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The Revenue Effect of a Global Effective Minimum Tax

KEY MESSAGES

- **We estimate the fiscal effect of a global effective minimum tax for Germany, the EU27, and the world**
- **Our results indicate that Germany and – on aggregate – the EU27 would benefit fiscally from a global effective minimum tax**
- **However, the size of the additional tax revenue depends on the design of the carve-out rule and the extent of behavioral adjustments on the side of multinational companies and low-tax countries**

In October 2021, 136 countries and jurisdictions agreed on the introduction of a global effective minimum tax (OECD 2021). The plan is to impose a minimum tax rate of 15 percent on the global profits of multinational corporations (MNCs). If an MNC's effective tax burden in a country is less than 15 percent, additional taxes will be collected until the ratio of tax payments to profits reaches a level of 15 percent. This is to affect all MNCs whose global consolidated revenue is at least €750 million.

However, many aspects related to the minimum tax are still open. For example, an agreement on a precise definition of the tax base has yet to be reached. In this context, it is also unclear how losses are to be offset. If, for example, an MNC carries forward losses to subsequent years, the effective tax burden may fall below 15 percent, even though the tax level in the residence country is actually higher.

The October 2021 agreement provides for certain profits – those than can be attributed to real economic activities – to be exempt from the minimum tax, thereby taxing only the rest of the profits. More precisely, a fixed percentage of the value of tangible assets and payroll is deducted from profits (the so-called carve-out). In case the effective tax burden on profits in a residence country is below 15 percent, only the residual profit determined in this way will be subject to the minimum tax. In the year of introduction, the residual profit subject to the minimum tax equals the total profit reported in the residence country minus 8 percent of the value of the tangible fixed assets and 10 percent of the payroll. Ten years after the introduction, both shares are lowered to 5 percent, with a gradual reduction being applied during the transitional phase: in the first five years after the introduction of the minimum tax, the shares are to be reduced by 0.2 percentage points per year. Five years after the introduction of the reform, the exempt profit would thus correspond to 7 percent of the value of the tangible assets plus 9 percent of the payroll. In the sixth to tenth year after introduction, the share of the value of tangible fixed assets decreases by 0.6 percentage points per year and the share of payroll by 0.8 percentage points per year.

The introduction of a carve-out rule protects a part of MNCs' profits – those that can be attributed to real economic activities – from minimum taxation. The profits of shell companies, on the other hand, are fully subject to the minimum tax, provided that the effective corporate tax burden in the residence country is lower than 15 percent. In this regard, the carve-out rule enables low-tax countries to remain attractive as a destination for real investments, i.e., for production facilities and jobs. A low corporate tax burden is one of the few ways for many developing and emerging economies to attract private investments. Carve-outs reinforce the character of minimum tax as an instrument against tax havens without major real economic activity. At the same time, however, it should be borne in mind that carve-outs can also fuel international tax competition for real investment. While it has so far been possible (within limits) for MNCs to reduce their tax burden by shifting profits on paper alone, the combination of minimum taxation and carve-outs would mean that it is now only possible to reduce the corporate tax burden by shifting real economic activity to low-tax countries. MNCs would therefore, as a result of the carve-out rule, have a much greater incentive than before to relocate real investments to low-tax countries.

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DATA AND ESTIMATION APPROACH

To calculate the revenue impact of a global effective minimum tax, we consider the following carve-out scenarios:

- Scenario 1 (benchmark): No carve-out, i.e., all under-taxed foreign profits are back-taxed.
- Scenario 2: The carve-out is 8 percent of the value of the tangible assets plus 10 percent of the payroll.
- Scenario 3: The carve-out is 7 percent of the value of the tangible assets plus 9 percent of the payroll.
- Scenario 4: The carve-out is 5 percent of the value of the tangible assets plus 5 percent of the payroll.

Scenario 2 reflects the rules that would apply in the year of introduction of the minimum tax; Scenario 3, the rules that would apply five years after the introduction of the reform, and Scenario 4 the rules that would apply from the tenth year. The purpose of considering Scenario 1 is to assess the impact of the carve-out rule on the revenue from the minimum tax.

For our estimation, we have access to information from the so-called Country-by-Country Reports (CbC Reports) of MNCs. The CbC reports contain information on the global business activities of MNCs with global consolidated revenues of more than €750 million. The CbC reports consist of three parts (OECD 2015). To estimate the revenue effects of a global effective minimum tax, we use only information from the first part. This contains basic financial information on the global operations of an MNC, including profit before tax, corporate income taxes paid and accrued, revenue generated by transactions with third parties, revenue generated by transactions with affiliated companies, the value of tangible assets, and the number of employees. The financial information contained in the CbC reports is aggregated at the level of the countries in which a company has subsidiaries, and the data is aggregated across all subsidiaries located in a country. For our estimates, we have access to the CbC reports of all large MNCs active in Germany. Our final dataset covers the years from 2016 to 2019 and contains the data of a total of 3,613 MNCs; of these, 434 are headquartered in Germany.

Since the sum of wages paid in a country is not included in the CbC reports, we approximate it by weighting the number of employees by the residence country-specific GDP per capita. Furthermore, no information is available in the CbC reports on the destination countries of payments to affiliates, which is why in our estimates we focus exclusively on the income inclusion rule.[1] Thus, in our analysis, the German fiscal authority imposes the minimum tax only on the (foreign) profits of German companies, the French fiscal authority on the (foreign) profits of French companies, and so on. Moreover, we assume in our analysis that there is also the possibility of loss offsets in the global effective minimum taxation system. To account for the impact of loss offsets, we first compute the ratio of the sum of aggregate losses of the MNCs included in our dataset to the sum of aggregate profits. The ratio is 11.4 percent. Thus, for every euro of profit earned, there are on average about eleven cents of losses. In the second step, we multiply the post-tax profits by one minus this 11.4 percent to obtain a profit measure adjusted for loss carryforwards.

It can be expected that the introduction of a global effective minimum tax will lead to a decrease in tax-motivated profit shifting, as the effective tax burden on profits in low-tax countries will increase. Moreover, low-tax countries may have an incentive to increase their effective tax rates. On the one hand, this allows them to compensate for the loss of tax revenue due to MNCs shifting profits back to high-tax countries. On the other hand, tax hikes by low-tax countries do not impose an additional burden on MNCs, but merely lead to a shift of their tax payments from their headquarter countries to low-tax countries. The latter is true in any case for MNCs subject to minimum taxation. For these reasons, we calculate three versions for each scenario. In the first version, we abstract from behavioral adjustments on the part of both MNCs and low-tax countries and take the global distribution of profits as given. In the second version, we include behavioral adjustments on the part of MNCs in our revenue estimates. We estimate the revenue effects under the assumption that the introduction of a global effective minimum tax leads to a decrease in profit shifting. The approach we use to determine the reduction in global profit shifting is described in detail in Fuest et al. (2022) and Fuest and Neumeier (2022). In the third version, we raise the effective tax rate on profits affected by the effective minimum tax (profit less carve-out) to 15 percent in all residence countries whose tax level is lower. The revenue from minimum taxation thus falls to zero, and all changes in national tax revenue are due to a reduction in profit shifting. The revenue effects from an increase in tax rates in those countries with an effective tax rate below 15 percent before the reform are not taken into account in our version 3 estimates.

We calculate the impact of the introduction of a global effective minimum tax for Germany or German MNCs, the EU27 countries or MNCs headquartered in a EU27 country except Germany, and for all countries in our dataset except the US or US MNCs. The reason is that in 2018, the US already introduced a minimum tax on certain foreign profits of US corporations (Global Intangible Low-Taxed Income, GILTI). Assuming that GILTI continues to exist even if a global effective minimum tax is introduced, US MNCs should be excluded from the revenue estimates because their foreign profits are already subject to a top-up tax under GILTI in

[1] The income inclusion rule allows headquarters countries to tax the foreign profits of an MNC in case these profits are taxed at an effective rate of less than 15 percent.

case of a low effective tax burden. Recall that our dataset does not include all corporations that would be affected by the introduction of a global effective minimum tax, but only those that are active in Germany. Our revenue estimates for the EU27 countries, as well as all countries worldwide, are therefore incomplete, as part of the MNCs relevant for the revenue effects in these country groups are missing from our dataset. However, with Germany as the largest economy in Europe and the fourth-largest economy in the world, it can be assumed that many MNCs headquartered abroad are active here.

RESULTS OF THE REVENUE ESTIMATES

Table 1 shows the domestic and foreign profits and tax payments of German MNCs, of MNCs headquartered in a EU27 country except Germany, and of all MNCs included in our dataset except US MNCs. In addition, the table shows the size of the profits taxed at an effective tax rate of less than 15 percent. German MNCs generate slightly more than half of their annual profits abroad (about 56 percent). Both the profits generated worldwide and the foreign profits of German MNCs are taxed at an average rate of about 16 percent. For 62 percent of profits worldwide and 58 percent of foreign profits, respectively, the effective tax burden on profits is lower than 15 percent. These profits are taxed either in full or pro rata within the framework of a global effective minimum taxation, depending on whether a carve-out is applied or not.

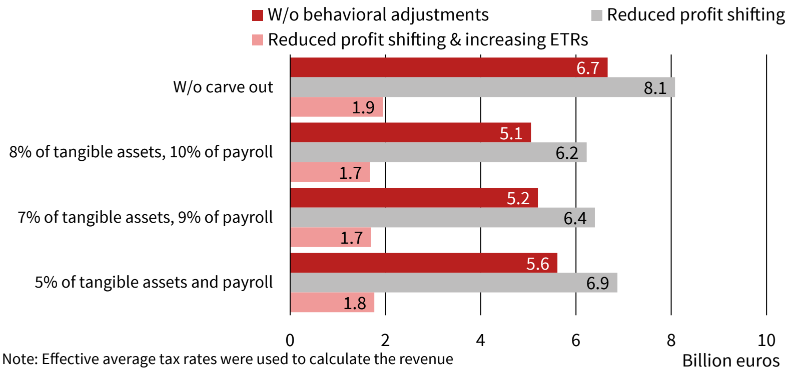
Figure 1 shows the estimated revenue effects of a global effective minimum tax for Germany, Figure 2 for the remaining EU27 countries, and Figure 3 for all countries worldwide except the US. To calculate the revenue effects, we multiplied the changes in the national tax bases attributable to the decrease in profit shifting by the effective average tax rates in versions 2 and 3.

If we disregard the fact that the introduction of a global effective minimum tax reduces the incentives for tax-motivated profit shifting, the estimated annual revenue increase for Germany is between 5.1 billion and 6.7 billion euros (red bars), depending on whether and to what extent some of the under-taxed profits are exempted from the minimum tax. When taking into account that the introduction of a global effective minimum tax is likely to reduce the extent of tax-motivated profit shifting (gray bars), the resulting revenue increase for Germany grows to 6.2 to 8.1 billion euros per year. If all countries in the world respond by raising their effective tax rates to 15 percent (pink bars), on the other hand, the estimated revenue increase drops significantly, to between 1.7 and 1.9 billion euros, depending on the scenario. The reason is that in this case the revenue from the global effective minimum tax falls to zero. Additional revenue is only generated by a decline in tax-motivated profit shifting to low-tax countries.

Figure 2 shows the impact of introducing a global effective minimum tax for the remaining EU27 countries. Here, too, the estimated revenue effect is considerable. Excluding behavioral adjustments, the estimated revenue effect is between around 14 and 24 billion euros per year, depending on the carve-out scenario. Assuming that the introduction of a global effective minimum tax leads to a decrease in profit shifting, the estimated revenue effect increases to

Figure 1

Global Effective Minimum Tax – Revenue Germany



Note: Effective average tax rates were used to calculate the revenue effects attributable to a decrease in tax-motivated profit shifting.
Source: Authors' calculations based on CbC data.

Table 1

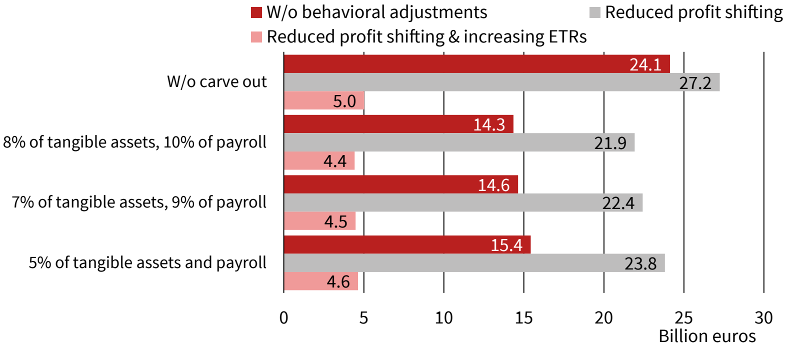
Profits and Tax Payments of Multinational Corporations

	German MNCs		EU27 MNCs excl. German MNCs		All MNCs excl. US MNCs	
	Activities worldwide	Foreign activities	Activities worldwide	Foreign activities	Activities worldwide	Foreign activities
Profits						
Total (billion euros)	229	128	677	440	1178	859
Taxed at less than 15 percent (billion euros)	141	74	418	255	713	505
Share taxed at less than 15 percent	62	58	62	58	61	59
Tax payments						
Total (billion euros)	37	21	111	76	225	158
In percent of profits	16	16	16	17	19	18

Notes: Values represent averages over reporting years from 2016 to 2019.
Source: Authors' own calculations.

Figure 2

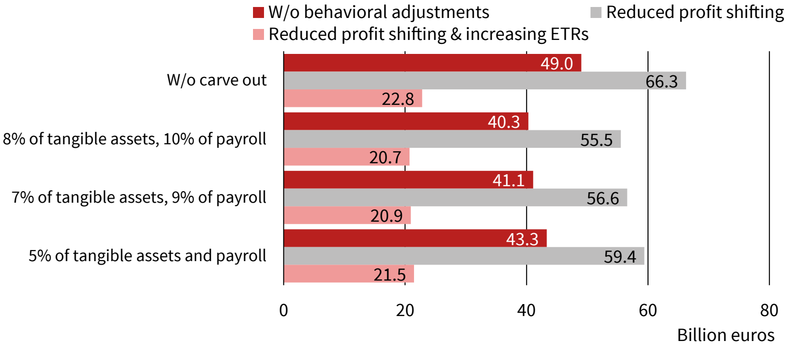
Global Effective Minimum Tax – Revenue EU27 Countries



Note: Effective average tax rates were used to calculate the revenue effects attributable to a decline in tax-motivated profit shifting. The revenue effects were calculated exclusively on the basis of MNCs that are active in Germany.
Source: Authors' calculations based on CbC data. © ifo Institute

Figure 3

Global Effective Minimum Tax – Revenue Worldwide Excluding USA



Note: Effective average tax rates were used to calculate the revenue effects attributable to a decline in tax-motivated profit shifting. The revenue effects were calculated exclusively on the basis of MNCs that are active in Germany.
Source: Authors' calculations based on CbC data. © ifo Institute

about 22 to 27 billion euros. When interpreting the figures in Figure 2, it should be borne in mind that our dataset only includes a portion of those MNCs that have their headquarters in one of the EU27 states and would be subject to a global effective minimum tax – namely those that are also active in Germany. Arguably, this may include most of the MNCs active in the EU, but the figures nevertheless tend to understate the revenue effect of a minimum tax.

Figure 3 shows the global revenue when taking into account all MNCs covered by our dataset, with the exception of US MNCs. Excluding behavioral adjustments, the global revenue from a minimum tax is about 40 to 49 billion euros per year, depending on the scenario. When behavioral adjustments are taken into account, the estimated revenue rises to between 56 billion and 66 billion euros per year. If all low-tax countries in the world were to raise their effective tax rates to 15 percent, the revenue increase would fall to between 21 billion and 23 billion euros a year. This does not take into account the additional tax revenue generated by raising the effective tax rate to 15 percent. Again, it should be remembered that our dataset only includes MNCs active in Germany, which likely leads to an underestimation of total revenue.

Table 2 shows how the introduction of a global effective minimum tax affects the effective corporate tax burden of MNCs. For German MNCs, the tax burden would increase from the current 16 percent (cf. Table 1) to 18.4 to 19.1 percent of profits. Assuming that the introduction of a minimum tax reduces the extent of profit shifting, the effective corporate tax burden would even rise to 18.8 to 19.6 percent. However, this is lower than the average effective tax burden for all MNCs in our dataset. Here, the corporate tax burden rises to 22.5 to 23.3 percent without taking into account behavioral adjustments on the part of MNCs, and to 23.7 to 24.7 percent when taking into account behavioral adjustments.

In our revenue estimates, we focus exclusively on under-taxed foreign profits of MNCs that are taxed under the income inclusion rule. Profits that accrue in the headquarter country and are taxed at less than 15 percent are not included. These profits, if attributable to payments from foreign-based affiliates, could be at least partially taxed in the framework of the global effective minimum tax under the so-called undertaxed payments rule by the countries of origin of the payments. Table 3 shows how much additional revenue would be raised if all of the under-taxed profits booked in the headquarter countries were subject to a minimum tax of 15 percent. In this case, the global revenue from minimum taxation estimated based on our dataset would increase by 14 to 18 billion euros per year, depending on the scenario. However, these figures should be interpreted as an upper limit, as it is assumed that all profits that are under-taxed in the headquarter country are taxed at a rate of 15 percent.

Table 2

Effects of the Global Effective Minimum Tax on Effective Tax Rates

	Without behavioral adjustments			Decrease in profit shifting		
	German MNCs	EU27 MNCs	All MNCs (excl. U.S. MNCs)	German MNCs	EU27 MNCs	All MNCs (excl. U.S. MNCs)
Without carve out	19.1%	20.0%	23.3%	19.6%	21.2%	24.7%
8 percent of fixed assets, 10 percent of payroll	18.4%	18.6%	22.5%	18.8%	20.3%	23.7%
7 percent of fixed assets, 9 percent of payroll	18.5%	18.6%	22.6%	18.9%	20.4%	23.8%
5 percent of fixed assets and payroll	18.7%	18.7%	22.8%	19.1%	20.6%	24.1%

Notes: The values in the table show the effective average tax burden on profits for different groups of companies depending on the individual scenarios. Effective average tax rates were used to calculate the revenue effects attributable to a decline in tax-motivated profit shifting.
Source: Authors' own calculations.

Table 3

Revenue Effects of a Global Effective Minimum Tax under the Undertaxed Payments Rule

	Without behavioral adjustments (billion euros)	Reduced profit shifting (billion euros)
Without *carve out*	18.0	16.9
8 percent of fixed assets, 10 percent of payroll	14.7	13.7
7 percent of fixed assets, 9 percent of payroll	15.0	14.0
5 percent of fixed assets and payroll	15.9	14.9

Notes: The table shows the annual revenue when applying a top-up tax on those profits booked in the headquarters countries that are taxed at a rate of less than 15 percent. Effective average tax rates were used to calculate the revenue effects attributable to a decline in tax-motivated profit shifting. The revenue ef-fects were calculated exclusively on the basis of MNCs that are active in Germany.
Source: Authors' calculations.

COMPARISON WITH OTHER REVENUE ESTIMATES

The OECD has also produced an estimate of the revenue effects of a global effective minimum tax (OECD 2020). As in this study, US corporations were excluded from the analysis because of the GILTI tax. The OECD estimated that the global effective minimum tax generates $40 to $48 billion (i.e., 35 to 43 billion euros) in additional tax revenue worldwide. Behavioral adjustments and carve-outs were not included in this estimate, so this figure should be compared to our estimate of 49 billion euros. Thus, our estimate is higher, and this is despite the fact that our dataset covers only a third (but presumably the largest) of the MNCs subject to CbC. Where does the difference come from? The OECD used aggregate data for its analysis, i.e., the sum of profits and the sum of tax payments of all MNCs with the same headquarter country, separated by headquarter country. The OECD must therefore assume that the effective tax rate is identical for all MNCs in a residence country. On the other hand, by using disaggregated data we are able to determine the effective tax burden on profits for each MNC separately. In doing so, we find numerous cases where an MNC's effective tax burden in a country is less than 15 percent, even though the average effective tax rate across all firms is 15 percent or higher. In fact, of the 505 billion euros in foreign profits that are effectively taxed at rates below 15 percent (cf. Table 1), 47.7 percent are booked in countries where the average effective tax rate is at least 15 percent. If this is not taken into account, the revenue from global effective minimum taxation will be underestimated.

In July 2021, the EU Tax Observatory also published an estimate of the revenue effects of a global effective minimum tax (Baraké et al. 2021). For their estimates, the authors combined aggregate CbC data from the OECD and data from Tørsløv et al. (2018). The authors concluded that the revenue for Germany without carve-out and without considering behavioral adjustments would amount to 5.7 billion euros per year. With carve-out amounting to 5 percent of tangible assets and 5 percent of payroll, the revenue would still be 4.8 billion euros per year. The authors' results are thus quite close to ours, despite the use of aggregate data.

POLICY CONCLUSIONS

Our estimates show that Germany would benefit fiscally from the introduction of a global minimum tax. Abstracting from possible behavioral adjustments among the affected MNCs and low-tax countries, a 15-percent effective minimum tax rate results in an estimated additional tax revenue of 5.1 to 6.7 billion euros per year for Germany. The exact amount depends on whether all profits of MNCs that are effectively taxed at a rate of less than 15 percent are subject to a minimum tax, or whether a so-called carve-out is applied. Carve-out means that the tax base for the global effective minimum tax is reduced by an amount that reflects real economic activities in the country of residence by reducing the tax base by a fixed percentage of the value of tangible assets and payroll. If one also takes into account that the introduction of a global effective minimum tax leads to a reduction in tax-motivated profit shifting, the revenue effect for Germany increases; if, on the other hand, the low-tax countries react by raising their tax rates, the revenue effect may be significantly lower, but the actual objective of the global effective minimum tax – that is, combatting corporate profit shifting – would still be achieved.

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