CESifo and IIPF
Richard Musgrave Lecture 2023

Tax Planning and Multinational Behavior

Rosanne Altshuler
Rutgers University

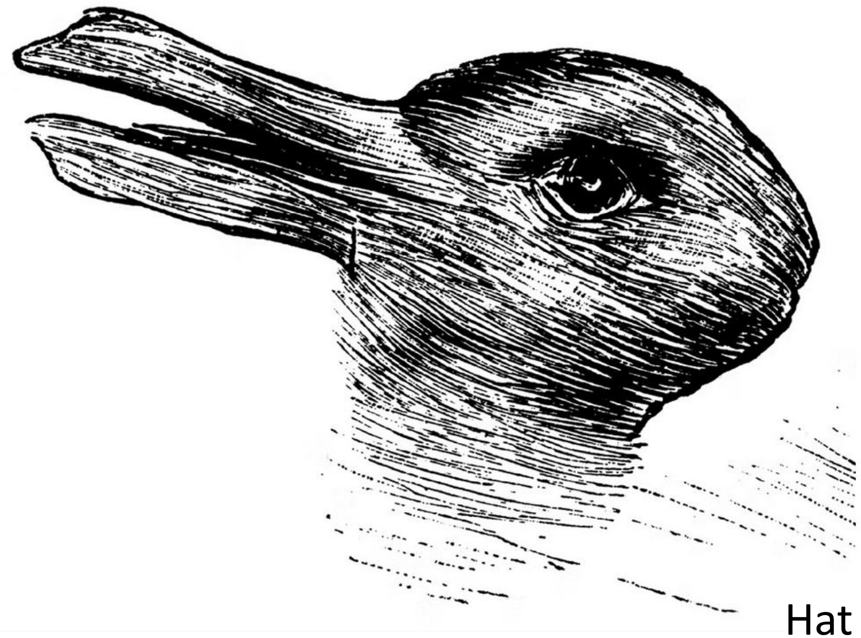
Golden Era of Tax Planning: 1997-2012

- U.S. had "worldwide" tax system
  - U.S. taxed the domestic and foreign profits of US MNCs with foreign tax credit for taxes paid abroad
  - No tax due on foreign profits until repatriated (deferral)
  - Current tax on certain "tainted income" including passive income and payment of interest, dividends and royalties across affiliates in different jurisdictions

- 1997: "Check the box" regulations
  - Make it easy to create **hybrid entities** that greatly facilitated MNC tax planning

What is a hybrid entity?

- A **corporation** from the host country point of view and a **pass-through** from the home country point of view (or vice-versa)
- The duck-rabbit of int'l tax planning!



Hat tip: Jesse Frederik of *De Correspondent*

Tax Planning Strategies in the Golden Era

- Remarkable increase in complexity of tax planning strategies of MNCs
- Leaks and special gov't reports revealed that MNCs use hybrids to exploit mismatches in tax law across countries and create "**stateless income**"

Stateless income

"Income that through tax planning, first becomes unmoored from the host country where it is earned and then sets sail for the tax haven of choice"

--- Edward Kleinbard

Reaction to Golden Era Tax Planning

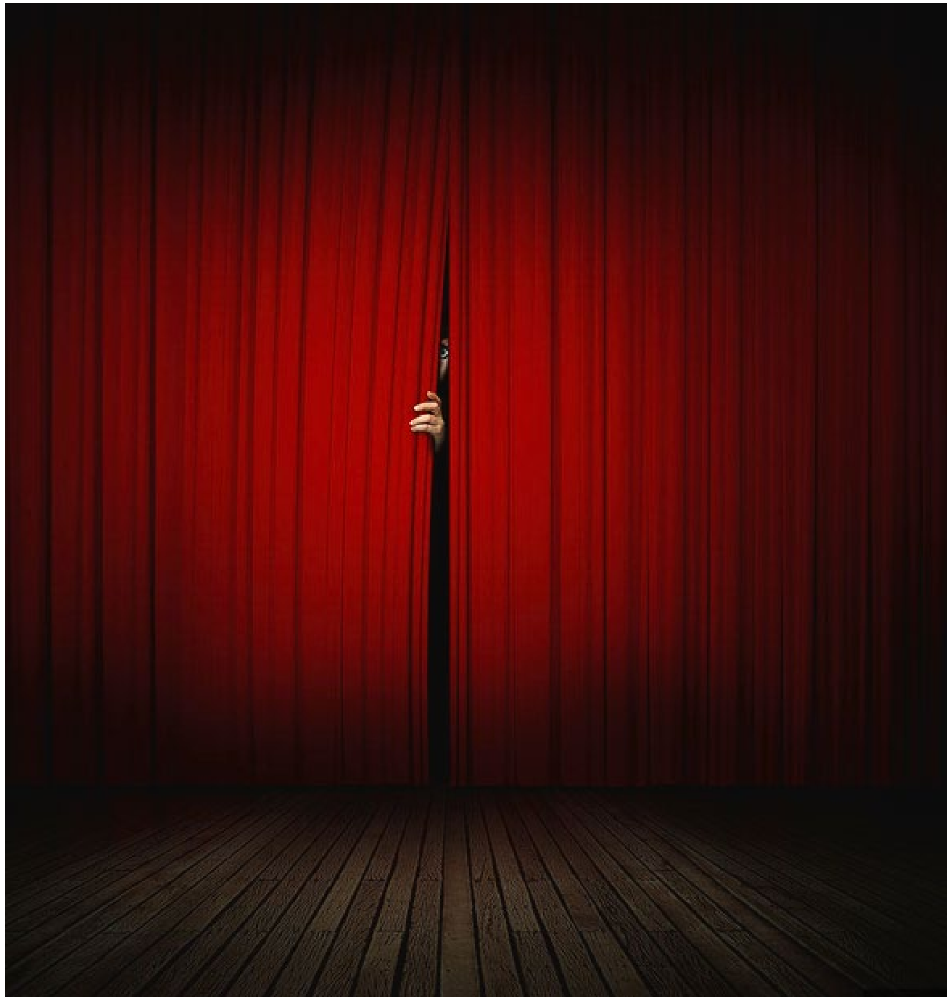
- Began in 2012…
  - EU state aid investigations
  - U.S. Senate hearings

- And continued…
  - OECD BEPS, EU Anti-Tax Avoidance Directive, OECD BEPS 2.0
  - Individual country legislation

Behind the Curtain of the Golden Era of Tax Planning

Little is known regarding the importance of tax planning strategies using hybrids

- How prevalent are they?
- Do they facilitate profit shifting?
- Do they lower foreign effective tax rates?
- Do they impact real economic activity?

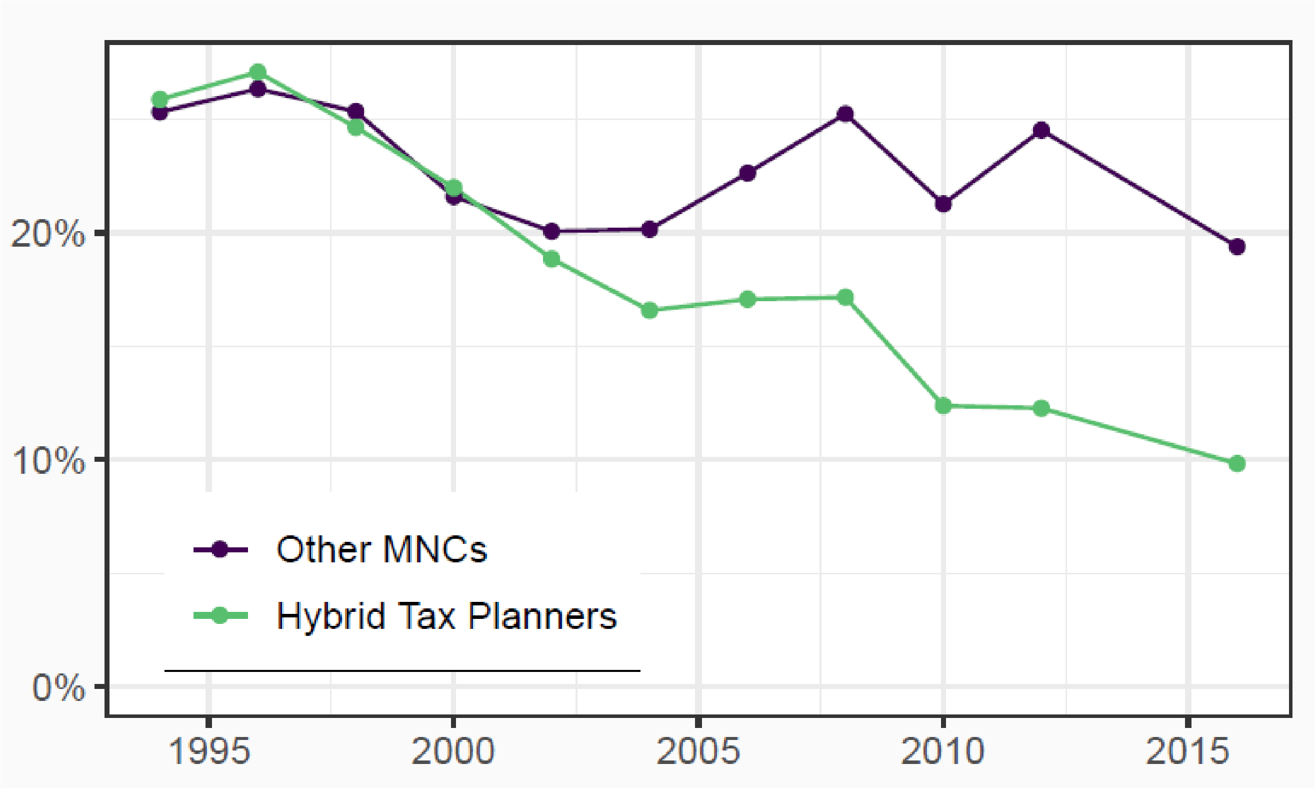


Work in Progress on Tax Planning and Multinational Behavior

- Joint with **Lysle Boller** (Duke University) and **Juan Carlos Suárez Serrato** (Stanford GSB and NBER)
- Use **US tax data** to identify and study hybrid tax planning strategies
- This research was conducted as part of a Joint Statistical Research Program with the Internal Revenue Service (IRS). Any views expressed are those of the authors and not those of the IRS. The statistics reported in this presentation have been reviewed and cleared for disclosure by the IRS.

Foreign Effective Tax Rates in the Golden Era

- Striking reduction for MNCs that adopt one of three hybrid tax planning structures



Research Questions

1. What kind of tax planning structures do US multinationals adopt?
2. Do these structures enable profit shifting?
3. Do these structures impact foreign ETRs?
4. Do these changes influence R&D, domestic and foreign employment and investment?

Research Questions

1. What kind of tax planning structures do US multinationals adopt?

   By 2016, 18% of US MNCs used hybrid structures in Ireland, Netherlands, & Luxembourg

2. Do these structures enable profit shifting?

   Find large increase in related-party loans, foreign intangibles, and cash held abroad

3. Do these structures impact foreign ETRs?

   Striking reduction driven by our tax planners

4. Do these changes influence R&D, domestic and foreign employment and investment?

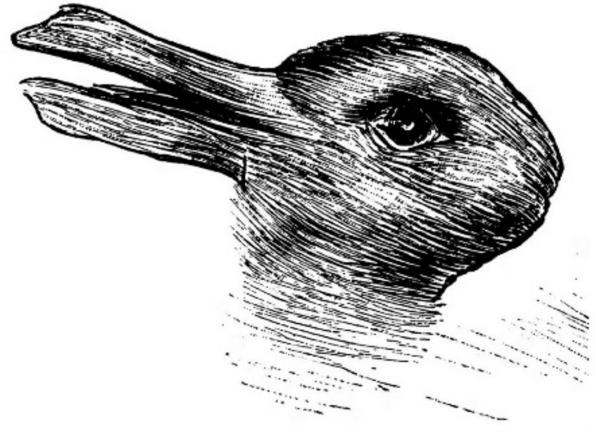
   MNCs with hybrid structures have larger increases in

   - Foreign Tangible Assets
   - Domestic investment
   - Domestic payroll and R&D

Outline of Talk

1. Hybrid tax planning structures
2. Using IRS data to identify tax planning structures
3. New facts about hybrid tax planning
4. Hybrid tax planning structures and MNC activity
5. Model of tax planning, R&D, and MNC production
6. Takeaways

Hybrid Tax Planning Structures



Check the Box (CTB)

- Effective Jan 1, 1997, Treasury regulations made it easier for US corps to change entity classification (e.g., pass-through or corporate)
- CTB was intended for domestic firms, but facilitated foreign tax planning by making it easy to create hybrid entities
- The CTB regulations permitted the use of pass-through hybrid entities as "disregarded entities"

Tax Planning with Hybrid Entities

- Tax planning structures with hybrid entities can generate stateless income:

    i. They facilitate shifting profits to low tax countries
    ii. Avoid taxes in the host country
    iii. Avoid US taxes on payments of interest, royalties, and dividends between related foreign affiliates
    iv. Avoid foreign withholding taxes on income transferred to tax havens

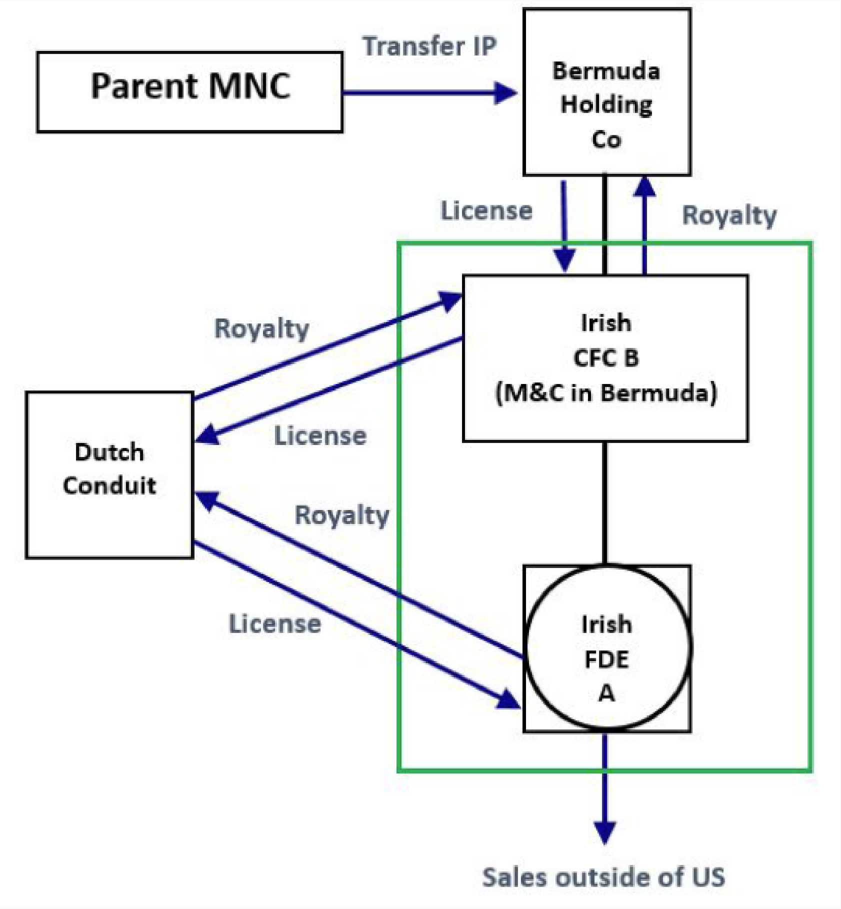
- Hybrid structures particularly helpful for IP-based profit shifting

Three Tax Planning Strategies with Hybrids

- Double Irish with a Dutch Sandwich (Double Irish)
  - Irish holding company --- M&C in Bermuda
  - Irish operating company --- hybrid
  - Dutch conduit --- hybrid (removes withholding taxes on profits leaving EU)

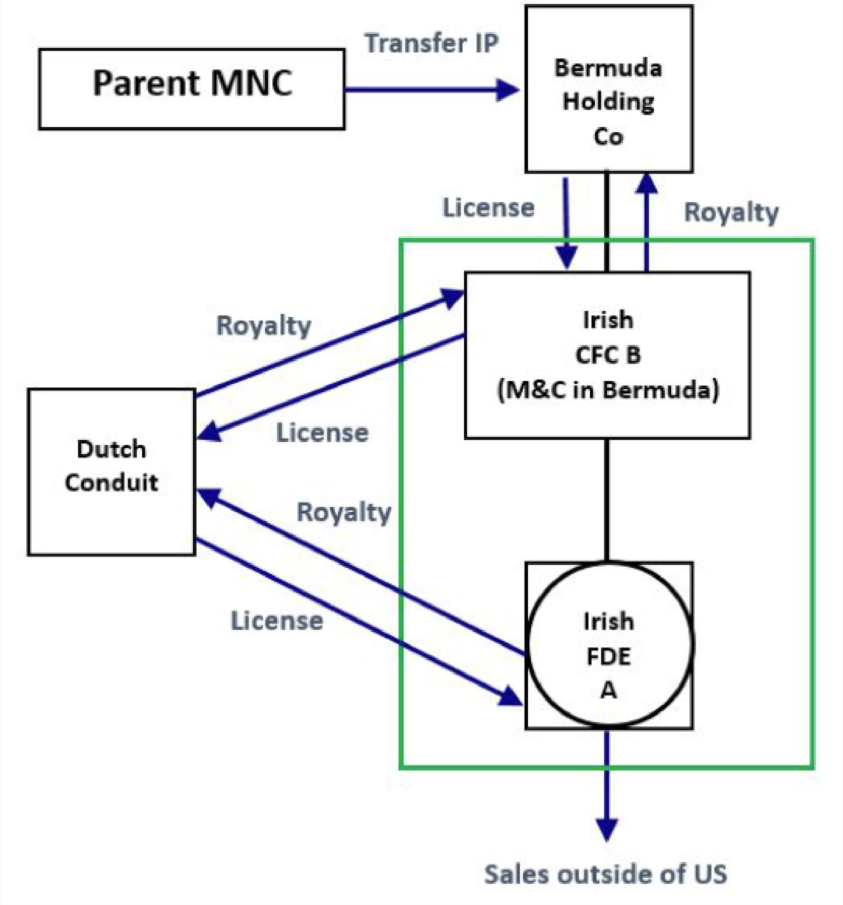
Hybrid Tax Planning Structures

(A) Double Irish with Dutch Sandwich

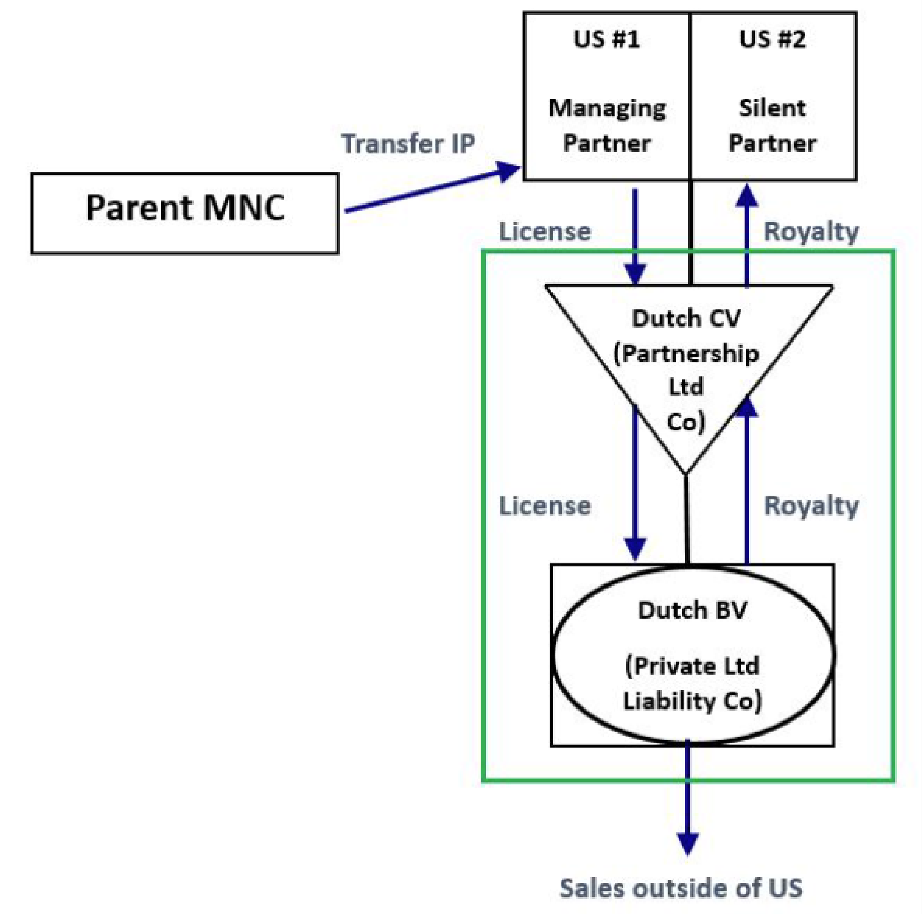


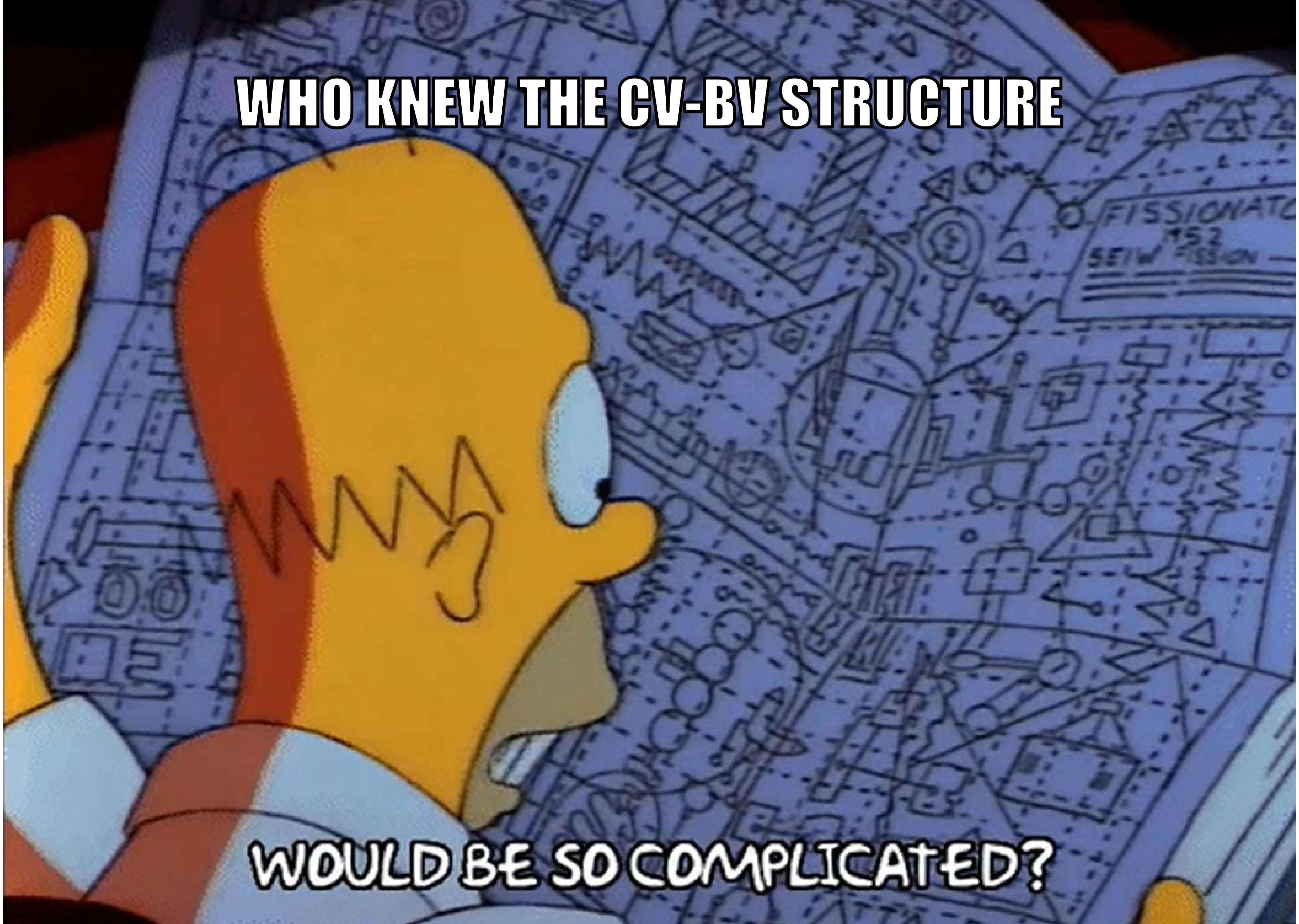
Hybrid Tax Planning Structures

(A) Double Irish with Dutch Sandwich



(B) Reverse Hybrid Mismatch




WHO KNEW THE CV-BV STRUCTURE
WOULD BE SO COMPLICATED?

Three Tax Planning Strategies with Hybrids

- Double Irish with a Dutch Sandwich (Double Irish)
  - Irish holding company --- M&C in Bermuda
  - Irish operating company --- hybrid
  - Dutch conduit --- hybrid (removes withholding taxes on profits leaving EU)

- Reverse Hybrid Mismatch with Dutch Entities (CV-BV)
  - CV: Dutch partnership --- reverse hybrid
  - BV: Dutch private limited liability entity --- hybrid

Three Tax Planning Strategies with Hybrids

- Double Irish with a Dutch Sandwich (Double Irish)
  - Irish holding company --- M&C in Bermuda
  - Irish operating company --- hybrid
  - Dutch conduit --- hybrid (removes withholding taxes on profits leaving EU)

- Reverse Hybrid Mismatch with Dutch Entities (CV-BV)
  - CV: Dutch partnership --- reverse hybrid
  - BV: Dutch private limited liability entity --- hybrid

- Reverse Hybrid Mismatch with Luxembourg Entities (SCS-SARL)
  - SCS: Luxembourg partnership --- reverse hybrid
  - SARL: Luxembourg private limited liability entity --- hybrid

Three Tax Planning Strategies with Hybrids

- Double Irish with a Dutch Sandwich (Double Irish)
  - Irish holding company --- M&C in Bermuda 
  - Irish operating company --- hybrid 
  - Dutch conduit --- hybrid (removes withholding taxes on profits leaving EU 

- Reverse Hybrid Mismatch with Dutch Entities (CV-BV)
  - CV: Dutch partnership --- reverse hybrid 
  - BV: Dutch private limited liability entity --- hybrid 

- Reverse Hybrid Mismatch with Luxembourg Entities (SCS-SARL)
  - SCS: Luxembourg partnership --- reverse hybrid 
  - SARL: Luxembourg private limited liability entity --- hybrid 

Using IRS Data to Measure Hybrid Tax Planning

Advantages of IRS Data

- Research on profit shifting has not focused on hybrids

- IRS data has some key advantages
    - Hybrids are, by definition, a disagreement in how entities are classified for tax purposes —natural to use tax data to study them

- Existing research mostly uses BEA or Compustat data
    - But researchers can’t identify hybrid structures

Data from Tax and Information Forms

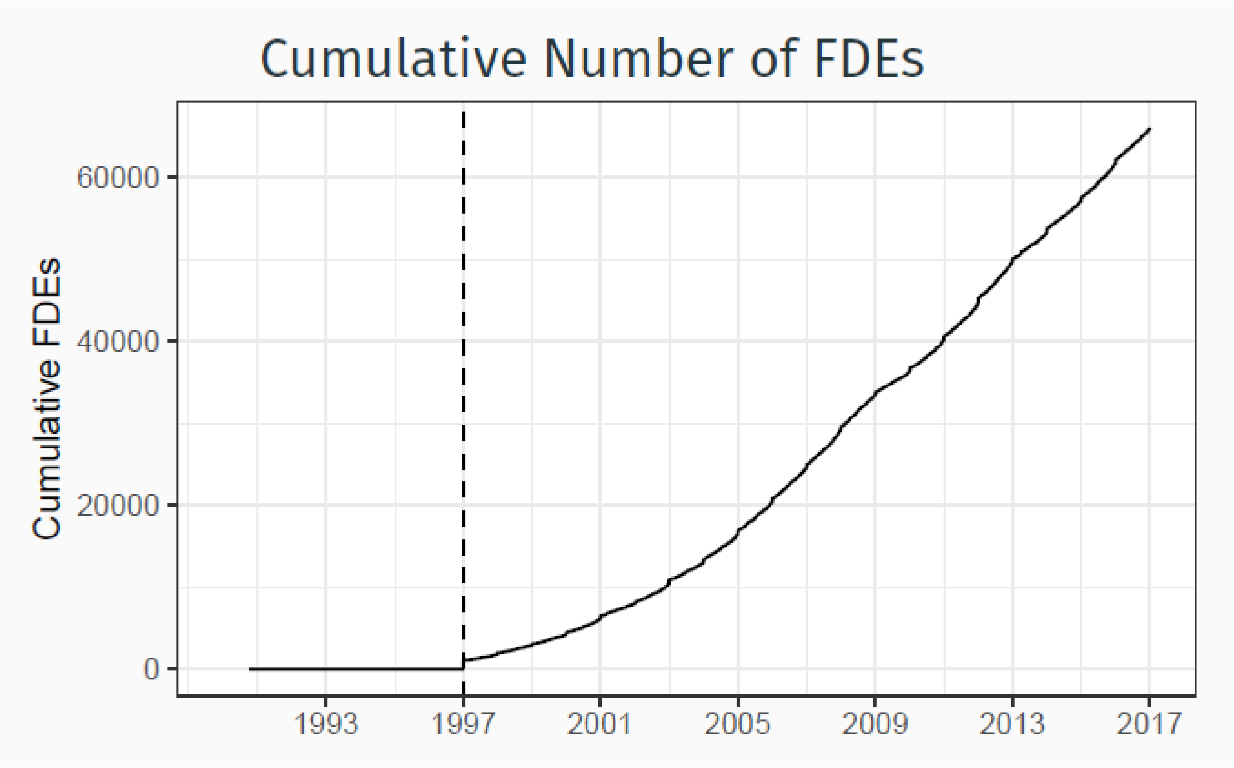
- Form 1120: Parent-level information
  - Taxes, investment, assets, payroll

- Form 5471: Controlled foreign corporations (CFCs) information (only in even years)
  - Foreign taxes, E&P, assets, dividends

- **Form 8858:** Foreign disregarded entities (FDEs) information
  - This is the form that reports on hybrids
  - Country of incorporation, **date disregarded**, E&P

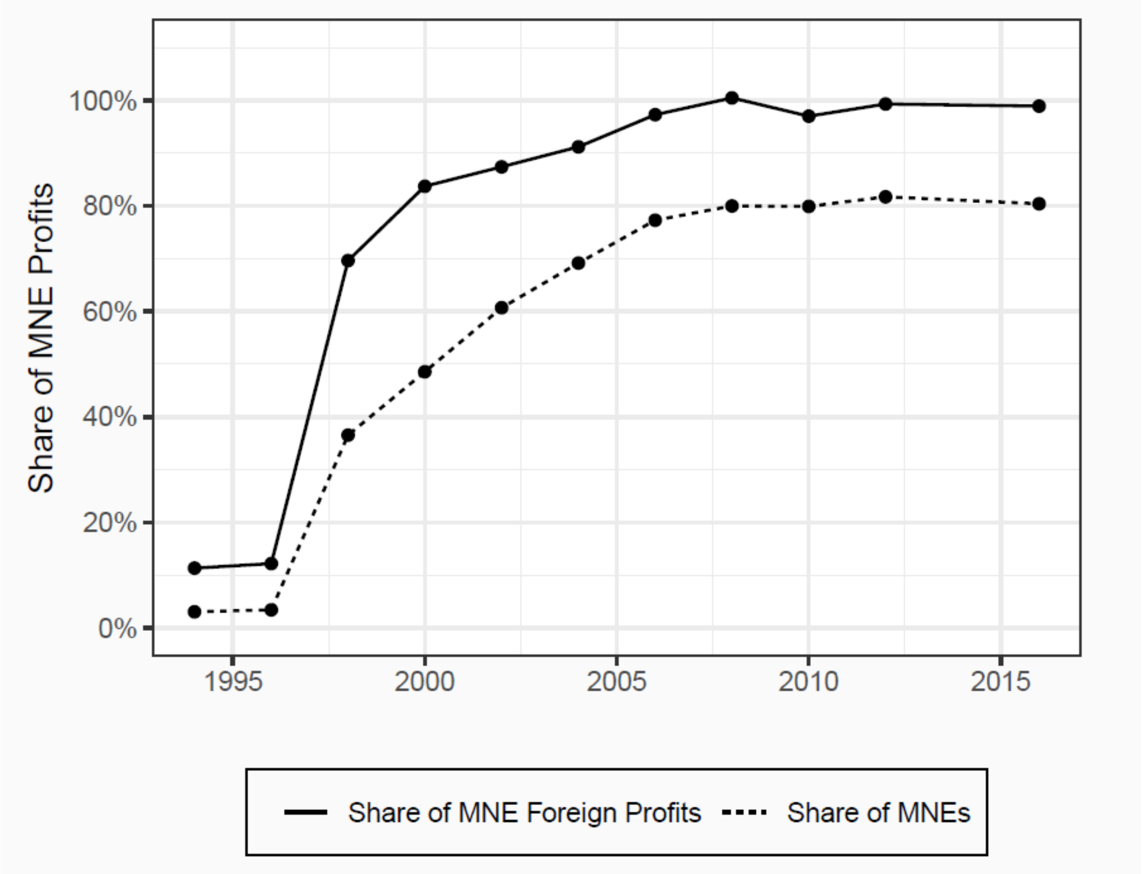
Constructing a Panel of MNCs and Foreign Affiliates

- Match CFC/FDE data to IRS sample of C corps
- Create stable sample of CFCs with >$50 million in assets
- Main sample has
  - 3,638 MNCs
  - 20,836 CFCs
  - 46,039 FDEs
- Rapid growth in FDEs
  - < 50 prior to 1997
  - > 60,000 by 2017



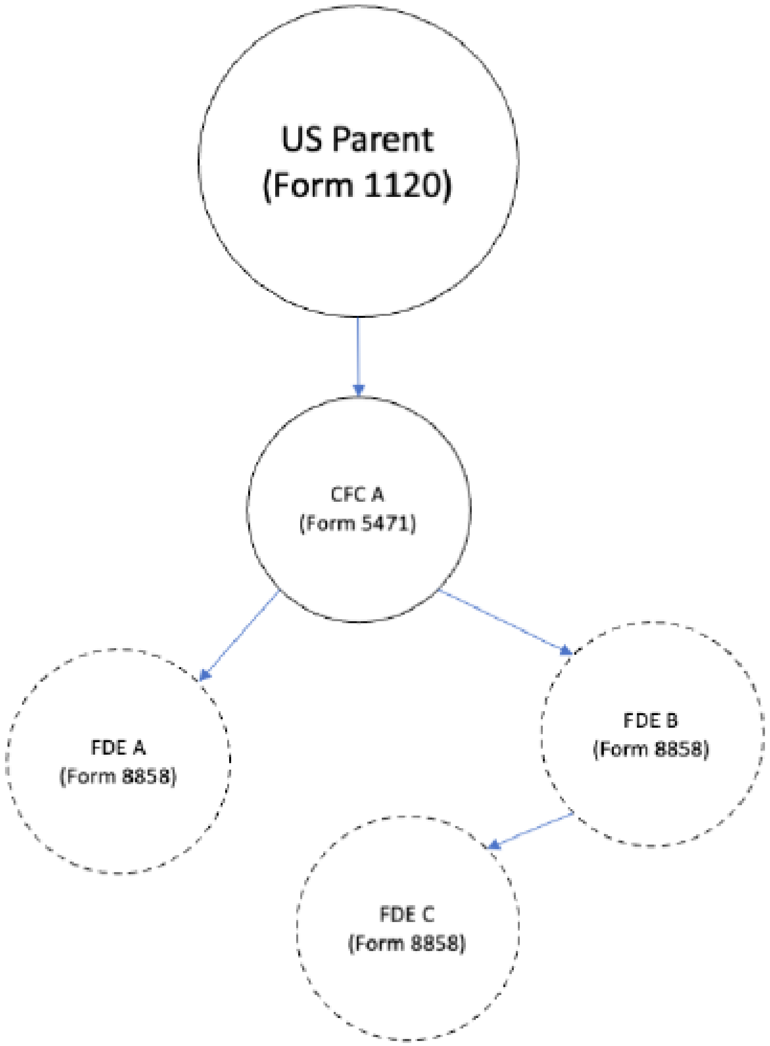
Adoption of FDEs is Widespread

- ≈80% of MNCs CTB by 2016
- These MNCs generated almost all of foreign E&P



Recreating Tax Ownership Structures

- **Form 8858** identifies the direct and ultimate tax owner of a FDE
- We use these links to construct an ownership network for each CFC and its subsidiary FDEs
- Flag MNCs with ownership networks consistent with (1) Double Irish, (2) CV-BV and (3) SCS-SARL tax planning structures

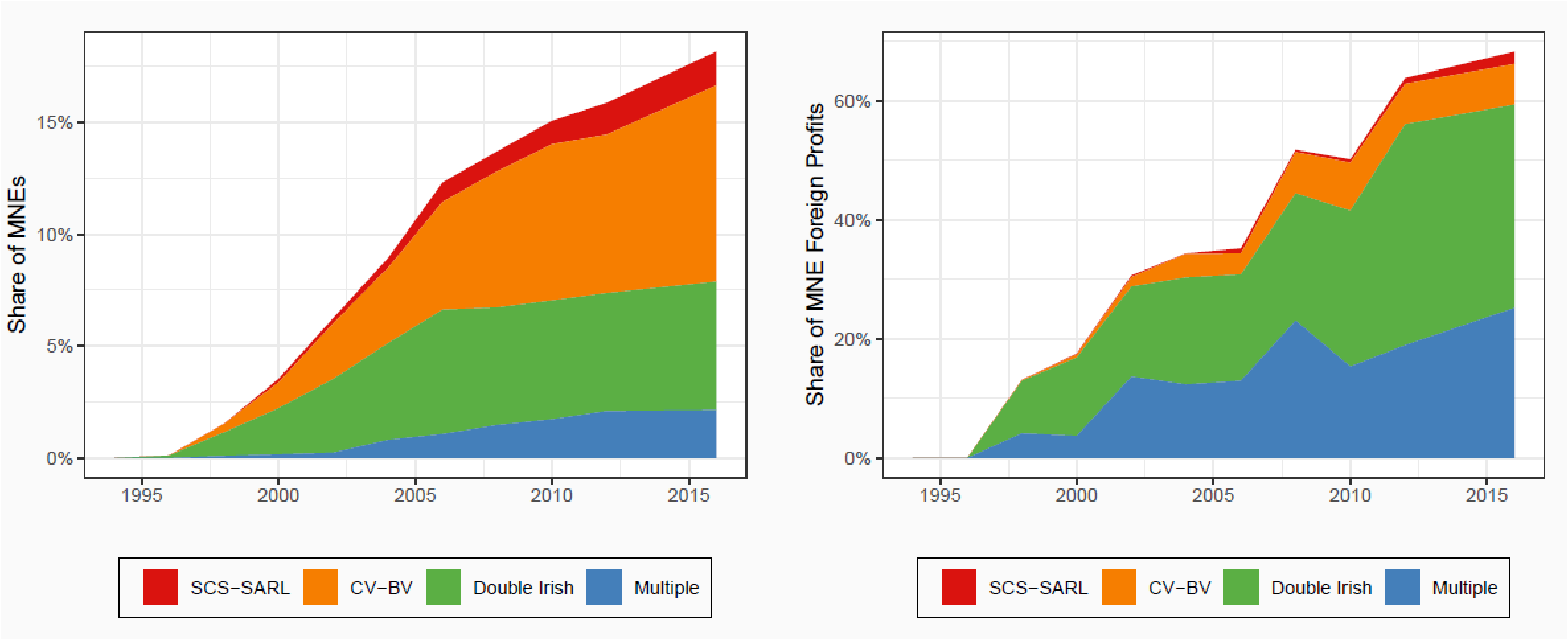


New Facts about Hybrid Tax Planning

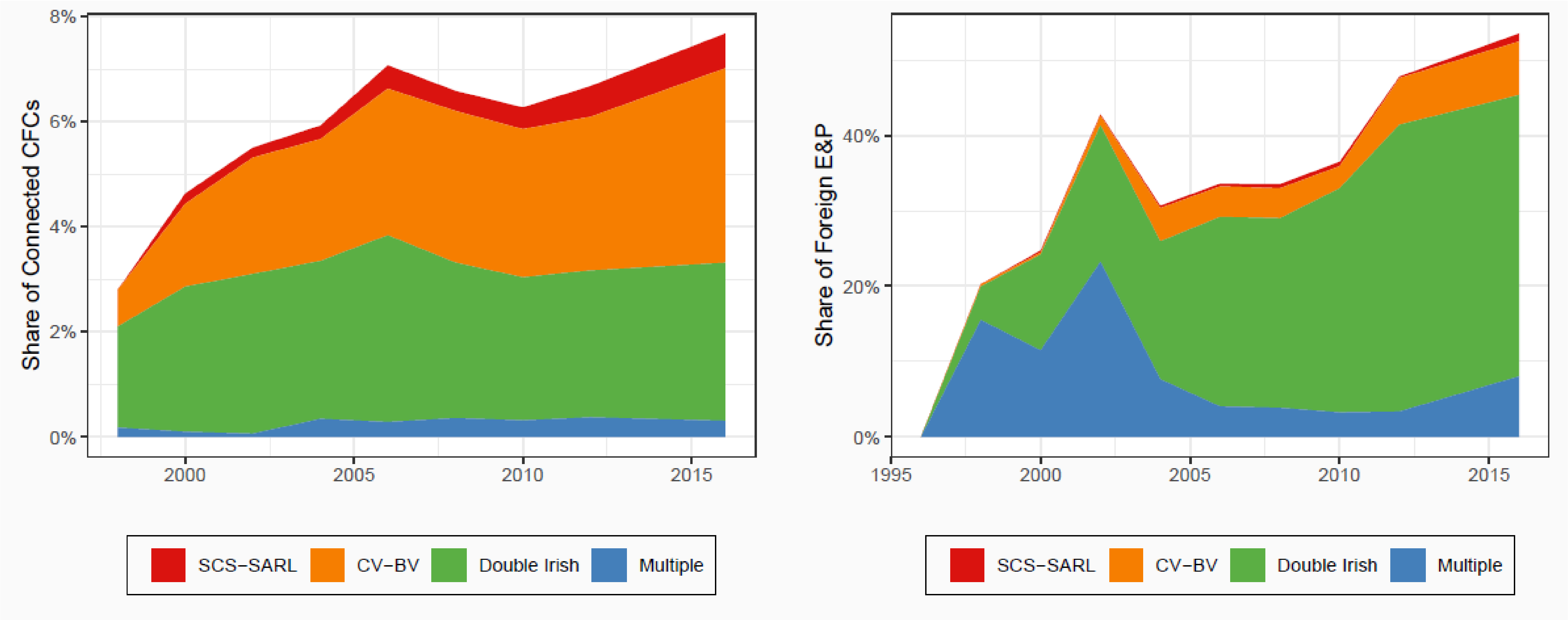
1. FDE Profits Accrue to Tax Havens, Especially Ireland and the Netherlands

Country Name	Adj. E&P (billions)	Num. FDEs
Netherlands	69	12236
Ireland	67	4834
United Kingdom	66	26979
Cayman Islands	51	5276
Bermuda	46	2124
Singapore	38	3458
Switzerland	33	2134
Canada	28	7427
Australia	26	6780
China	22	6558

2. >15% of MNCs with >60% of Foreign E&P have Hybrid Structures by 2016

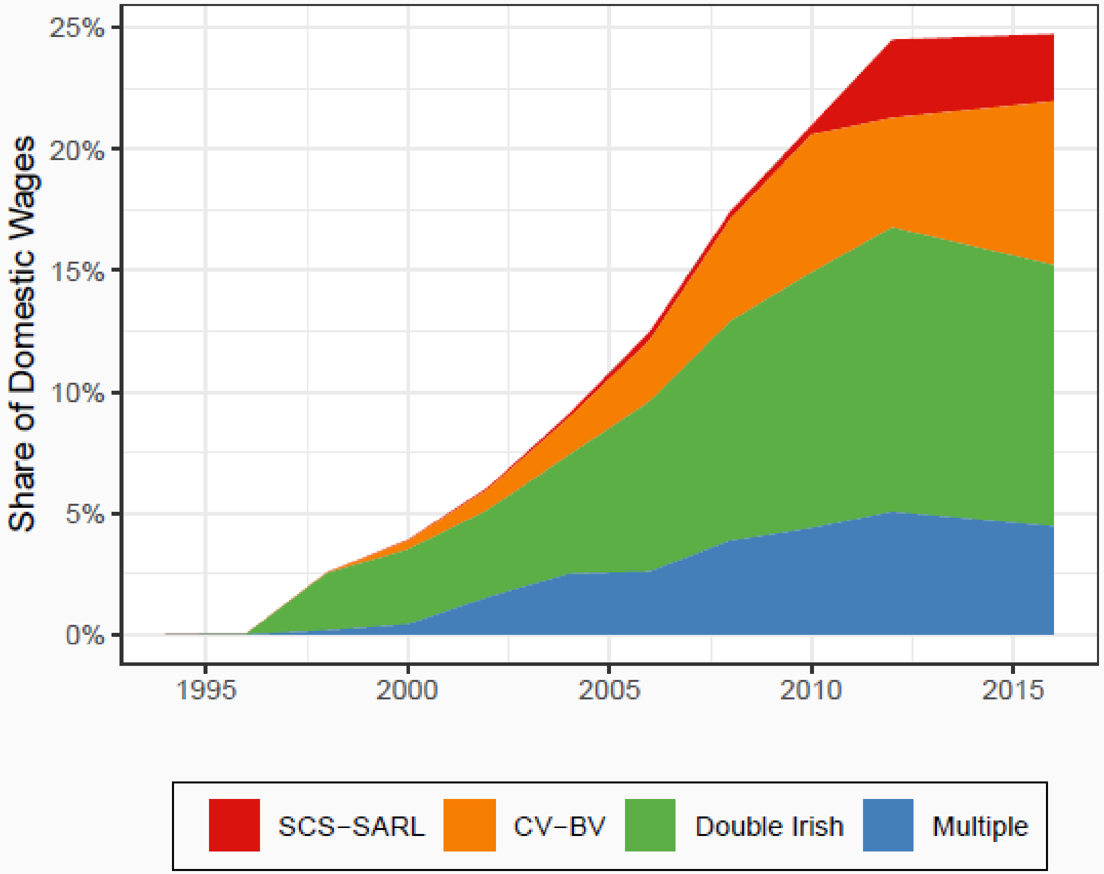


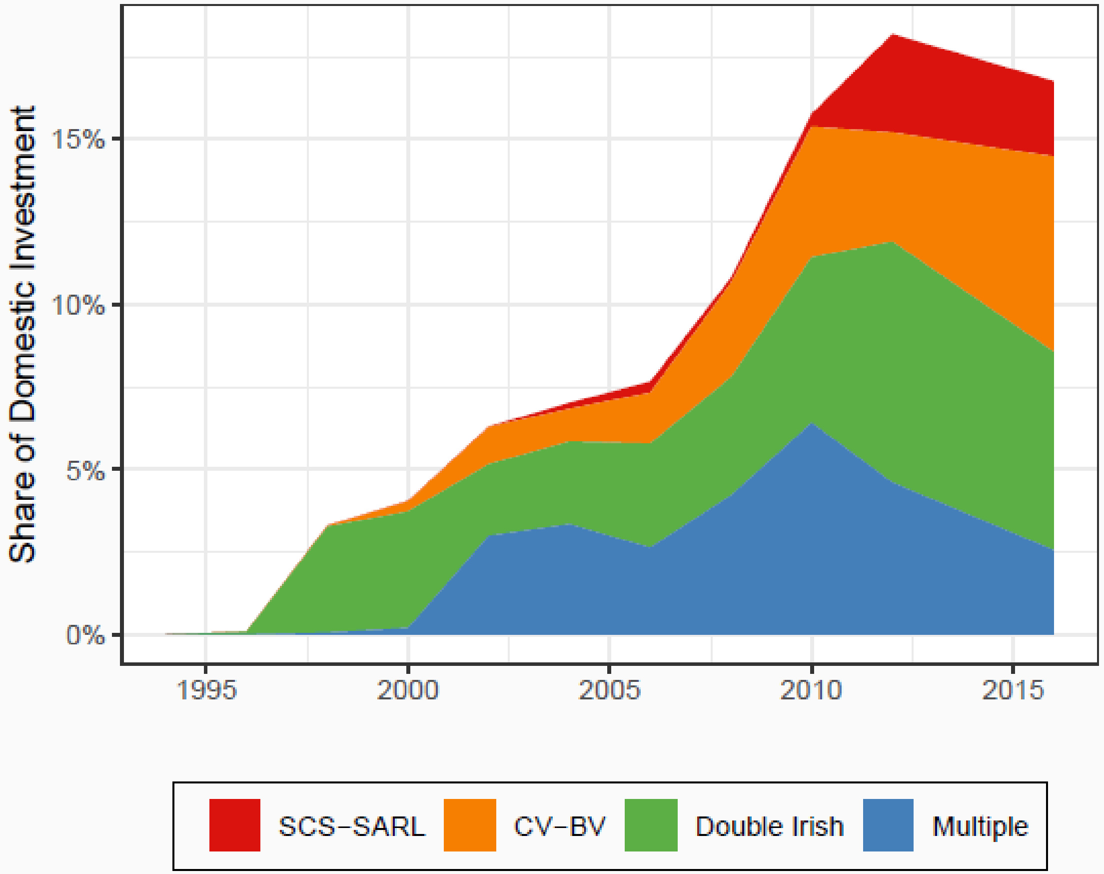
3. Hybrid Tax Planners Book 55% of Foreign E&P in CFCs Connected to Hybrids



- Since hybrid planners book >60% of foreign E&P => CFCs connected to hybrids account for 35% of all foreign E&P in our sample!

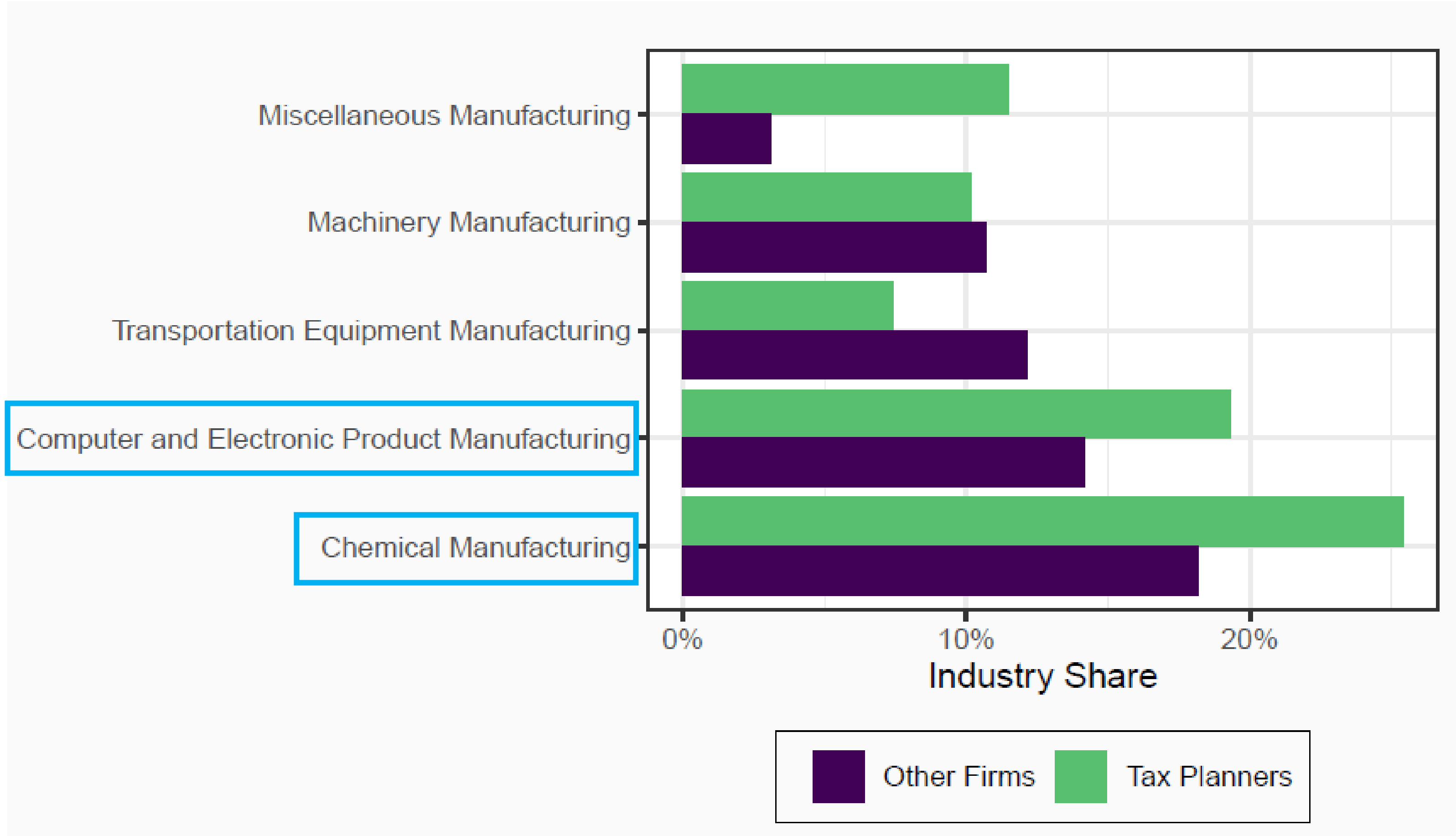
4. Hybrid Tax Planners: >20% of Corp Payroll & 15% of Domestic Investment





5. Hybrid Tax Planners Concentrate in IP-heavy Industries, e.g., Tech and Pharma

- Over 40% of firms in sample are in manufacturing
- Hybrid tax planners disproportionately
    - Pharma firms
    - Tech firms
- Supports anecdotes of heavy use by IP-intensive industries



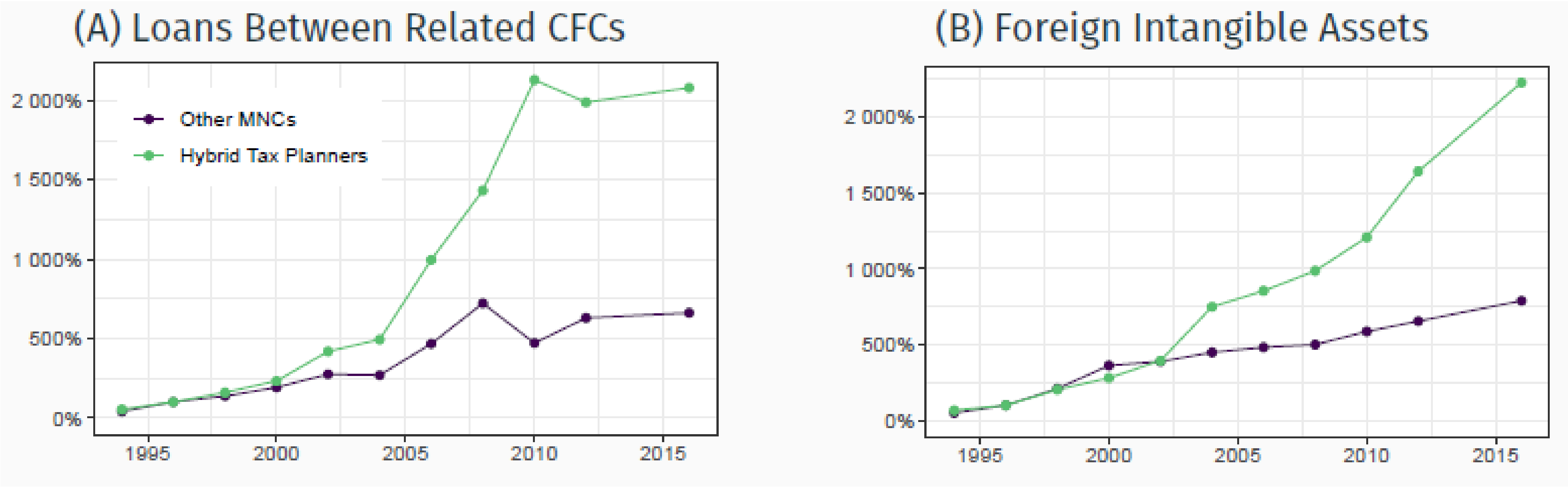
Hybrid Tax Planning Structures and MNC Activity

Key mechanisms for profit shifting and deferral

- Comparing aggregate trends of adopter MNCs and never adopters
    - Loans between related CFCs
    - Foreign intangible assets
    - Cost-sharing
    - Royalties
    - Cash held abroad

Key Profit Shifting Mechanisms (1)

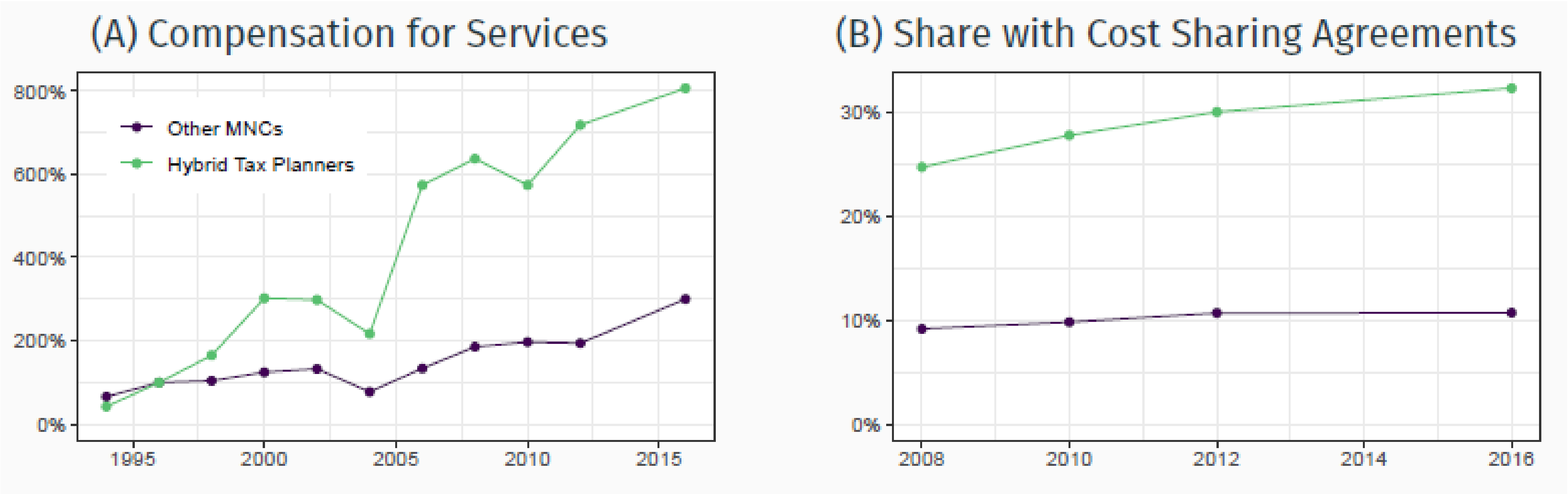
- Consistent with mechanism, tax planners increase loans between related CFCs
- Tax planners greatly expand foreign holdings of intangibles



Note: Graphs compare changes in outcomes relative to 1996

Key Profit Shifting Mechanisms (2)

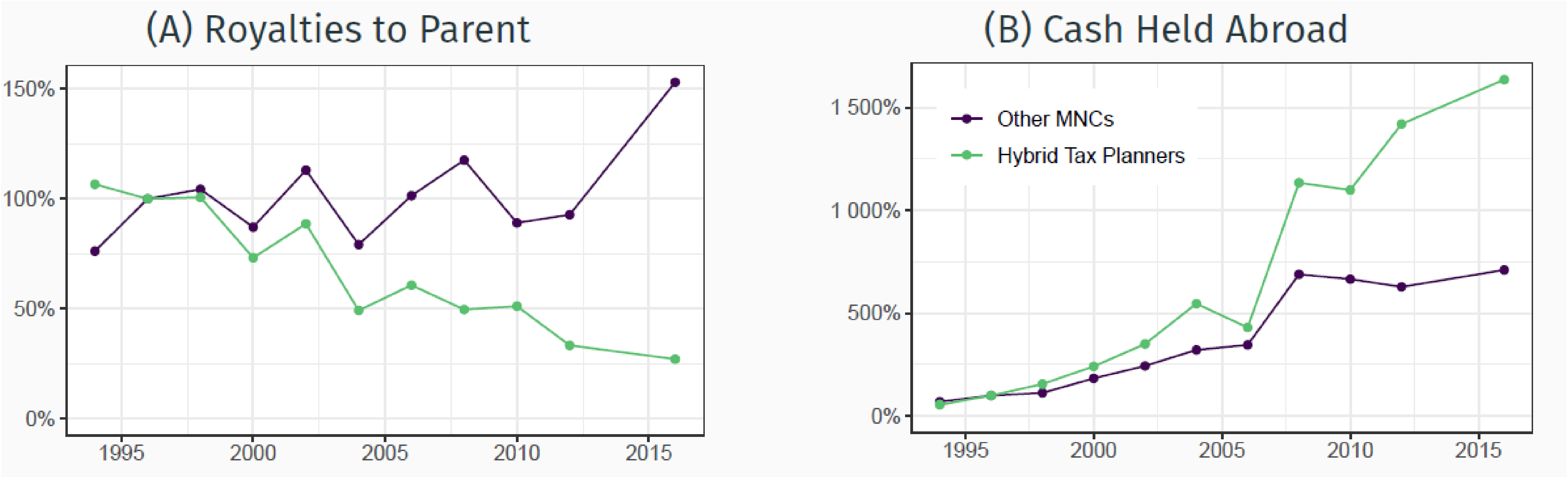
- Tax planners increase payments to US parent for technical services – proxy for cost sharing
- Usage of cost sharing agreements much higher (only observe starting in 2008)



Note: Graphs compare changes in outcomes relative to 1996

Key Mechanisms: Evidence of Deferral

- Having moved intangibles abroad, parents receive smaller royalty rates (royalties/foreign E&P)
- Tax planners greatly expand cash assets held abroad



Note: Graphs compare changes in outcomes relative to 1996

Hybrid Tax Planning Structures and MNC Activity

- Take into account staggered adoption of tax planning structures at the firm level and control for differences between firms
- Outcomes
  - Key mechanisms for profit shifting
  - Key tax outcomes
  - Domestic and foreign activity
- Staggered design determines if outcome changes are tied to firm-level adoption
  - 12 year window --- 6 yrs before, 6 yrs after adoption

Estimating Effects with Staggered Difference in Differences

- Estimate a standard staggered differences-in-differences model

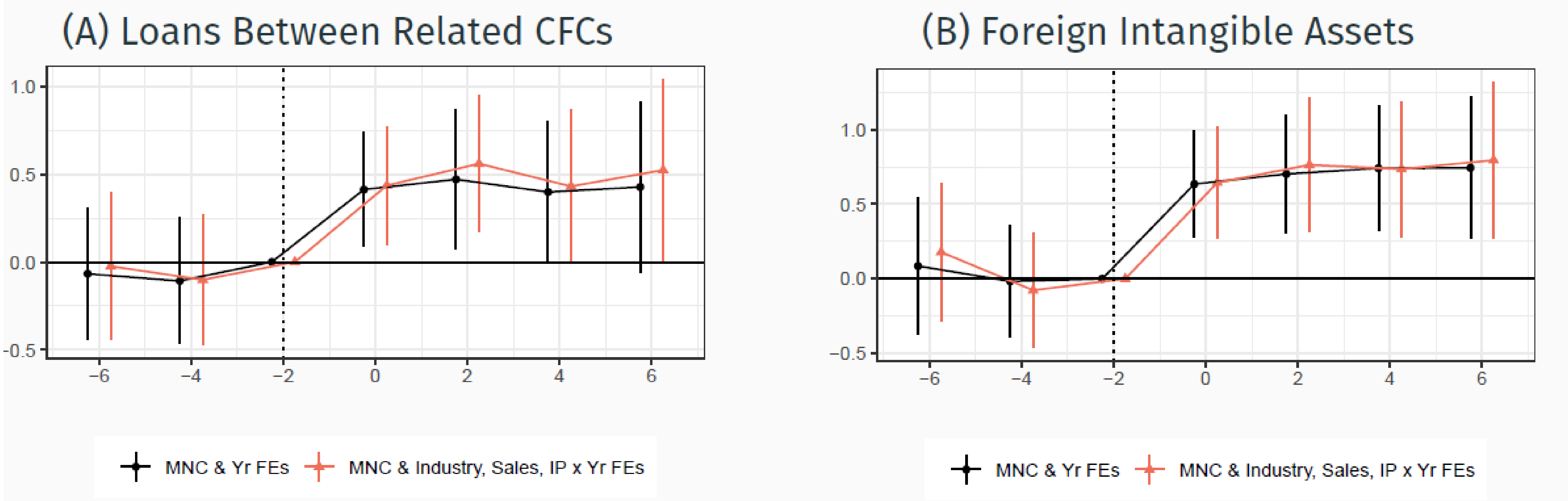
$$Y_{i,t} = \alpha_i + \lambda_{gt} + \sum_{\ell} \mu_\ell 1\{t - E_i = \ell\} + v_{i,t}$$

  - MNC fixed effects α_i control for time-invariant MNC heterogeneity (e.g. industry, initial levels of IP and R&D, initial size)

  - Year fixed effects λ_{gt} control for common time-varying shocks to firms in group g (e.g., bins of domestic and foreign sales and IP intensity pre-adoption)

Key mechanisms for profit shifting

- Adoption of a hybrid tax structure is followed by increases in loans between related CFCs and foreign intangible assets

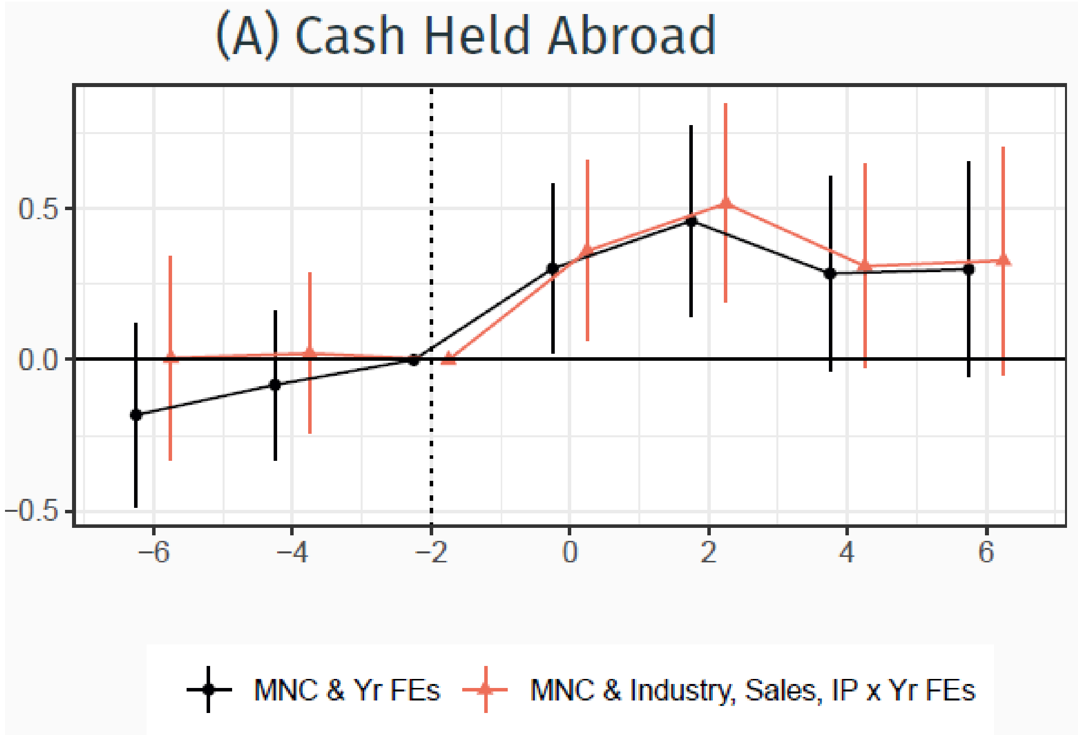


Diff-in-diff=0.33 (p<0.05) **[29%↑]**

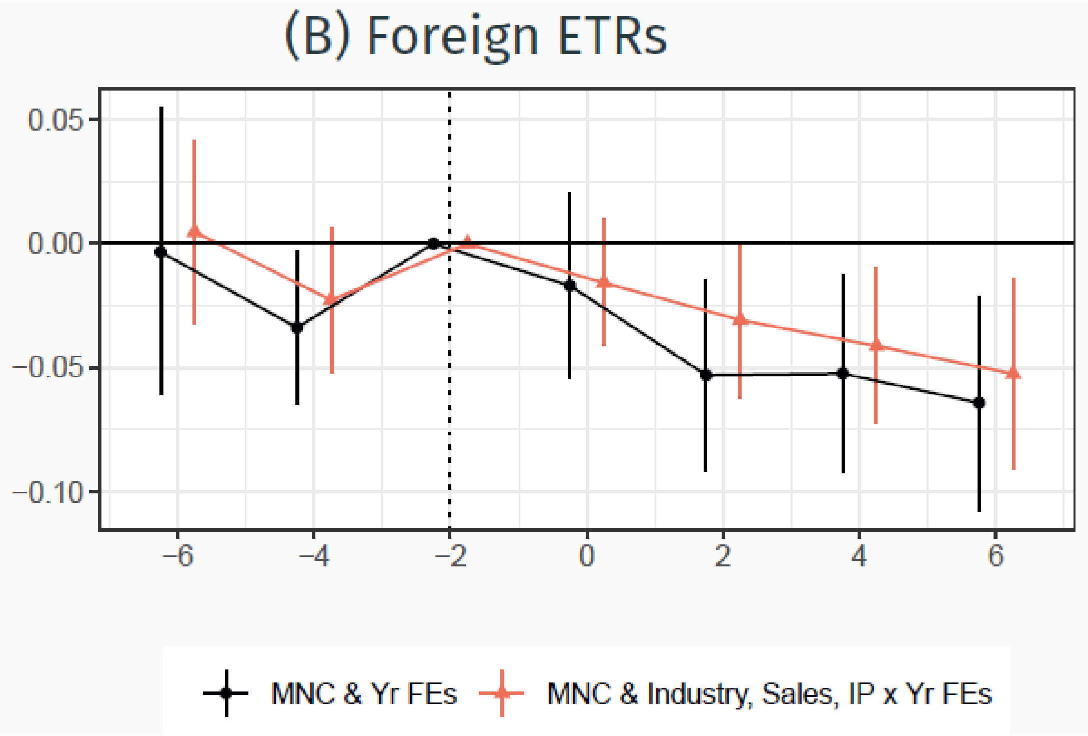
Diff-in-diff=0.49 (p<0.02) **[48%↑]**

Key tax outcomes

- Tax planners greatly expand cash held abroad
- Foreign ETRs decrease by 5pp. six years after adoption ⇒ 18.4% decline



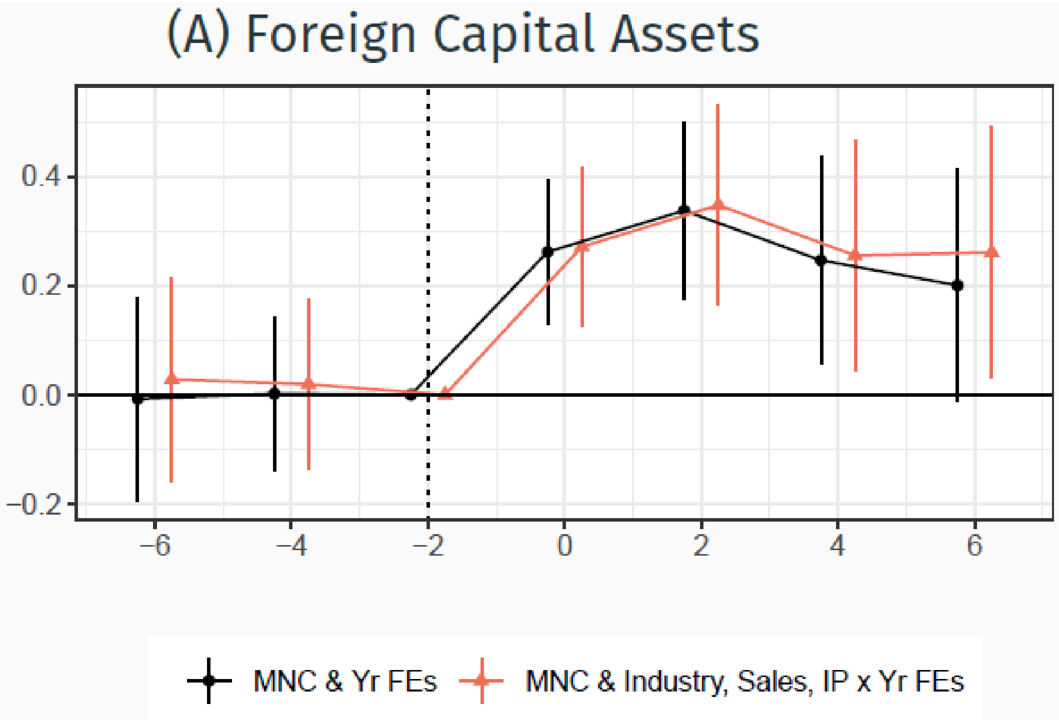
Diff-in-diff=0.26 ($p<0.05$) **[30%↑]**



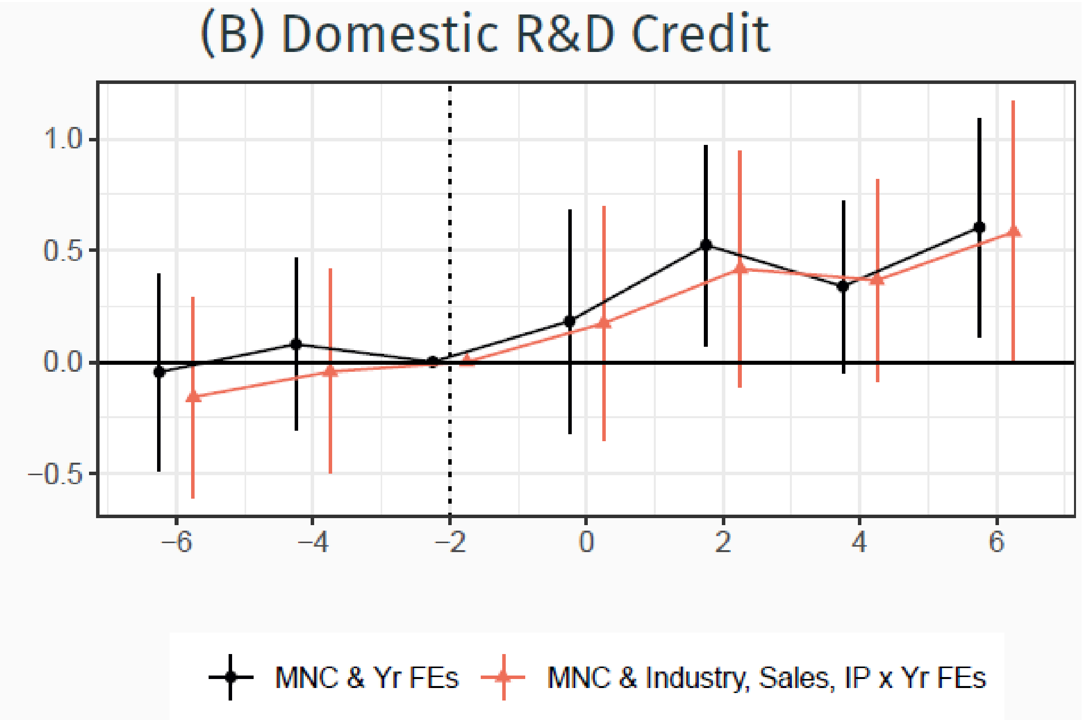
Diff-in-diff=-0.03 ($p<0.05$) **[3 pp↓]**

Real Economic Activity

- Adoption of tax planning structures is followed by large increases in foreign capital assets and domestic R&D



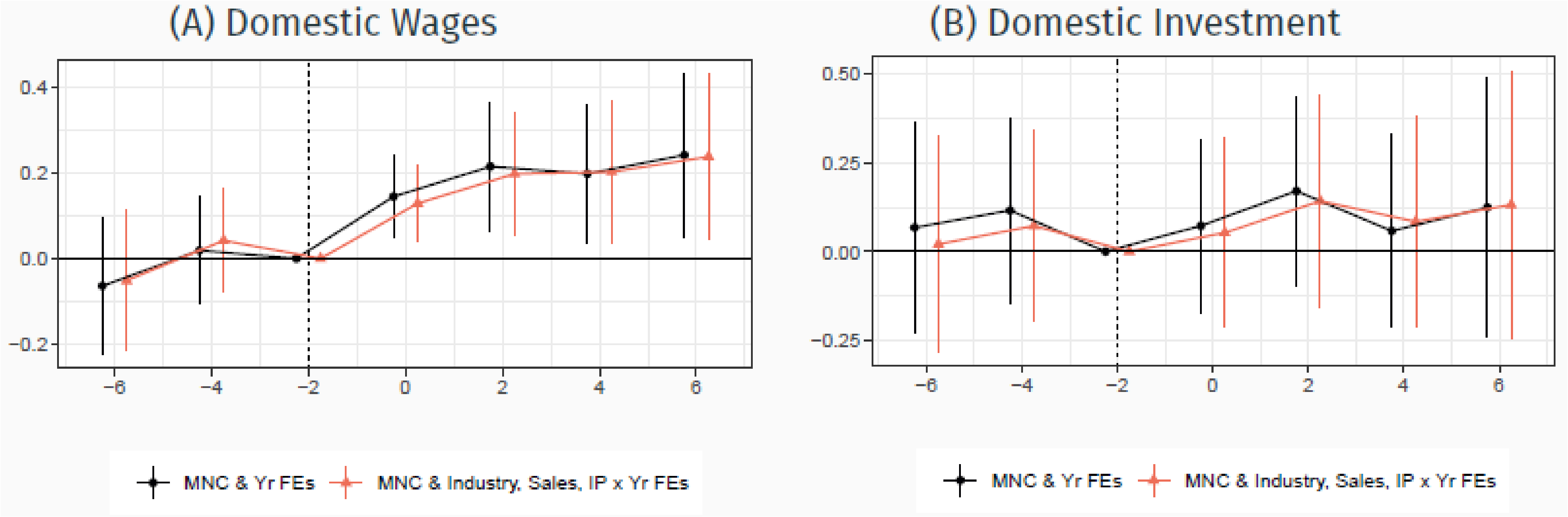
Diff-in-diff=0.19 (p<0.05)



Diff-in-diff= 0.39 (p<0.05)

Real Economic Activity

- Adoption of tax planning structures is followed by increases in domestic wages
- No clear result for domestic investment



Diff-in-diff=0.16 (*p*<0.01)

Diff-in-diff= 0.08 (*p*>0.10)

Estimates on Real Economic Activity

- Relative to other MNCs, hybrid tax planners see more domestic and foreign economic activity after adoption

- **Potential concern**: MNCs select into hybrid tax planning structures based on potential R&D growth

	Foreign	Domestic		
	Capital	R&D	Wages	Investment
ATT	0.189*	0.393**	0.161**	0.083
	(0.076)	(0.151)	(0.061)	(0.104)
Implied Elasticity	1.03	2.14	0.92	0.45
Num. Units	2860	1744	2823	2894
Num. Treated	320	262	311	313

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Model of MNC Production, R&D and Tax Planning

Model of MNC Production, R&D, and Tax Planning

- Two-country model of production (foreign & domestic); R&D is non-rival within MNC
- MNCs make three choices:
  1. Capital allocations for each country
  2. R&D allocation that affects global productivity
  3. Domestic tax on all earnings (WW tax) or engage in tax planning by paying a firm-specific fixed cost to lower their foreign tax rate
- Derive reduced-form diff-in-diff estimates as functions of model parameters, use these estimates for identification
- Adjust reduced form estimates to remove selection effects caused by unobserved differences in IP

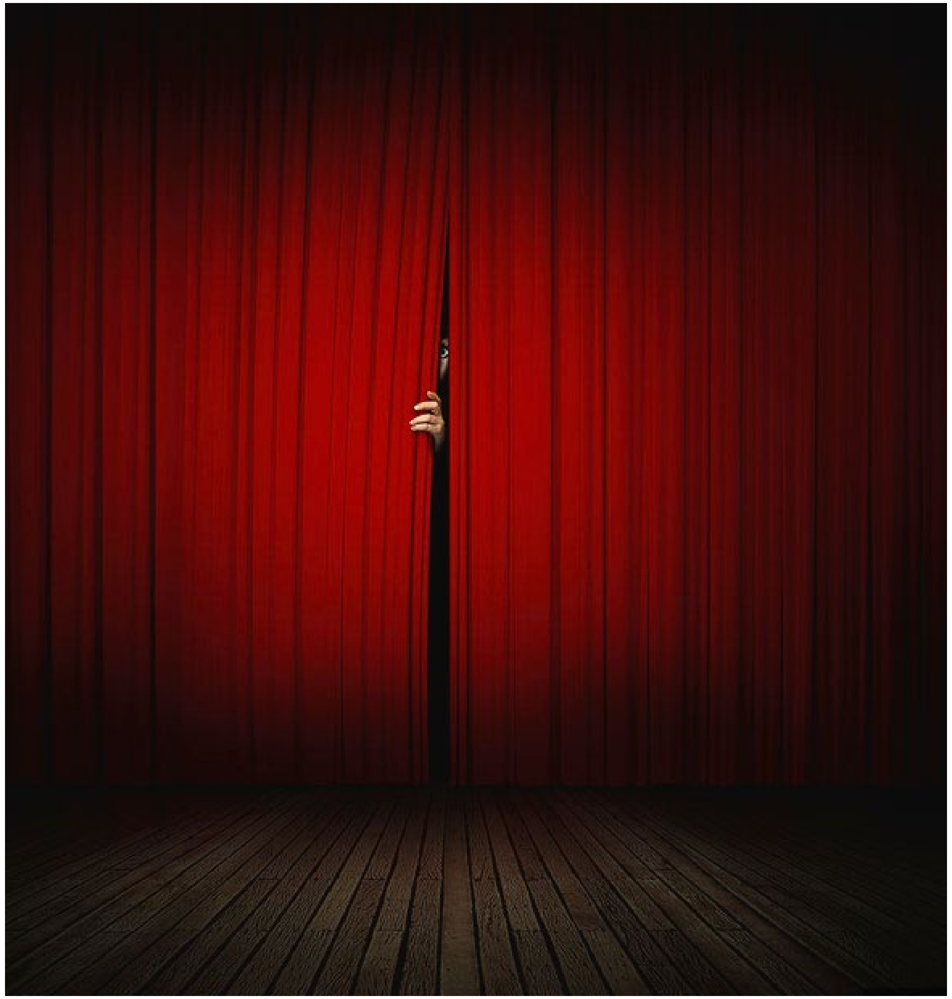
(Preliminary) Calibration and Model Results

- Implied foreign tax elasticities
  - R&D $\varepsilon^{D} = 0.58$ (c.f. 2.14)
  - Domestic K $\varepsilon^{K_D} = 0.35$ (c.f. 0.45)
  - Foreign K $\varepsilon^{K_D} = 1.00$ (c.f. 1.03)

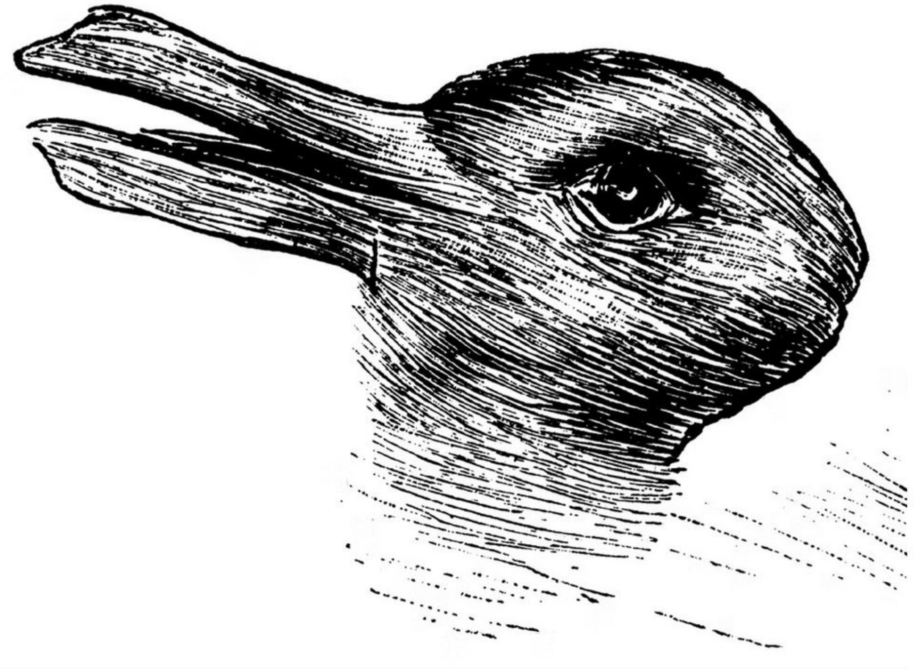
- Selection impacts R&D and domestic K more than foreign K

- While foreign tax savings increase domestic R&D, most of it would have happened absent hybrid tax planning

Takeaways



Takeaways



Takeaways

- **Hybrid tax structures were prominent part of int’l tax landscape during Golden Era**
  - 35% of foreign profits of US MNCs are booked through these structures
  - Hybrid tax planners cover 20% of domestic corporate payroll and 15% of investment

- **Hybrid tax planning strategies tied to**
  - large increases in profit shifting transactions and deferred income
  - an estimated 5pp. reduction in foreign ETRs
  - large increases in domestic R&D, domestic payroll and foreign capital assets
  - an increase in economic activity, but a share of R&D was inframarginal

Appendix Slides

Constructing a Panel of MNCs and Foreign Affiliates

Table 1: Sample Sizes

	(1) Universe	(2) SOI Corp. Sample	(3) Stable Sample	(4) Balanced
MNC Count	21411	17491	3638	460
CFC Count	247686	230874	40836	22648
FDE Count	53094	51579	46039	23278

Computing Foreign Effective Tax Rates (ETRs)

$$ETR_{i,t} = \frac{\text{Foreign Taxes}}{\text{Foreign Taxes + Foreign Earnings and Profits}}$$

- We calculate total foreign tax payments from Form 5471, Schedule E
- To calculate pre-tax earnings and profits:
  - Obtain pre-tax E&P for each affiliated CFC (using Schedules H and E from Form 5471)
  - Remove dividends received from related CFCs (using Schedule M from Form 5471) to adjust for potential double-counting (Blouin and Robinson, 2020)

Indicators of Profit Shifting and ETRs (Staggered DD)

Table 2: Estimates on Indicators of Profit Shifting and ETRs

	Related Loans	Foreign Intangibles	Cash Held Abroad	Foreign ETR
ATT	0.334*	0.495**	0.263*	−0.030*
	(0.146)	(0.166)	(0.116)	(0.012)
Num. Units	1755	2290	3226	3302
Num. Treated	285	308	321	321

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Effects on Real Economic Activity (Sun & Abraham)

Estimates on Real Economic Activity

	Foreign	Domestic		
	Capital	R&D	Wages	Investment
ATT	0.263***	0.392*	0.202**	0.076
	(0.079)	(0.171)	(0.061)	(0.119)
Num. Units	2860	1744	2823	2894
Num. Treated	320	262	311	313

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Indicators of Profit Shifting and ETRs (Sun & Abraham)

Estimates on Indicators of Profit Shifting and ETRs

	Related Loans	Foreign Intangibles	Cash Held Abroad	Foreign ETR
ATT	0.473**	0.596***	0.372**	−0.032**
	(0.153)	(0.159)	(0.134)	(0.011)
Num. Units	1755	2290	3226	3302
Num. Treated	285	308	321	321

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Detecting the Double Irish in IRS Data

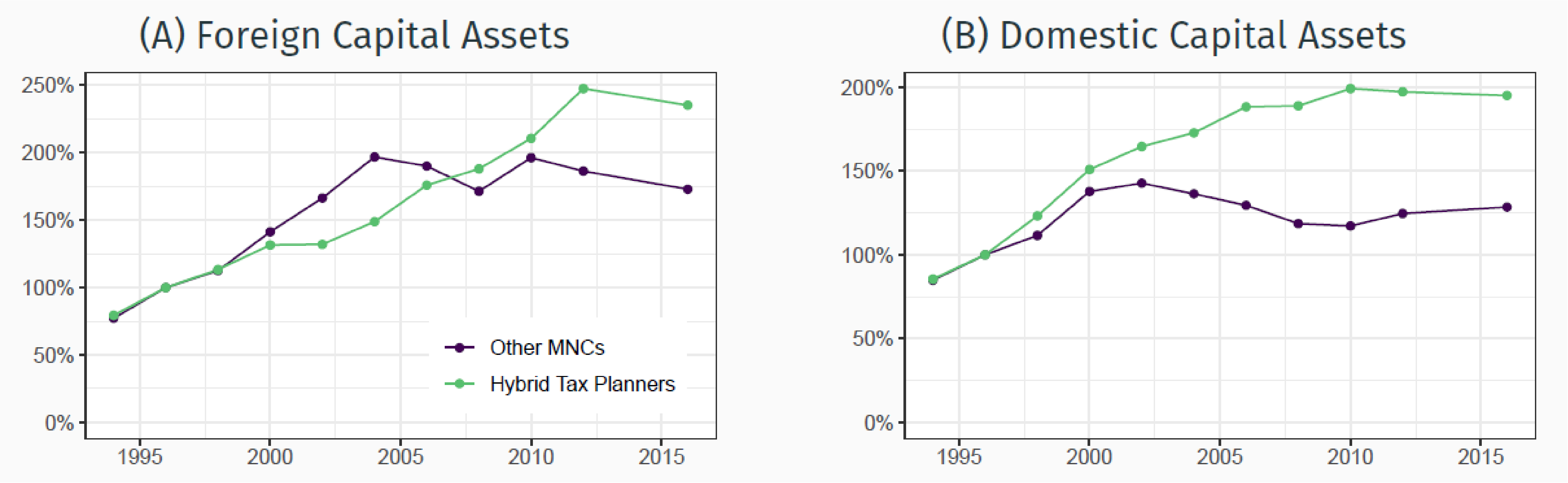
- To detect a Double Irish structure, we flag any CFC that:
  - Is incorporated in Ireland and also controls an Irish hybrid FDE
  - Controls an Irish FDE that in turn controls another Irish hybrid FDE
- Allowing for indirect control captures more complicated structures (e.g., Dutch Sandwich)

Detecting Reverse Hybrids in IRS Data

- Dutch and Luxembourg foreign affiliates names typically include the entity type at the end of the name. Examples: e.g. “ACME CV” or “WIDGET UA”
- Analyzing corporate names allows us to observe Dutch and Luxembourg partnerships (CV in the Netherlands, SCS in Luxembourg) and private limited liability companies (BV in the Netherlands, SARL in Luxembourg)
- Combine these classifications with CFC-FDE ownership networks to flag:
  1. A Dutch or Luxembourg CFC classified as a partnership in the foreign country (CV/SCS) that controls at least one hybrid FDE private LLC (BV/SARL) in the same foreign country
  2. Any CFC that controls at least one FDE classified as a partnership in the foreign country (CV/SCS) and at least one hybrid FDE classified as a private LLC (BV/SARL) in the foreign country

Economic Activity: Foreign and Domestic Capital

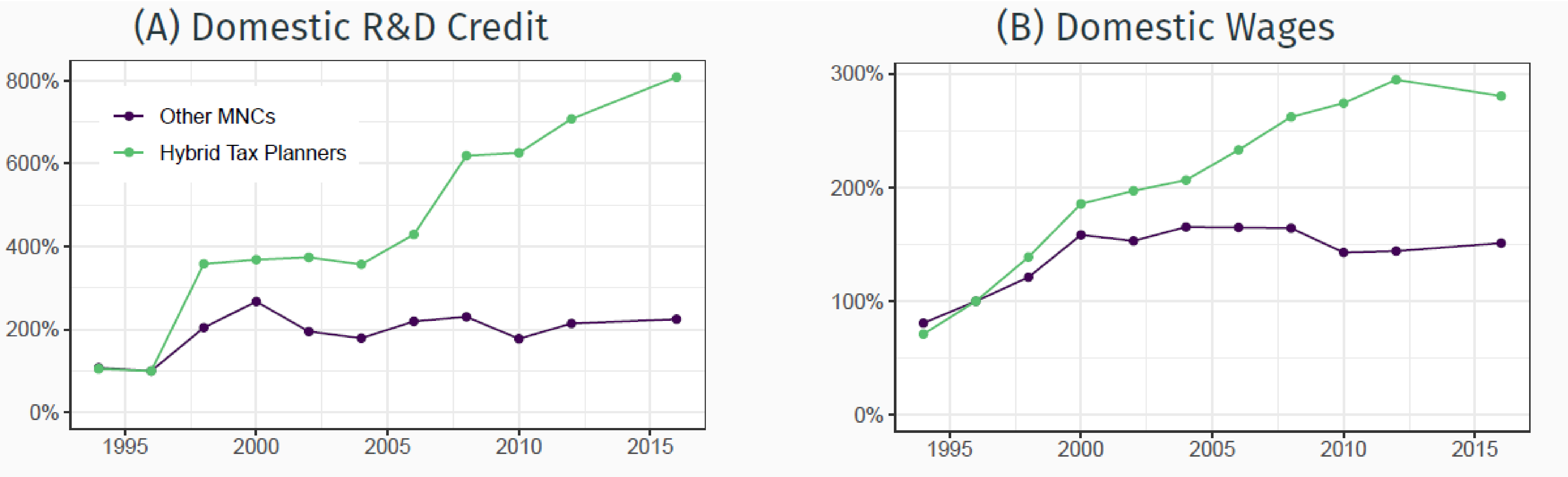
- Tax planners see larger growth in domestic and foreign capital assets



Note: Graphs compare changes in outcomes relative to 1996

Economic Activity: Domestic R&D and Wage Expense

- Tax planning firms see significant increases in R&D tax credits claimed
- Wage expense also increase (which includes R&D salaries)



Note: Graphs compare changes in outcomes relative to 1996