

# Network Economies, Firm Scope, and Adaptation to Online Competition

Sherry Wu

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## **Abstract**

Brick-and-mortar general merchandise firms respond to growth in online competition by reorienting their product mix and substituting towards food provision. Network economies, in the form of logistic benefits arising from a dense network of stores, enabled general merchandise chains to expand grocery provision in this way. I develop a network entry model to illustrate how network economies facilitated general merchandise firms' adjustment to growth in online exposure. Doing so requires one to account for both the endogeneity of distribution networks and strategic interactions across rival general merchandisers. Given the complexity of each firm's store opening decisions across markets, I build on profit inequality techniques that bypass the need to directly solve each firm's problem. The model is used to infer the benefits of chain economies across Traditional (low food provision) and Hybrid (high food provision) stores following the onset of online competition.

Model estimates show that the adverse effect of online competition is milder while density benefits through the distribution system are greater for Hybrid than Traditional stores. Counterfactual simulations indicate that while online competition has induced fewer overall store openings, this overall effect is driven by impacts to Traditional stores. In addition, proximity to distribution network is shown to substantially affect the firm's ability to alter its product offerings in the face of online competition.