Growth through Heterogenous Innovations*

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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.

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