## Incorporation of Foreign-born Population and Its Impact on the Future Population Dynamics and Social Security

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In this study, we performed a number of simulations with regard to the change of the future population incorporating the foreign-born population, and analyzed the financial impacts on social security in terms of a demographic study.

The following results were arrived at through a comparison of the projected contribution rates in the pay-as-you-go basis before adjustments using modified indexation in the pension block. We can observe similar results concerning the relationship among the standard case and cases A, B1 and B2 under the assumption that immigrant workers are insured by the Employees' Pension Insurance, as compared to those of the old-age dependency ratio for males that were analyzed in the population block. The contribution rates for cases A, B1 and B2 decrease immediately after the start of incorporation of foreign workers compared to the standard case. Although the effect of mitigation eventually weakens on the aging of the immigrants in case A, the effect due to the second and overthe-second generations keeps the rates lower in cases B1 and B2. In particular, the effect of decrease is much larger for case B2 since the wages for the second and over-the-second generations are high. The ultimate replacement rate for the standard case in the 2009 actuarial valuation is 50.1%, which increases 3.8% in case A that is moderately higher since it is affected by the aging of the immigrants over a long-term according to the observation of the pay-as-you-go contribution rates. We can observe strong effects of the second generation since the increases are 6.9% for case B1 and 7.3% for case B2. For the assumption that the immigrant workers are insured by the National Pension Scheme, the replacement rate for case A' is almost the same as that for the standard case, whereas the rate increases 1.4% in case B'.

These results reveal to us the importance of quantitative evaluation over a long-term on the effect of the incorporation of foreign workers. This kind of issue is often discussed shortsightedly in the context that foreign workers are needed only for the purpose of making up for the immediate shortage of the labor force. However, the results in this study show that incorporated immigrants become pensioners by aging in the future, whereas they also contribute to increasing the contributors to social security as they increase the population as a whole by bringing their families from their home countries or giving birth to younger generations. Therefore, it would be important for discussing the related policy to make long-term and comprehensive evaluations that take all factors in this study into consideration concerning the effect of the incorporation of the foreign-born population on social security.