

# **On the Decline in R&D Efficiency**

**-Empirical Studies Using JIP and EUKLEMS Data-**

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## **Abstract**

There are two types of supply side views on the secular stagnations in the advanced countries: one is an optimistic view from Brynjolfsson and Aghion; the other is a pessimistic view from Gordon. Like Gordon (2016), who argues that major innovations have all been completed Bloom et al. (2017) state that R&D efficiency -- which is defined as productivity growth / effective R&D -- has declined.

Using JIP and EUKLEMS databases, we examine the plausibility of the decline in R&D efficiency that Bloom et al. (2017) suggested. The direct measure of R&D efficiency using KLEMS databases does indeed show that the R&D efficiency has declined in advanced countries. However, in some Japanese industries such as textile, paper, and ceramics, R&D efficiency has increased in the past 15 years due to the restructuring that has occurred in these industries.

We also estimate R&D efficiency using the JIP database, and find that R&D efficiency declined drastically in the 1990s. In our estimations, we also find that intangible investment contributes to the recent increase in R&D efficiency.

Advanced countries have made an effort to increase in R&D expenditures to improve productivity. However, our study implies that governments and research institutions should also look to increase R&D efficiency at the same time.

Keywords: R&D efficiency, secular stagnation, KLEMS database

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