

On the Decline in the R&D Efficiency¹

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Abstract

Following Bloom et, al (2019), we measure the R&D efficiency at the industry level in a simple knowledge production function. We use not only the latest version of Japan Industrial Productivity (JIP) database but also EUKLEMS database. We find that the R&D efficiency which is measured directly is positive in the Japanese manufacturing sector, as a simple endogenous growth theory expected. However, it has declined in many advanced countries, although it does not decline when we exclude the data on 2009. Especially, the decline in R&D efficiency in Japanese information service industry is serious. Econometric results support the above results. From these results, we obtain two implications. First, the decline in the R&D efficiency means decreasing return to scale in a knowledge production function. Second, the R&D policies which focus on the scale of R&D are not enough. The government should take R&D policies taking care of the decline and industry difference in the R&D efficiency.

Keywords: R&D efficiency, Endogenous growth theory, Idea production function, JIP database, EUKLEMS database

JEL Classification Numbers: O31, O33, O47

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