The Missing Profits of Nations

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Introduction

How much profits move across countries because of differences in corporate tax rates?

- ▷ Firms move capital to low-tax countries
- ▷ Firms shift paper profits to tax havens

If all countries had same effective cororate tax rate:

- ▷ Which countries would gain/lose profits?
- ▷ How? Relocation of capital, or reduced profit shifting?

New data: foreign affiliates statistics $\rightarrow$ wages, profits, etc., of foreign firms

- Structural business statistics (sbs) (New activity classification (NACE Rev 2))
  - SBS - main indicators (sbs_na)
  - SBS - industry and construction (sbs_ind_co)
  - SBS - trade (sbs_dt)
  - SBS - services (serv)
  - SBS - regional data - all activities (sbs_r)
  - Access to finance (acf)
  - Business demography statistics - all activities (bd)
  - Factors of Business Success statistics - all activities (fobs)
  - Foreign controlled EU enterprises - inward FATS (fats)
    - Foreign control of enterprises - from 2008 onwards (NACE Rev.2) (fats_08)
      - Foreign control of enterprises by economic activity and a selection of controlling countries (from 2008 onwards) (fats_g1a_08)
      - Foreign control of enterprises by controlling countries (from 2008 onwards) (fats_g1b_08)
      - Foreign control of enterprises: research and development characteristics by economic activity (NACE Rev.2, B-F) and a selection of controlling countries (from 2009 onwards) (fats_g1a_rd)
    - Foreign control of enterprises - 2003-2007 (NACE Rev.1.1) (fats_03)
    - Foreign control of enterprises - 1996-2002 (NACE Rev.1.1) (fats_96)
  - Foreign affiliates of EU enterprises - outward FATS (fats_out)
    - Outward FATS 2004-2006 (experimental data) (fats_out1)
    - Outward FATS 2007-2009 (main variables) (fats_out2)
    - Outward FATS 2007-2009 (additional variables) (fats_out3)

How we estimate the amount of profits shifted to tax havens

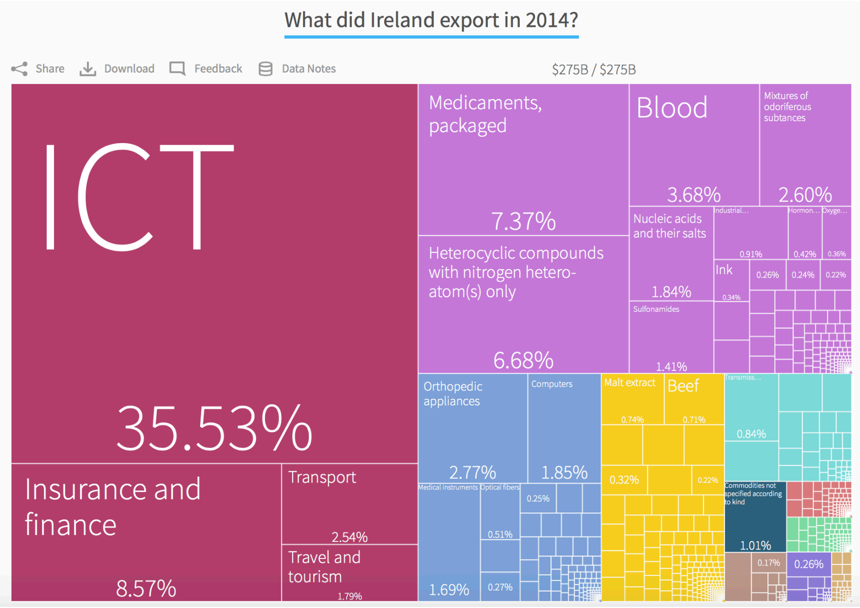
We compute **capital shares α in foreign vs. local firms** across the world. Striking global pattern:

- $\triangleright$ Foreign firms have lower α than local firms...
- $\triangleright$ ... Except in tax havens: hugely higher α

Benchmark estimate: set profitability of foreign firms in havens equal to profitability of local firms in havens

- $\triangleright$ Transparent
- $\triangleright$ Robust

New data: bilateral service trade



How we allocate the shifted profits

Benchmark: 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
- Outcome: granular estimates of profit shifting (eg, France–Ireland, Germany–Switzerland, etc.)
- Consider also other apportionment rules

Main results

40% of multinat'l profits ($\approx$ \$600bn) shifted to havens

- $\triangleright$ Main winners: Ireland, Luxembourg, Singapore, etc. (impose low rates of $<$5%, but on big \$600bn base)
- $\triangleright$ Main loser: EU (20% of profits shifted; US: 15%)
- $\triangleright$ Profit shifting swamps tax-driven tangible capital mobility (different welfare implications)
- $\triangleright$ Rise of capital share in higher than in official data $\rightarrow$ provide corrected estimates of α, GDP, trade

Why should we care?

Whatever one's view about efficiency costs of capital taxation, global profit shifting raises policy issues:

- ▷ Unequal playing field
- ▷ Inequality
- ▷ Loss of tax revenue

Global Profit Shifting

How multinationals shift profits offshore

Three ways firms shift profits to low-tax countries:

- ▷ Manipulation of intra-group export and import prices
- ▷ Intra-group interest payments (tax deductible)
- ▷ Strategic location of intangibles

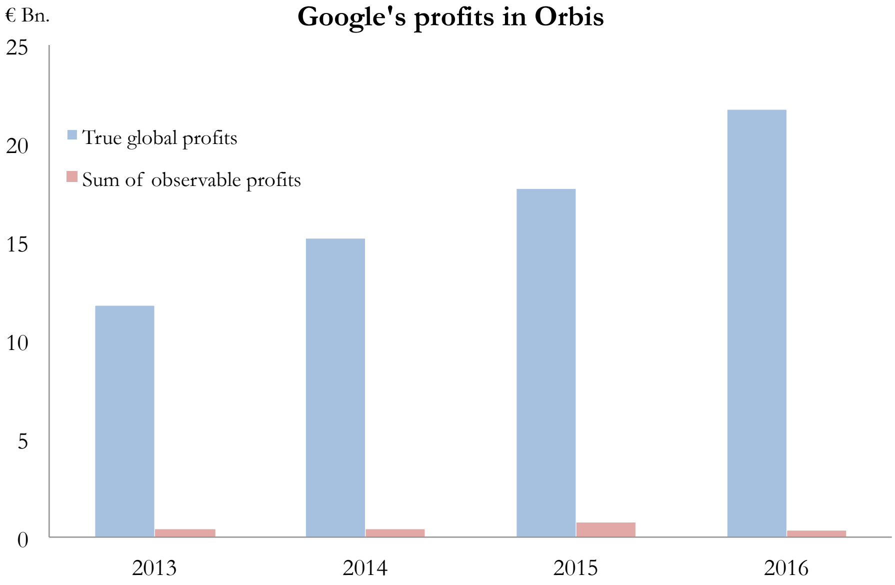
Previous literature on global profit shifting

Vast literature on shifting by US multinationals

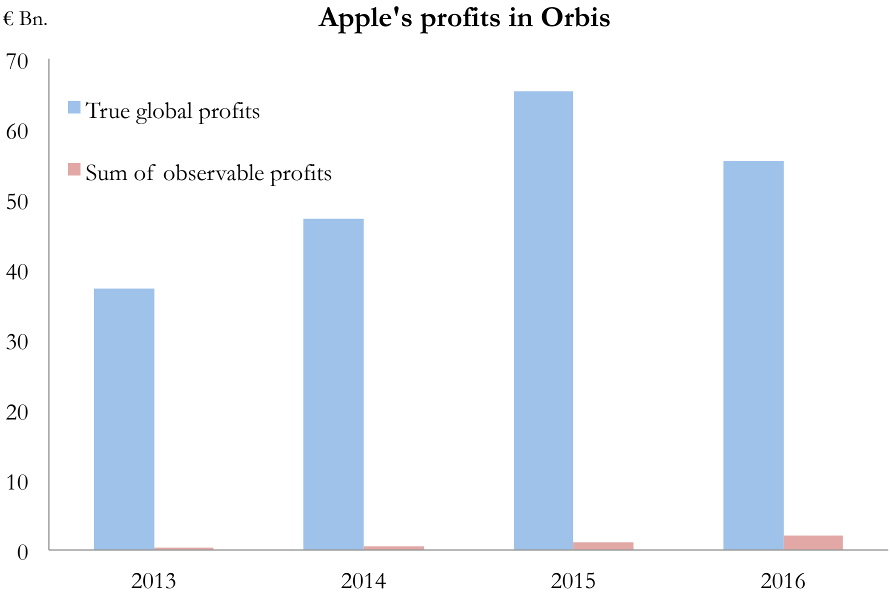
Few papers on global profit shifting, due to data issue

- ▷ Key data source: Orbis registry data
- ▷ Problem: poor Orbis coverage in tax havens...
- ▷ ... where the bulk of shifting takes place

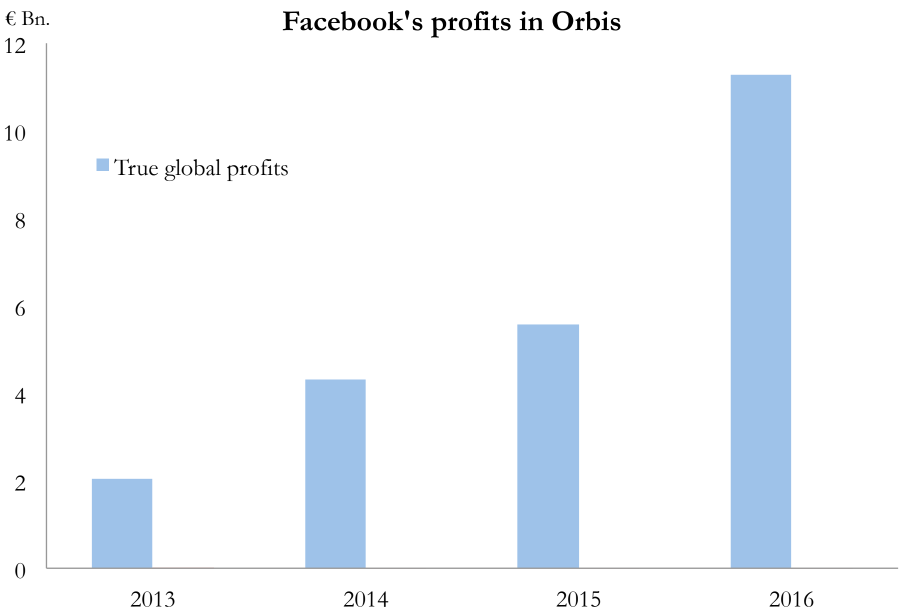
Most of Google's profits are invisible in available financial accounts data



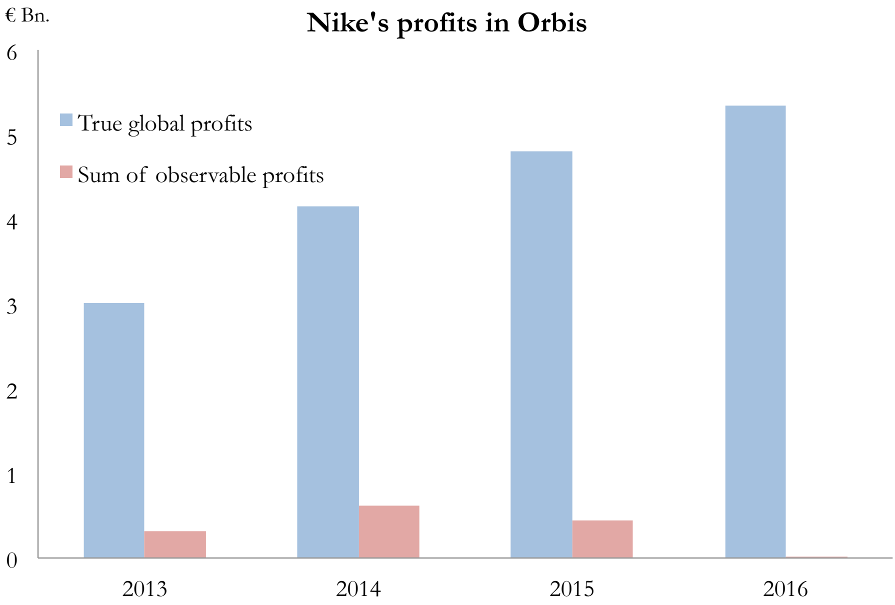
Most of Apple's profits are invisible in available financial accounts data



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



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



This paper: global macro approach

Directly observable profits booked in tax havens
based on foreign affiliates statistics (FATS)

- ▷ Census-like confidential surveys $\rightarrow$ more comprehensive than Orbis
- ▷ Harmonized definitions and guidelines
- ▷ No double-counting ($\neq$ financial accounting)
- ▷ Missing countries (eg, Caribbean): use balance of payments and partners' FATS BoP

$\downarrow$

First global map of multinational profits

A new global database on profits (2015)

	Billions 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%

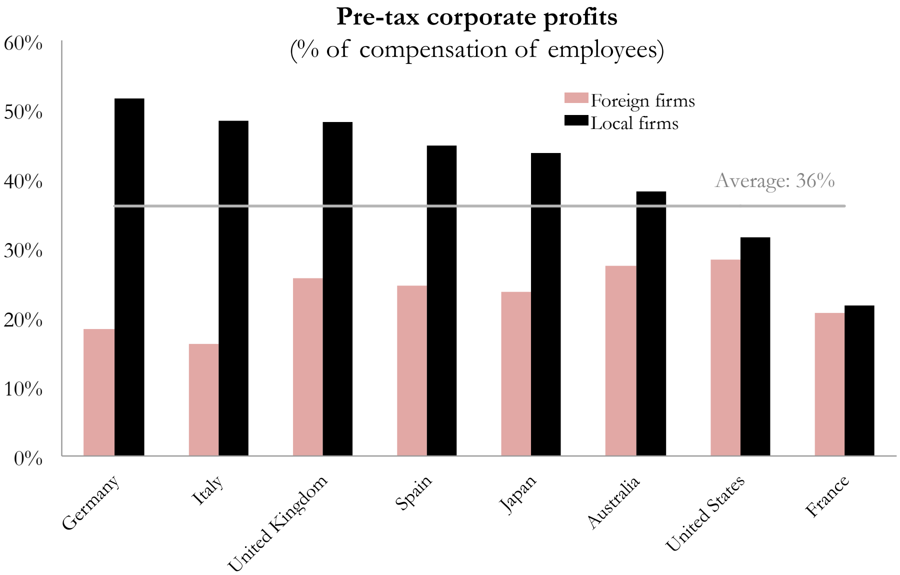
Conceptual framework

Key statistic of interest: profitability π

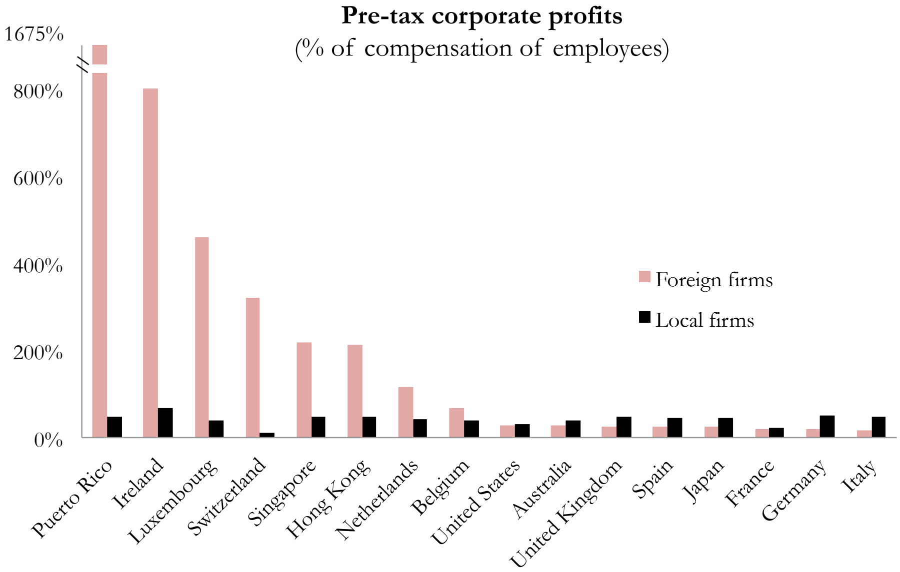
- Country's corporate output $Y = F(K, AL) = rK + wL$
- Capital share $\alpha = rK/Y$
- $r =$ normal $+$ above-normal return
- Net interest paid $= p\%$ of rK
- Pre-tax profits/wage ratio: $\pi = (1 - p) \cdot \alpha/(1 - \alpha)$

Compute π for foreign (π_f) vs. local firms (π_l)
(foreign: $>$50% foreign-owned)

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



In tax havens, foreign firms are much more profitable than local firms



Benchmark estimate of profits shifted to tax havens

Set π_f in havens equal to profitability local firms π_l

- $\triangleright$ Can be easily computed in each haven
- $\triangleright$ Easy to track for policymakers (eg, to study effects of policies)
- $\triangleright$ Allows havens to have higher overall profitability than non-havens (due, eg, to anti-labor policies)

Estimated profits shifted in each haven

	Reported pre-tax profits	*Of which: Local firms*	*Of which: Foreign firms*	**Shifted profits**
Belgium	**80**	48	32	**-13**
Ireland	**174**	58	116	**-106**
Luxembourg	**91**	40	51	**-47**
Malta	**14**	1	13	**-12**
Netherlands	**195**	106	89	**-57**
Caribbean	**102**	4	98	**-97**
Bermuda	**25**	1	25	**-24**
Singapore	**120**	30	90	**-70**
Puerto Rico	**53**	10	43	**-42**
Hong Kong	**95**	45	50	**-39**
Switzerland	**95**	35	60	**-58**
Other				**-51**

Shifted profits: robustness

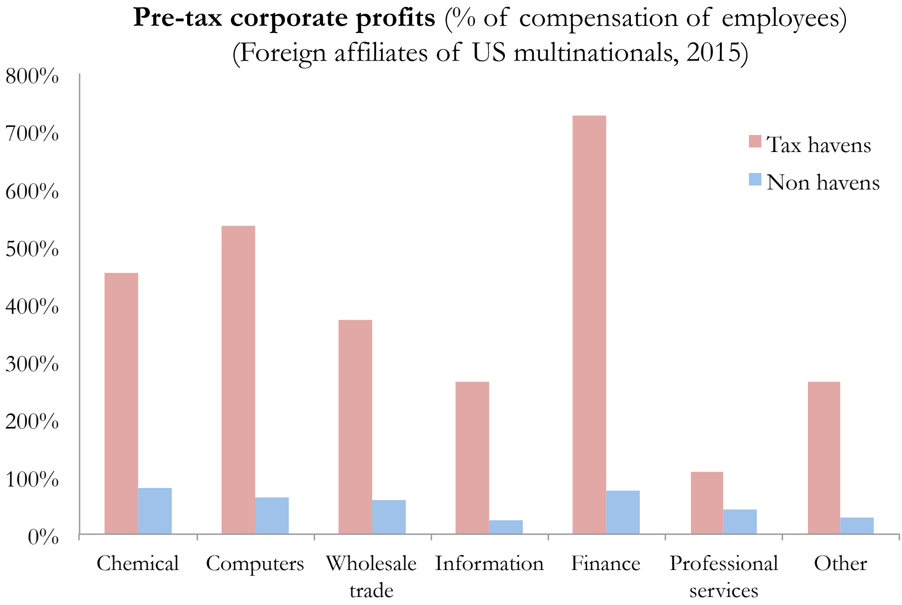
π_l in havens inflated by inward shifting?

- ▷ Robustness test: vary π_l $\rightarrow$ very little difference

Foreign firms different than local firms?

- ▷ Sectoral composition $\rightarrow$ look at $\pi_f - \pi_l$ within sector
- ▷ Capital intensity $\rightarrow$ testable
- ▷ Size $\rightarrow$ testable down the road with FATS by size

Tax haven firms are abnormally profitable within each sector



Testing the hypothesis that machines move to low-tax places

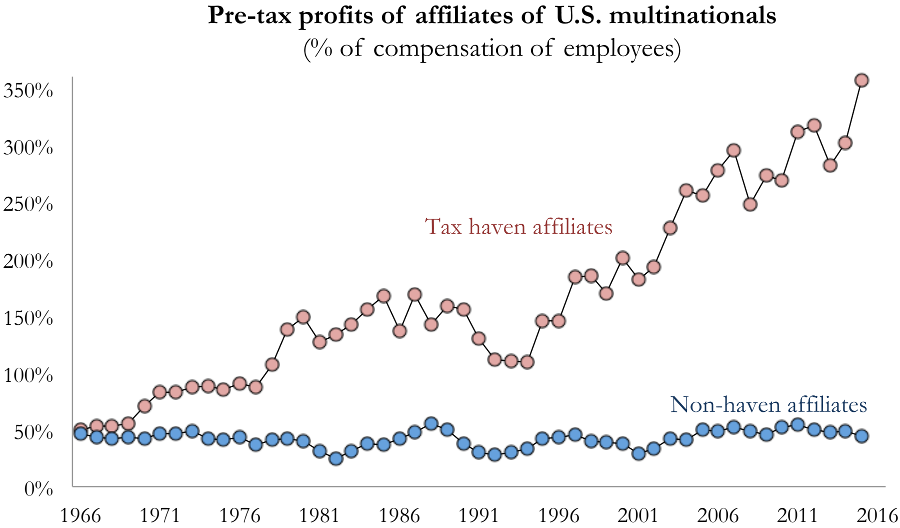
If havens attract highly capital-intensive industries:

- ▷ With Cobb-Douglas production, this does not affect π
- ▷ With CES production & $\sigma > 1$, high K/AL $\rightarrow$ high π

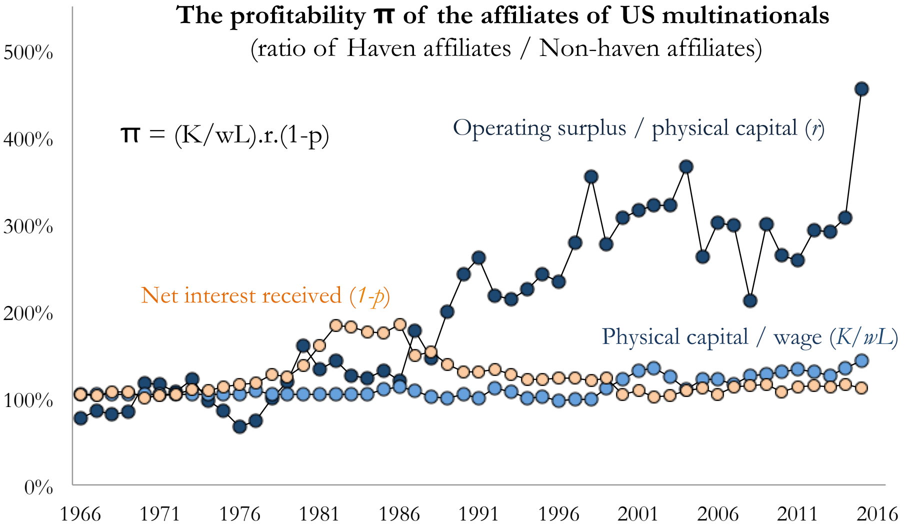
Test using data on affiliates of US multinationals:

- ▷ US data more detailed (info on K)
- ▷ Annual since 1982, every 5 years back to 1966

Tax haven affiliates of US multinationals have been increasingly profitable

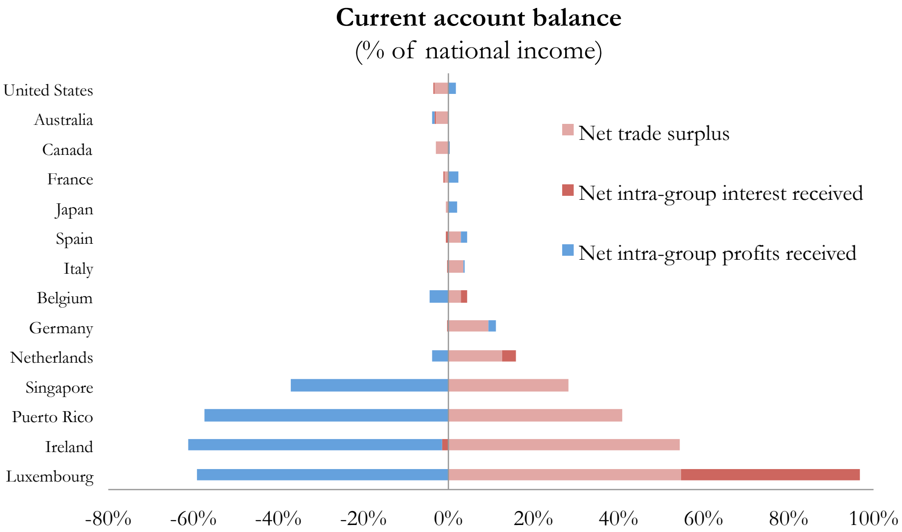


Globalization has been paper profits—not machines—moving to low-tax places

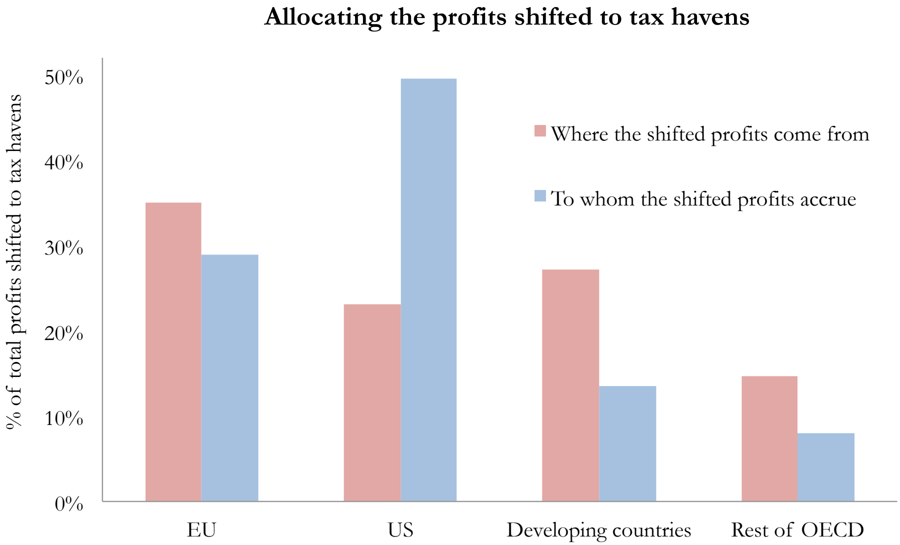


Who Loses?
Allocating the Shifted Profits

To study who loses profits, follow the money in balances of payments of havens



Who shifts most? The US.
Who loses most? The EU.



Computing tax revenue losses

Benchmark: apply statutory rate to missing profits

- ▷ Find 10% of corporate tax revenue lost
- ▷ Similar to OECD (but different reasons)

Robustness:

- ▷ Taxes paid when IP initially transferred
- ▷ Taxation of passive income in residence country

Corporate tax revenue losses

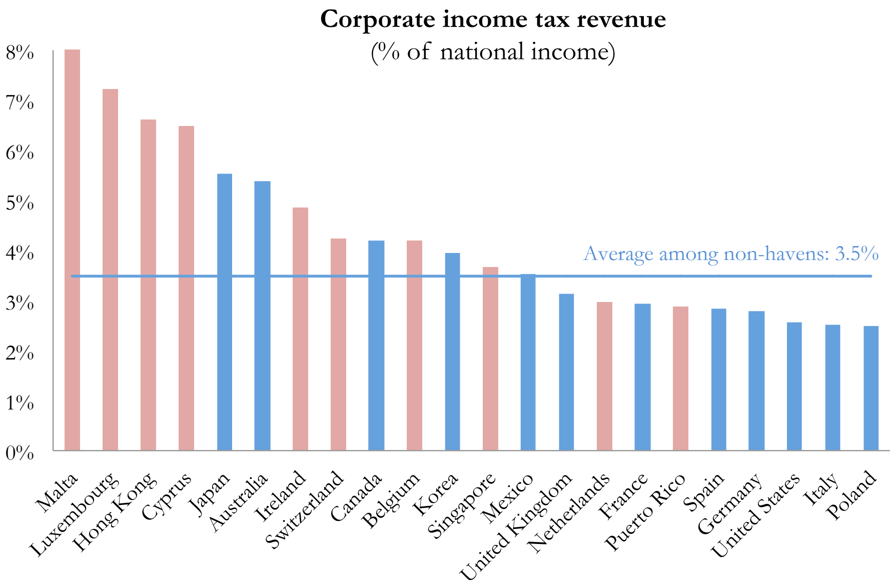
Explaining the rise of profit shifting

Beggar-thy-neighbor pays off

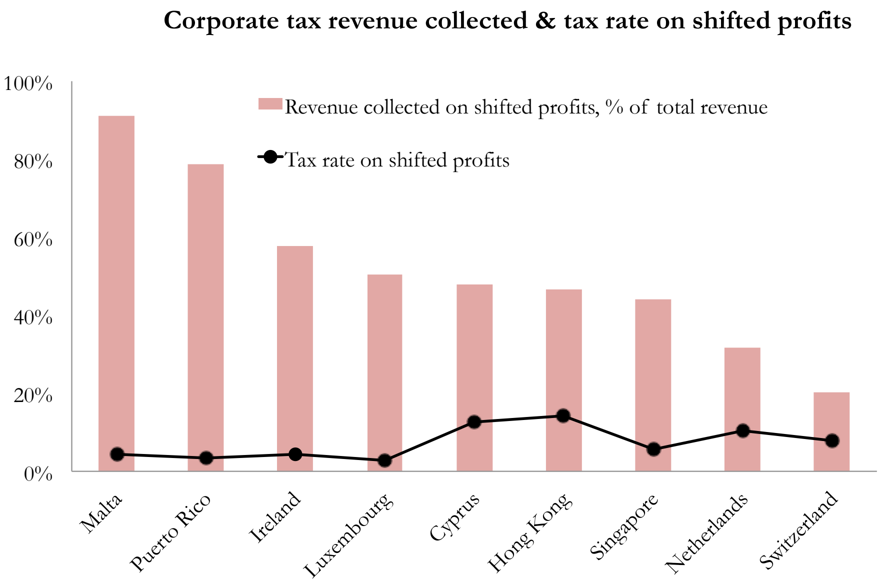
Incentives of havens can explain the rise of shifting:

- With source taxation & no coordinat^o or sanction, havens can earn revenue by attracting paper profits
- For small countries, 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)

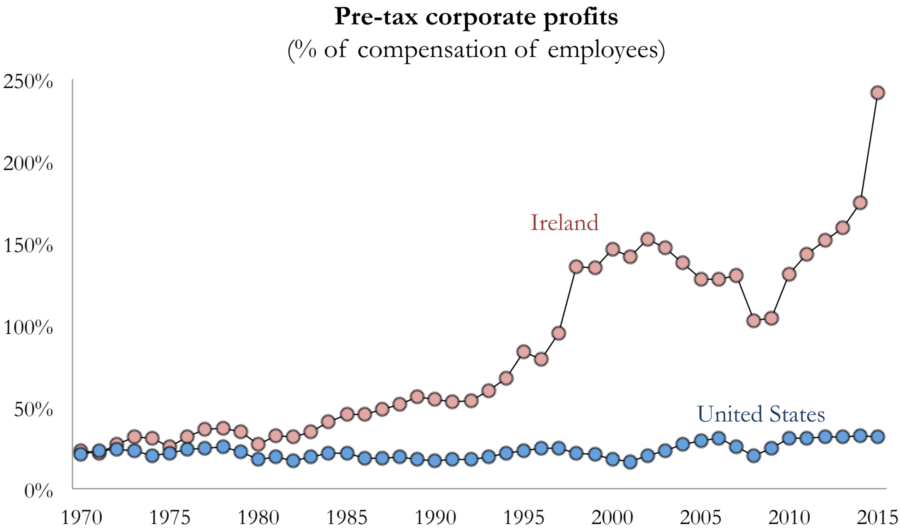
Many havens collect a lot of tax revenue...



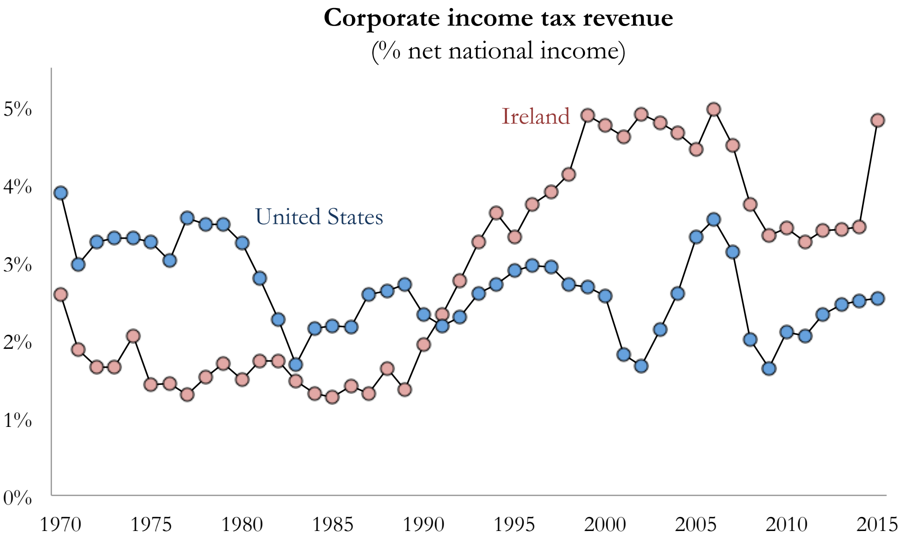
… By applying low rates to the huge tax base they attract



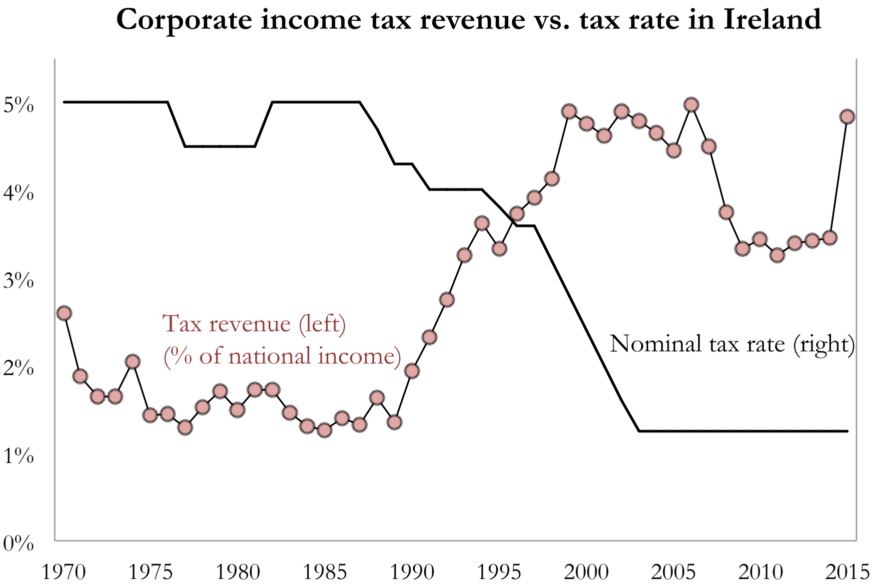
As profit shifting rose...



...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 haven't high-tax countries protected their base?

Our explanation: **failure of tax enforcement**

- In current international tax system, tax authorities have **perverse incentives**
- Higher expected gain of relocating base booked in other high-tax countries than base shifted to havens
- Rational outcome: chase profits booked in other high-tax countries, not those shifted to havens

The incentive problem of tax authorities

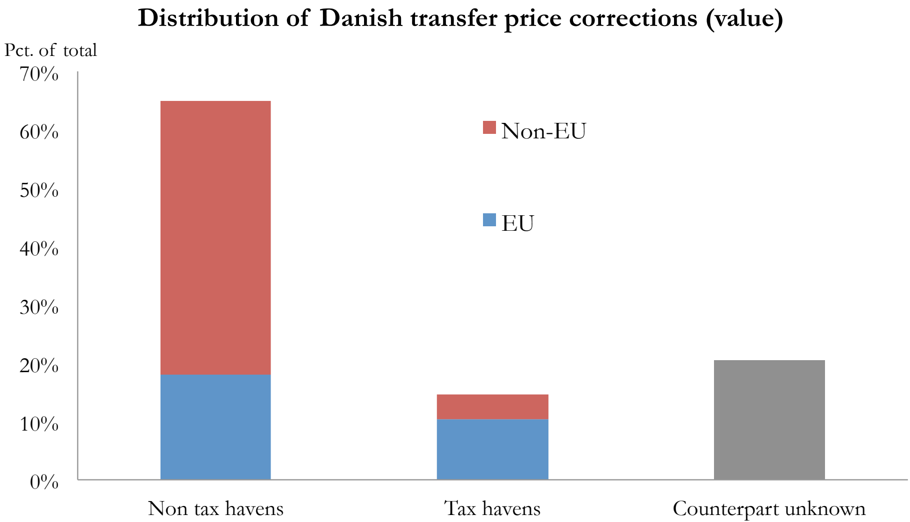
€1 re-located to Denmark is worth the same to Denmark whether it comes from Germany or Bermuda

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

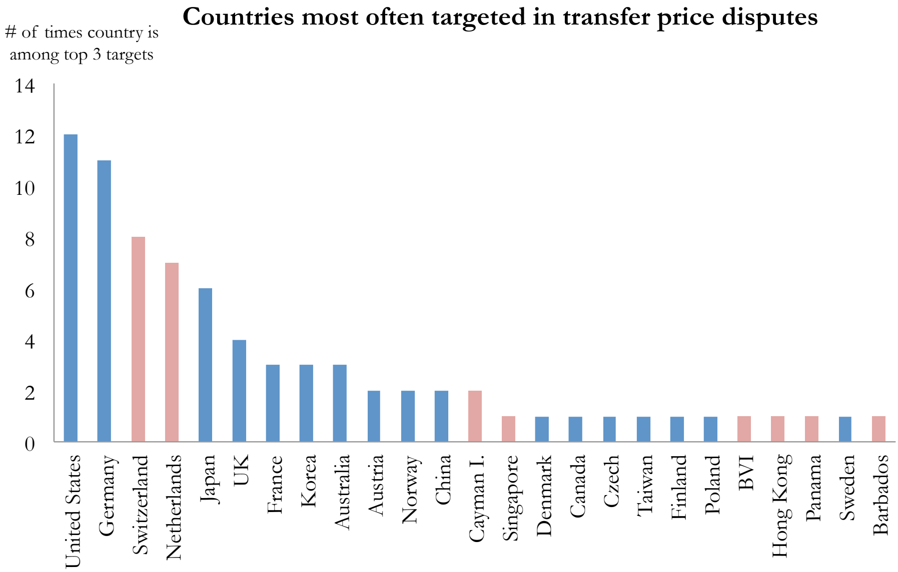
Crowds out enforcement on havens: hard (no data), costly (legal defense by firms), lengthy (lack of cooperation)

Most transfer price enforcement is against other high-tax countries



Note: The graph plots the distribution of the value of transfer price corrections by counterpart. Transfer price corrections are cases in which the Danish tax authority have corrected an intra-group cross-border transfer price and as a result raised the taxable profits of firms operating in Denmark. The counterpart is the country that the Danish tax authority argue have received excessive taxable profits. The graph shows that 65% of the value of transfer pricing corrections concerns a high tax country (Non tax haven).

Most transfer price enforcement is against other high-tax countries



Can more cooperation and better information solve the problem?

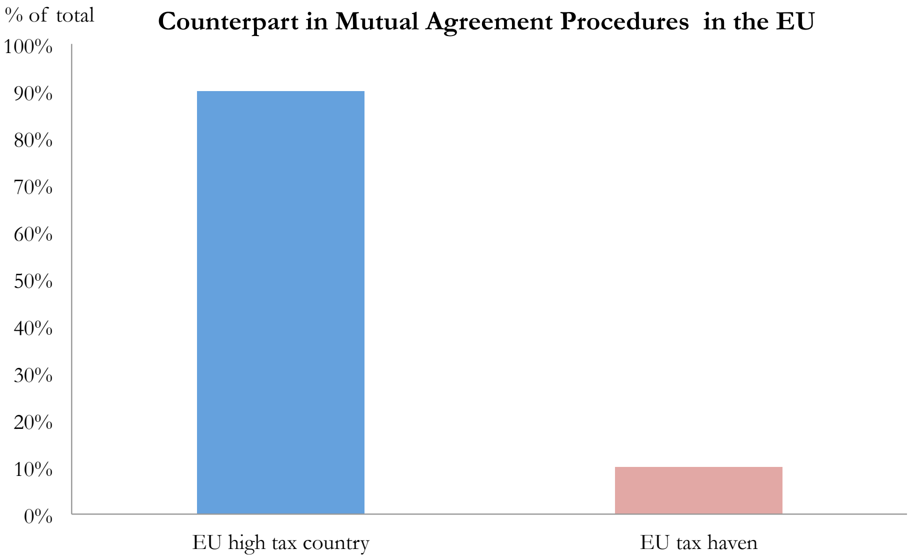
Facilitating dispute settlement can backfire:

- Ongoing initiative to $\uparrow$ cooperation within OECD
- 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



Conclusion

Main findings

40% of multinational profits shifted to tax havens:

- ▷ Paper profits move; tangible capital not much
- ▷ EU is the main loser; US the main shifter
- ▷ High losses for the EU can be explained by failure of enforcement due to perverse incentives

Tax competition has **large redistributive effects,** but different than in textbook model

Rise of global capital share since 1980s higher than in official data (e.g., twice as large in Europe)

Next steps

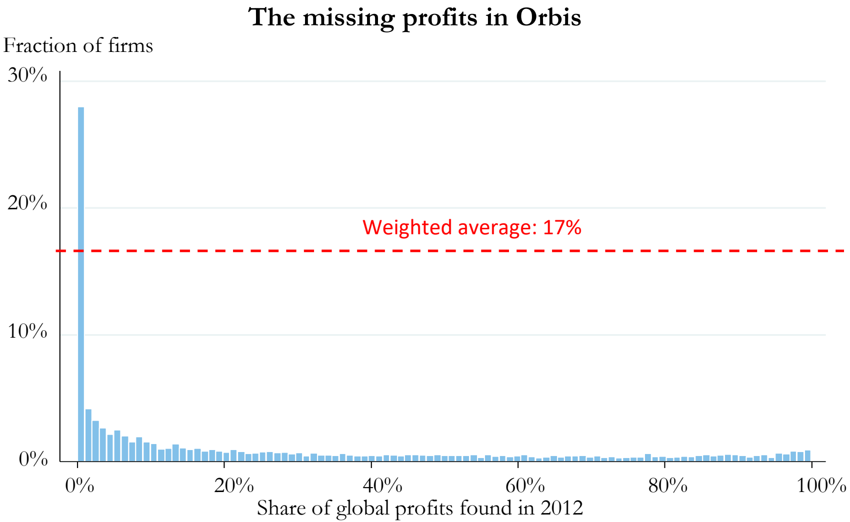
Introduce inequality dimension in the analysis:

- $\triangleright$ Compared to benchmark of perfect tax coordination, how much do shareholders of multinationals gain?
- $\triangleright$ How much do workers and various income/wealth groups gain/lose in each country?

$\rightarrow$ Ultimate goal: offer full-fledged **macro-distributional analysis of globalization with unequal tax rates**

Supplementary slides

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



Imputation of profits in foreign firms when no FATS exist

Compute profits in foreign firms using direct investment income flows

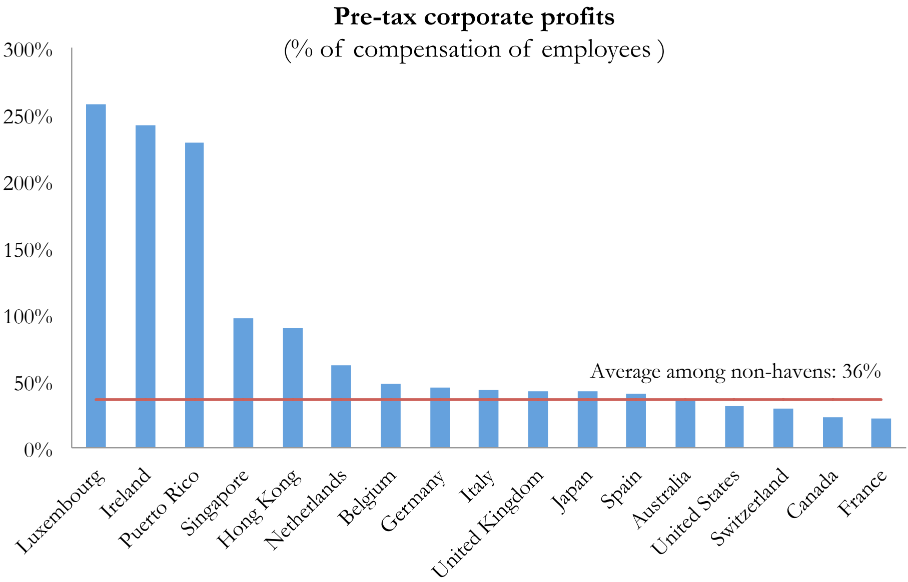
- ▷ 10% vs. 50% ownership threshold; pre-tax vs. post-tax $\rightarrow$ impute taxes
- ▷ Assume profits / wage same as for US affiliates

Imputation when no direct investment income data exist:

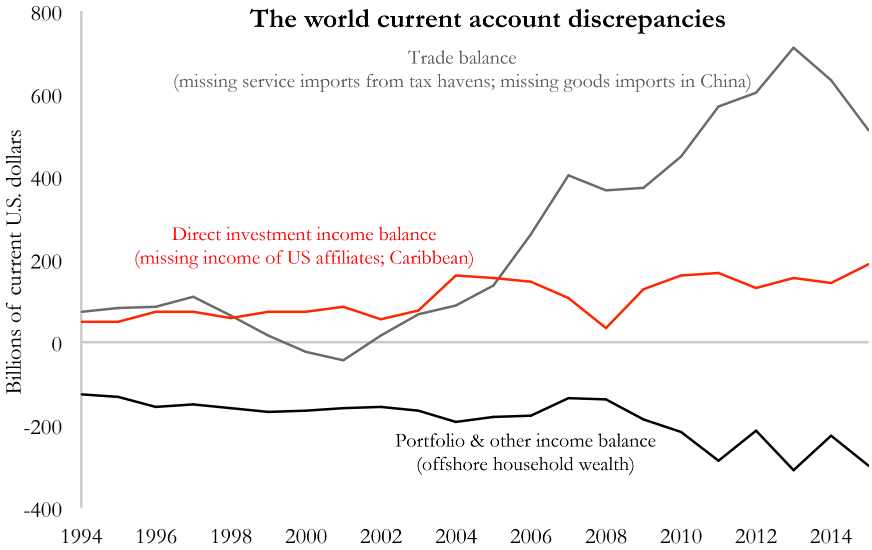
- ▷ Estimate direct investment income paid such that world DI income balances to 0
- ▷ Two reasons why global DI income > 0: missing US profits in Ireland etc.; missing BoP $\rightarrow$ we impute both

back

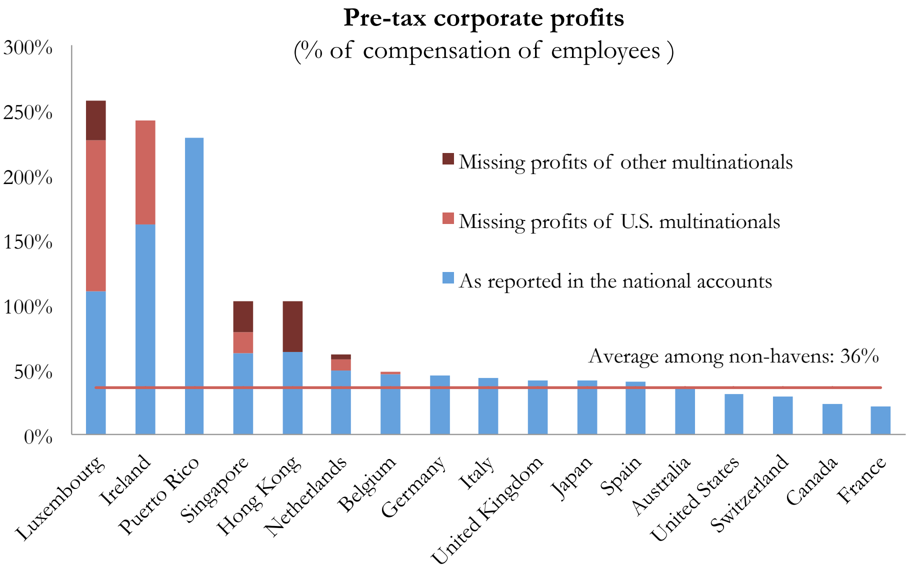
The huge profits of foreign firms make tax havens abnormally profitable overall



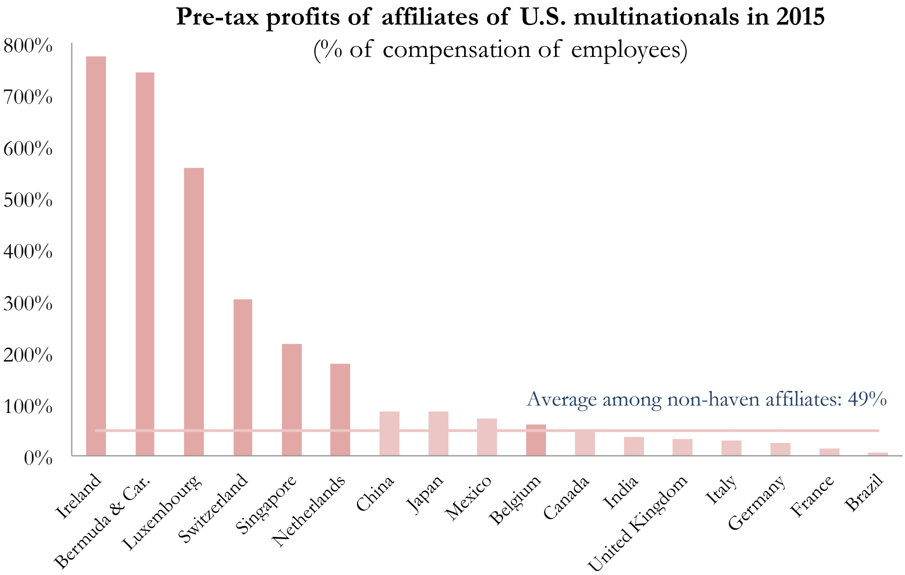
Anomalies in the world balance of payments



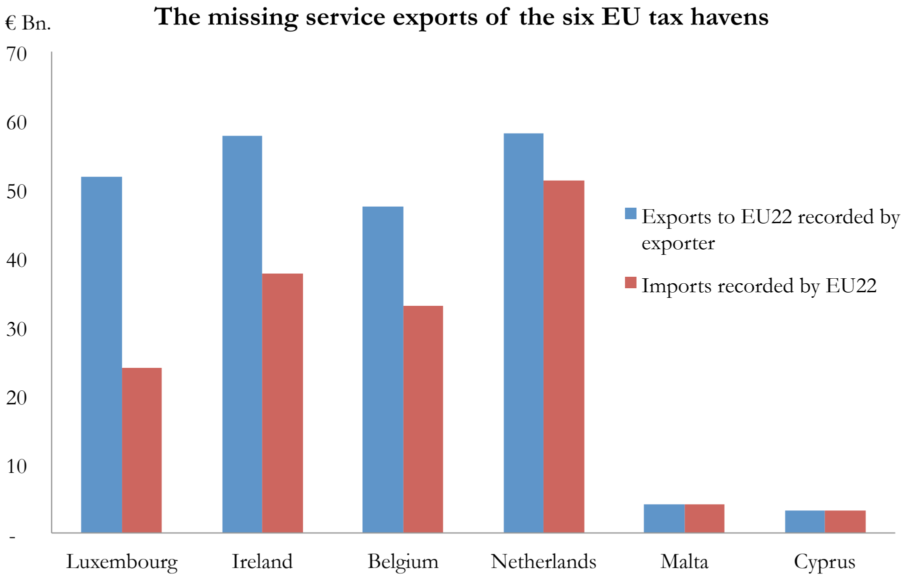
The unrecorded profits of U.S. affiliates in tax havens



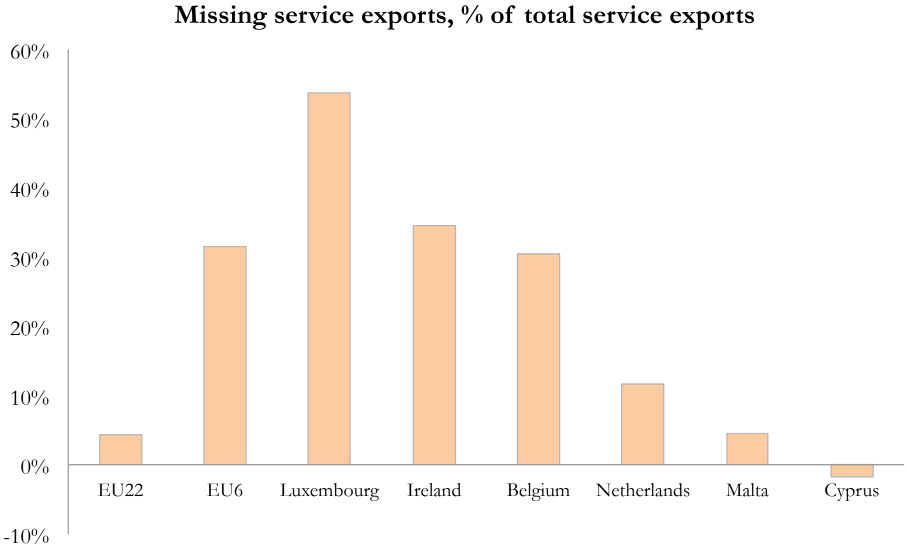
Tax haven affiliates of U.S. multinationals are abnormally profitable



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

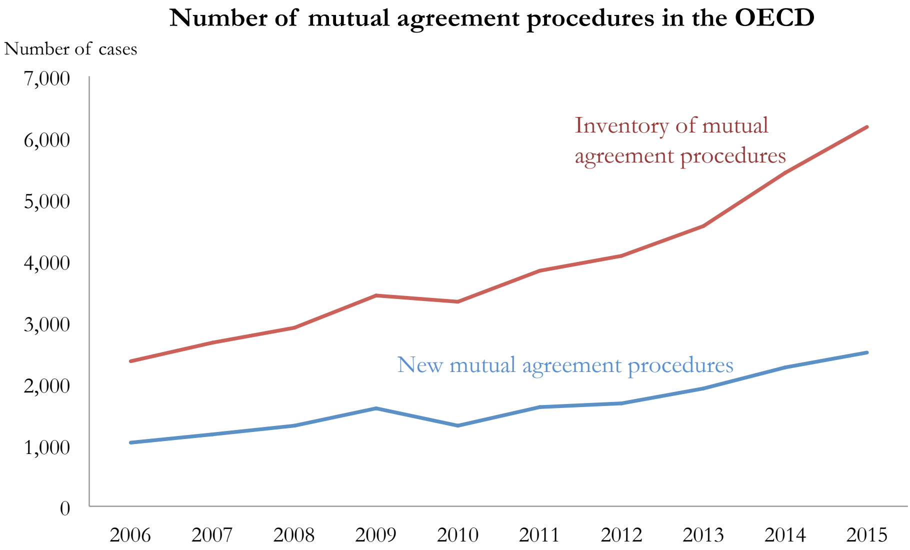


At least 30% of the services exported by EU havens go unreported by the importer

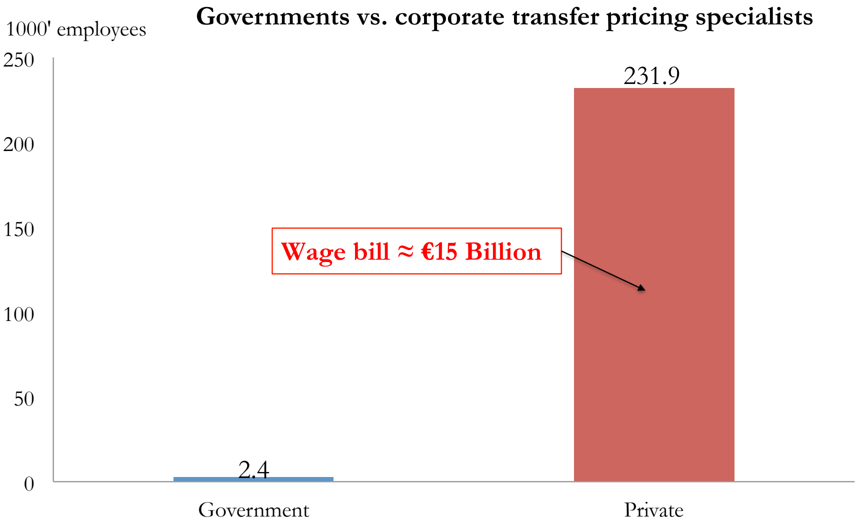


Note: Service exports include exports to all EU22 countries (EU26 minus Luxembourg, Ireland, Belgium, Netherlands, Malta, Cyprus).

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



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).