



Research Working Papers

R&D; Capital and the Idea Production Function

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

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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 0.7–0.8, 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

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