Volume Title: The Economic Consequences of Demographic Change in East Asia, NBER-EASE Volume 19

Volume Author/Editor: Takatoshi Ito and Andrew Rose, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-38685-6
ISBN13: 978-0-226-38685-0

Volume URL: http://www.nber.org/books/ito_08-2

Conference Date: June 19-21, 2008

Publication Date: August 2010

Chapter Title: Comment on "The Effects of Demographic Change on Public Education in Japan"

Chapter Authors: Dae Il Kim

Chapter URL: http://www.nber.org/chapters/c8170

Chapter pages in book: (219 - 222)

References

Brunner, E., and E. Balsodon. 2004. Intergenerational conflict and the political economy of school spending. *Journal of Urban Economics* 56 (2): 369–88.

Doi, T. 1998a. Empirics of the median voter hypothesis in Japan. Discussion Paper Series No. F-69, Institute of Social Science, University of Tokyo.

———.1998b. New evidence on the median voter hypothesis in Japan. Discussion Paper Series No. F-72, Institute of Social Science, University of Tokyo.

Goldin, C., and L. F. Katz. 1998. The origins of state-level differences in the public provision of higher education: 1890–1940. *American Economic Review* 88 (2): 303–08.

Gradstein, M., M. Justman, and V. Meier. 2005. *The political economy of education: Implication for growth and inequality.* Cambridge, MA: MIT Press.

Grob, U., and S. C. Wolter. 2005. Demographic change and public education spending: A conflict between young and old? CESifo Working Paper no. 1555, October. Munich: Ifo Institute for Economic Research.

Harris, A. R., W. N. Evans, and R. M. Schwab. 2001. Education spending in an aging America. *Journal of Public Economics* 81 (3): 449–72.

Hoxby, C. M. 1998. How much does school spending depend on family income? The historical origins of current school finance dilemma. *American Economic Review* 88 (2): 309–14.

Kariya, T. 2006. Change of equal opportunity in education. *ASTEION* no. 65. (In Japanese.)

Ladd, H. F., and S. E. Murry. 2001. Intergenerational conflict reconsidered: Country demographic structure and the demand for public education. *Economics of Education Review* 20:343–57.

Oberndorfer, U., and V. Steiner. 2006. Intergenerational conflict, partisan politics, and public higher education spending: Evidence from the German states. IZA Discussion Paper no. 2417 November. Institute for the Study of Labor.

Person, T., and G. Tabellini. 2000. *Political economics: Explaining economic policy.* Cambridge, MA: MIT Press.

Poterba, J. 1997. Demographic structure and the political economy of public education. *Journal of Policy Analysis and Management* 16 (1): 48–66.

———. 1998. Demographic change, intergenerational linkage, and public education. *American Economic Review* 88 (2): 315–20.

Rubinfeld, D. L. 1977. Voting in a local school election: A micro analysis. *Review of Economics and Statistics* 59 (1): 30–42.

Sugimoto, Y., and M. Nakagawa. 2007. From duty to right: The role of public education in the transition to aging societies. ISER Discussion Paper no. 700. Institute of Social and Economic Research, Osaka University.

Comment Dae Il Kim

The authors of this chapter present quite important and interesting empirical findings. The share of the elderly population negatively affects the level of public educational expenditure in recent years in Japan, as was found

Dae Il Kim is a professor of economics at Seoul National University.

in the United States. This result deserves careful attention because many other countries are similarly experiencing population aging and also because high-quality education has been increasingly emphasized in the face of rapid technological progress and increased world market competition. To the extent that the causality is robust, we will have to work hard to find a way to deal with population aging without sacrificing the quality of our education systems.

Given that the result has such a strong implication, the authors need to substantiate their interpretation with additional empirical evidence. The authors suggest several theories, but they are not quite successful in singling out the one behind the empirical findings. They test the possibility that the elderly may have become more selfish and short-sighted, and conclude otherwise as the changes in living arrangement do not explain the results. The power of the test, however, does not appear sufficiently strong for a couple of reasons. First, living arrangement itself may not be a valid indicator for how uninterested the elderly are in their children's and grandchildren's welfare in an Asian country such as Japan, where family values are strongly emphasized. At the same time, to the extent that intrafamily transfer is an important income source for the elderly, the elderly may not really benefit from being so selfish as to place political pressure against educational expenditure. Greater subsidy for the elderly financed by lower educational expenditure, for example, may induce a smaller intrafamily transfer, leading to no changes in their actual income. Indeed, public transfer crowds out private transfer (from their children) among the Korean elderly households almost one to one, and Japan may not be much different from Korea in that aspect. Second, the regression with the changes in living arrangement as an additional explanatory variable serves only as an indirect test, and a more direct test would be investigating whether elderly population induces an increase in the public expenditure directly linked to the welfare of the elderly, such as income transfer and health care.

The authors speculate, in conclusion, that the changes in the subsidy from central government may have caused the negative effects of the elderly population on the educational expenditure. The possibility cannot be excluded, but two interrelated questions still remain. First, why would the effect of the changes in subsidy from central government show up in the relationship between the *elderly population* and the *educational expenditure*? I think it is possible that such changes affect the educational expenditure at local governments, but how are they related to the size of the elderly population? Second, what is the mechanism through which the changes in subsidy system affect the results? Little information is given regarding these two questions, and readers will love to see more information to better understand the chapter. Further regarding the issue, the authors may wish to pay more attention for the 2000 to 2005 period during which the central government's subsidy

fell considerably from the previously stable trend. If the period stands out in terms of the correlation between the elderly population and the educational expenditure, the authors' speculation can be more persuasive.

Now I turn to the choice of variables in the regression. In particular, the authors need to pay more attention to the OLD and KID variables in the regression. As suggested by the authors, a greater share of schoolkids in population tends to reduce the per-student educational expenditure. But at the same time, a greater share of schoolkids implies a greater share of households with kids, whose parents may vote for a greater expenditure for education. These two effects offset each other, but the relative magnitudes of these effects may also depend on population aging, to the extent the aging arises from a lower fertility rate. In other words, a decline in fertility rate may reduce the share of schoolkids in population, but not so much the fraction of the households with schoolkids. As only the share of schoolkids (KID) is controlled for in the regression, the effects through the fraction of the households with schoolkids may show up in the coefficients on the elderly population. If so, the educational expenditure is not adversely affected by the increasing size of the elderly population. Instead, the educational expenditure is adversely affected by the declining size of the fraction of the households with kids, which is represented as an increase of the elderly population in the data.

Another complication arises in the regression as the increase in the share of the elderly, given that the share of kids partly reflects a smaller working-age population. To the extent that the smaller workforce means smaller tax revenue, the negative coefficients on the elderly population may simply represent the local government's ability to spend. The positive coefficient on the per capita income is consistent with this alternative interpretation.

An alternative way to interpret the authors' results is the nonlinearity in the relationship between political power and the population size. The median voter theory used by the authors actually suggests such nonlinearity. An increase in the elderly population will have a stronger effect on public policy when their population is sufficiently large that the elderly are near the median. Instead, when their population is too small or too large, an increase in their population will have no marginal effect on the public policy. Thus the empirical results are consistent with the following interpretation. First, the elderly have always been selfish. Second, their selfishness has finally started to affect the public policies in the 1990s because the elderly population has sufficiently grown. One way to consider this hypothesis is to compare the sizes of elderly population between Japan and the United States at the time when the relationship between the elderly population and the educational expenditure started to turn negative in each country.

Again, I wish to emphasize that the empirical relationship documented in this chapter is very important and deserves careful attention. I would like

to thank the authors for providing the interesting results and also encourage further works on the issue. Identifying the causality and the underlying hypothesis will make a substantial contribution to the literature.

Comment Chang-Gyun Park

The chapter examines the relationship between demographic structure and government expenditure on compulsory public education with Japanese data. A standard theoretical model would predict that if the median voter is old enough to be without kids under compulsory public education and does not take the external effect on general productivity level into account, we would observe the positive correlation between the two variables. Several researchers had already tackled the issue and provided evidence conforming to the implication of generational competition theory. However, Japan seems to be an ideal test site to reexamine the issue because it has experienced one of the fastest demographic changes in human history.

The authors report an interesting finding. While the share of elderly population had a positive relation with per capita expenditure on public education in the 1970s and 1980s, the relation was reversed in 1990s when demographic change measured by the proportion of the elderly of sixty-five years or older was significantly accelerated. They conjecture that the result may reflect the institutional shift in the mid-1980s, which helped political pressure from demographic structure project more clearly into collective decision making on public expenditure. From 1985, Japanese central government had gradually reduced the subsidies to local governments to cover part of teachers' salary and local governments were forced to bear more fiscal burden with regard to compulsory education. One can infer that as the fiscal burden increased the decision making on compulsory education of local governments, it began to be affected by political pressure from the elderly, who are thought to be less supportive for increasing expenditure on public education. Plausible as it sounds, the authors do not offer much empirical evidence to support the conjecture. Further in-depth investigation on the issue should be done before it is accepted as a reliable explanation on the sign reversal repeatedly reported in the chapter.

We should be very careful in interpreting the true implication of estimates of the key explanatory variable, the proportion of the elderly among the entire population. Though it is not entirely clear from the chapter, it seems that the authors include both current and capital expenditure in measuring the dependent variable, per pupil expenditure on compulsory public

Chang-Gyun Park is an assistant professor in the College of Business Administration at Chung-Ang University.