

Demographic Decomposition of Population Growth Rates by Prefectures in Japan: 1950-2015

(1) Analysis of Total Population

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This study decomposes the population growth rates of the total population by prefectures in Japan into four demographic factors: age structure, fertility, mortality, and migration. We conducted the factor decomposition for the period from 1950 to 2015; this period was subsequently divided into five episodes in each of which the population growth rates changed linearly but at different paces. We evaluate contributions of these factors to the population growth rates of prefectures by using the Bongaarts and Bulatao (1999)'s method.

We found four key results: (1) In the period 1950-2015 overall, the negative contributions of fertility factors to the change in the population growth rate is the largest. Population ageing of Japan has mainly caused by the rapid fertility decline due to the fertility transition after WWII and subsequent below-replacement reproduction since the mid-1970s. The fertility factors had a major impact on the structural change of the populations by inducing the natural decreases and the following depopulation.

(2) Migration factors have a relatively small effect on the population growth rate in 1950-2015 inclusive, while they show significant contributions in the short term. Moreover, they have a large effect on the regional variation of the population growth rates in both short- and long-terms.

(3) Age structure factors made large positive contributions to the population growth rate in 1950-2015. From 1990 onward, the positive contributions of age-structure factors shrunk, particularly in non-metropolitan areas, and in 2005-15, with the exception of Okinawa Prefecture, it turned to negative, playing a major role in population decline.

(4) The mortality factor shows large positive contributions, reflecting the steady increase in life expectancy during the period 1950-2015. Mortality factors show positive contributions in each subperiod, but at relatively low level and with small regional differences.

【Keywords】 Demographic Transition of Prefectures, Population Growth Rates, Decomposition Method, Contributions of Demographic Factors