Resilience in Vertical Supply Chains
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ABSTRACT

Forward-looking investments determine the resilience of firms' supply chains. Such investments confer externalities on other firms in the production network. We compare the equilibrium and optimal allocations in a general equilibrium model with an arbitrary number of vertical production tiers. Our model features endogenous investments in resilience, endogenous formation of supply links, and sequential bargaining over quantities and payments between firms in successive tiers. We derive policies that implement the first-best allocation, allowing for subsidies to input purchases, network formation, and investments in resilience. The first-best policies depend only on production function parameters of the pertinent tier. When subsidies to transactions are infeasible, the second-best subsidies for resilience and network formation depend on production function parameters throughout the network, and subsidies are larger upstream than downstream whenever the bargaining weights of buyers are non-increasing along the chain.

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