

How Well is U.S. Intrafirm Trade Measured?

Kim J. Ruhl | NYU Stern

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- ▶ Trade with related parties makes up
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- ▶ How well is “intrafirm” trade measured?
 - ▶ Two independent data sets

Measuring intrafirm trade

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Measuring intrafirm trade

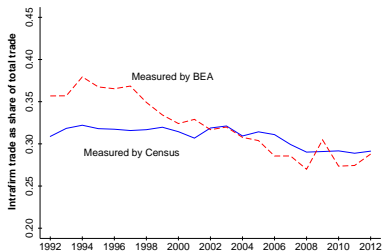
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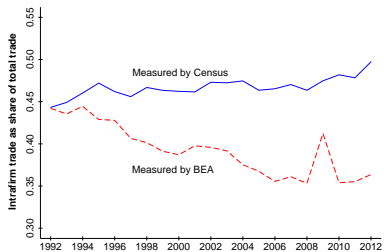
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 - ▶ 2009 trade collapse: different implications
- ▶ Bilateral U.S. associated party trade:
 - ▶ Generally similar, with important outliers

U.S. associated party trade, 1992–2012

Exports



Imports



Today's plan

1. Background on the two data sources
2. Total associated party trade
3. Bilateral associated party trade
4. More detail

BEA: Intrafirm trade (IFT)

- ▶ Collected through surveys of MNEs
 1. U.S. multinational enterprises and their foreign affiliates
 2. U.S. affiliates of foreign parents
- ▶ Annual surveys; benchmark surveys every 5 years
- ▶ An enterprise is a *parent* of an *affiliate* enterprise if it owns at least 10 percent of the affiliate's voting stock or equivalent (BOP definition)
- ▶ A *majority-owned* affiliate's parent owns > 50 percent voting stock
 - ▶ More data is collected for majority-owned affiliates
- ▶ Used in: Brainard (1997), Helpman, Melitz, and Yeaple (2004), Hanson, Mataloni, and Slaughter (2005) ...

Census: Related party trade (RPT)

- ▶ Yes-no question asked on import and export customs forms
- ▶ Collected continuously, publicly available annually
- ▶ **Exports:** “A transaction involving trade between a U.S. principal party in interest and an ultimate consignee where either party owns directly or indirectly 10 percent or more of the other party”
- ▶ **Imports:** “Any person directly or indirectly owning, controlling or holding power to vote, 5 percent or more of the outstanding voting stock or shares of any organization”
 - ▶ Also: partners; employer and employee; family members
- ▶ Used in: Nunn and Trefler (2008), Bernard, Jensen, and Schott (2009), Bernard, Jensen, Redding, and Schott (2010) . . .

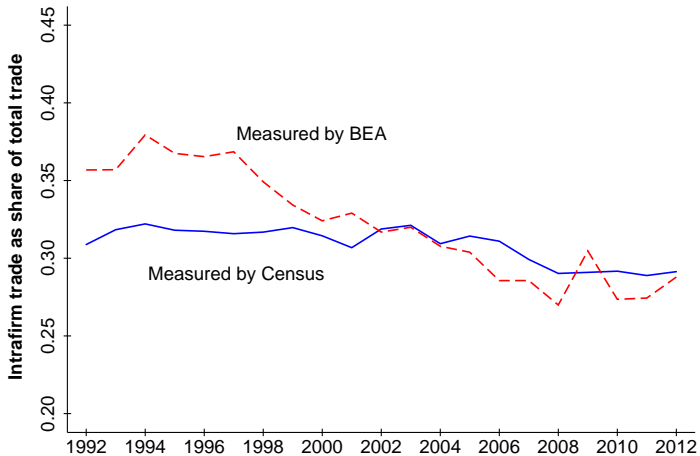
Aggregate associated party trade

- ▶ RPT data cannot distinguish between
 - ▶ Trade from U.S. parent to its foreign affiliate
 - ▶ Trade from U.S. affiliate to its foreign parent
- ▶ In the IFT data, combine the two
 - ▶ Estimate trade with non-majority owned affiliates (sometimes)
- ▶ Report IFT as a fraction of total exports (analogous for imports)

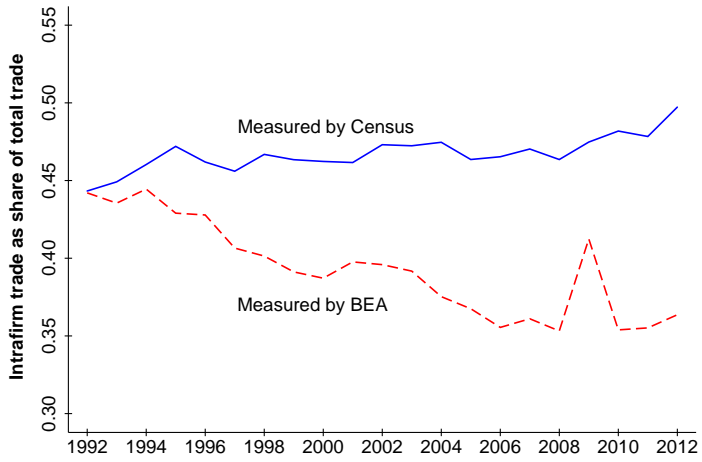
$$x_t = \frac{X_t^{pa} + X_t^{ap}}{X_t}$$

- ▶ Report RPT as a fraction of total exports or imports

Associated party exports, 1992–2012



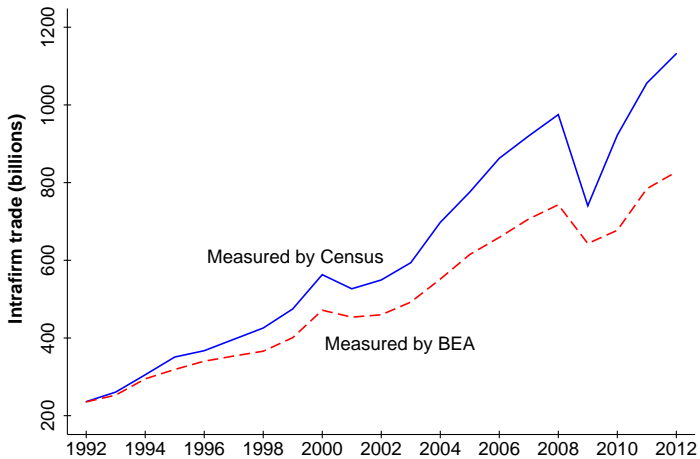
Associated party imports, 1992–2012



Trade collapse of 2009

- ▶ U.S. exports fell by 18 percent; imports by 25 percent
- ▶ The RPT share stays constant, IFT share shoots up
- ▶ Are these data artifacts, or real phenomena?
- ▶ Does IFT behave differently than arms-length trade in recessions?
 - ▶ Finance and trade (Chor and Manova 2012)
 - ▶ Inventories (Alesandria et al. 2010)
 - ▶ Sectoral composition (Eaton, et al. 2011)

Associated party imports (levels), 1992–2012



Aggregate associated party trade

- ▶ Export line up reasonably well
- ▶ Imports less so
 - ▶ Differences in definitions
 - ▶ Systematic underreporting on BEA surveys?
 - ▶ Small affiliates report less or not at all
 - ▶ Systematic misclassification on Census customs forms?
 - ▶ Contract manufacturing (Apple and Foxconn)
- ▶ Import measures diverge during 1994–2006

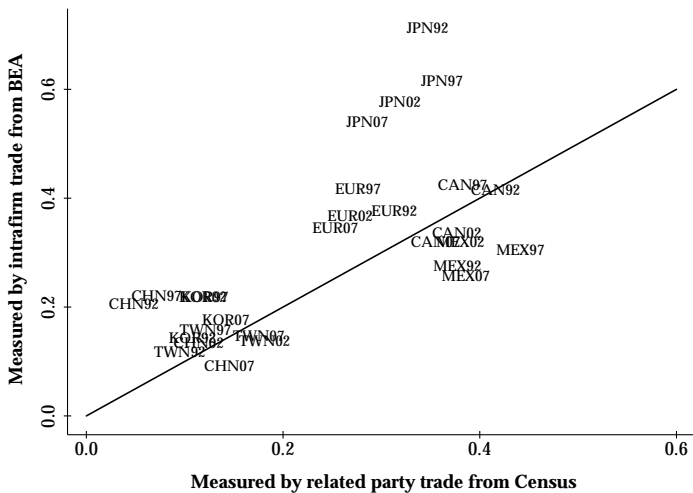
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- ▶ Import measures diverge during 1994–2006
 - ▶ Coincident with the rise of Mexico and China in U.S. trade
- ▶ Examine bilateral associated party trade

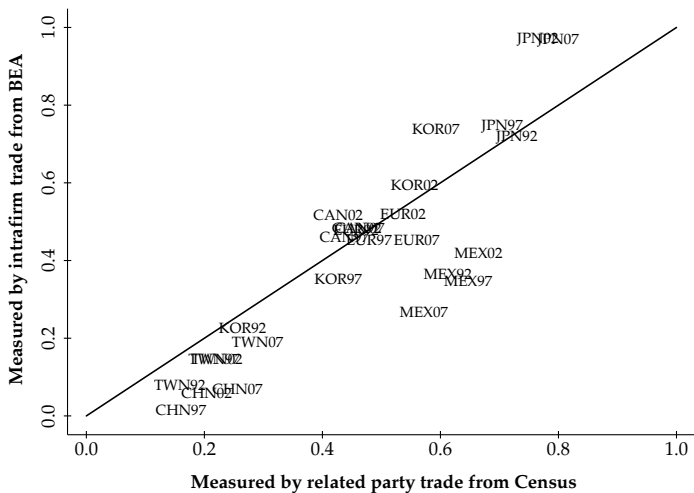
Bilateral associated party trade

- ▶ Requires more estimation of non-majority owned affiliate data
 - ▶ Restricts analysis to FDIUS benchmark years
 - ▶ 1992, 1997, 2002, 2007
- ▶ Country groupings determined by early RPT data
 - ▶ Europe, Canada, Japan, China, Mexico, Taiwan
- ▶ Measurements appear consistent across time

Associated party exports



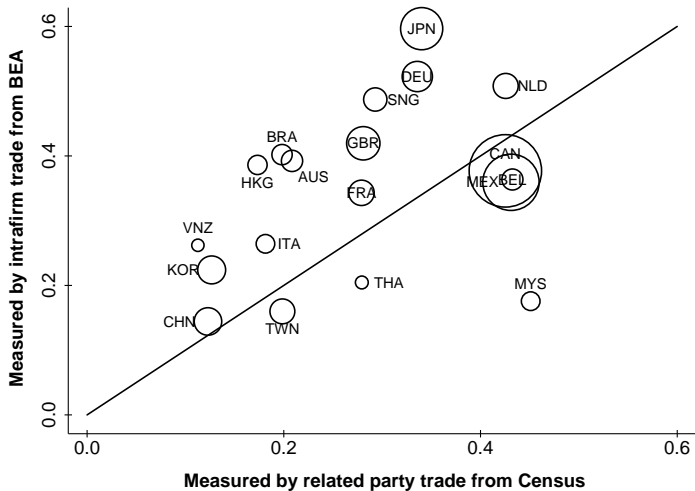
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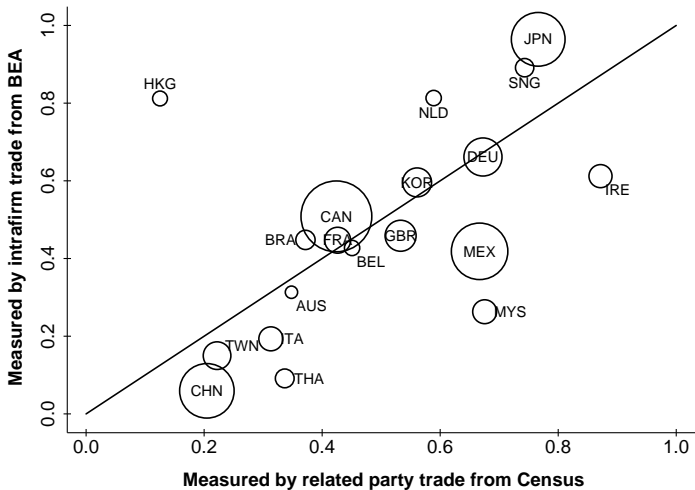
Bilateral associated party trade

- ▶ 2002: Complete BEA and Census data
- ▶ Expand to top 20 trade partners that year
- ▶ Accounts for
 - ▶ 83 percent of total trade (imports + exports)
 - ▶ Exports: 89 percent of IFT; 80 percent of RPT
 - ▶ Imports: 98 percent of IFT; 87 percent of RPT

Associated party exports (circles = share of total exports)



Associated party imports (circles = share of total imports)



Concluding remarks

- ▶ MNEs are an important — and complicated — part of trade
- ▶ In general, measurement looks good
- ▶ Measuring total associated party trade depends on
 - ▶ Canada, Mexico, and China
- ▶ China and Mexico make up 70 percent of total difference in 2002

Questions for further study

- ▶ Is the downward trend in IFT real?
 - ▶ Compatible with outsourcing, contract manufacturing, and factoryless manufacturing trends
- ▶ Did intrafirm trade behave differently during 2009?