

The Intellectual Spoils of War?

Defense R&D, Productivity and Spillovers

Preliminary

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Abstract. We examine the impact of government funding for R&D on privately performed R&D and its ultimate effect on productivity growth. To deal with the potential endogeneity of where governments choose to allocate R&D funds, we use changes across countries and industries in defense R&D spending. Shocks to defense R&D are mainly driven by geopolitical factors that are arguably unrelated to technology shocks. We uncover strong evidence of “crowding in” rather than “crowding out”, as increases in government funded R&D result in significant increases in private sector R&D. Specifically, a 10% increase in government financed R&D generates about 3% more privately funded R&D. Analysis of the wage and employment effects suggests that the increase in private R&D expenditures reflect actual increases in R&D employment, not just higher wages. In turn, increases in R&D in a country and industry pair result in sizeable productivity gains. A permanent one percentage point increase in the ratio of defense related R&D to value added is associated with a 5% increase in the annual TFP growth rate in that country-industry pair (e.g. from 1.0 to 1.05 percentage points a year). We estimate that the increase in US defense R&D caused by the 9/11 events, for example, generated an increase in the aggregate annual TFP growth rate of 2% in the US. At the international level, we find that increased R&D spending by foreign governments has two offsetting effects on domestic firms. On the one hand, it *deters* R&D spending by domestic firms; on the other hand it creates some beneficial domestic productivity gains through industry-specific knowledge spillovers. On net, the effect of foreign R&D on domestic productivity is significantly positive (but small in magnitude), pointing to the global benefits of national R&D increases.

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