

# How Well is U.S. Intrafirm Trade Measured?

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## Multinational enterprises dominate international trade

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- ▶ How well is “intrafirm” trade measured?
  - ▶ Two independent data sets

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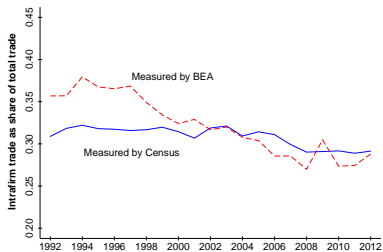
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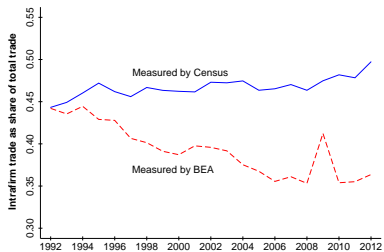
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- ▶ Bilateral U.S. associated party trade:
  - ▶ Generally similar, with important outliers

## 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)

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- ▶ 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

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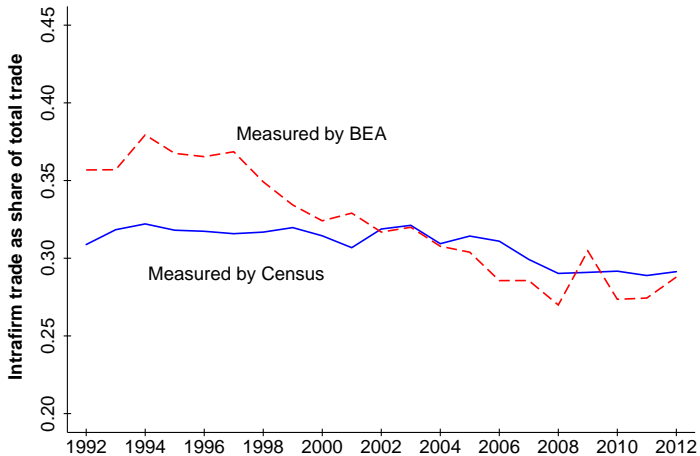
- ▶ RPT data cannot distinguish between
  - ▶ Trade from U.S. parent to its foreign affiliate
  - ▶ Trade from U.S. affiliate to its foreign parent
- ▶ In the IFT data, combine the two
  - ▶ Estimate trade with non-majority owned affiliates (sometimes)
- ▶ Report IFT as a fraction of total exports (analogous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

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

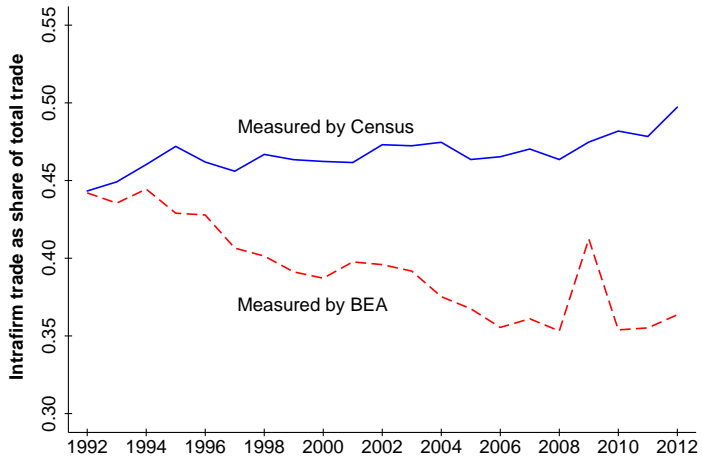
- ▶ Report RPT as a fraction of total exports or imports



## Associated party exports, 1992–2012



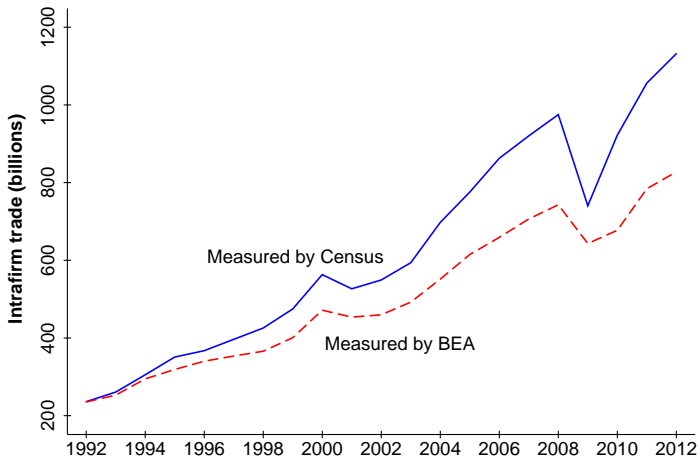
## Associated party imports, 1992–2012



## 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

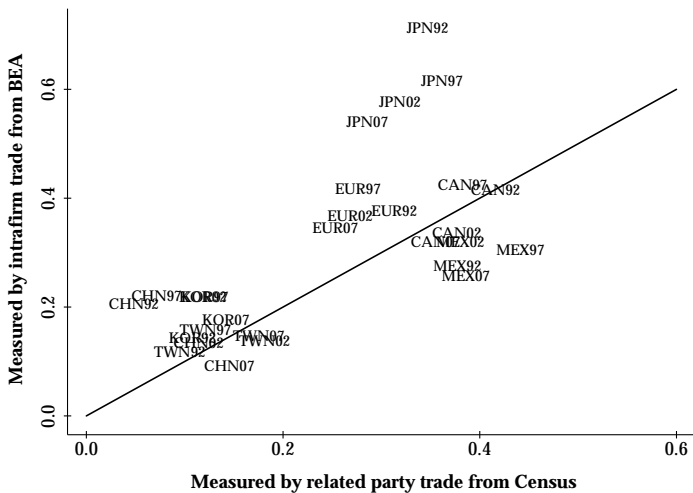
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- ▶ Import measures diverge during 1994–2006
  - ▶ Coincident with the rise of Mexico and China in U.S. trade
- ▶ Examine bilateral associated party trade

## Bilateral associated party trade

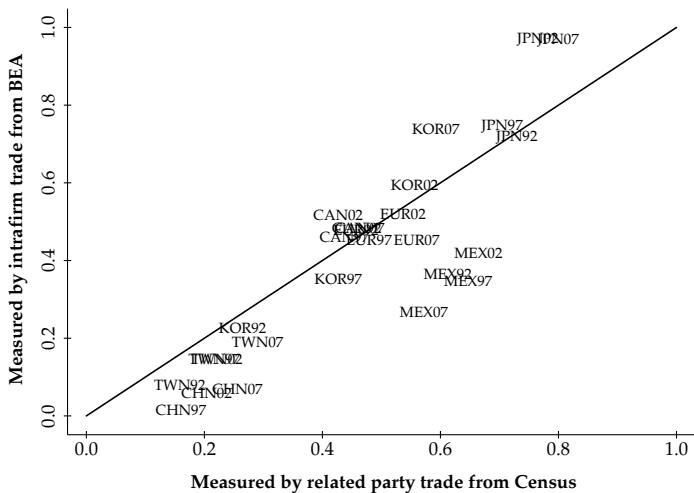
- ▶ Requires more estimation of non-majority owned affiliate data
  - ▶ Restricts analysis to FDIUS benchmark years
  - ▶ 1992, 1997, 2002, 2007
- ▶ Country groupings determined by early RPT data
  - ▶ Europe, Canada, Japan, China, Mexico, Taiwan
- ▶ Measurements appear consistent across time

## Associated party exports





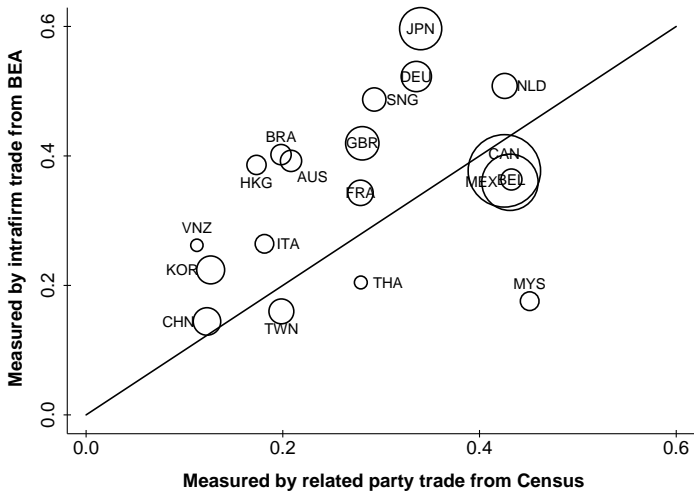
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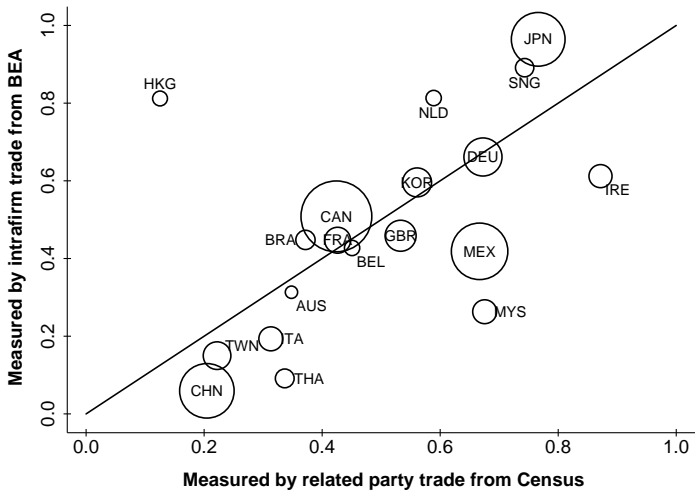
## Bilateral associated party trade

- ▶ 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

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- ▶ 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

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