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A Theory of Firm-Level Production Networks

Abstract

This paper develops a theory of firm-level production networks, with firm-specific relationships, endogenous bankruptcies, and market power. Firms in each industry have access to a production technology that uses relationship-specific intermediate inputs produced by their "customized" suppliers, with prices determined via pairwise bargaining between suppliers and customers. Operating the customized technology, however, requires fixed costs. Hence, negative shocks can result in a cascade of firm failures in the economy. We establish the existence of an equilibrium and provide comparative static results on how prices, firm failures, and macroeconomic aggregates respond to changes in parameters. We then study how the interplay between firm-level linkages and firm failures shape the propagation of shocks over the economy's production network. Our theoretical results indicate that understanding network-originated aggregate fluctuations may require moving beyond models of sectoral linkages and focusing on how firm-level interactions can lead to chains of failures.