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## Comment Yasushi Iwamoto

The Chinese National Offshore Oil Company's attempt to buy Unical Corp., a U.S. oil and gas company, has recently provoked a heated debate. Although the political aspects tended to be focused on, Professors Fehr, Jokisch, and Kotlikoff's paper pointed out that Chinese investment into the United States and other developed countries will be a natural consequence of the aging process of the global economy. This kind of phenomenon is not a threat to the developed world, but actually helps to solve the problem caused by population aging, to some extent.

The effect of aging on the economy is an important policy issue in many countries around the world. The economic analysis first treated it as a problem of the national economy, using a closed-economy model. Auerbach et al. (1989) is a seminal work that extends the analytical framework to a multicountry model, in which capital is mobile across the border. Taking account of China, this paper successfully opens up a new horizon and helps to increase our knowledge. At the same time, the authors have achieved many important extensions to behavioral equations of the simulation model: saving, bequests, labor supply, fertility, government investment, and social insurance among others. This paper sets a new standard that other researchers should work hard to reach.

What is changed dramatically by introducing China is a process of cap-

ital formation. Introducing China into a simulation model of the global economy, this paper shows that focusing only on the developed countries can be misleading. China helps to improve economic conditions of the developed world through providing capital. To look at this role of China, let us compare simulations without China and with China. In table 5.8, which focuses on the European Union, Japan, and the United States, the interest rate will increase from 7.2 percent in 2004 to 8.2 percent in 2100, while it will first decline until 2030. In the developed world, an aging process will lower the capital-labor ratio. On the other hand, when China is included in the simulation, the interest rate in 2100 will be 8.7 percent, which is lower than the 2004 level (9.8 percent). Therefore, capital deepening will occur in this century. The wage in the developed world will increase along with it. A comparison of the two scenarios indicates that looking at only the developed world misses a very important aspect of global aging, and leads to an incorrect insight into the future of the global economy.

Although various sensitivity analyses provided in the paper seem to assure the reliability of the scenario that China will “take the developed world to dinner,” other aspects not considered in the paper may lead to a different scenario. I would like to address a few points.

An important point missing in this paper is a constraint on energy consumption or environmental pollution. If China grows like a setting of the simulation, the energy consumption is very likely to exceed the supply. In this case, the growth of China as well as the rest of the world will be stagnant.

If China will have a great impact on the aging process of the global economy, other big developing countries like Brazil, India, and Russia may have a significant impact, too. Thus, a larger scale simulation model may be called for to capture the impact of global aging. Since an accurate specification of behavioral equations is a difficult task, however, our future faces the uncertainty, which is not easy to be resolved.

The simulation study of the aging hinges on the underlying population projections. This paper follows the U.N. population projection, which assumes that the fertility rate in every country will converge to 1.85 in the long run. Due to this setting, the U.N. projection may diverge from the projection made in each country. For example, the current Japanese official projection assumes that the fertility rate will converge to 1.38 in the long run. The Japanese public pension program is designed so that it is sustainable on this projection. If the Japanese could rely on the U.N. population projection, the policy debate on the public pension reform would have been much easier. From the viewpoint of Japanese citizens, the setting of the United Nations as well as this paper is too optimistic.

The paper provides a variety of policy simulations and derives insightful findings. The authors found that the biggest impact was exerted by priva-

tizing public pensions. On the other hand, increasing immigration is *too little too late* to solve a fiscal problem caused by population aging. Since the paper does not count noneconomic costs of accepting immigrants, an actual merit of immigration may be smaller than illustrated by their simulation. When we look at the impact of these policies on the production factors, a difference is significant. When the immigration in the United States is doubled, the labor input in 2100 will increase by 31 percent from the baseline case. In contrast, when the U.S. public pension is privatized, the capital stock in 2100 will increase by 88 percent from the baseline case. I basically agree with these findings.

Although it seems that promoting capital formation may be easier than increasing the labor force, we should note that this kind of inference should implicitly assume implementation costs of these policies are roughly equal. Actually, the privatization of public pension is a radical change. In their simulation, it is also associated with a radical tax reform; it eliminates the payroll tax that finances the existing public pension, and finances all accrued benefits with a new consumption tax. In the case of the European Union, the necessary increase in consumption tax rate at the start of privatization is 15 percentage points, and the payroll tax rate decreases by 14.6 percentage points. If we consider this kind of radical reform, one may wonder why we do not think about a radical population policy—say, the policy that increases the number of immigrants by a factor of 10 or 20.

What is difficult here is that we do not have an appropriate scientific criterion that makes different kinds of policies comparable. For example, when we compare the distortion effects of taxation, we usually consider tax policies that raise the same revenue. Comparing the promotion of immigration and the privatization of public pension lacks such kind of standardization. This is not a fault of this paper, but it is the problem faced by all researchers. I hope the future research will develop a satisfactory measure of comparing policies discussed here. At this moment the authors present reasonable sets of policies, and I am sympathetic to their choice of policy scenarios.

Finally, I would like to point out that their policy analyses show that some important point is not altered even when we incorporate China. The cut of public pension benefit or the privatization will help to increase the capital stock and private consumption. While it lowers the welfare of existing generations slightly, the welfare of future generations is significantly improved. This fact accords with previous researchers who did not take account of China. Imbalance of burdens among generations should be solved by public policy of each country. Although China partially improves situations of developed countries, it will never solve all problems. What we should note is that each country first has to carry out a wise policy. This paper conveys this message convincingly.

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## Comment Cielito F. Habito

In its earlier version submitted to the EASE 16 conference for review (“The Developed World’s Demographic Transition—The Roles of Capital Flows, Immigration, and Policy”), the study analyzed the demographic transitions occurring in the United States, the European Union, and Japan (i.e., the *developed world*) and their welfare implications, via impacts on the pension system and on fiscal management. Using an overlapping-generations model that incorporates most of the state-of-the-art features employed in such demographic models (more on this follows), simulations yielded alarming results: (a) in a do-nothing scenario, payroll taxes would have to at least double to support benefits committed to the elderly; (b) macroeconomic feedback effects of aging populations lead to a significant capital shortage that dramatically lowers real wages (by 19 percent) and raises real interest rates (by over 400 basis points); and (c) even substantial immigration would do little to mitigate the fiscal squeeze. One way out that would exact short-term pain (i.e., welfare losses for current generations including the elderly) is to close down at the margin existing government pension systems and use consumption taxes to pay off their accrued liabilities. This would raise the welfare of future generations enormously, with those in Europe and Japan benefiting the most.

That analysis of course ignored the fact that there is much else in the world beyond the United States, Europe, and Japan. The addition of high-saving China into the picture dramatically changes the results, with China emerging as the savior that bails out the developed world from impending major fiscal troubles and real wage declines. Even if China’s saving rate eventually falls to the U.S. levels, it still manages to spare the developed world from eventual real wage declines, and instead permits substantial real wage increases. All the more if one further considers India and Southeast Asia, the other dynamic and high-saving economies in Asia. In effect, the developed world will be saved from potentially debilitating difficulties by the developing world, with their high saving rates and lower dependency ratios.

The study is of great interest to those in East Asia for at least three rea-