

The French population projected to level off at 70 million

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Though the population of France is ageing, there is no threat of “demographic decline” on the horizon. In fact, the INSEE projections for 2050 foresee a substantial population increase over the coming decades. While previous projections predicted a future downtrend, they now see stabilization or slow growth as the most likely long-term scenario. Laurent Toulemon and Isabelle Robert-Bobée examine the various scenarios envisaged and explain the reasons for this new prognosis.

In July 2006, INSEE (the French statistical office) published new population projections for metropolitan France up to 2050 [1] (see Box 1). According to the medium scenario based on recent demographic trends, metropolitan France will count 70 million inhabitants on 1 January 2050, an increase of 9 million compared with 1 January 2005, when the total stood at 61 million.

◆ Twice as many over-60s by 2050

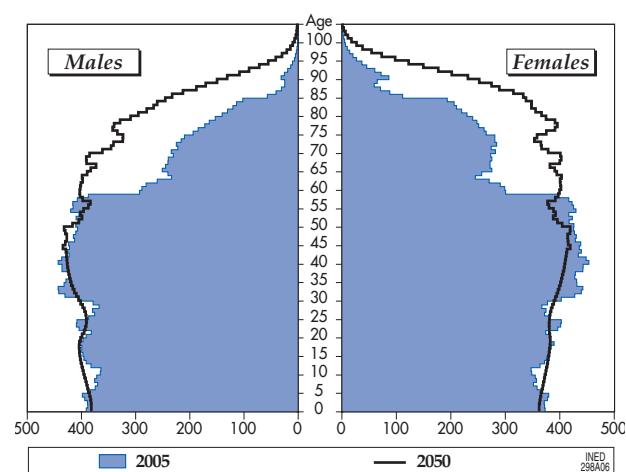
Between 2005 and 2050, under the medium scenario, only the population of over-60s increases (Figure 1), doubling in number as the cohorts born in the first half of the twentieth century are replaced by the larger cohorts born after World War II. The population of under-60s, on the other hand, remains practically stable.

The medium scenario is accompanied by 26 alternative scenarios combining different fertility, mortality and migration assumptions. The medium scenario is based on fertility of 1.9 children per woman on average (a level similar to that of today), a decline in mortality that continues at the same pace as over the last 15 years, and net migration (arrivals in France minus departures) of +100,000 persons per year. Under the “high” and “low” fertility scenarios (2.1 or 1.7 children respectively), the population in 2050 varies by plus or minus 4.1 million around the 70 million of the medium

scenario. Likewise, under the “high” and “low” net migration scenarios (50,000 per year or 150,000 per year respectively) it varies by plus or minus 3 million. The alternative mortality scenarios have a more limited impact: plus or minus 1.6 million. Altogether, combining the high or low assumptions of each component, the projections range from 61 to 79 million inhabitants in 2050 (Figure 2).

The degree of uncertainty varies by age (Figure 3). It is highest for the cohorts not yet born in 2005, at the

Figure 1 – INSEE medium scenario 2005-2050: top-down ageing (metropolitan France)



(L. Toulemon, I. Robert-Bobée, *Population & Sociétés*, no. 429, Ined, December 2006)

Source: [2]

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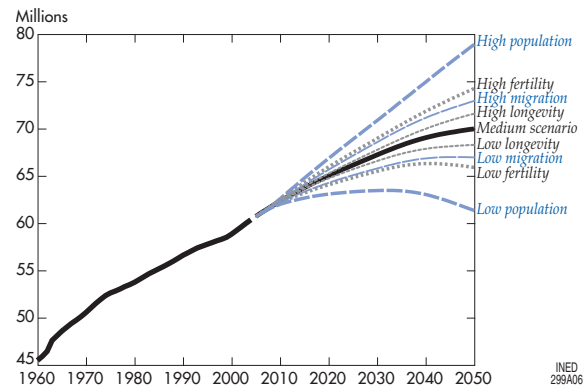
start of the projection. For example, the number of persons aged 0-19 in 2050 is 15 million under the medium scenario (the same number as in 2005), but between the extreme scenarios the range is broad: from 12 to 19 million depending on the choice of fertility and migration scenarios, i.e. 20% higher or lower than the medium projection. For persons aged 60+ on the other hand, already born in 2005, the extreme scenarios produce figures of 20 to 24 million in 2050, i.e. 6% above and below the medium projection of 22 million. The projected number of people aged 60+ in 2050 is affected mainly by the mortality assumption. Whatever the assumption, their numbers increase very sharply (by 77% in the medium scenario), as the large cohorts born between 1946 and 1974 replace the depleted cohorts that preceded them.

◆ **Greater uncertainty for births than for deaths**

The medium scenario projects a stable annual number of births up to 2049, the last year of the projection, close to today's level of 750,000 (Figure 4a). The annual number of deaths increases by almost 250,000 however, rising by 45% from 530,000 in 2005 to 770,000 in 2049. These figures vary from one scenario to another, with a larger range for births than for deaths. In 2010, between the low and high fertility scenarios, the number of births ranges from 680,000 to 840,000. Subsequent trends depend upon migration assumptions (Figure 4a). In 2049, the range is plus or minus 200,000 annual births with respect to the medium scenario (745,000). The annual number of deaths increases rapidly in all cases (Figure 4b). For 2049, the range of plus or minus 70,000 deaths with respect to the 770,000 of the medium scenario is much smaller than that of births. All scenarios lead to a very large increase in deaths between 2030 and 2040, as the large baby-boom cohorts reach very advanced ages and dwindle in number.

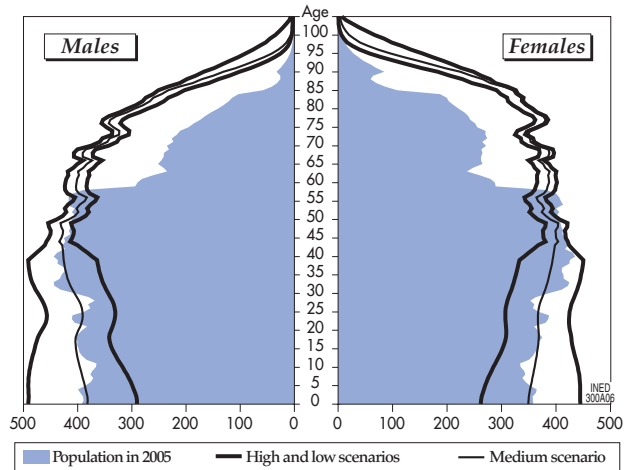
In 2049, the number of deaths could overtake the number of births, giving rise to negative natural increase (-26,000) according to the medium scenario. This figure varies substantially between scenarios – from

Figure 2 – Population of metropolitan France up to 2050 under different scenarios



(L. Toulemon, I. Robert-Bobée, *Population & Sociétés*, no. 429, Ined, December 2006)
Source: [3]

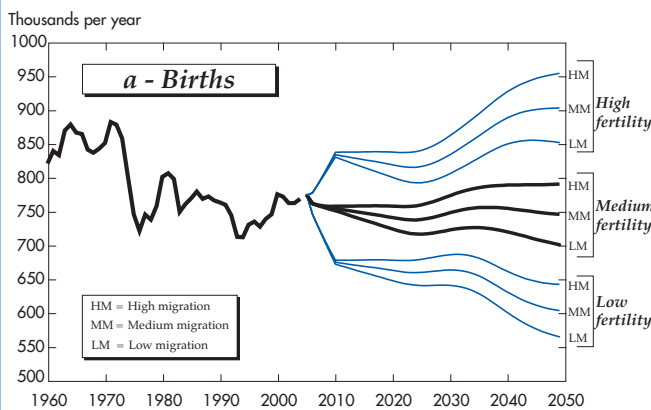
Figure 3 – Population pyramid of metropolitan France in 2005 and 2050, under low, medium and high scenarios



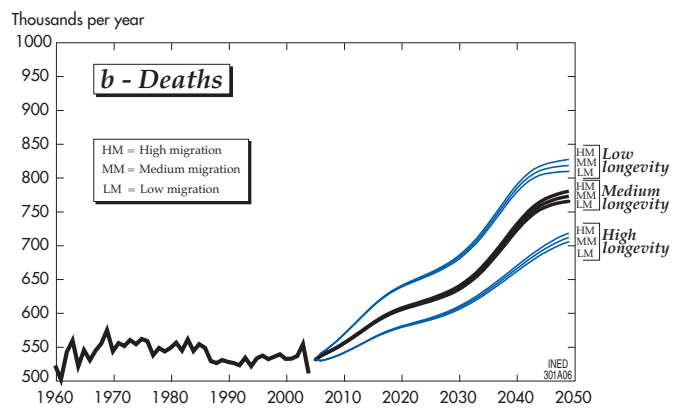
(L. Toulemon, I. Robert-Bobée, *Population & Sociétés*, no. 429, Ined, December 2006)
Source: [3]

-300,000 to +240,000 – but as all scenarios include the assumption of positive net migration (between 50,000 and 150,000 per year), the population in most of them (18 out of 27) is still growing in 2050.

Figure 4 – Uncertainty for births, but an inevitable increase in deaths under all scenarios



(L. Toulemon, I. Robert-Bobée, *Population & Sociétés*, no. 429, Ined, December 2006)



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◆ Will the French population level off?

The previous INSEE projections published in 2001 predicted a population of 64 million in 2050 (medium scenario). In the new projections, this figure is revised upwards (see Box 2), though this is not the most important new tendency revealed. Under the new medium scenario, the population stabilizes over the long term, with not only a population size that remains practically constant, but also a population pyramid whose shape remains unchanged [3]. With a total fertility rate of 1.9 children per woman, and annual net migration of +100,000, the population of France – among the under-50s at least – remains stationary. The population exactly reproduces itself each year, with a stable annual number of births (around 750,000). Between ages 0 and 50, the size of each birth cohort is increased by 95,000 (100,000 from net migration, minus 5000 deaths) to reach 845,000. It starts declining at higher ages because of mortality. There are around 395,000 women aged thirty, the mean age at childbearing, and 750,000 babies are born to women of childbearing age each year, so the population size stays the same.

Extending the INSEE medium scenario beyond 2050, and assuming that mortality does not decline but remains constant, the population remains stationary over the long term. It maintains its size and structure, with around 750,000 births per year, net migration of +100,000 and 850,000 deaths. Fertility, mortality and net migration are perfectly balanced. The previous INSEE projections (made after the baby boom) predicted a population decline over the long term, in contrast to projections made during the baby boom, which forecast continuous growth. Here, without any prior adjustment, the projected population size levels off at a constant 71 million inhabitants.

Let us now assume that instead of remaining constant after 2050, mortality continues to decline at the same pace as before. Under this scenario, life expectancy at birth continues to rise, from 86.4 years in 2050, to 90.9 years in 2100. The population aged below 50 remains constant, since mortality below age 50 is negligible, but the population of over-50s increases, continuing the process of “top-down ageing” (Figure 5). The total population also increases, reaching 74 million in 2100. In other words, the population pyramid remains unchanged at its base, but increasingly top-heavy. As in the previous scenario, there are around 750,000 births and net migration of 100,000 each year, but the number of deaths drops to 790,000 and the population increases by 60,000 a year.

What do these new projections tell us? They confirm that population ageing will continue up to 2050. Though the size of the projected population in 2050 is very dependent upon the choice of assumptions, all scenarios without exception predict a large rise in the proportion of old people up to this time horizon. The extent of variations between scenarios and the effects of adjustments made on the medium scenario point up the uncertainties associated with long-term population

Box 1

Assumptions used for the 2006 INSEE projections

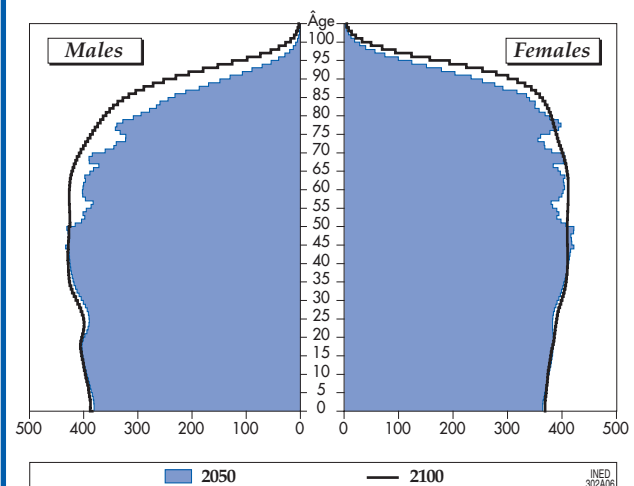
A range of scenarios is defined, one of which, the “medium scenario”, is an extension of current trends and considered to be the most likely. In the 26 other scenarios, one or more of the assumptions concerning fertility, mortality and migration trends are different from the medium scenario, resulting in a larger population (“high” scenarios) or a smaller population (“low” scenarios). The high and low assumptions, on either side of the medium scenario for each component, were constructed on the basis of expert opinion [3].

The various scenarios are based on the assumptions of rapidly stabilizing fertility at 1.7, 1.9 or 2.1 children per woman and annual net migration (difference between migrant arrivals and departures) of 50,000, 100,000 and 150,000 persons. The medium mortality scenario continues the trend of declining mortality observed over the last 15 years, with a male life expectancy at birth of 83.8 years in 2050, up 7.1 years on the current level of 76.7 years. For females, the increase is smaller, rising by 5.2 years from 83.8 to 89.0 years. On either side of this medium assumption, the increase in life expectancy is reduced or increased by 2.5 years for both males and females.

The detailed results, data and intermediate calculations can be downloaded from the INSEE website [2], along with a document presenting the expert opinions used to construct the scenarios [3].

projections, while confirming the trend of population ageing. Last, the new medium projection indicates that a stabilization of the population (or a slow increase if mortality continues to decline) is the most likely scenario if current trends persist.

Figure 5 – Projected population of metropolitan France up to 2100



Note: extension of the medium scenario to 2100, with continued mortality gains after 2050, fertility and net migration constant from 2010.

(L. Toulemon, I. Robert-Bobée, *Population & Sociétés*, no. 429, Ined, December 2006)

Source: [3]

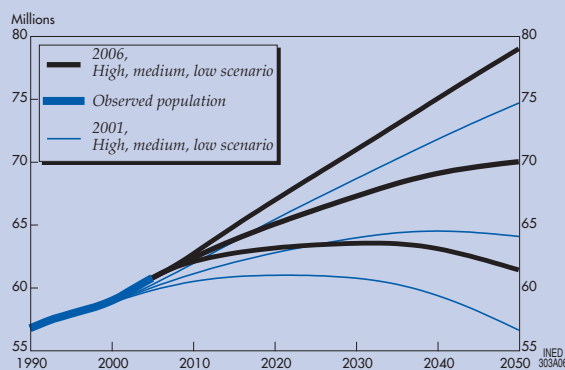
Box 2

A major upward adjustment of projections between 2001 and 2006

The French population projections produced by INSEE in 2006 are quite different from those of 2001 [4], with a 6 million divergence in the projected population size in 2050 – up from 64 to 70 million – under the medium scenario. With respect to the 2005 population, (60.7 million) the increase is 9.3 million, compared with just 3.3 million for the previous projection (figure). In addition, while the 2001 medium scenario projected a population decline from 2040, that of 2006 foresees growth that remains constantly positive, though admittedly slowing down, throughout the projection period.

These divergences are the consequence of changes in the fertility, mortality and migration assumptions and of adjustments made on the estimated population in 2005, the first year of the projection. The impact of each change of assumption on the revised figure for 2050 can be measured by constructing scenarios in which only one factor is modified. Hence, to measure the impact of an increase in net migration from 50,000 per year in the 2001 medium projection to 100,000 per year in that of 2006, the projected population size in 2050 under the 2006 medium scenario was calculated for net migration of 50,000, leaving all other assumptions unchanged. The total population size is reduced by 3 million, indicating that the change of the assumption on net migration between the 2001 and 2006 projections results in an extra 3 million people over 45 years, comprising the additional immigrants and their children born in France.

Figure – Population of metropolitan France from 1990 to 2050
Comparison between the 2001 and 2006 projections



Adjustments of medium scenario assumptions between the 2001 and 2006 projections and impact on the projected population size in 2050

	Medium assumption		Difference		Total effect
	2001	2006	Annual	Whole period	
Annual net migration	50,000	100,000	50,000	2,500,000	3,000,000
Fertility (children per women)	1.8	1.9	40,000	1,800,000	2,000,000
Life expectancy (years)	87.7	86.4			-800,000
Population in 2005	59,983,000	60,702,000		700,000	1,100,000
Combined effects					600,000
Population in 2050	64,032,000	69,961,000			5,900,000

This is the main factor of change. The second factor is the upward change of the medium fertility assumption from 1.8 to 1.9 children per woman. This results in 2 million more people in 2050 due to 40,000 additional births each year. The third is the addition of an extra 700,000 people to the estimated population on 1 January 2005. This adjustment takes account of the fact that fertility and net migration in the years 2000-04 were higher than projected in 2001 (186,000 additional births and net migration higher by 200,000 over the five years 2000-04) and that an extra 315,000 people were added to the 2005 population to tally with the 2004 and 2005 census survey results [2]. These additional 700,000 people in 2005 become 1.1 million people in 2050 because they in turn have children who contribute to population growth.

Unlike the other parameters, longevity was adjusted downwards, thereby reducing the projected population in 2050 by 800,000 people. This decrease mainly concerns women, since mortality assumptions for men are largely unchanged. These multiple changes interact with each other and their combination results in an additional 600,000 people in 2050 which is added to the sum of each elementary effect.

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ABSTRACT

According to the INSEE projections published in 2006, metropolitan France will have between 61 and 79 million inhabitants in 2050. The medium scenario forecasts a population of 70 million, and a process of population ageing. While previous projections foresaw a population decline over the long term, that of 2006 predicts an overall stabilization. The small surplus of deaths over births should be offset by positive net migration. There is a large difference with respect to the figure of 64 million announced for 2050 in the previous projections (published in 2001). This is due to the upward adjustment of 2005 population figures and to higher fertility and net migration assumptions.