

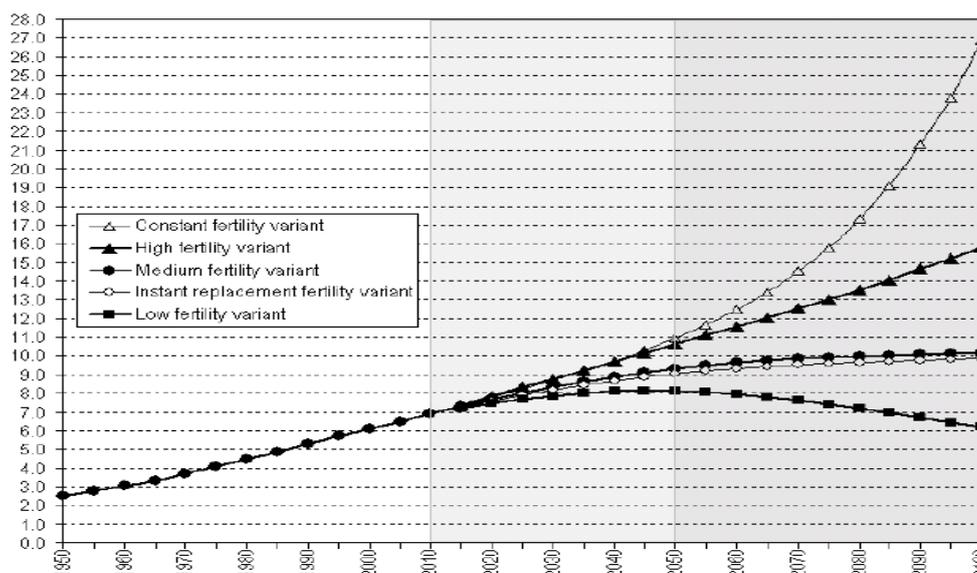


## The world at 7 billion

According to the latest United Nations population forecasts, the world's population will reach seven billion on 31 October this year.

Population projections are vital inputs into all of those long-term forecasts predicting the (relative, economic) decline of the West and the rise of the Rest that are so popular right now. There is only a handful of key producers of such forecasts and the United Nations Population Division is one of the leading providers. It has been producing forecasts since 1951, and from the early 1980s has provided regular forecast revisions every two years. The latest (2010) revision was released last month, and includes forecasts all the way out to 2100.

**Figure 1: Estimated and projected world population according to different variants, 1950-2100 (billions)**



Source: United Nations Department of Economic and Social Affairs Population Division, *World population prospects: The 2010 revision*. (2011)

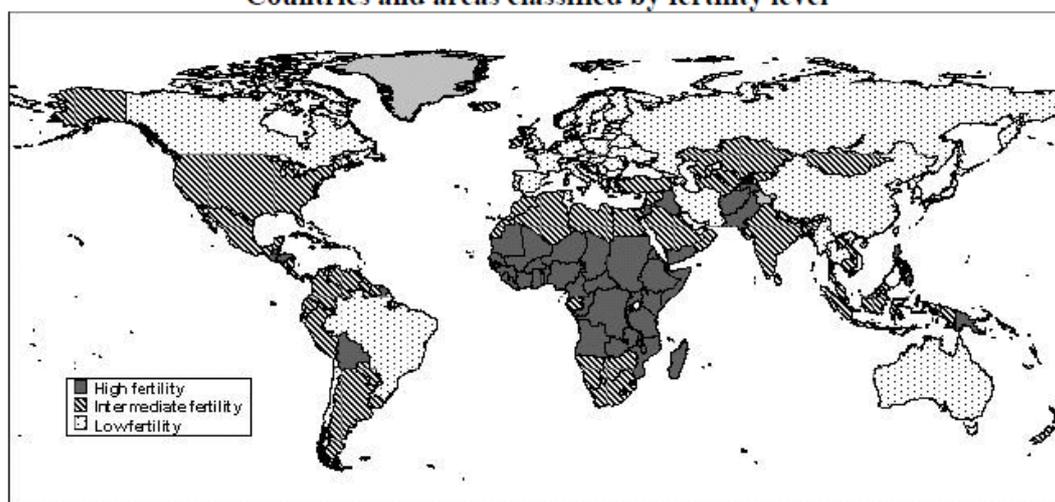
Population projections are a product of forecasts of mortality rates, fertility rates and (for individual countries) net migration rates. Since quite small variations in fertility rates in particular can produce dramatic differences in population size over the long run, the UN reports a range of forecasts based on different assumptions about fertility. According to the medium variant of the 2010 revision, the global population will reach 9.31 billion by 2050 and 10.1 billion by 2100. (The forecast for 2050 represents an increase of about 156 million over the 2050 forecast in the 2008 Revision, mainly reflecting changes in forecast fertility rates.) By way of comparison, the high fertility variant has the world's population reaching 10.6 billion by 2050 and 15.8 billion by 2100, while the low fertility variant implies a population forecast of 8.1 billion for 2050 and just 6.2 billion by 2100. All of these forecasts, including the high forecast, assume that fertility rates will continue to decline, albeit at differing rates. If instead



fertility were to remain constant at 2005-10 levels, then the world's population would soar to almost 27 billion by 2100. Typically, however, it is the medium variant that is used as the input into other economic projections.

Sticking with the medium variant of the 2010 revision, the world's population is forecast to increase by more than 2.3 billion people by 2050. Most of that increase is expected to come from the 18 per cent of the global population currently found in 58 high-fertility countries (that is, countries where the average woman has more than 1.5 daughters), a group comprising 39 African countries, nine Asian countries, six countries in Oceania and four in Latin America. In contrast, about 42 per cent of the world's population currently lives in low-fertility countries (countries where women are not having enough children to ensure that, on average, each woman is replaced by a daughter who survives to the age of procreation). While this group contains all of the European countries except Ireland and Iceland, it also comprises a diverse set of nations including Brazil, China, Russia, Japan, Iran, Thailand, Vietnam and Australia:

**Countries and areas classified by fertility level**



Source: UN Press Release, 3 May 2011 United Nations Department of Economic and Social Affairs Population Division, *World population prospects: The 2010 revision*. (2011)

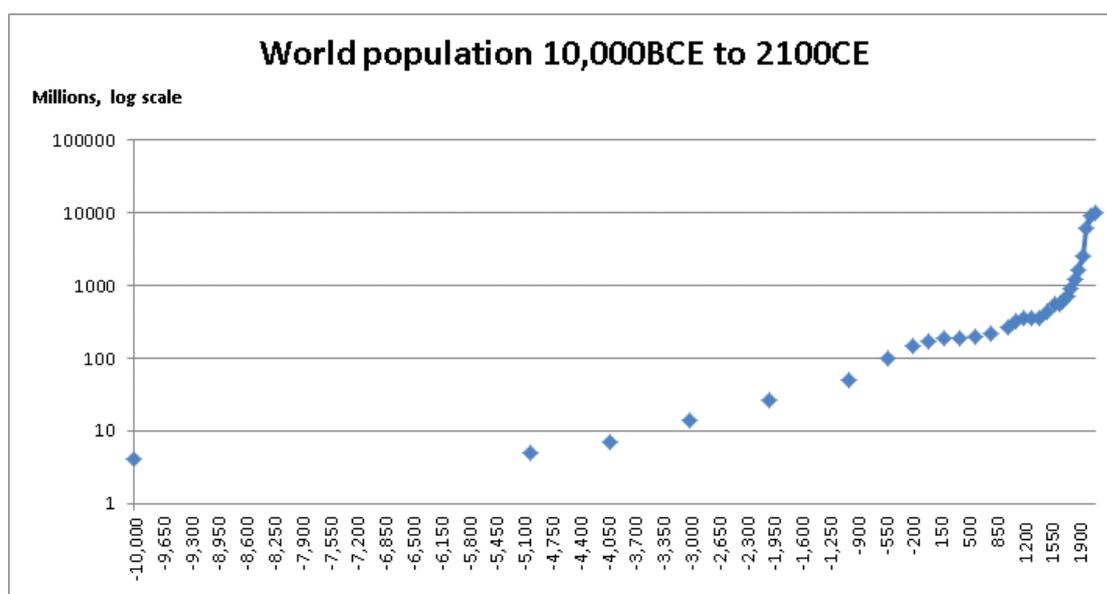
According to the 2010 revision, the world's population will reach the seven billion mark on 31 October this year. Since the UN guesimates that the world's population reached six billion on 5 December 1998, it will have taken the planet roughly 13 years to add another billion people to the global population. That is a rate of increase broadly in line with the 12 years or so it took the world to go from five billion to six billion people. The latest forecast assumes it will take another 13 years to add the eighth billion, 18 years to add the ninth billion, and four decades to add the tenth:



| World population milestones |      |                      |
|-----------------------------|------|----------------------|
| World population reached:   | In   | Approx. years taken: |
| 1 billion                   | 1804 |                      |
| 2 billion                   | 1927 | 123                  |
| 3 billion                   | 1960 | 33                   |
| 4 billion                   | 1974 | 14                   |
| 5 billion                   | 1987 | 13                   |
| 6 billion                   | 1998 | 12                   |
| 7 billion (F)               | 2011 | 13                   |
| 8 billion (F)               | 2025 | 13                   |
| 9 billion (F)               | 2043 | 18                   |
| 10 billion (F)              | 2083 | 40                   |

Sources: Estimates for 1 – 5 billion from *The World at Six Billion* (UN Population Division) and estimates for 6 – 10 billion from FAQ accompanying United Nations Department of Economic and Social Affairs Population Division, *World population prospects: The 2010 revision*. (2011).

This change reflects the fact that world population growth is forecast to slow from its current annual rate of 1.1 per cent to less than 0.5 per cent by 2050, and to fall further to just 0.06 per cent per year by 2100. This slowdown has an element of 'back to the future' in it: for much of the long sweep of world history, global population growth was close to zero, and the rate of change in global population was slow: the world economy was characterised by something that looks very much like a Malthusian-style equilibrium, with population roughly held in check. It was not until about 1804 that the world's population exceeded one billion, for example.<sup>1</sup>



Sources: Population estimates from 10,000BCE to 1850CE from Kremer, *Population growth and technological change: One million BC to 1990*. (1993); 1900-1950, from the United Nations *The world at six billion*; 1950-2100 from UN Population Forecast, 2010 Revision, Medium Variant.



The world economy's Malthusian Age came to an end at the start of the nineteenth century, around the time of the Industrial Revolution. About then, global demographics display what the economist W W Rostow described as a 'Great Population Spike', with a sharp upward shift in the rate of population growth.<sup>2</sup> This shift is more generally known as the onset of the demographic transition. Starting in Europe around about 1800, the demographic transition has since spread across the globe. Beforehand, 'life was short, births were many, growth was slow, and the population was young. During the transition, first mortality and then fertility declined, causing population growth rates first to accelerate and then to slow again, moving towards low fertility, long life and an old population.'<sup>3</sup>

Along with the declining fertility and slowing population growth of the demographic transition, population ageing is also a feature of the latest UN forecasts. The median age of the global population was just 23.9 years in 1950, rising to 29.2 in 2010. By 2050 it is forecast to be 37.9 and to be 41.9 by 2100. Similarly, while only about 5% of the world's population was over 65 in 1950, and a bit less than 8% in 2010, by 2050 this share is forecast to exceed 16% and to hit 22% by 2100.

Understanding the future of the world economy requires understanding the ongoing consequences of the demographic transition.<sup>4</sup> Several elements look to be particularly important: (1) that we are now in the final century of the transition, implying (2) that world population growth will slow, but also that (3) demographic momentum means that the world may still add another three billion people to the global population before the end of the century; (4) that the world's population will become increasingly older; and (5) that different countries are still at quite different stages in the transition process and as a result are facing very different demographic futures over the coming decades – the subject of a future IEC.

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<sup>1</sup> Thomas Malthus, *An essay on the principle of population*. London, Penguin Books, 1983 (Modern edition, first published 1798).

<sup>2</sup> W W Rostow, *The great population spike and after: Reflections on population and the economy in the 21st century*. New York, Oxford University Press, 1998.

<sup>3</sup> See Ronald Lee, The demographic transition: Three centuries of fundamental change. *Journal of Economic Perspectives* 17 (4) 2003.

<sup>4</sup> Some analysts distinguish between a first and second demographic transition. The first refers to the declines in mortality and fertility that began in Europe around the start of the nineteenth century and then spread worldwide during the twentieth century. The second refers to the shift to sub-replacement levels of fertility (implying shrinking populations in the absence of migration) in parts of the developed world during the second half of the twentieth century. See for example Ron Lesthaeghe, The unfolding story of the second demographic transition. *Population and Development Review* 36 (2) 2010.