

Declining Effective Tax Rates of Multinationals: The Hidden Role of Tax Base Reforms

Jules Ducept – *EU Tax Observatory; EPEE Paris-Saclay*

Sarah Godar – *EU Tax Observatory; DIW Berlin*

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The end of the race to the bottom in CIT rates?



Rasmus Corlin Christensen

@phdskat



Tax cooperation is among *the* defining triumphs of 21st century multilateralism. Revolutionary global reforms that largely wipe out century-old problems - bank secrecy, tax havens, profit shifting, opacity + - returning big \$\$\$, policy space, and democratic authority to gov'ts.



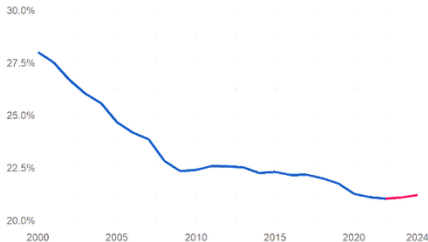
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Early effects of the global minimum corporate tax?

After half a century in free fall, the average global corporate income tax rate has *increased* since 2022, per new OECD data:

Have corporate income taxes turned a corner?

Average combined statutory corporate income tax rate, 140+ jurisdictions



Research Question

- The end of the race to the bottom could indicate the end of international tax competition
- But in corporate taxation, the base to which the rate applies is just as important
- Yet we don't know much about the rules underlying the tax base ([Flamant et al., 2021](#))

What is the role of base reforms implemented by EU countries on effective tax rates paid by multinationals?

This Paper

We need:

1. A comprehensive list of national tax base reforms \Rightarrow *EU Taxation Trends Reports*
2. Effective tax rates faced by multinationals' affiliates in each country \Rightarrow *Orbis unconsolidated financial accounts*

We do:

1. Document new facts on tax base reforms and effective tax rates trends in the EU
2. Investigate the determinants behind those reforms: tax competition > national politics > public finances (not for today)
3. Relate the downward trend in effective tax rates to tax base reforms

Key takeaway: Countries compete on the tax base too!

EU Taxation Trends Reports



Taxation Trends in the European Union

Data for the EU Member States, Iceland and Norway

Table IE.2: Latest tax reforms

Description of measure	Change	Date
Personal income tax		
Increase in Home Carer Tax Credit (raised from EUR 810 to EUR 1 000 and income threshold from EUR 5 080 to EUR 7200)	Base decrease	In force from: 01/01/2016
Introduction of an Earned Income Credit for self-employed traders and business owners	Introduction (decrease)	In force from: 01/01/2016
Capital Acquisitions Tax - increase in tax threshold for parent to child gifts or inheritances from EUR 225 000 to EUR 280 000	Base decrease	In force from: 14/10/2015
Film Relief - Cap on eligible expenditure to be increased to EUR 70 million, subject to EU State Aid approval	Base decrease	Legislation:01/01/2016
Corporate income tax		
Knowledge Development Box - 6.25% corporate tax rate for profits from certain patents and copyrighted material resulting from R&D carried out in Ireland	Rate decrease	In force from: 01/01/2016
3 year relief for start-up companies	Base decrease	In force from: 01/01/2016
Tobacco excises		
Increase in tobacco products tax	Rate increase	In force from: 31/10/2015
Other, non-harmonised excises		
Motor Tax reduction for large vehicles	Rate decrease	In force from: 01/01/2016
Other types of tax		
Reduction in base and rates of the Universal Social Charge - USC rates were cut in each of the 3 lowest bands: from 1.5% to 1% for €0 to €12 012; from 3.5% to 3% for €12 013 to €18 668; and from 7% to 5.5% for €18 669 to €70 044. The entry level was raised from €12 012 to €13 000.	Both base and rate decrease	In force from: 01/01/2016
Tax relief for young farmers extended to 2018	Base decrease	Legislation:01/01/2016
Capital Gains Tax (CGT) Entrepreneur relief	Rate decrease	In force from: 01/01/2016

Source: DG Taxation and Customs Union.

A New Tax Base Reforms Database

1. Hand collection of corporate tax reforms for 2014-2022
2. Keep reforms affecting multinationals
3. Split between base broadeners and base narrowers
4. Assign a category
 - Anti-avoidance regulation
 - Cost-based investment incentives
 - R&D incentives
 - IP regimes
 - ACE regimes
 - Loss carry regimes
 - Capital gains taxation
 - Withholding rates on payments to non-resident entities
 - Other exemptions

The Orbis Database

- Commercial product from the Bureau van Dijk company
 - Info > 450 million companies
 - Good coverage of firms' characteristics: size, industry, address, ultimate owner, etc.
 - Unequal coverage of unconsolidated balance sheets & financial accounts (Tørsløv et al., 2023)
- ⇒ Do not aim to reconstruct the consolidated accounts of MNEs...
- ⇒ ...but allow us to look at what is happening within a country

Definition of Tax Rates

Statutory tax rate: legal headline income tax rate faced by corporations at the central government level, including surtaxes (Eurostat).

v.s.

Effective tax rate: capture taxes paid as a ratio of all profits booked in the entity (Bachas et al., 2023; Janský, 2023)

$$ETR_{it} = \frac{CIT_{it}}{\Pi_{it}}$$

- CIT_{it} : Net tax liability of affiliate i in year t
- Π_{it} : Operating + Financial profits of affiliate i in year t

⇒ **Aim to measure the effective tax burden on multinationals**

The Rise of Base Narrowing Reforms

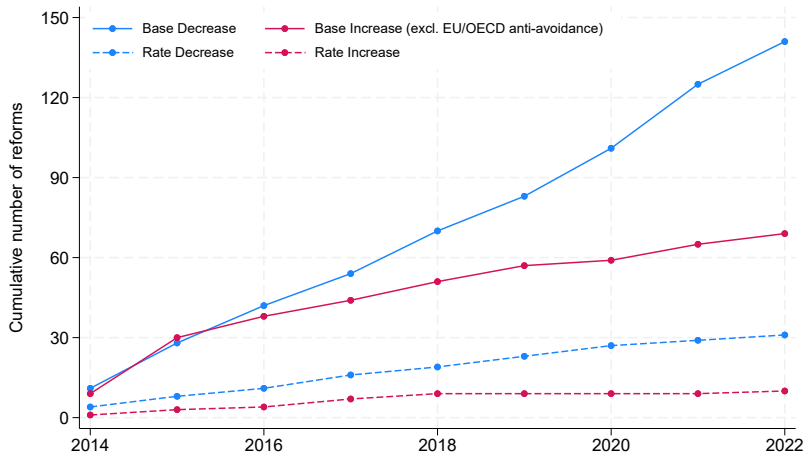


Figure: Cumulative Number of Tax Reforms

The "Cut Rate - Broaden Base" Approach...

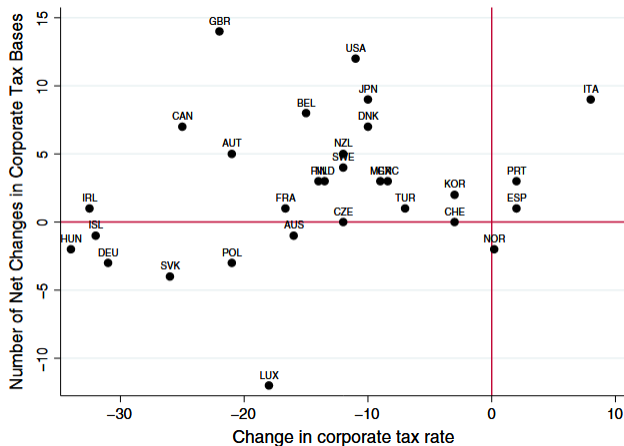


Figure: Kawano and Slemrod 2016: OECD 1980-2004

... Is Over!

▶ Table

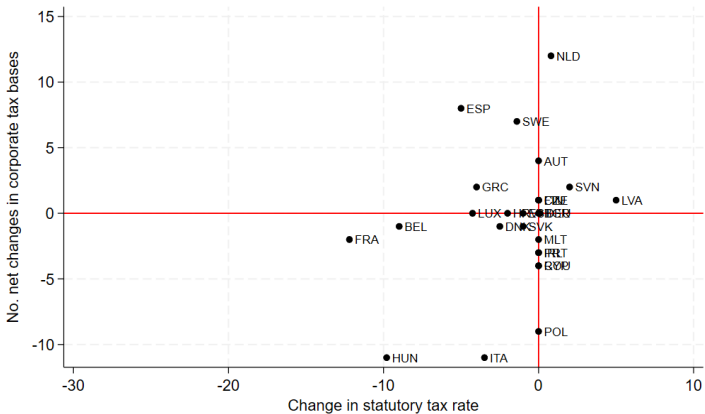


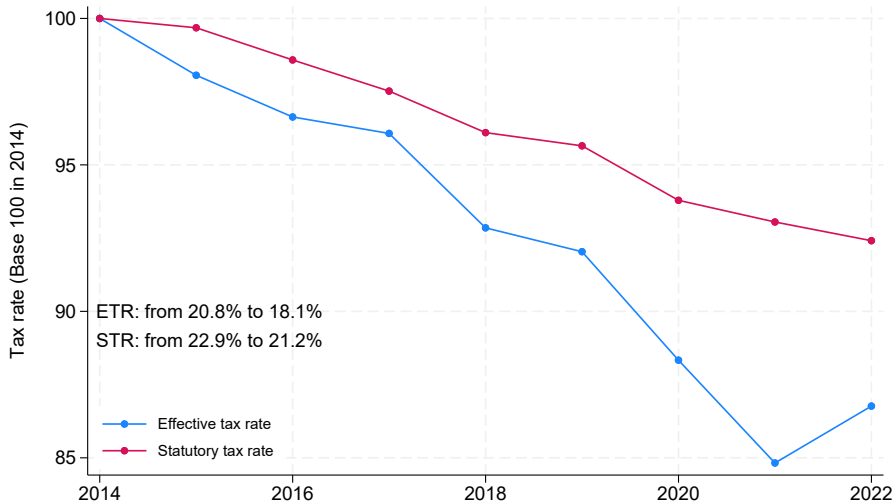
Figure: This Paper at hand: EU 2014-2022

Categories of Tax Reforms

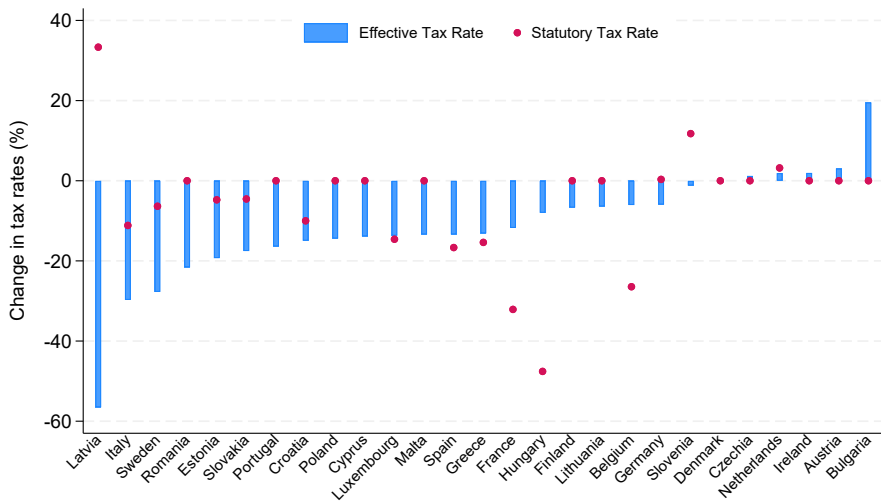
	Increasing	Decreasing
Base Reforms	113	141
<i>Anti-tax avoidance regulations</i>	54	0
<i>Cost-based investment regimes</i>	9	38
<i>Research and Development regimes</i>	3	19
<i>Intellectual Property regimes</i>	4	11
<i>Allowances for Corporate Equity regimes</i>	2	6
<i>Loss carry regimes</i>	17	7
<i>Taxation of capital gains and dividends</i>	5	7
<i>Withholding taxes on dividends, interests, and royalties</i>	2	3
<i>Other reforms</i>	17	50
Statutory Rate Reforms	10	31
Total Number of Reforms	123	172

Tax Rates Trends in the EU

► Alternatives



Change in Countries' Tax Rates



Econometric Specification

$$etr_{i,c,t} = \alpha str_{c,t} + \beta B_{c,t} + \lambda_i + \mu_t + \epsilon_{i,c,t}$$

$$etr_{i,c,t} = \alpha str_{c,t} + \beta_1 B_{c,t}^B + \beta_2 B_{c,t}^N + \lambda_i + \mu_t + \epsilon_{i,c,t}$$

- $B_{c,t}$: cumulative active base broadeners minus base narrowers
- $B_{c,t}^X$: cumulative active base broadeners (narrowers)
- Country x Year clusters: suspect SE to be correlated within country x year pairs
- Balanced sample of 41,511 affiliates (Latvia excluded, Denmark missing)
- Withholding tax rates reforms and loss carry regimes reforms are excluded

Main Results

▶ Robustness

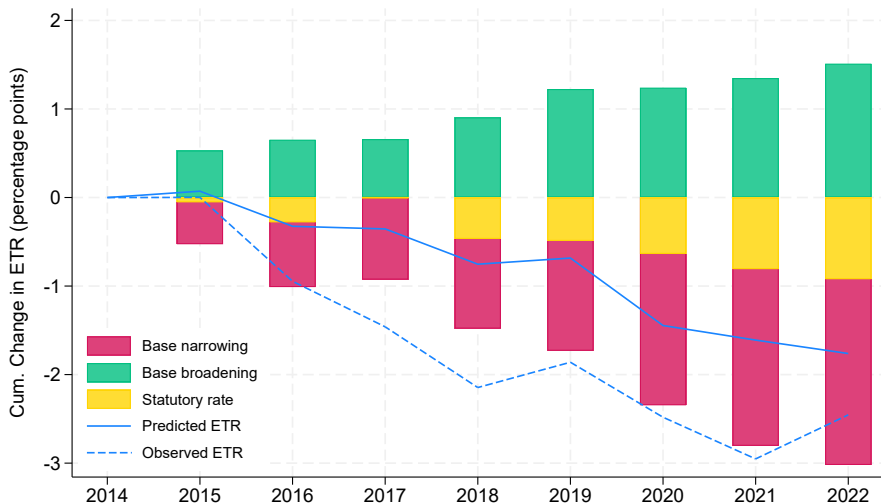
	(1)	(2)	(3)	(4)
Corporate tax rate	0.173** (0.072)	0.210*** (0.066)	0.210*** (0.066)	0.216*** (0.067)
Cum. base changes		0.382** (0.150)		
Cum. base broadeners			0.371 (0.245)	0.366 (0.244)
Cum. base narrowers			-0.384*** (0.145)	-0.378*** (0.145)
Real GDP growth				0.015 (0.074)
Log assets				-0.858*** (0.126)
Log revenues				0.041 (0.121)
Observations	373,599	373,599	373,599	373,599
R-squared	.59	.59	.59	.59

Simulation Exercise

Ongoing work: estimate the contribution of each reform to

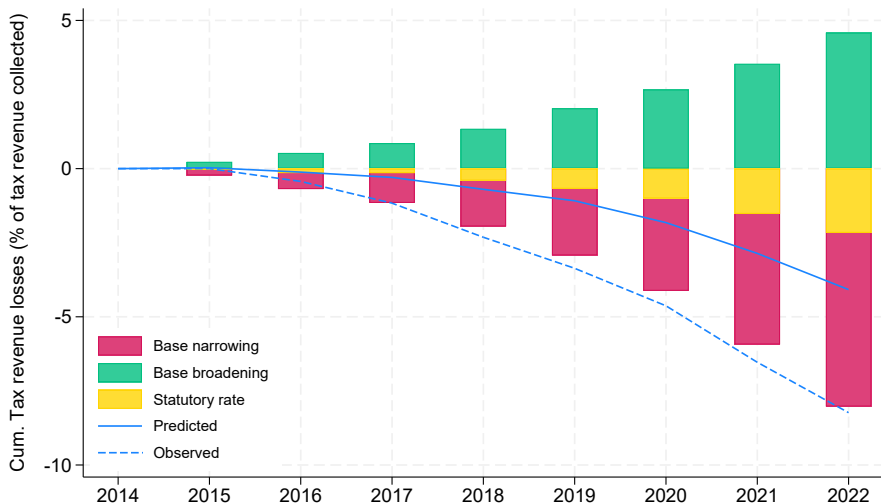
1. The decline in effective tax rates
 - (a) Predict the ETR if each type of reform had remained constant
 - (b) Aggregate ETRs weighting by profits
 - (c) Compute the change in pp for each ETR
2. The tax revenue losses
 - (a) Apply the counterfactual ETRs to total profits
 - (b) Compare the difference in taxes collected

Change in Effective Tax Rates



Tax Revenue Losses

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Let's Wrap Up

- Insights from the new database
 - Late 20th century "cut rate - broaden base" approach replaced by base erosion
 - Countries adopt R&D incentives, investment incentives, and anti-avoidance measures the most
- Effective tax rates and tax base reforms
 - Effective tax rates declining faster than statutory rates
 - Widening gap associated with base narrowing measures
 - Revenue losses should carefully be weighted against real effects
- What's next?
 1. Improve the econometric specification (we do not claim causality)
 2. Big question: do tax competition attract foreign profits and boosts real activity?

Contributions

- Academic relevance
 - Document the downward trend in ETRs for the EU 2014-2022 ([Dyreg et al., 2017](#); [Fuest et al., 2022](#))
 - Explicit the role of base reforms on ETR trends ([García-Bernardo et al., 2022](#))
 - End of the "Cut rate - Broaden base" approach ([Kawano and Slemrod, 2016](#); [Devereux et al., 2002](#))
 - Preference for targeted reforms following industrial policy objectives ([Wade, 2012](#))
 - Limited effect of anti-avoidance regulations ([Hebous, 2021](#))
- Policy relevance
 - Should focus on the race to the bottom in statutory effective rates
 - Rates matter, but rules decide!
 - Generous substance-based measures could be fostered by P2

Thank You Very Much!

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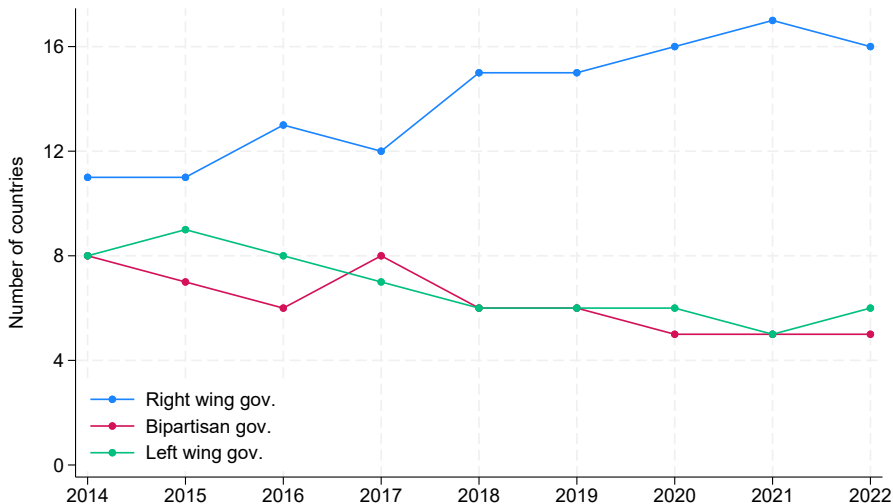
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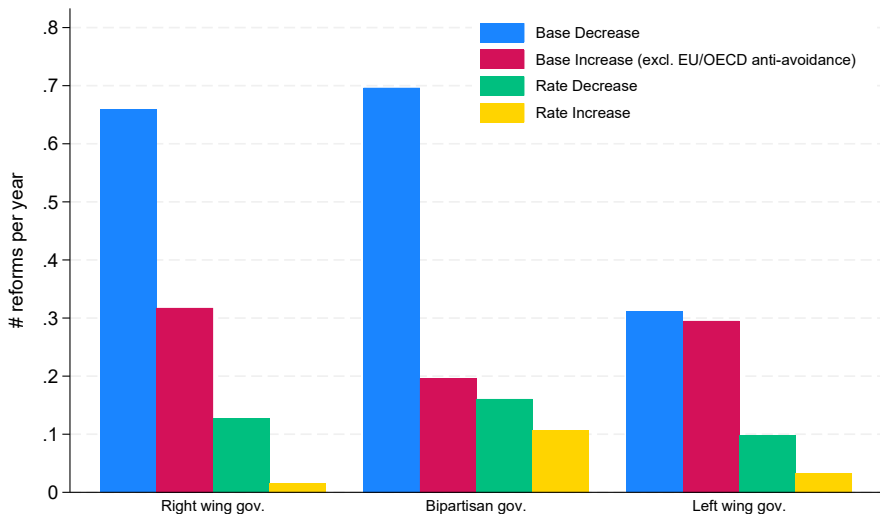
Appendix

Category	Short Description	Example
1 Anti-tax avoidance reforms	Regulations to prevent profit-shifting such as: controlled foreign company rules, exit taxes, interest deduction limitations, thin-capitalization rules.	France 2014: Limitation of the deductibility of interest to 75%.
2 Cost-based investment regimes	Investment deductions, capital allowances for investment, depreciation schemes.	Ireland 2015: Removal of restriction on capital allowances on intangibles.
3 Research and Development regimes	Incentives and tax credits for research and development expenses.	Finland 2021: Additional 50% deduction for R&D costs of cooperation with research organizations in 2021-2025.
4 Intellectual property regimes	Reduced rate and favorable taxation of income from intellectual property regimes.	Poland 2019: Preferential taxation with the reduced 5% corporate income tax rate with reference to income derived from the qualified intellectual property rights.
5 Allowances for corporate equity regimes	Allowances on the cost of equity to correct for the bias that favors debt finance over equity.	Cyprus 2015: Notional Interest Deduction on equity capital up to 80% of taxable income on new equity capital introduced on or after 1 January 2015.
6 Loss carry regimes	Provisions allowing businesses to offset current profits with losses incurred in previous years.	Spain 2017: New limits to offset losses: 70% of tax base with a minimum of EUR 1 million.
7 Taxation of capital gains and dividends	Rules on the taxation of profits derived from the sale of assets (capital gains) and income distributed to shareholders as dividends.	Belgium 2018: Raising the dividend exemptions to 100% and abolishing the minimum rate for capital gains of large companies.
8 Withholding taxes on dividends, interests and royalties	Regulations specifying the withholding tax rates applicable to payments such as dividends, interests, and royalties made to non-resident entities.	Bulgaria 2015: Exemption from withholding tax on the interest and royalty payments made from a Bulgarian economic operator to associated companies of another Member State.
9 Other reforms	Reforms that do not fall into the other classifications such as deductions of specific business expenses (cars, restaurant, etc) and tax credits related to employment and social security contributions (staff training, health, employment promotion, etc).	Austria 2014: Salaries above EUR 500,000 are no longer deductible from the Corporate Income Tax.

Political Orientation of Governments in the EU



National Politics



$$\log \left(\frac{p(\text{Reform}_{i,t} = 1)}{1 - p(\text{Reform}_{i,t} = 1)} \right) = \alpha_{i,t} + \beta_1 \text{Comp}_{i,t-1} \\ + \beta_2 \text{Politics}_{i,t} + \beta_3 \text{Macro}_{i,t-1} + \epsilon_{i,t}$$

Determinants of Rate Reforms

	(1) Rate change	(2) Rate change	(3) Rate change	(4) Rate hike	(5) Rate cut
EU Tax Competition					
Lag dist. av. statutory rate	1.119*** (0.027)	1.143*** (0.034)	1.144*** (0.036)	1.084 (0.070)	1.147*** (0.039)
National Politics					
Bipartisan gov.		1.549 (0.624)	1.527 (0.666)	5.453* (5.210)	0.936 (0.465)
Left wing gov.		0.401 (0.236)	0.338* (0.198)	1.215 (1.257)	0.284* (0.189)
Macroeconomic Conditions					
Lag real GDP growth			1.007 (0.055)	1.056 (0.047)	0.989 (0.066)
Lag public deficit			1.116* (0.073)	1.032 (0.113)	1.131* (0.083)
Lag current account			1.019 (0.062)	1.191* (0.115)	0.969 (0.067)
Lag unemployment rate			1.100** (0.042)	1.119 (0.088)	1.084** (0.040)
Observations	243	243	243	243	243

Determinants of Base Reforms

	(1)	(2)	(3)	(4)	(5)	(6)
	Base change	Base change	Base change	Base up	Base down	R&D down
EU Tax Competition						
Lag dist. av. effective rate	1.021 (0.021)	1.032 (0.023)	1.020 (0.024)	1.006 (0.028)	1.049* (0.028)	1.107* (0.058)
National Politics						
Bipartisan gov.		0.818 (0.298)	0.921 (0.355)	0.542 (0.309)	1.018 (0.408)	3.365* (2.400)
Left wing gov.		0.594 (0.223)	0.618 (0.240)	0.553 (0.289)	0.511 (0.226)	0.476 (0.407)
Macroeconomic Conditions						
Lag real GDP growth			1.021 (0.036)	0.958 (0.040)	1.035 (0.041)	1.086 (0.056)
Lag public deficit			0.907** (0.043)	1.026 (0.060)	0.879** (0.044)	0.975 (0.075)
Lag current account			1.034 (0.045)	1.137** (0.059)	0.964 (0.043)	0.831** (0.075)
Lag unemployment rate			1.033 (0.036)	1.126*** (0.044)	0.963 (0.037)	1.021 (0.079)
Observations	213	213	213	213	213	213

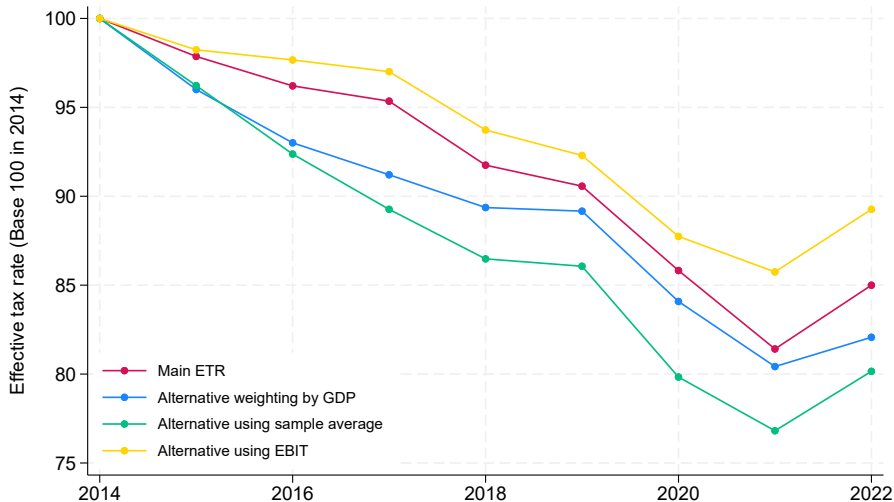
Selection Steps [▶ Go back](#)

Selection Steps	No. Affiliates
<i>In Orbis</i>	
1 Select active affiliates in the EU	14,267,810
2 Drop public authorities	13,441,624
3 Select ultimate owners with ≥ 2 affiliates in $2 \neq$ EU countries	890,061
4 Select affiliates with unconsolidated accounts	438,923
<i>Computing Effective Tax Rates</i>	
5 Drop affiliates in non-relevant industries*	388,182
6 Select affiliates with < 0 profits and ≥ 0 taxes	317,306
7 Select affiliates with $ETR \leq 100\%$	315,496
8 Select affiliates with ≥ 2 observations	260,299

Summary Stats

	Turnover	Net Profits	Net Tax Liability	Tangible Assets	Simple ETR	Weighted ETR	Statutory Tax Rate	# Affiliates
Austria	163.24	12.04	2.59	108.42	23.1	21.5	25.0	2,914
Belgium	109.65	5.13	0.78	74.16	25.4	15.2	25.0	9,406
Bulgaria	71.78	5.85	0.61	46.42	10.8	10.5	10.0	878
Croatia	16.14	1.38	0.22	15.05	15.3	15.7	18.0	1,974
Cyprus	179.29	15.56	1.69	72.07	10.0	10.9	12.5	56
Czechia	46.22	3.16	0.58	37.08	20.4	18.5	19.0	8,419
Denmark	196.35	9.03	1.11	51.27	20.3	12.3	22.0	8,815
Estonia	19.13	1.85	0.14	15.71	10.3	7.5	20.0	1,026
Finland	45.68	4.81	0.57	47.21	13.8	11.8	20.0	4,479
France	73.52	8.22	1.13	84.93	17.6	13.8	25.8	23,518
Germany	216.42	15.99	2.73	167.91	23.8	17.1	29.8	7,844
Greece	81.06	6.85	1.74	76.84	22.9	25.4	22.0	885
Hungary	58.10	3.56	0.28	45.69	10.6	8.0	10.8	2,588
Ireland	247.84	46.12	4.32	482.51	16.0	9.4	12.5	2,570
Italy	56.79	4.71	1.21	65.48	31.3	25.8	27.8	23,111
Latvia	14.86	1.19	0.07	8.76	8.9	5.9	20.0	1,713
Lithuania	24.83	2.25	0.25	17.60	14.8	11.0	15.0	2,041
Luxembourg	282.95	19.17	2.53	277.61	19.2	13.2	24.9	578
Malta	28.95	8.45	1.72	38.99	24.3	20.4	35.0	35
Netherlands	377.75	28.34	6.58	259.44	22.1	23.2	25.8	2,182
Poland	53.46	3.81	0.66	45.59	19.4	17.2	19.0	10,484
Portugal	26.75	2.72	0.58	28.08	22.4	21.3	31.5	6,132
Romania	23.77	1.98	0.26	16.49	13.2	13.2	16.0	8,261
Slovakia	15.24	1.08	0.26	12.58	20.9	24.1	21.0	9,661
Slovenia	25.96	1.58	0.23	18.59	16.3	14.3	19.0	1,550
Spain	67.33	6.00	1.34	68.16	24.0	22.4	25.0	14,587
Sweden	31.23	4.65	0.43	38.03	13.6	9.3	20.6	14,702
EU-27 av.	94.60	8.35	1.28	82.25	18.2	15.5	21.2	6,311

Alternative ETRs

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Robustness Checks: Alternative Count of Reforms

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Main		Incl. Withholding Taxes			Excl. Anti-Avoidance			Excl. Other Reforms			
Corporate tax rate	0.210*** (0.066)	0.210*** (0.067)	0.216*** (0.067)	0.183*** (0.067)	0.182*** (0.065)	0.188*** (0.066)	0.233*** (0.069)	0.240*** (0.078)	0.246*** (0.079)	0.192*** (0.068)	0.196*** (0.065)	0.201*** (0.067)
Cum. base changes	0.382** (0.150)			0.275** (0.128)			0.371** (0.150)			0.586** (0.270)		
Cum. base broadeners		0.369 (0.245)	0.365 (0.243)		0.181 (0.160)	0.178 (0.159)		0.462 (0.339)	0.459 (0.338)		0.344 (0.263)	0.338 (0.262)
Cum. base narrowers	-0.384*** (0.145)	-0.377*** (0.145)		-0.313** (0.130)	-0.307** (0.130)		-0.363** (0.141)	-0.358** (0.142)		-0.675** (0.275)	-0.663** (0.274)	
Real GDP growth			0.015 (0.074)			0.011 (0.082)			0.018 (0.077)			-0.001 (0.078)
Log assets			-0.858*** (0.126)			-0.885*** (0.129)			-0.870*** (0.132)			-0.884*** (0.129)
Log revenues			0.041 (0.121)			0.045 (0.121)			0.049 (0.123)			0.064 (0.124)
Observations	373,599	373,599	373,599	373,599	373,599	373,599	373,599	373,599	373,599	373,599	373,599	373,599

Robustness Checks: Alternative ETRs

	(1)	(2)	(3)
Corporate tax rate	0.200*** (0.057)	0.200*** (0.057)	0.207*** (0.058)
Cum. base changes	0.271** (0.113)		
Cum. base broadeners		0.278 (0.180)	0.272 (0.179)
Cum. base narrowers		-0.271** (0.110)	-0.264** (0.109)
Real GDP growth			0.023 (0.061)
Log assets			-1.064*** (0.189)
Log revenues			0.196 (0.162)
Observations	351,711	351,711	351,711

Wrap Up

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	ETR Decline (pp)	Tax Revenue Loss (bn €)	Tax Revenue Loss (% collected)
Observed	2.5	37.4	8.2
Predicted by the model	1.8	18.6	4.1
Corporate tax reforms	1.5	15.7	3.5
<i>Statutory rate changes</i>	<i>0.9</i>	<i>9.8</i>	<i>2.2</i>
<i>Base narrowing reforms</i>	<i>2.1</i>	<i>26.6</i>	<i>5.9</i>
<i>Base broadening reforms</i>	<i>-1.5</i>	<i>-20.7</i>	<i>-4.6</i>
Other controls	0.3	2.9	0.6
Unexplained by the model	0.7	18.8	4.1

Frequency of Statutory Rate and Tax Base Changes

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	Kawano and Slemrod (2016)	This Paper
Base Change Frequency		
Base change	44.1	49.8
of which base broadening	56.9	44.5
of which base narrowing	43.1	55.5
Rate Change Frequency		
Rate change	26.1	16.9
of which rate hike	21.6	24.4
of which rate cut	78.4	75.6
Simultaneity of Rate & Base Changes		
Base change & Rate change	13.7	10.3
Base stable & Rate change	12.3	6.6
Base change & Rate stable	33.4	39.5
Base stable & Rate stable	40.5	43.6
Simultaneity of Base Changes		
Both directions	8.3	12.8
Multiple base broadening	8.7	8.6
Multiple base narrowing	6.3	13.6
Likelihood of Base Change		
Conditional on stable rate	45.2	47.5
Conditional on changing rate	52.6	61.0
Likelihood of Base Change Conditional on Rate Hike		
Base change	51.4	70.0
Base broadening	37.8	30.0
Base narrowing	16.2	40.0
Likelihood of Base Change Conditional on Rate Cut		
Base change	53.0	58.1
Base broadening	36.6	41.9
Base narrowing	26.1	35.5

Regression Results using KS 2016 Measure

	(1)	(2)
Corporate tax rate	0.210*** (0.066)	0.191*** (0.064)
Cum. base changes	0.382** (0.150)	
Cum. base changes (KS 2016)		0.385** (0.163)
Observations	373,599	373,599