Article

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The Impact Assessment of Implementing a Global Minimum Tax for MNEs in Sweden[1]

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Abstract: This paper examines the budgetary impact and dynamic effects of implementing a global minimum tax in Sweden. Using a new dataset of global activities of large Swedish companies, we estimate that Swedish tax revenue could increase by approximately SEK 500 million per year (around EUR 50 million). In addition, we estimate that administrative costs can be of the same order of magnitude and discuss the role of safe harbor rules to limit the administrative burden.

Keywords: BEPS, OECD, Global Minimum Tax, Corporate Tax, Sweden.

1 Introduction

Over the past few years, substantial international efforts have been underway to address tax base erosion and profit shifting (BEPS). These efforts have been carried out in collaboration between the OECD and G20, in the Inclusive Framework (IF) on BEPS. One aim has been to ensure that profits are taxed where they are generated and where value is created. Part of the work has focused on addressing the tax challenges arising from the digitalization of the economy, through the Global Anti-Base Erosion Model Rules (GloBE). This work is divided into two parts, or pillars. Pillar 1 concerns the redistribution of taxing rights between countries and pillar 2 focuses on introducing a global minimum taxation that deter tax avoidance. This paper conducts an impact analysis for the implementation of pillar 2 in Sweden.

The global minimum tax aims to establish a minimum tax rate that multinational enterprises (MNEs) must pay on their profits, regardless of where they operate or where they report their income. In essence, the rules specify how jurisdictions shall collect a top-up tax when an MNE is taxed below the minimum tax rate in some jurisdiction. The comparison to the minimum tax rate is done jurisdiction by jurisdiction and if an MNE is deemed to be undertaxed according to the rules, it is typically, though not always, up to the jurisdiction where the MNEs ultimate parent entity[2] (UPE) is located to collect the top-up tax. The legislation is comprehensive, and this paper focuses only on the economic consequences. Our description of the legislation is not precise. It solely serves to give the reader an intuition for how it might affect tax revenue and economic behavior. Readers interested to understand the mechanics of the proposed Swedish legislation are referred to 2021 års utredning om vissa internationella företagsskatter (2023).

From an economic efficiency perspective, there are several positive effects of a global minimum tax. If a minimum standard is established, it can result in a more balanced tax structure and reduce pressure on countries to lower their corporate tax rates. Lower corporate tax rate differentials are also expected to reduce MNEs' incentive to shift profit to low tax jurisdiction (Heckemeyerand Overesch 2017; Sorbe and Johansson

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1 This article is based on the impact assessment conducted in the committee report from "2021 års utredning om vissa internationella företagsskatter" (2023), *En lag om tilläggsskatt för företag i stora koncerner (SOU 2023:6)*

2 The UPE is the Constituent Entity that directly or indirectly owns a controlling interest in all the other Constituent Entities that are part of the same MNE Group. The UPE is the entity that is or would be required to consolidate the financial accounts of all other Constituent Entities in the MNE Group. For more information, see BEPS action 13 report "Transfer Pricing Documentation and Country-by-Country Reporting, Action 13 – 2015 Final Report | OECD/G20 Base Erosion and Profit Shifting Project |OECD iLibrary (oecd-ilibrary.org)"

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2017). Pillar 2 also aims at making it more difficult for jurisdictions to introduce particularly favorable tax rules in order to attract profits from MNEs and thus to discourage harmful tax competition between nations (OECD, 2020). This is expected to level the playing field and diminish both investments and reported profits in investment hubs.[3]

On October 8, 2021, almost all the IF's 140 member states reached a comprehensive political agreement on both pillars and on December 14, 2021 IF adopted the model rules for global minimum taxation (pillar 2). In December 2021, the European Commission presented directive proposal regarding a global minimum tax of 15 percent for multinational groups and large-scale national groups within the EU to implement the OECD's model rules (European Commission 2021). The European Council adopted a reworked version of the minimum taxation directive on December 14, 2022.

This paper complements the literature by presenting the central findings in the impact analysis conducted as part of the legislative process on the implementation of pillar 2 to Swedish law (SOU 2023, 6). Following the standard of such analysis it does not incorporate a full welfare analysis. Instead, the paper focuses on revenue effects, administrative burden, and consequences for employment in Sweden. Furthermore, the paper presents a static analysis based on historic data. Dynamic factors are only briefly discussed. This is also following the standard of an impact analysis in this context.

The budgetary impact of implementing a global minimum tax is examined using the microdata from Country-by-Country reporting[4] (CbCR) for Swedish companies. Our estimation suggests that Swedish tax revenue could increase by approximately SEK 500 million per year following implementation. As described in the literature review, this is low compared to some previous estimates. There are two key reasons behind this. First, detailed analysis reveals that undertaxed entities are exceptionally rare in Sweden. Second, we assume that other jurisdictions will implement rules that allow them to collect the additional revenue from undertaxed entities under their jurisdiction. We assess that the introduction of such rules will enhance Swedish competitiveness, given that Sweden does not have to raise its corporate tax rate. This means that Sweden will not be less attractive as a country for establishing multinational companies. But our static analysis does not incorporate revenue effects from improved competitiveness.

The analysis further shows that the effect on employment will likely be limited when dynamic effects are not included. This holds also when indirect effects through investments are considered. Furthermore, our analysis of administrative costs suggests that these could be large for both government agencies and affected MNEs. But these effects are significantly mitigated by the safe harbor rules that accompany the legislation. Safe harbor rules for the minimum tax are designed to ease the compliance burden of the affected MNEs, which have low probability of having undertaxed profit. The rules exempt these companies from the detailed calculation and submission of the GloBE information return report. Depending on the method used, administrative costs are estimated to be between SEK 23 million and SEK 163 million with a well function safe harbor rules at place.

The following section reviews relevant literature, followed by a description of the data and relevant descriptive statistics. The fourth section presents empirical findings, discusses the underlying assumptions, and analyzes the impact on various aspects of society. Finally, the fifth section concludes the paper. The directive is a comprehensive piece of legislation, and our estimations relies on several assumptions. These assumptions often imply simplifications compared to the actual legislation. The analysis focuses on those parts of the legislation that are expected to affect tax revenue. Each section in the analysis gives an intuitive description of the legislation that is analyzed and how the consequences are estimated.

2 Literature Review

Tax regulations play a crucial role in shaping the investment decisions of multinational companies. The OECD (2015) estimates that aggressive international tax planning reduces global corporate tax revenues by the approximately 4–10 percent of total global corporate tax revenues. Such tax planning leads to differences in

3 Investment hubs are defined as jurisdictions with a total inward FDI position above 150 percent of GDP, according to OECD (2020).

4 All OECD and G20 countries have committed to implementing Country-by-Country reporting, as set out in the Action 13 Report "Transfer Pricing Documentation and Country-by-Country Reporting". For more information see: Guidance on the Implementation of Country-by-Country Reporting: BEPS Action 13 (oecd.org)

the effective corporate tax rate that multinational and domestic companies pay on profits earned in the same country. According to the OECD (2015), the difference is estimated to range between 4 and 8.5 percentage points.

Enhancing transparency regarding cross-border activities is crucial for combating aggressive international tax planning and supporting the BEPS project. Kim, Li, and Zhang (2011), Graham et al. (2014), and Hasan et al. (2014) indicate that market factors, such as shareholders' preference for non-transparent companies, limit companies' tax planning. The implementation of CbCR in 2016 and the introduction of mandatory spontaneous information exchange as a minimum standard among participating jurisdictions in the IF have contributed to increased transparency vis-à-vis tax authorities.

The existing literature on profit shifting primarily focuses on estimating the extent of profit shifting and the potential tax revenue generated if these profits were not shifted or subject to a minimum tax rate. Recent studies suggest that measures against aggressive international tax planning can yield results. Joshi (2020) finds an approximately 1–2 percent higher effective tax rate for companies covered by CbCR. The study also indicates a decrease in tax-driven profit shifting since 2018, although the reduction is not statistically significant. De Simone and Olbert (2022) provide evidence supporting the relocation operations to European countries with more favorable tax systems. Additionally, their study shows that companies covered by CbCR reduce the number of global subsidiaries, resulting in reduced organizational complexity.

There have been additional studies conducted using data from the implementation of BEPS measures, indicating the potential for further reduction in tax BEPS. In a study by Garcia-Bernardo, Janský and Zucman (2022), the impact of the 2017 US corporate tax reform (2017 Tax Cut and Job Act) was examined. The results showed a decline of 3–5 percentage points in the share of profits booked abroad by US multinationals, mainly attributed to the repatriation of intellectual property rights. However, the study also revealed that the share of foreign profits booked in tax havens remained stable at around 50 percent from 2015 to 2020.

Recent literature has also focused on estimating the extent of tax BEPS even after the implementation of BEPS measures, both globally and across countries. Studies by Tørsløv, Wier and Zucman (2023), Devereux et al. (2020), Fuest et al. (2022), Garcia-Bernardo, Janský and Zucman (2022) have attempted to quantify these effects.

The introduction of a global minimum tax is expected to bring several positive effects for countries impacted by profit shifting. Previous estimates suggested that the United States could gain approximately USD 50 billion in revenue per year (Clausing, Saez, and Zucman, 2021). Barake et al. (2021) made a similar calculation for the EU and concluded that the EU could raise around EUR 50 billion in corporate tax revenue with a minimum tax rate of 15 percent. In their main scenario, Sweden could increase its corporate tax revenue by an additional EUR 1.5 billion in 2021. Bratta, Santomartino, and Acciari (2021) use CbCR data for groups with headquarters or subsidiaries in Italy in 2017. Tax elasticity is estimated based on differences in tax rates. They estimated that globally, profits amounting to EUR 887 billion were shifted for tax reasons, resulting in forgone tax revenues of EUR 245 billion.

Fuest, Hugger and Neumeier (2022) analyzed groups with headquarters in Germany in 2016 and 2017 using CbCR data. They find that approximately 4 percent of the profits in these groups are shifted for tax reasons annually. This corresponds to EUR 1.6 billion in lost tax revenue from large German MNEs, 1.5 billion from foreign MNEs, and 2.6 billion from small German MNEs.

Garcia-Bernardo, Javier, and Janský (2021) conducted an analysis based on available data from all countries in 2016. To compensate for gaps in coverage, they supplemented the OECD's CbCR data. The results indicated that nearly USD 1 trillion in profits were shifted for tax reasons globally, resulting in foregone tax revenue of USD 200–300 billion. The study also highlighted that low-income countries were more vulnerable, with profits corresponding to approximately 5 percent of tax revenue being shifted from these countries compared to roughly 1 percent for high-income countries.

In addition to CbCR-based studies, Tørsløv, Wier, and Zucman (2023) have become an important reference by using macro data to examine profitability differences between domestic and foreign companies in various categories of countries. They estimated that if profits were taxed where they arose, corporate income tax revenue in high-income EU countries would increase by 20 percent. The corresponding figures were 10 percent for the United States and 5 percent for low-income countries. The study also found that approximately USD 600 billion is annually shifted to investment hubs globally.

Álvarez-Martínez et al. (2022) employed an equilibrium model to assess the extent of profit shifting.

Their findings reveal that in the EU, the foregone corporate tax revenue amounts to 7.7 percent of the total corporate tax revenue, equivalent to 36 billion euros. In the case of the United States and Japan, these figures stand at 10.7 percent, corresponding to EUR 100.8 billion and EUR 24 billion, respectively. According to the study's main scenario, Sweden experiences an annual loss of EUR 459.8 million in corporate tax revenue due to profit relocation to countries with lower tax rates, representing 6.22 percent of the country's corporate tax revenue.

Using their equilibrium model, Álvarez-Martínez et al. (2022) also shed light on the impact of profit shifting on variables beyond tax revenue. They find that if access to investment hubs were to vanish, global gross domestic product (GDP) would decline by 0.1 percent, while welfare would increase by 0.19 percent. The decline in GDP primarily stems from the rise in capital costs, which in turn leads to reduced investment. However, higher tax revenues contribute to increased consumption and ultimately enhance welfare. The macroeconomic effects of profit shifting are also examined in the OECD (2020), where uncertainties are highlighted, particularly regarding investments. Moreover, IMF (2022) also briefly mention that investments increase modestly as a result of the introduction of a global minimum tax. The aggregate level of investment in fixed assets will, however, remain constant according to their analysis.

More recent literature has also studied the design choice of the minimum tax and tax competition. Hebous and Keen (2021), Johannesen (2022) and Janeba and Schjelderup (2022) theoretically analyze the revenue effect of introduction of minimum tax in high and low tax countries, with some assumptions about the strategic interdependence of tax policies. Devereux, Paraknewitz, and Simmler (2023) provide empirical evidence that most profits generated by large multinationals in scope for global minimum tax have presence in G7 countries. Therefore, the G7 countries or the adaption of the proposals in EU would create a critical mass and could potentially serve as a significant force to implement the global minimum tax on a broader scale.

One part of the legislation that has received some attention is the Substance-Based Income Exclusion (SBIE). This allows for the deduction of 5 percent of the group's eligible tangible assets and 5 percent of eligible payroll costs in the jurisdiction when calculating the top-up tax. Perry (2023) argues that the currently proposed SBIE would allow for tax competition based on a proxy for typical economic return on tangible investments within a specific jurisdiction. The paper also discusses that in certain situations this tax competition helps balance out unfavorable aspects of the local jurisdiction by raising the after-tax rate of return on investment, but in other cases, this competition becomes a zero-sum game for that jurisdiction and benefits only the investors. Therefore, the SBIE only minimize the tax competition for intangible investments and assets and allows countries to compete over tangible investments. Schjelderup and Stahler (2023) also study the effect of SBIE and argue that if a significant portion of the cost share for labor and/or capital is considered, the SBIE can be seen as a production subsidy. This subsidy tends to favor industries that rely more on capital than labor, as the subsidy provided to capital is greater than the subsidy provided to wages.

Devereux, Vella, and Wardell-Burrus (2023) show that some countries, in order to keep their competitive position, might replace their current corporate tax code with the rules that allows them to collect the minimum tax. Rules that allow a jurisdiction to collect top-up tax for undertaxed activities in the own jurisdiction are called a Qualified Domestic Top-up Tax (QDMTT). These rules play an integral part in explaining our findings.

3 Data and Descriptive Statistics

The analysis in this study is based on CbCR submitted by Swedish multinational groups for the period 2016 to 2021. It's important to note that CbCR data is relatively new, which means it may have some of the issues typically associated with newly collected data. These include uncertainty among actors on how to report as well as on interpretations of what to report. Efforts have been made to ensure data quality. The Swedish Tax Agency has encouraged reporting companies to rectify any inaccuracies, and duplicates have been removed when updated reporting is available. Additionally, a few obvious errors have been corrected, although this data cleaning process has been very cautious and restrictive. The analysis also utilizes the income declarations database collected by the Swedish Tax Agency.

The reporting of profit in CbCR typically differs from the taxable profit, leading to some reporting uncertainties. For example, intra-group dividends in certain countries, including Sweden, may have been included in the profit variable in CbCR. This results

Table 1: Descriptive statistics for in scope companies in Sweden.

	2021, Billion SEK					
Year	**Revenues**	**Profit***	**Loss**	**Taxes****	**Employees (Thousand)**	**UPE (Number)**
2016	4 306	184	196	39	941	84
2017	4 502	203	242	43	971	98
2018	4 856	229	350	49	992	98
2019	4 765	319	318	65	996	104
2020	4 761	311	299	62	1 024	110
2021	5 227	366	318	67	1 036	116

Source: FRIDA & CbCR and own calculations
*Profit here is equivalent to taxable income.
**Corporate tax.

in an underestimation of the effective tax rate in some cases. To address this issue, the OECD clarified that intra-group dividends should be excluded from the reported profit starting from September 13, 2018. The Swedish Tax Agency also adopted this approach for financial years beginning on or after January 1, 2020, but it can also be applied to previous years if companies choose to correct their figures. In our analysis, we find that no single sector will bear an unreasonably large tax burden due to these regulations. The OECD has highlighted that the rules generally limit deductions more in sectors that heavily rely on intangible assets. While some differences may exist, we do not find them to be dominant.

Companies covered by the OECD's model rules are entities in multinational groups whose annual revenues, according to the parent company's consolidated accounts, amount to at least EUR 750 million during at least two out of the four financial years preceding the year under review.

In 2021, there were 116 multinational groups, deemed to be covered by the rules, where the UPE is located in Sweden. However, the directive covers all groups whose annual revenues exceed the threshold, even those that do not have operations abroad. This means that the total number of Swedish parent companies affected by the rules was between 120 and 130 for the year 2021. In the remainder of this paper, a group whose UPE is based in Sweden is referred to as a "Swedish group," regardless of whether it is national or multinational.

How many companies that in practice will be affected by the rules depend partly on the specific Swedish implementation. Based on the proposal, the obligation to submit an additional tax return is linked to the obligation to pay top-up tax. Entities can, however, transfer the obligation to file a standardized information return to another entity within the group. The primary rule regulating how top-up tax should be collected is the income inclusion rules (IIR). According to IIR, it is the UPE that is primarily responsible for paying the top-up tax, but all entities within the affected groups will still be subject to these rules. This amounts to a total of 4,000 entities located in Sweden, including the parent company and partially owned parent units. The rules will also impact entities within foreign-owned groups that meet the conditions, which comprises 8,000 companies located in Sweden, including partially owned parent units.

The Swedish entities covered by the regulation have a total of 1 million employees in 2021. They generated a turnover of SEK 5 200 billion, with profits amounting to SEK 365 billion and income taxes totaling SEK 67 billion. As mentioned earlier, there is uncertainty regarding the CbCR data due to its newness and its purpose for risk assessments rather than taxation. To provide the most accurate assessment possible, we will also use information from income tax returns in Sweden. The profits and tax payments of the groups are aggregated by combining corresponding items from all Swedish entities. Table 1 presents descriptive statistics for the 12,000 entities in Sweden affected by these rules.

Since top-up tax is levied by the parent company due to the group's activity in other countries, the international activities of Swedish groups are a crucial aspect of the analysis. Groups subject to these regulations employed approximately 1.7 million people across 180 countries in 2021. Their total revenues amounted to SEK 4 200 billion, with profits totaling SEK 847 billion and income taxes accruing to SEK 136 billion. Table 2 provides aggregated information on the multinational groups covered by the regulations in 2021.

Table 2: Descriptive statistics for in scope companies (global activities).

	2021, Billion SEK					
Year	**Employees (Thousands)**	**Revenues**	**Profits***	**Losses**	**Accrued tax****	**UPEs**
2016	1 700	4 900	740	167	69	84
2017	1 800	4 400	880	74	106	98
2018	1 800	4 700	963	53	97	98
2019	1 800	5 000	801	107	103	104
2020	1 700	4 100	470	120	93	110
2021	1 700	4 600	847	42	136	116

Source: FRIDA & CbCR
*Profit is the CbCR profit before income tax.
**Income tax accrued in CbCR.

4 Empirical Results and Discussion

As mentioned earlier, the IIR is expected to be the set of rules that will primarily be used to collect top-up tax. In its most intuitive form, it implies that if a MNE is undertaxed in some jurisdiction it is the jurisdiction where the UPE of that MNE is located that is obliged to collect the top-up tax. The implementation of the IIR requires specific calculations for all entities within an affected group in each jurisdiction. To determine if income from a jurisdiction is considered undertaxed, the profit/losses and tax costs of all entities in the group within that jurisdiction are aggregated. The effective tax rate for the jurisdiction is then calculated by dividing the group's total adjusted tax cost by the total adjusted profit.

To identify undertaxed groups, we have calculated an effective tax rate by comparing the adjusted profit with the accumulated income tax based on CbCR. If the effective tax rate is below the minimum tax rate of 15 percent and the adjusted profit exceeds SEK 10 million, the group is classified as undertaxed. As described earlier, the directive allows for the deduction of 5 percent of the group's eligible tangible assets and 5 percent of eligible payroll costs in the jurisdiction when calculating the top-up tax. To evaluate the effect in our analysis, information on assets is taken from CbCR data, while payroll cost is taken from income declarations.

The directive also permits the deferral of certain tax payments for up to five years (Article 22.7). To account for such shifts in time, an effective tax rate is calculated on data from 2016 to 2021. While income declarations provide information on intra-group dividends for Swedish companies, it is challenging to identify which companies have included these dividends in their profit figures. It is, however, evident from the data that this problem has decreased over time.

4.1 Qualified Domestic Top-Up Tax

Even though the minimum taxation directive typically stipulate that it is the jurisdiction where the UPE is located that collect the top-up tax, the jurisdiction where the undertaxed entity is located can choose to collect this tax revenue itself through a QDMTT. Considering that the top-up tax will be collected regardless of whether a country implements a QDMTT, the implementation of a QDMTT will not affect economic behavior. The QDMTT primarily dictates who it is that collects the tax, not for example the tax cost. Who it is that collects the tax is typically not central in business decisions. But even if the rule has little impact on how much top-up tax that is collected it is assumed to have strong effect on who collects the tax revenue. If universally implemented, Sweden would only collect top-up tax from Swedish entities. And, as we will discuss further below, top-up tax from Swedish entities is marginal.

Although analysis of data from CbCR suggest that there are undertaxed groups in Sweden, a detailed analysis using income declarations reveals that this is not correct. This implies that tax revenue from a Swedish QDMTT will be small. Three main factors drive this result. First, certain companies still include intra-group dividends in their profit before income tax. Second, some groups have other book income or the

disposal of partial ownership rights that are not reflected in their profit before income tax. These items are exempt under the directive and do not result in top-up tax. The third factor leading to a low effective tax rate, according to CbCR data, is carried forward losses from previous years, which in some cases were not included in the CbCR. This also does not cause the entity to be undertaxed. Our analysis does not identify any significant sources for top-up taxation of entities in Sweden. But it does not rule out the possibility that there are deductions permitted under current Swedish law that are not exempted under the directive. We have not been able to do an exhaustive analysis of this. However, our assessment suggests that undertaxed entities in Sweden are exceptional cases.

Given that there is no obvious economic downside to a QDMTT, we assume that countries implementing the directive will also introduce a QDMTT, especially if they perceive potential undertaxation within their jurisdiction. It is unlikely that Sweden will levy top-up tax on entities in EU countries, as they are expected to adopt the directive. Many other countries have announced their intention to implement a minimum tax. Therefore, any additional tax according to the IIR would arise from countries that choose not to implement such rules, typically countries with limited resources.

4.2 Swedish Revenue from a Top-Up Tax

The tax revenue Sweden can expect to collect from a top-up tax is strongly affected by which countries that implement a QDMTT. As described earlier, our starting point is a hypothetical where a top-up tax was implemented in 2016. Table 3 presents the hypothetical top-up tax in billions of SEK per year if the rules were implemented in those years without considering any behavioral impact and without adjusting for outliers.

The analysis shows that the top-up tax drops sharply in 2019, 2020, and 2021. An important factor may be the problems with CbCR described in the section on data and descriptive statistics, not least problems relating to the report being new and inclusion of tax-free dividends, which seems to be resolved during last years. Excluding a few outliers and with minor adjustments for possible errors, the estimated additional tax is around SEK 10 billion for all years except 2020. The low value for 2020 likely reflects the impact of the Covid pandemic on the global economy. Results may also reflect the implementation of the Anti-Tax Avoidance Directive from 2019 onward.

Table 3: Hypothetical top-up tax revenue from Swedish MNEs due to undertaxed foreign entities per year.

	Billion SEK					
Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
EU	14	18	21	8	3	6
G20 (ex. EU)	3	3	5	3	1	1
Rest of the world	9	5	4	2	1	3
Total **Top-up tax**	26	25	30	12	5	10

Source: CbCR and own calculations.

The previous section describes tax revenue due to activities of subsidiaries where the UPE is located in Sweden. But, as discussed above, Swedish tax revenue will be heavily affected if other jurisdictions implement a QDMTT. In terms of geographical distribution, a significant portion of the estimated tax revenues, ranging from 60 to 80 percent, come from EU countries. In practice, these EU countries are obliged to implement the directive and will likely also implement a QDMTT. In addition to EU countries, we also exclude subsidiaries located in countries where we are certain that QDMTT will be applied, or where minimum taxation is effective. As for the rest of the countries, we cannot be certain that QDMTT will be applied. We have, therefore, adopted the OECD hypothesis that 70 percent of countries will apply it. Based on these adjustments, we project that Sweden's tax revenue from top-up tax based on the IIR will be around SEK 500 million in the year of implementation. This relatively low estimate is strongly dependent on our assumptions regarding QDMTTs, and higher revenues are possible if fewer countries opt for a QDMTT.

4.3 The Undertaxed Profit Rule

The undertaxed profit rule (UTPR) is a set of rules that exist to ensure that it is not easy to circumvent the IIR, for example, by moving the parent company to low-tax jurisdictions. Its aim is, therefore, not primarily to provide additional tax revenue besides the IIR. One reason why there is a need to ensure that the system is not easily circumvented is that companies that can circumvent the rules have a competitive advantage. In our assessment, the UTPR fulfills that purpose.

There are very few analyses done regarding the effect of the UTPR. One reason may be that it is a

complicated rule that requires a lot of data to estimate and is expected to have relatively little effect. We estimate that there are 8,000 entities in foreign MNEs in Sweden, but in most of these groups, the parent company is located in a country that has indicated that it intends to introduce a minimum tax. We do not know which countries will introduce a minimum tax, and we also lack information on the activities of foreign corporations abroad. From a static analysis based on Swedish companies, we estimate that the revenue impact will be SEK 2 million. However, this figure is highly uncertain. Swedish revenues from the UTPR can be higher if fewer countries choose to introduce a QDMTT.

The revenue impact calculated in this paper is uncertain and based on a static calculation where the largest part of the tax revenue from the minimum tax is absorbed by other countries through QDMTTs. The tax revenue attributed to Sweden is between one-tenth and one-twentieth of the total tax revenue collected from Swedish multinational groups. Considering the purpose of the minimum tax, it is important to extend the static calculation of the revenue impact with a description of the behavioral changes and associated dynamic effects that the minimum tax directive may bring. The following sections discusses such implications.

4.4 Effects on Competition

The proposed measure is expected to act as a deterrent for companies considering aggressive tax planning strategies. It does so by increases the tax costs for companies currently utilizing such schemes, ultimately leveling the playing field for firms that do not employ such practices.

In theory, all companies can structure their operations to minimize tax costs. However, taking advantage of differences in effective tax rates can be costly. It is, therefore, primarily large multinational groups that have the capacity to pursue such strategies. The introduction of a global minimum tax reduces the opportunities for multinational groups to lower their tax costs, thus altering the competitive dynamics between larger and smaller groups.[5] This change in the competitive landscape can have potential efficiency gains. More equitable conditions can imply that capital allocation is increasingly based on companies' productivity, leading to an overall increase in productivity.

Administrative burdens can also affect competition. Our analysis of the administrative costs is described below, but the estimates are substantial—particularly for groups with extensive operations in multiple countries and entities. Typically, these costs are proportional to the size of the groups. While the effect on competition is limited when the largest groups primarily compete with each other, there may be instances where administrative costs distort competition. However, the introduction of well-designed safe harbor rules can significantly mitigate these effects.

It is assumed that only a few smaller Swedish groups currently engage in profit shifting, and most smaller groups have activities in only a few other countries. Consequently, in most cases, the administrative costs associated with the proposal should not be sufficient to significantly impact how companies grow. Nevertheless, the rules might introduce a threshold effect and that could influence how groups act. Groups near the thresholds may choose to restructure and grow in ways that allow them to avoid being subject to minimum tax rules, even though the actual costs involved are not in them self-sufficient to induce such behavior. The administrative cost, to some extent, depends on the number of subsidiaries. Groups may, therefore, opt to have fewer subsidiaries than they would if the rules did not exist, or limit their activities to fewer countries.

4.5 Strategic Choice for MNEs

According to our assessment, the UTPR is effective. This implies that groups that have operations in any country that has implemented minimum taxation will have to pay top-up taxes on all activities, also activities in jurisdictions that have not implemented minimum taxation. MNEs, therefore, face the choice of either paying the minimum tax on all operations or, more or less, completely avoid being active in countries that have implemented pillar 2. The balance between increased tax costs, administrative burdens, and the profits derived from activities in countries implementing pillar 2 depends on the nature of the groups' operations and the countries choosing to adopt the rules. If all G20 countries implement the rules, it is likely that very few MNEs within the scope would opt to refrain from activities in these countries due to top-up taxes.

5 Since the directive also covers large domestic entities, the shift in competitiveness theoretically applies to the relation between all large and small entities. But since we cannot find undertaxed entities in Sweden, this has no practical significance in our case.

However, if only EU countries implement the rules, some multinational groups may consider withdrawing from the EU. We have not simulated this specific scenario with the available data, but existing information suggests that several major countries will introduce regulations on GloBE minimum taxation.

If MNEs choose to forego activity in jurisdictions with minimum taxation, they gain a competitive advantage in other markets by avoiding administrative costs and having lower tax burdens. Additionally, competition in markets where the rules have been implemented may decrease if certain groups opt out of operations. Overall, these dynamics distort competition and reduce efficiency.

The German finance department outlines a scenario where the EU implement a minimum tax first (Wissenschaftlicher Beirat 2022). In the scenario, low-tax countries respond by introducing QDMTTs or equivalent rules. As a result, there are no longer any low-tax countries, which removes the incentive for countries outside the EU to implement minimum taxation rules. As implementation introduces administrative costs, other countries refrain from introducing the rules, which distorts competition and adversely affect EU countries. This scenario underscores the importance of coordinated implementation of the regulations. However, it appears unlikely that all low-tax countries would introduce a QDMTT after the EU countries have implemented the directive.

4.6 Effects on Investment and Employment

According to the OECD (2020), the proposed rules are expected to have a negligible effect on global growth and investment. The estimates suggest that the rules would increase effective marginal tax rates by 1.2 percentage points and effective average tax rates by 0.3 percentage points. Additionally, global GDP is projected to decrease by less than 0.07 percent, while global employment is expected to experience a marginal increase.

From a Swedish perspective, since entities in Sweden are generally not considered undertaxed, the top-up tax can be viewed as a tax increase abroad on the profits of affected MNEs. When low-tax countries refrain from implementing a QDMTT, Sweden would admittedly collect a portion of the revenue using the IIR. Nevertheless, our view is that MNEs response to tax rate increases is typically related to the costs and not who it is that collects the revenue. The view that the top-up tax is a tax increase abroad is, therefore, motivated also in cases where IIR is used to collect top-up tax.

According to our static results, the tax costs for groups where the parent company is based in Sweden will rise by approximately SEK 5 billion–10 billion globally. This increase corresponds to about 5 to 10 percent of the total corporate tax costs for Swedish groups within the scope. It is important to note that, as mentioned earlier, only a fraction of this increase is expected to be paid in Sweden in a static calculation. The majority is anticipated to be paid as QDMTT abroad. The increase in tax costs is not symmetrical, and certain groups will bear a larger share of the burden than others. As a result, these groups' investments may decrease due to higher tax costs, potentially impacting employment on a global scale.

Recent findings suggest that a significant portion of the effect of tax increases on investments comes from the relocation of investments rather than their cancellation. According to a study by Millot et al. (2020), which is also utilized in the OECD's impact analysis, the effect of a 1 percentage point increase in corporate tax on global investments varies between 0.15 and 0.05 percent, depending on the profitability of the studied group. By applying the relevant semi-elasticity (based on the profitability of each Swedish multinational group) to investments and considering the magnitude of the tax rate increase for each group under the global minimum tax, we estimate that global investments in Swedish multinational groups would decrease by approximately 0.15 percent.

How this decrease in investment will impact investments in Sweden depends on the role that profit shifting and aggressive tax planning currently play in the effected Swedish groups. If profits generated in Sweden are currently shifted to jurisdictions with lower taxes, the avoided tax wedge would theoretically imply that investments in Sweden are presently higher than they would be if groups did not shift profits. The tax-wedge introduced by the top-up tax would then affect these groups' investments in Sweden. In this hypothetical, these groups' investments in Sweden could decrease by up to 1 percent. If profit shifting is less prevalent today, the top-up tax would increase the tax rate on operations abroad, but not in Sweden. This could then instead lead to increased investments by the affected groups in Sweden. This result can be extended to other, foreign, affected groups where a potential global decrease in investments is counterbalanced by improved Swedish competitiveness. A formal model

describing these counterbalancing factors can be found in Johannesen (2022).

The impact of changes in corporation tax on employment is a topic of ongoing debate, with relatively few studies exploring this relationship. However, it is plausible that a negative effect on investment could induce a negative effect on employment. On the other hand, higher tax revenues can contribute to increased public consumption, which can influence employment—as highlighted by the OECD (2020). Factors such as substitution between production factors and wage effects further suggest that the impact on employment is smaller than the effect on investments. At the very least, the effect on employment should not surpass the effect on investments. Considering that the effect of a top-up tax on investment in Sweden is arguably, small the impact on employment will likely be negligible in a static setting.

4.7 Dynamic Effects

The calculations presented so far assume that all factors other than the ones being studied remains unchanged. However, it may be a strong assumption that a global minimum tax would not influence the behavior of actors. A more forward-looking economic analysis would need to consider how the minimum tax affects behavior and expectations. The OECD (2020) discusses such aspects in its impact analysis.

According to our calculations, Sweden's tax revenue from the IIR would amount to SEK 0.5 billion. The tax payments of Swedish groups would, on the other hand, increase by around ten to twenty times that amount. The calculation assumes that the jurisdiction that is currently a low-tax jurisdiction collects the additional tax. However, as the difference between tax rates narrows, the value of profit shifting decreases. This may lead groups to choose to relocate their profits and operations to Sweden.

Another aspect discussed by the OECD (2020) is the potential efficiency gains from making investment decisions based on factors other than the tax rate. According to this line of thought, the minimum tax does not eliminate intergovernmental competition for investment, but instead partially shifts the competition from corporate tax rates to factors such as labor income taxes and public services. Assuming that tax competition has led to imbalances, where taxes on labor income have increased and public spending has decreased to suboptimal levels, these shifts could result in efficiency gains. The fact that Sweden is not a low-tax jurisdiction also suggests that such changes to competition could benefit Sweden.

The SBIE allows for tax rates below 15 percent if there is substantial physical activity in a country. This means that it is possible to combine competition for real investments with tax rates below 15 percent (Schjelderup and Stahler 2023). However, this strategy is only available to countries that can compete in terms of real investments. Moving operations is significantly more costly than moving profits, which could make the strategy less effective. The scientific committee of the German finance department points out that EU rules on state aid can make it more challenging for EU countries to compete when the competition is shifted (Wissenschaftlicher Beirat beim Bundesministerium der Finanzen 2022). However, it is generally easier to gain societal acceptance for reforms in income taxes or public services than it is for reductions in the effective tax rate for multinational corporations.

4.8 Administrative Costs

The proposal will initially lead to significant expenses for building systems and acquiring the necessary skills to compile and submit the required reports. The extent of information to be compiled and reported depends on the number of entities within the group and the countries where the group operates. Swedish groups have approximately 9,000 entities abroad, resulting in a total of around 13,000 entities in Swedish groups when including the 4,000 entities located in Sweden.

Since many calculations and some GloBE information return are based on the groups' total activity per country, it is important to know how many countries each group is active in. A group's total activity aggregated at the country level is referred to below as a subgroup. In total for all Swedish groups, there are 3,000 such subgroups.

Our starting point is that the UPE bears the entire group's costs for compiling and preparing the additional tax report. This is because the cost must primarily be borne by the entity that files the GloBE information return. We disregard the cases where several GloBE information return must be submitted, as we assess that this will only be relevant in exceptional cases or during a transition period. We also disregard the cases where the UPE is located in a country that does not apply the rules on minimum tax, even though in exceptional cases this may lead to additional entities in Sweden

being required to submit the GloBE information return report.

An alternative assumption could be that the administrative costs are borne by each entity. Since the number of subsidiaries abroad in Swedish groups (9,000) is so close to the number of Swedish entities in foreign groups (8,000), the choice of starting point does not play a major role in the results of the analysis.

The premise that the UPE bears the cost presumes that there are agreements on information exchange and that the companies state that the UPE submits the report. If there are no such agreements, some, or all the 12,000 affected entities in Sweden may be forced to submit the report, thus including the 8,000 entities that are in foreign groups. These would then have to report for all entities in the group they are a part of. If this were to happen, it would clearly increase the administrative cost significantly.

To estimate the administrative costs according to the Swedish model on impact assessment, the so-called rules calculator is used. The rule calculator is based on multiplying an estimated hourly wage for the data provider by an estimated time consumption. According to Statistics Sweden's statistics on average monthly salary in 2021, the average monthly salary for a business and corporate lawyer amount to SEK 63,400. The corresponding hourly wage is obtained by dividing the monthly wage by 160 hours. According to the Agency for Growth, the average monthly salary must be multiplied by the standard value of 1.84, which includes holiday compensation, employer contributions, and an overhead cost.

Based on our assessment, the regulations will require that a Swedish group reports an average of 15,000–20,000 data points. It is very difficult to determine in advance the time required per data point, not least because the data must be shared between companies in different countries. Much of the data to be submitted is also deemed to be new in relation to the companies' accounting. We assume here that the time required to collect, share, and report data—after the system is fully implemented in each group—is 6 minutes per data point. This is our own assumption based on similar calculation for declaration forms. One can argue that this can be too low or too high for certain information points, but on average would be a good approximation. Based on the time costs stated above, this gives recurring costs of SEK 136 million ($\approx 15000 \times (63.400/160) \times (6/60) \times 1.84 \times 124$) to SEK 181 million ($\approx 20000 \times (63.400/160) \times (6/60) \times 1.84 \times 124$).

The cost depends to a very high degree on how many countries and entities the group needs to collect information from. In addition to the number of data points, the time required can also be affected by whether the calculation needs to be done for fewer jurisdictions. The administrative costs can be significantly reduced if rules on safe harbors are introduced, which means that the groups do not need to collect information in jurisdictions where they are clearly not undertaxed. This will reduce the compliance obligation in low-risk countries. At least in a transitional period, there will be safe harbor rules based on CbCR. The groups covered by the directive could then use the available data to calculate their effective tax rate. On the assumption that the GloBE information return report is only provided by the entities that are undertaxed according to CbCR, around 400 subgroups are affected. That is about one-sixth of the total number of subgroups. If we assume that this also represents one-sixth of the number of entities, the number of data points and thus the administrative cost would also be reduced to approximately one-sixth in such a scenario. This would mean a cost of SEK 23–30 million according to the standard rule calculator's method. Since Swedish MNEs often have relatively large operations in Sweden, the reduction can be even greater for them.

Around a quarter of the companies in Sweden state that both turnover and tax paid are zero. This is significantly more common in entities in Swedish MNEs than in foreign MNEs. It is probably relatively easy to report for these companies, which should also affect the administrative cost. If we assume that the foreign subsidiaries of Swedish MNEs are similar to the subsidiaries of foreign MNEs in Sweden, there are approximately 3,000 data points that are affected for a medium-sized group. If we assume that the time consumption for these companies is 1 minute per data point instead of 6 minutes, the administrative cost of the proposal will be between SEK 113 and 158 million.

Since there are many parts of the regulations that are unusual in a Swedish context, and there are still no established forms, it is difficult to use the rules calculator. We also see several reasons to believe that the cost for the companies will be higher than that which the rule calculator's standardized method gives, especially initial costs. The GloBE information return reporting will require a high degree of coordination within groups—a coordination that does not always exist today. The fact that information from several

countries must be compiled is also a complicating factor. Since many data points are deemed to be new in relation to group accounting, significant investments in IT systems and to train personnel will also be required.

Due to these factors and the large amount of data that needs to be collected, we have held a dialogue with representatives of the businesses to get their view of what the administration costs might be. Based on these contacts, we have made some rough estimates. They are based on the hypothetical that if the task of compiling the report was outsourced to a consultant, this would cost an average of over 30,000 SEK per unit and year. Due to the uncertainty, we count on an interval between SEK 30,000 and 50,000. In addition, according to the information we received, a work effort of from 20 to 40 hours per entity and year would be required from the group itself to provide consultants with documentation and support.

If it is assumed that the time for the ongoing handling varies between 20 and 40 hours for all companies, the cost corresponds to between 20/160 and 40/160 of an average monthly salary. The cost can thus be calculated at between SEK 14,600 ($\approx 63,400 \times 1.84 \times 20/160$) and SEK 29,200 ($\approx 63,400 \times 1.84 \times 40/160$) per entity and year.

With the uncertainty that prevails in this estimate, the total ongoing administrative costs for the Swedish UPEs that must submit the additional tax report can be calculated at between SEK 580 million ($\approx (30\ 000 + 14,600) \times 13\ 000$) and SEK 1 billion ($\approx (50\ 000 + 29,200) \times 13\ 000$). The higher value is well adjusted to keep the cost within the range.

If we instead again consider that some group units have very limited operations and assume as a standard that the cost for 3,000 units is instead 5 hours of work per unit, it leads to an estimated cost of between 450 million and 800 million SEK per year.

In addition to these costs, there are significant initial costs for training staff and building an IT structure. There may also be ongoing costs for maintaining the IT structure.

As with the rule calculator, the cost of this method is highly dependent on how many entities need to report. A safe harbors rule based on CbCR would reduce the cost to approximately one-sixth, that is, SEK 94 million to SEK 167 million per year.

Information from large national groups indicates that the regulatory burden is estimated to be significantly lower for these than for groups with activities in several countries. This is in line with the assumptions we have made here.

5 Conclusion

Although the minimum tax implies a major undertaking, we estimate that the Swedish tax revenue will be limited—around SEK 0.5 billion per year. This strongly depends on the assumption that other jurisdictions will implement a QDMTT and that Swedish groups are not undertaxed. The tax costs of Swedish groups will increase by about ten to twenty times as much. According to an analysis based on semi-elasticities, Swedish groups will decrease investments by about 0.15 percent globally because of the increase in tax costs. The impact on investments in Sweden is however balanced by the fact that entities in Sweden are not presently undertaxed and why Swedish competitiveness likely will increase. The effect on investments and employment in Sweden is, therefore, unclear and largely dependent on dynamic factors. Such factors are only discussed, but we argue that Swedish competitiveness will likely increase due to the minimum tax and that effects on both revenue and investments will likely be more positive than our estimation suggests.

One important finding in this work is that the administrative burden of this legislation can be very high. Based on input from effected groups, this cost could amount to between SEK 450 million and SEK 800 million. The Swedish standard rules calculator estimates the cost between SEK 136 million and SEK 181 million. These estimates disregards sunk costs that proved very hard to be reliably estimated, such as investments in software and education. The figures are, however, radically decreased when relevant safe harbors are in place. According to our estimates, safe harbors can reduce administrative costs to one-sixth of the original estimates, that is, SEK 94 million to SEK 167 million per year according to the estimates based on market input and SEK 20 million to SEK 30 million according to the rule calculator.

In conclusion, the revenue impact, as well as the effect on investment and employment of the minimum tax, are expected to be small in Sweden in a static setting. Any major effects will most likely stem from dynamic factors that are not included in our estimates. Our view on such dynamic factors is that a global minimum tax will not eliminate competition between countries, but it will transform it and redirect focus to more conductive arenas, such as the quality of infrastructure and public services. Considering that we cannot find that activities in Sweden are undertaxed, we believe that this transformation will benefit Sweden.

Sweden is not competing with an effective tax rate under 15 percent today and should therefore stand to gain if other countries are encouraged to do the same.

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