The Missing Profits of Nations

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Introduction

Why are corporate tax rates falling globally?

- $\triangleright$ Standard explanation: globalization $\rightarrow$ competition to attract real capital $\rightarrow$ race to the bottom
- $\triangleright$ But today's largest multinationals don't move much K across borders (don't even have much tangible K)
- $\triangleright$ Instead they shift accounting profits, including...
- $\triangleright$ ... to places that collect 0 tax (Google in Bermuda)
- $\triangleright$ Tax competition model cannot explain this pattern

$\rightarrow$ Need to study **profit shifting**, why it rose and persists

This paper: New data and explanations

First contribution is empirical: produce new series of global profit shifting using macro data. Key novelties:

- **New database:** profits of local v foreign corp in each ctry $\rightarrow$ Complete map of where profits booked globally $\rightarrow$ Direct estimate of size of profits shifted to havens
- Forensic analysis of **tax haven data** $\rightarrow$ show out of which countries profits are shifted
- **Improved macro stats:** we provide estimates of GDP, profits, & factor shares corrected for shifting

Second contribution is theoretical: provide new explanation for persistence of profit shifting

Our results

Main empirical results:

- ▷ 40% of multinationals' profits shifted to tax havens
- ▷ EU is the main loser; US firms are the main shifters

Policy failure explains persistence of shifting:

- ▷ High-tax countries focus enforcement on transactions that shift profits to other high-tax places
- ▷ They ignore tax havens, where bulk of shifting occurs

→ In effect, high-tax countries are **stealing from each other while letting tax havens flourish**

Implications for future of taxes and inequality

Tax competition model: corporate tax rate $\rightarrow$ 0

- $\triangleright$ Capital moves $\rightarrow$ race to bottom inevitable
- $\triangleright$ Progressive income tax will disappear (impossible to enforce with low corp. tax rate: the rich incorporate)
- $\triangleright$ Globalization fuels inequality

Our results: corporate tax may rise in the future

- $\triangleright$ Capital does not move; paper profits do
- $\triangleright$ Policy failures explain this shifting
- $\triangleright$ Can be fixed $\rightarrow$ corp tax could $\uparrow$ even if no coordinat^{o}

Domestic policies, more than globalization, are key

The size of global profit-shifting

Key challenge in the literature: Little data on profits in tax havens

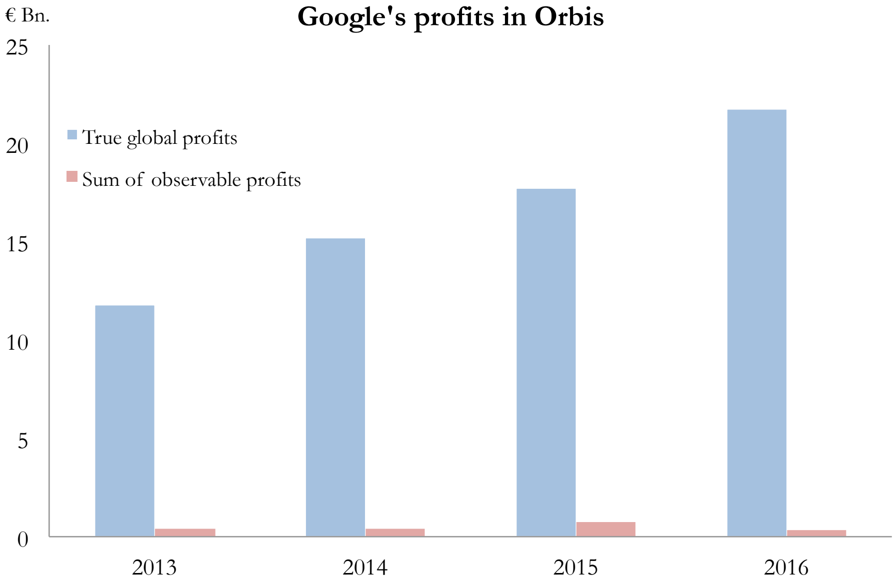
No reference estimate of size of global profit shifting

Widely-used source (eg, by OECD 2015 for its official estimate): financial accounts micro-data (Orbis)

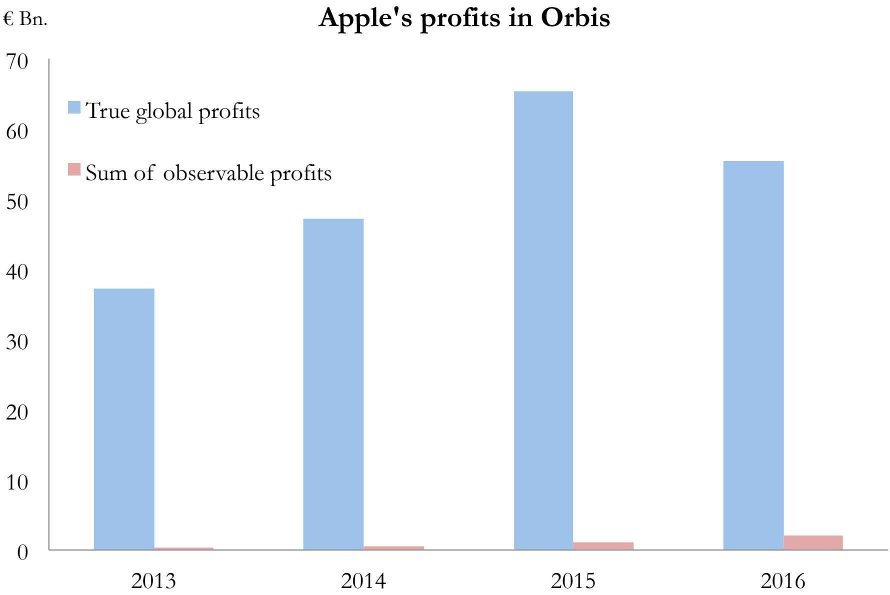
- ▷ $log(\pi_{ict}) = \alpha + \beta(1 - \tau_{ct}) + \delta Firm_{it} + \gamma Country_{ct} + \epsilon_{ict}$
- ▷ Extrapolate global shifting from $\hat{\beta}$
- ▷ Problem: limited reporting in tax havens $\rightarrow$ **most shifted profits not visible in financial accounts**

$\rightarrow$ (i) $\hat{\beta}$ downward biased (ii) biased inferences about size and location of shifted profits

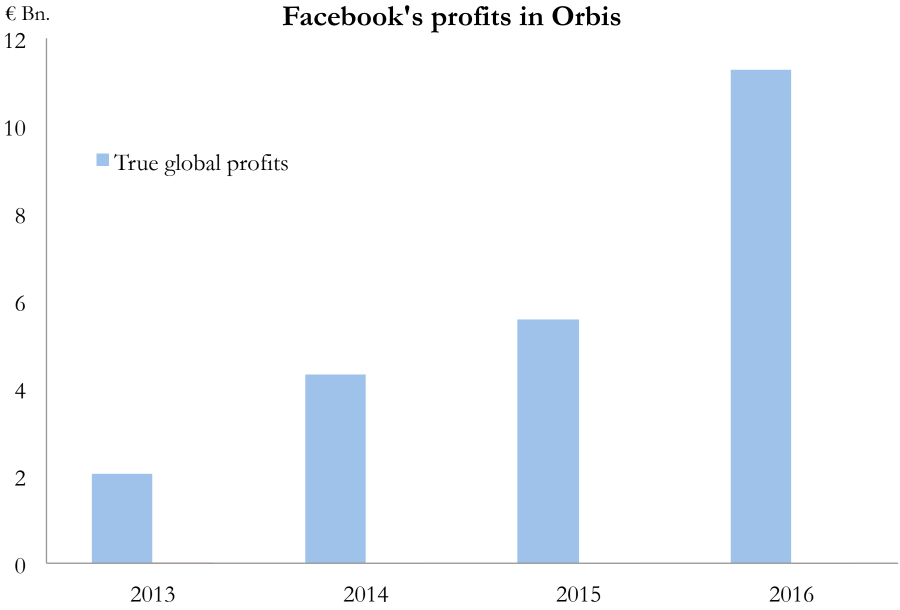
Most of Google's profits are invisible in available financial accounts data



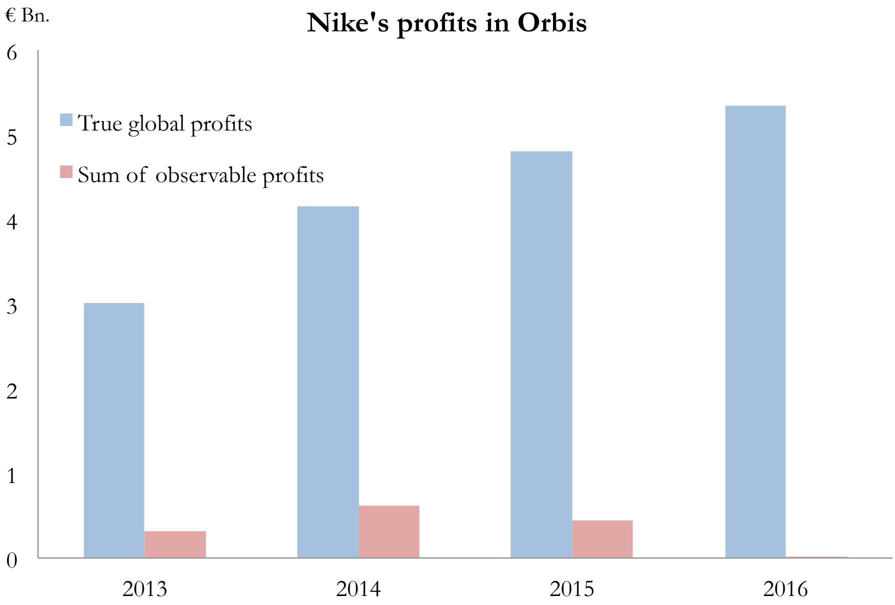
Most of Apple's profits are invisible in available financial accounts data



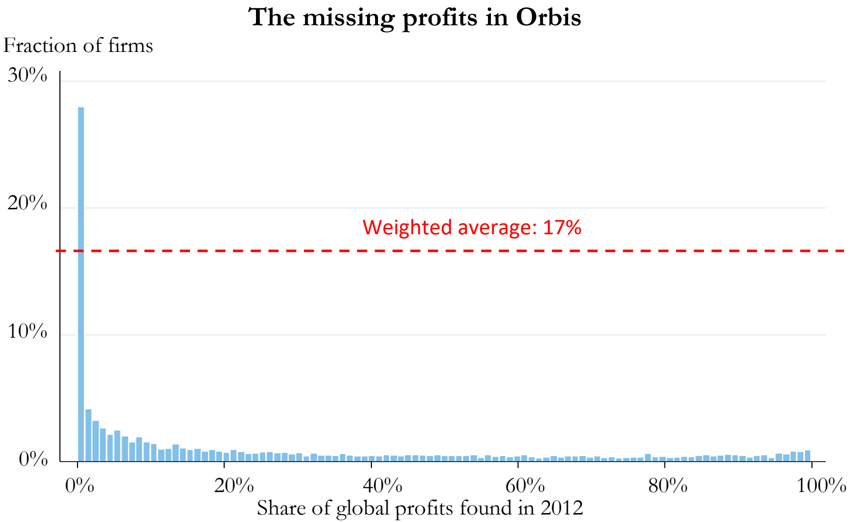
None of Facebook's profits are visible in available financial accounts data



Most of Nike's profits are invisible in available financial accounts data



Only 17% of multinationals' profits are visible in financial accounts micro-data



Our appraoch: we combine and analyze global macro data in a systematic way

New national accounts data:

- ▷ **Key novelty:** exploit new foreign affiliates statistics to decompose profits into local vs. foreign firms
- ▷ Better than Orbis because relies on much more info. (including tax returns & census-like surveys)

Improved balance of payments data:

- ▷ Bilateral trade & intra-group payments $\rightarrow$ shows out of which countries profits are shifted
- ▷ Ultimate-owner direct investment statistics $\rightarrow$ shows which multinationals shift profits

A new global database on profits (2015)

	Trillions of current US$	% of net corporate profits
Global gross output (GDP)	75,038	
Depreciation	11,940	
Net output	63,098	
Net corporate output	34,083	296%
Net corporate profits	11,515	100%
Net profits of foreign-controlled corp.	1,703	15%
Of which: shifted to tax havens	616	5%
Net profits of local corporations	9,812	85%
Corporate income taxes paid	2,154	19%

Methodology to estimate amount of profits shifted to tax havens

How multinationals shift profits offshore

Three ways to shift profits to low-tax countries:

- $\triangleright$ Manipulation of intra-group export and import prices (= transfer prices)
- $\triangleright$ Intra-group interest payments (tax deductible)
- $\triangleright$ Strategic location of intangibles

$\rightarrow$ We construct a macro indicator of profit-shifting that **captures all channels of shifting**

Conceptual framework

Macro indicator of profit-shifting π

- $\triangleright$ Country's corporate output $Y = F(K, AL) = rK + wL$
- $\triangleright$ 2 types of corp: f (foreign) vs. l (local)
- $\triangleright$ Capital share $\alpha = rK/Y$
- $\triangleright$ Net interest paid $= p\%$ of rK
- $\triangleright$ Pre-tax profits/wage ratio: $\pi = (1 - p) \cdot \alpha/(1 - \alpha)$

$\rightarrow$ **We analyze π for f vs. l firms in each country**

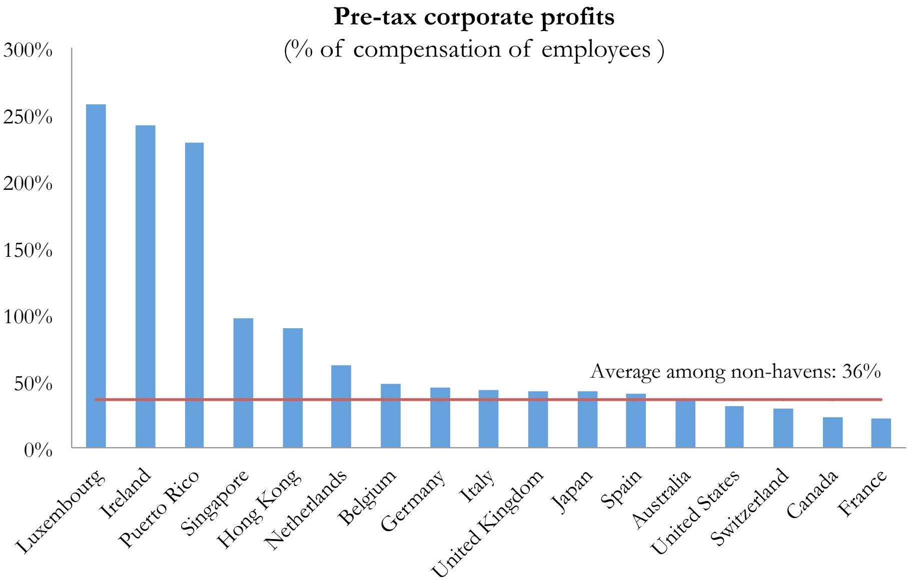
Global patterns in corporate profitability

Recorded profitability varies systematically across countries:

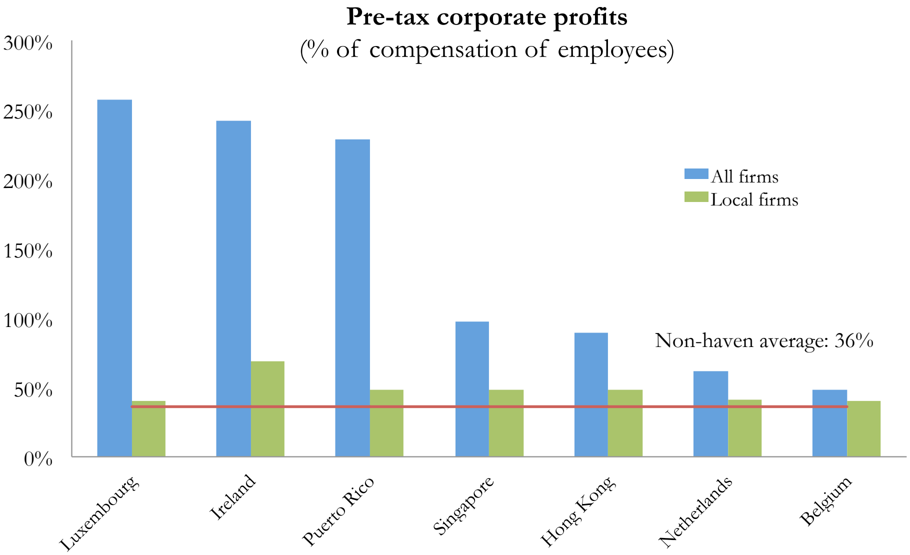
- ▷ Tax havens have abnormally high profits/wage ratios
- ▷ In tax havens: foreign firms are much more profitable than local firms ($\pi_f >> \pi_l$)
- ▷ In non-haven countries: foreign firms are less profitable than local firms ($\pi_f < \pi_l$)

$\rightarrow$ **Clear evidence in macro statistics of shifting** from high- to low-tax places

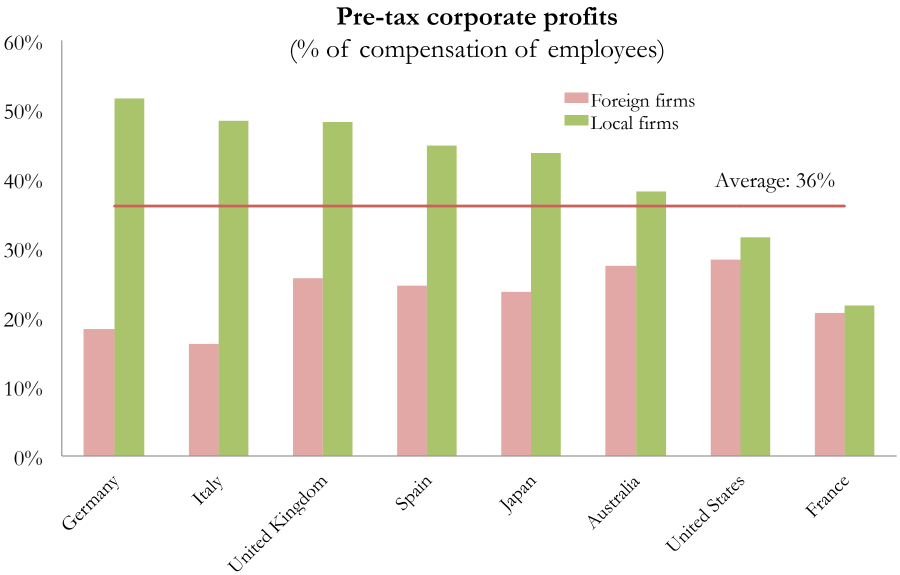
Firms in tax havens are abnormally profitable



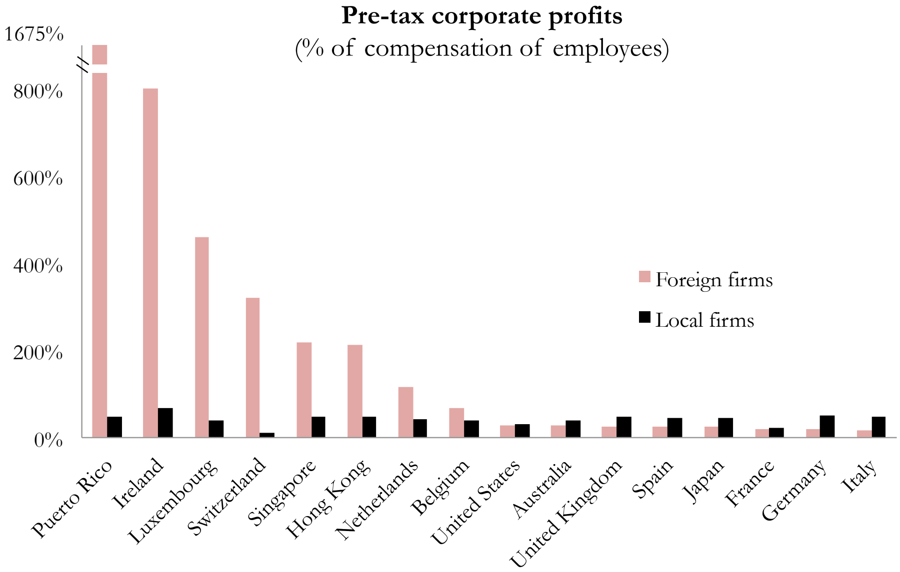
High profits in tax havens stem from high profits of foreign firms



In non-havens, foreign firms are always less profitable than local firms



Profits are offshore, losses onshore



Our method to estimate the amount of profits shifted to tax havens

Set π_f in havens equal to profitability local firms π_l

Advantages:

- ▷ Simple and transparent
- ▷ Controls for country-level determinants of profitability in tax havens (e.g., anti-labor policies)
- ▷ Easy to track over time & space ($\sim$ debt/GDP): could be monitored by policymakers to implement sanctions

Potential concern:

- ▷ High capital intensity of foreign firms in tax havens?

Do machines move to low-tax places?

Testing the hypothesis that machines move to low-tax places

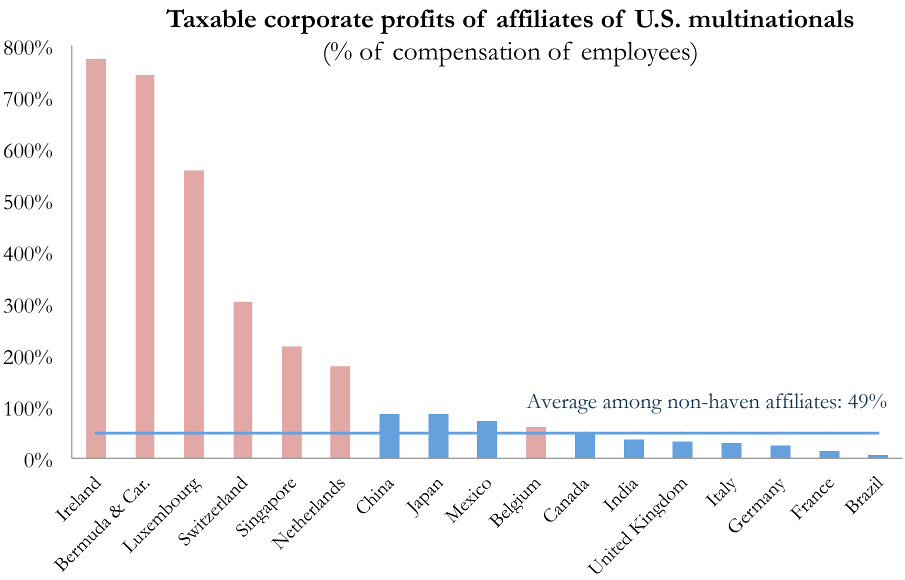
Maybe tax havens attract highly capital-intensive industries from abroad:

- $\triangleright$ With Cobb-Douglas production, this does not affect π
- $\triangleright$ With CES production and $\sigma > 1$, high K/L $\rightarrow$ high π

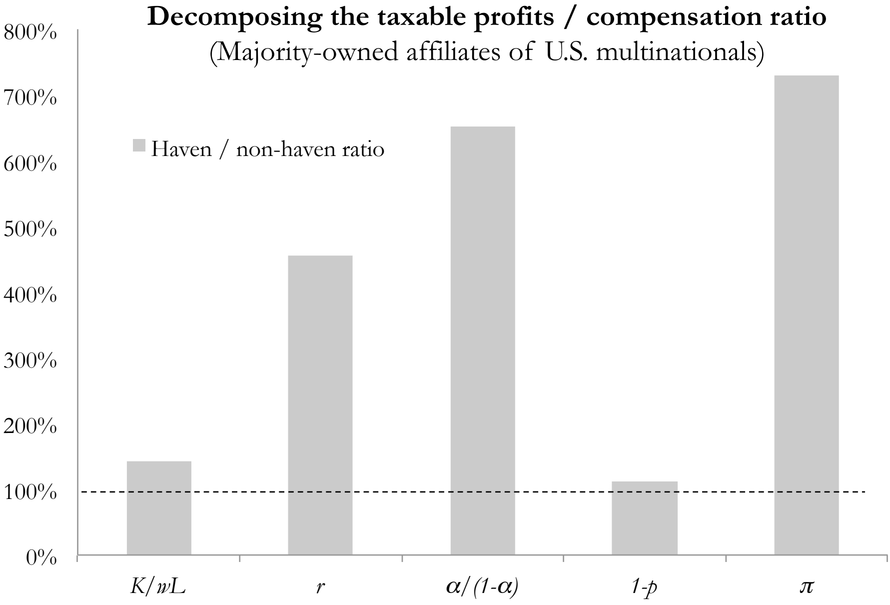
Test using data on affiliates of US multinationals:

- $\triangleright$ US data more detailed than data of other countries (importantly: info on K)
- $\triangleright$ Large sample of US multinationals surveyed annually, universe every 5 years back to 1966

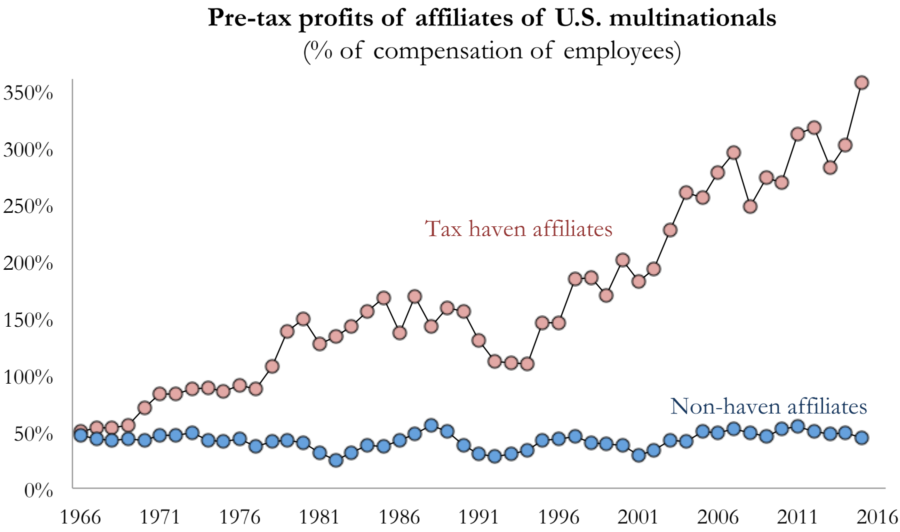
Tax haven affiliates of U.S. multinationals are abnormally profitable



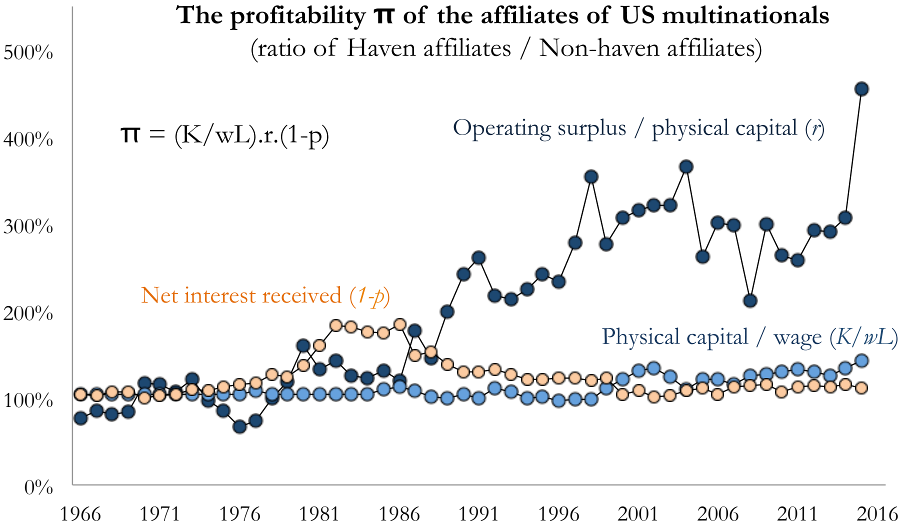
Paper profits move to tax havens. Machines don't.



Tax haven affiliates of US multinationals have been increasingly profitable

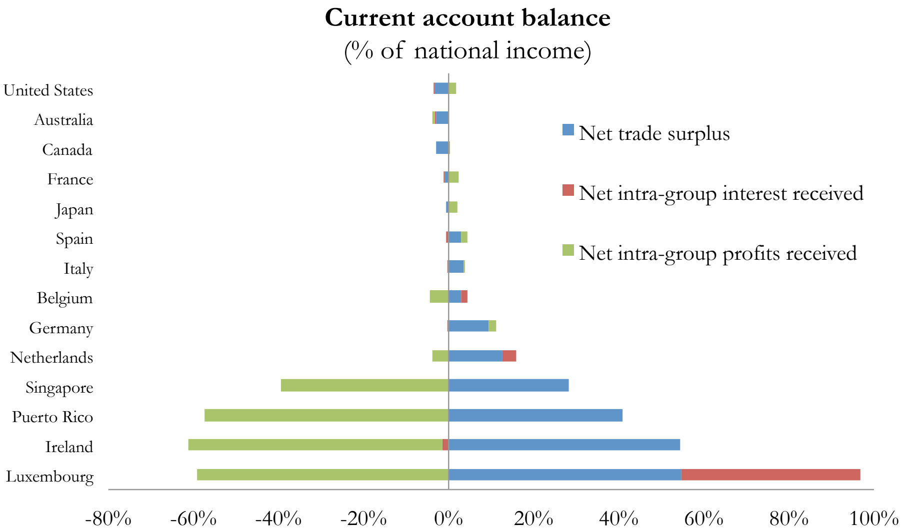


Globalization has been paper profits—not machines—moving to low-tax places



Who Loses?
Allocating the Shifted Profits

Tax havens run large trade and interest surpluses, all paid back to foreign parents



How we allocate the shifted profits

We follow destination of tax havens' service exports and intra-group interest receipts

- ▷ Services: focus on royalties, management fees, ICT, fin. services $\rightarrow$ most conducive of shifting
- ▷ Advantage of using tax haven data: capture services better than importers' data ($\approx$ 30% gap)
- ▷ The excess profitability ($\pi_f - \pi_l$) in havens match the amount of excess high-risk transaction with them
- ▷ Distribute excess profits prop. to these transactions

$\rightarrow$ **E.U. countries are the main losers**

The EU loses ≈ 20% of its corporate tax revenue, the US ≈ 15%

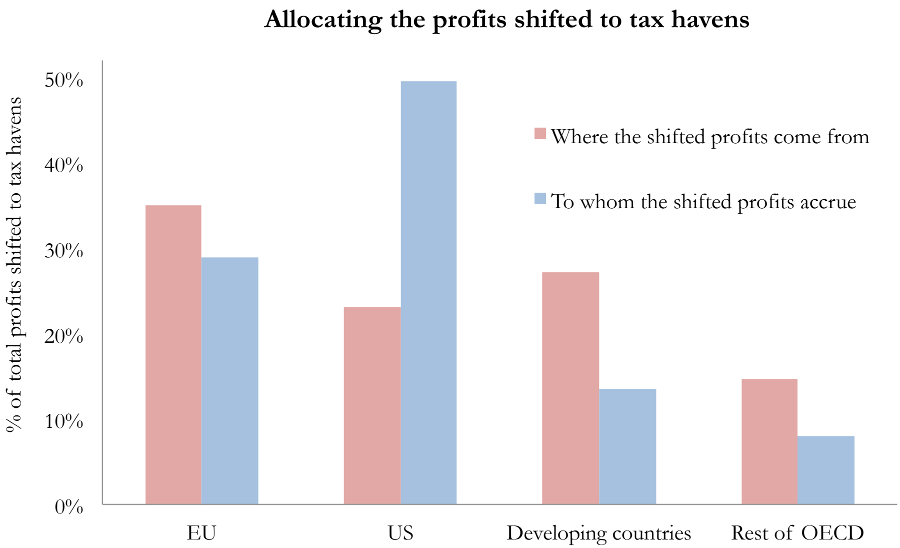
Which multinationals shift profits offshore?

We track to which countries the profits booked in tax havens ultimately accrue:

- ▷ Allocate shifted profits prop. to direct investment equity income paid (dividends + retained earnings)
- ▷ Using new ultimate beneficial owner direct investment statistics
- ▷ Shows where the big shifters are headquartered

→ **U.S. multinationals are the biggest users of tax havens**

Who shifts most? The US.
Who loses most? EU & developing ctries



Explaining the rise of profit-shifting

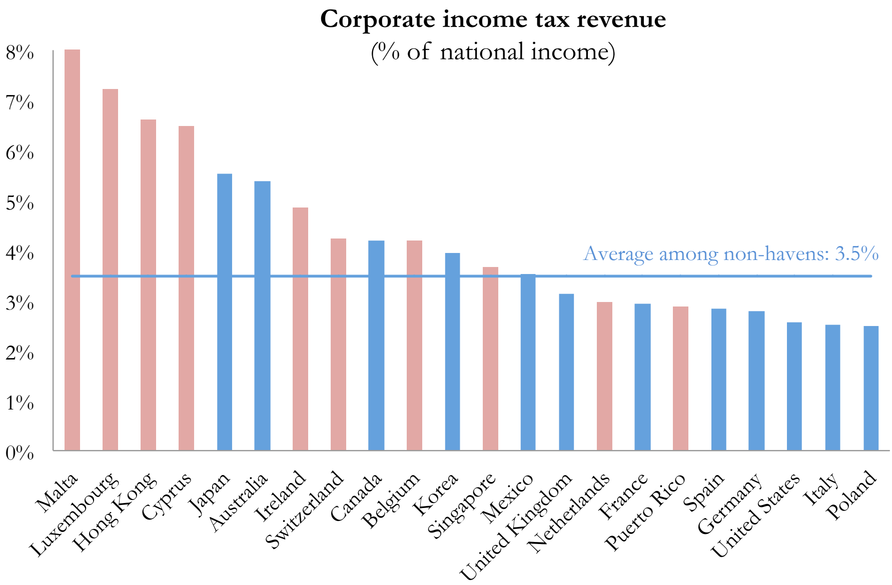
Beggar-thy-neighbor pays off

Incentives of havens can explain the rise of shifting:

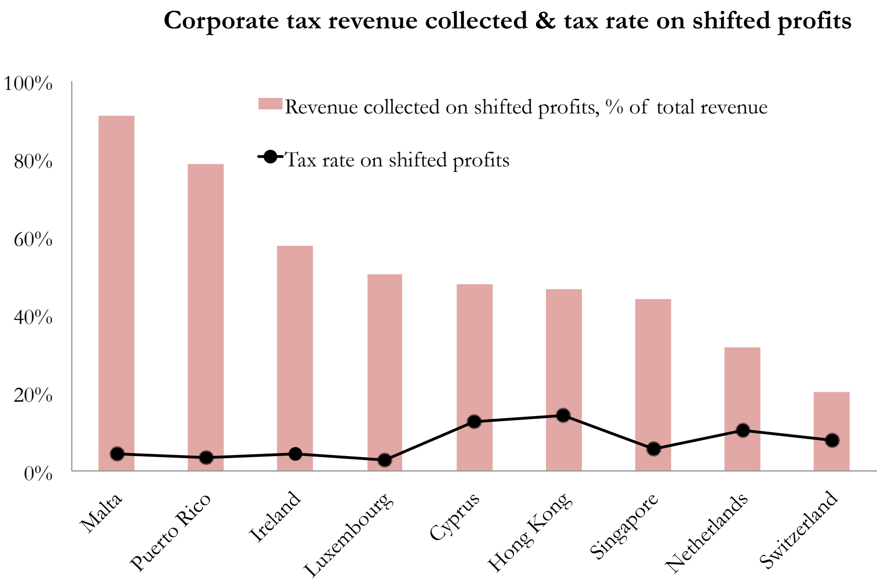
- ▷ With source taxation & no coordinat^o or sanction, havens can earn revenue by attracting artificial bases
- ▷ Key result: revenue-max. rate $0 < \tau^* <$5%: havens with $\tau \approx \tau^*$ generate very large tax revenue
- ▷ Can explain the rise of the supply of tax avoidance schemes (e.g., tax rulings: Apple – Ireland)

$\rightarrow$ **Some countries have won and others lost** from financial globalization ($\neq$ textbook free-trade model)

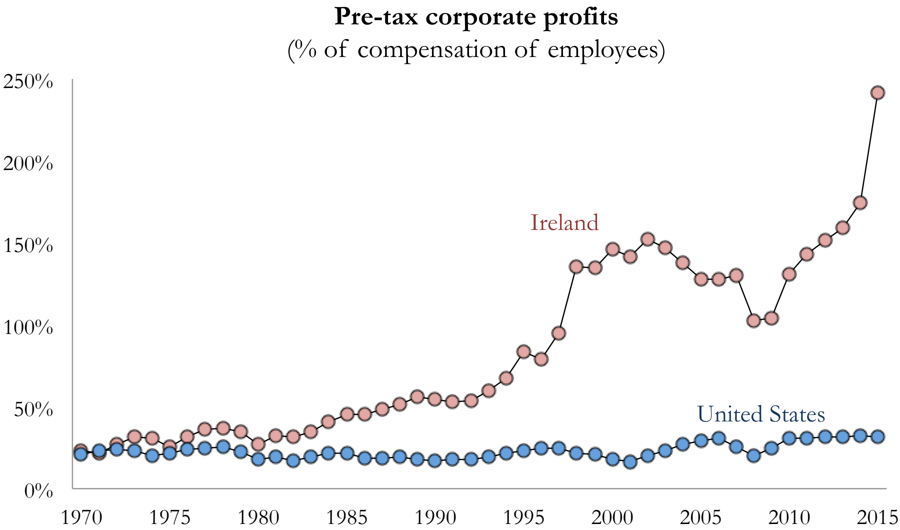
Many havens collect a lot of tax revenue...



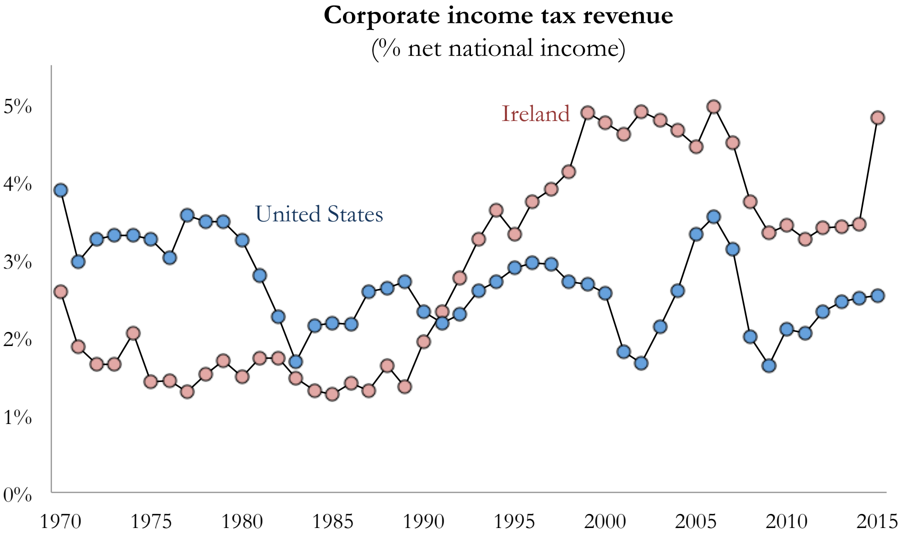
… By applying very low rates to the huge artificial tax base they attract



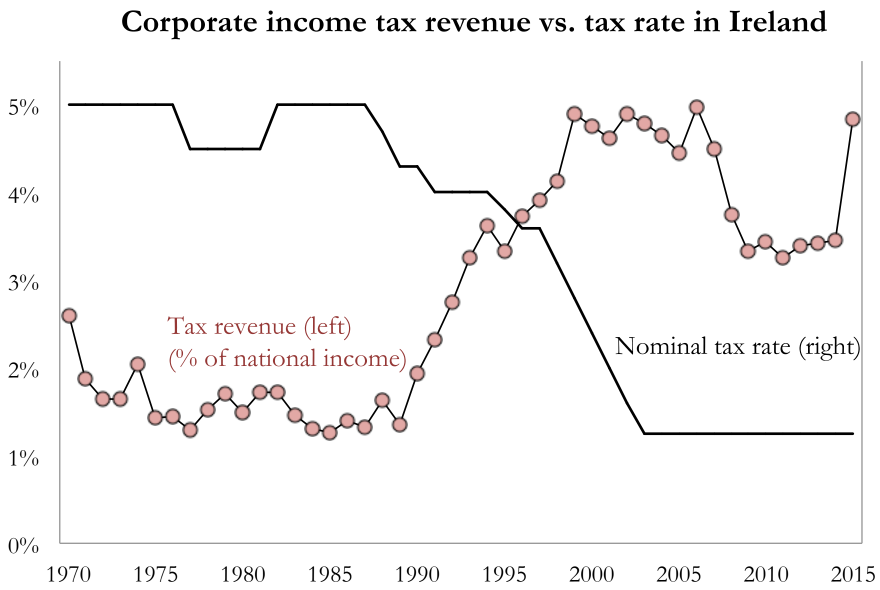
As profit shifting skyrocketed...



…Tax revenue rose in many havens, while they ↓ or stagnated in high-tax countries



The lower the rate, the higher the revenue



Explaining the persistence of profit-shifting

The policy failure of high-tax countries

Why have high-tax countries failed to protect their tax base?

Incentives of tax havens can explain $\uparrow$ avoidance schemes, but not why high-tax countries have let their base shrink

Our explanation: **failure of tax enforcement**

- In current current international tax system, tax authorities have **perverse incentives**
- They try to relocate base booked in other high-tax countries, not base shifted to havens

The incentive problem of tax authorities

€1 re-located to France is worth the same to France whether it comes from Germany or Bermuda

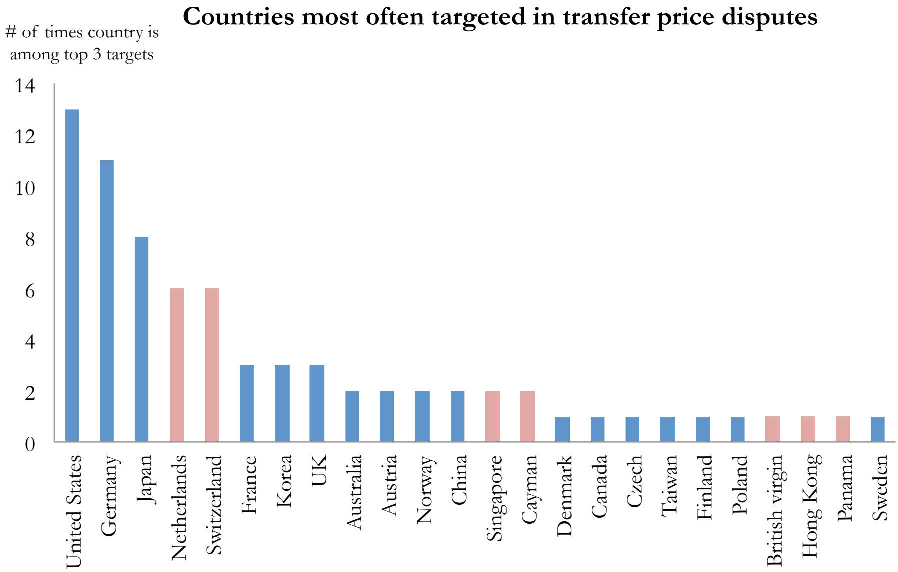
But much easier to relocate €1 booked in Germany:

- ▷ Feasible: information exists (Orbis)
- ▷ More likely to succeed: no push-back from firms
- ▷ Quick: cooperation via dispute settlement agreements

Crowds out enforcement on havens: hard (no data), costly (legal defense by firms), lengthy (lack of cooperation)

→ Analysis of transfer price corrections shows **most enforcement is against other high-tax countries**

Most transfer price enforcement is against other high-tax countries



Can more cooperation and better information solve the problem?

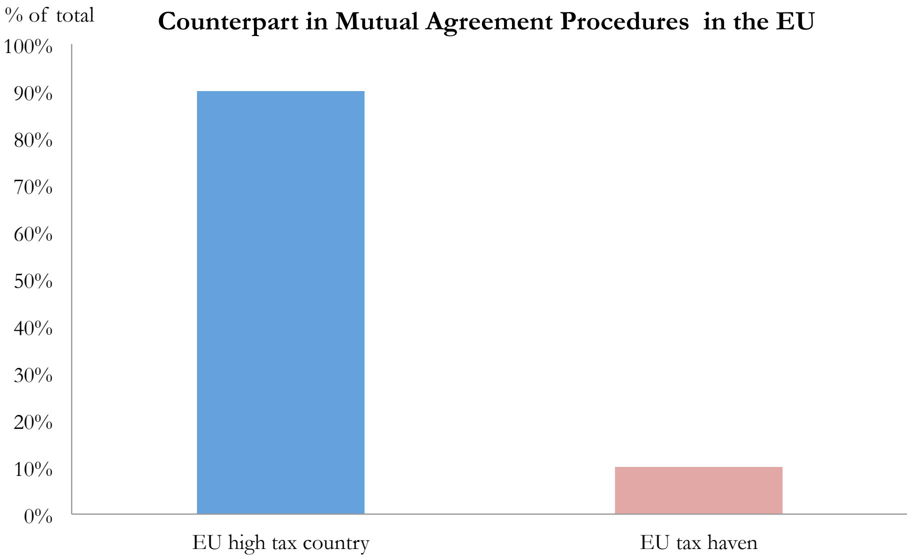
Facilitating dispute settlement can backfire:

- Ongoing initiative to $\uparrow$ cooperation among OECD countries
- Problem: crowds out enforcement on non-OECD havens, where bulk of shifting takes place

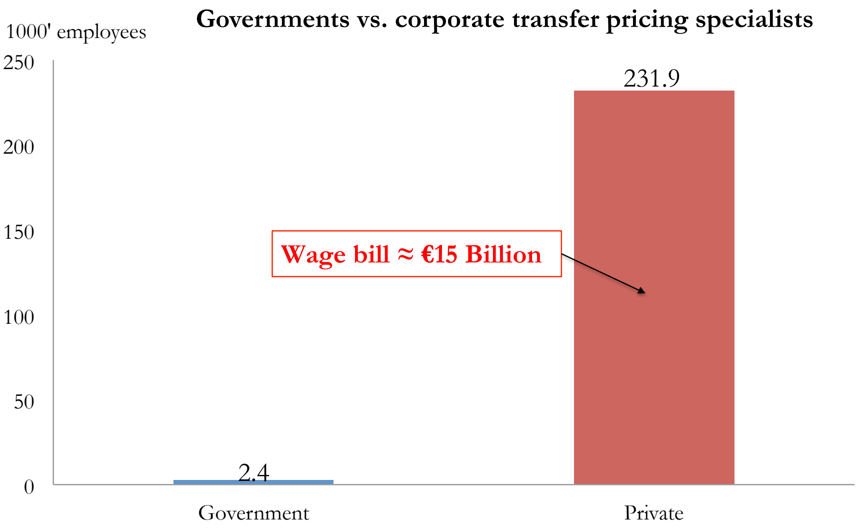
Better information can help, but not enough:

- Even with perfect info, firms will always fight more to protect profits they book in low-tax places
- Internalizing this, tax authorities will keep going after high-tax places

Even when tax havens cooperate, tax authorities do not target them



Multinationals outspend tax authorities



Source is LinkedIn, but the government count is corroborated by the EY Transfer Pricing Tax Authority Survey (2014). The wage bill is estimated by applying the average salary of an EY Transfer Pricing Specialist (Source: Glassdoor).

Conclusion

Main findings

Main results:

- ▷ 40% of multinationals' profits shifted to tax havens
- ▷ E.U. is the main loser; U.S. the main shifter
- ▷ High losses for the EU can be explained by failure of enforcement due to perverse incentives
- ▷ Tax competition model not enough to explain $\downarrow$ in τ_K

$\rightarrow$ **Policies are key to understand rise & persistence of shifting** & in turn decline in corp tax rate

There is a policy solution to profit shifting

Apportionment of profits proportionally to where sales are made

- ▷ Removes incentives to shift profits and more real activity
- ▷ Works reasonably well for US States
- ▷ Can be done unilaterally
- ▷ Would increase corp tax revenue by $\approx 20\%$ in Europe and $\approx 15\%$ in U.S.

Improving international statistics

Our analysis highlights a number of statistical gaps:

- ▷ Foreign affiliates statistics: need to be compiled by more countries & broader (e.g., K, interest, tax)
- ▷ FDI asymmetries: need exchange of micro-data between national statistical authorities
- ▷ Missing national accounts of the Caribbean
- ▷ Corporate registry in the U.S. and havens
- ▷ Decline of the corporate labor share throughout the world is under-estimated

Supplementary slides

Previous macro approaches

A nascent literature takes a macro perspective:

- ▷ UNCTAD (2015) global estimate based on FDI data
- ▷ Clausing (2009), Zucman (2014), Guvenen et al. (2017) for U.S.
- ▷ Pro: does not suffer from Orbis limitations

Problems:

- ▷ Hard to infer amount of taxes avoided
- ▷ Hard to infer which countries lose/gain revenues

$\rightarrow$ **Need to open the black-box of tax havens**

Foreign affiliates statistics

New data: **foreign affiliates statistics (FATS)**

- Main national accounts aggregates for affiliates of multinationals (inward and outward)
- Compiled for a long time in the US
- Introduced recently in a number of other countries, including EU havens
- When not available: use direct investment income statistics (BoP) and counterpart country FATS

Imputation of profits in foreign firms when no FATS exist

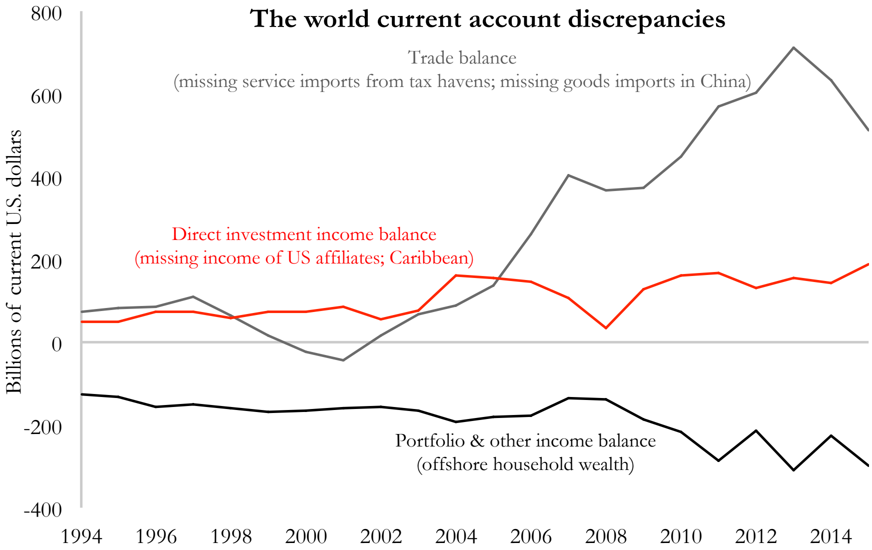
Compute profits in foreign firms using direct investment income flows

- ▷ 10% vs. 50% ownership threshold; pre-tax vs. post-tax $\rightarrow$ impute taxes
- ▷ Assume profits / wage same as for US affiliates

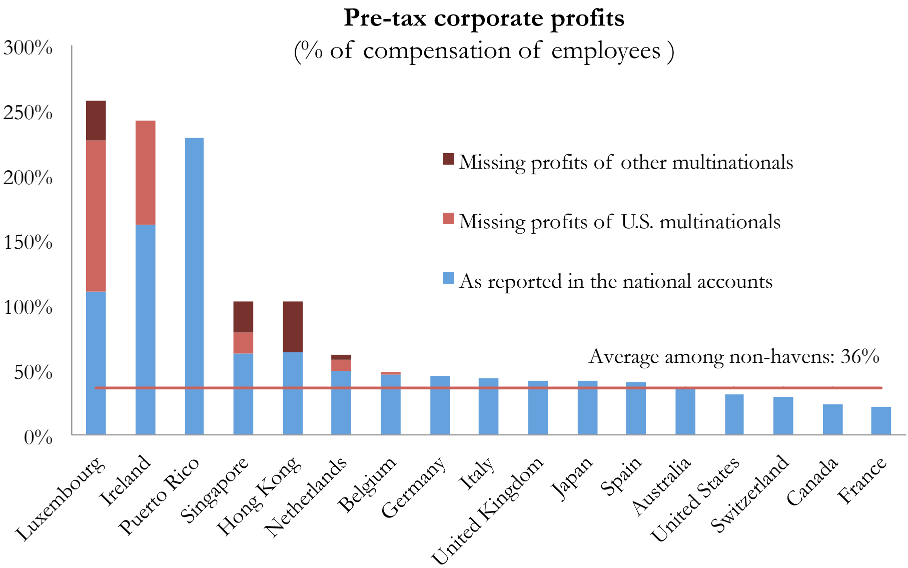
Imputation when no direct investment income data exist:

- ▷ Estimate direct investment income paid such that world DI income balances to 0
- ▷ Two reasons why global DI income > 0: missing US profits in Ireland etc.; missing BoP $\rightarrow$ we impute both

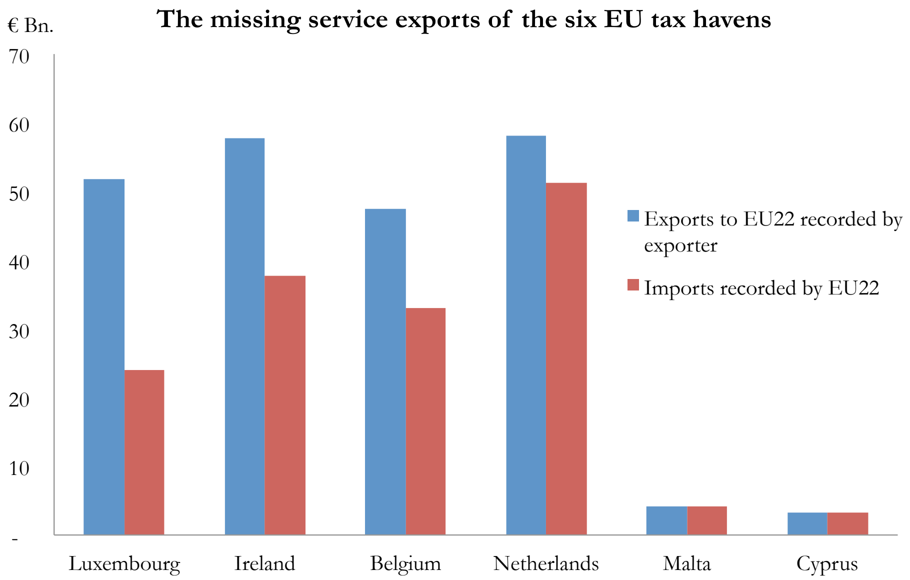
Anomalies in the world balance of payments



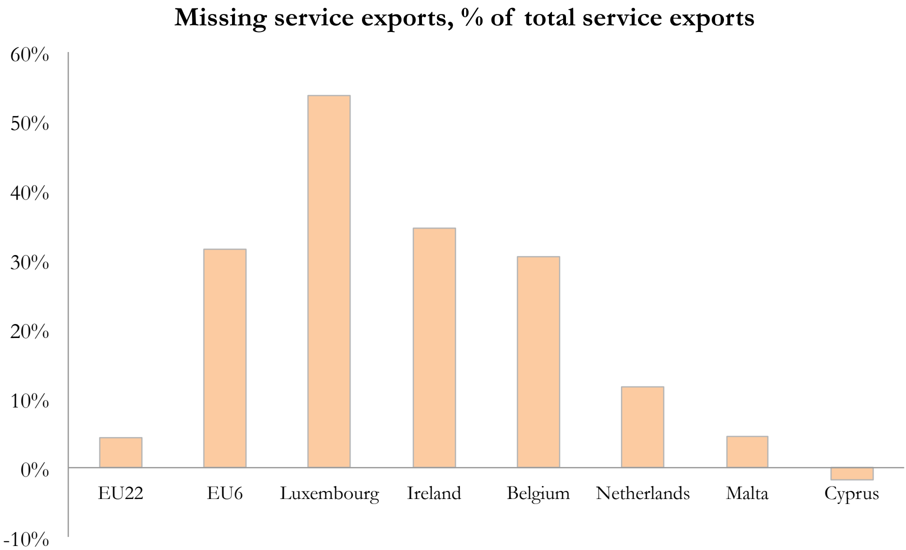
The unrecorded profits of U.S. affiliates in tax havens



Service imports from tax havens are under-estimated by importers (B2C sales)

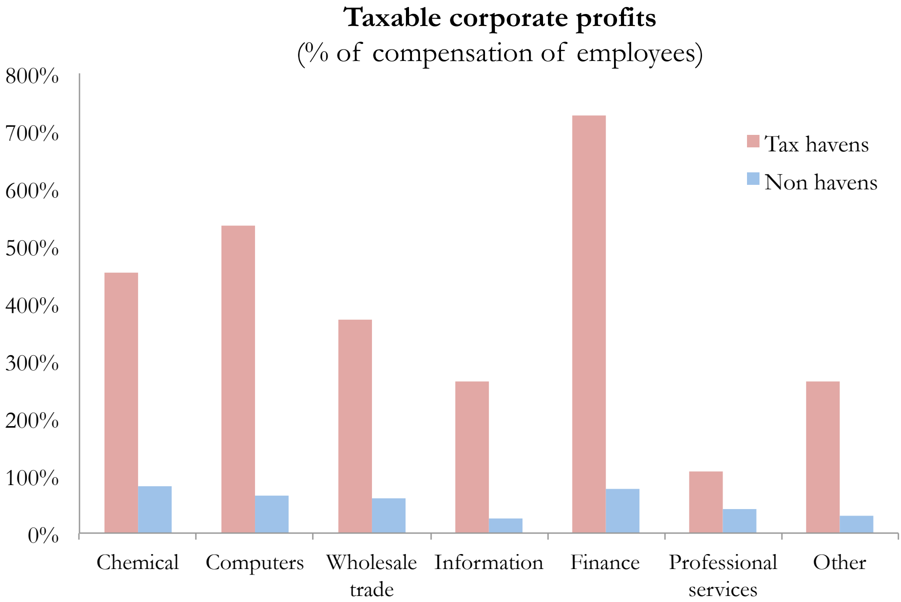


At least 30% of the services exported by EU havens go unreported by the importer

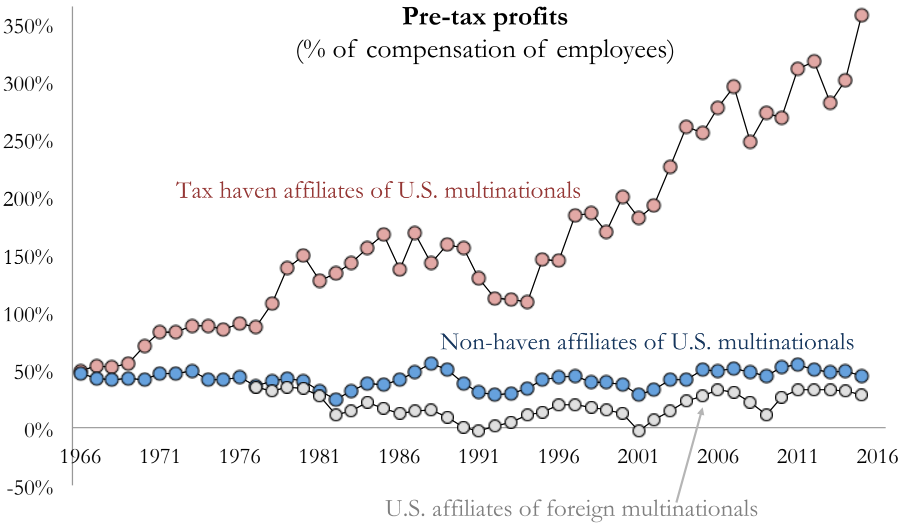


Note: Service exports include exports to all EU22 countries (EU26 minus Luxembourg, Ireland, Belgium, Netherlands, Malta, Cyprus).

Tax haven firms are abnormally profitable within each sector



Profits are offshore, losses are onshore



As settlement is facilitated, high-tax to high-tax disputes are growing