Revenue Effects of the Global Minimum Tax under Pillar Two

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The two-Pillar solution of the Inclusive Framework – Timeline

○ Oct. 2015: OECD's **"Addressing the Tax Challenges of the Digital Economy, Action 1"** report.

○ Oct. 2020: Pillar One and Pillar Two blueprints; OECD's Economic Impact Assessment.

○ Jul. 2021: **First joint statement** agreed among 130+ members of the Inclusive Framework (IF).

○ Oct. 2021: Second joint statement clarifying design and implementation (15% minimum rate).

○ Dec. 2021: Publication of the **Pillar Two Model Rules** and **EU Commission's directive proposal**.

○ Feb. 2022: Publication of draft nexus and revenue sourcing rules for Pillar One Amount A.

○ Mar. 2022: Release of the OECD's Commentary to the Pillar Two Model Rules.

The two-Pillar solution of the Inclusive Framework - Principle

- Pillar One allocates a share of the excess income of the most profitable multinational firms to their "market jurisdictions", where final customers and users are located:
  - Focused on multinational companies with a consolidated turnover above €20 billion and a profitability margin (pre-tax profits / revenue) of at least 10%;

  - 25% of residual profits (profits before tax minus 10% of the turnover) are allocated to market jurisdictions for taxation. Typically, a country is considered as part of a multinational's market jurisdictions if the firm draws at least €1 million in revenue from it;

  - Tax base is allocated based on each market jurisdiction's share of the firm's sales.

- Pillar Two introduces a global minimum tax of 15% on corporate profits of large MNEs. It acts like a top up tax applied on a jurisdictional basis and it includes exemptions for multinationals' real economic presence, the substance-based income exclusion or "carve-outs".

Overview

1. Related literature

2. Main data sources

3. Methodology

4. Key findings

5. Conclusion

1. Related literature

Simulations of revenue gains from a global minimum tax

- Examples of studies:
  - Devereux et al. (2020);
  - OECD ("Economic Impact Assessment", 2020);
  - Clausing, Saez and Zucman (2021).

- In particular, **the OECD's aggregate revenue gain estimates** could serve as a useful benchmark.
  - The OECD also provide an assessment of the effect of substance-based carve-outs;

  - They describe the interaction with Pillar One and introduce certain behavioural responses;

  - Latest aggregate revenue gain estimates: **"estimated to generate around USD 150 billion in additional global tax revenues annually"** (October 2021).

Related literature

Studies using aggregated country-by-country report statistics

- Examples of studies:
    - Garcia-Bernardo, Janský and Tørsløv (2019);
    - OECD ("Economic Impact Assessment", 2020);
    - Clausing, Saez and Zucman (2021);
    - Garcia-Bernardo and Janský (2021).

- These studies introduce important caveats regarding the data[1], including:
    - Weight of **"stateless entities"**. Most studies that explicitly deal with the issue exclude these observations (OECD, Clausing et al., Garcia-Bernardo and Janský);

    - Double-counting of **intra-firm dividends** (discussed in more details in appendix);

    - **Heterogeneous aggregation levels** for taxpayer confidentiality purposes. The OECD and Garcia-Bernardo and Janský propose algorithmic estimations for unobserved country pairs.

[1] Several are also detailed in the dedicated <u>disclaimer</u> of the OECD.

2. Main data sources

The OECD's aggregated country-by-country report statistics

- **Two years** of data already available: 2016 with 26 unique reporting countries; 2017 with 38 unique parent jurisdictions (released in July 2021).

- **Diverse financial and operational indicators** broken down based on the tax residence of the multinational companies' affiliate, among which:
  - Revenues (intra-group and unaffiliated);
  - Profits before tax;
  - Income taxes paid and accrued;
  - Tangible assets
  - Number of employees.

- **Broad geographical coverage**:
  - In 2017, 213 unique partners covered, with on average 49 partners per reporting country[1];
  - Certain parent countries report a continental breakdown (Africa, Asia, America, Europe…);
  - 4 parent countries provide only a split between domestic activities and a "Foreign Jurisdictions Total".

Main data sources

Snapshot of Table I OECD CbCR Data

Year	2017 ⬍ ℹ								
Grouping	All Sub-Groups ⬍								
						Financial Variables			
Variable	Number of CbCRs ℹ	Number of CbCR Sub Groups ℹ	Number of Entities ℹ	Unrelated Party Revenues ℹ	Related Party Revenues ℹ	Total Revenues ℹ	Profit (Loss) before Income Tax ℹ	Income Tax Paid (on Cash Basis) ℹ	Income Tax Accrued - Current Year ℹ
	▲▼	▲▼	▲▼	▲▼	▲▼	▲▼	▲▼	▲▼	▲▼

Ultimate Parent Jurisdiction ℹ	Partner Jurisdiction ℹ								
Singapore	Australia	34	34	763	13 860 888 692	2 370 485 905	16 231 374 598	2 707 102 474	378 354 064	309 895 481
	Germany ℹ	15	15	54	1 464 445 929	136 491 602	1 600 937 531	79 817 551	12 043 554	24 393 792
	Korea	15	15	36	193 680 482	473 736 245	667 416 729	95 188 586	19 598 520	25 694 897
	Mexico	10	10	17	656 791 827	447 335 717	1 104 127 544	24 834 984	9 184 049	6 821 925
	Netherlands	23	23	145	3 565 033 430	1 908 803 728	5 473 837 157	913 238 874	14 909 886	17 391 814
	New Zealand	15	15	50	1 299 225 054	128 453 737	1 427 678 790	130 396 484	29 945 069	27 931 601
	United Kingdom	29	29	264	5 804 748 580	1 224 143 565	7 028 892 145	563 093 672	97 468 674	79 676 731
	United States	32	32	276	7 753 281 777	5 118 054 029	12 871 335 804	-428 519 647	374 951 445	141 885 352

Main data sources

## Data compiled by Tørsløv, Wier and Zucman (2019)

- In the "Missing profits of nations", Tørsløv, Wier and Zucman (TWZ, 2019) use national accounts and foreign affiliate statistics (FATS) to estimate the global scale of profit shifting.

- Provide estimates of the profits booked in tax havens by the multinational companies from 73 parent countries and data on domestic corporate profits and effective tax rates for 78 countries. These allow us to extend our sample from the 36 parent jurisdictions in the OECD's positive-profit sub-sample to 83 unique headquarter countries.

- In TWZ data, effective tax rates are not known for profits booked in tax havens. We also lack information on profits booked in non-havens and the corresponding amounts of taxes paid. TWZ gives the profits in tax havens. Thus, we construct the estimates of non-havens based on ratios of profits in non-havens/ profits in tax havens from the OECD CbCR data.

- Both datasets are generally consistent, in 2016 and 2017. They indicate that about 40% of multinationals' profits booked outside of their headquarter country are registered in tax havens.

3. Methodology

Estimating Effective Tax Rates

- We focus on the positive-profit sub-sample as including losses could introduce an upward bias.

- We take income taxes paid (on cash basis) as numerator. Missing values are imputed with income taxes accrued or secondarily, based on the statutory tax rate of the partner jurisdiction.

- The effective tax rate (ETR) of each parent / partner pair is **averaged over both years of data**, excluding observations with negative profits or income taxes paid and upgrading 2016 values.
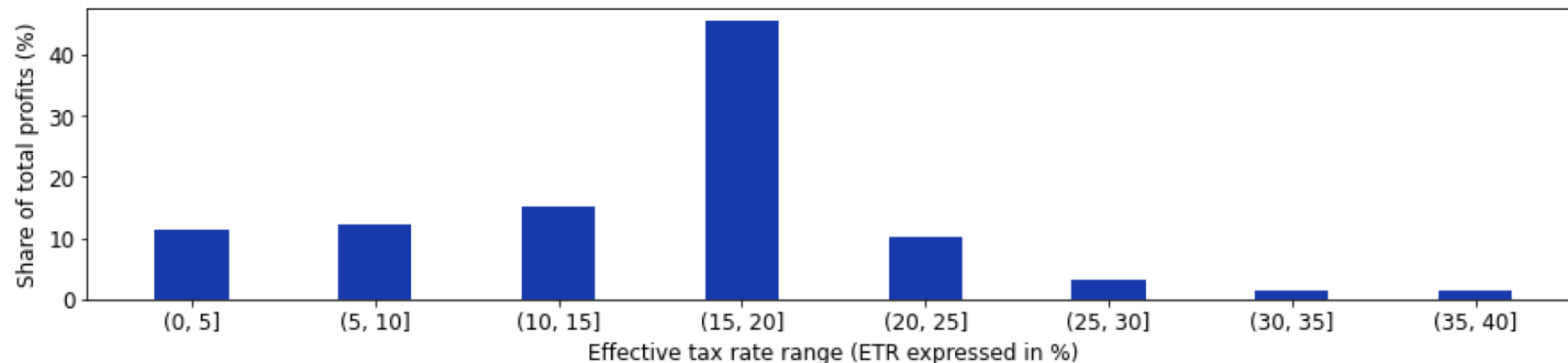
Income Inclusion Rule (IIR) simulation

- We simulate the static revenue gains from a multilateral agreement on a global minimum tax, including the domestic activities of multinational firms for EU Member States. Revenues are **first assumed to be exclusively collected by headquarter countries**, as per the IIR.

- With country-by-country report statistics:
    - There is a tax deficit for the home country to collect if the estimated ETR is below 15%.

    - The total tax deficit of any reporting country p **writes as follows**:

$$Tax\ deficit_p = \sum_{j}^{J}[max(15\% - ETR_{p,j}, 0) * Tax\ base_{p,j}]$$

- With TWZ data, profits booked in tax havens are assumed to be taxed at an ETR of 10% and profits booked in non-haven partners at an ETR of 20%. The non-haven tax deficit is imputed from the tax haven one with different computations depending on the minimum rate selected.

Qualified Domestic Minimum Top-up Tax (QDMTT) simulation

- In an alternative scenario, we assume that host jurisdictions – i.e., the countries in which profits are booked – **all adopt a QDMTT and therefore collect top-up taxes**. This only affects the distribution of revenue gains, and not their aggregate amount.

- With country-by-country report statistics:
    - There is a tax deficit for the host country to collect if the estimated ETR is below 15%.

    - The total tax deficit of any partner country *j* **writes as follows**:

$$Tax\ deficit_j = \sum_{p}^{P}[max(15\% - ETR_{p,j}, 0) * Tax\ base_{p,j}]$$

- With TWZ data, profits booked in the few tax havens explicitly detailed as partners generate revenues for each of these host jurisdictions. Revenues from profits booked in the other tax havens are split proportionally to the tax deficits observed in country-by-country data. Eventually, non-havens' revenues are uprated to match the aggregate revenue gains of the first scenario.

Introducing the substance-based income exclusion

- In the July 1st statement of the Inclusive Framework (IF), substance-based carve-outs of at least 5% of the carrying value of tangible assets and 5% of payroll are mentioned. On October 8th, IF members agreed on a transition period of 10 years, from **8% tangible assets/10% payroll to 5%/5% carve-out rates.**

- From there, we model substance-based carve-outs as:
  - **A share of total tangible assets** as recorded in country-by-country report statistics. This differs significantly from the OECD's Economic Impact Assessment of October 2020;

  - **Plus a share of estimated payroll**, obtained as the product of the number of employees (included in country-by-country report statistics) with the local mean nominal earnings as per data from the International Labour Organization (ILO). Earnings are uprated by 20%.

- Carve-outs are subtracted from profits for each country pair in country-by-country report data and do not affect the ETRs; their average impact on tax bases is also applied to TWZ data.

4. Key findings

- Total revenues are around 179 billion euros (150 billion euros with carve-outs) in line with the OECD's $150 billion estimate announced in October 2021.

- Carve-outs would decrease revenues:
  -for the total sample by 22% in the first year and by 14% in the long term
  -for Singapore by 29% in the first year and by 14% in the long term

- The EU and US would collect the most with 67 and 58 billion each respectively

- Countries with high number of MNEs and that are tax aggressive would benefit the most under IRR scenario

Country	Nb. of MNE's	Without Carve-outs	Carve-outs (8%, 10%)	Carve-outs (5% 5%)
France	176	4.0	3.3	3.6
Germany	343	13.3	8.0	10.1
Greece	14	2.2	1.5	1.7
Hungary	-	0.6	0.3	0.4
Ireland	41	12.6	11.1	11.7
Italy	115	3.1	2.4	2.7
Luxembourg	70	5.9	4.6	5.1
Romania	3	0.1	0.0	0.1
EU	-	67.1	47.4	55.2
Argentina	15	0.1	0.1	0.1
Australia	112	1.8	1.4	1.6
Brazil	71	1.5	1.3	1.4
China	231	6.2	3.4	4.4
India	146	0.6	0.4	0.4
Indonesia	25	0.1	0.1	0.1
Japan	606	6.0	4.8	5.2
South Korea	187	0.0	0.0	0.0
Malaysia	34	0.5	0.3	0.3
Singapore	49	0.7	0.5	0.6
South africa	43	3.0	2.4	2.6
Switzerland	60	3.5	3.0	3.2
United kingdom	301	7.0	5.1	5.9
United states	1,094	58.1	52.1	54.4
Full sample	**-**	**179.1**	**139.2**	**154.5**

IIR/HQ scenario: Additional findings

- For the EU countries, our estimates of the IRR scenario reflect how much the headquarter countries can collect from their multinationals' foreign affiliates but also, from domestic affiliates.

- The income inclusion rule might affect the fundamental freedoms of the EU such as the freedom of establishment and the free movement of capital because of the unequal treatment of domestic and foreign affiliates. That is why, we include in our estimate the revenues from the top up tax from the domestic and foreign activities of EU MNEs.

- Moving from collection by headquarter countries to collection by host jurisdictions, the 154 billion euros revenues would be attributed differently.

- The low-tax jurisdictions that attract affiliates of many multinationals appear among the main beneficiaries in the QMTT scenario.

- This is the case of the Cayman Islands (€11 billion), Switzerland (€8 billion), Bermuda (€8 billion), Singapore (€8 billion) or Puerto Rico (€5 billion) for instance.

- Revenues collected by the US would fall from €54 billion to €3 billion. US multinational companies book sizable earnings in foreign low-tax jurisdictions but profits booked in the US are generally taxed at a rate higher than 15%.

- Revenues collected by the EU would be the same around 54-55 billion euros but the revenues would be allocated differently among countries.

Country	IRR (HQ)	QDMTT (Host country)
France	3.6	0.2
Germany	10.1	5.5
Greece	1.7	0.1
Hungary	0.4	0.5
Ireland	11.7	4.5
Italy	2.7	0.8
Luxembourg	5.1	12.5
Romania	0.1	0.1
EU total	55.2	54.1
Argentina	0.1	0.0
Brazil	1.4	0.3
China	4.4	0.5
India	0.4	0.0
Indonesia	0.1	0.1
Japan	5.2	0.0
Korea	0.0	0.0
Singapore	0.6	7.9
Malaysia	0.3	0.1
Australia	1.6	2.4
South africa	2.6	0.0
Switzerland	3.2	8.1
United kingdom	5.9	7.3
United states	54.4	3.4
Full sample	154.5	154.5*

Getting a sense of the global distribution of tax revenue gains

- Slightly more than 40% of the parent countries in our sample are considered developed countries and around 57% are considered as developing (United Nations 2020 classification) .

- With the IIR (HQ) scenario, **developed countries account for 86%** of the aggregate revenue gains (58% for G7 members). **Developing countries would collect only 14%.**

- We identify more partner jurisdictions in our data. The weight of developing countries is similar (55%) but we have now more least developed and in transition economies.

- In the QDMTT scenario, revenues are rebalanced in favour of developing countries (**32%**). Developed countries would collect 61% and G7 members revenues decrease from 58% to 11% , while least developed countries are still attributed marginal gains.

Classification	nb of countries	HQ scenario	nb of countries	QDMTT scenario
Developed	34	133.4	41	95.5
of which G7	7	*89.5*	7	*17.4*
Developing	48	21	108	49.2
In transition	1	0.2	13	0.1
Least dev	0	0	35	0.1
Undetermined	-	-	-	10.5
Total	83	154.5	197	154.5

Focus on Asia

Revenues from IRR and QDMTT

Country	nb of MNEs	ETR of MNEs abroad	IRR scenario	QDMTT scenario	Nb. of foreign MNEs	ETR
China	231	11.8%	4.4	0.5	1,919	18.8%
Indonesia	25	6.5%	0.1	0.1	691	27.5%
Japan	606	14.3%	5.2	0.0	928	22.8%
Malaysia	34	12.4%	0.3	0.1	1,041	17%
South Korea	187	18%	0.0	0.0	1,051	20%
Singapore	49	7.5%	0.6	7.9	1,477	5%
India	146	22%	0.4	0.0	1,289	35%
Hong Kong	109	18.5%	1.5	4.1	1,448	7%

Under IRR, these 8 Asian countries would collect 12.5 billion (around 8% of total pillar II revenues)

Under QDMTT, they would collect 12.7 billion (around 8%)

5. Conclusion

Conclusion

- Using the OECD's aggregated country-by-country report statistics and data compiled by Tørsløv et al. (2019), we simulate the revenue effects of the Pillar Two minimum tax under two scenarios, depending on whether top-up taxes are collected through the IIR or QDMTTs.

- Total revenues of the global minimum tax are around 179 billion euros (154 with carve-outs).

- Carve-outs substantially reduce expected revenue gains from the minimum tax, by 18% to 29% for EU Member States and by 14% to 22% for the full sample.

- We simulate revenues by country for two different scenarios: the IRR (income inclusion rule) where the headquarter country collects the top up tax and the QDMTT (qualified domestic minimum top up tax) where the host country collects the revenues.

- If only the IIR applies, developed countries should draw substantially more revenues than developing countries from the global agreement. QDMTT may reshuffle the distribution of revenue gains in favour of developing countries and low-tax jurisdictions.

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Appendix

Appendix A

Identified sources of revenue gain over- and underestimation

Overestimation	Underestimation
• *Double-counting of intra-firm dividends;* • *Observations with disproportionate profitability margins;* • Impossibility to account for deferred taxes in the ETR; • Pillar One should apply before the global minimum tax; • Newly multinational firms and *de minimis* exclusions; • Absence of revenue threshold in TWZ data.	Aggregated country-by-country report statistics may hide firm-level heterogeneity in the ETRs within a given parent / partner pair. Entities paying high corporate income taxes may compensate for those in the scope of the minimum tax.

Appendix B.1

Accounting for intra-firm dividends: Principle

- In the first releases of country-by-country report statistics, the treatment of intra-firm dividends was not yet standardized, and **multinationals may have included them or not in profits before tax**.

- Let us consider a multinational headquartered in country A with a subsidiary in country B. Part of the after-tax profits of the affiliate are transferred as dividends to the parent company. If the group includes dividends in its reported profits before tax, they will appear both in B and in A.

- Plus, since dividends are generally subject to no or only to light taxation, this **distorts the domestic ETR of the multinational downwards** (dividends accrue to the denominator without affecting the numerator). This may lead to overestimating domestic tax deficits.

- Clear guideline to exclude intra-firm dividends from pre-tax profits will only come into effect for the data distribution of the fiscal year 2020.

Appendix B.2

Accounting for intra-firm dividends: Quantifying the issue

- The only hints available to quantify this phenomenon are **country-specific notes**. For the 2017 fiscal year, the UK and the Netherlands provide adjusted domestic profits before tax. Sweden also proposes a (prudent) adjustment for domestic pre-tax profits.

- We propose a rule-of-thumb extension of these adjustments to other parent countries and compute revenue gain estimates that account for the double-counting of dividends.

Appendix B.3

Accounting for intra-firm dividends: Rule-of-thumb adjustment

- We propose a simple extension of the adjustments of the UK, the Netherlands and Sweden to other countries and estimate revenue gains that account for the double-counting of dividends.

- Based on the adjusted profits summarized in the table p. 36, we multiply all unadjusted domestic profits before tax by the average 2017 adjustment factor (i.e., by 60%).

- Due to the prudent adjustment proposed by the Swedish tax authority, these revenue gain estimates without carve-outs can likely be considered as lower bounds .

Appendix C

Outlying observations

- Specific to the Belgian and Singaporean aggregated country-by-country reports, we identify 3 parent / partner pairs with unrealistically high profitability margins (defined as the ratio of profits before tax to total revenues) or implausible variations in profits between income years.

- Proposed correction: in our benchmark simulations, we therefore replace the problematic observations with what is observed for the same parent-partner pair in the other, hypothetically non-distorted financial year, applying nominal GDP growth rates for the sake of comparability.

Appendix D.1

Should we expect a reduction in the intensity of profit shifting?

- The higher the difference in tax rates between the country where the firm is located and the destination of shifted income, the stronger the profit shifting incentive:

  - Several studies have found a **semi-elasticity of profits with respect to tax rate differentials of about -0.8 to -1** – e.g., Heckemeyer and Overesch (2017) or Johansson et al. (2017);

  - Bratta et al. (2021) find that the response to changes in tax rate differentials is nonlinear with much higher behavioural responses for tax havens.

- However, analysing the effects of GILTI, Garcia-Bernardo, Janský and Zucman (2021) find that the **share of foreign pre-tax profits booked by US multinational companies in tax havens remained stable from 2015 to 2020**, around 50 to 60%. This may question the effect described above.

- Should multinational companies repatriate a part of their profits shifted to tax havens, this would reduce the amount of undertaxed income and thus, aggregate revenue gains from Pillar Two.

Appendix D.2

Other behavioural effects and legal aspects

- **Substance-based carve-outs can shape incentives**. Firms could concentrate both their profits and their assets or employees in low-tax jurisdictions. Governments may also have a stronger incentive to provide preferential tax treatments conditional on the economic activity generated. Such responses may affect both aggregate revenue gains and their distribution.

- Regarding **the possibility for host countries to adopt a QDMTT**, we present two polar scenarios. In practice, however, a hybrid case is more likely, depending on the administrative cost of these instruments and the discretionary decisions of governments. As underlined by the outcomes of our two scenarios, the distribution of revenue gains could be significantly affected.

- The distribution of revenue gains from the global minimum tax will depend on **the treatment of US multinational companies' GILTI top-up tax payments**. If these are included in the "taxes covered" of the model rules, this would raise the ETRs computed for US multinationals and thereby reduce the top-up taxes to be collected by host countries under the QDMTT.