorous framework for cross-national comparisons of internal migration, involving (1) a suite of statistical indicators, (2) methods to generate estimates where comparable metrics are not collected directly, and (3) a global repository of internal migration data. Among the indicators is *Aggregate crude internal migration intensity* (ACMI), which captures the intensity of internal migration by measuring all changes of residential address in a given interval. A second indicator is the *Migration Effectiveness Index* (MEI), which ranges from 0 to 100, and quantifies the balance between regional flows and counterflows. Low MEI values indicate largely reciprocal exchanges between regions, while high values suggest strongly directional flows. Together, intensity and effectiveness (or balance) drive the redistributive impact of migration on national populations.

The ACMI varies widely across Europe. It ranges from just over 1% per year in Macedonia to over 18 % in France and Iceland, with levels close to the global mean in Hungary and Austria. A clear geographical pattern underpins these variations, ranging from high intensities in Nordic and Western European countries, including the UK, to low intensities in Southern and Eastern Europe, including Spain, Italy, and former members of the Soviet Union.

Ranking countries by the MEI reveals a moderate inverse relationship between the ACMI and the MEI. In countries where migration intensities are high, inter-regional flows tend to be closely balanced, whereas many of those with low migration intensities are undergoing higher levels of redistribution. In Northern and Western Europe, the redistributive impact of high internal migration intensity is moderated by low effectiveness (Rowe et al., 2019). By contrast, migration in the South and East tends to be highly asymmetrical, but its impact on population redistribution is offset by low intensity.



Aggregate crude internal migration intensity (ACMI) measures all changes of addresses over a one-year interval



Migration Effectiveness Index (MEI) measures the degree of balance between internal migration flows and counterflows.

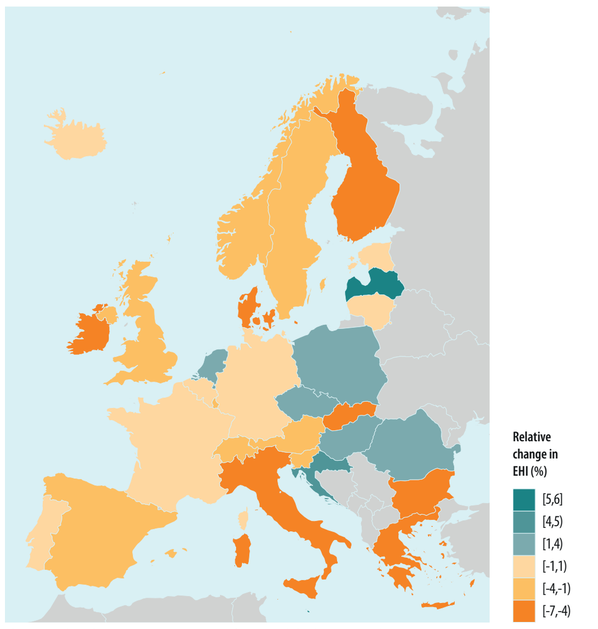
Analyzing economic well-being from a generational perspective

The 2008 financial crisis hit the income of younger generations much harder than the income of older persons. A deteriorating economic situation for young persons has many undesired consequences, such as a further reduction of fertility and an increase in poverty of young family households. Therefore, monitoring economic well-being from a generational perspective is indispensable for a meaningful evaluation of social protection systems.

Equivalised Household Income (EHI) is frequently used for the evaluation of economic well-being. EHI measures the income of households relative to the number of effective consumers, accounting for economies of scale in consumption and lower consumption of children compared to adults. The first adult household member is counted as a full effective consumer, further adult members represent 0.7 effective consumers, and children below the age of 14 are counted as 0.3 effective consumers. A huge advantage of EHI is accessibility due to its collection in the EU-SILC survey for 32 European countries. One disadvantage of EHI is that it assumes equal sharing of income among household members. Therefore, EHI disregards the differences in income changes between adult generations who live in the same household.

The change in age-specific real EHI between 2008 and 2017 is an indicator of how the financial crisis and the sovereign debt crisis impacted the economic well-being of different age groups. Based on this indicator, economic well-being among younger people aged 20–39 fell in every third country (in 10 out of 31) between 2008 and 2017. Young adults in Greece experienced the strongest fall in real EHI at 40%. Note that EHI is measured in euros. For countries that are not members of the euro zone the changes in EHI also reflect changes in the exchange rate of the local currency against euro (which explains the high increase in Switzerland).

The economic crises and developments during the period 2008–2017 resulted in a reallocation of income from young to old in most countries. Declines in the relative economic position of young people are illustrated by the map of change in EHI at ages 20–39 relative to the median of the total adult population. The relative EHI of young people declined in 23 countries, including all countries in Western, Southern and Northern Europe, except the Netherlands. This decline was most pronounced in Italy, Greece, Bulgaria, Ireland, Denmark and Slovakia, where median EHI at ages 20–39 dropped by more than 4% compared to the total median.



Change in the relative economic position of young adults (2008–2017): median equivalised income at age 20–39 relative to total median

A new indicator for measuring economic well-being: Inequality-Adjusted Healthy Lifetime Income (IHLI)

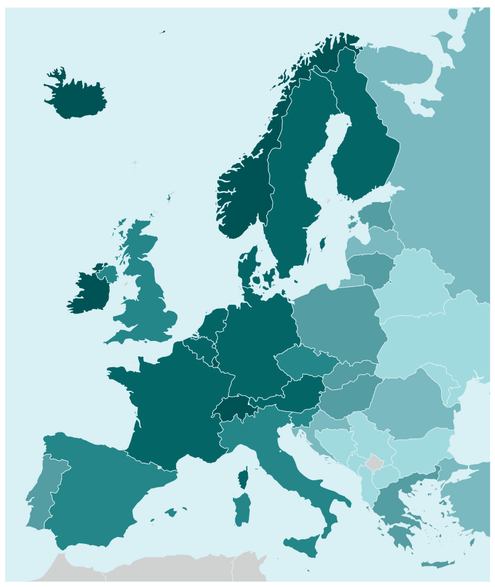
Per capita GDP is of limited use as a welfare measure because – among other shortcomings – it disregards the benefits of living long and healthy lives and it does not adjust for inequality (Sen, 1976; Fitoussi et al., 2009; Fan et al., 2018). In Bloom et al. (2020), we propose inequality-adjusted healthy lifetime income (IHLI) as a remedy for these two issues. IHLI consists of three components: i) GDP per capita adjusted for purchasing power (pppGDPpc) to capture material well-being, ii) healthy life expectancy at birth (HALE) to capture the benefits of living long and healthy lives (and thereby some of the effects of environmental quality), and iii) an inverse measure of the Gini coefficient (1-Gini) to take inequality into account. Our indicator is defined in a straightforward manner as: $IHLI_i = pppGDPpc_i \times HALE_i \times (1 - Gini_i)$

This formulation implies the straightforward interpretation of $IHLI_i$ being the income that a newborn in country *i* can expect to earn over the years in which she is in good health, for the given economic and health conditions in country *i*, and adjusted for the level of inequality. Note that the unitary weights of the different components in this formulation follow mathematically from the interpretation of the indicator and the units of measurement of the subcomponents.

IHLI has the following advantages over other alternatives to per capita GDP, such as the Human Development Index (HDI): a) IHLI has an immediately interpretable economic value, b) the weighting of its components follows mathematically from the interpretation of the indicator and the units in which the subcomponents are measured, c) IHLI does not depend on aggregating different sub-indicators that are based on incompatible units of measurement, d) IHLI is not restricted to a value between zero and one and is thus not bounded from above, e) IHLI is parsimonious in terms of computation and data input requirements, f) IHLI can readily be obtained for many different countries.

References:

Bloom D.E., Fan V.Y, Kufenko, V., Ogbuoji O., Prettner K., and Yamey G. (2020). Going beyond GDP with a parsimonious indicator: Inequality-Adjusted Healthy Lifetime Income. IZA Discussion Paper No. 12963, Institute of Labor Economics, Bonn, Germany.



Inequality-adjusted healthy lifetime income (Million US$ per capita)