

Impact of Taxation on Location of Manufacturing Activities

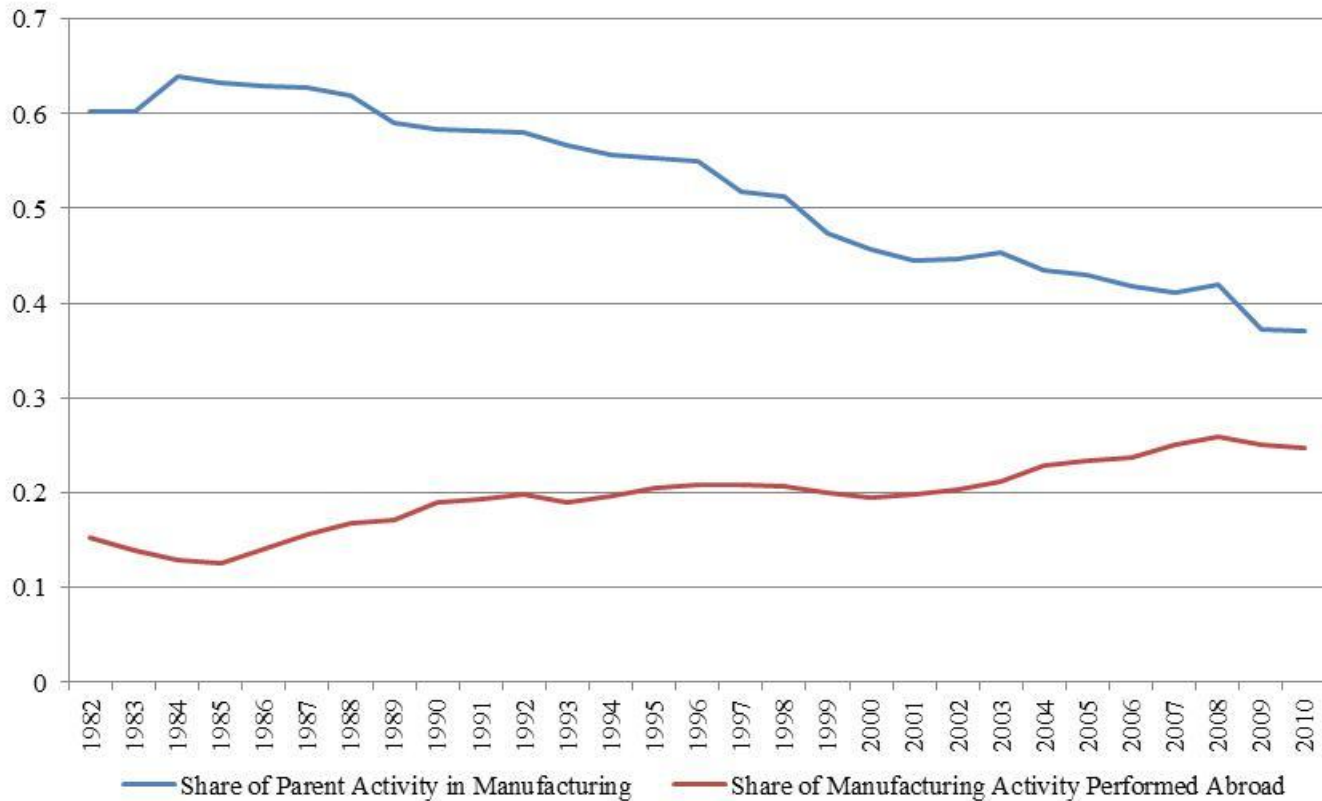
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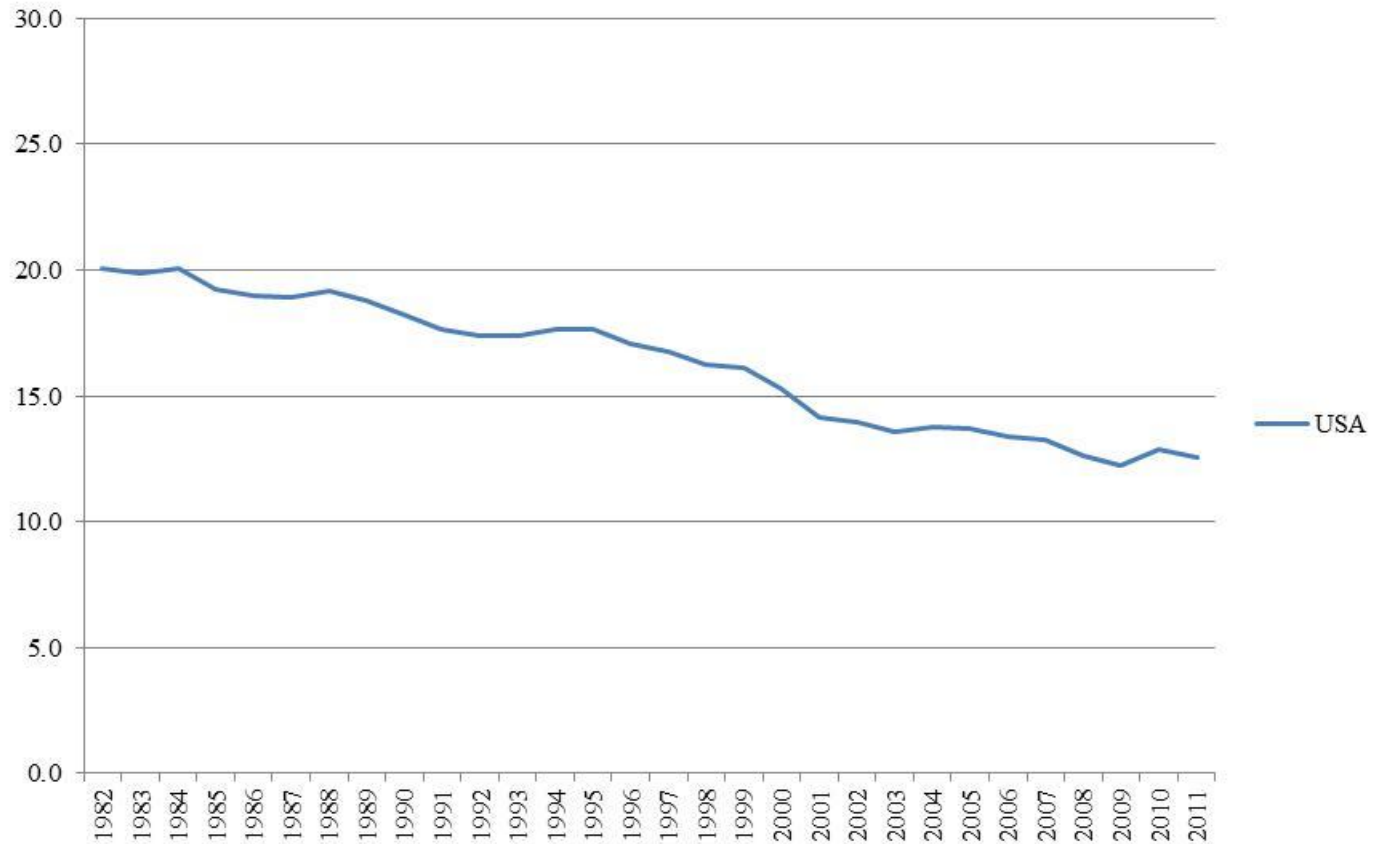
Agenda

- How are manufacturing location decisions affected by taxes?
- 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

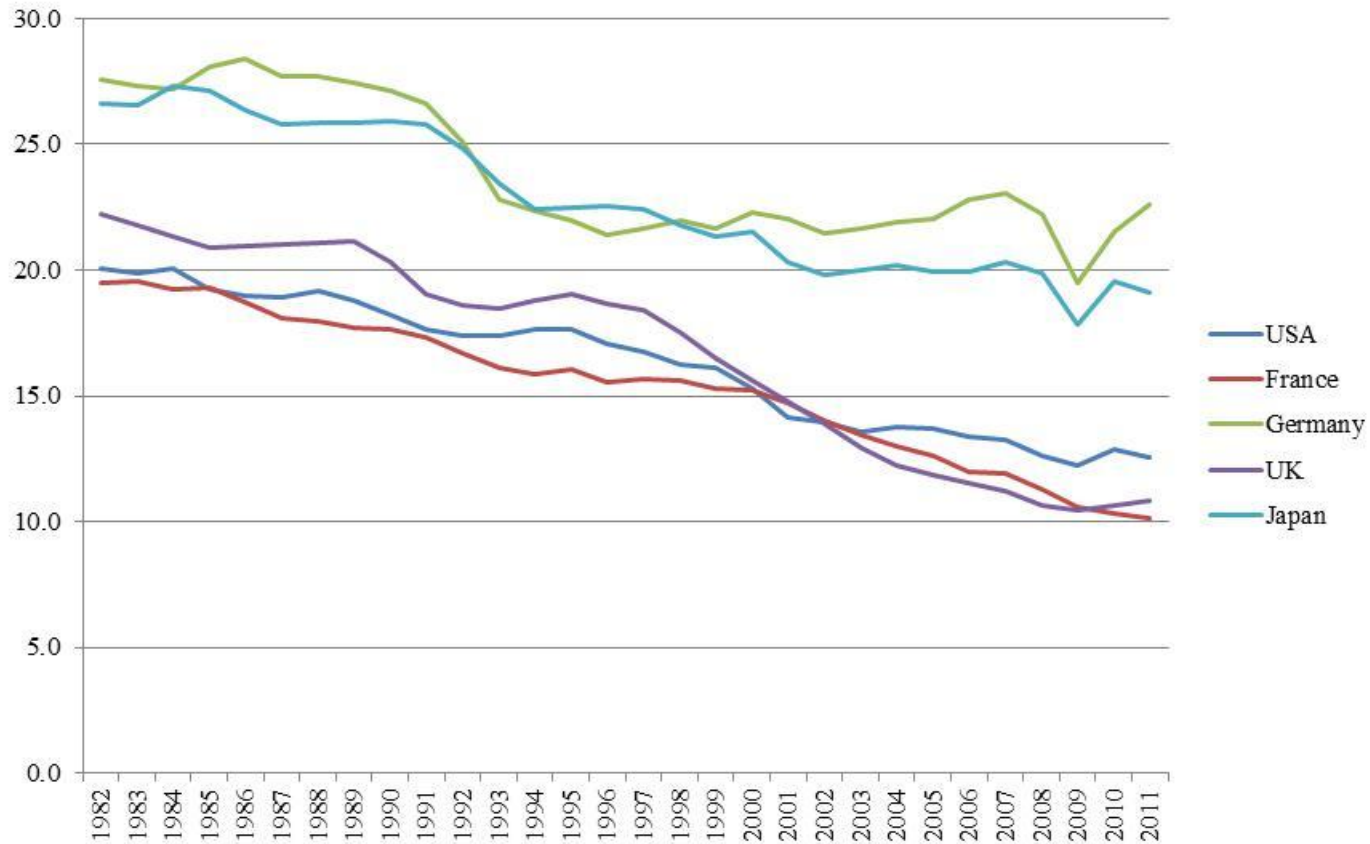
U.S. Multinational Manufacturing Activity



Manufacturing Share of GDP



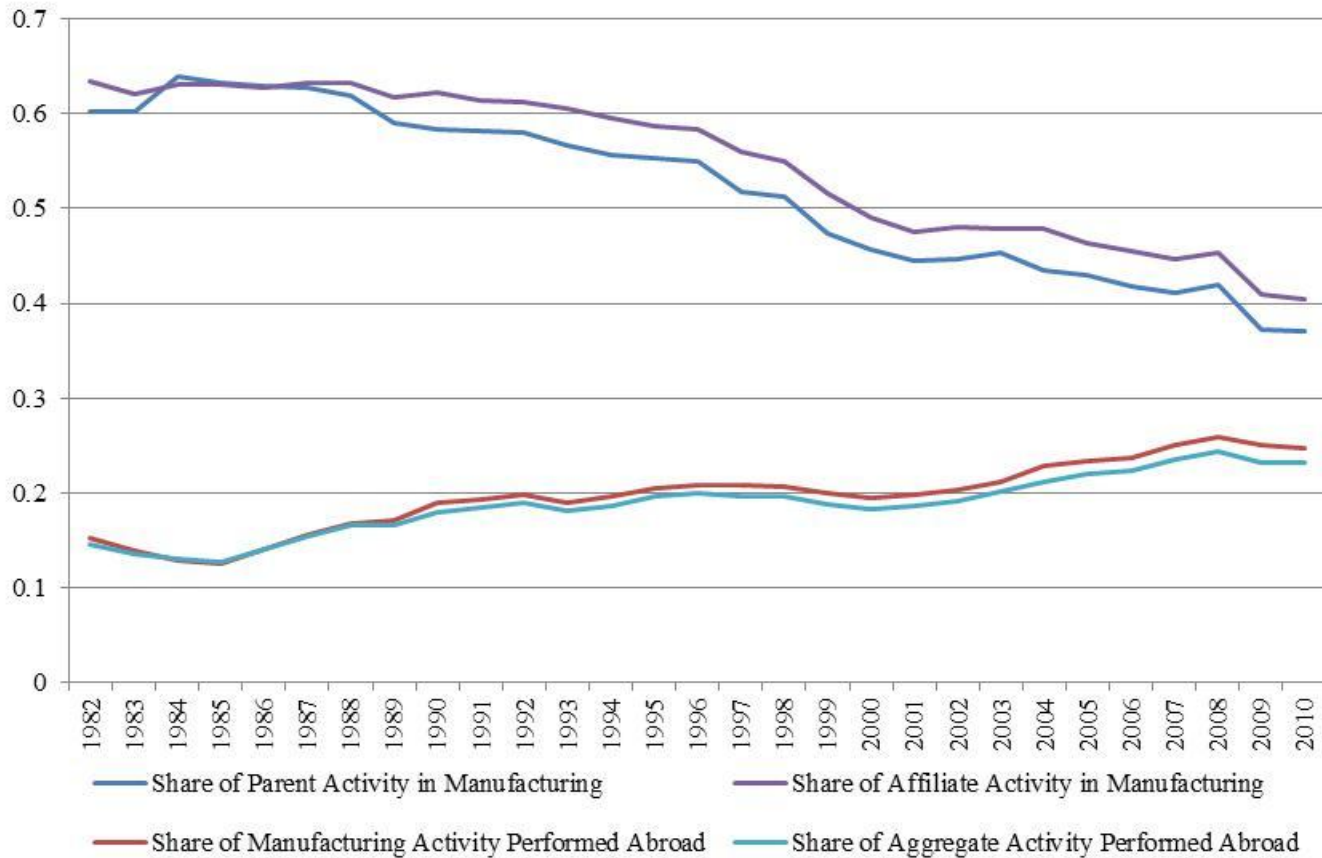
Manufacturing Share of GDP



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
- Some conclusions related to U.S. tax policy
 - It cannot easily explain global decline in manufacturing
 - It plausibly contribute to general increase in foreign activity of U.S. MNCs

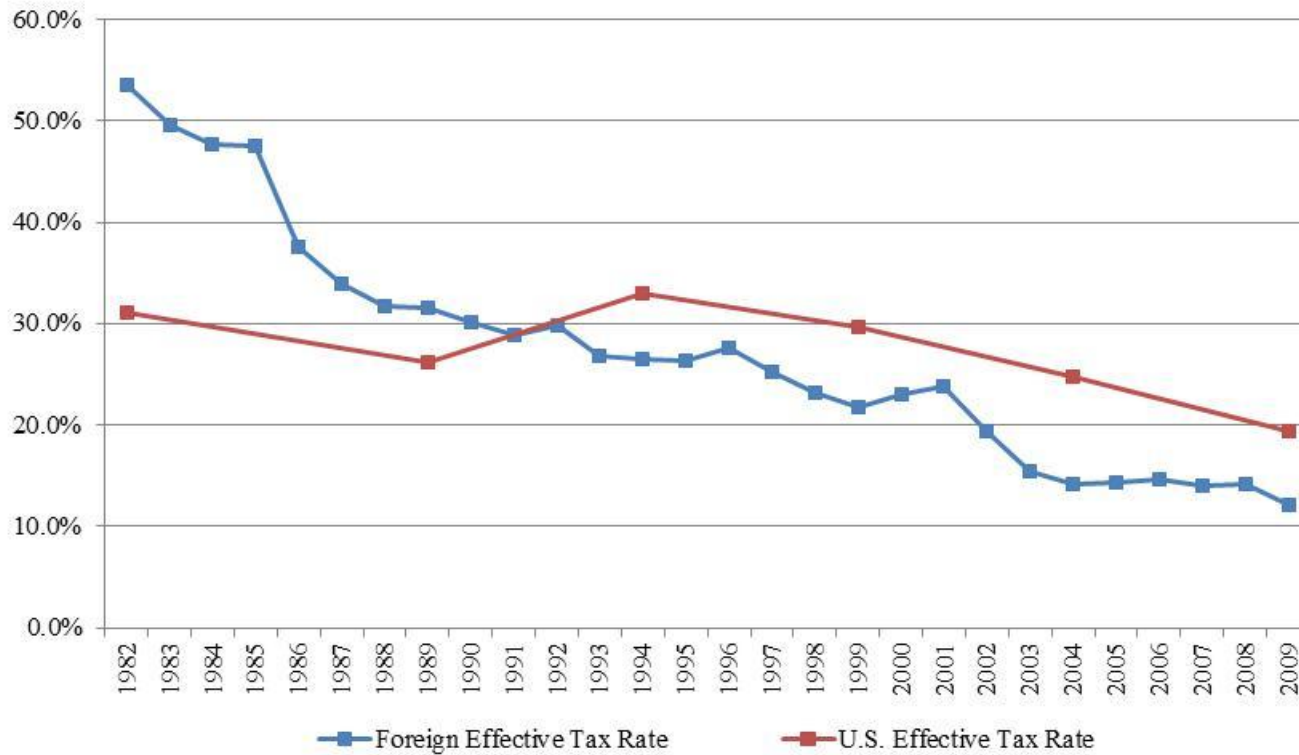
Location of Manufacturing Activities (1)

- 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
 - Strong empirical support, but tax variables do not have predicted signs
- 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. subsidiary activity is in developed countries
 - Little subsidiary output is exported back to the U.S.
 - But, less skilled intensive work is performed in countries with an abundance of unskilled workers
 - Shortcoming of tests: lack of data on arm's length outsourcing
 - Lower taxes associated with higher subsidiary sales and higher levels of subsidiary input process activity

Location of Manufacturing Activities (2)

- 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
- Host Country Restrictions on Inward Foreign Investment
 - Restrictions on ownership levels and capital flows deter foreign investment
 - Ownership restrictions especially limit activity in high tech sectors
 - Liberalizations are associated with increased activity by U.S. MNCs
- Innovation, Imitation, and Intellectual Property Rights
 - Lower wages and lower transportation costs of serving local demand provide incentives to shift production abroad
 - Weak IPR gives rise to imitation and acts as a disincentive
- Over last two decades, many countries have liberalized FDI policies and strengthened IPR

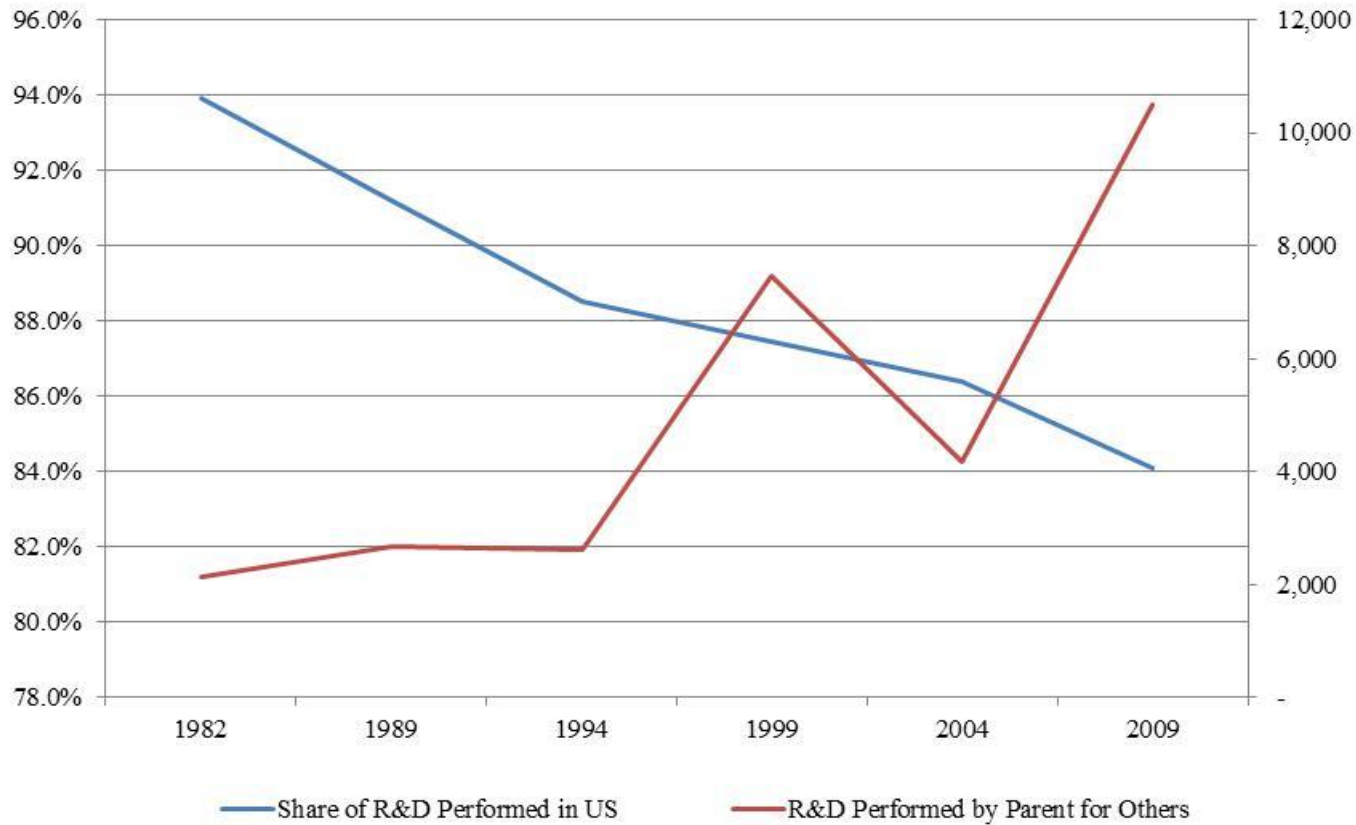
Tax Rates Faced by U.S. Multinationals



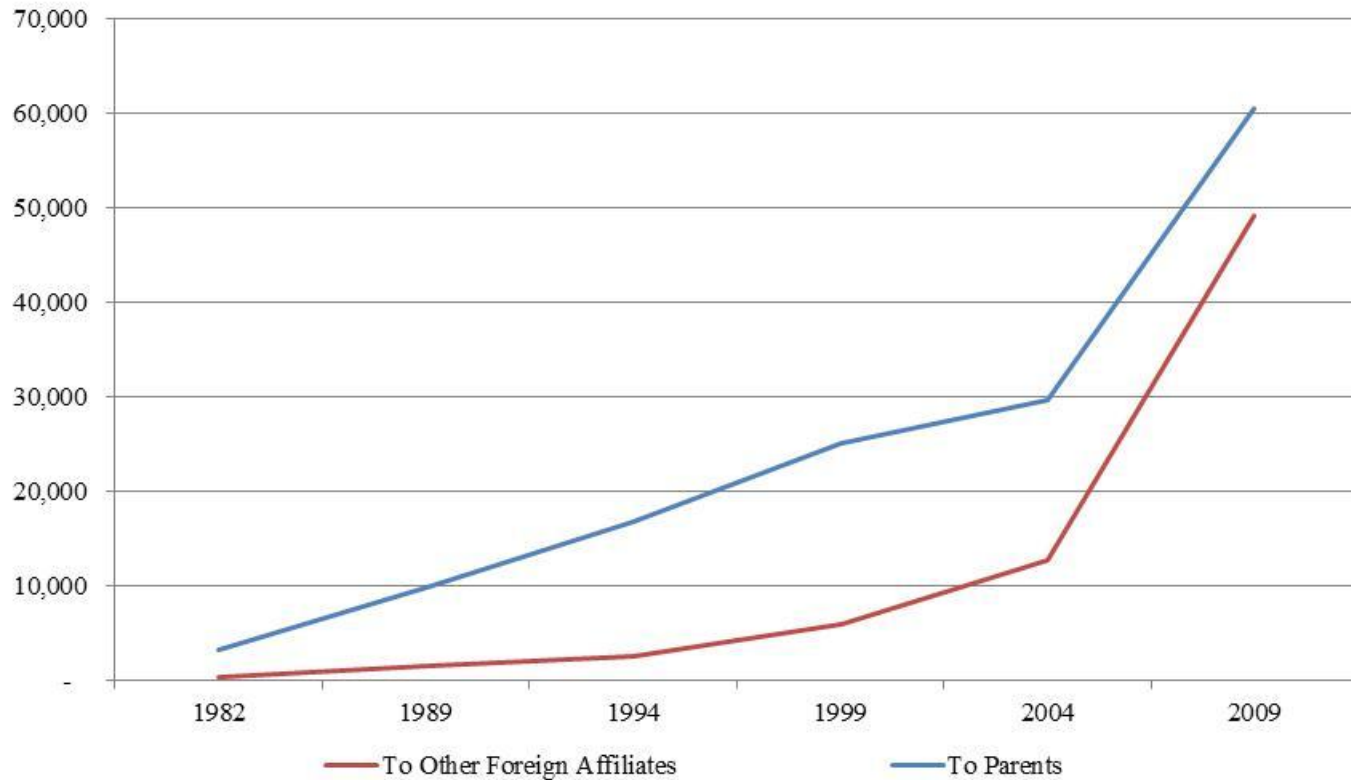
Predictions from Paul's Presentation

- 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
 - More R&D abroad, cost sharing
 - More intra firm royalty payments to lightly taxed affiliates
 - Cash might pile up in these locations
- 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

U.S. MNCs R&D Activity



Affiliate Royalty Payments (Millions)



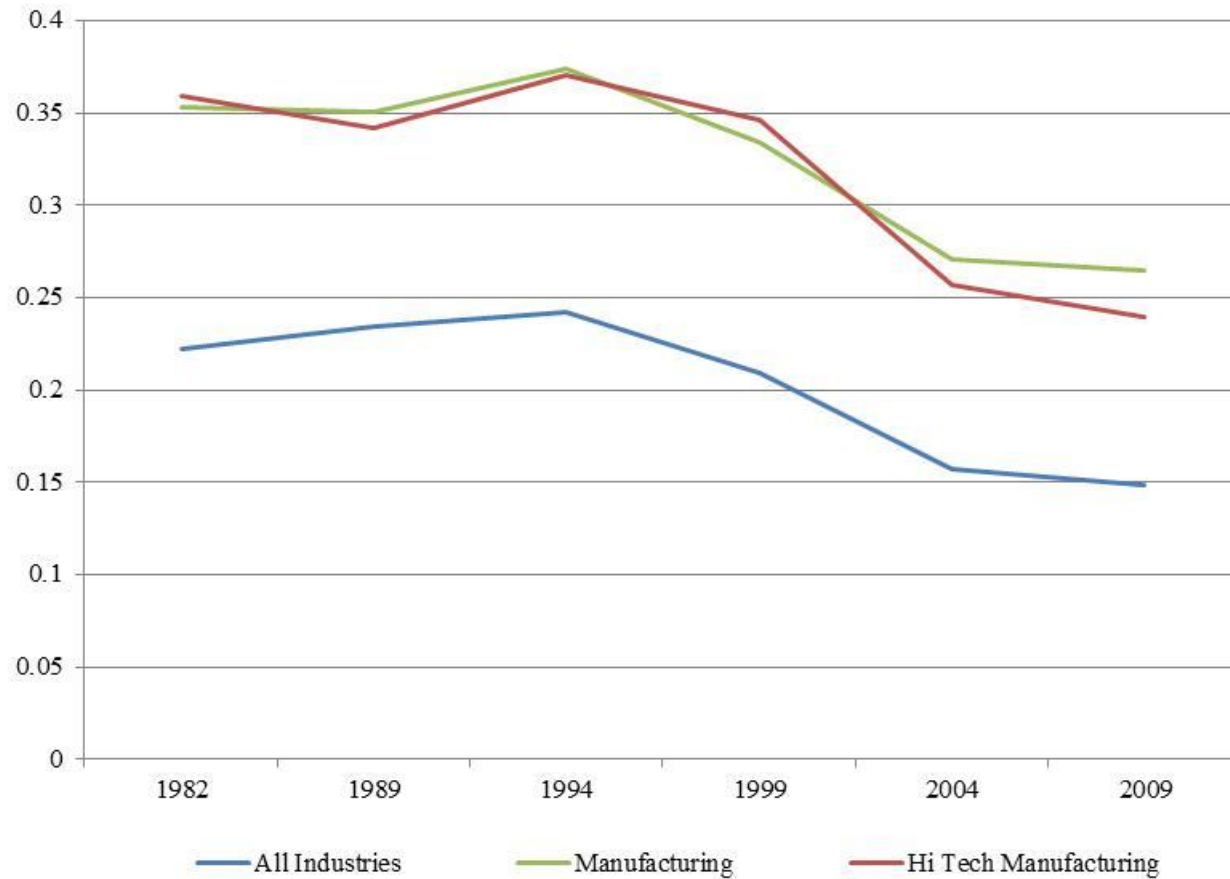
Affiliate host countries with largest aggregate recipients in 2009:
Ireland, Bermuda, Luxembourg, UK, Netherlands

Aggregate Parent Net Income in 2009: \$622 billion

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)

Exports/(Exports + Affiliate Sales)



Concluding Thoughts

- 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 “fair”?
- It is possible that practices Paul describes are beneficial to some aspects of U.S. economic activity