Impact of Taxation on Location of Manufacturing Activities

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Agenda

• Provide a multinational perspective

• What am I going to talk about?
  • Basic patterns in manufacturing activities of U.S. MNCs
  • Theoretical and empirical findings about how firms make production location decisions
  • Evidence on use and effects of the structures Paul described
U.S. Multinational Manufacturing Activity
Manufacturing Share of GDP
Manufacturing Share of GDP

- USA
- France
- Germany
- UK
- Japan
Manufacturing Share of GDP
U.S. Multinational Manufacturing Activity

- Share of Parent Activity in Manufacturing
- Share of Affiliate Activity in Manufacturing
- Share of Manufacturing Activity Performed Abroad
- Share of Aggregate Activity Performed Abroad
Basic Facts About U.S. Manufacturing

• Changes in manufacturing activities of U.S. MNCs reflect more general changes in the manufacturing activity

• Manufacturing share falls for parents and affiliates
  • Manufacturing as a share of GDP has declined in many countries
  • Reflects productivity gains and relative price changes

• Larger share U.S. MNC manufacturing happens abroad
  • U.S. share of global manufacturing has fallen
  • Manufacturing share falls by more for parents than affiliates
  • Large increase in activity of U.S. MNCs abroad

• What can we conclude about U.S. tax policy?
  • It cannot easily explain global decline in manufacturing
  • It plausibly contributes to general increase in foreign activity of U.S. MNCs
Location of Manufacturing Activities

• Proximity-Concentration Hypothesis
  • Firms trade off exporting and foreign production
  • Produce abroad when shipping costs and tariffs are high
  • Export when returns to scale in production are high

• Vertical Expansion
  • Firm locate different parts of production process in different locations in response to cost differences
  • Wages emphasized, not taxes
  • Mixed empirical evidence
    • Most U.S. affiliate activity is in developed countries
    • Little affiliate output is shipped back to the U.S.
    • But, less skill intensive work is performed in countries with an abundance of unskilled workers
  • Shortcoming of tests: lack of data on arm’s length outsourcing
Effect of Corporate Taxes

- **Taxes and Investment**
  - Cross-sectional and time-series estimates indicate that levels of foreign direct investment are negatively associated with local tax rates
  - Commonly estimated elasticity is 0.6
  - Foreign effective rates have been falling, but U.S. effective rates have not
Predictions from Paul’s Presentation

- Tax incentives to move IP abroad strengthen over time
  - Rates in many countries have fallen, U.S. rates have not
  - Check the box in 1997

- Firms should shift IP abroad over time
  - More R&D abroad, cost sharing
  - More intra firm royalty payments to lightly taxed affiliates
U.S. MNCs R&D Activity
Affiliate Royalty Payments (Millions)

Affiliate host countries with largest aggregate recipients in 2009:
Ireland, Bermuda, Luxembourg, UK, Netherlands

Aggregate Parent Net Income in 2009: $622 billion
Predictions from Paul’s Presentation

• Tax incentives to move IP abroad strengthen over time
  • Rates in many countries have fallen, U.S. rates have not
  • Check the box in 1997

• Firms should shift IP abroad over time
  • More R&D abroad, cost sharing
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• U.S. exports as a share of exports + affiliate sales should fall
  • Especially in IP intensive sectors

• U.S. imports as a share of imports + parent sales should increase
  • Especially in IP intensive sectors
Parent Exports/(Parent Exports + Affiliate Sales)
Parent Imports/(Parent Imports + Parent Sales)
## Export and Import Ratios

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Parent Exports/ (Parent Exports + Affiliate Sales)</th>
<th>Parent Imports/ (Parent Imports + Parent Sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Parent R&amp;D/Parent Sales * Post 1997 Dummy</td>
<td>-0.3969 (0.1372)</td>
<td>-0.4048 (0.1373)</td>
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<tr>
<td>Log of Parent Assets</td>
<td>0.0037 (0.0054)</td>
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</tr>
<tr>
<td>Parent Fixed Effects?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Year Fixed Effects?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>No. of Obs.</td>
<td>11,860</td>
<td>11,846</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.8161</td>
<td>0.8170</td>
</tr>
</tbody>
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Potentially Confounding Effects

- Intellectual Property Rights Reform
- Liberalization of Host Country Inward FDI Restrictions
Concluding Thoughts

• Considerable evidence that U.S. corporate tax rates and tax policy have contributed to decline in share of manufacturing activity performed in U.S.

• Evidence suggests that the mechanism Paul described matter

• Questions
  • Why should manufacturing receive special tax treatment?
    • Manufacturing accounts for a declining share of GDP globally
    • U.S. MNC share of activity abroad is increasing in services too

• What kind of policy response to the practices Paul describes would be appropriate?
### Affiliate Cash Holdings

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<td>Constant</td>
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<td>Country Tax Rate</td>
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<td>(0.2238)</td>
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<td>Domestic R&amp;D/Domestic Assets</td>
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<td>(0.6726)</td>
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<tr>
<td>Rate</td>
<td>(3.8715)</td>
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