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The structural shift Japan is undergoing is indicated visually by the figure below, comparing the population pyramids for 1960, 2010, and 2060 (projected). If we compare the 2060 pyramid with that of 2010, we see that the former is not only smaller in total area, indicating a decline in overall population, but also substantially different in shape, revealing a major change in demographic structure. Of course, "pyramid" has already become a misnomer in Japan's case, as is apparent from the 2010 chart; the prominent bulge in the middle-aged and older age groups creates a shape more closely resembling an urn. However, by 2060 it will be essentially an inverted pyramid. Incidentally, the high number of centenarians suggested by the 2060 chart is no graphing error. The number of Japanese citizens aged 100 or older grew from a mere 100 or so in 1960 to about 44,000 in 2010, and under the latest IPSS projection, it will reach 637,000 by 2060. In short, Japan is expected not only to lose population over the next few decades but also to undergo a profound change in population structure.

This series of charts is also useful for illustrating the ongoing impact of Japan's postwar baby boom, which lasted from 1947 to 1949. In the 1960 chart, the baby-boomers have reached 11–13 years old, and their impact on the population pyramid can be seen in the pronounced bulge just beneath the 15-year mark on the age axis. By 2010, they are 61–63, creating a commensurate bulge at that age level, while their children create another bulge (the "second baby boom") around the 40-year mark. This highlights an important truth about demographics, namely, the long-lasting repercussions of the birthrate at a particular point in time. In general, we can say that the population picture of the present and even that of the near future is constrained by events of the past. Indeed, the demographic shift we are highlighting here is a consequence of the long-term drop in the fertility rate during the decades following the 1947–49 baby boom, particularly from the mid-1970s on, when the total fertility rate fell below the replacement rate (the rate required to maintain a stable population). What this means is that, to a great extent, the hyper-aging and overall decline of Japan's population over the next few decades is irrevocable and must be accepted as a given.

The first key trend is an overall decline in population. Between 2010 and 2060, the population of Japan is projected to drop from 128.06 million to 86.74 million—a decline of 41.32 million, or roughly one-third, in a period of 50 years. Furthermore, the population lost between 2035 and 2060 is expected to exceed that lost from 2010 to 2035, indicating an accelerating pace of decline. From 2040 on, the total population is projected to drop by more than 1 million annually—roughly the population of one of Japan's smaller prefectures.

What accounts for such a precipitous drop? Put simply, it is the increase in the number of deaths as the population ages and the decline in the number of births. In 2040, for example, deaths are projected at 1.67 million and births at 670,000, yielding a net population loss of 1 million. Even though annual mortality is projected to peak around 2040 and fall to around 1.54 million by 2060, the total population will still decline by 1.06 million that year because the projected number of live births for 2060 is only 480,000.

The second trend is the increase in the elderly population and in the ratio of elderly persons to the total population. The number of elderly persons is projected to increase from 29.48 million in 2010 to 37.41 million in 2035. After peaking at around 38.78 million in 2042, the elderly population will begin to decline, but since the overall population is declining even faster, by 2060 the elderly will account for a full 39.9% of the population. In other words, one out of every four people in our society will be 65 or older. The number of elderly persons classified as "advanced age" is expected to increase at a particularly fast clip as the baby boomers pass the 75-year mark; between 2010 and 2035, this age group is expected to grow from 14.19 million to 22.78 million, an increase of about 60%. The aging of this cohort will also boost the number of annual deaths by 40% during this period, from 1.20 million to 1.66 million. A hyper-aged society is a high-mortality society.

The third trend to note is the decline in births and the dramatic drop in the population of young people. From 16.84 million in 2010, the population of children is projected to fall by about one-third, to 11.29 million, by 2035, and by a full half, to 7.91 million, by 2060.

An important point to keep in mind here is that the projected decline in births is not primarily the result of a

further drop in the fertility rate. Indeed, the total fertility rates posited for the *Population Projections for Japan*—as compared to the 1.39 fertility rate in 2010—are 1.34 in 2035 and 1.35 in 2060 for the medium variant, and 1.59 in 2035 and 1.60 in 2060 for the high variant; in either case, the total number of births drops significantly. The sharp decline in births is an inevitable consequence of a decline in the number of women of child-bearing age as a result of the earlier drop in the fertility rate.

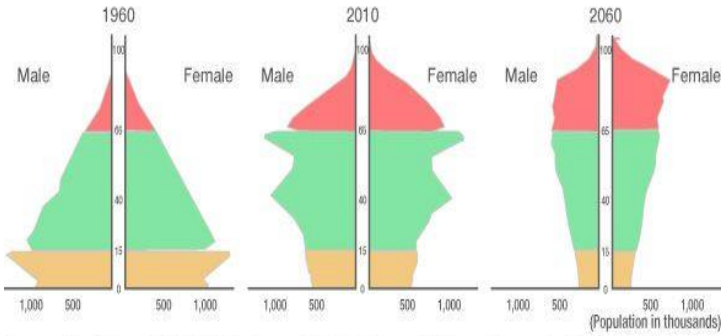
This is not to discourage public policy aimed at encouraging childbearing. The government has a duty to create a climate congenial to marriage, childbearing, and childrearing through family-friendly labor policies and measures to reduce unemployment among young adults. But we need to realize that, even if such policies are successful in pushing up the fertility rate, they will not reverse the decline in the total population and particularly the young population over the coming decades.

The fourth important trend is the rapid decline in the working population. This process began some time ago (Japan's working-age population peaked at 87.17 million in 1995), but by 2060 the number of working-age people will drop to 44.18 million, roughly half the 2010 figure of 81.73 million. Unless the rate of participation in the labor force rises, this will mean a proportionate drop in the size of the labor force. The biggest problem here is that, under these population projections, the number of working-age people continues to decline at roughly the same rate from 2010 to 2035 (a loss of 18.3 million) and from 2035 to 2060 (19.25 million). Thus, even while the elderly population is mushrooming between 2010 and 2035, the working-age population that supports the elderly is dwindling sharply.

This brings us to the fifth trend, namely the rapid increase in the old-age dependency rate, (the ratio of the elderly to the working-age population), which we can restate as the number of productive individuals supporting each elderly person. In 1985, there were 7 working-age people for each dependent elderly person. By 2010, that number had dropped all the way to 2.8. Moreover, it is projected to fall even further: to 1.7 in 2035 and 1.3 in 2060.

To be sure, these calculations are based on age-group divisions that correspond imperfectly to the realities of Japanese society, given the high percentage of Japanese who continue their schooling through high school and college, and given the willingness of many Japanese over 65 to continue working. For this reason, the table here provides, for reference purposes, alternate projections that treat 20–69 as working age and 70 and up as elderly. In this case, the old-age dependency ratio rises at slightly slower pace, but the increase is dramatic nonetheless.

Japan's Changing Population Pyramid (population by age)



Sources: (For 1960 and 2010) Statistics Bureau (Ministry of Internal Affairs and Communications), *Population Census of Japan*; (for 2060 projection) National Institute of Population and Social Security Research, *Population Projections for Japan* (January 2012), based on medium-variant fertility and mortality assumptions.