

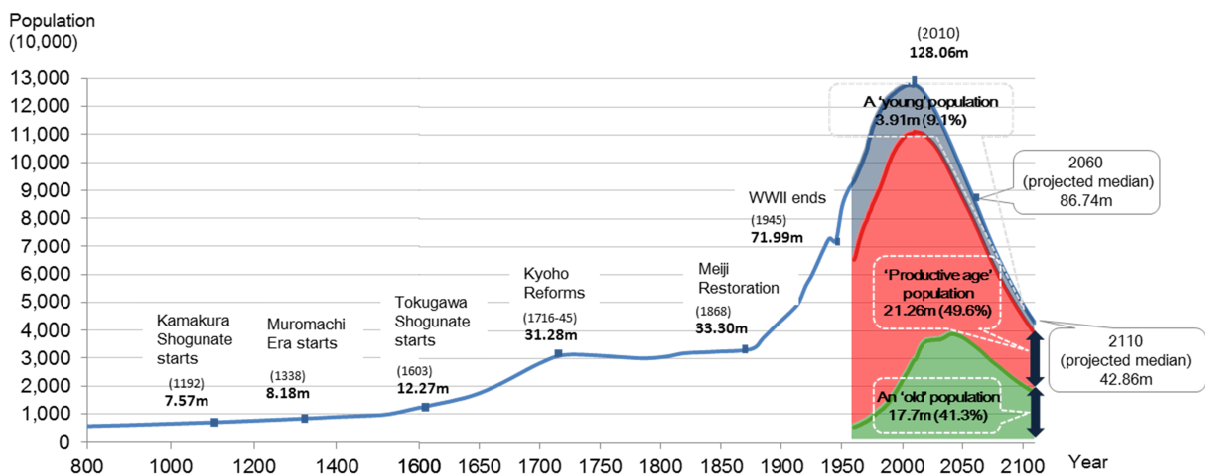


# The Japan Parliamentarians Federation for Population

## NEWS LETTER

No.30 January 2015

Fig. 1 Long-term trajectory of Japan's population



Sources: Prepared by APDA from the Ministry of Land, Infrastructure, Transportation and Tourism's *White Paper on Land, Infrastructure, Transport and Tourism 2013* and the National Institute of Population and Social Security Research's (IPSS) *Projection of Japanese Population (January 2012 Estimates)*

## Negative Population Momentum

There are said to be more than 4 million people in China who claim descent from the philosopher Confucius (BC552-479). If each generation produces on average 2.43 children, we can calculate that today's generation of Confucius' descendants, the 76th since the philosopher's lifetime, will number 4.4 million. But let's say that each generation of Confucius' descendants had 2.6 children on average instead; then Confucius would have 700 million descendants, and half of China's population would be

descended from him. The exponential nature of change in populations means that even small changes in growth rates can produce hugely different outcomes that we would never imagine.

Japan's total fertility rate (TFR) today (2013) is 1.43, which is below replacement level. Japan has entered a period of long-term population decline, and as the above chart shows, Japan's total population has continued to fall since its peak in 2010. Japan is projected to lose about one-third of its population over the next 50 years, and in a century's time in 2110 it will have shrunk to one-third of its population today, meaning that it will have returned to its level of exactly 100 years ago (during the late Meiji Era). Viewed in terms of Japan's population history over the centuries, this will constitute an extraordinarily rapid turnabout without precedent, and Japan has in particular never before experienced a population decline of the magnitude that it now faces. Furthermore, even if as a result of this decline the country's population returns to its former levels from around the time of the Meiji Restoration, it will be something entirely different in terms of its structure – it will be a “super-aged” population, with older and elderly people (65 years and older) making up 40% of the population, while the population of children (aged 0-14 years) will be less than one-tenth.

This decline in population, which has already begun, will occur over the course of 100 years – a very short length of time in historical demographic terms – and is predicted to have major consequences. There is a characteristic of population known as “inertia”, or “population momentum”, and it will play a major role in this transformation of Japan's population. Population momentum is an extremely important element to consider in any discussion of population issues. Put simply, population momentum means that once a population starts to grow, it takes a long time to stop growing, and similarly once it goes into reverse and starts to fall, it doesn't stop falling any time soon.

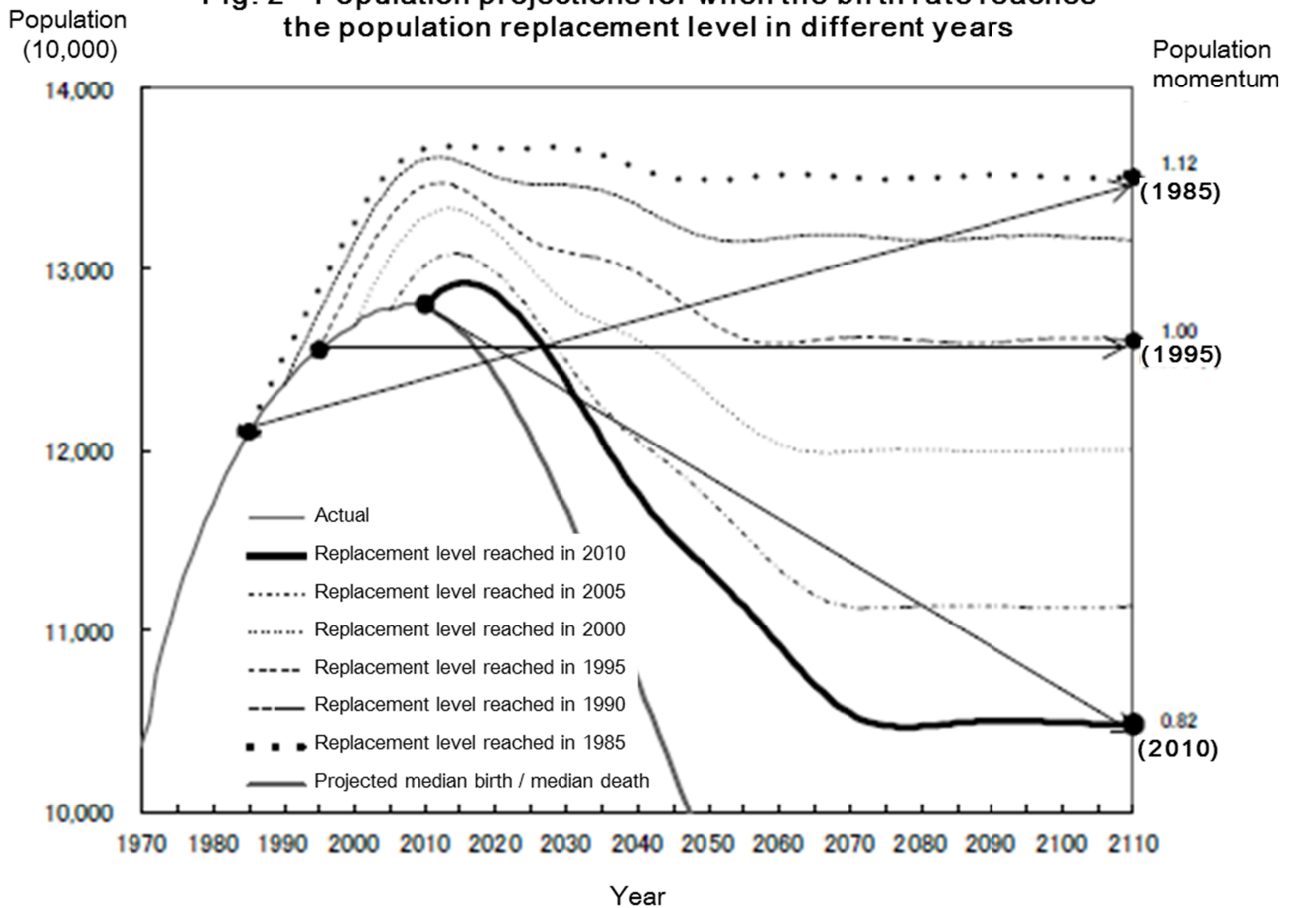
Population trends are determined by births and deaths. Based on its mortality rate today, Japan's TFR is around 2.08 where the level of its births is such that its long-term population neither grows nor declines.

The birth rate in many developing countries today is higher than their population replacement level. In a country with this level of population growth, even if its birth rate were to drop to the population replacement level, the size of its population would not stabilize immediately – it would keep growing for many more years, in the end expanding to a considerably large size. This is the phenomenon of “population momentum” at work.

This occurs because so long as a country's birth rate continues to exceed its population replacement level, even if that country's TFR were to fall to its replacement level, all those births to that time will give the country a population structure dominated by young people, who in turn will reach reproductive age and have their own children. So even if the country's per capita birth rate is at replacement level, its population will continue to expand simply because the parameter is so large. That is the very reason why Japan's population continued to expand right up until 2010 despite the fact that its population replacement level dropped below 2.08 in 1974 and continued to fall in the more than thirty years that followed.

Figure 2 shows how Japan's population would have grown if its birth rate had reached replacement level in other, different years. This shows that even if the population regains the replacement level in a particular year, the figure will not stay constant at the level at that time – the population will continue to grow for some time and converge to a certain point only after having reached a considerably high level.

**Fig. 2 Population projections for when the birth rate reaches the population replacement level in different years**



Sources: National Institute of Population and Social Security Research's (IPSS) *Japan's Future Population Projections - Commentary on January 2012 Projections and Reference Estimates (Conditional Estimates)*

The transition of a birth rate from a high level to replacement level is called the fertility transition, and the longer that this fertility transition takes, the angle of the population's peak becomes more rounded, and the rebound is also smaller. If the fertility transition is slow, the population increase inertia and population momentum will also be smaller in strength.

Even though Japan's birth rate regained the population replacement level after 1995, Japan's population is still on a path of decline - that is, it has come to have negative inertia. This means that Japan is in a situation where, as a result of its birth rate having been below replacement level for so long, the younger the generation the smaller the size of population of each year cohort, and even if its per capita birth rate were to recover, its overall birth rate would still not increase.

This is opposite to the mechanism affecting developing countries, where even if the birth rate were to fall, their populations would continue to increase. Given the connection between population structure and birth rate, it means that in Japan, inertia towards decline has taken hold. This is called “negative population momentum.”

If no measures are taken to address the current situation and Japan’s birth rate continues to be low, Japan will experience a massive population decline as shown in Fig. 1. The aging of Japan’s population that resulted from its demographic transition can be described as essential for the country’s sustainable development, and can also be seen as the positive outcome of all the work put in by its policymakers in the past. However, too rapid an aging process and population decline will deprive Japan of the physical resources and response capabilities it will need to manage those issues. The government is already putting together various proposals; but in reality, unless it aims for population stability by moderating this steep decline through policies not just for dealing with an aging population but also to restore the birth rate, Japan will not be in a position to maintain let alone raise its citizens’ individual well-being.

Compared to other disciplines, population is an area where statistical projections become reality with a considerable level of probability – in other words, where the future can indeed be mostly predicted by measuring the present. We face a number of needs: to inform the Japanese people more clearly about the coming transformation of the country’s population; to examine how Japan is going to look in the future; and, on the basis of that examination, to think about the policies to adopt for dealing with an aging population and a low birth rate.

Secretariat of the Japan Parliamentarians Federation for Population (JPFP)

The Asian Population and Development Association (APDA)

TEL: (+81)3-5405-8844

FAX: (+81)3-5405-8845

E-mail: [apda@apda.jp](mailto:apda@apda.jp)

Website: <http://www.apda.jp>

