

# €600 Billion and Counting: Why High-Tax Countries Let Tax Havens Flourish

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# Introduction

How big is the artificial shifting of profits by multinational companies to tax havens, and who benefits/loses from it?

An important question for:

- Study of the redistributive effects of globalization

- Measurement of global economic activity

- Tax policy and tax enforcement

# Our contribution: we analyze new data capturing profit-shifting to tax havens

Systematic analysis of balance of payments & national accounts data published by tax havens & counterparties

EU tax havens report detailed data to Eurostat → enable to estimate amount of profits artificially shifted

Recent improvement in service trade coverage → enable to estimate which countries lose revenue

→ Comprehensive estimate of size of global profit-shifting and revenue implications for governments worldwide

# Our results: artificial profit-shifting redistributes tax revenue massively

45% of multinationals' profits are artificially shifted to tax havens → more than €600bn in 2015

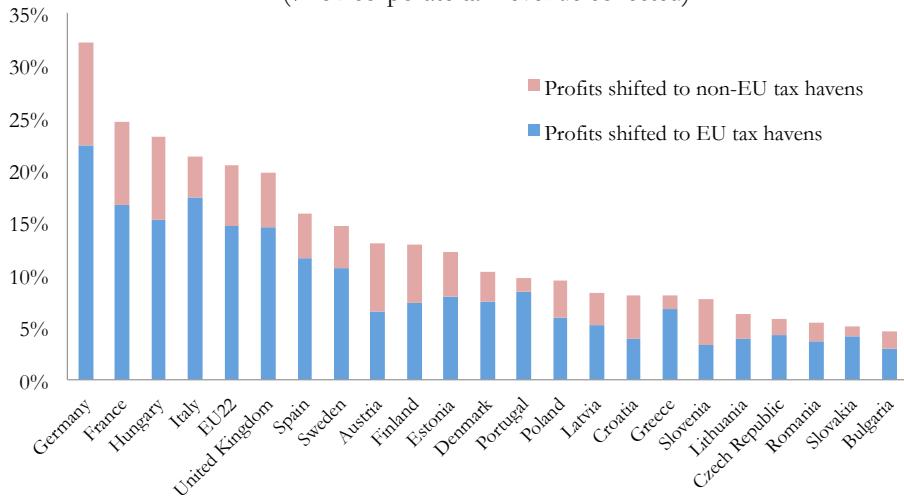
**Global corporate tax revenue loss around €200bn per year** (  $\approx 12\%$  of global corporate tax revenue)

Under most sensible apportionment rule, European Union is the main loser (loses  $\approx 20\%$  of its revenue)

Main winners: Ireland, Netherlands, Luxembourg (impose low rates of 2–3%, but on huge artificial base)

# The E.U. loses about 20% of its corporate tax revenue in tax havens

Lost corporate tax revenue due to artificial profit-shifting  
(% of corporate tax revenue collected)



Note: This figure shows the amount of tax revenue lost because of the artificial shifting of multinationals' profits to tax havens, as a share of total corporate tax revenue collected in 2015.

# The failure of enforcement

Why high-tax countries fail to stop profit-shifting:

Tax authorities have incentives to go after transfer mispricing involving other high-tax countries

This crowds out enforcement on tax havens

We analyze new data showing that in practice, almost all enforcement is against other high-tax countries

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

# Implications for policy

BEPS reinforces perverse incentives of current system:

Makes it easier to go after profits shifted to other high-tax countries...

... Further crowding out enforcement on 0-tax countries where bulk of shifting tax place

There is a simple fix to this problem:

Sales apportionment of global profits

Can be done unilaterally

Methodology to estimate  
the size and cost of profit-shifting



# Main challenge in the literature: little data on what happens in tax havens

Widely used source to study profit-shifting: financial accounts micro-data (e.g., Orbis) and customs data

Face two key challenges:

- Orbis: misses most of the subsidiaries in tax havens

- Customs: miss service trade (e.g., intangibles)

→ Big disconnect between public debate (which focuses on 0-tax countries and intangibles) and economic research

# Example: Google Alphabet

Google transferred its intangibles to hybrid Irish–Bermuda subsidiary in 2003

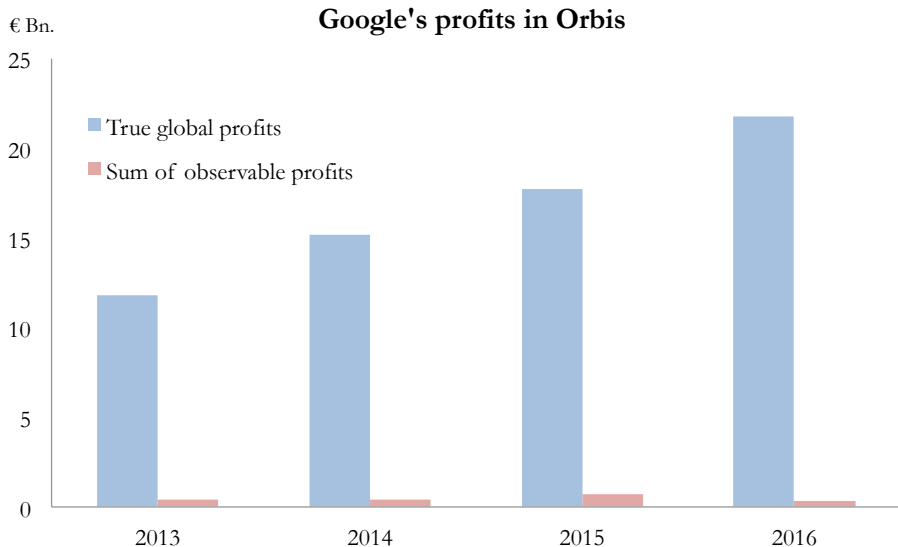
In 2015, made \$15.5bn in profits in 0-tax Bermuda  
→ invisible in Orbis

Which country loses tax revenue: US? EU?  
→ Impossible to tell with available micro data

Which country wins: Bermuda? Ireland? None?

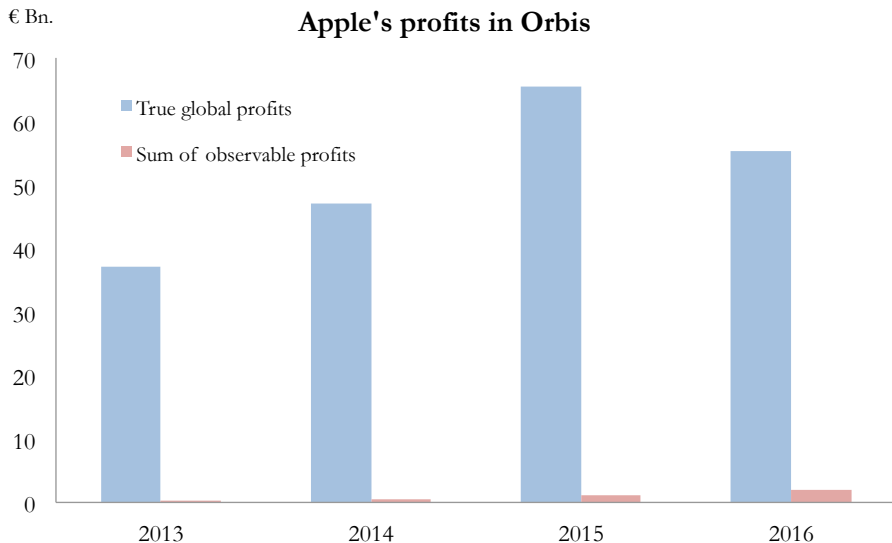
Why do high-tax countries fail to tax these earnings?

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



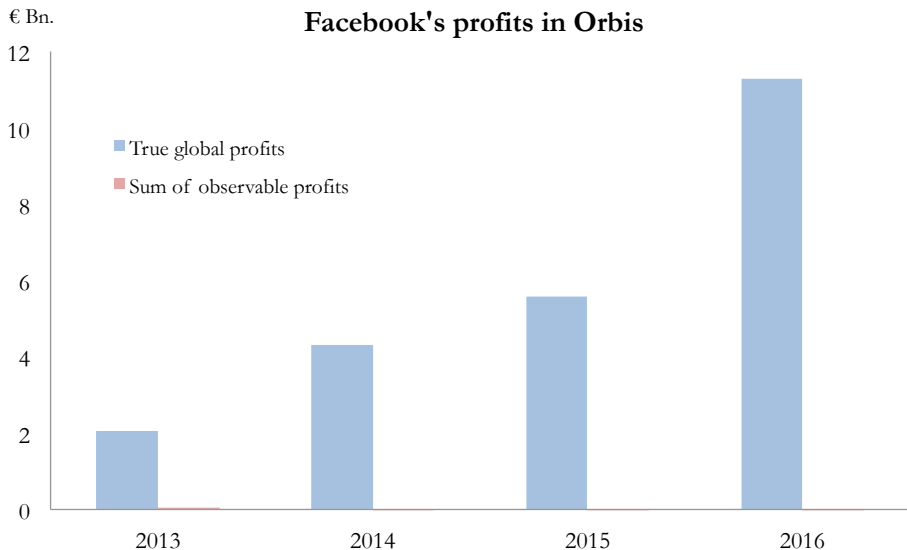
Note: This graph shows Google's global consolidated profits, and the sum of the profits made by Google's subsidiaries, as recorded in Orbis. The difference is due to the fact that the subsidiaries where Google makes the bulk of its profits are not visible in Orbis.

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



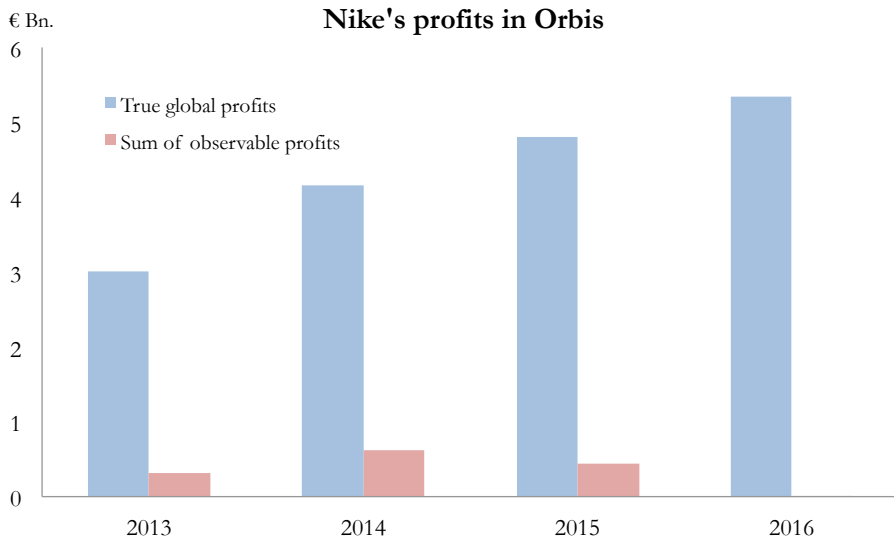
Note: This graph shows Apple's global consolidated profits, and the sum of the profits made by Apple's subsidiaries, as recorded in Orbis. The difference is due to the fact that the subsidiaries where Apple makes the bulk of its profits are not visible in Orbis.

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



Note: This graph shows Facebook's global consolidated profits, and the sum of the profits made by Facebook's subsidiaries, as recorded in Orbis. The difference is due to the fact that the subsidiaries where Facebook makes the bulk of its profits are not visible in Orbis.

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



Note: This graph shows Nike's global consolidated profits, and the sum of the profits made by Nike's subsidiaries, as recorded in Orbis. The difference is due to the fact that the subsidiaries where Nike makes the bulk of its profits are not visible in Orbis.

# How we track artificial profit-shifting

We focus on macro data (more comprehensive than financial accounts micro-data)

Consider two key macro statistics in each country:

$\pi$  = taxable corporate profits / compensation of employees

$\phi$  = taxable corporate profits accruing to foreigners / national income

High  $\pi$ : abnormally high profits. High  $\phi$ : profits are made in foreign-owned subsidiaries.

# Abnormal profitability $\pi$

$\pi$  is related to the capital share in the corporate sector  $\alpha$

If no net interest paid by corporations,  $\pi = \alpha / (1 - \alpha)$

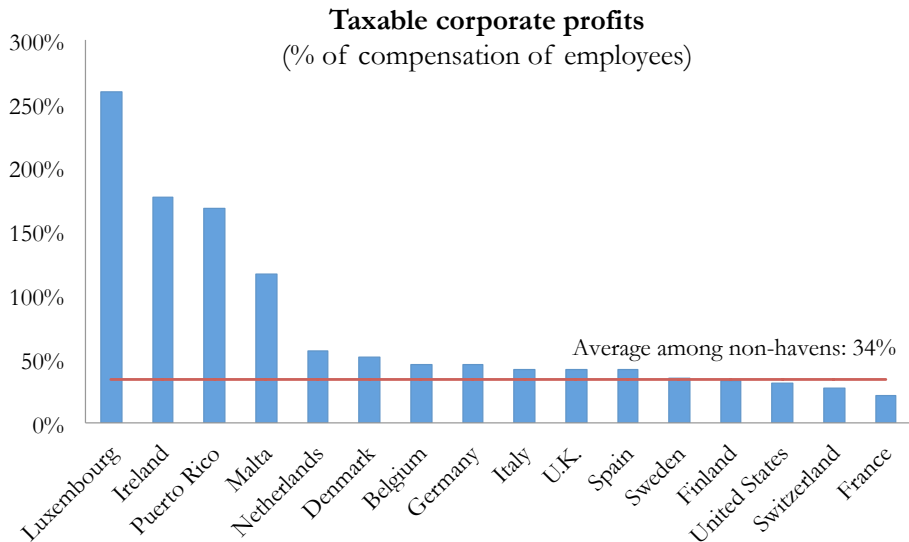
With identical technology and  $\alpha = 25\%$ , all countries should have  $\pi = 33\%$

If net interest paid =  $p\%$  of operating surplus,  
 $\pi = \alpha / (1 - \alpha) \cdot (1 - p)$

If  $\pi \gg 33\%$ : inward profit-shifting (either through real transactions or interest payments)



# Corporations in tax havens are abnormally profitable



Note: This figure shows the ratio of corporate profits (net of interest paid and depreciation) to compensation of employees, as recorded in the national accounts, in 2015.

# Corporate profits accruing to foreigners $\phi$

$\phi$  is related to current account balance  $ca$ , trade surplus  $t$ , and net interest received from abroad  $i$  (all in % of NI)

$$ca = (t + i) - \phi$$

Inward profit-shifting (Ireland, Luxembourg, ...):

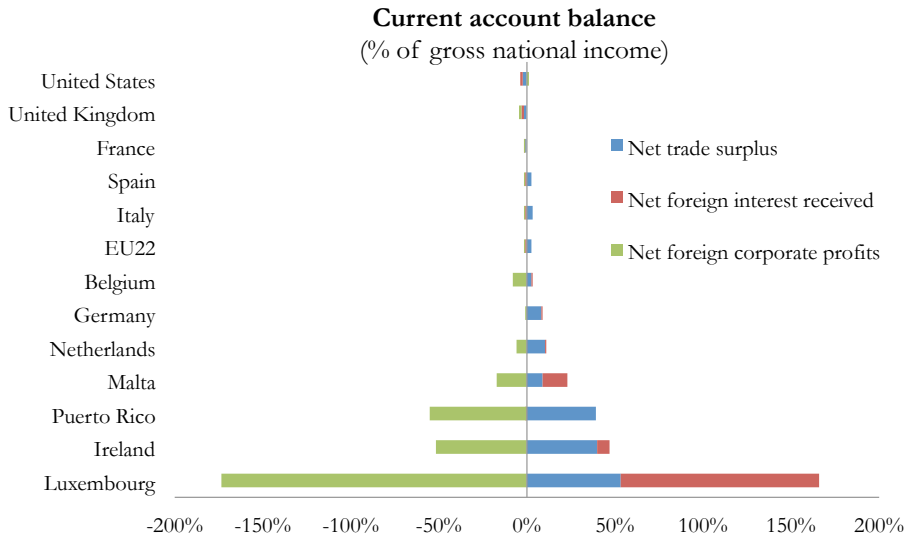
$$(t + i) > 0 \text{ and } \phi > 0$$

Outward profit-shifting (U.S., France, ...):

$$(t + i) < 0 \text{ and } \phi < 0$$

→ These identities summarize how profit-shifting affects balance of payments and national accounts statistics

# Tax havens run huge trade surplus, all paid back to foreign parents



Note: This figure shows the current account balance of a selection of countries, as a share of their Gross National Income in 2015. EU22 is the European Union minus the 6 EU tax havens (Belgium, Cyprus, Ireland, Luxembourg, Malta and Netherlands).

# How we measure artificial profit-shifting

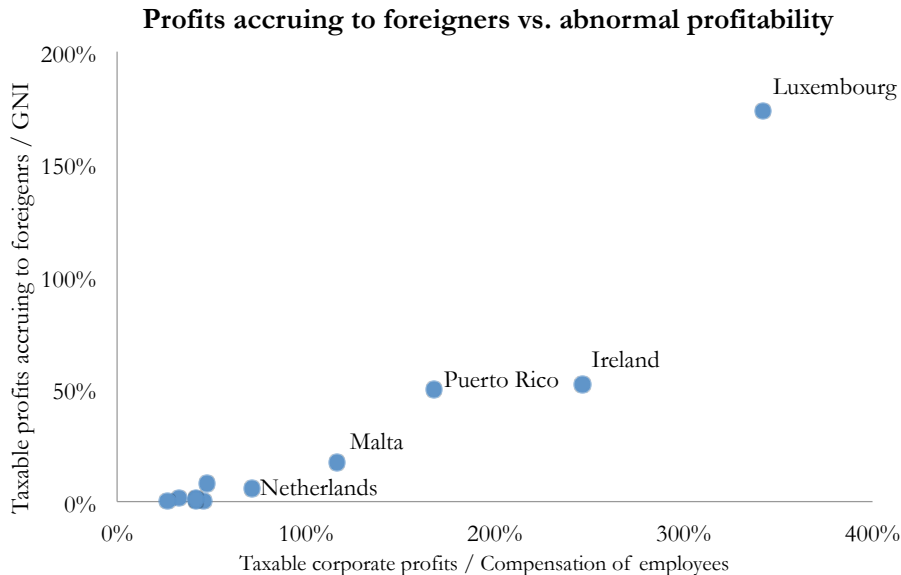
We compute artificial profits by setting  $\pi_i = \bar{\pi}$  in all tax havens  $i$

Assumption: all profitability in tax havens above world average  $\bar{\pi}$  reflects inward profit-shifting

Potential limitation: high  $\pi_i$  could be due to other factors (technology, bargaining, etc.)

But testable: correlation between  $\pi_i$  and foreign-ownership  $\phi_i$

# Where profits are abnormally high, they are all within MNEs → artificial



# How we allocate the artificially-shifted profits across countries

Benchmark allocation: based on which countries import from (and pay interest to) tax havens

Focus on high-risk service imports (IP, financial services, etc.), particularly conducive of shifting

Mimics a sales-apportioned corporate tax base (= how California, New York, etc., tax profits)

Alternative allocation: based on residence of owner

Mimics a residence-based corporate tax base (= how U.S. has taxed profits so far)

# Profit-Shifting to European Tax Havens

# Data for E.U. tax havens

6 EU havens: Netherl., Ireland, Lux., Malta, Cyprus, Belg.

Key advantage: report bilateral data to Eurostat

Service exports more reliable than imports (services sold from LU to FR person unrecorded in FR: Spotify)

Limitation: miss some profits (hybrid corp, inconsistent definition of residency)

We fix this by forcing consistency with U.S. data on profits made by U.S. multinationals

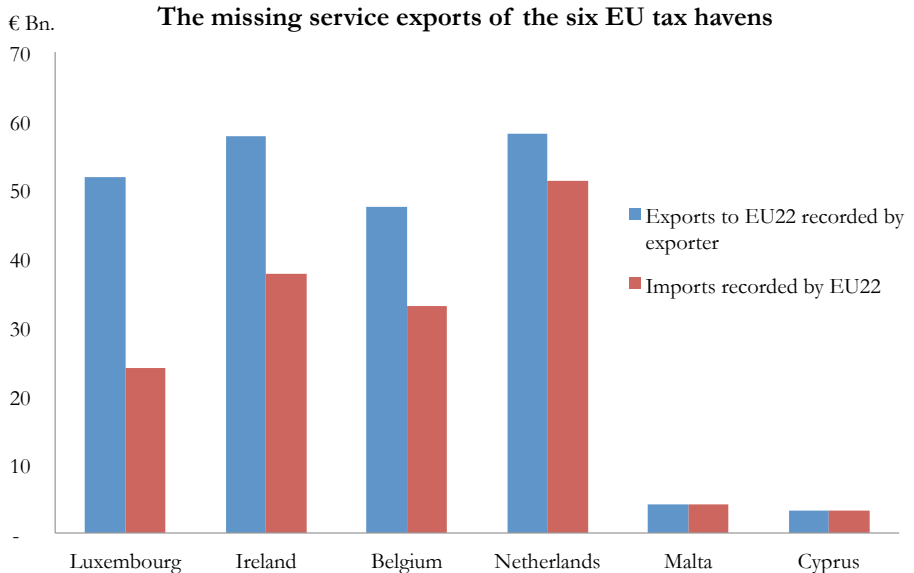


# Service exports recorded by havens are more reliable than imports rec by importer



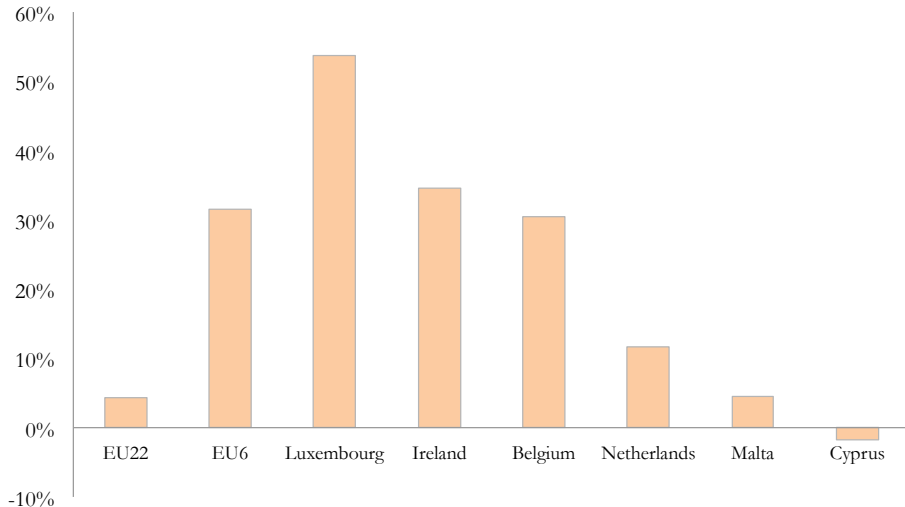
Note: EU22 is the European Union minus the 6 EU tax havens (Netherlands, Ireland, Luxembourg, Cyprus, Malta, and Belgium).

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



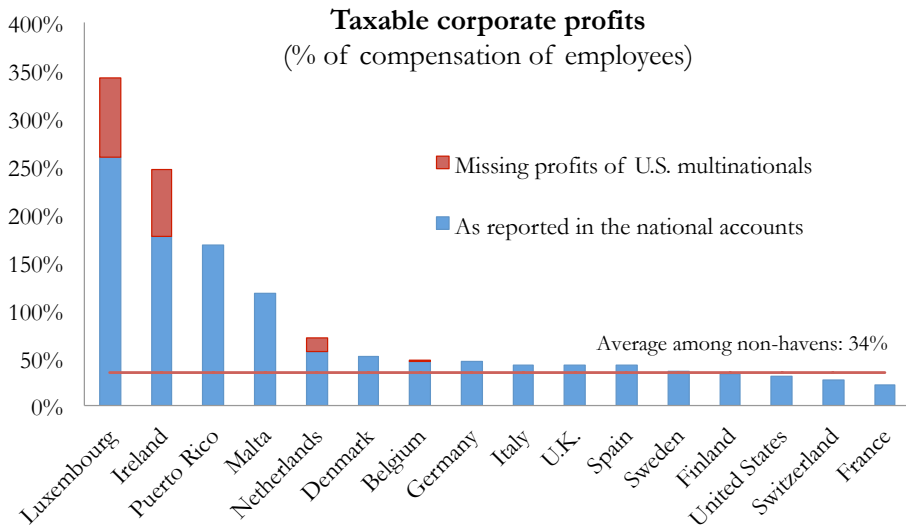
# At least 30% of the services exported by EU havens go unreported by the importer

Missing service exports, % of total service exports



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

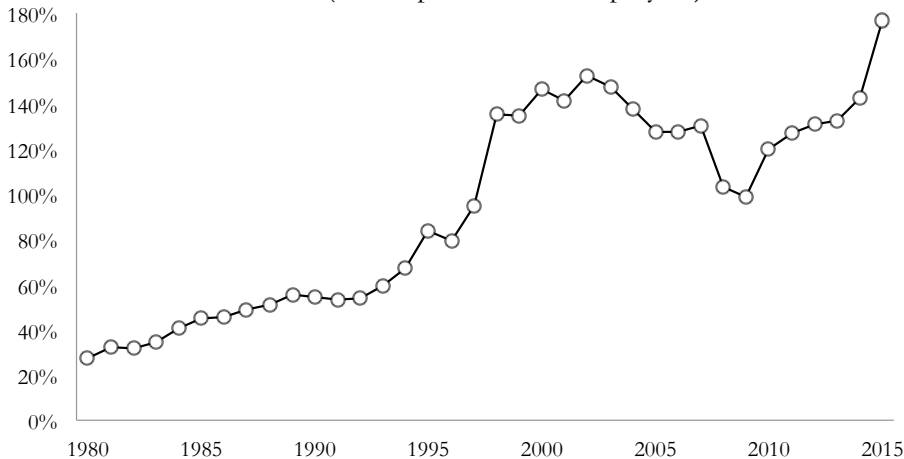
# Some profits made by U.S. MNEs are missing in EU havens' national accounts



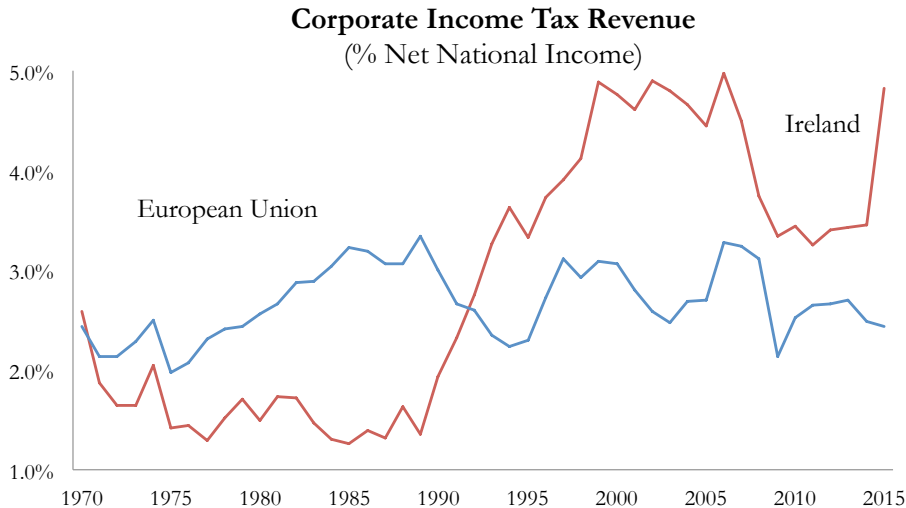
Note: The blue bar shows the ratio of corporate profits (net of interest and depreciation) to compensation of employees, as recorded in the national accounts, in 2015. The red bar adds corporate profits missing in the national accounts, computed as the discrepancy between FDI income credits reported by the U.S. and total FDI income debits.

# A growing amount of profits is artificially shifted to the EU havens

**Taxable corporate profits in Ireland**  
(% compensation of employees)



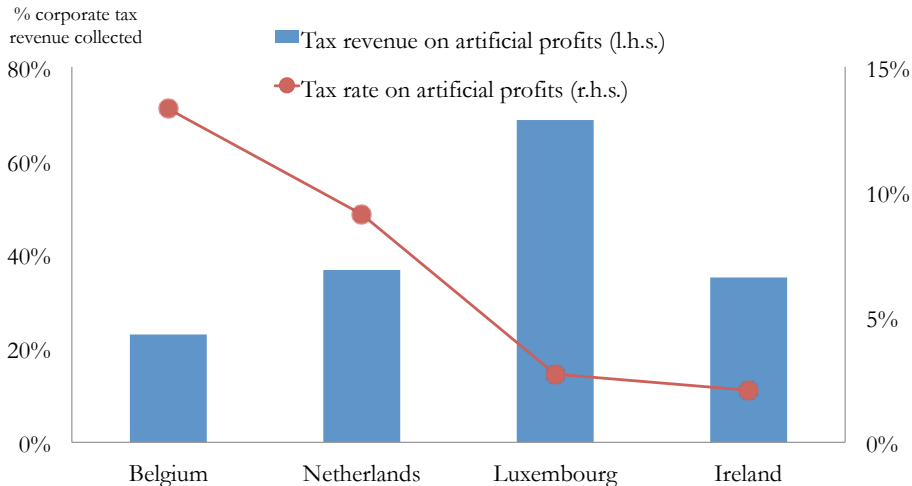
By applying very low rates on a huge base, EU havens generate a lot of revenue



Note: European Union is the average of France, Germany, U.K., and Italy.

# By applying very low rates on a huge base, EU havens generate a lot of revenue

## Tax revenue gained by EU havens on profits artificially shifted



Note: This figure shows the amount of tax revenue collected on artificially shifted profits and the implied rate at which these profits are taxed. The revenue collected on artificially shifted profits are calculated as the amount of revenue collected above the average corporate income tax revenue in all non-haven EU countries (scaled by GNI).

# Global Profit-Shifting

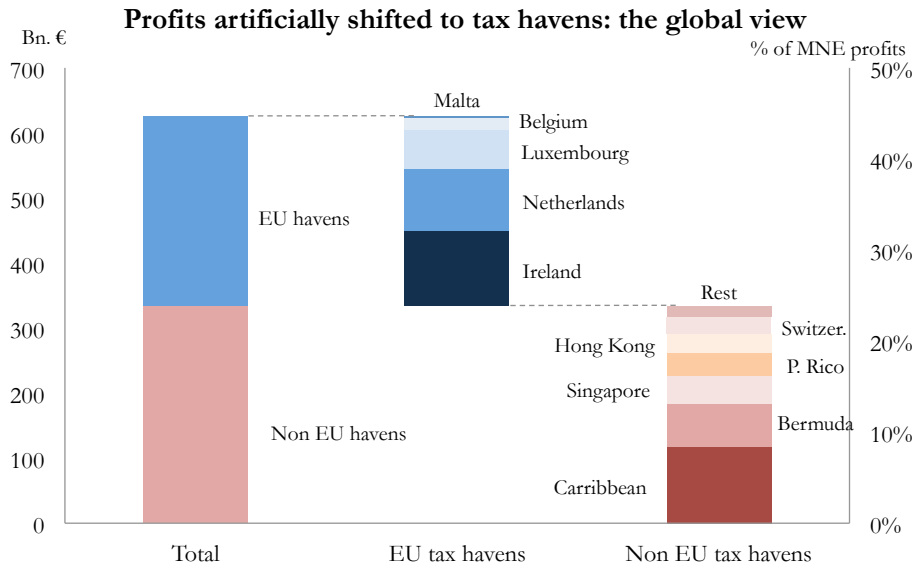


# Close to 20% of global profits are made by multinationals abroad



Notes: This figure charts the share of global corporate profits made by multinational corporations. Multinational profits are defined as the sum of portfolio equity and FDI equity income receipts across all countries. We subtract income received by tax havens to avoid double counting. Multinational profits were around €1.4 trillion in 2015, while global corporate profits were around €7.9 trillion.

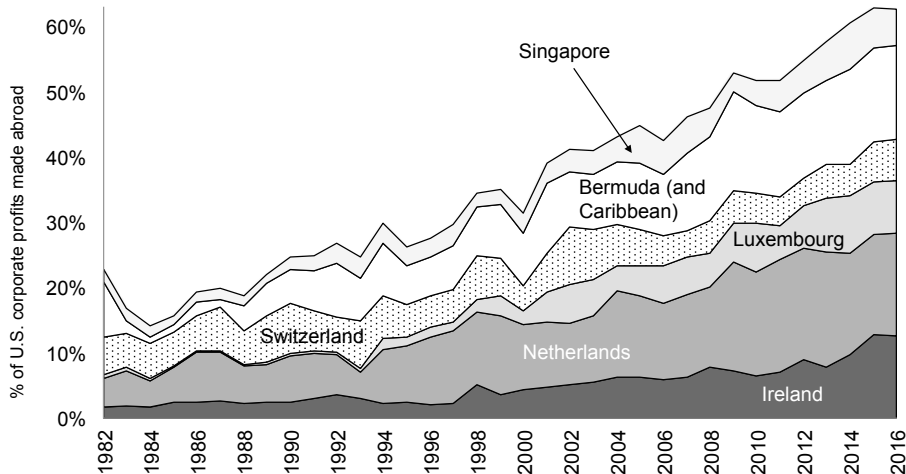
# 45% of multinationals' foreign profits are artificially shifted to tax havens



Note: This figure shows the amount of taxable profits artificially shifted to tax havens in 2015. The total adds up to 627 billion euros, of which 334 billion is shifted to non EU tax havens, and 293 billion is shifted to EU tax havens.

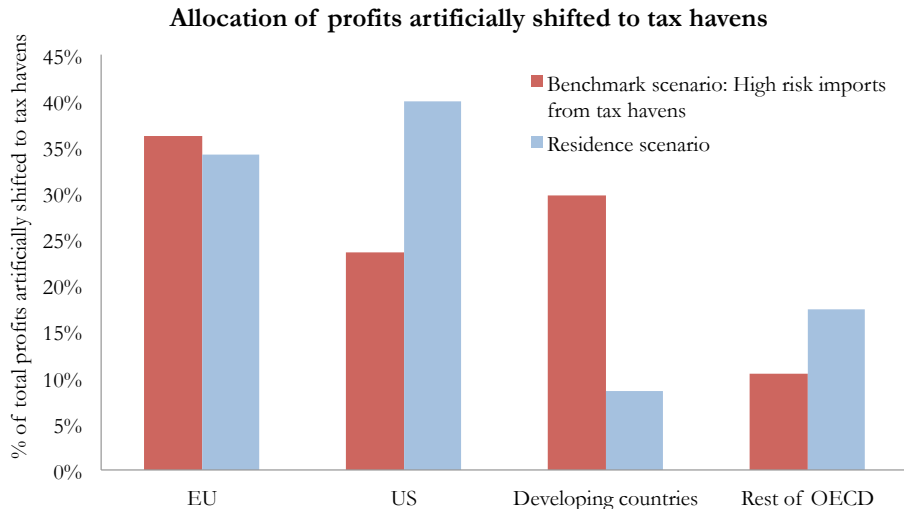
# 63% of the foreign profits made by US multinationals are shifted to tax havens

The share of tax havens in U.S. corporate profits made abroad



Notes: This figure charts the share of income on U.S. direct investment abroad made in the main tax havens. In 2016, total income on U.S. DI abroad was about \$450bn. 16% came from the Netherlands, 8% from Luxembourg, etc. Source: author's computations using balance of payments data, see Online Appendix.

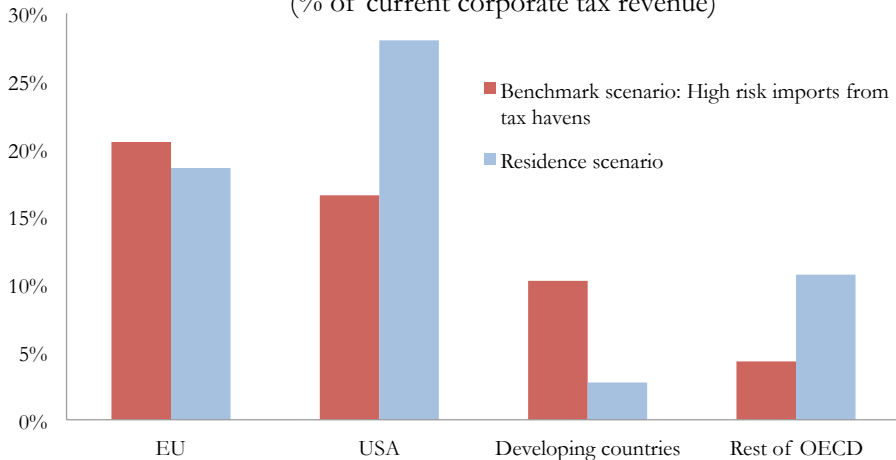
# Allocating the profits artificially shifted offshore: sales vs. residence



Note: In the benchmark scenario, offshore profits are allocated proportionally to the sum of high-risk services imported from and FDI interest paid tax havens. In the "residence" scenario, offshore profits are allocated based each country's share of global FDI income credits.

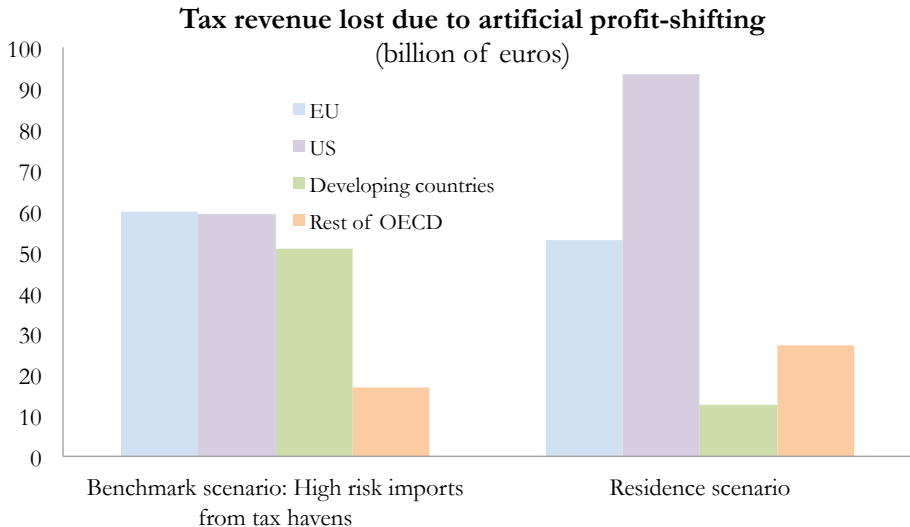
# EU and US lose almost 20% of their corporate tax revenue

**Tax revenue lost due to artificial profit-shifting**  
(% of current corporate tax revenue)



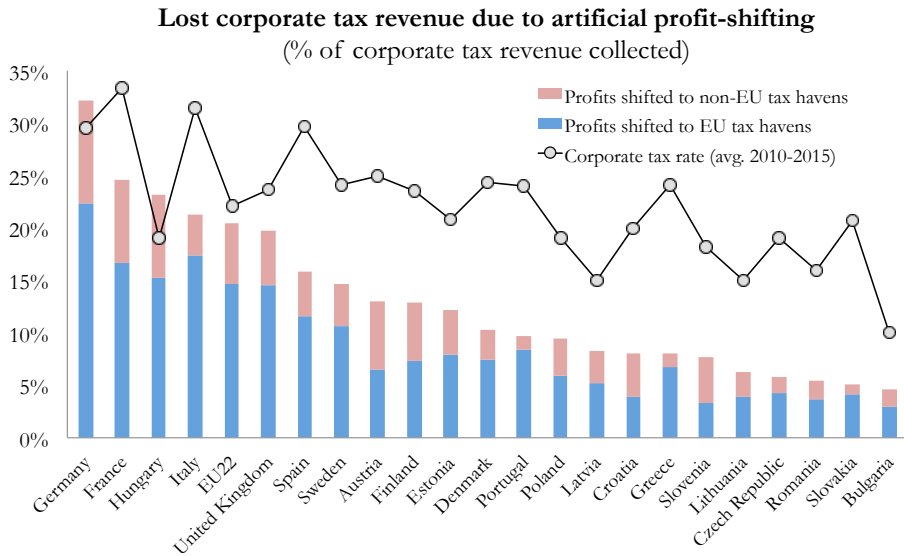
Note: In the benchmark scenario, offshore profits are allocated proportionally to the sum of high-risk services imported from and FDI interest paid tax havens. In the "residence" scenario, offshore profits are allocated based each country's share of global FDI income credits.

# EU and US lose about €60bn annually due to the artificial shifting of profits



Note: In the benchmark scenario, offshore profits are allocated proportionally to the sum of high-risk services imported from and FDI interest paid tax havens. In the "residence" scenario, offshore profits are allocated based each country's share of global FDI income credits.

# The higher the corporate tax rate, the more profits are shifted



Note: This figure shows the amount of tax revenue lost because of the artificial shifting of multinationals' profits to tax havens, as a share of total corporate tax revenue collected in 2015. The grey line shows the top statutory corporate tax rates.

# The failure of tax enforcement



# The perverse incentives involved in enforcing arm's length prices

High-tax cttries have incentives to go after other high-tax:

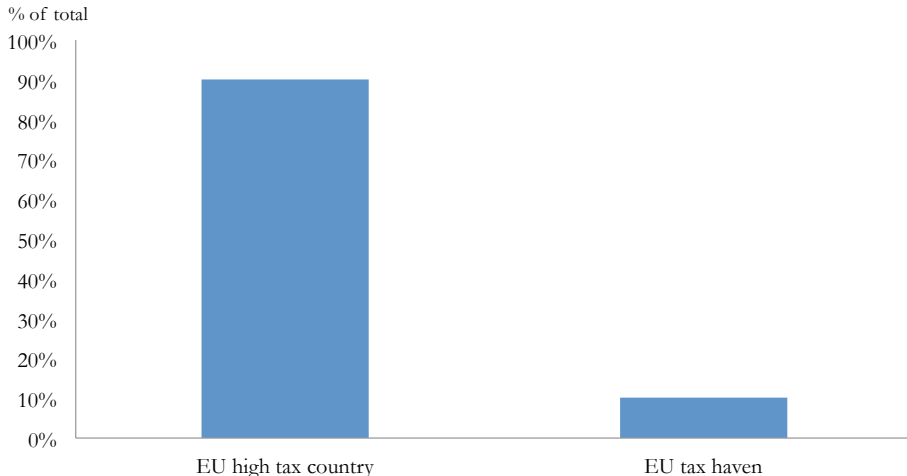
Danish tax authority (tax rate 24.5%) can go after mispricing involving Bermuda (0%) or Germany (30%)

MNEs make it hard to go after Bermuda (they would lose revenue) and easy to go after Germany (they win)

Mutual agreement procedures facilitate resolve of disputes among OECD countries (eg, Denmark–Ger.)

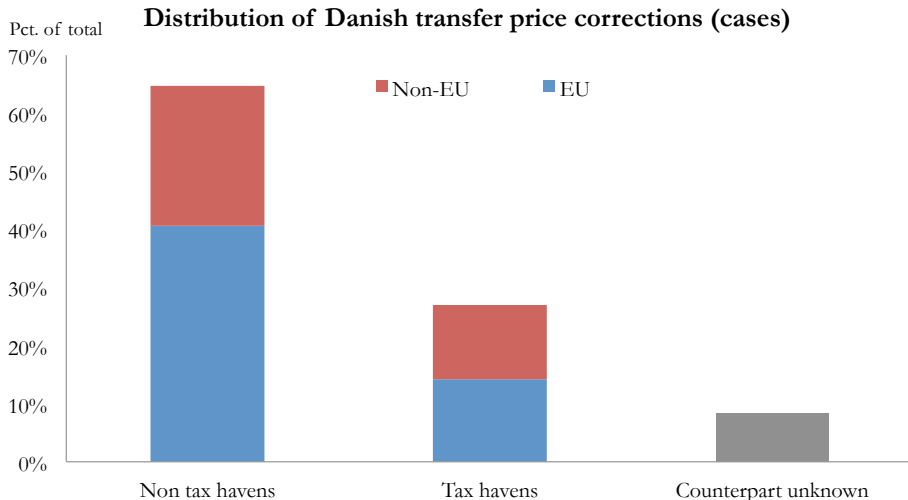
# Most transfer price enforcement is against other high-tax countries

## Counterpart in Mutual Agreement Procedures in the EU



Note: The graph plots the distribution of the value of mutual agreement procedures in the EU by counterpart. Mutual agreement procedures are cases in which the country conducting a transfer pricing correction (and thus raises the taxable income in the home country) will approach the counterpart country (the country accused of having excessive profits) and ask them to lower their tax base. 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).

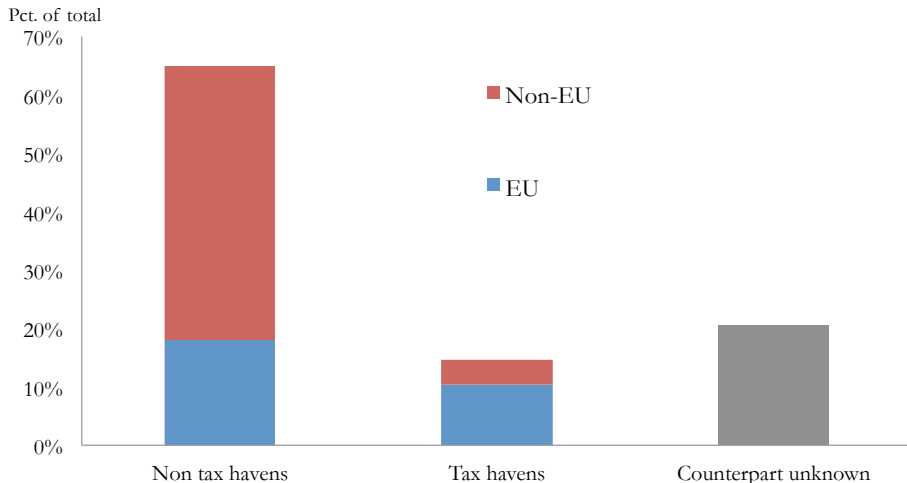
# E.U. tax authorities barely attempt to go after profits shifted to tax havens



Note: The graph plots the distribution of the number 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 the counterpart in 40% of the cases is a high tax EU country (Non tax haven) and in 24% of the cases is a non-EU high tax country.

# E.U. collects negligible revenue by correcting transfer prices involving havens

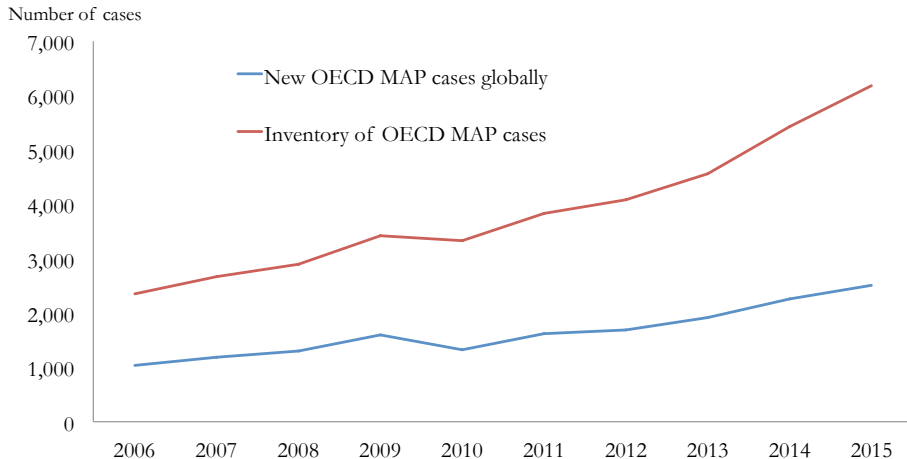
Distribution of Danish transfer price corrections (value)



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).

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

## Number of Mutual Agreement Procedures in the OECD

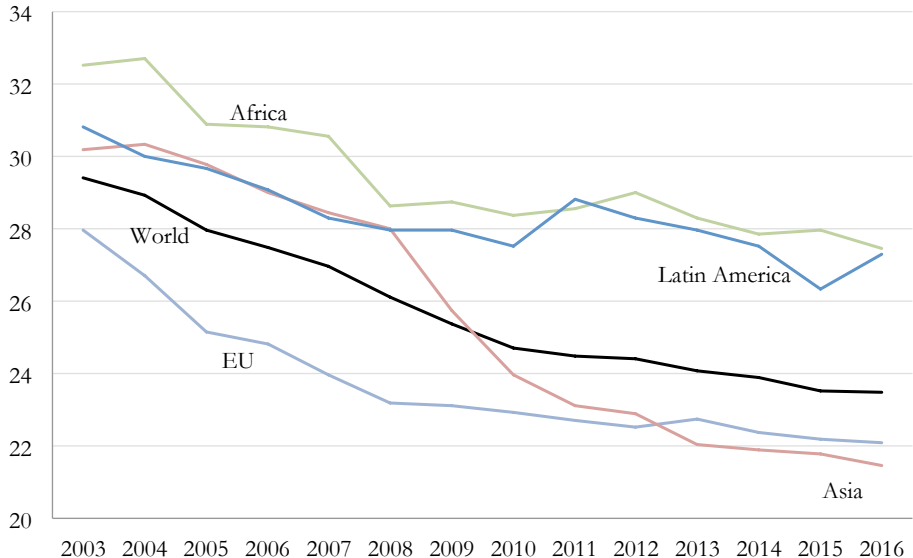


Note: The graph plots the development in the number of mutual agreement procedures (MAP cases) in the OECD. Mutual agreement procedures are cases in which the country conducting a transfer price correction (and thus raises the taxable income in the home country) will approach the counterpart country (the country accused of having excessive profits) and ask them to lower their tax base. New MAP cases are cases initiated within a given year. Inventory of MAP cases is the total of cases currently in process, that is both new plus cases from previous years that have not been concluded.

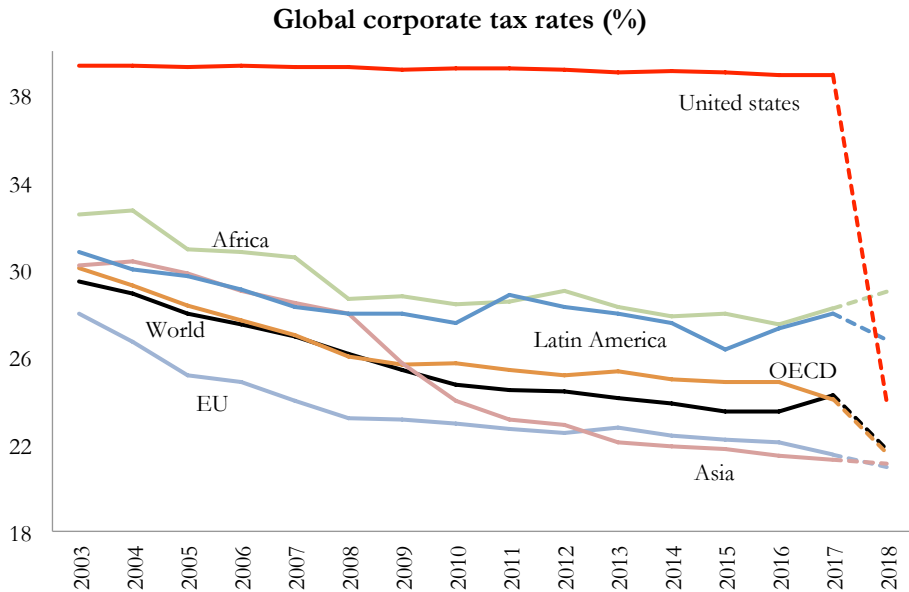
# Conclusion

# Profit-shifting and weak enforcement are leading to a race to the bottom

Global corporate tax rates



# The race to the bottom is accelerating





# Reforming the corporate tax

## **Apportionment of global profits proportionally to where sales are made**

Removes any possibility to shift profits, and any incentives for real tax competition

Works reasonably well for US States

Can be done unilaterally

Would increase corp tax revenue by about 20% in U.S. and Europe