

# **How On-Demand Inputs Change Firm Production and Business Dynamism: The Case of Cloud Computing**

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*Joint paper with James Brand*

## **Abstract:**

Dynamic frictions in adjusting firm inputs are an important source of misallocation inefficiencies in firm production. The emergence of “on-demand” inputs has the potential to reduce these dynamic frictions and increase firms' flexibility. In this paper, we study one such technology: cloud computing, which has fundamentally changed how firms access IT input by turning it from a high fixed-cost input to a highly elastic variable-cost one. We measure the economic implications of cloud computing by developing a model of industry dynamics with cloud computing and combining firms' daily IT usage. Using our model, we simulate economies with and without cloud technology and find that cloud computing can increase output by as much as 30% in the software industry. Most of the gain comes from increased business dynamism by increasing the speed with which firms can respond to shocks and reducing entry costs.