Profit Shifting of Multinational Corporations Worldwide

Javier Garcia-Bernardo, Petr Janský

Institute of Economic Studies, Faculty of Social Sciences, Charles University, Prague, Czechia

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CORPTAX

The effects of profit shifting of multinational corporations (MNCs)

- Lower government revenues
- Uneven level playing field
- Globalisation perceived as inequitable
- Illicit financial flows and SDG target 16.4

Overview

- The origin and destination of profit shifting for many countries

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- Data: Country-by-country reporting (CBCR) by MNCs for many countries
- Methodology: A logarithmic function to model the extremely non-linear relationship between profits and tax rates

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1. Scale
2. Tax Havens
3. Headquarters
4. Low-income countries

Contributions to the existing literature (and policy debates)

- Methodology: Hines and Rice (1994), Dowd et al. (2017)
- Data: Clausing (2020), Garcia-Bernardo, Janský, and Tørsløv (2021), Fuest, Hugger, et al. (2022), Garcia-Bernardo, Janský, and Zucman (2022)

1. Scale: Crivelli et al. (2016), Álvarez-Martínez et al. (2021), Tørsløv et al. (2022), Bilicka (2019), Dharmapala and Riedel (2013)
2. Tax havens: Zucman (2015), Guvenen et al. (2022)
3. Headquarters: Dischinger et al. (2014), Wright and Zucman (2018)
4. Low-income countries: Fuest, Hebous, et al. (2011), Janský and Palanský (2019), Johannesen et al. (2020)

The country-by-country reporting data

- Aggregated large MNCs' profits and taxes in around 190 countries
- Profit-making affiliates for effective tax rates (ETRs) and both profit- and loss-making affiliates for real operations of MNCs
- The 2017 US CBCR data
- The 2017 OECD CBCR data with data imputations to further improve coverage
- The data are a major step forward, albeit imperfect
- We make a number of corrections for double counting in the data
- Double counting of some profits; estimated at 34-59% for US MNCs (Garcia-Bernardo, Janský, and Zucman, 2022)

Estimating double counting in the CBCR data of US MNCs

		Compustat		CBCR			Imputation of missing profits using regression							Other datasets				
							Step 1		Step 2									
	Year	Profits	N	Profit (inc. stateless)	Profit (exc. Stateless)	N	Profit	N	**Final Profit**	Double count (inc. stateless)	Double count (exc. stateless)	Double count (inc. stateless) USD billion	Double count (exc. stateless) USD billion	Orbis (N = 1,234; 1,221,; 1,201)	Horst & Curatolo (N = 1,349)	DI	Profit-like	CFC
Dom	2017	641	1.325	1.180	1.180		750	1.428	**765**	54%	54%	415	415					
	2018	748	1.345	1.488	1.488		842	1.453	**856**	74%	74%	632	632					
	2019	684	1.323	1.296	1.296		893	1.431	**911**	42%	42%	385	385					
For	2016	450	1.313				475	1.415	**486**							567	473	706
	2017	551	1.325	842	638		584	1.428	**596**	41%	7%	246	42			669	570	
	2018	617	1.345	1.116	918		647	1.453	**658**	70%	39%	458	260			694	580	
	2019	560	1.323	933	768		590	1.431	**602**	55%	28%	331	166			671	547	
Total	2017	1.342	1.444	2.022	1.818	1.575	1.334	1.444	**1.361**	49%	34%	661	457	1.317	1.450			
	2018	1.493	1.468	2.604	2.406	1.641	1.489	1.468	**1.514**	72%	59%	1.090	891	1.418				
	2019	1.490	1.443	2.229	2.064	1.698	1.483	1.443	**1.513**	47%	36%	716	551	1.502				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R

Source: Garcia-Bernardo, Janský, and Zucman (2022)

Methodology

- Tax semi-elasticity model: linear, quadratic and logarithmic
- (Also: reallocation of the shifted profit and misalignment model)

Tax semi-elasticity

- The most common model (Hines and Rice, 1994)

$$\underbrace{\log(\pi_i)}_{\text{Profits booked}} = \beta_0 + \underbrace{\beta_1 \log(K_i)}_{\text{Capital}} + \underbrace{\beta_2 \log(L_i)}_{\text{Labor}} + \underbrace{\beta_3(\tau_i)}_{\text{Tax rate}} + \underbrace{\beta_\chi \chi}_{\textit{Controls}} + \epsilon,$$

- For simplicity

$$\underbrace{\log(\pi_i)}_{\text{Profits booked}} \propto \underbrace{\beta_3(\tau_i)}_{\text{Tax rate}}$$

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- Improvement (Dowd et al., 2017; Hines and Rice, 1994)

$$\underbrace{\log(\pi_i)}_{\text{Profits booked}} \propto \underbrace{\beta_3(\tau_i)}_{\text{Tax rate}} + \underbrace{\beta_4(\tau_i)^2}_{\text{Tax rate squared}}$$

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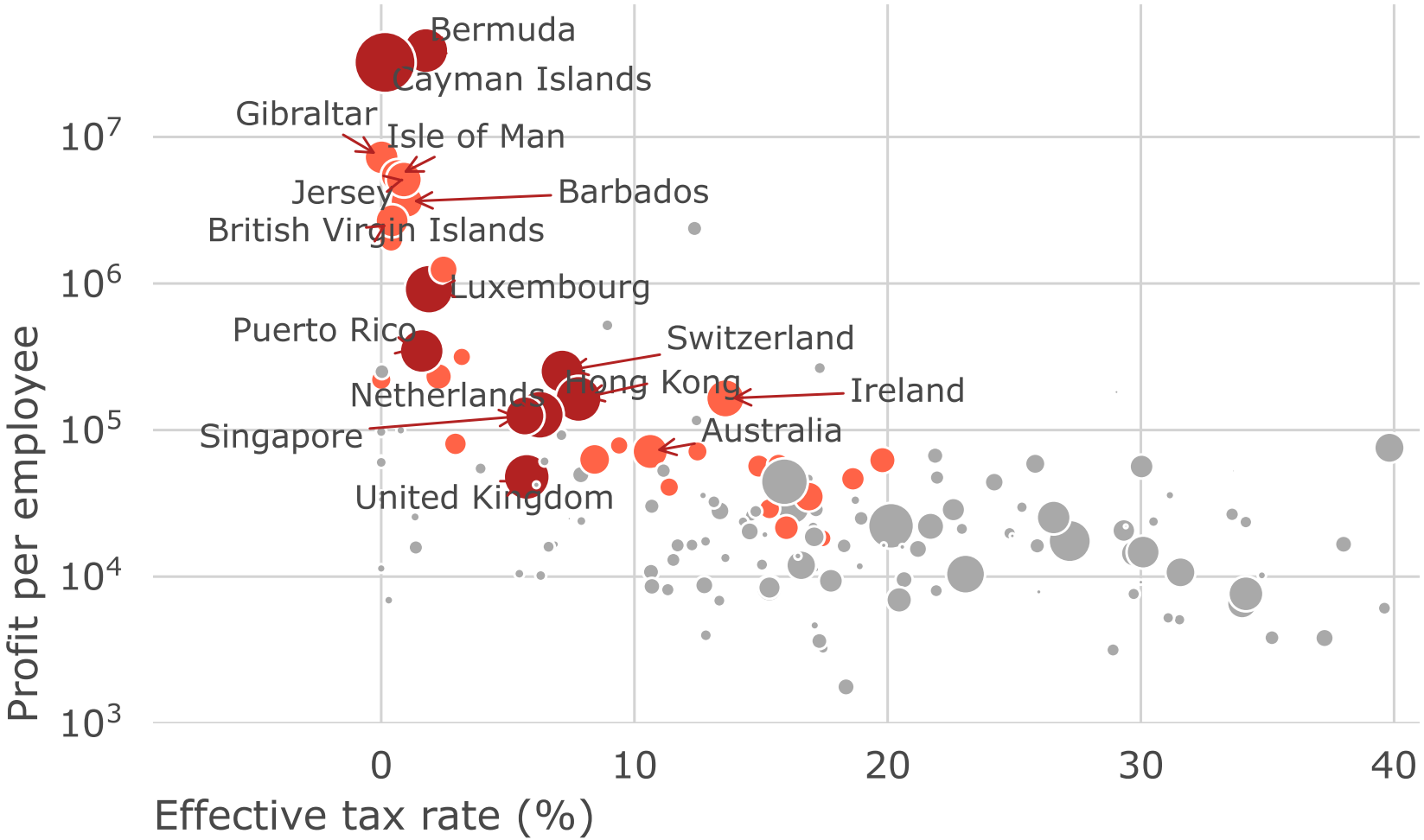
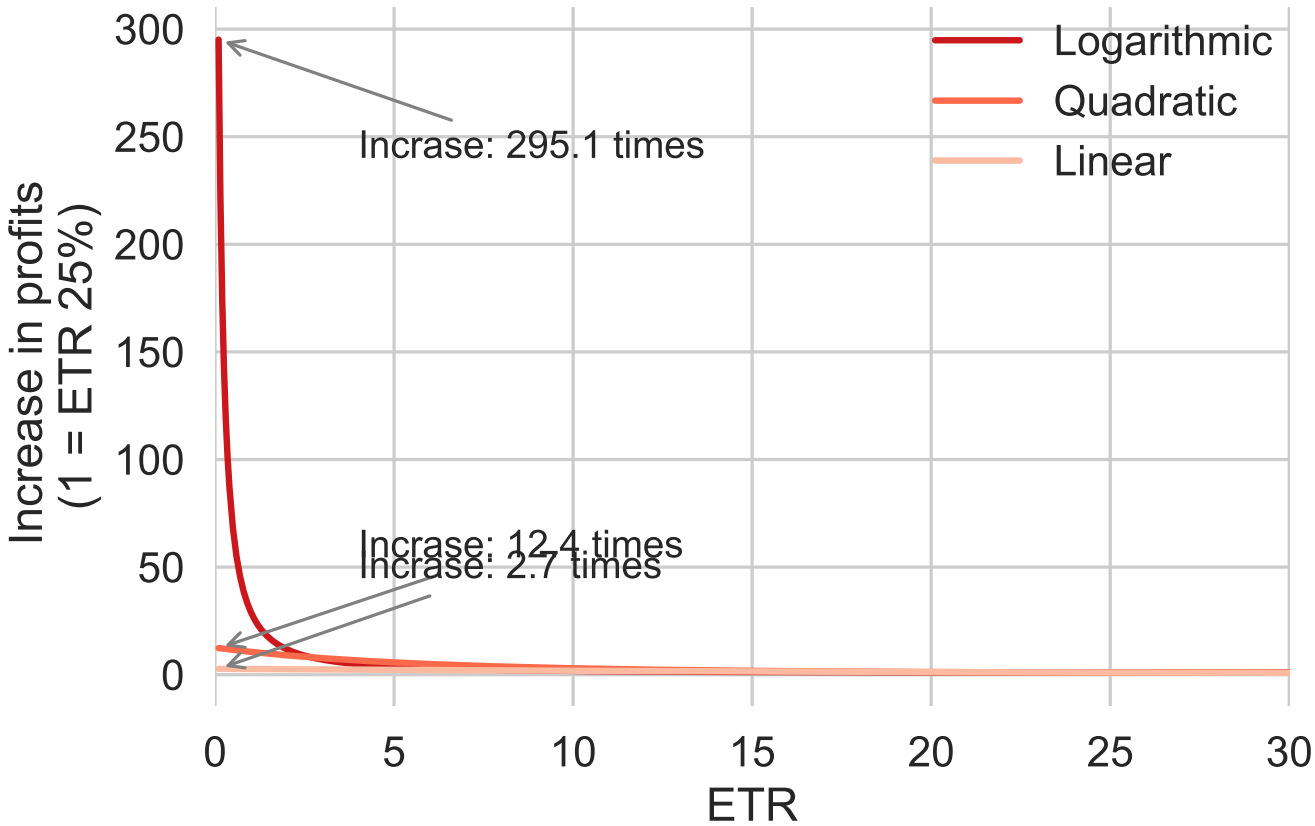
- Empirical observation: The model still does not fit the data very well


Bermuda
Cayman Islands
Gibraltar
Isle of Man
Jersey
Barbados
British Virgin Islands
Luxembourg
Puerto Rico
Switzerland
Hong Kong
Ireland
Netherlands
Singapore
Australia
United Kingdom
10^7
10^6
10^5
10^4
10^3
Profit per employee
0
10
20
30
40
Effective tax rate (%)

Our model: Logarithmic semi-elasticity

$$\underbrace{\log(\pi_i)}_{\text{Profits booked}} \propto \underbrace{\beta_3(\tau_i)}_{\text{Tax rate}} + \underbrace{\beta_4 \log(t+\tau_i)}_{\text{Logarithmic tax rate}}$$

Results for ETR 0.1% (Jersey)



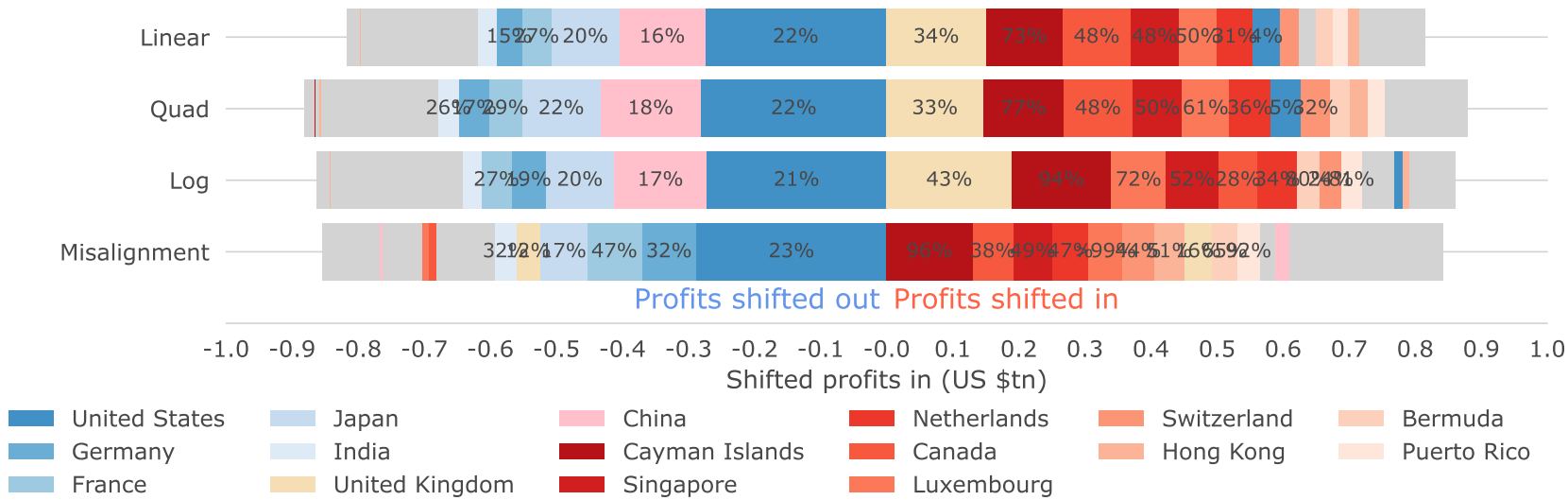
Top destinations of profit shifting: Percentage of profits shifted into countries with at least $10 bn reported using the 2017 US data

Country	ETR	Profits (+)	Profits (all)	Misal.	Log	Quad	Linear
Jersey	0.1%	$12.8 bn	$10.5 bn	97.3%	99.4%	89.0%	54.5%
Cayman Islands	0.6%	$56.1 bn	$52.7 bn	98.8%	97.6%	88.3%	53.9%
Other Europe	0.8%	$13.6 bn	$0.0 bn	-	96.5%	87.9%	53.6%
Luxembourg	1.0%	$54.4 bn	$22.4 bn	92.0%	95.2%	87.5%	53.2%
Puerto Rico	1.6%	$31.7 bn	$30.9 bn	94.9%	91.8%	86.4%	52.3%
Bermuda	1.7%	$31.9 bn	$29.2 bn	98.5%	91.4%	86.2%	52.2%
Other America	2.4%	$12.2 bn	$-0.1 bn	-	86.4%	84.7%	51.1%
Singapore	5.0%	$51.1 bn	$49.2 bn	78.2%	68.6%	78.4%	46.9%
Switzerland	6.1%	$53.3 bn	$44.4 bn	79.4%	61.3%	75.3%	45.0%
Netherlands	7.5%	$63.0 bn	$36.0 bn	79.2%	51.9%	70.7%	42.4%
United Kingdom	11.6%	$81.7 bn	$18.1 bn	-	29.8%	55.2%	34.5%
Hong Kong	12.3%	$12.2 bn	$11.1 bn	48.0%	26.8%	52.3%	33.1%
Ireland	13.8%	$30.8 bn	$26.5 bn	54.3%	20.9%	45.8%	29.9%
Canada	15.2%	$40.1 bn	$31.7 bn	7.5%	15.8%	39.2%	26.6%
Australia	15.3%	$18.1 bn	$14.8 bn	27.8%	15.6%	38.9%	26.4%
Japan	20.5%	$25.5 bn	$24.9 bn	44.9%	3.8%	15.6%	13.2%
China	23.0%	$28.5 bn	$26.8 bn	-	1.1%	6.1%	6.1%
Germany	24.9%	$19.8 bn	$6.8 bn	-	-	0.3%	0.4%
Brazil	25.5%	$12.0 bn	$5.9 bn	-	-	-	-
Nicaragua	26.7%	$17.7 bn	$0.1 bn	-	-	-	-
India	33.0%	$13.7 bn	$11.8 bn	-	3.3%	-	-
United States	42.8%	$602.8 bn	$542.8 bn	-	16.9%	27.0%	-

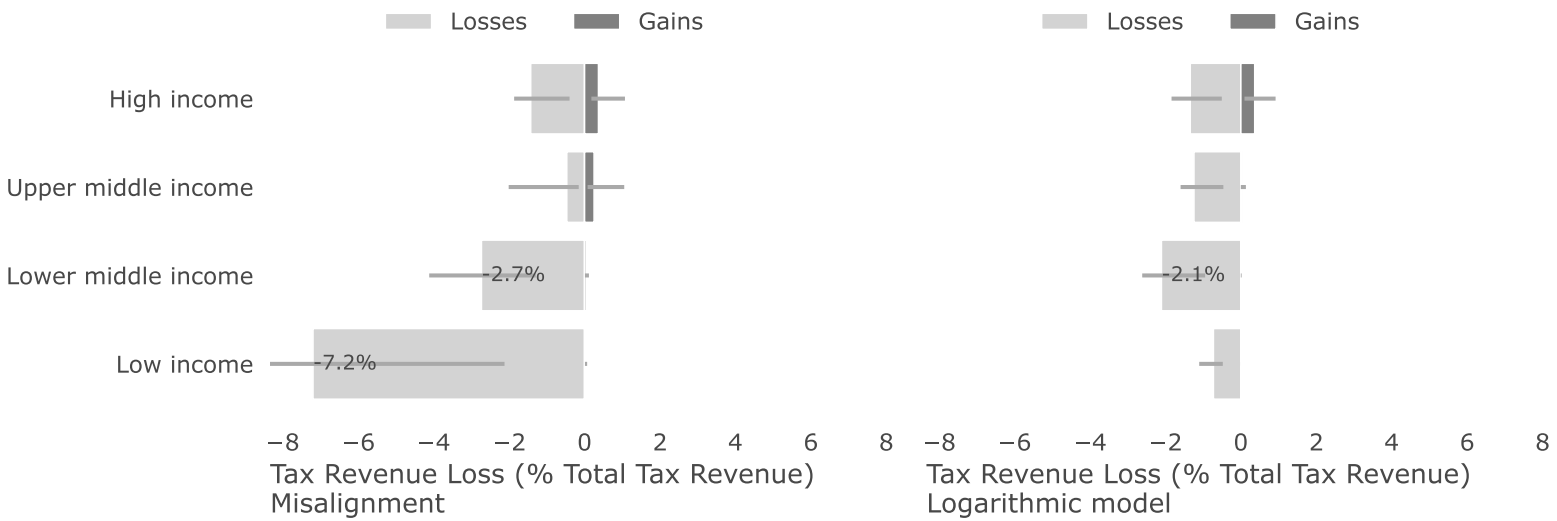
Share of profit shifted into countries, grouped by the effective tax rates

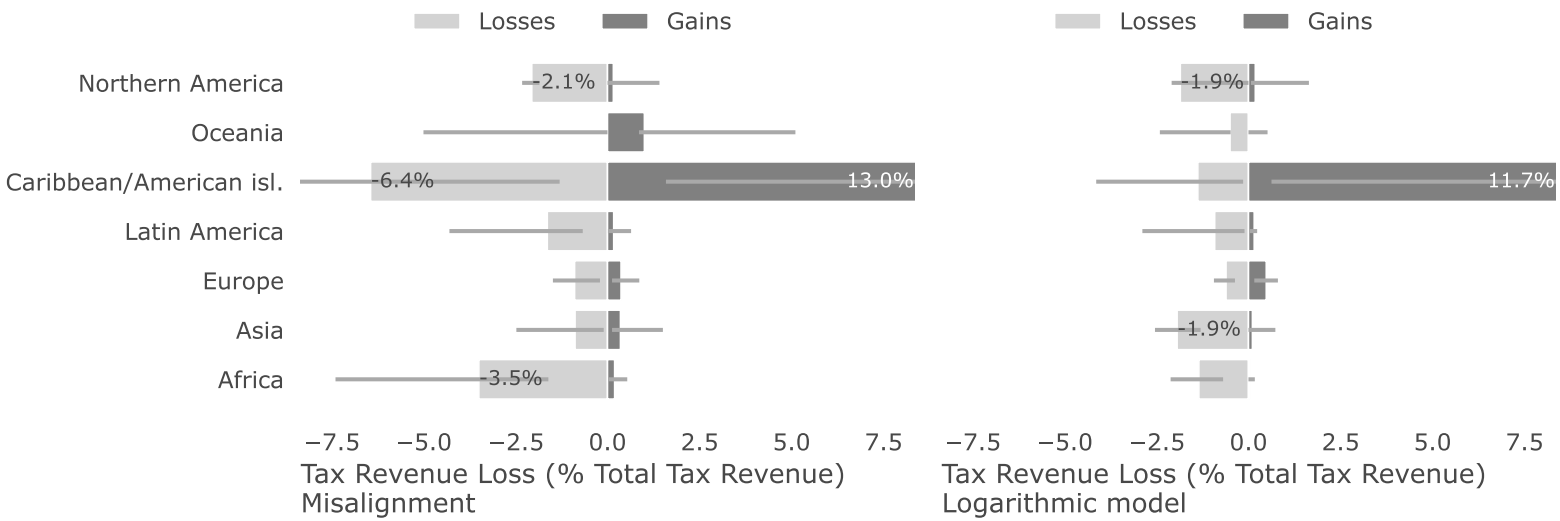
ETR	Misalignment	Logarithmic	Quadratic	Linear
¡5%	40.0%	40.6%	33.5%	31.6%
5-10%	30.0%	43.1%	40.6%	39.8%
10-15%	15.4%	11.8%	16.4%	17.2%
15-25%	9.7%	2.7%	4.1%	6.1%
¿25%	4.9%	1.7%	5.4%	5.3%

Profits shifted in and out of countries



Tax revenue loss as a percentage of total revenue





The scale of profit shifting and revenue losses (billion USD)

Study	Profit shifting	Revenue loss	Data type	Country-level	Countries	Data
Cobham and Janský (2018)	-	90	Revenue	Yes	102	2013
IMF's Crivelli et al. (2016)	-	123	Revenue	No	173	2013
Keen et al. (2014)	-	180	Revenue	Yes	46	2012
OECD's Johansson et al. (2017)	-	100-240	Orbis	No	46	2010
Fuest, Greil, et al. (2022)	271	104	CBCR	No	-	2019
Janský and Palanský (2019)	420	125	FDI	Yes	79	2016
UNCTAD's Bolwijn et al. (2018)	700	200	FDI	No	72	2012
Bratta et al. (2021)	786	217	CBCR	No	-	2017
This paper	**862-867**	**177-257**	**CBCR**	**Yes**	**214**	**2017**
Tørsløv et al. (2022)	946	243	FDI	Yes	57	2018
Wier and Zucman (2022)	969	247	FDI	Yes	57	2019
Clausing (2016)	1076	279	FDI	Yes	25	2012
Tax Justice Network (2021)	1163-1334	312	CBCR	Yes	200	2017

Summary of findings

- Bigger than previously estimated
- Low effective tax rates
- Low-income countries more hardly hit
- Future research: better data, CBCR and returns
- Implications for a global corporate tax reform

Petr Janský

Charles University

petrjansky.cz

@petr_jansky

petr.jansky@fsv.cuni.cz

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