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Impact of immigration on the Japanese economy: A multi-country simulation model [☆]

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ABSTRACT

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To quantify the impacts of immigration and fiscal reconstruction on the Japanese economy, we present a dynamic computable general equilibrium OLG model with an overlapping generations structure. We use a total of 16 countries and regions, both including those that are industrialized, such as Japan, the US, and the EU, and developing countries, such as China, Brazil, the Philippines, and Peru.

Our simulation results show that a permanent immigration flows of 150,000 will improve the Japanese economy and the welfare of current and future generations. On the other hand, a standalone increase in the consumption tax will not improve long-run welfare. The results indicate that substantially increased inflows of working-age immigrants would alleviate the need for future fiscal reform and also help to dramatically reduce the public pension burden on the working generations. *J. Japanese Int. Economies* **24** (4) (2010) 586–602. Akita University, Japan; Research Institute of Economy, Trade and Industry, Ministry of Economy, Trade and Industry and Senior Research Fellow, Institute for International Policy Studies, Japan.

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1. Introduction

Industrialized countries are now facing unprecedented demographic changes which require extensive reform in fiscal systems, social security systems, and other related programs. However, due to conflicting interests between younger and older generations, reform will be politically difficult. As an example from pay-as-you-go pension systems, in order to improve the sustainability of the system, the government has the option of either reducing the benefits to the elderly or increasing the burden on the working generation. Obtaining agreement on reform by both generations is often too difficult for the government to achieve. Some have suggested that immigration may ease these tradeoffs.

The ruling Liberal Democratic Party (LDP) in Japan recently proposed an explicit immigration policy to receive 10 million immigrants in the next 50 years (200,000 annual immigrant flows), a number significantly greater than the annual 68,054 net flow in 2007. The proposed policy increases immigration in order to improve the welfare of both current and future generations. Moreover, some economic organizations, including the largest of them, Nippon Keidanren (Japan Business Federation), also insist that receiving immigrants will maintain the sustainability of the social security system and avert the expected decline in economic growth. To date, however, the economic effects of these proposals have not been rigorously studied.

According to statistics published by the Ministry of Justice in 2008, the number of registered foreign nationals residing in Japan has increased every year since 1987 and totaled 2,152,973 as of the end of 2007 (see Fig. 1).¹ Registered foreign nationals share of the total Japanese population has also increased every year to 1.69% in 2007. By place of origin, China exceeded the Korean peninsula for the first time in 2007, to become the top source of immigrants, followed by the Korean peninsula, Brazil, the Philippines, and Peru.

The aim of this paper is to quantify the impacts of immigration on the Japanese economy. To this end, we use a large-scale dynamic computable general equilibrium model incorporating overlapping generations (OLG) and multiple countries or regions. The 16 countries observed include both industrialized countries and regions such as the US and EU as well as developing countries such as China, Brazil, the Philippines, and Peru.

The application of OLG models to fiscal impacts was pioneered by Auerbach and Kotlikoff (1987). Since then, OLG models have been used extensively to study the impact of population aging and to evaluate various policy changes including tax, pension, and public debt policy.

In the literature, we find only three A-K type OLG simulation models using multiple countries to evaluate the effects of global aging on international capital flows and the worldwide economy. These are models by Fehr et al. (2004), Börsch-Supan et al. (2006), and Aglietta et al. (2007).

Fehr et al. (2004) and Börsch-Supan et al. (2006) incorporate only industrialized countries in their model. Although Aglietta et al. (2007) include both industrialized and developing countries, they cover only 19 generations in their model. Moreover, each of these models use the *same values of structural parameters* such as utility and production for every country.

This study, however, models a 16 industrialized and developing countries covering 65 generations with *different values of structural parameters for countries, depending on their development status*.

Storesletten (2000) calibrated a general equilibrium OLG model of the US economy, explicitly taking into account the differences between immigrants and natives, to estimate the long-run fiscal impact of immigrants. He found that the fiscal impact of immigration on the host country is positive, even when considering immigrant age and skill level. Meanwhile, Fehr et al. (2004) developed a three-region (US, Japan, and EU) dynamic general equilibrium OLG model to analyze whether immigration can mitigate the negative impacts of demographic transition on an economy. They concluded that immigration will not alter the major negative impacts regardless of the immigrants' skill level.

¹ According to the estimation by the Ministry of Economy, Trade and Industry, the number of foreign students "studying" is about 100,000 and the number of trainees is about 90,000 as of the end of 2005. And the Ministry of Justice reported that the number of illegal immigrants is about 113,000 as of the beginning of 2009. Illegal immigrants comprise only 0.09% of the total population. Moreover, the number has decreased consistently from a high of 299,000 in 1993 by 186,000 to the 113,000 number in early 2009. The large majority are Asians, mostly from the Korean peninsula (21.4%), China (16.3%), the Philippines (15.3%), Thailand (5.3%), and Taiwan (4.4%).

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