

# **The Impact of the Automatic Balancing Mechanism for the Public Pension in Japan on the Extreme Elderly**

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## **Abstract**

Most developed countries are seeking ways to maintain a sustainable social security system. Japan is no exception. The “old-age dependency ratio” in Japan is currently 35 percent, and is expected to be 74 percent in 2050. Recently, the Japanese government has adopted an automatic balancing mechanism, which gradually reduces the real price of the public pension through a reduction of inflation adjustments. The reduction is a random process, so the elderly, in particular the extreme elderly, inherit significant uncertainties regarding the public pension. The objectives of this paper are threefold. First, we review the Japanese mortality and life expectancy emphasizing the growth in the extreme aged, and explain the underlying longevity issues that led to the automatic balancing mechanism. Second, by means of stochastic mortality and fertility modeling, we analyze how a mortality decline, particularly at extreme ages, will affect the future of public pensions in Japan. Third, we demonstrate, on the basis of the stochastic projections we made, how the automatic balancing mechanism will affect the financial security of people over age 100.

**Keywords:** Life expectancy; Longevity risk; Old-age dependency ratio; The Cairns-Blake-Dowd model; Value-at-Risk.