

**2<sup>nd</sup> PBSS Colloquium**  
**21-23 May 2007**  
**Helsinki, Finland**

**Topic B. Longevity and annuitisation, risk sharing in pension design**

**Applying Swedish “Automatic Balance Mechanism” to Japanese Population**

*Masaaki Ono*

As many researchers in the world know, Japan is one of those countries that have the most rapidly greying population. During the pension reform in 2004, some Japanese economists argued the issue of “Intergenerational Inequality” using the balance sheet of Japanese State Pension Scheme, which I believe is completely incorrect.

During my study, I was interested in Swedish pension reform. Among many reform measures, such as Notional Defined Contribution, Financial Defined Contribution, and so-called Orange Envelopes, I evaluate that the “Automatic Balance Mechanism” is the most significant tool for governing the financial soundness under the Pay-as-you-go (Pay-Go) system.

Under the Automatic Balance Mechanism, “Contribution Asset (CA)” is calculated and treated as the “quasi asset” in Pay-Go system. Although CA is expressed as the product of the annual premium and “Turnover Duration”, it is characterized as the actuarial liability of the hypothetical “Steady State Population” assuming the wage increase rate as the discount rate. To the extent that the sum of CA and the real fund (F), which are constituents of the asset side of the balance sheet, exceeds the pension liability (L), the scheme will be operated without any problem. If the ratio of CA+F to L went to less than 1, the Automatic Balance Mechanism would be activated and the accrued benefits of both active and inactive participants would be adjusted.

Although introducing the balance sheet for Pay-Go state pension schemes would be a kind of innovation, the new concept should be analyzed from various points of view.

In this paper, I tried to apply the mechanism to Japanese Population using a very simple old age pension model and based on “The Population Projections for Japan: 2001-2050” issued by the National Institute of Population and Social Security Research in 2002, and “The Report of 2004 actuarial valuation on Employees' Pension Insurance and National Pension in Japan” issued by the Ministry of Health, Labor and Welfare in 2005.

I would like to show that, although the mechanism works efficiently to some extent, it has its own limit under the decreasing population because it does not assume the rate of annual decrease in the discount rate.