

Statistics in focus

POPULATION AND SOCIAL CONDITIONS

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Population

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Long-term population projections at national level

Based on past trends, an analysis of driving forces and expert opinion, Eurostat has produced internationally consistent population projections (EUROPOP2004: EUROstat POulation Projections 2004-based) from 1 January 2005 to 1 January 2051 by sex, year and age for each Member State plus Acceding Countries (Bulgaria and Romania).

Eurostat's set of population projections is just one of several population change scenarios based on assumptions of fertility, mortality and migration. The current scenario, named Trend, does not take account of any future measures that might influence demographic trends and comprises seven variants: 'baseline' (BL), 'high population' (HP), 'low population' (LP), 'younger age profile population' (YP), 'older age profile population' (OP), 'high fertility' (HF) and 'zero migration' (ZM) (see methodological notes). All these variants must be interpreted as possible alternative developments in population except the latter, which helps in understanding the role played by migration in the evolution of population size and structure. Future results might obviously deviate from the range mapped out by the variants.

The EU population is likely to decline...

Most of the variants show a decline in EU population in the first half of the new century. The starting year of the population decrease differs across variants: 2008 for the 'zero migration', 2009 for the 'low population', 2011 for the 'older age profile population', 2025 for the 'baseline' and 2043 for the 'high fertility' variants, while for 'younger age population' and 'high population' the population size never declines over the projections horizon (Figure 1).

Indeed, due to the interactions between the assumed fertility, mortality and migration and the starting population structure, in all variants deaths will outnumber births and positive net migration will postpone the population decrease only temporarily. However, particular combinations of demographic factors can still ensure population growth until the mid-century.

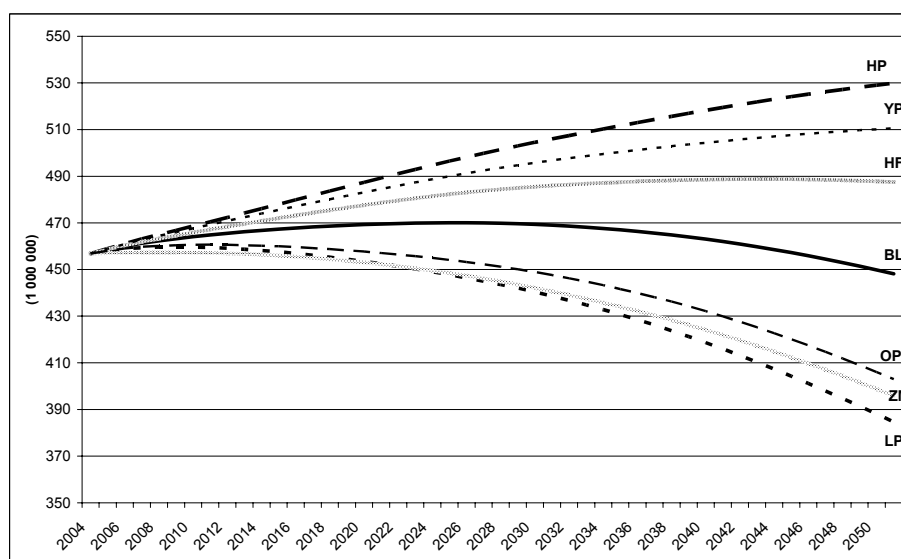


Figure 1: Projected total population, Trend scenario variants, EU-25, 2004-2051.
Source: Eurostat, EUROPOP2004

...but it is certain to age

The share of the population over the age of 65 will increase considerably in the European Union. Indeed, the old age dependency ratio (persons aged 65 years and over compared with persons 15-64 years-old) is expected to approximately double in all the variants from the initial 25% in 2004 (Figure 2).

This means that whereas in 2004 there was one elderly inactive person for every four persons of working age, in 2050 there would be about one inactive person for every two of working age. Over the projections period, the assumed migration flows would partially offset the ageing process. An increase in fertility would have a similar effect, but with a different timeframe.

The size of the aged population is expected to grow not only in relative but also in absolute terms. Indeed, the number of persons aged 80 and over (oldest old) is expected to nearly triple, rising from 18 million in 2004 to about¹ 50 million in 2051 (Figure 3). This impact will be more visible from 2025 onwards, due to the progressive ageing of the post-war *baby boom* generations and the expected increase in life expectancy.

The ageing process is also visible in the whole structure of the population: the median² age of the EU population is projected to increase (Figure 4). Besides the increasing number of people who survive to the oldest ages, this is also due to the shrinkage in the younger age population, caused by persistent levels of low fertility.

The reduction in median age that can be observed in some variants in Figure 4 is due to the assumption of a greater impact of fertility on the demographic development. Therefore, the current process of *dejuvenation* of the EU population might stop in the future.

The persistent low fertility is also the main cause of the expected shrinkage in the working age population, which is only partially offset by migratory flows (Table 3).

Therefore, the older population is certainly expected to increase over the next years. Compared to the total population, its proportion will change according to the extent fertility impacts on the demographic development of the EU population.

¹ Several variants in Figure 3 present similar values due to the projections horizon. For instance, a person born in 2004 will not reach the age of 80 in 2051 and therefore the 'high fertility' and the 'baseline' variants, which differ only for assumptions in fertility, will have equal results for the oldest old population.

² Median age is the point where exactly one half of the population is older, and the other half is younger.

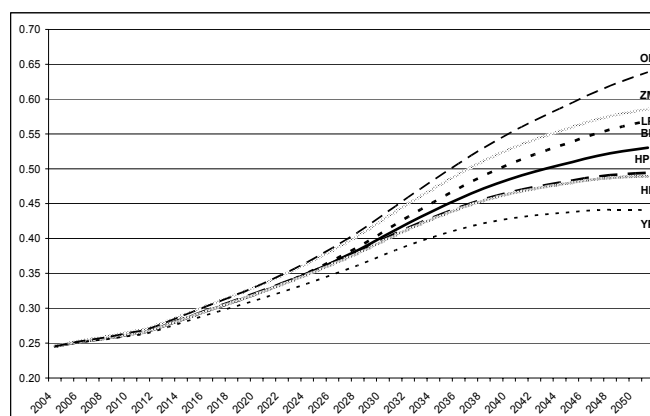


Figure 2: Projected old age dependency ratio, Trend scenario variants, EU-25, 2004-2051.

Source: Eurostat, EUROPOP2004

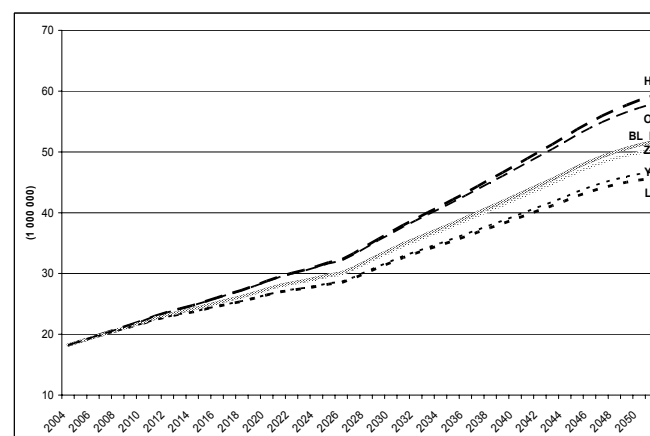


Figure 3: Projected total population aged 80 years and over, Trend scenario variants, EU-25, 2004-2051.

Source: Eurostat, EUROPOP2004

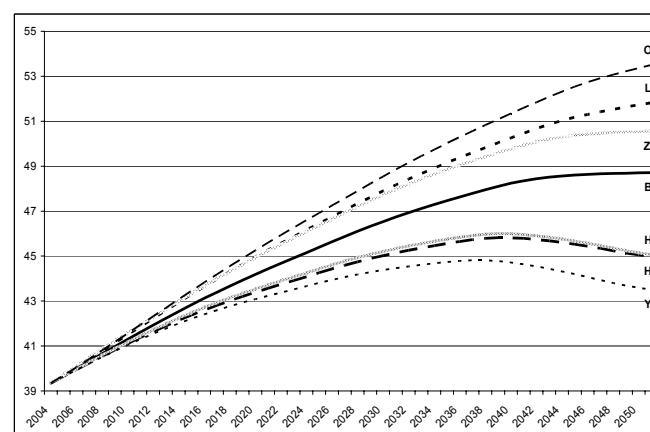


Figure 4: Projected median age, Trend scenario variants, EU-25, 2004-2051.

Source: Eurostat, EUROPOP2004

Migration alone will not ensure EU population growth

The absence of an adequate increase in fertility levels would cause a further decrease in the number of births. Indeed, smaller generations of women reaching reproductive age will result in fewer births than in the past (Figure 5).

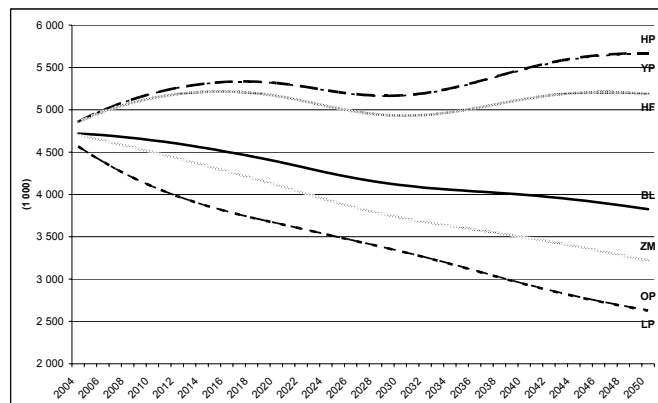


Figure 5: Projected births, Trend scenario variants, EU-25, 2004-2050. Source: Eurostat, EUROPOP2004

On the other hand, due to the increasing number of persons reaching older ages, the number of deaths in the EU is expected to increase in the first half of the century (Figure 6).

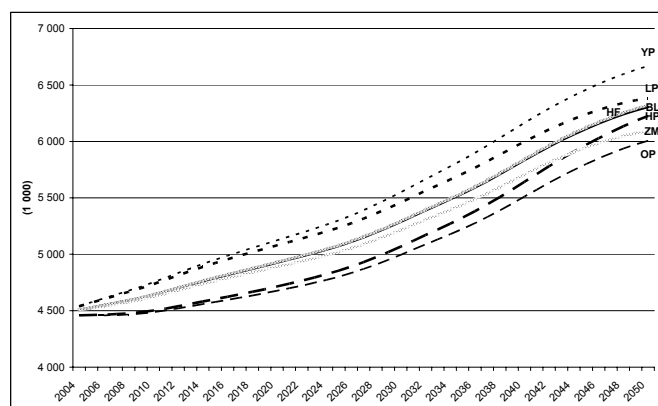


Figure 6: Projected deaths, Trend scenario variants, EU-25, 2004-2050. Source: Eurostat, EUROPOP2004

It is therefore expected that the increasing number of deaths will sooner or later outnumber births and hence population growth due to natural increase will cease. Positive net migration will thus be the only population growth factor, although in the long run it will not necessarily counterbalance the negative natural change (Figure 7), despite the fact that migrants contribute to the population growth not only in absolute terms but also via an increase in fertility, i.e. births due to female migrants.

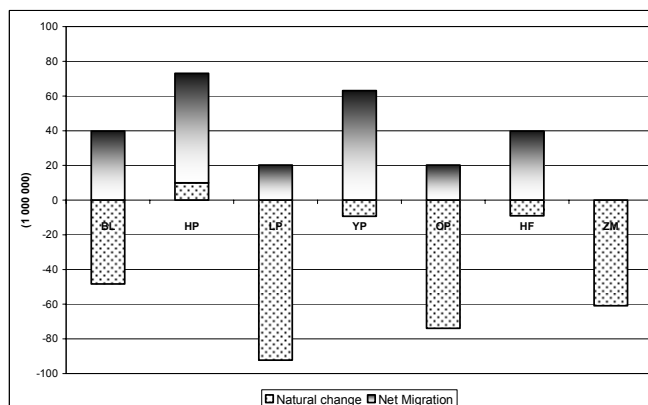


Figure 7: Cumulated values over the whole projections period of natural change and net migration, Trend scenario variants, EU-25, 2004-2050. Source: Eurostat, EUROPOP2004

Focusing on the working age population, the needs in terms of migrants to replace these declining age groups and thus to sustain the growth of the labour force would be even higher. For instance, taking the 'baseline' variant as a reference, even with positive net migration of around 40 million persons over the projections period (see methodological notes), in 2050 the working age population of the EU would have decreased by 52 million, and total population by 7 million (Tables 1 and 3). Total population declines less because the increase in life expectancy will mean people living longer, thus increasing this segment of the population, while, over the projections period, the birth deficit will reflect its impact more clearly on the younger age groups.

Significant differences among countries

The demographic processes described above would affect the Member States and the Acceding Countries to a different extent and timeframe.

Taking the 'baseline' variant as a reference, 12 of the 25 Member States are expected to have population growth at the end of the projections period (Table 5). Of those, France, Ireland, Cyprus, Luxembourg and Sweden will also have positive natural change, which for the first two is even higher than assumed net migration.

Eastern and Baltic countries, as well as the Acceding Countries, are expected instead to show a considerable decrease in their populations.

Differences are projected in terms of age composition as well. Mediterranean countries are expected to face the major challenges of an ageing population, especially in the second half of the projections period, while other countries, such as Luxembourg and the Netherlands, will observe a much less significant change (Figure 8).

	Observed population 1.1.2004	Baseline					Population 1.1.2051	
		Cumulated births	Cumulated deaths	Natural change	Net migration	Total change		
EU-25	456 815	199 694	248 045	-48 351	39 710	-8 641	448 174	EU-25
EU-15	382 674	170 300	207 086	-36 786	37 123	338	383 012	EU-15
Belgium	10 396	5 022	5 427	-405	897	492	10 888	BE
Czech Republic	10 211	3 774	5 784	-2 010	647	-1 363	8 848	CZ
Denmark	5 398	2 735	3 037	-302	323	22	5 419	DK
Germany	82 532	29 880	47 191	-17 311	8 980	-8 330	74 201	DE
Estonia	1 351	561	809	-248	19	-229	1 121	EE
Greece	11 041	4 352	6 559	-2 207	1 743	-464	10 578	EL
Spain	42 345	16 856	22 863	-6 007	6 235	228	42 573	ES
France	59 901	32 972	30 053	2 919	2 823	5 741	65 642	FR
Ireland	4 028	2 718	1 903	814	645	1 459	5 487	IE
Italy	57 888	20 402	31 680	-11 278	5 777	-5 501	52 387	IT
Cyprus	730	401	392	8	238	247	977	CY
Latvia	2 319	933	1 418	-484	30	-454	1 865	LV
Lithuania	3 446	1 350	1 957	-606	28	-578	2 868	LT
Luxembourg	452	296	233	63	132	194	646	LU
Hungary	10 117	4 063	6 092	-2 029	795	-1 233	8 883	HU
Malta	400	219	223	-4	113	110	510	MT
Netherlands	16 258	8 622	8 980	-358	1 480	1 121	17 379	NL
Austria	8 114	3 300	4 212	-912	985	73	8 187	AT
Poland	38 191	15 209	20 231	-5 022	318	-4 704	33 487	PL
Portugal	10 475	4 505	5 832	-1 326	808	-518	9 957	PT
Slovenia	1 996	771	1 162	-390	287	-103	1 893	SI
Slovakia	5 380	2 111	2 892	-781	109	-671	4 709	SK
Finland	5 220	2 573	2 875	-303	288	-15	5 205	FI
Sweden	8 976	5 022	4 851	171	1 069	1 240	10 216	SE
United Kingdom	59 652	31 047	31 390	-343	4 939	4 596	64 247	UK
Bulgaria	7 801	2 229	4 740	-2 512	-252	-2 764	5 038	BG
Romania	21 711	7 947	12 194	-4 247	-475	-4 722	16 989	RO

Table 5: Demographic balance 1.1.2004 – 1.1.2051, 'baseline' variant of the Trend scenario (in thousand).
Source: Eurostat, EUROPOP2004

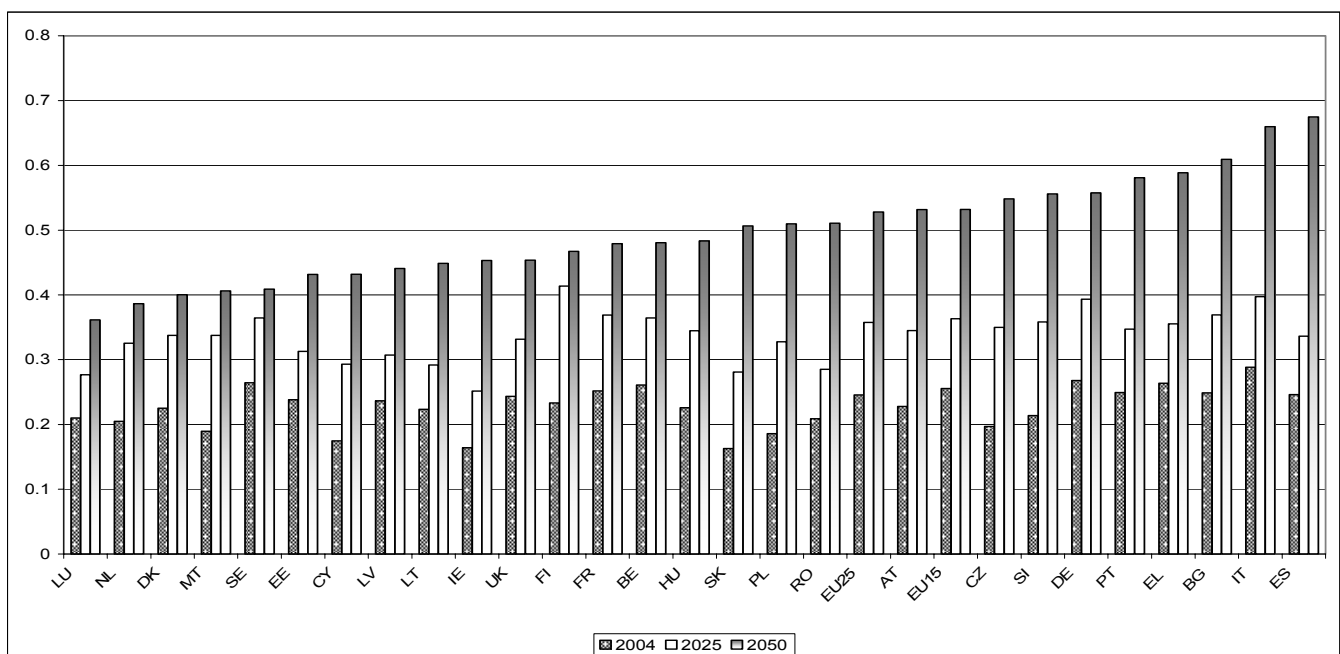


Figure 8: Projected old age dependency ratio by Member State and Acceding Country for selected years, 'baseline' variant of the Trend scenario. Source: Eurostat, EUROPOP2004

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

For the Trend scenario, three sets of assumptions (Base, High and Low) have been produced on fertility, mortality and migration, covering a time horizon until 2050. These assumptions can be summarised by means of indicators such as total fertility rate (TFR), life expectancy at birth and net migration.

The fertility patterns in the EU are assumed to be characterised by a transition towards late childbearing. The Member States are at different stages of transition: while Northern and Western countries are believed to be at a late/final phase of transition, Southern countries are at an intermediate stage and Eastern countries are assumed to be still at an early stage.

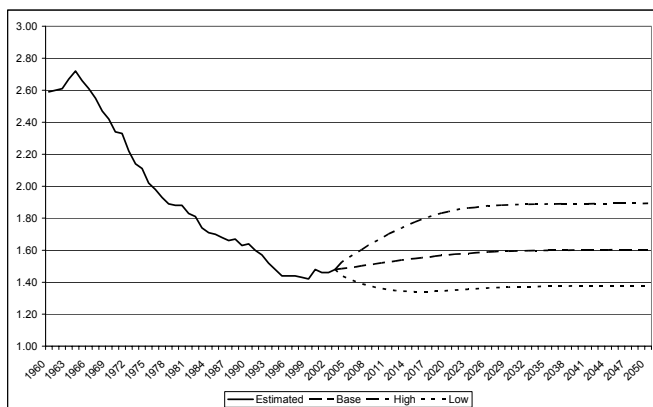


Figure 9: Estimated (1960-2003) and assumed (2004-2050) total fertility rate, EU-25

Source: Eurostat, EUROPOP2004

Total fertility rate is expected to rise gradually in countries experiencing postponement (Figure 9). It is assumed that Southern European countries will go through a rise in fertility before 2010, while this will remain low in Central-Eastern Europe for the forthcoming decade, before starting to rise again. No EU country will experience replacement fertility. On average, the TFR is assumed to be between 1.4 and 1.9.

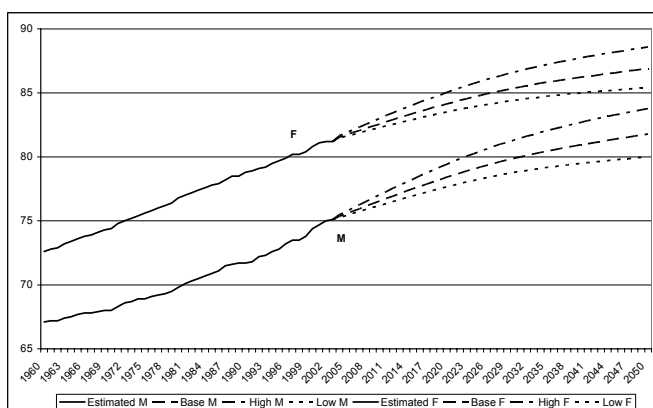


Figure 10: Estimated (1960-2003) and assumed (2004-2050) life expectancy at birth, for males and females, EU-25

Source: Eurostat, EUROPOP2004

Concerning mortality, it is assumed that life expectancy will continue to increase for the EU25, both for males and for females (Figure 10). Improvements will affect mainly the older ages and the differences in life expectancy between sexes will continue to decrease.

The decreasing trends in mortality over the last two decades are assumed to be the prevailing trends for future improvements. The new Member States are expected to converge to EU15 in terms of rates of improvements but not absolute mortality levels and the overall trend is supposed to slow over the projections period. Higher values are assumed on average in the EU15 area than in the new Member States.

The assumptions on migration explicitly take account of the impact of enlargement. It is assumed that there will be a gradual opening of national labour markets and that the new Member States will change, in the 'base' and 'high' variants, from sending to receiving countries. The EU25 area is projected to receive a surplus of nearly 40 million migrants over the whole projections period in the 'base' assumption, 63 million in the 'high' and 20 in the 'low' assumption. The bulk of it will be directed to the EU15 area, while the new Member States, although experiencing a positive balance at the end of the period in the 'high' and 'base' assumptions, are expected to reach much lower cumulative values.

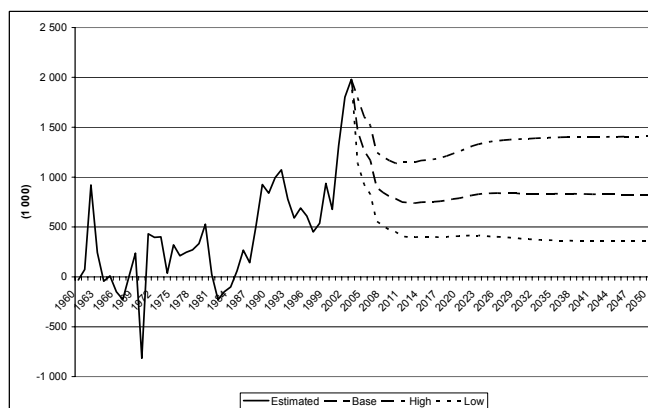


Figure 11: Estimated (1960-2003) and assumed (2004-2050) net migration, EU-25

Source: Eurostat, EUROPOP2004

The combination of the different assumptions produces the variants (Table 6). In the HP and LP variants, the assumptions all work together in the same direction for the growth or decrease of population; the other two variants (YP and OP) focus on the age structure of the population, while the HF and ZM variants highlight the impact of a specific component. No variant should be seen as a confidence limit in the statistical sense.

		Total Fertility Rate	Life Expectancy	Net Migration
Baseline	BL	Base	Base	Base
High Population	HP	High	High	High
Low Population	LP	Low	Low	Low
Younger Age Profile Population	YP	High	Low	High
Older Age Profile Population	OP	Low	High	Low
High Fertility	HF	High	Base	Base
Zero Migration	ZM	Base	Base	Zero














Table 6: Assumptions for the variants of the Trend scenario

The dataset adopted for the projections exercise was the one available in October 2004. Data for France refer to metropolitan France; data for Cyprus refer to the government controlled area.

For any definition, please refer to the information in the on-line database.

Further information:

Data: [EUROSTAT Website/Home page/Population and social conditions/Data](#)

-  Population and social conditions
 -  Population
 -  Demography
 -  International Migration and Asylum
 -  Population projections
 -  **Trend scenario, national level - base year 2004**
 -  Baseline variant
 -  High population variant
 -  Low population variant
 -  No migration variant
 -  High fertility variant
 -  Younger age profile population variant
 -  Older age profile population variant

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