

Impact of Taxation on Location of Manufacturing Activities

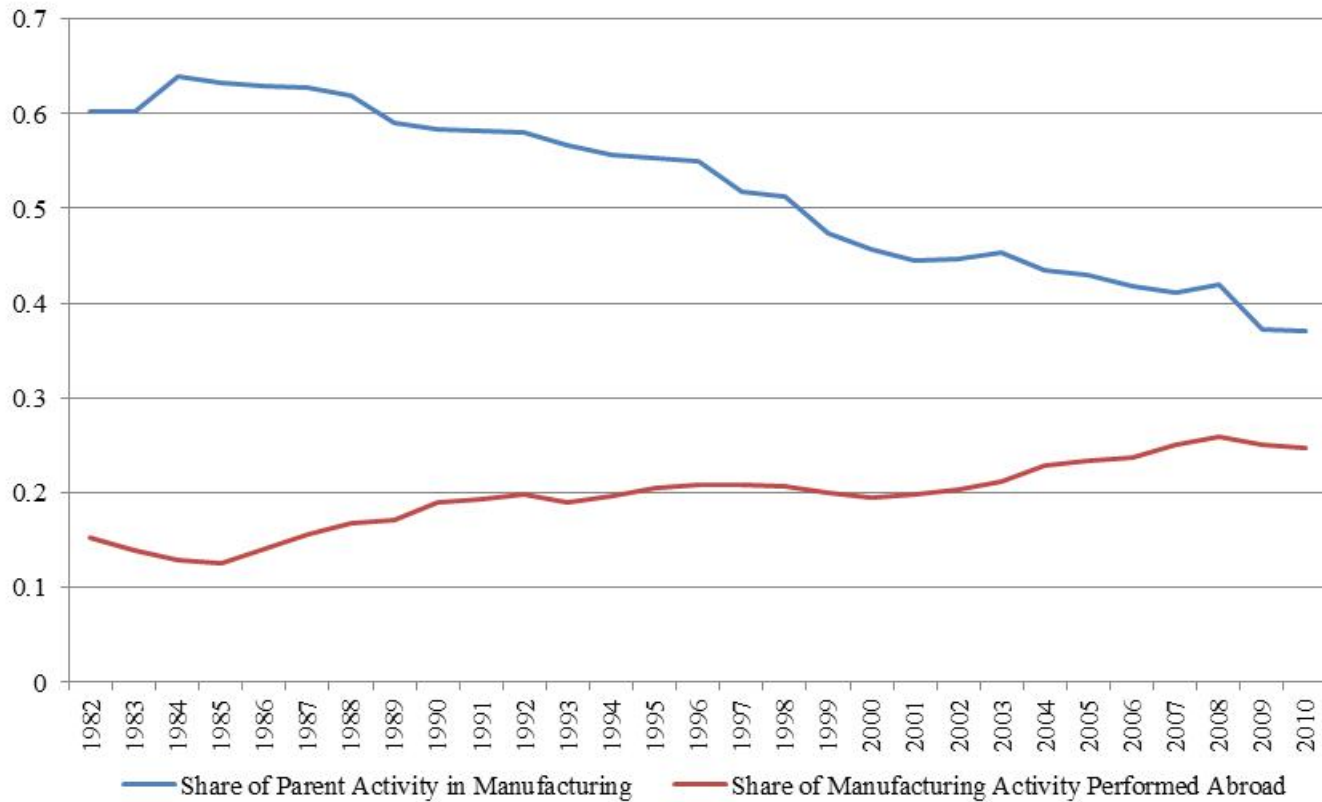
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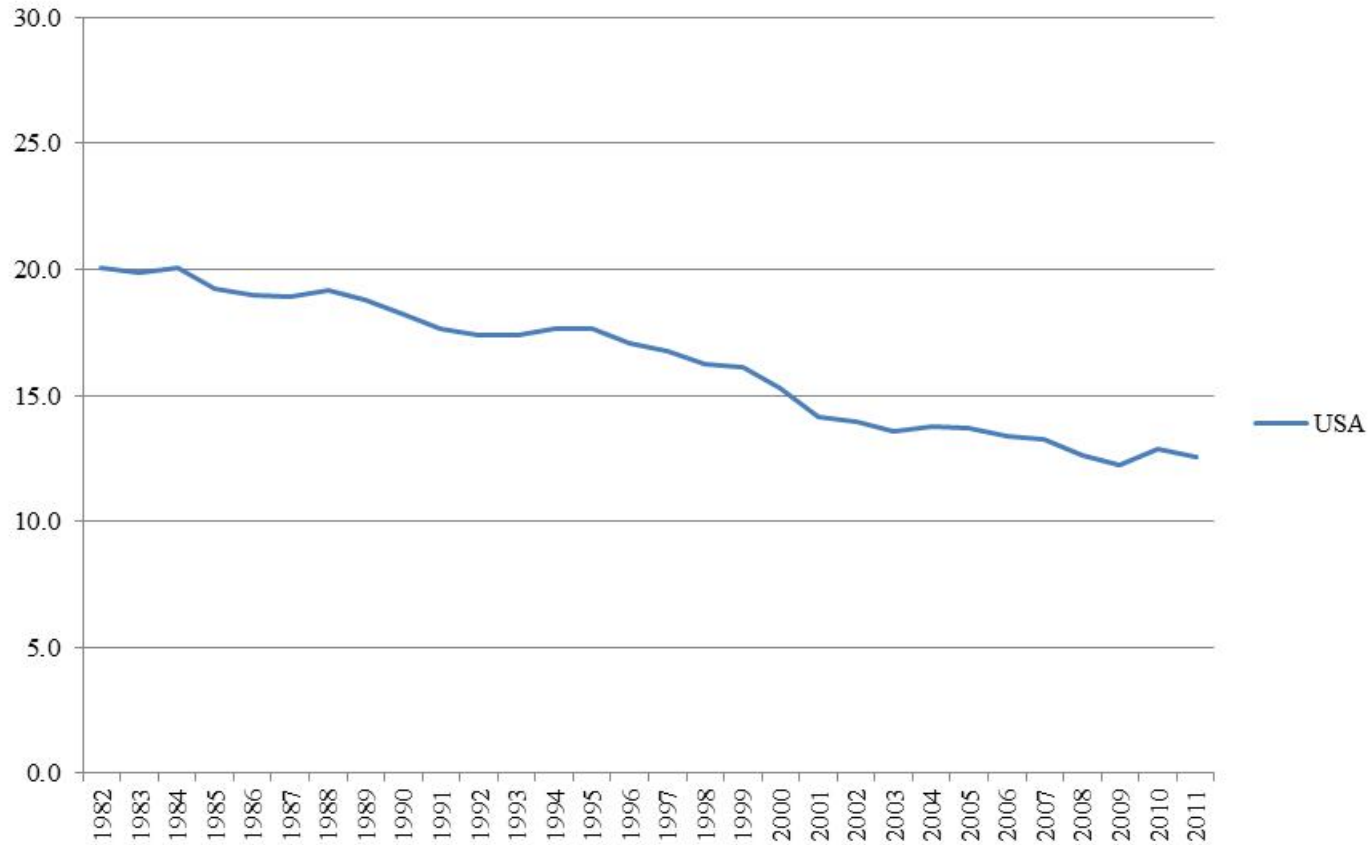
Agenda

- 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

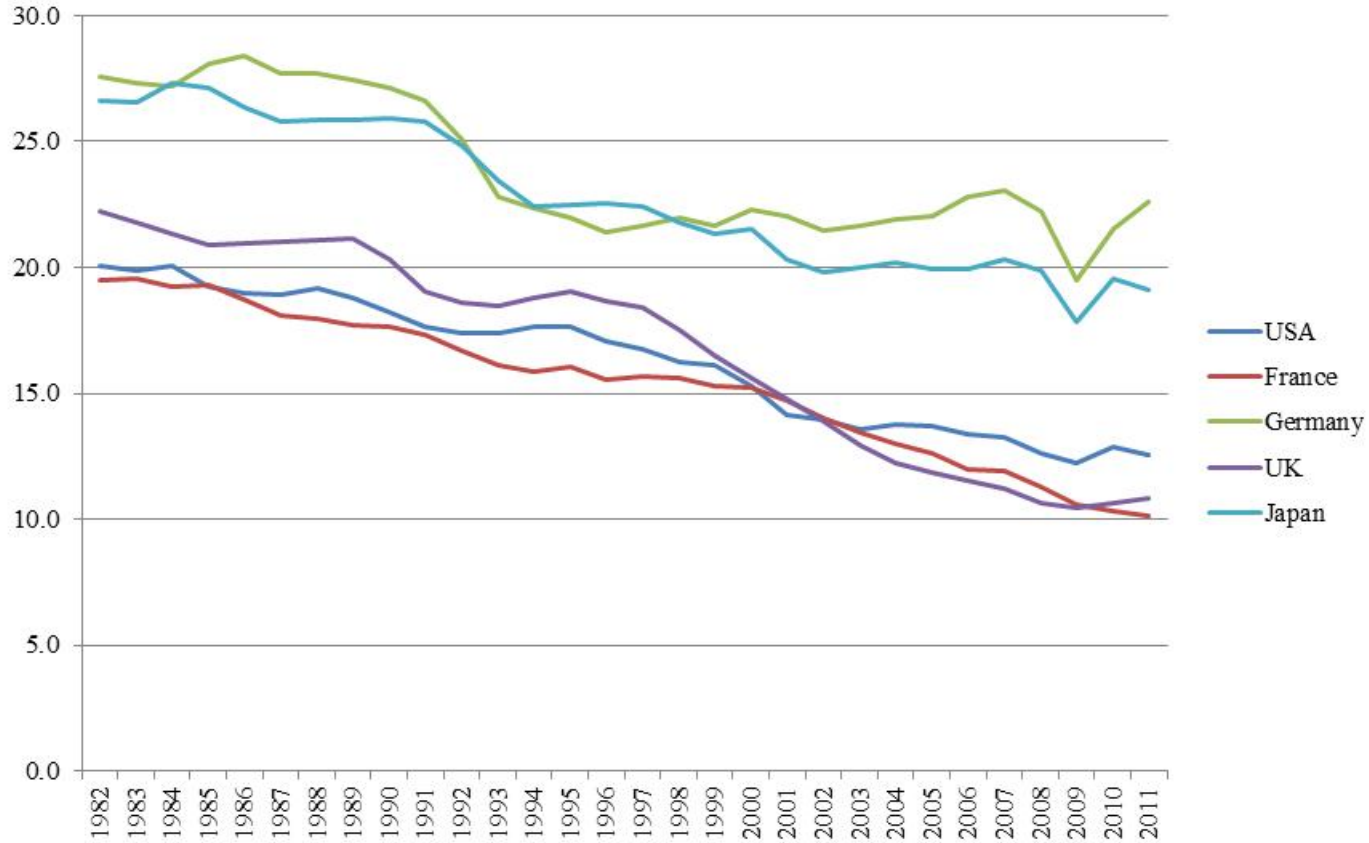
U.S. Multinational Manufacturing Activity



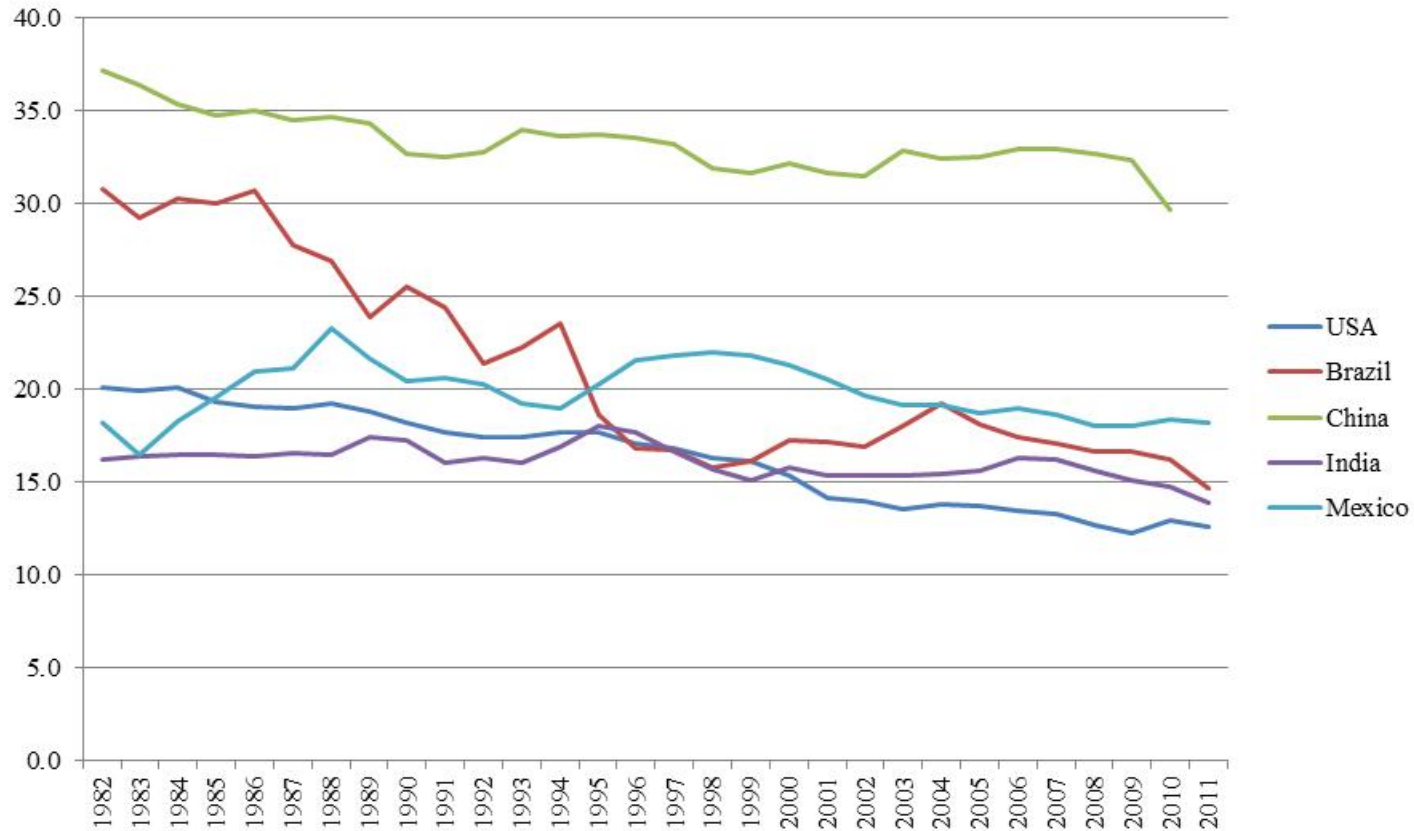
Manufacturing Share of GDP



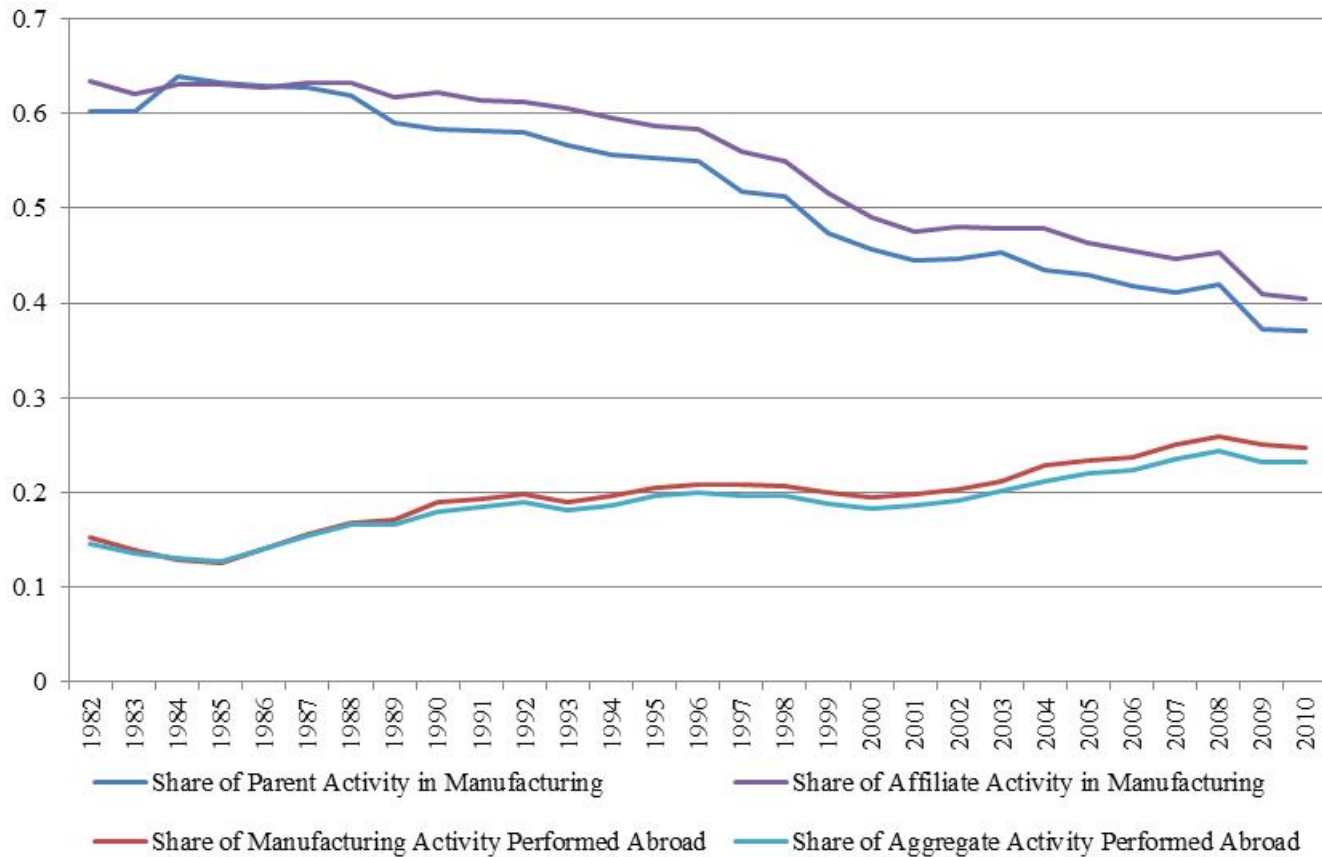
Manufacturing Share of GDP



Manufacturing Share of GDP



U.S. Multinational Manufacturing Activity



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

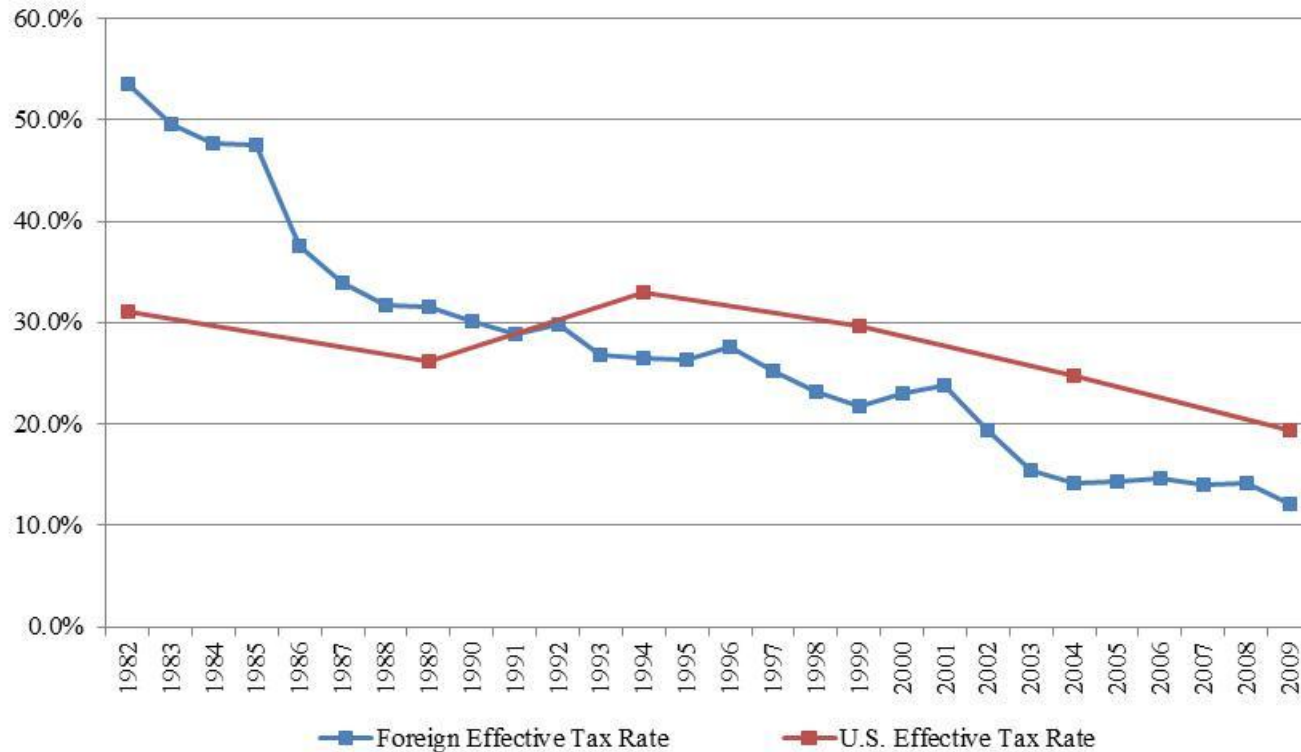
- Proximity-Concentration Hypothesis
 - Firms trade off exporting and foreign production
 - Produce abroad when shipping costs and tariffs are high
 - Export when returns to scale in production are high

- 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

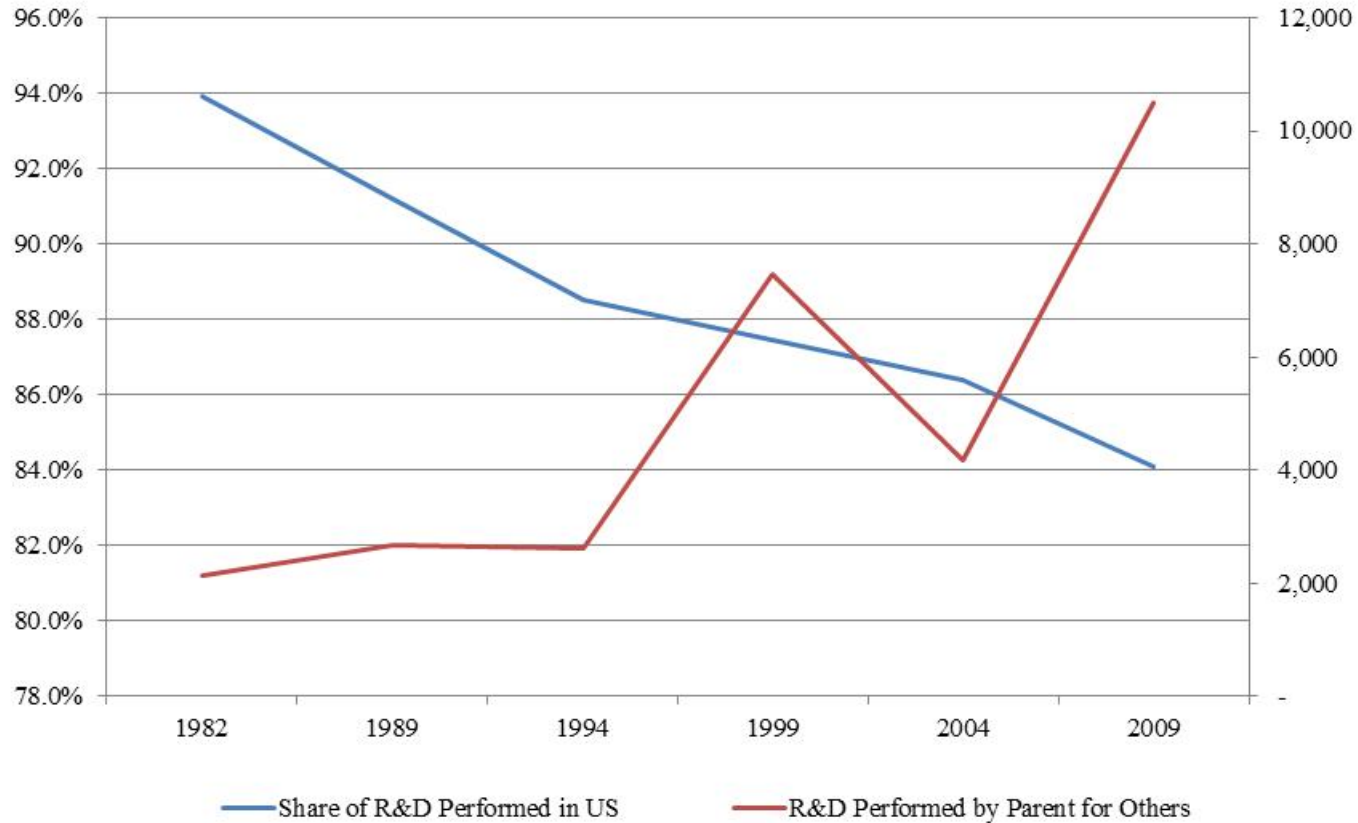
- Cross-sectional and time-series estimates indicate that levels of foreign direct investment are negatively associated with local tax rates
- Commonly estimated elasticity is 0.6
- Foreign effective rates have been falling, but U.S. effective rates have not



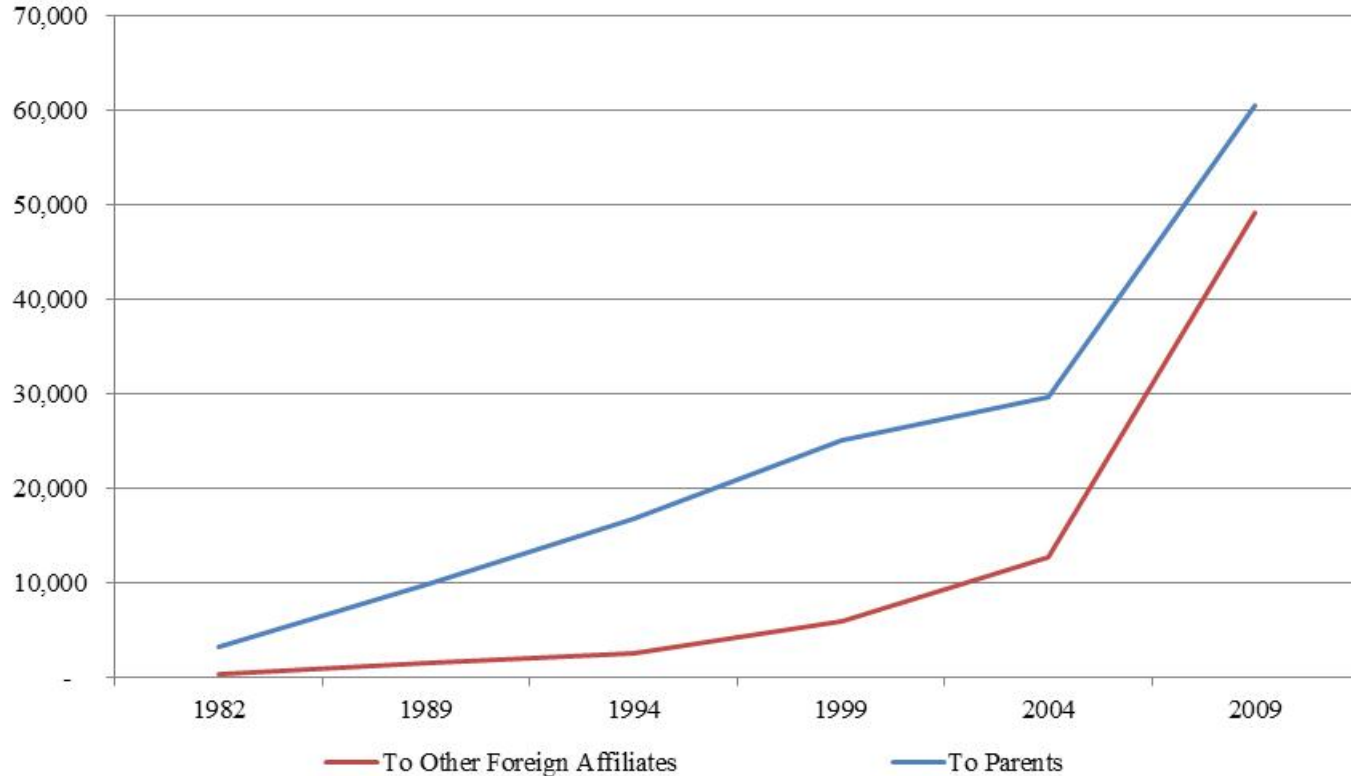
Predictions from Paul's Presentation

- 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)



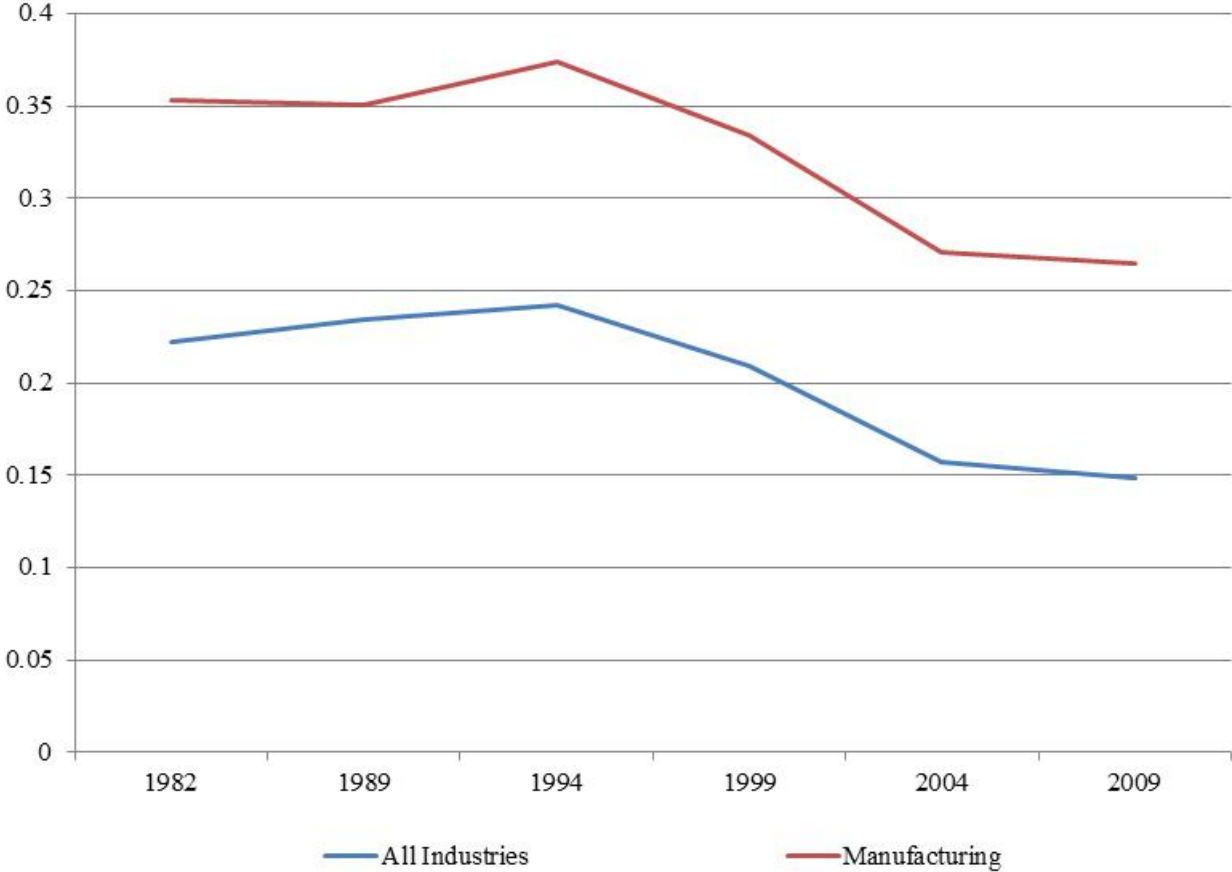
Affiliate host countries with largest aggregate recipients in 2009:
Ireland, Bermuda, Luxembourg, UK, Netherlands

Aggregate Parent Net Income in 2009: \$622 billion

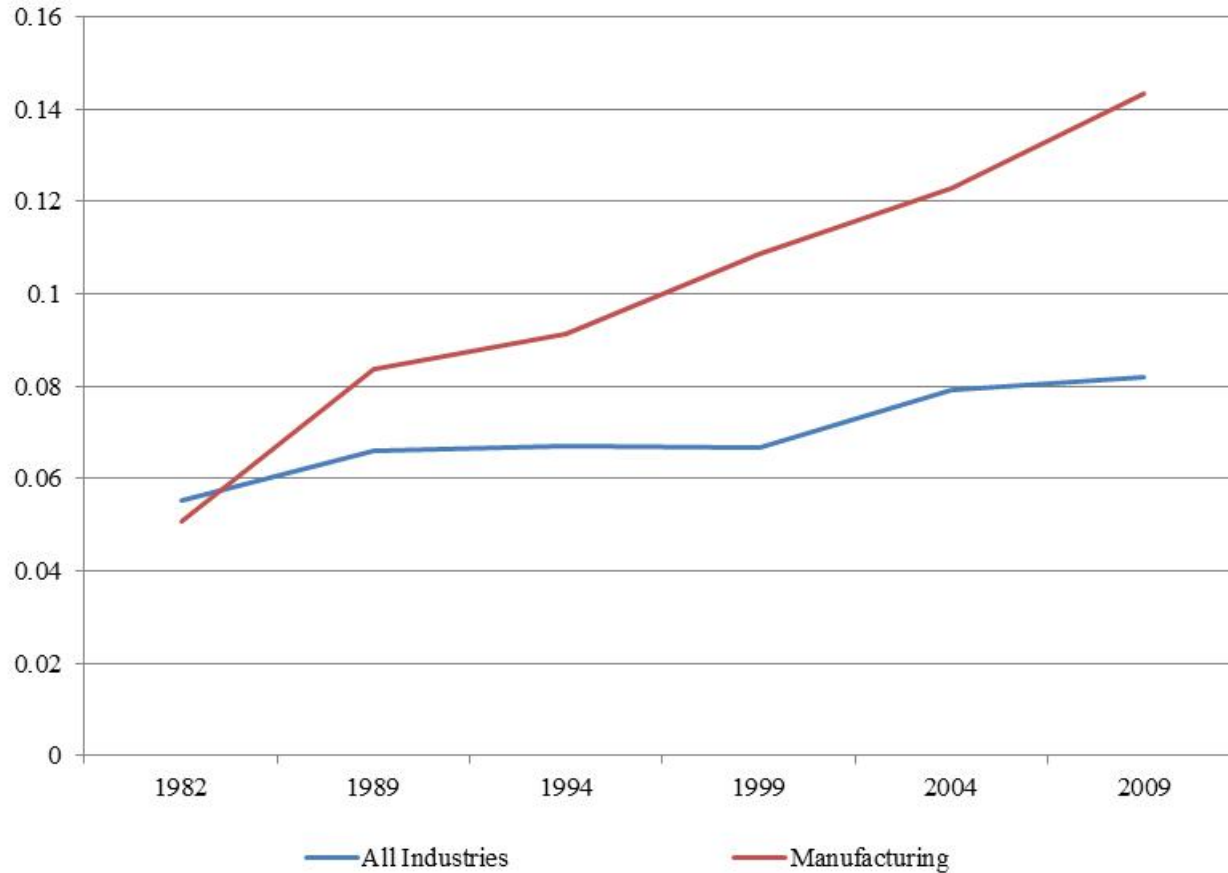
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- Firms should shift IP abroad over time
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- U.S. exports as a share of exports + affiliate sales should fall
 - Especially in IP intensive sectors
- U.S. imports as a share of imports + parent sales should increase
 - Especially in IP intensive sectors

Parent Exports/(Parent Exports + Affiliate Sales)



Parent Imports/(Parent Imports + Parent Sales)



Export and Import Ratios

Dependent Variable:	Parent Exports/ (Parent Exports + Affiliate Sales)		Parent Imports/ (Parent Imports + Parent Sales)	
	(1)	(2)	(3)	(4)
Parent R&D/Parent Sales * Post 1997 Dummy	-0.3969 (0.1372)	-0.4048 (0.1373)	0.1502 (0.0609)	0.1548 (0.0606)
Log of Parent Assets		0.0037 (0.0054)		-0.0014 (0.0019)
Parent Fixed Effects?	Y	Y	Y	Y
Year Fixed Effects?	Y	Y	Y	Y
No. of Obs.	11,860	11,846	12,270	12,264
R-Squared	0.8161	0.8170	0.7922	0.7924

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

Dependent Variable:	Ln(Affiliate Cash/Affiliate Net Assets)			
	(1)	(2)	(3)	(4)
Constant	-0.2907 (0.2174)	-0.2515 (0.2206)	-0.5646 ** (0.2237)	-0.4618 ** (0.2272)
Country Tax Rate	-1.3415 *** (0.2238)	-1.4333 *** (0.2210)	-0.4709 (0.2876)	-0.7350 ** (0.2888)
Domestic R&D/Domestic Assets	-0.0672 (0.6726)	0.9447 (1.0435)	6.6857 *** (1.4882)	6.2115 *** (1.6745)
Domestic R&D/Domestic Assets*Country Tax Rate			-19.3482 *** (3.8715)	-15.4390 *** (3.9137)

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