Vienna Institute of Demography
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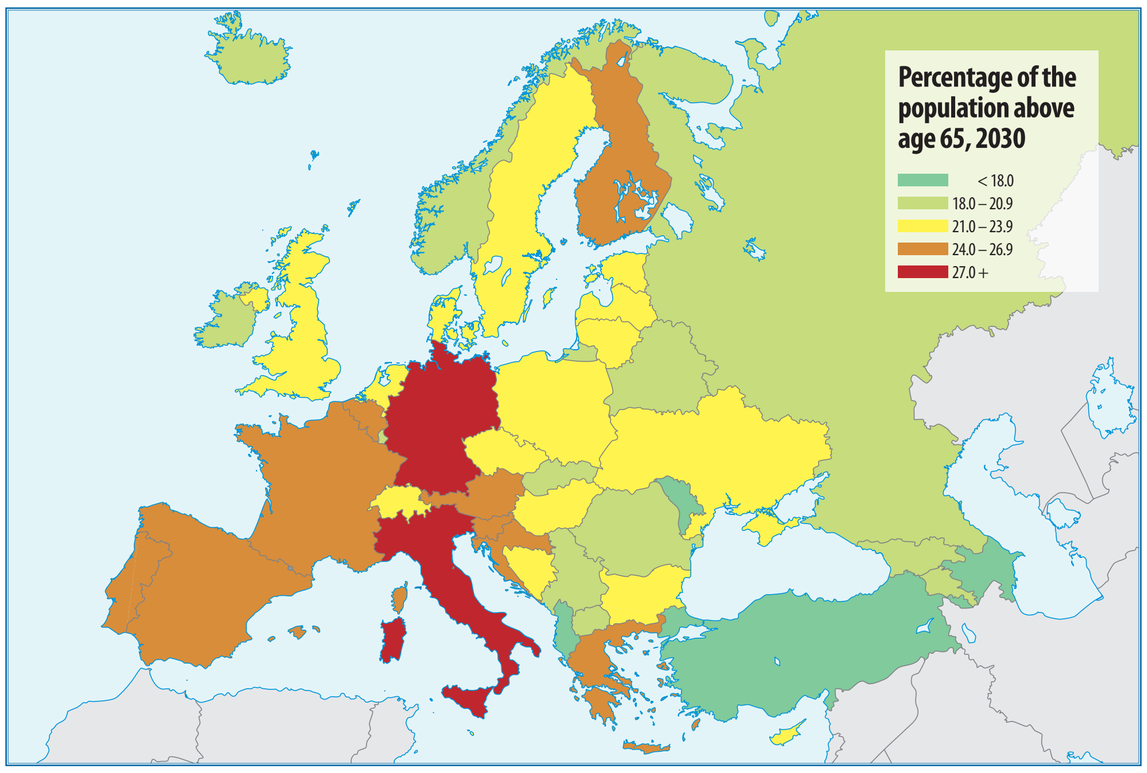
PRB POPULATION REFERENCE BUREAU

European Demographic **Data Sheet** 2006



The forces driving unprecedented **population ageing**

More information: www.populationeurope.org

Country	Population size on January 1st, 2005 (millions)	Projected population size, 2030 (millions)	Number of live births, 2004 (thousands)	Number of deaths, 2004 (thousands)	Net migration, 2004 (thousands)	Year when natural increase turns negative	Total fertility rate (children per woman), 1990	Total fertility rate (children per woman), 2004	Adjusted TFR (children per woman) See box below	Mean age at first birth, 1990 (years)	Mean age at first birth, 2004 (years)	Male life expectancy at birth, 2004 (years)	Male life expectancy increase, 1994-2004 (years)	Female life expectancy at birth, 2004 (years)	Female life expectancy increase, 1994-2004 (years)	Male life expectancy at age 65, 2004 (years)	Female life expectancy at age 65, 2004 (years)	Proportion of the population above age 65, 2005 (%)	Projected proportion of the population above age 65, 2030 (%)	Proportion of the population above age 80, 2005 (%)	Projected proportion of the population above age 80, 2030 (%)	Old-age dependency ratio 65+/15-64, 2005 (%)	Projected old-age dependency ratio 65+/15-64, 2030 (%)	Actual age at retirement, 2004 (years)	Unemployment rate, 2004 (%)	Youth (< 25 years) unemployment rate, 2004 (%)	Country
Albania	3.1	4.1	*47.0*	*18.0*	*-11.1*	> 2050	3.00	*2.10*	*2.36*	-	-	*71.7*	*2.4*	*76.4*	*1.0*	-	-	8.3	13.7	1.2	2.3	12.8	21.7	-	*15.2*	-	Albania
Andorra	0.1	-	0.8	0.3	4.0	-	-	1.26	-	-	-	-	-	-	-	-	-	12.0	-	-	-	16.3	-	-	-	-	Andorra
Armenia	3.2	3.1	37.5	25.7	-8.2	2021	2.63	1.38	*1.46*	22.8	23.4	70.4	5.3	76.6	1.7	13.2	15.8	10.5	18.3	1.7	3.0	15.5	26.9	-	*36.4*	-	Armenia
Austria	8.2	8.5	79.0	74.3	61.7	2006	1.46	1.42	1.63	25.0	27.0	76.5	3.3	82.1	2.5	16.9	20.2	16.0	25.1	4.2	7.3	23.5	40.8	*58.8*	4.8	9.6	Austria
Azerbaijan	8.3	9.9	131.6	49.6	-0.4	2042	2.62	1.82	1.69	-	24.8	69.9	4.7	75.0	1.1	13.9	15.6	6.9	13.7	0.8	1.8	10.3	19.9	-	-	-	Azerbaijan
Belarus	9.8	8.5	88.5	140.1	2.6	1993	1.90	1.20	1.44	22.9	24.0	63.2	-0.3	76.0	1.7	-	-	14.5	20.3	2.4	3.3	20.7	30.3	-	-	-	Belarus
Belgium	10.4	11.0	116.0	102.0	35.4	2026	1.62	*1.64*	*1.77*	26.4	*27.6*	*75.9*	*2.9*	*81.7*	*2.0*	-	-	*17.1*	24.7	4.3	7.2	*26.1*	41.3	59.4	8.4	21.2	Belgium
Bosnia & Herzegovina	*3.9*	3.7	34.8	31.7	8.0	2009	1.71	*1.23*	*1.58*	23.6	-	-	-	-	-	-	-	13.9	22.7	1.4	5.1	20.1	35.4	-	-	-	Bosnia & Herzegovina
Bulgaria	7.8	6.6	69.9	110.1	0.0	1990	1.82	1.29	1.53	22.2	24.4	69.1	1.8	76.2	1.4	13.2	16.2	17.2	23.1	2.9	5.2	24.9	35.4	60.7	12.0	25.8	Bulgaria
Croatia	4.4	4.1	40.3	49.8	11.6	1991	1.67	1.35	1.64	24.1	*26.1*	72.0	2.7	79.0	-	*12.9*	*16.6*	17.2	24.4	2.9	5.8	*24.2*	39.4	59.6	13.6	33.3	Croatia
Cyprus	0.8	0.9	8.3	5.2	15.7	2029	2.42	1.49	1.63	-	27.1	76.9	1.6	81.6	1.8	16.5	19.0	*11.9*	21.0	2.7	5.4	*17.5*	32.9	62.7	5.2	11.3	Cyprus
Czech Republic	10.2	9.7	97.7	107.2	18.6	1994	1.90	1.22	1.67	22.5	26.3	72.6	3.1	79.2	2.6	14.3	17.7	14.0	23.6	3.0	6.5	19.8	37.1	60.0	8.3	21.1	Czech Republic
Denmark	5.4	5.6	64.4	55.8	5.2	2011	1.67	1.78	2.00	26.4	28.4	75.4	2.6	80.3	2.1	15.9	19.0	15.0	22.6	4.1	6.6	22.7	37.1	62.1	5.5	8.2	Denmark
Estonia	1.3	1.2	14.0	17.8	-0.2	1991	2.05	1.46	1.95	22.7	*24.8*	*66.2*	*3.6*	*77.2*	*3.1*	*12.8*	*17.4*	*16.2*	21.2	3.1	5.5	*23.9*	33.4	62.3	9.7	21.7	Estonia
Finland	5.2	5.4	57.8	47.6	6.7	2023	1.78	1.80	1.88	26.5	*27.8*	75.4	2.6	82.2	2.1	16.5	20.4	15.9	26.1	3.8	8.0	23.8	45.0	60.5	8.8	20.7	Finland
France	60.6	65.1	764.7	508.5	105.0	2037	1.78	1.91	2.02	27.0	28.4	*75.9*	*2.6*	*83.0*	*1.6*	*17.1*	*21.3*	16.4	24.2	4.5	7.7	25.2	40.7	58.9	9.6	21.9	France
Georgia	*4.3*	4.5	*46.5*	*45.9*	*-28.0*	2019	2.15	*1.37*	1.81	23.7	*24.7*	*69.1*	*3.3*	*74.7*	*1.1*	*13.4*	*15.4*	*13.3*	18.9	2.1	3.4	*19.5*	29.0	-	12.6	28.3	Georgia
Germany	82.5	81.1	705.6	818.3	81.8	1972	1.45	1.36	*1.51*	26.6	29.0	76.5	3.5	82.1	2.6	16.5	20.1	18.6	27.5	4.3	8.0	27.8	46.0	61.3	9.5	15.1	Germany
Greece	11.1	11.3	101.5	104.0	34.9	1998	1.39	1.29	1.49	25.5	*28.0*	*76.6*	*1.7*	*81.3*	*1.7*	*16.8*	*18.8*	*17.8*	24.6	3.4	6.6	*26.4*	39.1	59.5	10.5	26.9	Greece
Hungary	10.1	9.5	95.1	132.5	18.2	1981	1.87	1.28	1.76	23.1	26.3	68.7	3.7	77.1	2.7	13.3	17.2	15.6	22.3	3.3	6.2	22.7	35.1	60.5	6.1	15.5	Hungary
Iceland	0.3	0.3	4.2	1.8	0.6	> 2050	2.30	2.04	2.33	24.0	26.2	79.3	2.1	83.6	2.2	18.0	21.3	11.8	19.1	3.4	4.4	17.9	30.8	64.0	*3.3*	*7.0*	Iceland
Ireland	4.1	5.1	64.5	29.4	46.4	2048	2.11	1.93	*2.22*	26.6	28.5	76.3	3.2	81.1	2.5	16.0	19.3	11.2	18.3	2.7	4.7	16.4	28.3	62.8	4.5	8.9	Ireland
Italy	58.5	57.1	562.6	546.7	558.2	1993	1.33	1.33	*1.41*	26.9	*28.7*	*76.8*	*2.5*	*82.5*	*1.8*	*16.8*	*20.5*	*19.2*	27.5	5.0	8.8	*28.9*	45.2	*61.0*	8.0	23.6	Italy
Latvia	2.3	2.0	20.3	32.0	-1.1	1991	2.00	1.24	1.56	23.0	24.7	66.1	6.8	76.2	3.5	12.7	17.1	16.5	21.3	3.0	5.6	24.1	33.4	62.9	10.4	18.1	Latvia
Liechtenstein	0.03	-	0.4	0.2	0.1	-	1.45	1.44	-	-	-	*78.7*	-	84.4	-	*18.4*	*20.3*	11.1	-	-	-	15.6	-	-	-	-	Liechtenstein
Lithuania	3.4	3.1	30.4	41.3	-9.6	1994	2.03	1.26	1.66	23.2	24.8	66.4	3.8	77.7	2.9	13.5	17.8	15.1	21.4	3.0	5.5	22.3	33.4	60.8	11.4	22.7	Lithuania
Luxembourg	0.5	0.6	5.5	3.6	1.5	> 2050	1.60	1.69	1.83	*27.8*	28.6	76.3	2.9	82.5	2.8	16.6	20.7	14.3	19.8	3.2	5.1	21.3	31.5	57.7	4.8	18.1	Luxembourg
Macedonia, FYR	2.0	2.2	23.4	18.0	-0.1	2049	2.06	1.52	2.03	23.4	24.9	71.6	2.1	75.8	1.7	13.5	15.3	10.9	18.2	1.7	3.6	15.8	28.1	-	37.2	-	Macedonia, FYR
Malta	0.4	0.5	3.9	3.0	1.9	2027	2.04	*1.48*	*1.64*	-	-	*76.7*	*2.0*	*80.4*	*1.8*	*15.8*	*18.2*	*13.0*	22.4	2.8	6.3	*19.0*	36.0	57.7	7.7	19.0	Malta
Moldova	3.6	4.1	38.3	41.7	-3.6	1998	2.39	1.25	1.65	-	23.3	64.6	2.3	72.4	2.6	11.4	14.2	9.9	16.5	1.5	2.4	13.9	24.0	-	8.1	-	Moldova
Netherlands	16.3	17.6	194.0	136.6	-10.0	2028	1.62	1.73	1.82	27.6	28.9	76.8	2.2	81.4	1.1	16.2	19.8	14.0	22.5	3.5	5.8	20.8	36.7	61.1	4.6	8.0	Netherlands
Norway	4.6	5.4	57.0	41.2	13.2	> 2050	1.93	1.83	2.07	25.6	27.6	77.5	2.6	82.4	1.7	17.0	20.5	14.7	20.5	4.6	5.9	22.4	33.0	62.0	4.4	11.4	Norway
Poland	38.2	36.5	356.1	363.5	-9.4	2002	2.05	1.23	1.64	23.3	25.6	70.6	3.1	79.1	3.0	14.2	18.3	13.1	22.6	2.5	5.4	18.7	35.7	57.7	19.0	39.6	Poland
Portugal	10.5	10.7	109.3	102.3	47.6	2011	1.57	1.40	1.80	24.9	27.1	74.9	3.1	81.4	2.7	16.2	19.6	17.0	24.3	3.8	6.8	25.2	39.0	62.2	6.7	15.4	Portugal
Romania	21.7	19.9	216.3	258.9	-10.1	1992	1.84	1.29	1.58	22.7	*24.2*	*67.8*	*2.0*	*75.3*	*2.2*	*13.3*	*16.1*	*14.4*	19.2	2.4	4.1	*20.9*	28.4	59.5	7.6	23.2	Romania
Russia	143.5	123.9	1502.5	2295.4	98.9	1992	1.90	1.33	1.47	22.6	24.0	58.9	1.3	72.3	1.1	11.0	15.3	13.7	19.5	2.3	3.4	19.3	29.2	-	7.8	*24.7*	Russia
San Marino	0.03	-	0.3	0.2	0.3	-	1.31	1.24	-	26.7	28.7	-	-	-	-	-	-	16.5	-	-	-	24.1	-	-	-	-	San Marino
Serbia & Montenegro	8.1	10.8	88.4	110.1	0.0	> 2050	2.10	1.60	2.08	23.9	*25.7*	*70.1*	*1.3*	*75.2*	*1.1*	*13.0*	*15.0*	*16.5*	18.9	2.2	4.2	*24.5*	29.8	-	*15.2*	-	Serbia & Montenegro
Slovakia	5.4	5.2	53.7	51.9	2.9	2001	2.09	1.24	1.60	22.6	25.3	70.4	2.1	78.0	1.5	13.4	17.1	11.6	20.8	2.4	4.4	16.3	31.7	58.5	18.2	33.1	Slovakia
Slovenia	2.0	2.0	17.9	18.6	1.9	1997	1.46	1.25	1.63	23.7	27.5	73.6	3.5	80.8	3.1	15.1	19.3	15.3	25.1	3.0	6.3	21.8	40.4	*56.2*	6.3	16.1	Slovenia
Spain	43.0	45.4	453.3	370.7	610.1	2014	1.36	1.32	1.33	26.8	*29.2*	77.2	2.9	83.8	2.4	-	-	16.8	24.7	4.3	7.3	24.4	38.9	62.2	11.0	22.1	Spain
Sweden	9.0	9.9	100.9	90.5	25.3	2030	2.13	1.75	1.91	26.3	28.6	78.4	2.3	82.7	1.4	17.4	20.6	17.2	23.1	5.3	7.6	26.5	38.5	62.8	6.3	16.3	Sweden
Switzerland	7.4	7.4	73.1	60.2	41.3	2017	1.58	1.42	*1.69*	27.6	29.3	78.5	3.3	83.6	1.9	18.0	21.4	15.8	23.1	4.4	6.5	23.3	37.6	*63.0*	4.3	7.8	Switzerland
Turkey	71.6	99.7	1360.0	443.0	-	> 2050	3.01	2.41	2.44	-	-	66.6	1.9	71.2	1.9	*12.7*	*14.3*	5.8	9.7	0.6	1.2	8.9	14.7	-	10.3	19.6	Turkey
Ukraine	47.1	37.7	427.3	761.3	-7.6	1991	1.89	1.22	1.36	-	23.5	62.1	-0.7	73.6	0.4	11.6	15.4	15.9	21.3	2.7	4.4	23.0	31.9	-	8.6	16.6	Ukraine
United Kingdom	59.9	64.4	716.0	584.8	203.6	2029	1.83	1.63	*1.85*	25.5	27.5	*76.1*	*2.6*	*80.5*	*1.7*	*16.2*	*19.1*	*16.0*	22.9	4.4	6.8	*24.3*	37.4	62.1	4.7	12.1	United Kingdom
EU-25	**459.5**	**469.4**	**4792.6**	**4348.0**	**1852.3**	**2010**	**1.64**	**1.50**	***1.67***	**26.1**	**27.8**	***75.1***	***2.8***	***81.2***	***2.0***	**16.1**	**19.7**	**16.6**	**24.7**	**4.1**	**7.2**	**24.8**	**40.3**	**60.7**	**9.1**	**19.9**	**EU-25**
United States	295.1	363.6	4115.6	2398.3	1049.5	-	2.08	2.05	2.15	24.2	*25.2*	75.2	2.8	80.4	1.4	*16.8*	*19.8*	*12.4*	19.6	*3.5*	5.4	*18.5*	32.4	-	5.5	11.8	United States
Canada	32.1	38.8	336.0	232.2	197.5	-	1.71	*1.50*	-	-	*27.7*	*77.4*	*2.5*	*82.4*	*1.4*	-	-	13.1	*23.4*	3.5	*6.3*	18.9	*37.7*	-	7.2	13.4	Canada
Japan	127.6	117.6	1110.7	1028.6	-35.0	2006	1.54	1.29	1.39	27.0	28.9	78.6	2.5	85.6	3.1	*18.0*	*23.0*	19.9	29.6	4.9	12.1	30.0	50.0	-	4.7	9.5	Japan

Notes: Numbers in italics refer to years different from the one in the column heading. Population projections for non-EU/non-EFTA countries calculated by VID, assuming zero migration. Eurostat projections are used for EU-countries, projections from national institutes for EFTA-countries. For Mean age at first birth the numbers for Belgium, France (only in 1990), Germany, Luxembourg and Switzerland refer to the mean age within current marriage. For further information about data sources and country-specific definitions see www.populationeurope.org.

Tempo Effect and **Adjusted TFR**

The conventionally reported indicator of the level of fertility in a given calendar year (the period Total Fertility Rate or TFR) reflects the interplay of two components: *tempo* (timing) and *quantum* (level) of fertility. The tempo component affects the TFR when the timing of childbearing over the life cycle changes. In Europe many countries are currently experiencing a postponement of births, which is also reflected in an increasing mean age of childbearing. This results in a decline in the number of births in the current year and therefore depresses the period TFR, even if the number of children that women have over their life course does not change. One can also think of this tempo effect in terms of an expansion of the interval between generations during which fewer births fall into each calendar year.

In order to come up with a measure of the level (quantum) of fertility in a given calendar year that is free from the tempo effect and is a better indicator for the average number of children per woman than the observed period TFR, the "tempo-adjusted TFR" has recently been developed. The adjusted TFR as listed in this data sheet is calculated on the basis of the Bongaarts-Feeney (1998) formula which uses fertility data by birth order. The sheet gives the mean of the adjusted TFR for the three-year period 2001-2003. For countries for which no such data is available the adjusted TFR is estimated on the basis of a regression relating the observed change in the mean age of childbearing to the size of the tempo effect. (For a detailed description of methods and data see www.populationeurope.org).

Figure 1 illustrates the tempo adjustment for the Czech Republic where postponement was particularly pronounced after 1992 and the TFR fell sharply in tandem with an increase in the mean age at childbearing, reaching a low of 1.13 in 1999. The trend in the adjusted TFR shows that most of this drop was due to tempo effects linked to fertility postponement. In Spain (see **Figure 2**) the pattern has been quite different, with the adjusted TFR following the decline in the conventional TFR and a divergence only emerging for the early 1990s when significant postponement occurred. In Spain, recently the increase in the mean age of childbearing has leveled off and, as a consequence, the difference between the two fertility measures has almost disappeared, showing a slight increase in TFR combined with a continued decline of fertility quantum represented by the adjusted TFR.

As to the future fertility trends, the Spanish example shows that an end of postponement does not necessarily result in a significant increase in the TFR if the quantum of fertility declines simultaneously, i.e., if some of the postponed births are not recuperated. The future level of the quantum of fertility is an open question and there is no good theory to tell us whether it will be stable, recover or continue to decline. Population projections need to reflect this uncertainty.

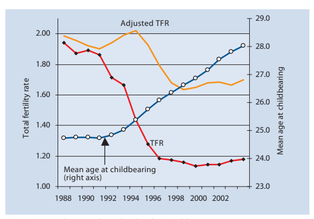


Figure 1: Fertility trends in the Czech Republic

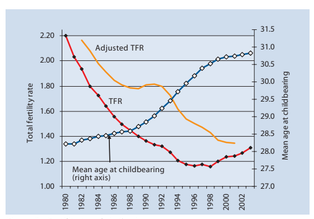


Figure 2: Fertility trends in Spain

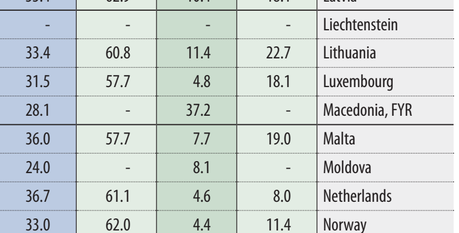
Range of Likely Future Trends in the EU-25

The future trends of all three forces (fertility, mortality and migration) shaping the pattern of population ageing in Europe are uncertain within plausible ranges. Recently, methods of probabilistic population projections have been developed to describe these uncertainty ranges in an explicit and quantitative way (see: www.populationeurope.org).

Figure 1 shows the future trend in the old-age dependency ratio for all 25 EU member countries taken together, with the orange area referring to the 95 percent uncertainty range and the red area to the trend considered most likely. This indicator currently stands at .25 which means that there are four people in the age group 15-64 (considered as the potential working age) for each person age 65 or older. As the figure shows, this ratio is bound to increase significantly over the coming decades and there is little uncertainty about the trend because most of this increase is already pre-programmed in today's age structure. There is an 80 percent chance that the ratio will more than double by 2050, which implies less than 2 persons of working age per person above age 65. And at the high end there is about a 20 percent chance that there will only be three people of working age for any two persons above age 65. Since not everybody between age 15 and 64 will be actually working – because of education, parental leave, unemployment, early retirement or other reasons – the actual ratio of contributors to beneficiaries of the pension system may even be less favourable. While future trends in fertility, mortality and migration can only marginally alter this pervasive population ageing, the actual ratio of workers to pensioners can also be influenced by policies affecting labour force participation rates and the retirement age.

There is significantly more demographic uncertainty as to the future trend in the proportion of the population above age 80 (see **Figure 2**). At the moment only 4 percent of the population are of this advanced age. Over the next 20 years their proportion might well increase to about 6-7 percent, but then the increase accelerates due to the strong baby boom cohorts gradually entering this age group. At the same time, the uncertainty range rises considerably. This is a consequence of the high uncertainty about the path that old age mortality will take in the future, reflecting the controversy among scientists, some of whom think that the recent gains in life expectancy may even accelerate in the future while others suppose they will diminish. As a consequence, the 95 percent interval for 2050 ranges from a low 7 percent to a population in which one out of five persons is above age 80. **Figure 3** shows the probabilistic age pyramid for 2030 which clearly illustrates that the uncertainty differs by age, with the highest uncertainty about the future number of children and the lowest one for the cohorts born around 1970 which are beyond their prime migration age but not yet effected by the uncertainty about future old age mortality.

Figure 2: EU-25, Proportion above age 80



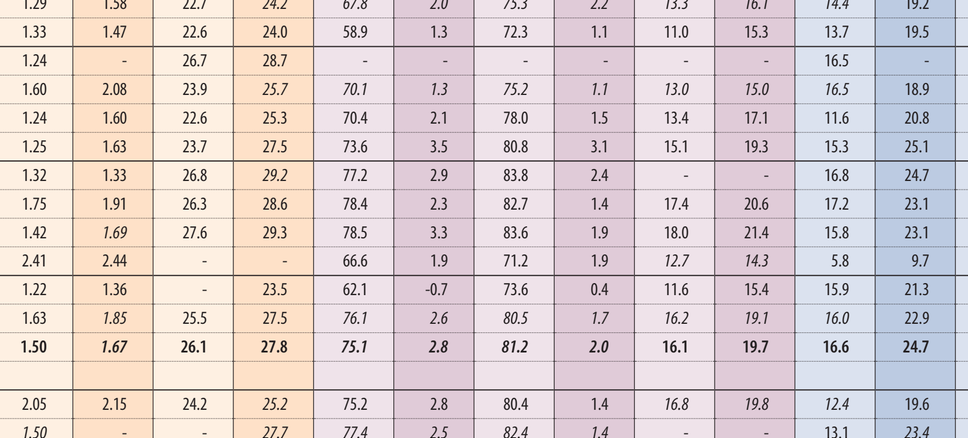


Figure 1: EU-25, Old-age dependency ratio (65+/15-64)

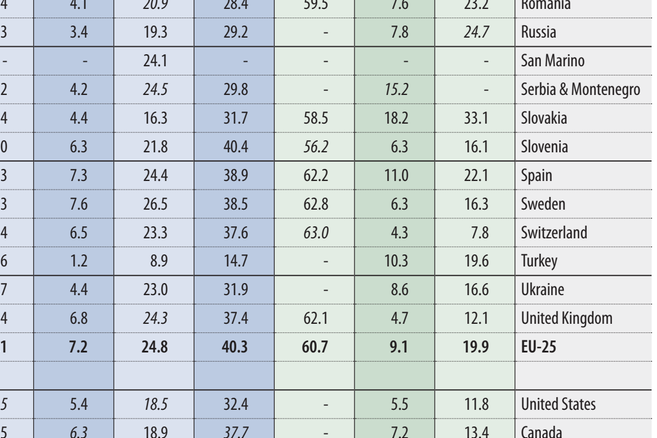


Figure 3: EU-25, 2030; blue line refers to EU-25, 2004

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