NOTE No.2

REVENUE EFFECTS OF THE GLOBAL MINIMUM TAX: COUNTRY-BY-COUNTRY ESTIMATES

Mona Barake,
Paul-Emmanuel Chouc,
Theresa Neef,
Gabriel Zucman

October 2021

EUTAX Observatory

TABLE OF CONTENTS

SUMMARY

In October 2021, 136 countries and jurisdictions agreed on the swift implementation of a major reform of the international corporate tax system. In this note, we present simulations of the revenue effects of the global minimum tax of 15% laid out in this agreement. We base our analysis on the most recent country-by-country report statistics released by the OECD.

We find that high-income countries stand to gain the most from the 15% global minimum tax because most multinational companies are headquartered in high-income countries. The European Union would increase its corporate income tax revenue by more than €80 billion a year, by levying a minimum tax of 15% without carve-outs, an increase equivalent to a quarter of current corporate tax revenue. The United States would gain about €57 billion a year. Revenue gains would be smaller in developing countries (e.g., €6 billion for China, €4 billion for South Africa, €1.5 billion for Brazil).

We also find that substance-based carve-outs—exemptions that were made more generous in the final agreement—decrease revenues from the minimum tax. In the agreement reached in October 2021, profits equal to 10% of assets plus 8% of payroll are exempt from the minimum tax for the first fiscal year. This exemption reduces revenues from €83 billion to € 64 billion or 23% of the initial revenue gain for the EU-27. Over ten years, the carve-out rates progressively decrease to 5% of assets and payroll. These long-run rates will still reduce revenue gains by about €12 billion or 14%.

Our analysis is based on the methodology used in the inaugural report of the EU Tax Observatory, "Collecting the Tax deficit of Multinational Companies: Simulations for the European Union" (Baraké et al., June 2021). We update the results of this report using more recent data, which allow us to provide more comprehensive estimates. Specifically, we draw on the July 2021 release of OECD country-by-country report statistics, which cover the year 2017 (while Baraké et al., 2021, used country-bycountry statistics that covered the year 2016). The new data include additional headquarter countries such as Germany, Spain, Switzerland, and the United Kingdom. In our original report we provided estimations for those countries based on data by Tørsløv, Wier and Zucman (2018). Based on the more comprehensive CbCR data, we find a larger revenue gain from the global minimum tax for the European Union.

1 Introduction

In October 2021, 136 jurisdictions agreed on the swift implementation of Pillar I and II of the GloBE proposal. Comparing the October 8th with the July 1st statement, the minimum tax rate was settled at exactly 15% (instead of "at least 15%" in July), and substance carve-outs were broadened for a prolonged 10-year transition period. Initially, carve-outs will stand at 8% of the value of tangible assets and 10% of payroll. Those rates will decrease over a 10-year period to reach the long-run carve-out rate at 5% of payroll and tangible assets. In this note, we will present the revenue effects of a global minimum tax laid out in Pillar II of the latest agreement. We base our analysis on the newest data release of country-by-country reports by the OECD for the year 2017.

We find that the European Union can increase its corporate tax revenue by more than €80 billion from levying a global minimum tax of 15%. This amounts to an increase of about a quarter of current corporate tax revenue in the EU-27. The United States would gain about €57 billion a year. Revenue gains would be smaller in developing countries (e.g., €6 billion for China, €4 billion for South Africa, €1.5 billion for Brazil).

However, substance-based carve-outs can substantially decrease those revenues. In the initial year, carve-outs reduce revenues from €83 billion to € 64 billion or 23% of the initial revenue gain. Over ten years, the carve-out rates progressively decrease to 5% of assets and payroll. These long-run rates will still reduce revenue gains by about €12 billion or 14%.

Developed and high-income countries gain more extra revenue from the global minimum tax than developing and low-income countries because most multinational companies are headquartered in high-income countries.

For the underlying data, we can draw on the newest data release by the OECD published in July 2021 for the income year 2017. In this year's data release more headquarter countries disclose information about the activity of their multinationals. Namely countries like Germany, Spain, Switzerland and the United Kingdom disclosed country-by-country information for the first time. In our original report we provided estimations for those countries based on data by Tørsløv, Wier and Zucman (2018). Based on the more comprehensive CbCR data, we find a larger revenue gain from the global minimum tax for the European Union.

Our analysis is based on the methodology used in the inaugural report of the EU Tax Observatory, "Collecting the Tax deficit of Multinational Companies: Simulations for the European Union" (Baraké et al., 2021) and the subsequent note published in July (Baraké et al., 2021a). We make some smaller adjustments to be fully in line with the newest agreement. Further, we flag several data issues concerning the aggregate CbCR data provided by the OECD that can still introduce estimation biases.

2 Data and Methodology

Our analysis is based on the methodology used in the inaugural report of the EU Tax Observatory, "Collecting the Tax deficit of Multinational Companies: Simulations for the European Union" (Baraké et al., 2021) and the subsequent note published in July (Baraké et al., 2021a).

For the underlying data, we draw on the newest data release by the OECD from July 2021, covering the fiscal year 2017. In this year's data release more headquarter countries disclose information about the activities of their multinationals. Namely countries like Germany, Spain, Switzerland and the United Kingdom provided aggregated country-by-country statistics for the first time. Similar to the original report, we draw on the dataset by Tørsløv, Wier, Zucman (TWZ, 2019) for EU member states not covered in the OECD's CbCR data. The dataset by TWZ (2019) is based on foreign affiliates statistics (FATS) and direct investment statistics on an ultimate ownership basis. This dataset covers a greater number of countries than the OECD's CbCR data. However, its main limitation is that it only covers profits booked in tax-haven countries. We use the positive-profits sample of both datasets.[1]

Since we can now draw on two data years, 2016 and 2017, with information on profits booked and taxes paid in each jurisdiction, we recompute the effective tax rates as the weighted average of both years' effective tax rates. This substantially stabilizes effective tax rates. Nonetheless, our new results show negligible changes to our inaugural report for the income year 2016.

To model the October agreement as precisely as possible, we simulate the revenue effects of a 15% minimum tax with and without the agreed carve-outs. Further, we include estimations on the potential revenues that countries can gain by levying a minimum tax on undertaxed headquarters. This domestic collection of the minimum tax is not explicitly laid out in the OECD agreement. However, its implementation is discussed in the juridical literature as one solution to be compatible with the freedom of establishment in the European Union (English, 2021; Pinto Nogueira, 2020; Koerver Schmidt, 2020). Different to our first report, we model a proxy of the de minimis exclusion of foreign affiliates that book less than €10m of revenue and €1m of profits in a partner jurisdiction which changes results only marginally.

In the following, we discuss several data issues concerning the OECD CbCR data in the hope that flagging them will contribute to a better data provision by the participating countries in the future. Several countries have acknowledged that booked profits might be inflated due to double-counting of intra-firm dividends. Double-counting comes about when a multinational from country A owns an affiliate in country B that owns an affiliate in country C: dividends paid by C to B are not counted as part of B's revenue, but they are sometimes counted as part of B's profit. Double counting occurs when dividends are counted both at the level of C (as profit) and B as dividends included in profit. The issue of double-counted dividends is expected to mainly affect profits reported in headquarter countries since headquarters accrue the main part of dividends from subsidiaries. In the country-by-country data, the inclusion of dividends, which are often lightly taxed as a distribution of after-tax income, can lead to artificially low effective tax rates and thus, an overestimation of potential revenues.

[1]The only exception is related to the domestic activities of Austrian multinationals: as these are absent from the positive-profits sub-sample of 2017 aggregated country-by-country data, we impute them from the full sample (including loss-making affiliates).

The Netherlands and the United Kingdom have tackled that issue and provide adjusted domestic profits for 2017. Sweden has released a country-specific note which discusses and estimates the effect of double-counting on domestically booked profits for 2016 and 2017. We use adjusted profits for these three countries. However, also for some other countries, we find unusually low effective tax rates in headquarter countries. In Appendix B, we further discuss this issue and model a rule-of-thumb adjustment for all headquarter countries.

For the case of Belgium, we find two parent-partner relations which account for a high share of the total profit of Belgian multinationals in one single year and display extraordinarily high profit-to-revenue margins. As these extremely high values occur in one year only, they could be determined by extraordinary gains. Appendix C suggests a rule-of-thumb correction.

3 Updated results

3.1 Revenues from a global minimum tax without carve-outs

We first present the revenue effects from a 15% global minimum tax without carve-outs based on the OECD's 2016 and 2017 country-by-country report data. We find that the EU member states could gain additional €80 billion in corporate tax revenues from a global minimum tax. This represents about a quarter of current corporate tax revenues (Table 1). We express revenues in billion euros, as a percent of projected corporate tax revenues in 2021 (absent a change in the tax law) and as a percent of current health spending.

Our revenue estimates have increased substantially due to the newest distribution of 2017 country-by-country data by the OECD. While we found about €50 billion of revenue based on the 2016 data, now we find revenues of about €80 billion based on 2017 data. This amounts to an increase of about 60% and comes about due to several reasons. First and foremost, several countries, among others Germany, Greece, and Spain, reported aggregate CbCR data for the first time in the 2017 distribution. In the original report, we estimated revenues of those countries using data by Tørsløv, Wier and Zucman (TWZ, 2018, 2019). These have been rather cautious estimates. For Germany, we approximated additional revenues of about €5 billion for 2016 based on TWZ (2018) data, while based on the more detailed 2017 CbCR data, we estimate revenues of €13 billion. Similarly for Spain, we projected revenues of less than €1 billion for 2016 based on TWZ (2018), while for 2017 we find about €5 billion of extra revenue. All in all, we find an increase in revenues of about €14 billion due to changes in coverage of the CbCR data. Nonetheless, we still have to be careful in the interpretation as several data issues like the unequal treatment of intra-firm dividends are not resolved. Despite the adjustments we make for three headquarter countries, there are signs that double-counting of intra-firm dividends may have a larger impact on the 2017 revenue estimates than on our previous ones (see Appendix B for a more thorough discussion). Eventually, Belgium shows an increase in revenue of €10 billion from 2016 to 2017. We discuss this strong increase in Appendix C.

For the largest EU countries corporate tax revenues would increase significantly. For example, Germany could gain more than €10 billion or about 18% of its current corporate income tax (CIT) revenue. Similarly, Italy would gain about €3 billion (8% of current CIT revenue) and France about €4 billion or 7% of current corporate tax revenues.

Table 1

Revenues of a 15% global minimum tax without carve-outs in 2021 billion €.

	Data: 2016			Data: 2017		
Parent Country	Additional tax revenue (2021 billion€)	As a % of health expenditure	As a % of corporate income tax revenue	Additional tax revenue (2021 billion€)	As a % of health expenditure	As a % of corporate income tax revenue
Austria°	3.1	7%	32%	3.1	7%	31%
Belgium°	10.3	19%	61%	21.2	40%	106%
Bulgaria						
Croatia						
Cyprus	0.3	18%	21%	0.2	16%	19%
Czech Republic	0.1	0%	1%	0.1	0%	1%
Denmark°	0.9	3%	11%	1.8	5%	17%
Estonia	0.1	6%	23%	0.1	6%	24%
Finland°	1.5	6%	27%	1.5	7%	22%
France°	4.0	1%	8%	3.9	1%	7%
Germany+	5.4	1%	8%	13.1	3%	18%
Greece+	0.1	0%	1%	2.1	13%	55%
Hungary	0.6	6%	19%	0.6	6%	20%
Ireland°	7.7	33%	91%	12.4	53%	137%
Italy°	3.2	2%	8%	3.1	2%	8%
Latvia	0.1	8%	30%	0.1	8%	32%
Lithuania						
Luxembourg°	3.5	108%	125%	5.8	177%	182%
Malta	0.1	12%	17%	0.1	11%	16%
Netherlands°	1.9	2%	7%	2.3	3%	9%
Poland	3.7	12%	41%	3.7	11%	37%
Portugal	0.1	0%	1%	0.1	0%	1%
Romania+				0.1	1%	
Slovakia	0.0	0%	0%	0.0	0%	0%
Slovenia°	0.0	0%	2%	0.0	0%	2%
Spain+	0.6	1%	2%	5.2	5%	18%
Sweden°	2.5	4%	17%	2.7	5%	18%
EU total	**49.8**	**4%**	**15%**	**83.3**	**6%**	**24%**

	Data: 2016			Data: 2017		
Parent Country	Additional tax revenue (2021 billion€)	As a % of health expenditure	As a % of corporate income tax revenue	Additional tax revenue (2021 billion€)	As a % of health expenditure	As a % of corporate income tax revenue
Argentina+				0.1		
Australia°	1.8	2%	3%	1.8	1%	2%
Brazil°	1.0	1%	2%	1.5	1%	3%
Canada°	14.8	9%	27%	24.4	14%	40%
Chile°	0.2	1%	2%	0.0	0%	0%
China°	4.5	1%	1%	6.1	1%	1%
India+				0.5	1%	1%
Indonesia°	0.0	0%	0%	0.1	0%	0%
Isle of Man+				0.1		59%
Japan°	4.6	1%	2%	5.9	1%	3%
Korea°	0.0	0%	0%	0.0	0%	0%
Malaysia+				1.6		
Mexico°	0.4	1%	1%	0.4	1%	1%
Norway°	0.4	1%	3%	0.3	1%	2%
Peru+				0.1		
South Africa°	1.0	4%	6%	3.8	14%	21%
Switzerland+				7.5		37%
United Kingdom+				11.0	4%	15%
United States°	40.8	1%	11%	57.0	2%	17%
OECD	**108.4**	**2%**	**7%**	**200.4**	**3%**	**12%**
Full sample	**119.5**	**2%**	**6%**	**205.4**	**3%**	**12%**

Notes: : ° indicates countries with OECD country-by-country data in 2016 & 2017. + indicates headquarter countries entering country-by-country data in 2017. Results for countries without markers are based on TWZ (2018, 2019) data.

The recent international agreement can be a first steppingstone for countries towards more ambitious tax rates. Table 2 presents potential revenue gains from a global minimum tax without carve-outs for rates of 15%, 21%, 25% and 30%. The European Union could double revenues from the minimum tax by moving jointly from a 15% minimum tax rate to a 21% tax rate. The increase is of similar magnitude for many countries. The increase in revenue from a higher minimum tax rate is more than proportional since more jurisdictions, where multinationals book profits, come into scope.

Table 2

Revenues of a global minimum tax of different tax rates in 2021 billion € based on country-by-country data of the fiscal year 2017.

	Revenues in billion EUR (2021) for a minimum tax rate of….			
Parent Country	**15%**	**21%**	**25%**	**30%**
Austria	3.1	5.2	6.7	8.5
Belgium	21.2	30.5	36.9	45.1
Bulgaria				
Croatia				
Cyprus	0.2	0.4	0.8	1.4
Czech Republic	0.1	0.3	1.0	2.0
Denmark	1.8	4.6	6.6	9.1
Estonia	0.1	0.3	0.4	0.5
Finland	1.5	3.2	4.4	5.8
France	3.9	16.4	26.3	39.3
Germany	13.1	32.6	47.0	65.8
Greece	2.1	3.3	4.1	5.2
Hungary	0.6	1.3	1.9	2.6
Ireland	12.4	19.0	23.5	29.0
Italy	3.1	8.3	12.0	16.6
Latvia	0.1	0.3	0.5	0.6
Lithuania	0.0	0.0	0.0	0.0
Luxembourg	5.8	9.0	11.2	14.1
Malta	0.1	0.2	0.3	0.4
Netherlands	2.3	8.1	13.8	20.9
Poland	3.7	8.1	11.1	14.9
Portugal	0.1	0.1	0.6	1.8
Romania	0.1	0.1	0.1	0.2
Slovakia	0.0	0.0	0.0	0.4
Slovenia	0.0	0.0	0.1	0.1
Spain	5.2	10.5	14.5	19.9
Sweden	2.7	7.4	10.6	14.5
EU total	**83.3**	**169.3**	**234.3**	**318.8**

	Revenues in billion EUR (2021) for a minimum tax rate of….			
Parent Country	**15%**	**21%**	**25%**	**30%**
Argentina	0.1	0.2	0.2	0.3
Australia	1.8	7.0	11.8	17.8
Brazil	1.5	6.2	10.5	16.1
Canada	24.4	43.8	56.7	72.9
Chile	0.0	0.0	0.1	0.3
China	6.1	29.7	61.1	100.7
India	0.5	1.1	1.5	2.2
Indonesia	0.1	0.6	1.3	2.3
Isle of Man	0.1	0.1	0.2	0.2
Japan	5.9	19.5	46.2	80.0
Korea	0.0	6.9	15.5	26.3
Malaysia	1.6	4.6	6.6	9.1
Mexico	0.4	0.8	1.1	1.6
Norway	0.3	2.4	4.7	7.7
Peru	0.1	0.4	0.8	1.3
South Africa	3.8	7.1	9.4	12.3
Switzerland	7.5	12.4	15.9	20.6
United Kingdom	11.0	29.4	43.4	60.8
United States	57.0	150.0	229.1	331.6

3.2 Revenues from a global minimum tax with carve-outs

The international agreements released in July and October include a substance-based carve-out. In a transition period of 10 years, this carve-out will decrease from 8% on the value of tangible assets and 10% of payroll in the first year to a constant rate of 5% on payroll and assets after 10 years. Table 3 shows the impact of those carve-outs on the revenue potential of the 15% global minimum tax. Carve-outs would decrease the revenue potential by about 23% in the first year of implementation and by about 14% for the long-run carve-out rates.

Table 3

Revenues of a 15% minimum tax without and with carve-outs in 2021 billion € based on country-by-country data of the fiscal year 2017.

Parent Country	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After 10 years: 5% of tangible assets & payroll
Austria	3.1	1.7	2.2
Belgium	21.2	20.1	20.6
Cyprus	0.2	0.2	0.2
Czech Republic	0.1	0.1	0.1
Denmark	1.8	1.4	1.5
Estonia	0.1	0.1	0.1
Finland	1.5	1.1	1.3
France	3.9	3.3	3.5
Germany	13.1	7.8	9.9
Greece	2.1	1.4	1.7
Hungary	0.6	0.3	0.4
Ireland	12.4	10.9	11.5
Italy	3.1	2.3	2.6
Latvia	0.1	0.1	0.1
Luxembourg	5.8	4.5	5.0
Malta	0.1	0.1	0.1
Netherlands	2.3	1.7	2.0
Poland	3.7	2.0	2.7
Portugal	0.1	0.0	0.1
Romania	0.1	0.0	0.1
Slovakia	0.0	0.0	0.0
Slovenia	0.0	0.0	0.0
Spain	5.2	2.5	3.6
Sweden	2.7	2.0	2.3
EU total	**83.3**	**63.9**	**71.5**
Change in %		**-23.3%**	**-14.1%**

Parent Country	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After 10 years: 5% of tangible assets & payroll
Argentina	0.1	0.1	0.1
Australia	1.8	1.4	1.5
Bermuda	2.3	1.7	1.9
Brazil	1.5	1.2	1.3
Canada	24.4	17.4	20.1
Chile	0.0	0.0	0.0
China	6.1	3.4	4.4
India	0.5	0.4	0.4
Indonesia	0.1	0.1	0.1
Isle of Man	0.1	0.1	0.1
Japan	5.9	4.7	5.1
Korea	0.0	0.0	0.0
Malaysia	1.6	1.0	1.2
Mexico	0.4	0.4	0.4
Norway	0.3	0.2	0.2
Peru	0.1	0.1	0.1
Singapore	24.3	22.6	23.2
South Africa	3.8	2.9	3.2
Switzerland	7.5	5.9	6.5
United Kingdom	11.0	6.8	8.4
United States	57.0	51.2	53.4
OECD	**227.0**	**182.4**	**199.6**
Change in %		**-19.7%**	**-12.1%**
Full sample	**232.0**	**185.2**	**203.3**
Change in %		**-20.2%**	**-12.4%**

4 Would developing countries gain from a global minimum tax?

In this section, we analyse the revenues from the global minimum tax by different country classifications: we compare developed and developing country; high-, middle- and low-income countries and countries based on geographical classification to assess which countries would gain from the agreement.

4.1 Country type classification

The 2017 country-by-country data of the OECD cover 46 headquarter jurisdictions. 35 jurisdictions or 75% of the countries covered are classified as developed by the United Nations (2020). The 11 remaining countries are classified as developing countries by the UN. However, the majority of them are emerging market economies that have experienced strong growth in the last decades. There are no least-developed countries covered in the OECD country-by-country data.

Table 4

Revenues of a global minimum tax of 15% without carve-outs by country-type classification.

Classification	No. of countries in sample	Revenue in € 2021 billion	Revenue as % of corporate income tax revenue
		Country type	
Developed	35	191.3	19%
Developing	11	14.2	2%
Least developed	.	.	.
		Income level	
High income	35	191.2	18%
Upper middle income	9	13.7	3%
Lower middle income	2	0.6	1%

To compare high-income and developed countries, which are better represented in our sample than the less-represented developing and low-income countries, we compare the share of extra revenues that can be collected with respect to the currently collected corporate taxes in the country (Table 4). We find that developed countries would generate substantially more revenue than the developing countries. While developed countries would generate around 19% of extra revenues with respect to their current corporate taxes paid, the developing countries would generate only about 2% of additional revenue as of their corporate taxes paid. Similarly, high income countries can generate revenues that represent about 18% of the corporate taxes paid, whereas this percentage is about 3% for the upper middle-income countries and 1% for the lower middle-income countries. Most of the developing countries in our sample are emerging market economies, i.e. countries with substantial growth, investments and increasing international business activity in the last decades. Still, these countries collect much less revenues than the developed economies. This will most probably leave other developing economies and least developed economies, with a priori less business development and smaller firms, with even less or no revenues to collect from the global minimum tax.

4.2 Geographical classification

Revenues generated from the minimum tax seem to be concentrated in few world regions. The three North American countries can collect about €80 billion of additional revenue from the minimum tax or about 20% of current corporate tax revenue. Similarly, the EU member states would increase their corporate income tax revenue about €80billion or about a quarter of current revenue (see Table 5). Other European countries such as the United Kingdom and Switzerland would collect 19% or current CIT revenue, a percentage that is close to the EU percentage. However, many other regions would collect less than North America and Europe: South American countries could generate about 4% of extra corporate income tax revenue, and Asian countries about 2%. For Oceania, Australia is the only reporting headquarter country from that region. Australia would be able to collect around 3% of its current corporate income tax revenue. For Africa, the only reporting country out of 55 jurisdictions is South Africa which would increase its corporate tax revenue by more than 20%. However, South Africa belongs to the BRICS countries that have experienced increasing growth and business activity in the last decades and is not representative for most African countries.

Table 5

Revenues from a 15% global minimum tax without carve-outs by geographical classification.

Geographical classification	Nb. of countries in sample	Revenue (in 2021 billion €)	Revenue as % of corporate income tax revenue
North America	3	81.8	21%
South America	4	1.7	3%
Other Europe	4	18.9	19%
EU	27	83.3	24%
Asia	6	14.2	2%
Oceania	1	1.8	3%
South Africa	1	3.8	23%

Focusing on the G7 countries, the U.S. would collect the highest share of the tax deficit with around 28% of the total tax deficit estimates from the countries in the sample. European countries such as Germany and the United Kingdom would collect 5-6% of the total tax deficit whereas France and Italy would collect only 2% with respect to the total tax deficit. The tax deficit of the G7 countries all together is around 57% of the total tax deficit, more than half of the total tax deficit in the sample. The tax deficit of the other 39 countries in the sample is 43%. While the G7 countries' tax deficit revenues are on average 21% of the taxes already paid, the extra revenues from a minimum tax going to the other countries are about 10% of the taxes paid (see Table 6).

Table 6

Revenues of a 15% global minimum tax without carve-outs of the G7 countries.

G7 classification	Revenue (in 2021 billion €)	Revenue (as % of total sample)	Revenue as % of corporate income tax revenue
United States	57	28%	19%
Canada	24.4	12%	45%
Germany	13.1	6%	15%
United Kingdom	11	5%	17%
Japan	5.9	3%	4%
Italy	3.1	2%	9%
France	3.9	2%	6%
G7 total	118.4	58%	15%
Other countries (39 pays)	87.1	42%	9%

4.3 A broader view on the headquarters of multinationals

Since the OECD country-by-country data provide information for a limited sample of countries, in this section, we complement our findings with insights from the Forbes list of the top 2000 largest publicly-traded multinationals in 2018. This list enables us to detect the countries with the largest number of multinationals, which will have an impact on the revenues that can be collected for countries since the minimum tax rate will be collected by the headquarter country. Table 7 show that more than a quarter of the multinationals, around 28%, are headquartered in the US. The G7 countries, which include the US, account for half of the headquartered multinationals in the Forbes list. This leaves less than one quarter of multinationals in the Forbes 2000 list to the remaining of the countries in the world with the other half. The 27 EU countries host 15% of the multinationals' headquarters. Asian countries host about 38% of the largest multinationals. This is driven mainly by China and Japan, as well as by South Korea and Hong Kong to a lesser extent. Oceania, South America, the MENA region and Africa seem not have large multinationals.

The overall image suggests that developed countries would benefit the most since 66% of the multinationals listed in the Forbes 2000 are headquartered there. This leaves developing countries with 33% of the multinationals and less revenues to collect from the minimum tax. The least-developed countries do not make the list of countries with large multinationals.

Table 7

Number of multinationals and share of profits of the 2000 largest MNEs by world region and further country classifications.

Number of top 2000 largest public MNEs			
	Nb. Of Countries	Percentage of MNEs	Percentage of MNEs Profits
Geographical classification			
North America	4	31%	37%
Asia	13	38%	34%
Other Europe	4	8%	9%
EU	19	15%	15%
Oceania	1	2%	2%
South America	7	2%	1%
MENA	9	3%	2%
Africa	3	1%	0%
Country classification			
Developed	26	66%	69%
Developing	33	33%	29%
In transition	2	1%	2%
Least developed	0	0%	0%
G7 classification			
United States		28%	34%
Canada		3%	3%
Germany		3%	4%
United Kingdom		4%	5%
Japan		11%	8%
Italy		1%	1%
France		3%	3%
G7 total	7	53%	58%

5 Conclusion

According to our benchmark estimates, the European Union can increase its corporate tax revenue by more than €80 billion by levying a global minimum tax of 15%. This amounts to an increase of about a quarter of current corporate tax revenue in the EU-27. The United States would gain about €57 billion a year. Revenue gains would be smaller in developing countries.

The recent international agreement can be a first steppingstone for countries towards more ambitious tax rates. The European Union could double revenues from the minimum tax by moving jointly from a 15% minimum tax rate to a 21% tax rate, from about €80 billion to almost €170 billion.

However, substance-based carve-outs can substantially reduce those revenue gains. In the initial year, carve-outs reduce revenues of a 15% minimum tax from €83 billion to €64 billion or by 23% of the initial revenue gain for the European Union. Over a transition period of ten years, the carve-out rates progressively decrease to 5% of assets and payroll. These long-run rates would still reduce revenue gains by about €12 billion or 14%.

Revenues would be unequally distributed across the globe: Developed and high-income countries gain more extra revenue from the global minimum tax than developing and low-income countries because most multinational companies are headquartered in high-income countries.

The newest data released by the OECD in July 2021 for the fiscal year 2017 is substantially more comprehensive than any CbCR data before. Nonetheless, several data issues remain that might bias revenue estimations. We discuss the cases of double-counting of intra-firm dividends and unrealistically high one-off profit margins. For each of these issues, we also propose rule-of-thumb adjustments. We hope that discussing those issues will contribute to a better data quality in the future. A great help for our research is already the country notes provided by the Netherlands, United Kingdom and Sweden that specify data issues and provide adjusted data.

We encourage readers to consult our interactive website, **https://tax-deficitsimulator.herokuapp.com**, to assess the revenue potential from minimum taxation on both domestic and foreign firms. Users can select the various scenarios discussed in this report (e.g., minimum tax with and without carve-outs), and a full range of minimum tax rates from 10% to 50%.

References

Baraké, Mona, Theresa Neef, Paul-Emmanuel Chouc, and Gabriel Zucman (2021): Collecting the tax deficit of multinational companies: Simulations for the European Union. EU Tax Observatory Report, No. 1.

English, Joachim (2021): Designing a harmonized EU-GloBE in compliance with fundamental freedoms. EC Tax Review, 30(3), 136-142.

Pinto Nogueira, João Félix (2020): GloBE and EU Law: Assessing the compatibility of the OECD's Pillar II initiative on a minimum effective tax rate with EU law and implementing it within the internal market. World Tax Journal, August 2020.

Koerver Schmidt, Peter (2020): A General Income Inclusion Rule as a Tool for Improving the International Tax Regime – Challenges Arising from EU Primary Law. Intertax, 48(11): 983-997.

Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman (2018): The Missing Profits of Nations. NBER working paper #24701.

Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman (2019): The Missing Profits of Nations. Estimates updated to 2017, **Tables**

United Nations (2020): World Economic Situation and Prospects. Stastistical Annex.
URL: **https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2020_Annex.pdf**

Appendix A – Further results

Table A1

Revenue gains from a 15% global minimum tax. Coverage of multinationals in the positive profits sample of the OECD's CbCR data, 2016 & 2017.

	Data: 2016			Data: 2017		
Parent Country	No. of head-quartered MNEs	Additional tax revenue (2021 billion €)	As a % of corporate income tax revenue	No. of head-quartered MNEs	Additional tax revenue (2021 billion €)	As a % of corporate income tax revenue
Austria	66	3.1	32%	71	3.1	31%
Belgium	43	10.3	61%	46	21.2	106%
Bulgaria						
Cyprus		0.3	21%		0.2	19%
Czech Republic		0.1	1%		0.1	1%
Germany		5.4	8%	343	13.1	18%
Denmark	35	0.9	11%	54	1.8	17%
Estonia		0.1	23%		0.1	24%
Spain		0.6	2%	103	5.2	18%
Finland	45	1.5	27%	48	1.5	22%
France	151	4.0	8%	176	3.9	7%
Greece		0.1	1%	14	2.1	55%
Croatia						
Hungary		0.6	19%		0.6	20%
Ireland	45	7.7	91%	41	12.4	137%
Italy	104	3.2	8%	115	3.1	8%
Lithuania						
Luxembourg	52	3.5	125%	70	5.8	182%
Latvia		0.1	30%		0.1	32%
Malta		0.1	17%		0.1	16%
Netherlands	108	1.9	7%	109	2.3	9%
Poland		3.7	41%		3.7	37%
Portugal		0.1	1%		0.1	1%
Romania				3	0.1	
Sweden	75	2.5	17%	90	2.7	18%
Slovenia	7	0.0	2%	6	0.0	2%
Slovakia		0.0	0%		0.0	0%
EU total		**49.8**	**15%**		**83.3**	**24%**

	Data: 2016			Data: 2017		
Parent Country	No. of head-quartered MNEs	Additional tax revenue (2021 billion €)	As a % of corporate income tax revenue	No. of head-quartered MNEs	Additional tax revenue (2021 billion €)	As a % of corporate income tax revenue
Argentina				15	0.1	
Australia	94	1.8	3%	112	1.8	2%
Brazil	60	1.0	2%	71	1.5	3%
Canada	120	14.8	27%	180	24.4	40%
Switzerland				60	7.5	37%
Chile	31	0.2	2%	29	0.0	0%
China	77	4.5	1%	231	6.1	1%
United Kingdom				301	11.0	15%
Indonesia	19	0.0	0%	25	0.1	
Isle of Man				2	0.1	59%
India				146	0.5	1%
Japan	680	4.6	2%	606	5.9	3%
Korea	160	0.0	0%	187	0.0	0%
Mexico	60	0.4	1%	69	0.4	1%
Malaysia				34	1.6	
Norway	52	0.4	3%	51	0.3	2%
Peru				7	0.1	
United States	764	40.8	11%	1094	57.0	17%
South Africa	34	1.0	6%	43	3.8	21%
OECD		**108.4**	**7%**		**200.4**	
Full sample		**119.5**	**6%**		**205.4**	

Table A2

Additional revenues stemming from tax havens, non-havens or the headquarter country of a 15% minimum tax. Some countries only provide data at the continental level. We classify those as "Only foreign aggregate data". For the list of tax havens used see Baraké et al. (2021), p. 56.

	Data: 2017			
	Tax deficit of 15% min. tax in billion 2021 EUR			
Parent Country	Domestic	Non-havens	Tax havens	Foreign aggregate data
Austria	2.4			0.7
Belgium	1.3	18.6	1.3	
Bulgaria				
Croatia				
Cyprus	0.0	0.1	0.1	
Czech Republic	0.0	0.0	0.0	
Denmark	1.1	0.3	0.5	
Estonia	0.1	0.0	0.0	
Finland	1.0			0.5
France	0.0	0.1	3.8	
Germany	7.2	2.2	3.7	
Greece	0.1			2.0
Hungary	0.5	0.0	0.0	
Ireland	2.8			9.5
Italy	1.0	1.5	0.6	
Latvia	0.1	0.0	0.0	
Lithuania				
Luxembourg	1.8	2.8	1.2	
Malta	0.1	0.0	0.0	
Netherlands	2.3			0.0
Poland	3.6	0.0	0.0	
Portugal	0.0	0.0	0.0	
Romania	0.1	0.0		
Slovakia	0.0	0.0	0.0	
Slovenia	0.0			0.0
Spain	2.2	2.6	0.5	
Sweden	0.1			2.5
EU total	**27.9**	**28.4**	**11.8**	**15.2**

	Data: 2017			
	Tax deficit of 15% min. tax in billion 2021 EUR			
Parent Country	Domestic	Non-havens	Tax havens	Foreign aggregate data
Argentina	0.0	0.1	0.0	
Australia	0.0	1.5	0.3	
Brazil	0.0	0.9	0.6	
Canada	15.4	8.0	1.0	
Chile	0.0	0.0	0.0	
China	0.0	0.4	5.7	
India	0.0	0.3	0.3	
Indonesia	0.0	0.1	0.0	
Isle of Man	0.0			0.1
Japan	0.0	2.4	3.5	
Korea	0.0			0.0
Malaysia	1.1	0.2	0.3	
Mexico	0.0	0.2	0.3	
Norway	0.0			0.3
Peru	0.0	0.0	0.1	
South Africa	0.8	1.3	1.6	
Switzerland	4.0	0.3	3.2	
United Kingdom	4.1			6.9
United States	0.0	8.2	48.8	
OECD	**48.8**	**51.8**	**77.3**	**22.5**
Full sample	**53.3**	**52.1**	**77.5**	**22.5**

Table A3

Additional revenues from a 25% global minimum tax without carve-outs, 2016 & 2017.

	Data: 2016			Data: 2017		
Parent Country	Additional tax revenue (2021 billion €)	As a % of health expenditure	As a % of corporate income tax revenue	Additional tax revenue (2021 billion €)	As a % of health expenditure	As a % of corporate income tax revenue
Austria	7.1	17%	74%	6.7	16%	67%
Belgium	18.7	35%	112%	36.9	70%	184%
Bulgaria						
Croatia						
Cyprus	1.0	67%	77%	0.8	57%	67%
Czech Republic	1.1	8%	14%	1.0	7%	13%
Denmark	3.7	11%	43%	6.6	20%	63%
Estonia	0.4	23%	89%	0.4	22%	93%
Finland	4.6	19%	83%	4.4	19%	65%
France	26.4	9%	51%	26.3	9%	45%
Germany	29.4	7%	42%	47.0	12%	64%
Greece	1.6	10%	33%	4.1	26%	107%
Hungary	1.9	21%	63%	1.9	20%	66%
Ireland	14.5	63%	172%	23.5	100%	260%
Italy	11.8	7%	29%	12.0	7%	30%
Latvia	0.5	26%	95%	0.5	26%	99%
Lithuania						
Luxembourg	7.1	218%	253%	11.2	341%	351%
Malta	0.3	29%	41%	0.3	25%	36%
Netherlands	11.1	13%	41%	13.8	17%	52%
Poland	11.1	35%	124%	11.1	33%	112%
Portugal	0.6	3%	9%	0.6	3%	8%
Romania				0.1	1%	
Slovakia	0.0	1%	1%	0.0	1%	1%
Slovenia	0.1	2%	8%	0.1	2%	8%
Spain	12.5	11%	44%	14.5	13%	49%
Sweden	9.3	16%	64%	10.6	19%	72%
EU total	**174.8**	**12%**	**54%**	**234.3**	**17%**	**68%**

	Data: 2016			Data: 2017		
Parent Country	**Additional tax revenue (2021 billion €)**	**As a % of health expenditure**	**As a % of corporate income tax revenue**	**Additional tax revenue (2021 billion €)**	**As a % of health expenditure**	**As a % of corporate income tax revenue**
Argentina				0.2		
Australia	10.2	8%	17%	11.8	10%	16%
Brazil	9.5	6%	16%	10.5	6%	19%
Canada	34.1	20%	62%	56.7	33%	94%
Chile	1.2	6%	11%	0.1	1%	1%
China	36.8	6%	8%	61.1	10%	13%
India				1.5	2%	2%
Indonesia	1.1	4%	3%	1.3	5%	4%
Isle of Man				0.2		107%
Japan	41.1	7%	22%	46.2	9%	26%
Korea	9.9	9%	19%	15.5	14%	27%
Malaysia				6.6		
Mexico	1.2	2%	3%	1.1	2%	3%
Norway	3.7	9%	24%	4.7	12%	25%
Peru				0.8		
South Africa	3.5	14%	21%	9.4	34%	52%
Switzerland				15.9		79%
United Kingdom				43.4	17%	60%
United States	174.9	5%	46%	229.1	7%	70%
OECD	**441.7**	**8%**	**29%**	**733.9**	**11%**	**43%**
Full sample	**502.1**	**8%**	**25%**	**750.4**	**12%**	**42%**

Table A4

Additional revenues with and without cave-outs from a 15% minimum tax from tax-havens, non-havens and headquarter countries.

	Total			Domestic			Non-havens			Tax haven		
Parent Country	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After year 10: 5% of tangible assets & payroll	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After year 10: 5% of tangible assets & payroll	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After year 10: 5% of tangible assets & payroll	No carve-out	Year 1: 8% of tangible assets, 10% of payroll	After year 10: 5% of tan-gible assets & payroll
Argentina	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Austria	3.1	1.7	2.2	2.4	1.4	1.8	0.7	0.3	0.5			
Australia	1.8	1.4	1.5	0.0	0.0	0.0	1.5	1.2	1.3	0.3	0.2	0.3
Belgium	21.2	20.1	20.6	1.3	0.6	0.9	18.6	18.4	18.5	1.3	1.1	1.2
Bermuda	2.3	1.7	1.9	1.0	0.6	0.8	0.1	0.0	0.0	1.2	1.1	1.1
Brazil	1.5	1.2	1.3	0.0	0.0	0.0	0.9	0.7	0.7	0.6	0.6	0.6
Canada	24.4	17.4	20.1	15.4	10.8	12.6	8.0	5.8	6.6	1.0	0.8	0.9
Switzerland	7.5	5.9	6.5	4.0	2.9	3.3	0.3	0.2	0.2	3.2	2.8	2.9
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	6.1	3.4	4.4	0.0	0.0	0.0	0.4	0.2	0.3	5.7	3.2	4.1
Germany	13.1	7.8	9.9	7.2	3.5	5.0	2.2	1.2	1.6	3.7	3.2	3.4
Denmark	1.8	1.4	1.5	1.1	0.9	1.0	0.3	0.1	0.2	0.5	0.4	0.4
Spain	5.2	2.5	3.6	2.2	0.4	1.0	2.6	1.8	2.1	0.5	0.4	0.4
Finland	1.5	1.1	1.3	1.0	0.8	0.9	0.5	0.3	0.4			
France	3.9	3.3	3.5	0.0	0.0	0.0	0.1	0.1	0.1	3.8	3.3	3.5
United Kingdom	11.0	6.8	8.4	4.1	1.7	2.7	6.9	5.0	5.8			
Greece	2.1	1.4	1.7	0.1	0.0	0.0	2.0	1.4	1.6			
Indonesia	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Ireland	12.4	10.9	11.5	2.8	2.3	2.5	9.5	8.6	9.0			
Isle of Man	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1			
India	0.5	0.4	0.4	0.0	0.0	0.0	0.3	0.2	0.2	0.3	0.2	0.2
Italy	3.1	2.3	2.6	1.0	0.7	0.8	1.5	1.1	1.3	0.6	0.6	0.6
Japan	5.9	4.7	5.1	0.0	0.0	0.0	2.4	1.7	2.0	3.5	3.0	3.2
Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Luxembourg	5.8	4.5	5.0	1.8	1.6	1.7	2.8	2.0	2.3	1.2	1.0	1.1
Mexico	0.4	0.4	0.4	0.0	0.0	0.0	0.2	0.1	0.2	0.3	0.2	0.2
Malaysia	1.6	1.0	1.2	1.1	0.7	0.9	0.2	0.1	0.1	0.3	0.2	0.2
Netherlands	2.3	1.7	2.0	2.3	1.7	2.0	0.0	0.0	0.0			
Norway	0.3	0.2	0.2	0.0	0.0	0.0	0.3	0.2	0.2			
Peru	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Romania	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0			
Sweden	2.7	2.0	2.3	0.1	0.1	0.1	2.5	1.9	2.2			
Singapore	24.3	22.6	23.2	12.2	10.6	11.2	0.1	0.0	0.1	12.0	11.9	11.9
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
United States	57.0	51.2	53.4	0.0	0.0	0.0	8.2	6.7	7.3	48.8	44.4	46.1
South Africa	3.8	2.9	3.2	0.8	0.6	0.7	1.3	0.9	1.0	1.6	1.5	1.5
Sum	227.0	182.4	199.6	62.0	42.0	49.8	74.5	60.4	65.8	90.5	80.1	84.0
Change in %		-19.7%	-12.1%		-32.4%	-19.7%		-18.9%	-11.6%		-11.5%	-7.3%

Appendix B: Double-counting of dividends

One of the most discussed data limitations of the aggregate CbCR data is the double-counting of intra-firm dividends and other participation results, e.g. in the case of minority shares or joint ventures. As a reminder, double-counting comes about when a multinational from country A owns an affiliate in country B: dividends paid by B to A are not counted as part of A's revenue, but they are sometimes counted as part of A's profit. Double counting occurs when dividends are counted both at the level of B (as profit) and of A (as dividends included in profit). Thus, intrafirm dividends can substantially increase profits booked while they may affect income taxes paid in the parent jurisdiction only marginally. This can lead to artificially low effective tax rates. Double-counting of dividends is mainly found for headquarter countries since ultimate parents usually receive large amounts of dividends from their affiliates.[2]

The initial guidelines of the Inclusive Framework did not specify the appropriate treatment of those intracompany dividends. Thus, in the current CbCR data, they are treated heterogeneously across parent countries. The Inclusive Framework has now clarified the exclusion of dividends from constituent entities from profit before tax. This change, however, will only come into effect as for the data distribution of the fiscal year 2020.

The Netherlands, the United Kingdom, Italy, and Sweden have treated this issue in separate technical notes.[3] In this appendix, we briefly describe how we use the additional information published by the Netherlands, Sweden and the United Kingdom for a rule-of-thumb correction.

The Netherlands and the United Kingdom provide adjusted profits in the aggregate CbCR data that are directly based on a comparison of CbCR profits with corporate tax returns and multinationals' annual reports. They do not account for other participation results from mergers and joint venture, nor for loss carry-forwards.[4]

In the first version of our report, we base the estimation of Swedish revenue gains on data by Tørsløv et al. (2018, 2019) because domestic effective tax rates for Sweden were implausibly low in the 2016 CbCR data (Baraké et al., June 2021).

In the new distribution, Sweden has provided a country note that accounts for this phenomenon and estimates the magnitude of possibly double-counted dividends and proposes an adjustment of domestic profits before tax for the years 2016 and 2017. Since the corrections are not included in the variable "adjusted profits" as in is the case of the Netherlands and the United Kingdom we manually integrate the following correction.

For the fiscal year 2017, the country note identifies 266 billion SEK of dividends that may be included in the 512 billion SEK pre-tax profits reported by Swedish multinational companies in their home country. We therefore adjust profits observed in the OECD's CbCR data by multiplying them by the factor (512 – 266) / 512 = 0.48. We follow the same methodology and the year-specific factor to correct the 2016 pre-tax profits of Swedish multinationals in Sweden.

[2] OECD (2021): Important disclaimer regarding the limitations of the Country-by-Country report statistics.
URL: https://www.oecd.org/tax/tax-policy/anonymised-and-aggregated-cbcr-statistics-disclaimer.pdf.

[3] For the Netherlands, see here: **https://www.oecd.org/tax/tax-policy/netherlands-cbcr-country-specific-analysis.pdf**, for United Kingdom here: **https://www.oecd.org/tax/tax-policy/united-kingdom-cbcr-country-specific-analysis.pdf** , for Sweden here: **https://www.oecd.org/tax/tax-policy/sweden-cbcr-country-specific-analysis.pdf** ; for Italy: **https://www.oecd.org/tax/tax-policy/italy-cbcr-country-specific-analysis.pdf**. Italy does not provide enough information for a specific adjustment. Thus, we cannot take it into account here.

[4] Please consult the country notes for more details.

Doing so, we exclude all dividends that were reported in the domestic tax returns of in-scope Swedish multinational companies from domestic profits. These dividends may have not necessarily been fully included in domestic pre-tax profits, and thus not entirely double-counted. This adjustment may therefore lead to lower-bound revenue estimates. Table A5 presents the profits before and after corrections for the three countries and the resulting adjustment factor.

Table A5

Profits before and after corrections for the three countries and resulting adjustment factor

Parent country	Year	Unadjusted profits before tax (current $billion)	Adjusted profits before tax (current $ billion)	Adjustment factor (%)
Sweden	2016	42.0	17.5	42
Sweden	2017	64.0	30.8	48
Netherlands	2017	41.5	35.0	84
United Kingdom	2017	182.7	108.0	59
Average 2017 adjustment factor (%)	..	..	..	**60**

Based on the information provided by the Netherlands, Sweden, and the United Kingdom, we propose a rule-of thumb correction for the pre-tax profits booked in all headquarter countries. Taking the weighted average of the adjustments for the three countries for 2017, we arrive at an adjustment factor of 0.6028, i.e. a reduction of about 40% of pre-tax profits in headquarter jurisdictions. We apply this factor to all ultimate parent entity pairs, e.g. to German multinationals booking profits in Germany. This correction not only affects the tax base but also the effective tax rates, since these are computed as the ratio of taxes paid to profits booked. Table A6 shows the revenue effects from a global minimum tax of 15% without carve-outs after this adjustment. After correction, the European Union would gain about €67 billion of revenue from a minimum tax, instead of about €80 billion in our benchmark calculations. The main countries affected by this change are Germany, where the adjustment decreases projected revenues from €13 billion to about €6 billion, and Spain, where potential revenues decrease from €5 billion to about €3 billion. Also, the revenues of several other EU countries, Austria, Denmark, Finland and Italy, decrease by about € 1 billion each in contrast to the benchmark calculation.

Table A6

Revenues of a 15% global minimum tax without carve-outs after a rule-of-thumb adjustment for double-counted dividends. Revenue in 2021 billion EUR.

	Data: 2017		
Parent Country	**Additional tax revenue (2021 billion €)**	**As a % of health expenditure**	**As a % of corporate income tax revenue**
Austria	1.7	4%	17%
Belgium	20.4	39%	102%
Bulgaria			
Croatia			
Cyprus	0.2	16%	19%
Czech Republic	0.1	0%	1%
Denmark	0.7	2%	7%
Estonia	0.1	6%	24%
Finland	0.6	2%	8%
France	3.9	1%	7%
Germany	5.9	1%	8%
Greece	2.0	12%	51%
Hungary	0.6	6%	20%
Ireland	11.0	47%	122%
Italy	2.1	1%	5%
Latvia	0.1	8%	32%
Lithuania			
Luxembourg	5.0	153%	158%
Malta	0.1	11%	16%
Netherlands	2.3	3%	9%
Poland	3.7	11%	37%
Portugal	0.1	0%	1%
Romania	0.0	0%	
Slovakia	0.0	0%	0%
Slovenia	0.0	0%	0%
Spain	3.1	3%	10%
Sweden	2.7	5%	18%
EU total	**66.5**	**5%**	**19%**

Appendix C: The case of Belgium

We have identified possible inconsistencies in the Belgian country-by-country data. For 2016 and 2017 respectively, the Belgium-Netherlands and Belgium-United Kingdom observations display "surprising" values. In particular, profits before tax seem disproportionately high when compared with revenues or with income taxes paid.

Tables A7 and A8 present the specificities of these two cases. We present the total revenues, profits before tax, taxes paid and the profit margin. The profit margin is defined as the ratio of profits before tax to total revenues. While the profit margin of most parent-partner observations is below 20%, the profit margin for the 2016 Belgium-Netherland pair display a profit margin of almost 90%. Similarly, the profit margin of the 2017 Belgium-United Kingdom pair exceeds even 100%.

Table A7

Comparison of the Belgium-Netherlands Observation with Belgian Country-by-Country Data for the Fiscal Year 2016

Parent / Partner country pair	Total revenues (2016 billion USD)	Profits before tax (2016 billion USD)	Income taxes paid (2016 million USD)	Profit margin (%)
Belgium - Belgium	115.2	18.7	772	16.3%
Belgium - Netherlands	54.9	48.1	385	87.6%
Other	7.4	0.9	195	12.7%

Notes: The "Other" row corresponds to per-partner country averages excluding the domestic activities of Belgian multinational companies, the Belgium-Netherlands observation and the "Foreign Jurisdictions Total".

Table A8

Comparison of the Belgium-United Kingdom Observation with Belgian Country-by-Country Data for the Fiscal Year 2017

Parent / Partner country pair	Total revenues (2017 billion USD)	Profits before tax (2017 billion USD)	Income taxes paid (2017 million USD)	Profit margin (%)
Belgium - Belgium	122.4	13.5	952	11.0%
Belgium - United Kingdom	33.8	121.9	7	360.9%
Other	12.3	2.1	-33	16.9%

Notes: The "Other" row corresponds to per-partner country averages excluding the domestic activities of Belgian multinational companies, the Belgium-Netherlands observation and the "Foreign Jurisdictions Total". Summing income taxes paid over these partner countries yields a negative total, and therefore a negative per-country average.

In the absence of any explicit correction proposed by the Inclusive Framework of Belgium, we base our benchmark estimates on the unadjusted country-by-country data. This may lead to overstating the Belgian revenue gains from a global minimum tax. In 2016 and 2017, the Netherlands and the United Kingdom respectively account for 66.7% and 83.8% of the total tax deficit of Belgian multinational companies.

Nonetheless, in this appendix we propose a rule-of-thumb correction and alternative revenue estimates that partly mitigate the impact of distorted observations. We assume that the revenue variable is unbiased. Therefore, we adjust profits before tax by applying the profit margin to total revenues of the same parent-partner observations for the other fiscal year. More precisely, to correct for the 2016 Belgium-Netherlands pre-tax profits, we compute the 2017 Belgium-Netherlands profit margin (as the ratio of profits before tax to total revenues) and multiply it by 2016 Belgium-Netherlands total revenues. Similarly, to correct for the 2017 Belgium-United Kingdom pre-tax profits, we compute the 2016 Belgium-United Kingdom profit margin and multiply it by 2017 Belgium-United Kingdom total revenues.

Table A9 provides a detailed overview of the impact of this adjustment on profits and projected revenue from a 15% minimum tax for Belgium.

Table A9

Impact of the pre-tax profit adjustment on the estimated revenues from a global minimum tax of 15% without carve-outs for Belgium in current USD.

	Data: 2017	Data: 2016	Comments
Partner country concerned	United Kingdom	Netherlands	
Unadjusted total revenues (billion USD)	33.8	54.9	(1)
Unadjusted profits before tax (billion USD)	121.9	48.1	(2)
Unadjusted income taxes paid (million USD)	0.0	0.4	(3)
Average effective tax rate (%)	0.1%	1.2%	(4)
Unadjusted tax revenue, parent-partner pair (billion USD)	18.2	6.6	[15% - (4)] * (2)
Unadjusted total tax revenue, Belgium (billion USD)	21.7	9.9	..
Profit margin used for adjustment (%)	8.0%	29.6%	(5)
Adjusted profits before tax (billion USD)	2.7	16.2	(6) = (1) * (5)
Adjusted tax revenue, parent-partner pair (billion USD)	0.4	2.2	[15% - (4)] * (6)
Adjusted total tax revenue, Belgium (billion USD)	3.9	5.5	..

About the EU Tax Observatory

The EU Tax Observatory is an independent research center that conducts and disseminate innovative studies on taxation and stimulates exchanges between the scientific community, civil society, and policy makers. The EU Tax Observatory aims to contribute to the development of knowledge and the emergence of new concrete proposals to address the tax and inequality challenges of the 21st century.

Its key missions are :

- to conduct and disseminate cutting-edge innovative research on taxation, with a focus on tax evasion and fraud, and potential solutions to these problems;

- to promote a democratic, inclusive, and pluralistic debate on the future of taxation by fostering dialogue between the scientific community, civil society, and policymakers in the European Union and worldwide;

- and to provide access to knowledge on taxation by making available to the general public a repository of data and analysis on our study topics, as well as interactive tools that allow them to easily understand and exploit them.

The EU Tax Observatory is hosted at the Paris School of Economics, and receives funding by the European Union. This report does not reflect the views of the European Commission.

TAXUD/2020/DE/326

About the authors

Mona Baraké is a post-doctoral scholar at the EU Tax Observatory. She holds a PhD in Economics from the University of Paris 1 Panthéon Sorbonne. Contact : mona.barake@taxobservatory.eu

Paul-Emmanuel Chouc is an research assistant at the EU Tax Observatory and student in the Master in Economics of Institut Polytechnique de Paris. Contact: paul-emmanuel.chouc@taxobservatory.eu

Theresa Neef is a research fellow at the EU Tax Observatory. She is also the Eastern Europe and Russia Coordinator at the World Inequality Lab and a PhD candidate at Free University of Berlin. Contact: theresa.neef@psemail.eu

Gabriel Zucman is the director of the EU Tax Observatory and professor of economics at the university of California, Berkeley. Contact: gabriel.zucman@psemail.eu

Press contact

Anne-Priscille Desbarres, Director of communications : ap.desbarres@taxobservatory.eu

Friderike Jaich, Communication and Events Assistant : friederike.jaich@taxobservatory.eu

EUTAX
Observatory

taxobservatory.eu