Developing new ideas requires not only researchers but also R&D capital—that is, targeted investment in research equipment.

We supplement the “Idea Production Function” (IPF), whereby research and development (R&D) activity leads to growth, with measures of R&D capital. We construct the R&D capital stock in the United States and estimate the IPF with patent applications as R&D output, allowing for a flexible treatment of R&D productivity (over 1968–2019). The estimated substitution elasticity between R&D inputs is $0.7\leq 0.8$, which suggests that R&D capital is an essential factor in producing ideas and complementary to R&D labor. We identify a positive trend in R&D labor productivity (roughly 1 percent) and a cyclical variation of R&D capital productivity. Rather than “ideas getting harder to find,” the R&D capital needed to find them has become scarce.

JEL classifications: O30, O40, O47

Article Citations

Author

Peter McAdam
Sr. Research and Policy Advisor

Peter McAdam is a Senior Research and Policy Advisor in the Economic Research Department of the Federal Reserve Bank of Kansas City. Previously, Mr. McAdam worked at the research department at the European Central Bank. His main areas of interest are in applied macroeconomics, growth theory and econometrics. He holds a M.Sc in economics and econometrics from the University of Glasgow, and a Ph.D. in economics from the University of Strathclyde.