

NYU Stern School of Business
Department of Information, Operations & Management Sciences
OPERATIONS MANAGEMENT RESEARCH SEMINAR

TOPIC: Supply Chain Disruptions: Evidence from the Great East Japan Earthquake

SPEAKER: Alireza Tahbaz-Salehi (Columbia)

DATE: Wednesday, October 28, 2015

TIME: 10:00 AM-11:00AM

PLACE: TBD

ABSTRACT

This paper examines whether propagation of idiosyncratic, firm-level shocks through input-output linkages can lead to sizable fluctuations at the aggregate level. Using a large-scale dataset on supply chain linkages among Japanese firms together with information on firm-level exposures to a large, but localized, natural-disaster—the Great East Japan Earthquake in 2011—we quantify the earthquake’s impact on firms that were (directly or indirectly) linked to affected firms. We find that having a supplier in the earthquake-hit region led to a 3% loss in terms of sales growth compared to firms with no such suppliers. We also find evidence for smaller but nevertheless significant upstream propagation from affected firms to their suppliers. Furthermore, we show that these losses do not remain confined to the disrupted firms’ immediate customers and suppliers. Rather, firms that were only indirectly related to the firms in the affected areas (such as their customers’ customers) were also negatively impacted. Even though our results suggest that such cascade effects decay with supply chain distance, the number of firms affected is large enough for this localized disruption to have a meaningful macroeconomic impact: the propagation of the earthquake shock over input-output linkages led to a 1% drop in Japan’s aggregate output in the year following the earthquake. (This is a joint work with V. Carvalho, M. Nirei and Y. Saito).

BIO

Alireza Tahbaz-Salehi is Daniel W. Stanton Associate Professor of Business at Columbia Business School. His research focuses on the implications of network economies for business cycle fluctuations and financial stability.