## **KEY THEME: SOCIAL SECURITY**

## MODELS OF THE ACTUARIAL BALANCE OF THE PAY-AS-YOU-GO PENSION SYSTEM, A REVIEW AND SOME LESSONS<sup>1</sup>

María del Carmen Boado-Penas<sup>2</sup>, Junichi Sakamoto<sup>3</sup> and Carlos Vidal-Meliá<sup>4</sup>.

## 17 September 2009 ABSTRACT

This paper reviews the two main methods used by government Social Security departments to draw up the so-called actuarial balance of the pay-as-you-go pension system, focusing especially on their results, methodology and actuarial issues. The specific models studied are those in Sweden, the United States and Japan. The authors suggest that it would be interesting and potentially productive politically for official information on these two types of actuarial balance to be provided on an annual basis for all public pension systems in order to improve their transparency, credibility and solvency. In this respect ISSA, the World Bank, the OECD and other international organisations (for example, the Pension Benefits and Social Security (PBSS) section of the International Actuarial Association) could be supportive in developing and enforcing international accounting and actuarial valuation standards for pay-as-you-go pension systems.

(JEL: H55, J26, M49).

**Key words**: Japan, Notional accounts, Public pensions, Retirement, Sustainability, Sweden, USA.

A (Corresponding author) Department of Financial Economics and Actuarial Science, University of Valencia, Avenida de los Naranjos, s.n. 46022 Valencia. (Spain). (e-mail: <a href="mailto:carlos.vidal@uv.es">carlos.vidal@uv.es</a>).





<sup>&</sup>lt;sup>1</sup> Carlos Vidal-Meliá is grateful for the financial assistance received from the Spanish Ministry of Education and Science (Ministerio de Educación y Ciencia) project SEJ2006-05051. María del Carmen Boado-Penas thanks the Department of Education, Universities and Research of the Government of the Basque Country (IT 313-07). We would also like to thank Ole Settergren for his invaluable help and comments and Peter Hall for his English support. Preliminary versions of this paper were presented at the 3<sup>rd</sup> Workshop on Risk Management and Insurance Research in Madrid (Spain) and at the XI Spanish-Italian Congress of Financial and Actuarial Mathematics in Badajoz (Spain). Any errors are entirely due to the authors. The opinions expressed in this paper are the authors' and do not necessarily represent the views of the University of Valencia, the University of the Basque Country or the Nomura Research Institute.

<sup>&</sup>lt;sup>2</sup> Department of Economics. Keele Management School, Keele University, Keele (England). (e-mail: m.d.boado-penas@econ.keele.ac.uk).

<sup>&</sup>lt;sup>3</sup> Nomura Research Institute, 1-6-5 Marunouchi, Chiyoda-ku, Tokyo 100-0005 (Japan) (e-mail: <u>i-sakamoto@nri.co.jp</u>)