

POPULATION AGING, HIGHER EDUCATION AND LABOR PRODUCTIVITY: EVIDENCE FROM JAPANESE PREFECTURE PANEL DATA

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Abstract

Demographic change due to aging population combined with the diminishing number of children is a serious problem in Japan, as well as other developed countries. It is evident that high productivity growth is essential for Japan to maintain economic growth and living standards. At the same time, the shares of the people highly educated keep constantly increasing. The focus of this study is to empirically investigate how the share of aged workers with higher education affects the labor productivity by using the econometric methods applied to Japanese prefecture panel data.

Preceding studies, based on the evidence from various countries or industries, have reported that older workers are on average less productive than younger workers as a whole, and then showed that the age of the workers and their productivity is in an inverted U-shaped relationship. Curiously, little attention to the effects of (higher) education to labor productivity in the ageing society has been given to the point.

Among a few of the preceding studies from the viewpoints above, Tang and Macleoad ("Labour Force Ageing and Productivity Performance in Canada," Canadian Journal of Economics, 2006), using the 10 Canadian provincial panel data, 1981-2001, found that the older workers are less productive than younger workers, and the university 'premium' is also less for older workers than for younger workers. This is an exceptional study which econometrically investigates the both effects of ageing and higher education on labor productivity from a macroeconomic perspective.

How is the case of Japan in which the declining birthrate and a growing proportion of elderly people has become most pronounced in the world? By using the econometric models based on the data of GDP, labor classified by age and education, capital stock, unemployment rates and other variables for all 47 prefectures, covering 1977-2012(quinquennial), we got the results which are opposite to Canadian case on the effects of higher education on older workers.

Our estimating result suggests that a 1 % increase in the share of older workers with higher education could increase productivity growth by 0.023 %, contrary to Canadian case of decrease by 0.015 %. Further, the effect of higher education is larger for older workers than younger workers. It may be interesting and unique from the viewpoints of the roles of higher education in an ageing society.

Key words: aging, labor productivity, higher education, panel data, Japanese economy

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