Effects of International Tax Provisions on Domestic Labor Markets

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May 22, 2024

How do international tax systems affect domestic workers?

Recent major reforms (IT, GB, JP, US) lowered effective tax rates on two fundamental margins:

1. ETR on foreign income as it was earned by foreign affiliates of domestics MNCs
2. ETR on transfers of prior earnings from foreign affiliates to the domestic parent (repatriations)

These reforms were motivated by the belief that they traded-off **tax revenue losses** to

- increase **global competitiveness** of domestic MNCs
- **create jobs and raise wages** for domestic workers

This paper assesses this belief empirically:

How do the designs of international tax systems affect domestic workers?

How do international tax systems affect domestic workers?

How **international tax systems affect domestic workers** depends on two key parameters:

1. complementarity / substitutability of domestic and foreign production
2. importance of foreign cash holdings to finance domestic business activity

For example, if

- domestic and foreign production are complements
- and cash trapped abroad is an important source of domestic financing

then recent reforms **likely helped domestic workers**.

If, on the other hand,

- domestic and foreign production are substitutes
- and cash trapped abroad is not import for financing domestic operations

these reforms **likely eliminated jobs and lowered earnings for domestic workers**.

How do international tax systems affect domestic workers?

To provide a complete answer to our research question,
we study the domestic labor market effects of two US international tax provisions:

1. 1997 introduction of **"Check-the-Box"** entity elections (CTB)
   → Lowered ETR on current foreign income of affiliates of US MNCs

2. 2004 **Repatriation Holiday** (RH)
   → Decreased ETR on repatriations from foreign affiliates to domestic US parents

These reforms:

- Each isolate a fundamental design element of international tax systems
- Represent watershed moments in the evolution of the international tax landscape
- Help us understanding how ongoing policy proposals may impact domestic workers

Empirical Strategy

Empirical Challenges

1. Few datasets on MNCs have reliable measures of worker outcomes
2. Firm-to-firm comparisons can be fraught because either
   - most MNCs are impacted by tax changes (as in CTB)
   - MNCs selectively respond to tax changes (as in RH)
3. Firm-to-firm comparisons do not capture full effect on domestic workers outcomes
   - can include large and important spillover effects

We use a **Local Labor Markets** empirical approach to overcome these challenges

- Map the full geographic footprint of MNCs in the US
- Use mapping to create county-level exposure measures to each provision
- Implement Dynamic DD comparing *places*—rather than firms—that benefit more/less over time
- Separately identify causal effects of each provision, incorporating spillovers

Preview of Results

Local exposure to CTB decreases relative local employment (3pp), earnings (4pp)

→ MNC activity is internationally substitutable

→ Simple comparison implies 1 million job losses, $42.5 billion earnings/yr lost by 2006

Local exposure to RH does not materially impact local labor outcomes

→ Foreign cash holdings are not an important source of domestic financing

Repatriating Firms & CTB

- Repatriating firms are more R&D intensive
- Exposure to RH firms does not lead to job losses following CTB implementation

→ MNCs that eventually repatriated never left the US in the first place

Relation to Existing Literature

New Evidence on Effects of International Taxation on Domestic Workers

- Suárez Serrato (2018): repealing §936 limited profit shifting out of the US $\rightarrow$ reduced US competitiveness
- This paper: CTB enabled shifting profits out of foreign markets $\rightarrow$ reduced US competitiveness
- Altshuler, Boller and Suárez Serrato (2023): use of hybrid tax strategies is associated with firm-level increases in domestic activity
- Key difference: firms select into tax planning strategies, complicating causal interpretation

Relationship between Domestic and International Activity

- Domestic and foreign activities of MNCs are more substitutable than we thought
- Desai, Foley and Hines (2009): foreign GDP growth induces domestic employment by US MNCs
- This paper: Analyze shocks to ETRs unrelated to foreign factors and focus on broader economic outcomes

Check-the-Box (CTB)

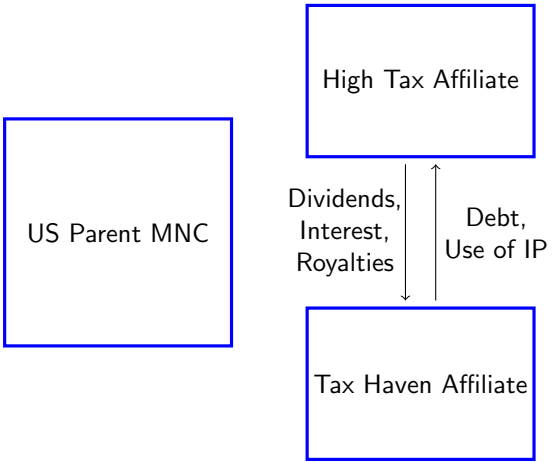
Prior to 1997

- Subpart-F Rules: "Passive" income of foreign affiliates taxed immediately
- Passive income: interest payments, royalties, and dividends
- Subpart-F rules applied to flows between foreign affiliates
  $\rightarrow$ Limited income shifting from high to low-tax foreign affiliates

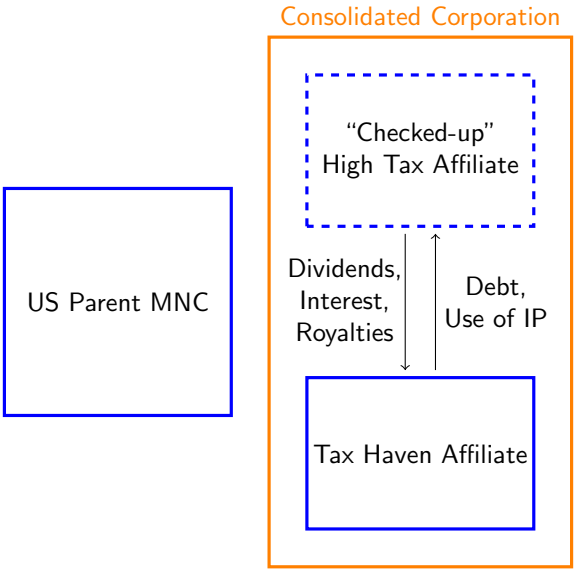
Check-the-Box (CTB)

- Implemented in 1997
- Foreign affiliates of US MNCs could "check-the-box" to be treated as disregarded entities
  $\rightarrow$ Allowed all foreign affiliates to be considered **one entity for tax purposes**
- Income flows between affiliates no longer subject to Subpart F rules
- Easier to shift profits out of high-tax foreign affiliates
- Resulted in lower ETRs for US MNCs on foreign income

CTB and Domestic Production Responses



CTB and Domestic Production Responses



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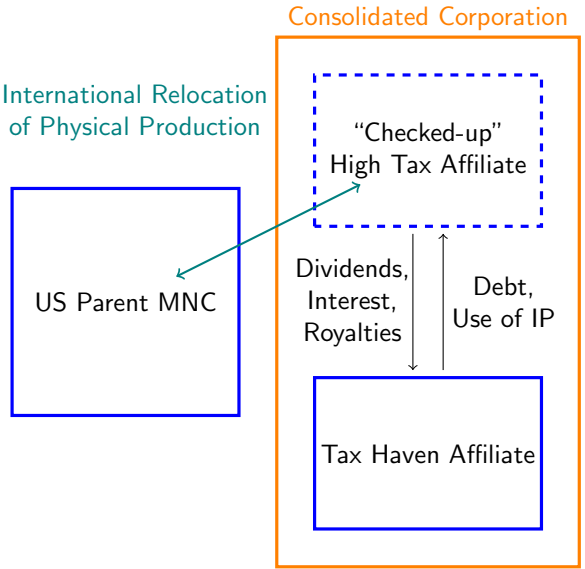

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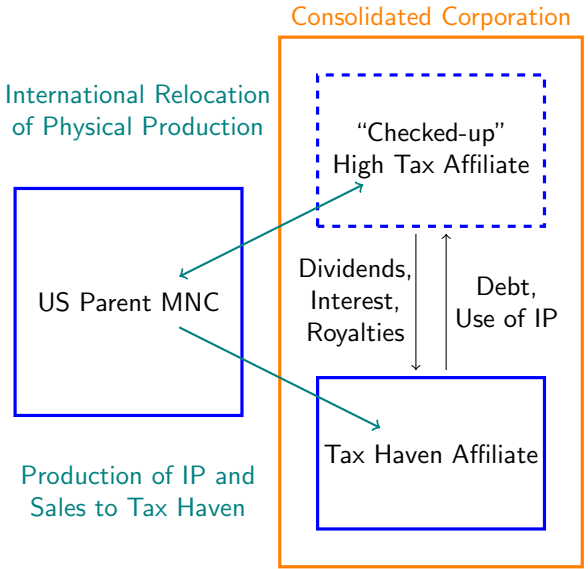
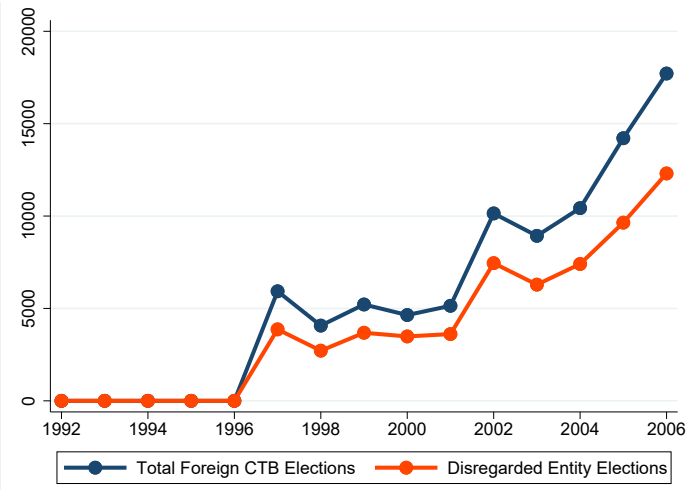


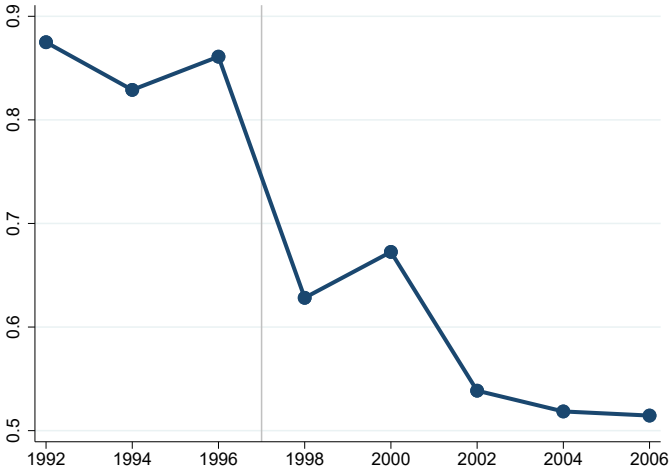
Trends in CTB Elections

Figure: Trends in CTB Elections (Field, 2008)



Trends in Subpart F Revenue Collections

Figure: Trends in Subpart F Tax Revenue as a Share of CFC Assets



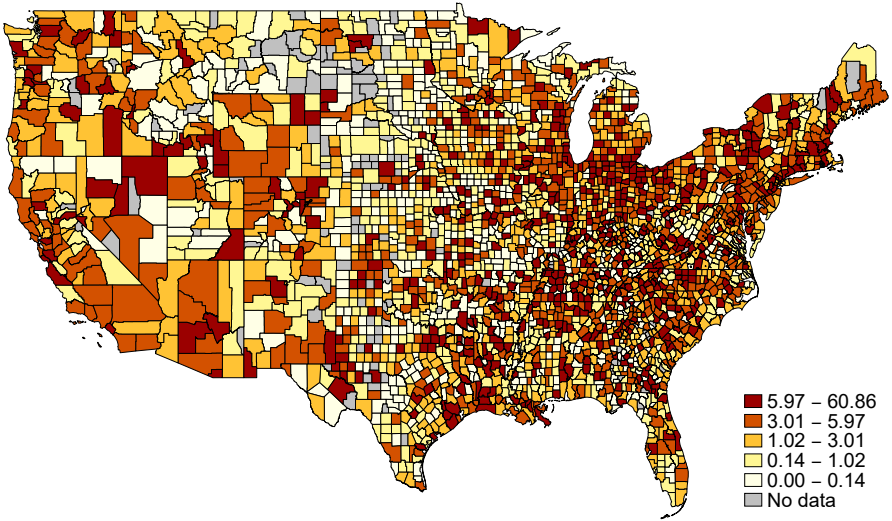
Measuring Firm-Level Local Business Activity

Compustat–NETS Match

- Goal: measure geospatial footprint of firms in Compustat
- Match all 1996 firms in Compustat to NETS by name and address / latitude longitude using reclink2 program (Wasi and Flaaen, 2015), and manual checking
- Successful matches Match Graphs
  - 50% of firms,
  - 85% assets,
  - $>$90% of $PIFO$ in Compustat.
- For matched firms, we observe county-level employment and establishments

Measuring Local Exposure to CTB

CTB Exposure: Share of local employment in MNCs in 1996 as measured in NETS



Measuring Local Exposure to CTB

Treatment Discretization

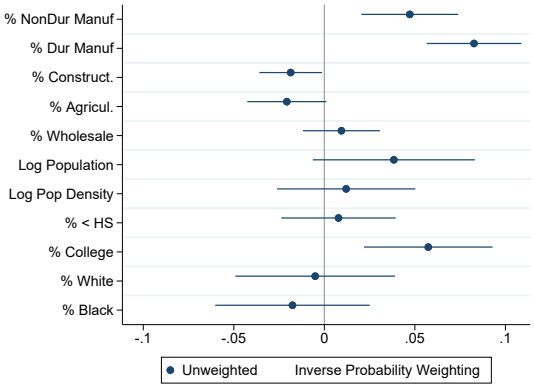
- In primary results, compare high treatment (above 5.5%) to low treatment counties
  - Allows us to relax *constant linear dose response* assumption (Callaway, Goodman-Bacon and Sant'Anna, 2021) CTB Treatment Cutoffs

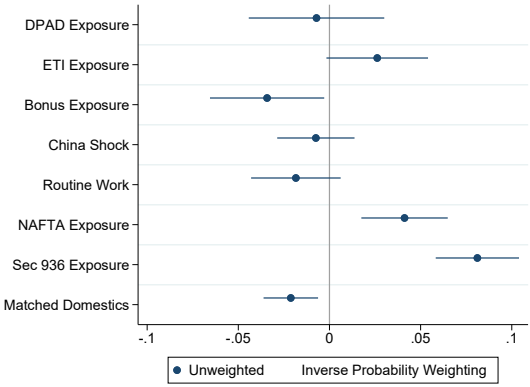
Differences in Local Market Observable Characteristics

- Treatment and control counties vary on several observable margins
- We address these differences in two complementary ways:
  1. Flexible time trends by interacting observable controls with time FE
  2. Generalized matching through inverse probability of treatment weights ("semiparametric" DiD from Abadie, 2005)

What Markets are Exposed to CTB?

Figure: Coefficients from Logit Regression of CTB Treatment on Local Characteristics





Change in Distribution of Types

What Markets are Exposed to CTB?

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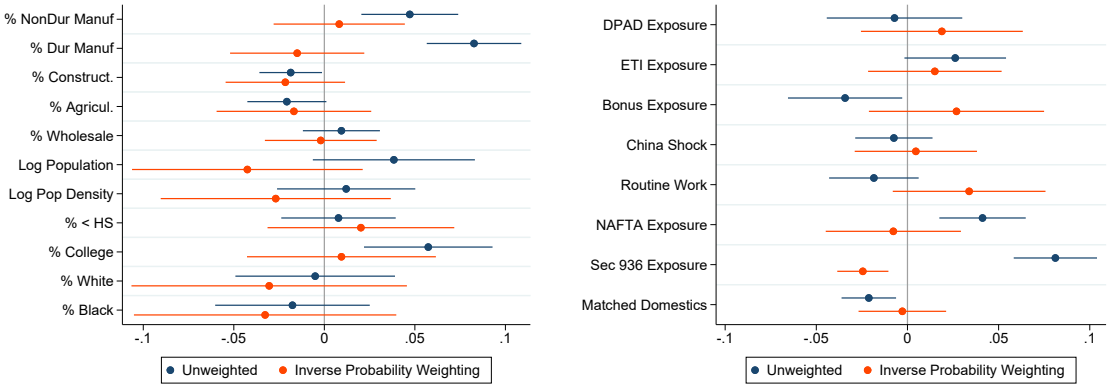


Change in Distribution of Types

Effects of CTB on Local Labor Markets

Event Study DD Empirical Strategy

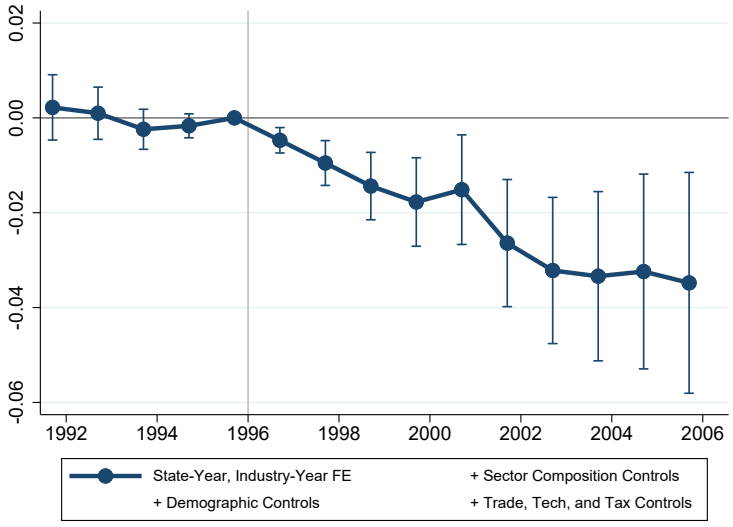
$$\Delta y_{cjt} = \sum_{y=1992,\ y\neq 1996}^{2006} \beta_y \Big[\textbf{CTB Treatment}_c \times \mathbb{I}(t=y)\Big] + \mathbf{X}'_c \boldsymbol{\gamma}_t + \mu_{st} + \nu_{jt} + \varepsilon_{cjt}.$$

- c denotes county, j denotes industry, and t denotes year
- **Outcomes:** county-industry percent change in employment, earnings, wages relative to 1996 from QCEW
- **Baseline controls:** industry $\times$ year, state $\times$ year
- Standard Errors clustered by county (Cameron and Miller, 2015)

Identifying Assumption

- In the absence of CTB provision, outcomes in most exposed local labor markets would move in parallel with those of less exposed markets

Effects of CTB on Local Labor Markets: **Local Employment**



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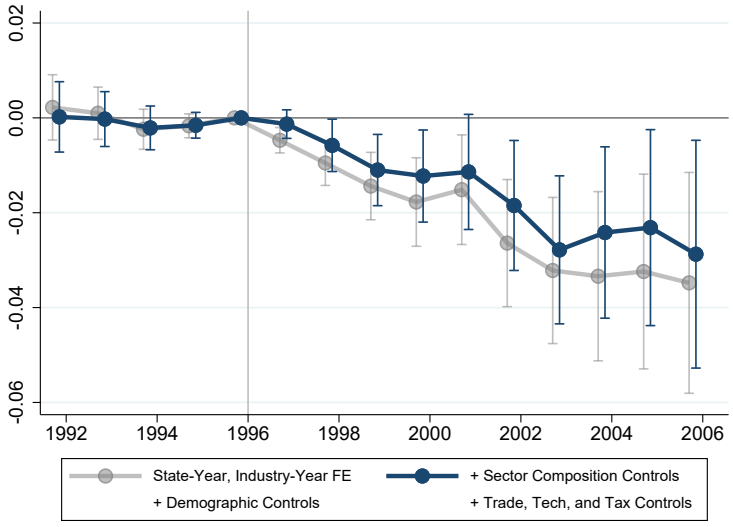

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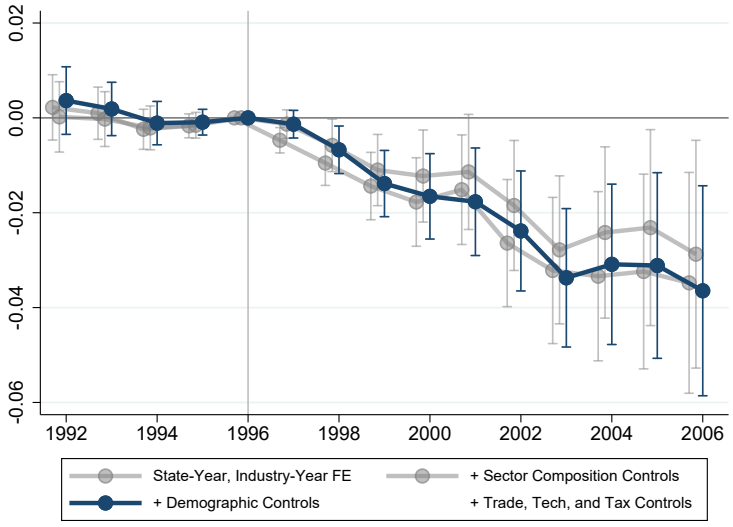

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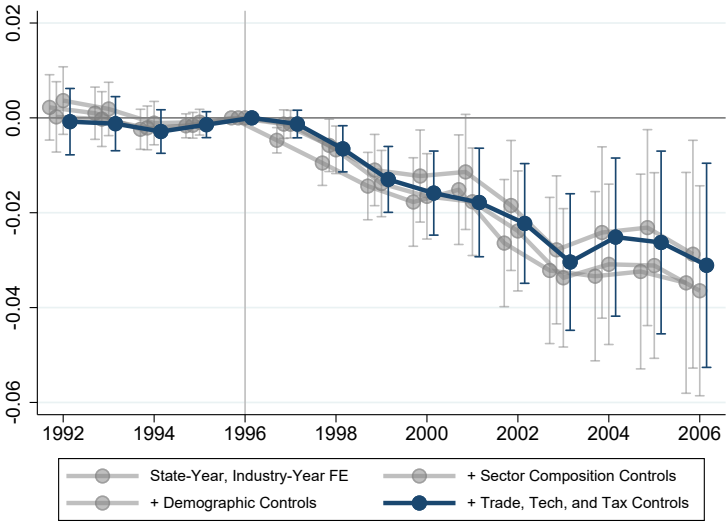

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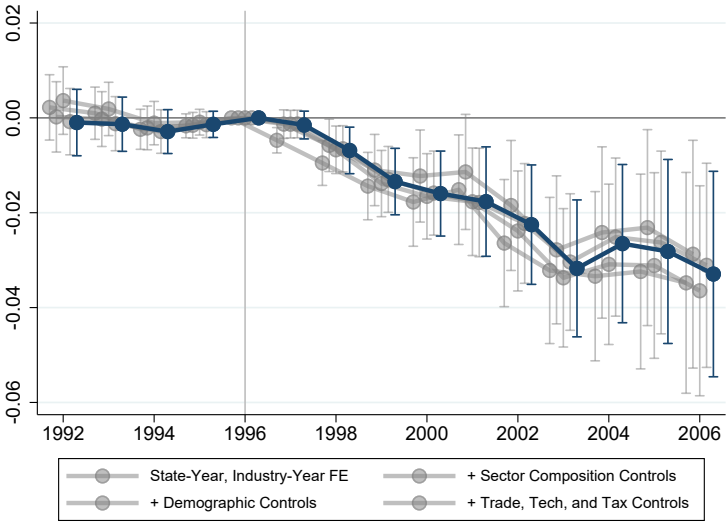

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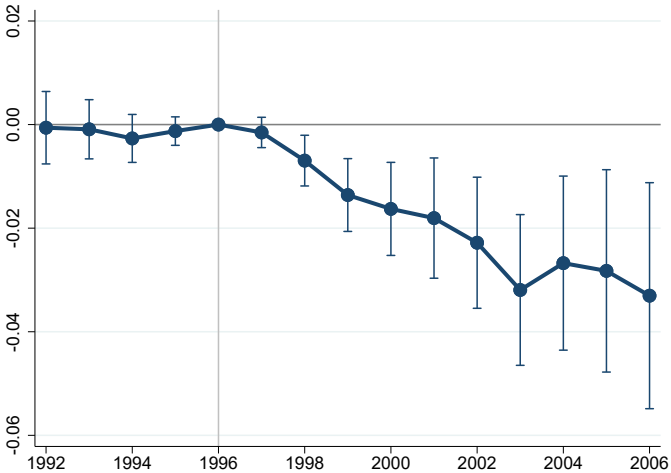

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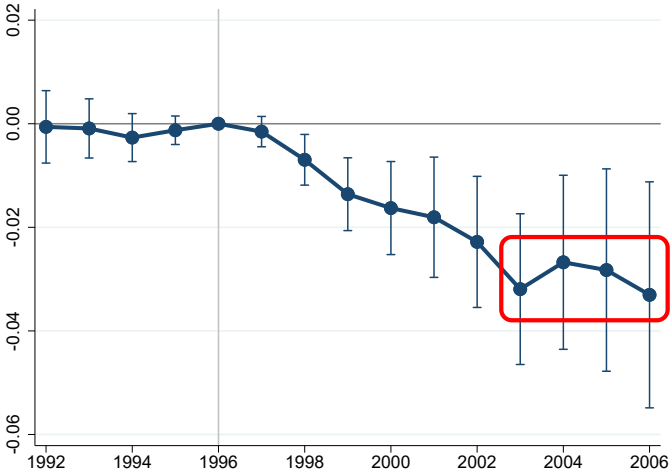
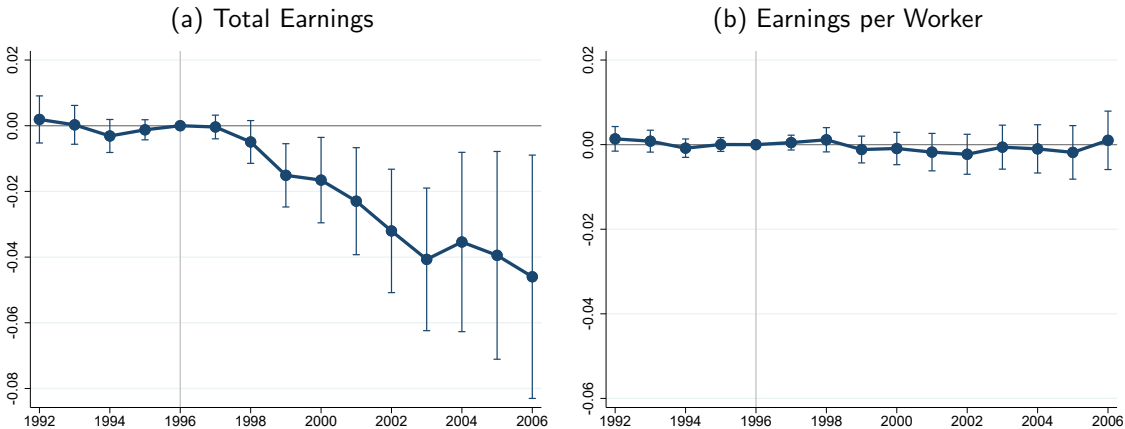


- 2003–2006: 3.04^{***} percent decrease in employment relative to 1996

Robustness

Effects of CTB on Local Labor Markets

Figure: Effects of CTB on Total Earnings and Earnings per Worker



- 2003–2006: 4.09*** percent decrease in total earnings relative to 1996
- No effect on earnings per worker

Migration

Is It Really CTB?

Thus far: Counties exposed to MNCs experienced
large decreases in employment and total earnings starting in 1997.

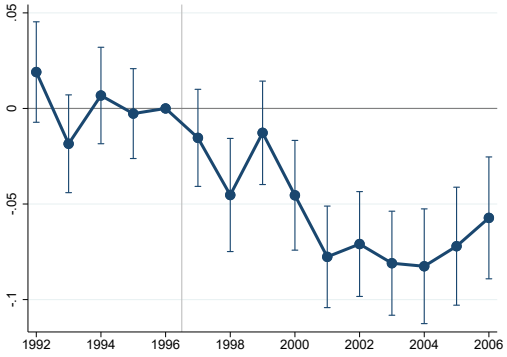
Are these effects really due to CTB?
... and not some other coincident shock to MNCs?

Five Tests to Attribute Estimates to CTB

1. MNCs see large drops in ETRs relative to matched domestic starting in 1997
2. Effects larger for counties exposed to MNCs that stood to gain more from CTB
3. Effects not driven by changes in the cost of offshoring
4. Timing of labor market effects matches DE elections pattern
5. Results not only due to firms exposed to OECD corporate tax "race-to-the-bottom"

Effects of CTB on Worldwide Effective Tax Rates

Figure: Difference in ETRs for MNCs vs. Matched Domestic Firms



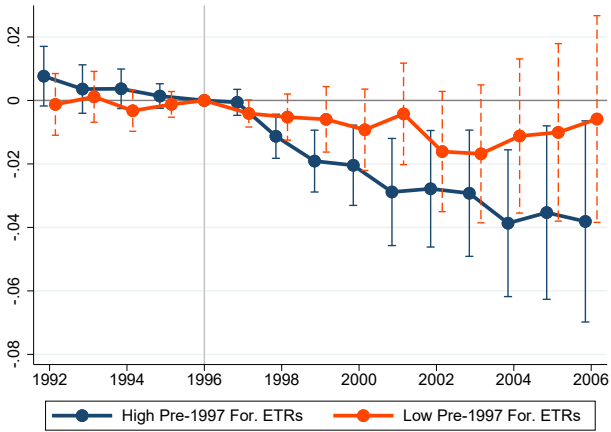
- Dyreng and Lindsey (2009) approach: Robustness

$$WWTE_{it} = \alpha + \beta PI_{it} + \gamma[PI_{it} \times MNC_i] + \sum_{y=1992}^{2006} \omega_h \Big(PI_{it} \times MNC_i \times \mathbb{I}(t = y) \Big) + \mu_i + \nu_{jt} + \varepsilon_{it}$$

- We estimate an 8pp* decline in ETRs due to CTB; in line with Blouin and Krull (2019)

Heterogeneity by Pre-CTB Foreign ETRs

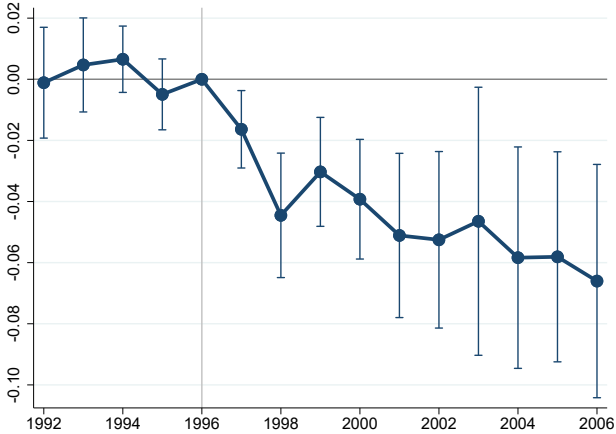
Figure: Impact Split by Foreign ETR Pre-1996



- Firms with higher foreign ETRs prior to CTB stood to gain more from the policy
- Effects concentrated among counties exposed to high FETR MNCs

Heterogeneity by Pre-CTB Foreign ETRs

Figure: Domestic Sales Share; High vs. Low Foreign ETR MNCs



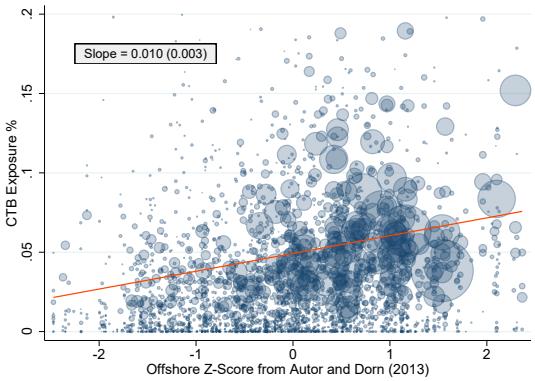
- Domestic Sales Share = Domestic Sales / Worldwide Sales from Compustat Geo Segments

CTB Exposure and Offshoring

What about general technology-driven offshoring during the sample?

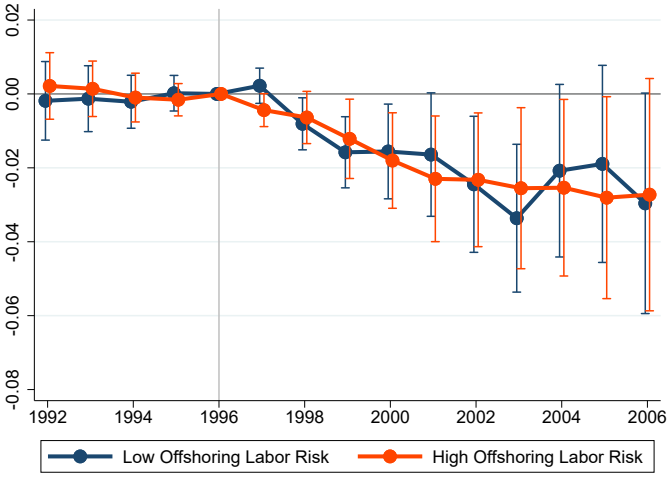
- Certain tasks became easier to offshore during the 1990s and 2000s
- Autor and Dorn (2013) measure offshoring risk by task and map to local labor markets
- CTB Exposure is positively correlated with Autor and Dorn (2013)'s offshorability measure

Figure: Correlation between Offshorability of Local Average Tasks and CTB



CTB Exposure and Offshoring

Figure: Impact Split by Offshoring Risk



- CTB may cause offshoring, but results not driven by local task-based offshoring risk

Magnitude of Job and Earnings Losses

Estimates

- 2003–2006 Job Losses: -3.04*** percent of 1996 employment
- 2003–2006 Earnings Losses: -4.09*** percent of 1996 earnings

Simple Counterfactual Thought Exercise #1 Counterfactual #2

- Assume control have no impact due to CTB

Base

- Jobs in treatment sample, QCEW 1996: 33.9 million
- Total Earnings in treatment sample, QCEW 1996: $1.059 trillion

Losses based on this exercise

- 2003–2006: 1.03 million jobs lost
- 2003–2006: $42.5 billion in total earnings lost per year

More

Are These Job Losses Due to International Substitution?

If so, we should find heterogeneous effects by degree of substitutability.

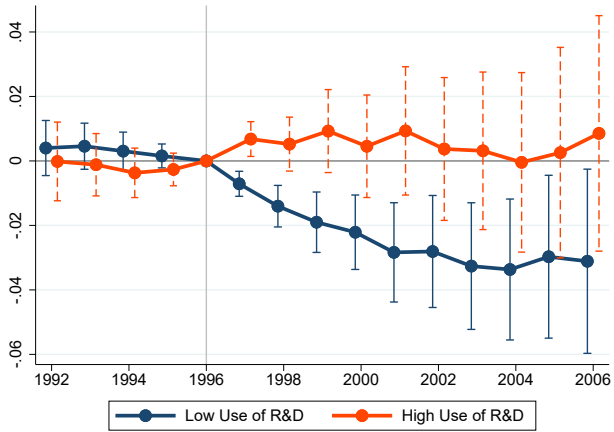
- We focus on heterogeneity by firm-level **R&D Intensity**:
  R&D per unit revenue, controlling for firm size
- We hypothesize high R&D Intensity firms will be less able or less willing to substitute domestic and foreign activities than other types of firms
  1. Agglomeration economies in R&D activities in the US
  2. Many advanced tax planning strategies facilitated by CTB rely on sales of IP at below market rates to tax haven affiliates

     $\rightarrow$ R&D activities in the US may directly complement expansion abroad

     (even more so after CTB)

Are These Job Losses Due to International Substitution?

Figure: Impact Split by R&D Intensity



- We find no effect on labor markets exposed to firms with high R&D intensity
  → **evidence of international substitution** in response to lower foreign ETRs

Recapping CTB

Check-the-Box

- Lowered effective tax rate on foreign earnings by weakening Subpart F
- Allows profit shifting from high- to low-tax foreign countries

Empirical Results

- Local employment, earnings drop in markets more exposed to CTB

What Did We Learn?

- Our result show foreign and domestic activity are, on average, substitutes for US MNCs in response to changes in **foreign effective tax rate on current income**

CTB or Tax on Repatriations?

- An alternative explanation for our CTB results:
  High repatriation taxes did not allow US multinationals to use the additional profits they generated abroad to finance domestic production and job creation.

- This potential explanation provides an additional reason to investigate the effect of changes in repatriation taxes on domestic labor markets, which we do by studying responses to the 2004 **Repatriation Holiday.**

Repatriation Holiday (RH)

Repatriation Holiday (RH)

- Passed into law October 2004
- Effective through 2006
- Decreased tax rate on repatriations to US by 85%

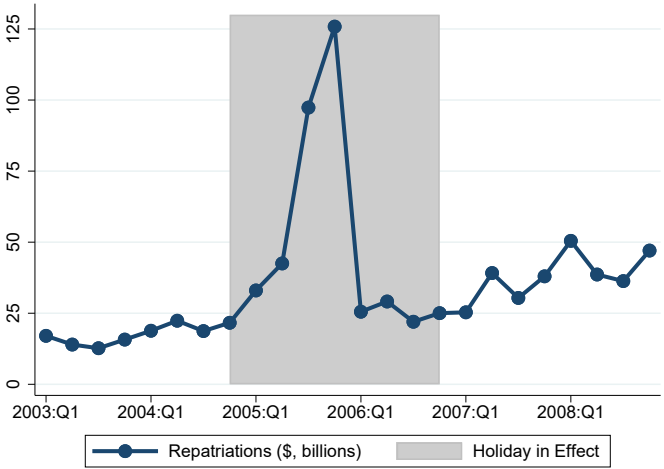
Domestic Labor Market Incidence?

- Depends on whether "trapped" funds are an important source of domestic business financing

Repatriation Trends

- Nearly $300 billion were repatriated under the holiday

Figure: Repatriations of Foreign Income by US MNCs (Smolyansky, Suarez, Tabova et al., 2019)



Measuring Local Exposure to RH

Treated Firms

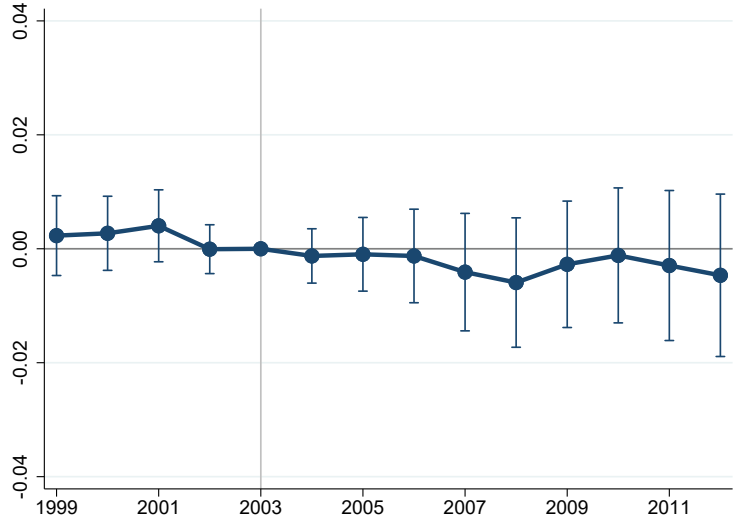
- Start with Compustat–NETS Match
- Identify repatriating firms using FSP 109-2 data from Blouin and Krull (2009)

Local Exposure

- We calculate county-level dollars per worker repatriated based on observed repatriations and the 2003 distribution of employment for repatriating MNCs
- **RH Treatment**: Above median dollars per person repatriated to the county ($\sim$ \$150/person) RH Treatment Map RH Treatment Cutoffs
- Event study DD analysis with inverse probability weights and the same controls as in the CTB analysis (updated to 2003) RH Covariate Balance RH Change in Distribution of Types

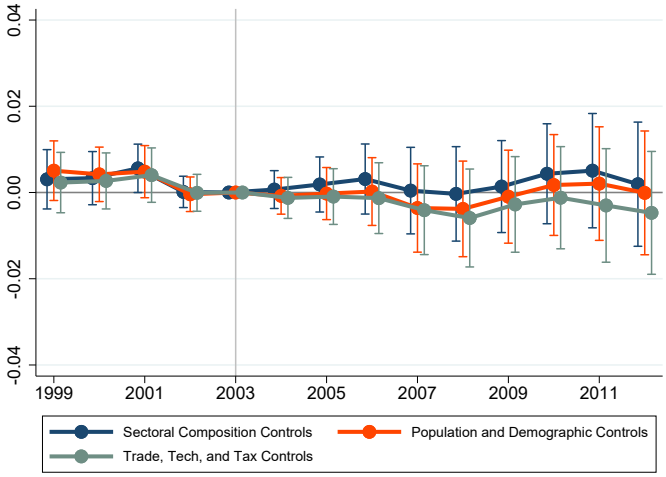
Effects of RH on Local Labor Markets

Figure: Effects of RH Treatment on Local Employment



Effects of RH on Local Labor Markets

Figure: Effects of REPAT Treatment on Local Employment, Sequential Controls



Earnings | Earnings-per-worker | Employment-population ratio

Effects of the RH on Local Labor Markets

Heterogeneous Effects?

- Null effects for financially constrained repatriators more
- Null effects for repatriators with largest stockpiles of cash abroad
- Null effect at headquarters (no home biased reinvestment)

Why the null effects?

- Matched DD strategy
  $\rightarrow$ we find firms paid out 66 cents of each dollar invested to shareholders more

Implications

- Foreign cash holdings are not an important source of domestic financing

Who repatriated?

Prior Literature

- Blouin and Krull (2009): firms with **low foreign and domestic growth** opportunities
- Faulkender and Petersen (2012): firms repatriated if
  1. they have substantial PRE (cash trapped abroad)
  2. they have important financial constraints

An Alternative Hypothesis

- Maybe the repatriators are the ones who never left; those who could not relocate jobs abroad and continued to have a strong domestic presence.

Repatriators and International Substitution

- We document that repatriators have characteristics that may make their domestic production hard to replicate in non-domestic markets.

  They:

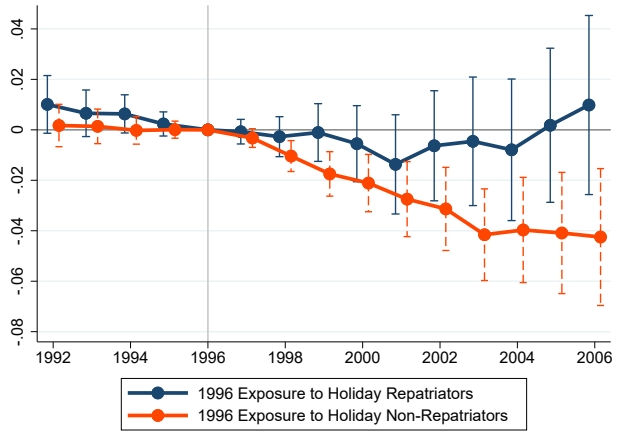
  1. are more likely to patent
  2. are awarded more patents per dollar of assets
  3. are more R&D intensive (by revenue and assets)
  4. and are even more likely to have an HQ in Silicon Valley

These new findings prompt two final questions:

- Did repatriating firms ever relocate jobs abroad?
- (... and if not) Did repatriations by R&D intense firms lead to domestic job creation?

Back to the Future

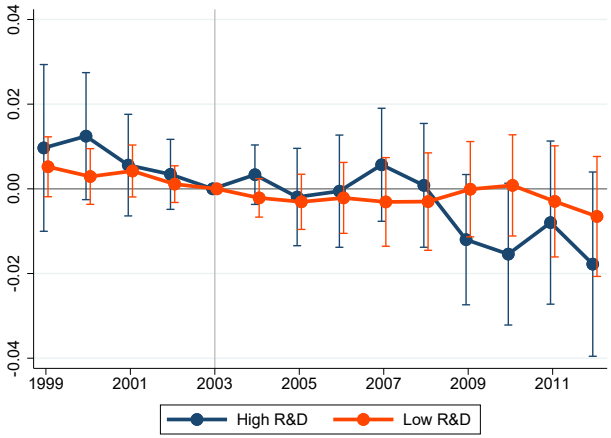
Figure: CTB Impact on Employment, Heterogeneity by Repatriation Status



- Findings suggest firms that eventually repatriated never relocated jobs abroad

Repatriations and R&D Intensity

Figure: Effects of Repatriations by R&D Intensity on Domestic Employment



- Unfortunately, even repatriations by R&D intensive MNCs did not create jobs at home

Conclusion: Implications for the Design of International Tax Systems

Policy Implications

1. Decreasing foreign taxes for multinational corporations does not necessarily create jobs and increase wages at home.
   - When the international activities of multinational corporations are substitutable, decreasing foreign taxes can destroy jobs and depress earnings for domestic workers.

2. Repatriations are not an important source of domestic financing for US multinationals.
   - Policies that decrease the effective tax rate on repatriations are unlikely to have positive impacts on domestic labor markets.