

R&D? A small contribution to productivity growth

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Abstract

In this paper I calibrate the contribution of R&D investments to productivity growth. The basis for the analysis is the free entry condition. This yields a relationship between the resources devoted to R&D and the growth rate of technology. Since innovators are small, this relationship is not directly affected by the size of the R&D externalities, the presence of scale effects or diminishing returns in R&D after controlling for the growth rate of output and the interest rate. The resulting contribution of R&D to productivity growth in the US is smaller than three to five tenths of one percentage point. Interestingly, this constitutes an upper bound for the case where innovators internalize the consequences of their R&D investments on the cost of conducting future innovations. From a normative perspective, this analysis implies that, if the innovation technology takes the form assumed in the literature, the actual US R&D intensity may be the socially optimal.

Keywords: Research and development, productivity growth, total factor productivity.

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