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# A politically feasible social security reform with a two-tier structure

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### ABSTRACT

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This paper investigates the welfare implications and political feasibility of social security reforms with a two-tier structure in Japan. We evaluate social security reforms from two points of view: (i) the ex-ante expected value of future generations, and (ii) whether current generations prefer reform to the status-quo system, which we call political feasibility. To evaluate the reforms, we use a large-scale overlapping generations model with idiosyncratic income risk and a two-tier structure. The first tier guarantees a basic pension and the second tier consists of the earnings-related part. Calibrating the parameters of the model to the Japanese economy, we compute the transition path and the two welfare criteria. We find that, given the two-tier structure in Japan, an increase in the basic pension and the abolition of the earnings-related part of the social security system improve the welfare of future generations, and ensures political feasibility when a consumption tax is the source of revenue. *J. Japanese Int. Economies* **25** (3) (2011) 199–224. School of Commerce, Meiji University, 1-1, Kanda-Surugadai, Chiyoda-ku, Tokyo 101-8301, Japan.

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## 1. Introduction

Many developed countries including Japan have become aging societies. Faced with aging, governments in such countries have taken social security reforms into account seriously to sustain the

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system. Many studies propose social security reform options for enhancing the social welfare of future generations. However, it is known that there is a *status-quo bias* problem in implementing reforms, given the pay-as-you-go system (Conesa and Krueger, 1999). It may not be so difficult to find social security reform options that improve the welfare of future generations if current generations willingly pay the reform cost. However, such a plan does not usually receive the political support of current generations, and is thus politically infeasible. Therefore, one difficulty is how to implement social security reforms with the agreement of current generations, who have already made, at least in part, consumption-saving decisions over the lifecycle. In what follows, we address the following question: Are there social security reform plans that improve the welfare of *future* generations with the political support of *current* generations?

Given a two-tier structure of the social security system in Japan, we show that there exists a social security reform that both satisfies political feasibility, and enhances the welfare of future generations. OECD (2007) separates the role of the social security system into two parts: (a) the insurance part and (b) the redistribution part. Concerning the insurance part, it is widely believed that the social security system should be actuarially fair. On the other hand, in the redistribution part, a minimum floor is required for the consumption or redistribution of resources through the social security system. For this reason, in many countries, the social security system has a two-tier structure. The *first tier* comprises three types of redistribution schemes: basic pension schemes, resource-tested plans, and the minimum pension.<sup>1</sup> How the first tier is constructed differs significantly across the developed countries. For example, in the US, the government imposes a resource test for the receipt of a public pension. On the other hand, in Japan all eligible retirees receive the same amount of basic pension. Some countries employ a mixture of the three roles. The *second tier* comprises two typical forms of social security systems, defined benefit and defined contribution. Although a limit is set on the second tier, it is basically earnings-related. Therefore, although we consider Japanese economy in this paper, considering social security reforms with a two-tier structure will be applicable to other countries.

To consider social security reforms, we employ an overlapping generations (OLG) model with idiosyncratic income risk. Our model is based on Conesa and Krueger (1999) and Nishiyama and Smetters (2007), who extend the steady state equilibrium model constructed by Huggett (1996) to the transition dynamics. We extend the model to include a two-tier structure of Japanese economy. There are infinitely many households who face idiosyncratic income shocks, and the government manages the social security system as a pay-as-you-go system. We calibrate the parameters of the model for the Japanese economy and calculate the steady state and the transitional path. We choose the Japanese economy as a target for the following two reasons: First, the Japanese economy employs a two-tier structure: the basic pension and the earnings-related part.<sup>2</sup> Second, Japan is one of the most rapidly aging countries in the world. A population projection indicates that the percentage of retired households will exceed 40% by 2055. Therefore, the Japanese economy provides a good example by which to consider social security reforms.

To consider social security reform, we basically propose three reform options, and a mixture of these options: (1) the abolition of social security reform, (2) introducing a consumption tax as a source of revenue for the basic pension, (3) introducing a capital income tax as a source of revenue for the basic pension. Neither the abolition nor the privatization of the social security system is a new idea. For example, Storesletten et al. (1999) consider alternative social security arrangements, including abolition using an OLG model calibrated to the current US system by steady state comparison. Conesa and Krueger (1999) and Nishiyama and Smetters (2007) extend their research to

<sup>1</sup> Using a partial equilibrium model, Hubbard et al. (1995) investigate the redistributive effects of the social security system, especially the effect of the means test. Using steady state comparison, Huggett and Ventura (1999) compare the current US system to a two-tier structure system.

<sup>2</sup> Japan is a country that has a modest public pension system in OECD countries. Japan has a three-tier structure of the social security system: the first tier is a flat-rate basic pension (Kokumin-Nenkin; KN), the second tier is a mandatory defined benefit, i.e., earnings-related (Kosei-Nenkin-Hoken; KHN), and the third floor is private pensions, such as 401 k plans. The contribution is based on a flat payroll tax on the monthly standard earnings for an employee. Half the KN benefits are financed by government revenue. For details and a historical view of the social security system in Japan, see Takayama (2003).

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