Discussion of

Supply Chain Disruptions: Evidence from the Great East Japan Earthquake

Vasco M. Carvalho, Makoto Nirei, Yukiko U. Saito,

Alireza Tahbaz-Salehi

Ryan Chahrour

Boston College

July 19, 2016

Summary

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$\Rightarrow$ Impressive data work and convincing evidence that IO relations matter

Empirics

Estimating Equation

$$\Delta(RealSales)_{i,p,s} = \mu_p + \lambda_s + \gamma(FirmsChars_i) + \beta(NetworkDummies_i) + \epsilon_i$$

Table 4

	(1)	(2)	(3)	(4)	(5)	(6)
Distance 1 Customers	−0.0124**		−0.0111**			
	(−2.018)		(−1.976)			
of 1st tercile				−0.0229***		−0.0210***
				(−2.692)		(−2.432)
of 2nd tercile				−0.0342		−0.0321
				(−1.601)		(−1.701)
of 3rd tercile				0.0137		1.140
				(1.123)		(1.138)
Distance 1 Suppliers		−0.0104**	−0.0087*			
		(−1.968)	(−1.840)			
of 1st tercile					−0.0154**	−0.0128*
					(−1.982)	(−1.830)
of 2nd tercile					−0.0228*	−0.021
					(−1.803)	(−1.590)
of 3rd tercile					0.0049	0.0058
					(0.376)	(0.386)
Constant	−0.0231***	−0.0232***	−0.0232***	−0.0233***	−0.0233***	−0.0234***
	(−3.375)	(−3.387)	(−3.392)	(−3.413)	(−3.416)	(−3.431)
Firm Controls	Y	Y	Y	Y	Y	Y
Prefecture/Sector F.E.	Y	Y	Y	Y	Y	Y
N	489,132	489,132	489,132	489,132	489,132	489,132

Table 4. First round impact of customer/supplier disruption by terciles of flooded area firm growth.

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Compare firms of same sector, same prefecture, same size, same connectedness...

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Being a customer and a supplier of affected area are correlated

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$\hookrightarrow$ quantity data could help

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Suppose $\rho(P_i, P_s) > 0$ but $\sigma(P_i) > \sigma(P_s)$

$\Rightarrow$ real sales more volatile than in data!

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3. Evidence of very low elasticities among intermediates
   Moro (2012), Atalay (2015), Barrot and Sauvagnat (2016)
   - strong complementarities for inputs (including invest.)
   - good for sectoral comovement

Implications for Elasticities

An exercise:

1. Generate random 50×50 IO matrix, with in/out-degree as the data
2. Select σ and ζ to match col 3
    1. $\Delta(\text{Dist. 1 Cust})/\Delta(\text{Affected Firm Sales}) = 1.11/5.3$
    2. $\Delta(\text{Dist. 1 Suppl.})/\Delta(\text{Affected Firm Sales}) = 0.87/5.3$
3. Repeat many times

Implications for Elasticities

Table: Distribution of "best-fit" parameters

	σ	ζ
Mean	2.64 [0.79,8.68]	2.95 [0.08,9.99]

Aggregation

Range of gross output multipliers:

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$\Rightarrow$ multiplier in data larger than model supports

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2. more than standard models capture.