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Options and impact of China's pension reform: a computable general equilibrium analysis

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A serious obstacle to China's economic reform is the lack of a sustainable pension system. Using a newly designed computable general equilibrium (CGE) model that differentiates 7 productive activities and 22 age and gender groups, this study compares various options for financing the implicit pension debt and estimates the effects of pension reform on the sustainability of the system and on economic growth. Simulation results show that the current pay-as-you-go system is not financially sustainable and the implicit pension debt is estimated at around 46 to 64 percent of GDP in 2000. The paper proposes to use value-added tax revenue to finance the transition cost, which would make the new multi-pillar system financially sustainable. *Journal of Comparative Economics* **32** (1) (2004) 105–127. The World Bank, 1818 H Street, NW, Washington, DC 20433, USA; University of Western Ontario, London, Ontario, Canada; US Department of Agriculture, Washington, DC 20036, USA; Development Research Center, The State Council, Beijing 100010, China.

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1. Introduction

China's population has been aging rapidly, and the burdens of supporting the elderly are distributed unevenly across regions and sectors. A serious obstacle to China's economic

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reform is the lack of an effective and sustainable national pension system. Two major problems with China's current pension system, namely, the short-run problem of the pension burdens of state-owned enterprises and the longer-term problem arising from the rapid aging of the population, have deepened over the past few years. Many state enterprises have not been able to afford to pay payroll taxes and thus pension funds in many municipalities are in deficit. These deficits could threaten the fiscal stability of the central government as well as that of the local governments.[1] Reforming the current pension system is now a matter of urgency.

Building on previous studies, this paper addresses the most urgent issue in China's pension reform, namely, how to finance the unfunded pension liabilities. Put another way, this study investigates ways to recapitalize the pension system, which is financially nonviable.[2] Using a newly designed computable general equilibrium (CGE) model that differentiates 7 productive activities and 22 age and gender groups, this study compares various options for financing the implicit pension debt and estimates the effects of China's pension reform on the sustainability of the system and on economic growth.

The issues addressed have significant implications for China's fiscal stabilization and for the alleviation of poverty and inequality. First, unfunded pension liabilities represent a significant part of the direct and implicit liabilities of the central and the local governments.[3] If not monitored and checked carefully, these liabilities could threaten the central government's fiscal sustainability. Second, pension reform is closely linked to restructuring of the state sector and financial sectors. Some synergy between the transition problems of the pension system and the state sector should be found. Third, all reform options involving taxation and other forms of financing have benefits and costs. This study seeks to inform the decision-making process by comparing various reform options.

This paper is organized as follows. Section 2 describes the pension reform process and current problems; Section 3 examines issues related to transition cost. Section 4 describes the structure of the CGE model; Section 5 presents the baseline calibration and simulation design. Section 6 discusses the simulation results and Section 7 concludes.

2. Pension reform in China

Because of rapid increases in life expectancy and declining fertility rates, populations are aging more rapidly in developing countries than in industrial countries (World Bank, 1994). In China, the proportion of population 60 years and older will rise from 9% in

[1] Statistics from the Ministry of Labor and Social Security indicate that the total deficit of pension funds increased from a little more than RMB10 billion in 1998 to almost RMB40 billion in 2000 (MOLSS, 2001). In 1999, the Ministry of Finance transferred RMB17 billion (US$2 billion) to cover pension shortfalls at the local levels. This transfer has been increased to RMB30 billion in recent years.

[2] On China's pension reform, see Ahmad and Hussain (1991), RGSSS (1995), Dorfman and Sin (2000), Friedman et al. (1996), Hussain (1993), James (1997, 1999), World Bank (1997), and Zhou (1994).

[3] Government liabilities can be classified into four categories, namely, explicit and direct (formal debt, budgeted expenditure), explicit and contingent (government guarantees and deposit insurance schemes), implicit and current (social insurance expenditure), and implicit and contingent (default of state-owned enterprises, banks, and social insurance funds).