

Research and Productivity

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ABSTRACT: We model research as a signal on an unknown parameter of a technology. We distinguish applied from basic research and show that firms in the same industry can optimally choose different research portfolios, and that basic research can seem to have a higher rate of return than applied research, even though it really doesn't -- essentially, firms on a "fast track" upgrading policy opt for basic research but fast and slow-track upgrading policies can coexist in a long-run equilibrium.

We also derive the lag structure for how R&D affects the firm's stock of knowledge. To a first approximation, the lags decay geometrically (as is typically assumed in practice) but the rate of decay is endogenous, and depends on how fast the firm is upgrading its technology.

Keywords: Human Capital, Basic Research, Applied Research, growth.

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