Growth through Heterogenous Innovations[*]

Ufuk Akcigit

William R. Kerr

University of Pennsylvania and NBER

Harvard Business School and NBER

29 September 2010

Abstract

We study how heterogeneous innovations impact economic growth through a tractable endogenous growth framework that contains multiple innovation sizes, multi-product firms, and entry/exit. Our model allows for firms to invest in exploration R&D to acquire new product lines and exploitation R&D to improve their existing product lines. We model and show empirically that exploration R&D does not scale as strongly with firm size as exploitation R&D. The resulting framework conforms to many stylized facts regarding the firm size distribution and innovation, and we closely link our work to observed patterns in patent citations.

JEL Classification: O31, O33, O41, L16.

Keywords: Endogenous Growth, Innovation, Exploration, Exploitation, Research and Development, Patents, Citations, Scientists, Entrepreneurs.