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(Mis)measurement of Income Shifting*

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Abstract

We examine the reliability of financial statement data for measuring cross-border income shifting. Using a novel dataset of Austrian corporate tax returns matched with financial statement data, we estimate a tax semi-elasticity of taxable income reported on tax returns of -0.9. When we use financial statement profits instead of taxable income, the semi-elasticity decreases by more than 50%. This result suggests that financial statement profits understate the extent of income shifting observed in tax return data. As a result, studies that rely on financial statement data are likely to underestimate income shifting at the firm level. We offer practical guidance on how to correct for biases arising from the disparity between financial statement profits and taxable income.

Keywords: Income Shifting, Tax Avoidance, Administrative Tax Data, Financial Statement Profits

JEL Classification: H25, H26, F23

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1 Introduction

Notwithstanding its importance for policy and society, the magnitude of tax-motivated income shifting remains contested.¹ Macro-level estimates of income shifting vary widely. For example, Tørsløv et al. (2023) estimate that MNEs shift up to one-third of their global profits to tax havens, whereas Fuest et al. (2022) find that German MNEs shift only about 9% of profits. Studies based on U.S. FDI data report even greater dispersion, with implied annual corporate tax revenue losses ranging from 4% to 45% (Blouin and Robinson, 2023; Clausing, 2016). In contrast, micro-level studies typically use publicly available data from unconsolidated (i.e., single-entity) financial statements to proxy taxable income. These studies yield comparatively smaller income-shifting estimates at the entity level that vary with firm characteristics (e.g., Huizinga and Laeven, 2008; Markle, 2016; Heckemeyer and Overesch, 2017).²

A related stream of research investigates the strategies through which MNEs shift income to low-tax jurisdictions. While some studies emphasize internal debt as highly tax-sensitive and therefore a primary income-shifting strategy (Huizinga et al., 2008; Reiter et al., 2021), others point to transfer pricing and intra-firm royalty payments as the dominant strategies (Heckemeyer and Overesch, 2017; Davies et al., 2018). Hence, the relative importance of these strategies remains unsettled in prior work.

Our study contributes to these literature streams in two key ways. First, we construct a novel dataset that links financial statement data with confidential tax-return data. This dataset allows us to produce micro-level estimates of tax-motivated income

¹Income shifting refers to the relocation of taxable income from high-tax to low-tax jurisdictions to reduce a multinational enterprise’s (MNE’s) overall tax burden. Common strategies include transfer pricing for intra-group trade, intra-group interest related to debt financing, and intra-group royalty payments for the use of intangible assets.

²The availability of granular entity-level financial statement data in the EU and several non-EU countries (e.g., the UK and Canada) enables researchers to estimate income shifting at the entity level. Because comparable data are not available in the U.S., studies in that setting rely on consolidated financial statements and typically distinguish income shifting between the U.S. and foreign operations, rather than among an MNE’s foreign affiliates (e.g., Collins et al., 1998; Dyreng et al., 2023; Dyreng and Markle, 2016). Our study focuses on and contributes to research that uses unconsolidated financial statement data to examine income shifting among MNE entities.

shifting using tax-return data and to benchmark them against estimates based on unconsolidated financial statement data. Doing so enables us to assess the reliability of financial statement data for measuring income shifting at the entity level. We identify tax-exempt dividend income as a key tax-return item that drives the disparity between financial statement profits and taxable income. We then show that this item attenuates income-shifting estimates derived from financial statement data. Second, we demonstrate that reliance on financial statement data affects inferences about the relative importance of different income-shifting strategies. In particular, the tax-return item identified previously helps explain why prior studies often understate the role of intra-firm debt financing.

The empirical setting for our study is Austria, which offers several advantages for cleanly measuring income shifting and parsing specific shifting strategies. First, Austria is a small, open economy with substantial MNE activity. In 2022, MNEs accounted for one-third of total private-sector revenue despite representing only 2% of firms (Statistik Austria, 2024). These statistics emphasize the importance of MNEs for the Austrian economy and the potentially broad impact of their income-shifting activities. Second, during our sample period from 2012 to 2019, Austria maintained a corporate tax rate of 25%, which was close to the OECD average (Tax Foundation, 2019). For Austrian entities, this constant tax rate created incentives for both inward and outward shifting (Adams et al., 2024; Hopland et al., 2018).³ Third, Austria’s constant corporate tax rate and the relative stability of MNE group structures in our sample over time imply that our identifying variation primarily arises from changes in *foreign* corporate tax rates. We exploit this tax rate variation using entity fixed effects, which helps mitigate concerns about endogeneity. Finally, at the entity level, Austria applies a modified one-book system, characterized by a close link between financial accounting and tax rules,

³For example, affiliated MNE entities located in Germany (Ireland) faced a 30% (12.5%) tax rate and thus had tax incentives to shift income *into* (*out of*) Austria.

similar to that in many EU and non-EU countries.⁴ As a result, our findings from the Austrian setting likely generalize to a broader set of countries and institutional environments.

Our analyses leverage data from three distinct sources. First, we use administrative corporate tax-return data provided by the Austrian Ministry of Finance through the Austrian Micro Data Center (AMDC). These data cover the universe of corporate tax returns filed in Austria from 2005 to 2019 and are available to researchers upon application. Austrian corporations generally file single-entity tax returns, without consolidation of intra-group transactions.⁵ Second, we obtain unconsolidated financial statement data from Bureau van Dijk’s Orbis Historical Database and merge these data with the tax-return data using entities’ trade register numbers. The combined dataset allows us to directly compare financial statement profits with taxable income.⁶ Third, we use administrative affiliate statistics on inward (IFATS) and outward investment relationships (OFATS). These data identify the location of an Austrian entity’s shareholders and its subsidiaries, which we use to compute entity-specific tax incentives to shift income into or out of Austria (Huizinga et al., 2008).

We first estimate the tax semi-elasticity of taxable income Austrian MNE entities report on their tax returns using a model in the spirit of Hines and Rice (1994) and Huizinga et al. (2008). To capture entity-specific incentives to shift income, we compute the difference between Austria’s statutory corporate tax rate and the *lowest* foreign

⁴In Table A2 in the Online Appendix, we compare the most relevant tax and financial accounting rules in Austria with those of other EU countries.

⁵The Austrian corporate tax code provides an option to file a consolidated return where taxable income of individual entities is consolidated at the group level. We exclude these observations from our primary sample because Austrian financial accounting rules require corporations to disclose unconsolidated financial statements. We obtain qualitatively and quantitatively similar income-shifting estimates when including corporations with a consolidated tax return in the sample.

⁶The resulting dataset is unique in the context of entity-level analysis of tax-motivated income shifting. In the U.S. context, similar datasets have been used to reconcile financial statement profits and taxable income (Bokulic et al., 2012), improve forecasts of corporate taxable income (Green et al., 2022), and examine the evolution of book-tax differences over time (Green and Plesko, 2016). These studies focus on consolidated (i.e., group-level) financial statements and tax returns without reconciling financial statement profits and taxable income at the individual entity level.

corporate tax rate within the MNE group. This tax rate differential represents the net tax savings of moving one euro of income into or out of a given Austrian entity (Beer et al., 2020; Ortmann and Schindler, 2023). Because Austria’s corporate tax rate remains constant over the sample period and we use entity fixed effects to control for time-invariant entity characteristics, our identification comes from *within-entity* variation in foreign statutory corporate tax rates.

We estimate a baseline tax semi-elasticity of taxable income of -0.9. This estimate, which is comparable to prior estimates (Heckemeyer and Overesch, 2017; Beer et al., 2020), indicates that the average Austrian MNE entity reduces (increases) its taxable income by 0.9% in response to a one percentage point increase (decrease) in the incentive to shift income. For the mean tax rate differential in our sample, this estimate implies that the average entity shifts roughly 2% of its taxable income *out* of Austria. Additional tests highlight substantial heterogeneity in the estimated tax semi-elasticity. For example, for entities with tax-haven ties, the semi-elasticity amounts to -4, which is more than four times as large as our baseline estimate.

We next use financial statement profits (i.e., pre-tax profits) as a proxy for taxable income and re-estimate the tax semi-elasticity. The resulting estimate is more than 50% smaller in magnitude (-0.4) than the baseline estimate based on taxable income. Such a pattern is consistent with financial statement profits attenuating income-shifting estimates. To investigate *why* such attenuation occurs, we reconcile profits reported in financial statements with income reported on tax returns and identify the specific tax-return items that account for the divergence between the two measures. A Shapley decomposition shows that 35% of the difference is explained by tax-exempt intra-group dividend income, which increases financial statement profits without affecting taxable income.⁷ When we adjust financial statement profits for tax-exempt *foreign* dividend income, the estimated tax semi-elasticity is close to our baseline estimate based on tax-

⁷Similar to other EU countries, entities in Austria apply the cost method to account for intra-group shareholdings in their unconsolidated financial statements while dividend income is generally exempt from corporate taxation. See Table A2 in the Appendix for details.

able income. Adjustments for other tax-return items, such as non-deductible expenses, have limited effects on income-shifting estimates.

A plausible explanation for the central role of foreign dividend income is that entities with incentives to shift profits out of Austria earn tax-exempt dividend income when foreign affiliates distribute these profits back to the Austrian entity (Kohlhase and Pierk, 2020; Markle, 2016; Langenmayr and Liu, 2023). Without adjusting for tax-exempt dividend income, financial statement profits overstate the tax base and the resulting income-shifting estimates are smaller in magnitude compared to those based on taxable income. While prior work finds that the accounting treatment of intra-group dividends in U.S. FDI data can result in macro-level estimates of income shifting to be overstated (Blouin and Robinson, 2023), our results highlight that specific interactions between tax and accounting rules attenuate income-shifting estimates at entity level. Importantly, when we adjust financial statement profits for dividend income reported in *financial statements*, the resulting tax semi-elasticities also align closely with those obtained when using confidential tax-return data. Hence, even without access to administrative tax records, researchers can use information in Orbis to mitigate the downward bias in income-shifting estimates induced by financial statement data.

In our final analysis, we examine whether dividend income affects inferences about the relevance of specific income-shifting strategies. Prior research finds that an entity's earnings before interest and taxes (EBIT) contribute more strongly to income-shifting estimates than pre-tax financial statement profits (Heckemeyer and Overesch, 2017). These results are typically interpreted as evidence that internal debt financing plays a minor role for income shifting, because interest expenses reduce pre-tax profits but not EBIT.⁸ However, tax-exempt dividend income similarly affects pre-tax profits while leaving EBIT unchanged and might therefore also account for the smaller income-shifting estimates obtained when using pre-tax profits instead of EBIT.

⁸Buettner and Wamser (2013) show similar results. However, Davies et al. (2018) find that transfer pricing is a key income-shifting strategy.

To examine the impact of tax-exempt dividend income on inferences about income-shifting strategies, we re-estimate our baseline model after adjusting financial statement profits for such income. The resulting estimate is nearly identical to our baseline results. In contrast, adjusting financial statement profits for interest expenses reported in financial statements substantially attenuates the estimated tax semi-elasticity. Taken together, these findings suggest that tax-exempt dividend income, rather than a low relevance of debt financing, drives the attenuation of income-shifting estimates based on pre-tax financial statement profits, consistent with tax-exempt dividend income affecting inferences about the relative importance of income-shifting strategies.

Our study contributes to research on tax-motivated income shifting by constructing a novel entity-level dataset that links confidential tax-return data with public financial statement information. Using this dataset, our study makes two primary contributions. First, we inform research on the use of financial accounting data to measure income shifting. Blouin and Robinson (2023) show that the accounting treatment of intra-group dividends in U.S. FDI statistics can lead macro-level estimates of income shifting to be overstated. We show that, at the entity level, financial statement profits also do not reliably capture taxable income. In particular, tax-exempt foreign dividend income recorded in unconsolidated financial statements can systematically inflate financial statement profits relative to taxable income and attenuate income-shifting estimates. Second, our study contributes to research on specific income-shifting strategies. Prior work concludes that debt financing plays a limited role in income shifting (Heckemeyer and Overesch, 2017). Our findings suggest that this inference could partly reflect measurement issues arising from tax-exempt dividend income, rather than a limited importance of debt financing as a shifting strategy. Importantly, we show that researchers can use line-item information from financial statements to adjust financial statement profits for dividend income and thereby mitigate both biases.

2 Austria as a Setting

The Austrian setting combines (i) comprehensive firm-level corporate tax-return and financial statement data, (ii) time-series variation in income-shifting incentives, and (iii) a substantial presence of MNEs. At the same time, Austria’s institutional environment, particularly its corporate tax and financial accounting systems are comparable to that of other EU and non-EU countries. As outlined below, these features make Austria a well-suited setting for measuring income shifting and for evaluating the reliability of unconsolidated financial statement data.

2.1 Austria’s Financial Accounting and Tax Systems

Austrian corporations are required to prepare and disclose unconsolidated (i.e., single-entity) financial statements, with disclosure requirements varying by firm size. Small corporations may file an abbreviated balance sheet without an income statement (Bernard et al., 2018), whereas medium-sized and large corporations must disclose both statements, albeit at different levels of detail (Beuselinck et al., 2023). Financial statements are prepared under Austrian GAAP, which is based on EU Directive 2013/34/EU.⁹ This directive establishes the regulatory framework for the preparation and disclosure of unconsolidated financial statements across EU countries, making their accounting principles and the resulting financial statements comparable within the EU.

Consistent with the directive, Austrian GAAP follows accrual accounting and prescribes rules for the recognition and measurement of assets and liabilities. Of particular relevance for this study is the financial accounting treatment of dividend income. Corporations must account for shareholdings in other corporations using the cost method,

⁹Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC Text with EEA relevance.

classifying shares as financial assets and recognizing income only upon dividend distributions. We provide additional background on the cost method and discuss its relevance for Austria and other EU countries in Sections A.2 and A.3 in the Appendix.

For tax purposes, Austria operates a modified one-book system in which taxable income is derived from profits reported in unconsolidated financial statements, subject to several tax adjustments. Specifically, certain expenses, such as write-downs of financial assets, are not deductible for tax purposes and must be added back to financial statement profits. Dividend income, in contrast, is generally exempt from corporate tax and is therefore deducted from financial statement profits when computing the tax base. All corporations with their seat or place of effective management in Austria are required to apply this procedure and are taxed based on their own worldwide income (single-entity regime).¹⁰

The last major reform of the Austrian corporate tax system occurred seven years before our sample period, when the country reduced its tax rate from 34% to 25% in 2005. This rate remained unchanged throughout our entire sample period (2012-2019). Nonetheless, income-shifting incentives for Austrian MNE entities evolved over time due to changes in foreign corporate tax rates. At the time of the 2005 reform, Austria's 25% tax rate was below EU and OECD averages, likely incentivizing shifting income *into* Austria.¹¹ By 2019, international tax competition had reduced average corporate tax rates to 21.7% (EU) and 24% (OECD), respectively, diminishing Austria's tax attractiveness and potentially inducing both outward- and inward-shifting incentives.

¹⁰Corporate groups can opt for tax consolidation (group taxation). Moreover, corporations can carry forward tax losses indefinitely and offset up to 75% of taxable income in a given year. Austria does not permit loss carrybacks. In line with the EU Parent-Subsidiary Directive (Council Directive 2011/96/EU) and the Interest & Royalties Directive (Council Directive 2003/49/EC), Austria does not levy withholding taxes on dividends, interest, or royalties paid to affiliated companies resident in other EU countries (Amberger and Kohlhase, 2023).

¹¹In 2005, the average corporate income tax rates in the EU and the OECD were 25.2% and 28%, respectively. We collect data on corporate income tax rates from the Tax Foundation.

2.2 MNE Activity in Austria

Foreign direct investment (FDI) plays a central role for Austria’s economy, both in terms of inbound flows (i.e., investment into Austria) and outbound flows (i.e., investment from Austria abroad). Inbound FDI stocks relative to GDP highlight Austria’s attractiveness for foreign investors. Between 2005 and 2019, the ratio consistently exceeded the global average (2005: Austria: 27%, Global: 23%; 2019: Austria: 46%, Global: 45%). Outbound FDI is even more pronounced, with Austria’s outbound stock rising from 24% of GDP in 2005 (Global: 24%) to 56% in 2019 (Global: 42%).¹²

The number of foreign affiliates further underscores Austria’s integration into the global economy. Outward foreign affiliates (OFATS), i.e., entities abroad owned by Austrian parents, remained stable at around 6,000 between 2013 and 2019. Inward foreign affiliates (IFATS), i.e., Austrian entities ultimately owned by foreign parents, increased from 10,160 in 2013 to 11,718 in 2019.¹³ Collectively, these statistics underscore the importance of MNE activity for the Austrian economy and the potentially broad impact of their income-shifting activities.

3 Prior Literature

MNEs can use a variety of strategies to relocate income across affiliates to minimize their overall tax burden. The most prominent strategies identified in prior work include (i) intra-group debt financing (e.g., Newberry and Dhaliwal, 2001; Huizinga and Laeven, 2008; Buettner et al., 2012; Egger et al., 2014), (ii) transfer pricing for intra-group trade (e.g., Jacob, 1996; Clausing, 2003), (iii) royalty payments for the use of intangible assets (e.g., Dischinger and Riedel, 2011; Griffith et al., 2014; De Simone et al., 2020; Deng and Rane, 2024), (iv) the exploitation of double tax treaty networks (“treaty shopping”) (Weyzig, 2013), (v) risk transfer (Becker et al., 2020), and

¹²Data are obtained from OECD (2024).

¹³We obtain statistics of foreign affiliates from Statistik Austria (2025).

(vi) the shifting of income to loss affiliates (De Simone et al., 2017; Hopland et al., 2018). Beyond cross-border settings, prior research also finds evidence for local tax planning within countries (Beuselinck and Pierk, 2024) and domestic income shifting within specific industries (Beer and Loeprick, 2017).

Over the past three decades, a large body of research has tried to quantify tax-motivated income shifting. Much of this work builds on the seminal model by Hines and Rice (1994), which uses a Cobb-Douglas production function to estimate “true” (i.e., pre-shifting) taxable income as a function of capital and labor inputs. The key variable to identify and measure income shifting is a tax incentive, typically defined as the tax rate differential between the parent p and affiliate i : $\tau_p - \tau_i$. If $\tau_p - \tau_i > 0$, the parent has an incentive to shift income to the lower-tax affiliate, and vice versa. All else equal, MNEs shift income as long as the expected tax benefit exceeds the associated costs (e.g., concealment and dispute costs). Huizinga et al. (2008) extend this framework by introducing a profit-weighted tax rate differential across all MNE entities, which accounts for the full group structure as well as group-wide income-shifting incentives.¹⁴

Estimates of income shifting vary substantially. Synthesizing 203 estimates from 27 studies based on entity-level data, Heckemeyer and Overesch (2017) report an average tax semi-elasticity of reported pre-tax accounting profits of about -0.8, implying that a one percentage point increase (decrease) in the shifting incentive lowers (raises) reported affiliate profits by 0.8%. Extending this evidence, Beer et al. (2020) analyze 402 estimates from 37 micro-level studies and find an average semi-elasticity of -1, corresponding to aggregate (i.e., country-level) corporate tax revenue losses of about 4%. In stark contrast, macro-level studies based on aggregated data suggest that MNEs shift up to one-third of their global profits to tax havens (Tørsløv et al., 2023). This gap between micro- and macro-level estimates is often attributed to measurement problems

¹⁴Alternative approaches to measure income shifting at the entity level exploit profitability shocks to the parent entity (Dharmapala and Riedel, 2013) while prior work at the consolidated (i.e., group) level focuses on discrepancies between reported income and sales (Dyrenge and Markle, 2016) and average foreign tax rates of U.S. MNEs (Collins et al., 1998; Klassen and Laplante, 2012).

in aggregate data, such as double counting or misattribution of profits across jurisdictions, that tend to inflate income-shifting estimates at the macro level (Blouin and Robinson, 2023).

Evidence based on administrative tax-return data typically yields the largest entity-level semi-elasticities with respect to income-shifting incentives (Heckemeyer and Overesch, 2017). Such data allow researchers to observe taxable income directly and to identify specific income-shifting strategies (e.g., Mills and Newberry, 2004; Grubert, 2012; Hopland et al., 2018; Coles et al., 2022). For example, using UK corporate tax returns, Bilicka (2019) documents that MNE subsidiaries report taxable income that is approximately one-third lower than that of otherwise comparable domestic firms, with a substantial share of MNE subsidiaries reporting zero taxable income. Bilicka (2019) interprets these patterns as evidence of highly aggressive income shifting.

Despite the outlined advantages, access to administrative data is rare, and much of the literature therefore relies on publicly disclosed financial statement data to measure income shifting at the entity level (e.g., Huizinga et al., 2008; De Simone, 2016; Markle, 2016; De Simone et al., 2022). However, these data come with important limitations. Income items such as dividend income can weaken the link between financial statement profits and taxable income and lead to double counting or misattribution of profits across jurisdictions (Bajgar et al., 2020; Kalemli-Özcan et al., 2024; Blouin and Robinson, 2023). In addition, heterogeneity in financial reporting requirements within and across countries results in the underrepresentation of smaller and less productive firms, skewed profit distributions, and incomplete coverage of ownership structures, particularly for tax haven affiliates. Because tax havens are among the most attractive locations for reporting shifted income, incomplete coverage of these affiliates can bias estimated income-shifting responses toward zero. Consistent with this view, Dowd et al. (2017) find nonlinearities in income-shifting elasticities, with estimates understated in low-tax jurisdictions and overstated in high-tax jurisdictions.

Our study contributes to this literature by constructing a novel dataset that enables us (i) to evaluate the reliability of financial statement data for measuring cross-border income shifting at the entity level, and (ii) to assess how reliance on these data shapes inferences about the relative importance of specific income-shifting strategies.

4 Data

Our empirical analyses center on a merged dataset of Austrian corporate tax returns and unconsolidated financial statements, which we construct from three sources.

Corporate Tax Return Data and Financial Statement Data. We access corporate tax-return data (Körperschaftsteuerstatistik) through the Austrian Micro Data Center (AMDC). This dataset, initially provided by the Austrian Ministry of Finance, covers the universe of corporate tax returns filed in Austria between 2005 and 2019. Each entity is assigned a unique firm identifier, which the AMDC can link to the entity’s trade register number. We complement these data with unconsolidated financial statement data from Orbis Historical, including annual profit before taxes, total assets, fixed assets, costs of employees, and interest expenses. Detailed information on dividend income and intra-company transactions is obtained from the Austria-specific Sabina database from Bureau van Dijk. Because we focus on unconsolidated financial statements, the entities in our sample can belong to either publicly listed or non-listed groups; we exclude standalone entities from our sample. To maintain confidentiality, the AMDC matches Orbis data with the tax-return data using entity’s trade register number and provides us with a pseudonymized dataset.

Group Structure Information. To identify MNE entities and their corresponding group structures, we use data on inward foreign affiliates (IFATS, Austrian entities owned by foreign shareholders) and outward foreign affiliates (OFATS, foreign entities owned by Austrian shareholders). Both datasets are obtained from the AMDC. They

cover the period 2008 to 2019; however, due to a change in firm identifiers, we can link the IFATS and OFATS data with the tax-return data only from 2012 onward.

The IFATS and OFATS datasets record direct and indirect cross-border investment relations where an entity holds more than 50% ownership in a foreign entity.¹⁵ The focus on majority-owned entities is consistent with the notion that MNEs are unlikely to shift income to entities they do not control. IFATS provides the country of the foreign ultimate owner of Austrian entities, while OFATS reports the locations of foreign entities controlled by Austrian entities. Combined, these data allow us to distinguish between (i) Austrian entities with foreign subsidiaries, (ii) Austrian entities with foreign shareholders, and (iii) Austrian entities that have both. A limitation of the data is that we cannot identify horizontal ownership links (“sister entities”).¹⁶

Figure 1 provides a stylized group structure and illustrates the coverage of MNE entities in the IFATS and OFATS data. IFATS allows us to identify *Foreign 1* as the ultimate owner of the Austrian entity (*AT*), while OFATS records *Foreign 3-5* as foreign entities owned by an Austrian parent. Other affiliates are not observed in the data because they are either sister companies that lack a vertical ownership link with the Austrian entity (*Foreign 6-7*) or are not the ultimate parent of the Austrian entity (*Foreign 2*).

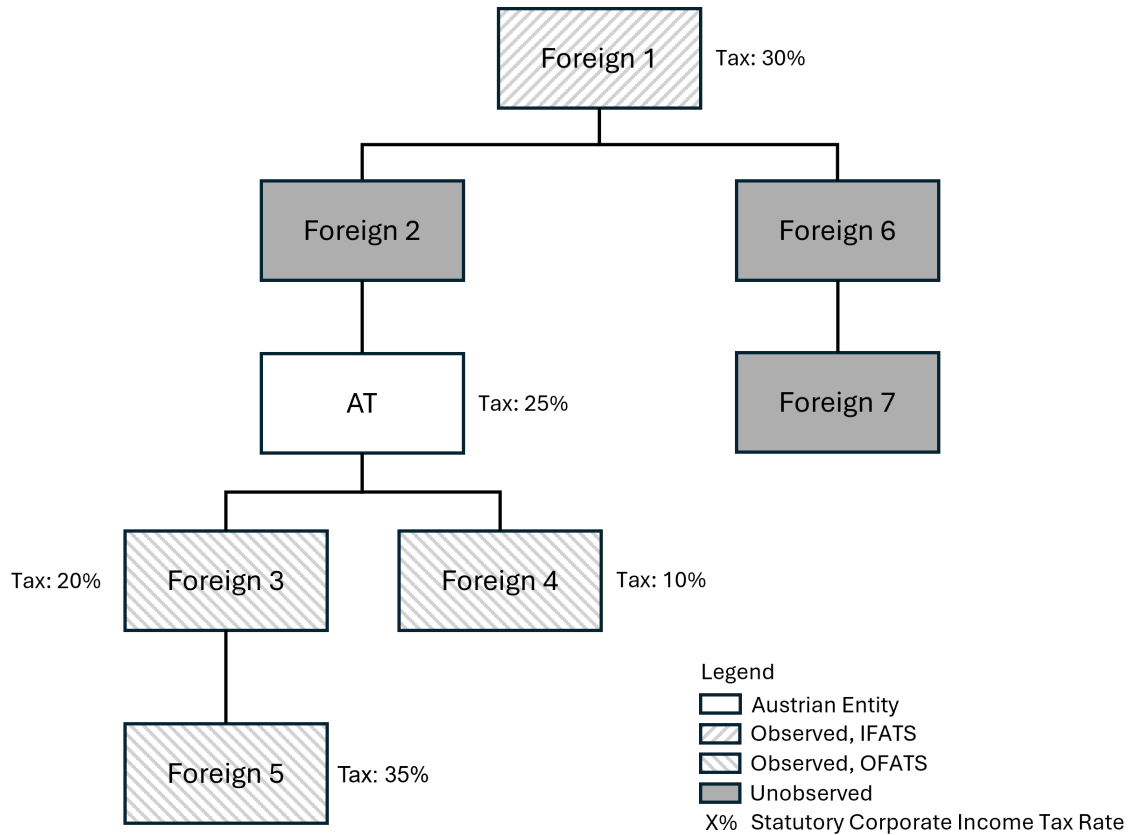
We combine the IFATS and OFATS data with information on statutory corporate income tax rates obtained from the Tax Foundation. We use these data to calculate income-shifting incentives for each Austrian entity in our sample (e.g., entity *AT* in Figure 1). Specifically, we define income-shifting incentives as the difference between Austria’s statutory corporate income tax rate (25% throughout our sample period)

¹⁵In most cases, the foreign entity will correspond to a legal entity such as a corporation, but the data also capture permanent establishments or joint ventures.

¹⁶In untabulated analyses, we use historical ownership links from Orbis instead of administrative OFATS and IFATS data to identify group structures and determine income-shifting incentives. Using these data does not improve our income-shifting estimates. A likely explanation is that, relative to OFATS and IFATS, Orbis provides limited coverage of low-tax affiliates, leading to a mismeasurement of the true tax rate differential.

and the *lowest* foreign statutory corporate income tax rate within the MNE group observable in our data. In Figure 1, the Austrian entity belongs to an MNE group with statutory corporate income tax rates ranging from 10% (*Foreign 4*) to 35% (*Foreign 5*). Relative to Austria's 25% tax rate, this structure creates an incentive to shift income *out* of Austria and into entity *Foreign 4*. The resulting tax rate differential is therefore 15 percentage points (= 25% minus 10%), which we use as a measure of income-shifting incentives for entity *AT*.

Figure 1: Example Group Structure



Note: This figure visualizes a stylized MNE group structure, outlining the MNE entities observable in the IFATS and OFATS data.

Sample Construction. Our initial sample includes all MNE entities for which the AMDC successfully matched tax-return and financial statement data via the entity's trade register number. We exclude entities filing consolidated corporate tax returns under the Austrian group taxation regime due to potentially distinct income-shifting

incentives.¹⁷ We also restrict the sample to entities incorporated under Austrian corporate law as these entities are required to prepare and disclose unconsolidated financial statements under Austrian GAAP (e.g., public limited companies–AGs, and private limited companies–GmbHs).

Table 1 summarizes our sample selection. We begin with 395,247 entity-year observations in the matched sample for the years 2012-2019 that belong to an MNE group (i.e., we exclude standalone entities and entities without any ownership ties to entities located abroad). We exclude 393 observations that concern non-corporate entities and 47,932 observations from entities filing consolidated tax returns. We then restrict the sample to MNE entities with available OFATS and IFATS data and that report non-missing taxable income on their tax returns. After eliminating singleton observations that drop out in regressions with entity fixed effects, we obtain an initial sample with 39,560 entity-year observations, representing 8,157 unique Austrian MNE entities.

For regressions that include control variables (see Section 5 for details), we further drop 5,748 observations without data on fixed assets and 26,871 observations with missing data on costs of employees. Entity fixed effects again result in the exclusion of 224 singleton observations. The final regression sample with control variables consists of 6,717 entity-year observations, representing 1,300 unique Austrian MNE entities.

We conduct our empirical analysis in three steps. First, we quantify income shifting using administrative corporate tax-return data. Second, we compare these estimates with those obtained from financial statement data and examine the sources of any differences between them. Finally, we assess the implications of relying on financial statement data for identifying and evaluating specific income-shifting strategies.

¹⁷We obtain qualitatively and quantitatively similar income-shifting estimates when including corporations with a consolidated tax return in the sample.

Table 1: Sample Selection

Step	Entity-Year Obs.	Unique Entities
Entity-year observations 2012-2019	395,247	56,798
Less: Non-corporate observations	-393	
Less: Entities part of group taxation	-47,932	
Less: Domestic entities	-262,841	
Less: Missing OFATS/IFATS data	-18,970	
Less: Missing taxable income	-22,725	
Less: Singletons due to entity fixed effects	-2,826	
Initial Sample	39,560	8,157
Less: Missing fixed assets	-5,748	
Less: Missing costs of employees	-26,871	
Less: Singletons due to entity fixed effects	-224	
Final Sample	6,717	1,300

Note: This table presents the sample selection for the sample used in our baseline analysis.

5 Measuring Income Shifting

5.1 Methodology

We quantify the extent to which Austrian MNE entities shift income into or out of Austria based on the following two-way fixed effects regression in the spirit of Hines and Rice (1994):

$$\ln(Y)_{i,t} = \beta_0 + \gamma \text{TaxRateDifferential}_{i,t} + \beta_1 \ln(\text{FixedAssets})_{i,t} + \beta_2 \ln(\text{CostsofEmployees})_{i,t} + \text{EntityFE}_i + \text{TimeFE}_t + \epsilon_{i,t}, \quad (1)$$

where $\ln(Y)_{i,t}$ denotes one of two profit measures. First, we use the natural logarithm of taxable income Austrian entity i reports on its corporate tax return in year t . Second, we use the natural logarithm of pre-tax profit that entity i reports in its unconsolidated financial statements. We winsorize all outcome variables at the 1%-level. Table A1 in the Appendix provides a detailed variable description.

$\text{TaxRateDifferential}_{i,t}$ denotes the tax incentive to shift income into or out of

entity i in year t . It is defined as the difference between the Austrian statutory corporate income tax rate (25% throughout the sample period) and the lowest foreign statutory corporate income tax rate of the MNE group observable in our data: $\tau_{Austria} - \tau_{Foreign} = 25 - \tau_{Foreign}$. We compute $TaxRateDifferential_{i,t}$ for entity i using ownership structures recorded in OFATS and IFATS. Variation in $TaxRateDifferential_{i,t}$ can arise from (i) changes in the MNE group structure and (ii) changes in foreign statutory corporate income tax rates.

We measure $TaxRateDifferential_{i,t}$ using statutory corporate income tax rates to reflect the net tax savings of relocating one euro of income within the MNE group (Beer et al., 2020). We focus on the *lowest* foreign corporate income tax rate rather than all possible bilateral tax rate differentials within the group because several income-shifting strategies (e.g., intra-group interest and royalty payments) allow direct transfers to the lowest taxed entity (Ortmann and Schindler, 2023). A positive $TaxRateDifferential_{i,t}$ indicates an outward-shifting incentive, meaning that the Austrian corporate tax rate exceeds the lowest foreign tax rate. Conversely, a negative $TaxRateDifferential_{i,t}$ implies an inward-shifting incentive. Accordingly, the estimated coefficient γ captures the tax semi-elasticity of reported profits of Austrian entity i in year t . A negative coefficient would indicate that reported profits decrease (increase) as shifting incentives increase (decrease), consistent with greater tax-motivated income shifting at the margin.

Following Huizinga and Laeven (2008), we control for entity-level production factors by including (i) the natural logarithm of total fixed assets—capital, and (ii) the natural logarithm of costs of employees—labor. We include year fixed effects to account for unobserved time-varying confounders, such as macroeconomic conditions, and entity fixed effects to control for time-invariant heterogeneity at the entity level, such as heterogeneous income-shifting preferences. Because MNE group structures in our sample are relatively stable over time, the identifying variation in $TaxRateDifferential_{i,t}$ stems

primarily from changes in foreign statutory corporate income tax rates.¹⁸ As foreign corporate tax rate changes are plausibly exogenous from the perspective of Austrian MNE entities, our research design mitigates endogeneity concerns. We cluster standard errors at the entity-level (Petersen, 2009).

5.2 Descriptive Statistics

Table 2 presents descriptive statistics for the variables used in our income shifting analysis, i.e., as specified in equation (1). The mean $TaxRateDifferential_{i,t}$ is -2.27 percentage points, indicating that the average Austrian MNE entity in our sample faces inward-shifting incentives. When distinguishing between inward- and outward-shifting incentives based on the sign of $TaxRateDifferential_{i,t}$, 62% of entities are classified as inward shifters, while 31% are classified as outward shifters.¹⁹ This distribution reflects the fact that Austria’s statutory corporate income tax rate during our sample period was close to the OECD average, creating incentives for income shifting both into and out of Austria that depend on the tax rates faced by foreign affiliates.

Figure 2 visualizes the distribution of $TaxRateDifferential_{i,t}$ and highlights substantial variation in income-shifting incentives at the entity level. To shed light on where the entities that drive this variation are located, we provide the location of the lowest-taxed entity within each MNE group in Table A3 in the Appendix (see Section A.4). Austrian entities in our sample have affiliated entities in zero-tax jurisdictions, such as the British Overseas territories as well as in low-tax European countries. We also observe several cases where the lowest-tax foreign entity faces a higher tax rate than the Austrian entity, indicating an inward-shifting incentive. Notable examples include entities located in Italy, Germany, and the United States. Figure A1 in the Appendix depicts the evolution of income-shifting incentives over time. We observe

¹⁸When examining the source of variation in the tax rate differential in our sample, we observe that less than 1% of the changes in the tax rate differential come from changes in the group structure.

¹⁹The remaining 7% of observations have a tax rate differential of zero, because the lowest-tax foreign affiliate is located in a country with a 25% statutory corporate income tax rate.

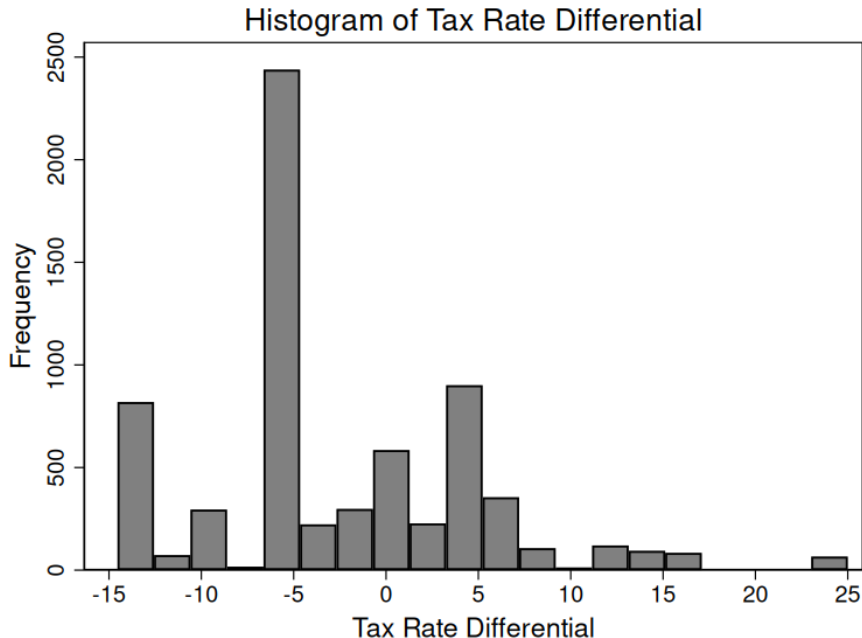
Table 2: Descriptive Statistics

Variable	Obs.	Mean	SD
FATS Differential	6,717	-2.27	7.42
Inward Shifter	6,717	0.62	0.48
Outward Shifter	6,717	0.31	0.46
Taxable Income (in Euro)	6,717	4,028,490	13,081,266
Pre-Tax Profit (in Euro)	6,717	4,657,232	30,731,176
Disparity (in Euro)	6,717	628,742	26,749,853
Total Assets (in Euro)	6,717	62,521,025	456,467,157
Fixed Assets (in Euro)	6,717	29,716,964	405,849,077
Costs of Employees (in Euro)	6,717	9,507,636	17,407,599
ln(Taxable Income)	6,717	13.93	1.28
ln(Pre-Tax Profit)	6,464	14.16	1.56
ln(Disparity)	6,712	11.92	2.26
ln(Total Assets)	6,717	16.65	0.99
ln(Fixed Assets)	6,717	14.56	2.27
ln(Costs of Employees)	6,717	15.30	1.30
Write-Downs (in Euro)	6,717	36,527	997,429
Deduction Limitation (in Euro)	6,717	27,773	530,459
Domestic Dividends (in Euro)	6,717	-171,912	1,999,964
Foreign Dividends (in Euro)	6,717	-619,673	10,411,628
Dividend Income (in Euro)	694	6,272,945	32,140,400
Interest Expenses (in Euro)	5,498	958,299	14,963,109

Note: This table presents descriptive statistics for our final sample. We use entity-level data from the AMDC and Orbis for the years 2012-2019. The number of observations, mean, and standard deviation correspond to the sample used in our income shifting analysis. We provide detailed variable definitions in the Appendix.

that the average entity in our sample transitions from having an inward- to having an outward-shifting incentive in 2017, which is caused by reductions in foreign corporate income tax rates.

Figure 2: Distribution of Tax Rate Differential



Note: This figure presents the distribution of $TaxRateDifferential_{i,t}$ in our sample. We derive data from the AMDC for periods 2012–2019. $TaxRateDifferential_{i,t}$ is defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group.

The remaining descriptive statistics in Table 2 suggest that the average MNE entity in our sample reports approximately EUR 4 million in taxable income on its tax return and EUR 4.66 million in pre-tax profits in its financial statement. Thus, taxable income is, on average, lower than pre-tax profits reported in the financial statements. Entities hold mean total assets of EUR 62.5 million, fixed assets of EUR 29.7 million, and incur costs of employees of EUR 9.5 million. All variables exhibit considerable variation, reflecting differences in size and operations across MNE entities.

Figure A2 in the Appendix plots mean taxable income for the entities in our sample over time (see Section A.4). As expected, entities with incentives to shift income into

Austria report consistently higher taxable income than entities with incentives to shift income out of Austria. In contrast to Bilicka (2019), we do not observe systematic reporting of zero taxable income among Austrian MNE entities. This pattern suggests either that the entities in our sample engage in less aggressive income shifting compared to UK MNE entities or that the phenomenon of zero taxable income documented in Bilicka (2019) reflects institutional features specific to the UK setting.

Taken together, the descriptive statistics highlight two key patterns: (i) heterogeneity in income-shifting incentives both across Austrian MNE entities and over time and (ii) the importance of foreign tax rate changes in shaping these incentives. We exploit these features in our subsequent empirical analysis.

5.3 Results

Baseline Results. We report the results for estimating equation (1) in Table 3. Panel A uses taxable income reported on tax returns as the dependent variable. In column (1), which excludes control variables, the coefficient on $TaxRateDifferential_{i,t}$ is negative and statistically significant. The estimate of -0.0076 implies a tax semi-elasticity of taxable income of -0.76. Adding controls for capital and labor in column (2) increases the magnitude of the estimate to -0.0091. In column (3), we replace entity fixed effects with industry fixed effects to preserve cross-entity variation in income-shifting incentives within industries, resulting in a tax semi-elasticity of -1.13.

Economically, the estimate in column (2) implies that a one percentage point increase (decrease) in the incentive to shift taxable income abroad reduces (increases) the taxable income of Austrian MNE entities by approximately 0.9%. This estimate is slightly larger than the consensus estimate of -0.8 reported by Heckemeyer and Overesch (2017). When evaluated at the mean shifting incentive, our estimate suggests that the average entity in our sample shifts about 2% of its taxable income from Austria to a lower-taxed entity.

Figure A3 in the Appendix visualizes the evolution of the tax semi-elasticity over our sample period (see Section A.4). We observe that the extent of income shifting varies over time. For instance, outward shifting decreases sharply after Austria’s introduction of an interest and royalty deduction limitation in 2014. Together with our baseline estimates in Panel A of Table 3, these results suggest that cross-border income shifting in our setting responds to income-shifting incentives shaped by tax rate changes and contemporaneous policy reforms.

Panel B of Table 3 repeats the analysis in Panel A but uses pre-tax profits reported in financial statements as a proxy for taxable income. Across specifications, the estimated tax semi-elasticities are smaller in magnitude; the estimated coefficients on $TaxRateDifferential_{i,t}$ are also statistically insignificant. In column (2), the point estimate is more than 50% smaller than the corresponding estimate based on taxable income in Panel A.

Taken together, our baseline results suggest that while income-shifting estimates based on administrative tax-return data are broadly consistent with those documented in prior research, financial statement profits do not fully capture an entity’s taxable income. In fact, using financial statement data to proxy taxable income attenuates income-shifting estimates toward zero.

Heterogeneity. Table A4 examines entity-level heterogeneity in cross-border income shifting (see Section A.4). Consistent with our baseline analysis, we use taxable income as the dependent variable in equation (1) and split the sample according to entity characteristics likely to moderate the extent of income shifting. We find that income shifting is more pronounced among entities with incentives to shift income out of Austria compared to those with inward-shifting incentives. The former entities exhibit a tax semi-elasticity of -1.9, which is more than twice the baseline estimate reported in column (2), Panel A of Table 3. When splitting the sample based on potential tax-havens, Austrian MNE entities with foreign affiliates located in a tax haven display an

Table 3: Results for Income-Shifting Analysis

Panel A: Tax Semi-Elasticity of Taxable Income reported on Tax Returns			
	ln(Taxable Income)		
	(1)	(2)	(3)
Tax Rate Differential	-0.0076*** (0.0029)	-0.0091** (0.0045)	-0.0113*** (0.0033)
ln(Fixed Assets)		-0.0298 (0.0214)	0.1236*** (0.0133)
ln(Costs of Employees)		0.3892*** (0.0566)	0.3844*** (0.0246)
Entity FE	Yes	Yes	No
Year FE	Yes	Yes	Yes
Industry FE	No	No	Yes
Obs.	39,560	6,717	7,126
R^2	0.84	0.77	0.27
Panel B: Tax Semi-Elasticity of Pre-Tax Profit reported in Financial Statements			
	ln(Pre-Tax Profit)		
	(1)	(2)	(3)
Tax Rate Differential	-0.0041 (0.0053)	-0.0044 (0.0055)	0.0046 (0.0045)
ln(Fixed Assets)		-0.0027 (0.0225)	0.2266*** (0.0180)
ln(Costs of Employees)		0.3896*** (0.0717)	0.4173*** (0.0308)
Entity FE	Yes	Yes	No
Year FE	Yes	Yes	Yes
Industry FE	No	No	Yes
Obs.	7,549	6,435	6,840
R^2	0.82	0.82	0.33

Note: This table presents the results of the income shifting analysis using entity-level data from the AMDC and Orbis for the years 2012-2019. Panel A measures the tax semi-elasticity of $TaxableIncome_{i,t}$ as reported on corporate tax returns, where the dependent variable is the natural logarithm of $TaxableIncome_{i,t}$. Panel B measures the tax semi-elasticity of $Pre-TaxProfit_{i,t}$ as reported in financial statements, where the dependent variable is the natural logarithm of $Pre-TaxProfit_{i,t}$. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

even larger tax semi-elasticity of -4. Collectively, these results indicate that outbound-shifting incentives and tax-haven links are key drivers of cross-border income shifting in our setting.

6 Explaining Differences in Income-Shifting Estimates

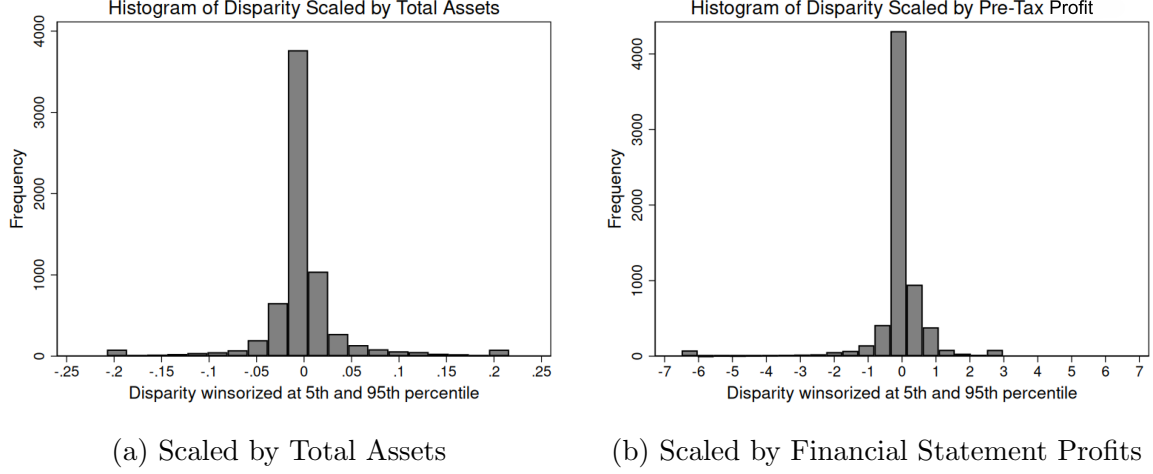
We next investigate *why* financial statement profits yield smaller tax semi-elasticities than taxable income. We begin by comparing entities' pre-tax financial statement profit in year t with their taxable income from the tax return. To this end, we define $Disparity_{i,t}$ as the difference between the two profit measures. We then identify specific tax-return items that account for the difference between financial statement profits and taxable income and assess their impact on the income-shifting estimates reported in the previous section.

6.1 Quantifying the Gap between Financial Statement Profits and Taxable Income and its Drivers

As reported in Table 2, mean $Disparity_{i,t}$ is positive and amounts to EUR 628 thousand, consistent with financial statement profits exceeding taxable income on average. Figure 3 depicts the distribution of $Disparity_{i,t}$, scaled by total assets in Panel (a) and by financial statement profits in Panel (b). Both panels suggest substantial variation in $Disparity_{i,t}$, consistent with the large standard deviation of EUR 26 million reported in Table 2.

To understand the drivers of the difference between the two profit measures, we evaluate the extent to which specific tax-return items contribute to $Disparity_{i,t}$. We scale each tax-return item by total assets and compute its

Figure 3: Distribution of *Disparity*



Note: This figure presents the distribution of $Disparity_{i,t}$ in our final sample. We use data from the AMDC for the years 2012–2019. $Disparity_{i,t}$ is defined as the difference between financial statement profits and taxable income. Panel (a) scales $Disparity_{i,t}$ by total assets and Panel (b) by financial statement profits. All values are winsorized at the 5th and 95th percentile.

median across the full sample, identifying the following four items as key drivers: $Write\ Downs_{i,t}$, $Deduction\ Limitation_{i,t}$, $Domestic\ Dividends_{i,t}$, and $Foreign\ Dividends_{i,t}$. $Write\ Downs_{i,t}$ refers to non-tax-deductible write-downs and $Deduction\ Limitation_{i,t}$ concerns non-tax-deductible interest and royalty payments. Both items reduce financial statement profits without affecting taxable income. $Domestic\ Dividends_{i,t}$ refers to tax-exempt domestic dividend income while $Foreign\ Dividends_{i,t}$ captures tax-exempt foreign dividend income. These items increase financial statement profits but do not affect taxable income.

Table 2 provides descriptive statistics for these items. On average, entities report EUR 36 thousand in non-tax-deductible write-downs ($Write\ Downs_{i,t}$), EUR 28 thousand in non-tax-deductible interest or royalty expenses ($Deduction\ Limitation_{i,t}$), EUR 172 thousand in tax-exempt domestic dividend income ($Domestic\ Dividends_{i,t}$), and EUR 620 thousand in tax-exempt foreign dividend income ($Foreign\ Dividends_{i,t}$). To maximize sample size, we set missing values for these items to zero.

We assess the relative importance of each item in explaining $Disparity_{i,t}$ based on

Shapley values. Specifically, we estimate all possible combinations of the four items (i.e., 15 regressions in total) based on the following specification:

$$\begin{aligned} \ln(Disparity)_{i,t} = & \beta_0 + \beta_1 Write\ Downs_{i,t} + \beta_2 Deduction\ Limitation_{i,t} + \\ & \beta_3 Domestic\ Dividends_{i,t} + \beta_4 Foreign\ Dividends_{i,t} + \\ & EntityFE_i + TimeFE_t + \epsilon_{i,t}. \end{aligned} \quad (2)$$

For each regression, we compute predicted values for $Disparity_{i,t}$ and compare model fit with and without the respective tax-return item. The resulting relative contributions of each tax-return item are expressed as Shapley values, which we report in Table 4. Non-deductible write-downs explain 16.3% of the difference between financial statement profits and taxable income, non-deductible interest or royalty payments explain 50.8%, domestic dividends 17.6%, and foreign dividends 15.2%. These results indicate that the interest and royalty deduction limitation is the dominant driver of the difference between financial statement profits and taxable income, followed by domestic dividends, write downs, and foreign dividends.

Table 4: Shapley Values for Tax-Return Items explaining *Disparity*

	Shapley Value
Write Downs	16.3%
Deduction Limitation	50.8%
Domestic Dividends	17.6%
Foreign Dividends	15.2%

Note: This table presents Shapely values for the relative contribution to the estimated coefficient of each tax-return item to the disparity between financial statement profits and taxable income. We use entity-level data from the AMDC and Orbis for the years 2012-2019.

6.2 Assessing the Impact on Income-Shifting Estimates

Research Design. To examine how the tax-return items identified in the previous section affect income-shifting estimates, we adjust financial statement profits separately

for each item and re-estimate equation (1) as follows:

$$\begin{aligned} \ln(Pre\text{-}Tax\ Profit \pm Adjustment)_{i,t} = & \beta_0 + \gamma TaxRateDifferential_{i,t} + \\ & \beta_1 \ln(FixedAssets)_{i,t} + \beta_2 \ln(CostsofEmployees)_{i,t} + \\ & EntityFE_i + TimeFE_t + \epsilon_{i,t}. \end{aligned} \quad (3)$$

Specifically, we apply four adjustments: (i) add back non-tax-deductible write-downs; (ii) add back non-tax-deductible interest and royalty expenses; (iii) deduct tax-exempt domestic dividend income; (iv) deduct tax-exempt foreign dividend income. Each adjustment brings financial statement profits closer to taxable income, enabling us to isolate how each tax-return item affects income-shifting estimates based on financial statement profits. Consistent with our baseline income shifting analysis, we include entity and year fixed effects, control for fixed assets and labor, and cluster standard errors at the entity level.

To additionally assess whether one can use publicly available financial statement data to approximate taxable income reported on tax returns, we construct analogous adjustments based on line items from financial statements, including dividend income and interest expenses reported in entities' profit and loss statements. For this purpose, we supplement our Orbis data with more granular financial statement information from Bureau van Dijk's Sabina database.

Results. Table 5 reports regression results from estimating equation (3). Columns (1)–(4) adjust financial statement profits separately for each tax-return item, while column (5) applies all adjustments simultaneously. In Panel A, the coefficients on $TaxRateDifferential_{i,t}$ remain statistically insignificant, indicating that, for the full sample, adjusting financial statement profits for tax-return items does not materially improve income-shifting estimates relative to unadjusted financial statement profits. Notably, adjusting for tax-exempt foreign dividend income in column (4) yields a coeffi-

cient on $TaxRateDifferential_{i,t}$ that is comparable in magnitude to the baseline estimate reported in column (2) of Table 3, Panel A.

Panel B separates entities with inward- and outward-shifting incentives. We calculate the absolute value of $TaxRateDifferential_{i,t}$ and interact it with an indicator variable equal to one for entities with inward-shifting incentives, and zero for those with outward-shifting incentives ($InwardShifter_{i,t}$). While the coefficients on the interaction terms remain statistically insignificant across all specifications, the coefficient on $AbsoluteTaxRateDifferential_{i,t}$, which measures income shifting for entities with outward-shifting incentives, is negative and statistically significant in column (4). The estimate also closely matches the baseline estimate in column (2) of Table A4, Panel A.

These results indicate that adjusting financial statement profits for tax-exempt foreign dividend income yields a profit measure that closely approximates taxable income reported on tax returns, reducing the downward bias in income-shifting estimates based on financial statement data. One potential concern is that this finding is specific to Austria’s institutional environment. However, as discussed in Sections 2 and A.3 and summarized in Table A2 in the Appendix, Austria’s corporate tax and financial accounting systems are broadly comparable to those in many other EU and non-EU countries, suggesting that our findings are likely to generalize to other settings.

A limitation of the analysis in Table 5 is that the proposed adjustments to entities’ financial statement profits require access to administrative tax-return data, which is not widely available to researchers. In Table 6, we therefore replicate the previous analysis using information from entities’ public financial statements. Specifically, we use dividend income as reported on entities’ profit and loss statements to approximate tax-exempt foreign dividend income reported on tax returns and adjust financial statement profits accordingly.²⁰

²⁰We obtain data from the Sabina database, which provides more detailed financial statement information than standard Orbis. Coverage is limited to larger firms that report detailed revenue sources, such as dividend income.

Table 6, column (1) presents the results for the full sample, while column (2) distinguishes between entities with inward- and outward-shifting incentives. In column (1), we find that adjusting financial statement profits for dividend income in the full sample yields a tax semi-elasticity that is close to the baseline estimate in column (2) of Table 3, Panel A. Similarly, when separating entities with inward- and outward-shifting incentives in column (2), the results closely match those obtained when adjusting financial statement profits for tax-exempt foreign dividend income reported on tax returns in column (4) of Table 5, Panel B .

Taken together, Table 6 demonstrates that adjusting financial statement profits for dividend income reported in profit and loss statements mitigates the downward bias in income-shifting estimates to nearly the same extent as using detailed information on tax-return items. This finding suggests that researchers without access to administrative tax-return data can use publicly available financial statement data to approximate taxable income and to correct for the bias identified in the previous section.

Table 5: Adjusting Financial Statement Profits for Tax-Return Items

Panel A: Full Sample

	ln(Pre-Tax Profit $\pm$ Adjustment)				
	(1) Write Downs	(2) Ded. Lim.	(3) Dom. Div.	(4) For. Div.	(5) All
Tax Rate Differential	-0.0057 (0.0054)	-0.0058 (0.0054)	-0.0061 (0.0055)	-0.0079 (0.0052)	-0.0076 (0.0052)
Controls	Yes	Yes	Yes	Yes	Yes
Entity FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Obs.	6,598	6,598	6,598	6,598	6,598
R^2	0.82	0.82	0.81	0.81	0.81

Panel B: Inward vs. Outward Shifters

	ln(Pre-Tax Profit $\pm$ Adjustment)				
	(1) Write Downs	(2) Ded. Lim.	(3) Dom. Div.	(4) For. Div.	(5) All
Absolute Tax Rate Differential	-0.0140 (0.0131)	-0.0147 (0.0131)	-0.0144 (0.0134)	-0.0245** (0.0117)	-0.0230** (0.0116)
Inward Shifter x Differential	0.0084 (0.0144)	0.0092 (0.0143)	0.0096 (0.0146)	0.0179 (0.0130)	0.0170 (0.0129)
Inward Shifter	0.1742 (0.1183)	0.1667 (0.1199)	0.1643 (0.1191)	0.1426 (0.1153)	0.1380 (0.1127)
Controls	Yes	Yes	Yes	Yes	Yes
Entity FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Obs.	6,598	6,598	6,598	6,598	6,598
R^2	0.82	0.82	0.81	0.81	0.81

Note: This table presents the results of the income shifting analysis after adjusting financial statement profits for tax-return items. We use entity-level data from the AMDC and Orbis for the years 2012-2019. We first adjust financial statement profits ($Pre\text{-}TaxProfit_{i,t}$) for tax-return items and measure the tax semi-elasticity of the resulting profit measure. The dependent variable is the natural logarithm of the adjusted profit measure. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. In Panel A, we use the full sample. In Panel B, we differentiate between entities with inward- versus outward-shifting incentives. In column (1) of both Panels, we adjust financial statement profits for non-tax-deductible write-downs, in column (2) for non-tax-deductible interest and royalty expenses, in column (3) for tax-exempt domestic dividend income, in column (4) for tax-exempt foreign dividend income, and in column (5) for all adjustments made in columns (1)–(4). Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Table 6: Adjusting Financial Statement Profits for Dividend Income Reported in Financial Statements

	ln(Pre-Tax Profit - Dividend Income)	
	(1) Full Sample	(2) Inward vs. Outward Shifters
Tax Rate Differential	-0.0087* (0.0052)	
Absolute Tax Rate Differential		-0.0282** (0.0112)
Inward Shifter x Differential		0.0215* (0.0125)
Inward Shifter		0.1348 (0.1182)
Controls	Yes	Yes
Entity FE	Yes	Yes
Year FE	Yes	Yes
Obs.	6,566	6,566
R^2	0.81	0.81

Note: This table presents the results of the income shifting analysis after adjusting financial statement profits for dividend income reported on the profit and loss statement. We use entity-level data from the AMDC and Orbis for the years 2012-2019. We first adjust financial statement profits ($Pre\text{-}TaxProfit_{i,t}$) for dividend income reported in financial statements and then measure the tax semi-elasticity of the resulting profit measure. The dependent variable is the natural logarithm of this adjusted profit measure. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. In column (1), we use the full sample. In column (2), we differentiate between entities with inward- versus outward-shifting incentives. Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

7 Impact on Inferences about Shifting Strategies

Our final analysis examines whether tax-exempt dividend income also affects inferences about the relative importance of specific income-shifting strategies. Prior research shows that earnings before interest and taxes (EBIT) contribute more strongly to income-shifting estimates than pre-tax financial statement profits (Heckemeyer and Overesch, 2017). Because intra-group interest payments reduce entities' pre-tax profits but not their EBIT, this pattern is often interpreted as evidence that debt financing plays a relatively limited role in MNEs' income shifting. However, tax-exempt dividend income has the same mechanical effect on the two profit measures and could therefore provide an alternative explanation for why income-shifting estimates are smaller based on pre-tax profits rather than EBIT. The results in Table 6 provide initial support for this argument.

To examine this mechanism more directly, we replicate the analysis in Table 6 but adjust financial statement profits for interest expenses rather than dividend income.²¹ This adjustment removes the effect of debt financing from pre-tax profit while retaining the impact of dividend income. Table 7 reports the results. We again examine the full sample in column (1) and distinguish between entities with inward- and outward-shifting incentives in column (2). In both columns, the resulting tax semi-elasticities are economically small and statistically insignificant. Taken together with the results in Table 6, this finding suggests that tax-exempt dividend income, rather than a limited role of debt financing, explain why EBIT-based specifications yield larger income-shifting estimates than those based on pre-tax profits. Failing to adjust financial statement profits for tax-exempt dividend income therefore does not only bias income-shifting estimates but also distorts inferences about the relative importance of different shifting strategies.

²¹Our financial statement data do not allow us to distinguish between external and internal debt. To the extent that interest expenses or long-term debt examined in this analysis reflect external financing, our tests may measure income shifting through internal debt with noise.

An alternative explanation for the results in Table 6 is that debt financing indeed plays a limited role in our setting. To examine this possibility, we re-estimate equation (1) using the natural logarithm of entity i 's interest expenses in year t as the dependent variable. We report the results in Table 8. With industry fixed effects, we find a positive and significant coefficient on $TaxRateDifferential_{i,t}$ in column (1), suggesting that interest expenses of Austrian MNE entities respond to income-shifting incentives. This effect is statistically insignificant when we include entity fixed effects in column (2), suggesting that debt structures are stable within entities over time.

In columns (3) and (4), we use the natural logarithm of entity i 's long-term debt in year t as the dependent variable, capturing the stock of debt financing. We again estimate a positive and significant coefficient on $TaxRateDifferential_{i,t}$ when including industry fixed effects in column (3); the coefficient turns insignificant when including entity fixed effects in column (4). Collectively, these results provide some evidence that debt levels are associated with income-shifting incentives in the cross section, while remaining relatively sticky over time within entities. This pattern is consistent with the presence of fixed costs in profit-shifting strategies, as discussed by Bilicka (2019).

Finally, in columns (5) and (6), we examine whether income-shifting incentives are associated with the pricing of debt. Rather than adjusting debt levels, MNEs could respond to shifting incentives by manipulating interest rates charged on intra-group loans. To test this channel, we compute the average interest rate on long-term debt (defined as interest expenses divided by long-term debt) and use it as the dependent variable. The coefficients on $TaxRateDifferential_{i,t}$ are statistically insignificant across both specifications, indicating no evidence of strategic transfer pricing in interest rates.

Taken together, the results in Table 6 provide some evidence that MNE entities in our sample use debt financing to shift income; yet, they appear to do so primarily by adjusting debt levels rather than interest rates.

Table 7: Adjusting Financial Statement Profits for Interest Expenses Reported in Financial Statements

	ln(Pre-Tax Profit + Interest Expenses)	
	(1)	(2)
	Full Sample	Inward vs. Outward Shifters
Tax Rate Differential	-0.0032 (0.0045)	
Absolute Tax Rate Differential		-0.0095 (0.0109)
Inward Shifter x Differential		0.0031 (0.0142)
Inward Shifter		0.0484 (0.1129)
Controls	Yes	Yes
Entity FE	Yes	Yes
Year FE	Yes	Yes
Obs.	6,566	6,566
R^2	0.85	0.85

Note: This table presents the results of the income shifting analysis after adjusting financial statement profits for interest expenses reported on the profit and loss statement. We use entity-level data from the AMDC and Orbis for the years 2012-2019. We first adjust financial statement profits ($PreTaxProfit_{i,t}$) for interest expenses reported in financial statements and then measure the tax semi-elasticity of the resulting profit measure. The dependent variable is the natural logarithm of this adjusted profit measure. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. In column (1), we use the full sample. In column (2), we differentiate between entities with inward- versus outward-shifting incentives. Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Table 8: Income Shifting through Debt Financing

	ln(Interest)		ln(Debt)		Interest Rate	
	(1)	(2)	(3)	(4)	(5)	(6)
Tax Rate Differential	0.0315*** (0.0083)	-0.0071 (0.0089)	0.0090** (0.0045)	-0.0082 (0.0074)	0.7356 (0.7885)	-0.1868 (0.1611)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	Yes	No
Entity FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	7,531	7,082	7,318	6,890	6,244	5,806
R^2	0.19	0.78	0.30	0.74	0.02	0.38

Note: This table presents the results of an analysis of income shifting via debt financing. We use entity-level data from the AMDC and Orbis for the years 2012-2019. The dependent variable in columns (1) and (2) is the natural logarithm of interest expenses, in columns (3) and (4) the natural logarithm of long-term debt, and in columns (5) and (6) the average interest rate on long-term debt. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

8 Conclusion

Using a novel dataset that combines administrative corporate tax-return data with public financial statement information, we document that income-shifting estimates based on financial statement profits are 50% smaller in magnitude than those based on taxable income. Examining the drivers of this divergence, we find that tax-exempt foreign dividend income—which increases financial statement profits but does not affect taxable income—systematically inflates financial statement profits and attenuates income shifting estimates towards zero. These dividends also distort inferences about the relative importance of specific shifting strategies, in particular intra-firm debt.

We also provide guidance for researchers who lack access to confidential tax-return data on how to mitigate these biases. Specifically, we show that adjusting financial statement profits for dividend income, either as reported on tax returns or as disclosed in profit and loss statements, yields income shifting estimates that closely align with those based on taxable income. Accordingly, researchers can use line-item information from unconsolidated financial statements to reduce the biases we identify.

We acknowledge that our analysis is based on the Austrian institutional context. If income-shifting patterns vary across countries, our findings might not fully generalize. Nevertheless, Austria’s tax and financial accounting systems are comparable to those of several other EU and non-EU countries. Accordingly, the effects of tax-exempt dividend income on micro-level income-shifting estimates documented in our study are likely to be relevant in settings with similar institutional features and for research that relies on unconsolidated financial statement data.

This paper contributes to research on the implications of using financial accounting data to measure income shifting (Blouin and Robinson, 2023). We show that tax-exempt dividend income reported in unconsolidated financial statements can attenuate income-shifting estimates on the entity level. These insights inform both policymakers who rely on such estimates and researchers who use financial statement data to study income shifting.

References

- Adams, J., Joshi, P., Markle, K., 2024. “Winners and losers of profit shifting: A macroeconomic perspective,” Working Paper mimeo.
- Amberger, H. J., Kohlhase, S., 2023. “International taxation and the organizational form of foreign direct investment,” *Journal of International Business Studies* 54, 1529–1561.
- Bajgar, M., Berlingieri, G., Calligaris, S., Criscuolo, C., Timmis, J., 2020. “Coverage and representativeness of Orbis data,” OECD Science Technology and Industry Working Papers.
- Becker, J., Johannesen, N., Riedel, N., 2020. “Taxation and the allocation of risk inside the multinational firm,” *Journal of Public Economics* 183, 104138.
- Beer, S., de Mooij, R., Liu, L., 2020. “International corporate tax avoidance: A review of the channels, magnitudes, and blind spots,” *Journal of Economic Surveys* 34, 660–688.
- Beer, S., Loeprick, J., 2017. “Taxing income in the oil and gas sector — challenges of international and domestic profit shifting,” *Energy Economics* 61, 186–198.
- Bernard, D., Burgstahler, D., Kaya, D., 2018. “Size management by European private firms to minimize proprietary costs of disclosure,” *Journal of Accounting and Economics* 66, 94–122.
- Beuselinck, C., Elfers, F., Gassen, J., Pierk, J., 2023. “Private firm accounting: The European reporting environment, data and research perspectives,” *Accounting and Business Research* 53, 38–82.
- Beuselinck, C., Pierk, J., 2024. “On the dynamics between local and international tax planning in multinational corporations,” *Review of Accounting Studies* 29, 852–888.

- Bilicka, K. A., 2019. “Comparing UK tax returns of foreign multinationals to matched domestic firms,” *American Economic Review* 109, 2921–2953.
- Blouin, J., Robinson, L. A., 2023. “Accounting for the Profits of Multinational Enterprises: Double Counting and Misattribution of Foreign Affiliate Income.”
- Bokulic, C., Henry, E., Plesko, G., 2012. “Reconciling global financial reporting with domestic taxation,” *National Tax Journal* 65, 933–959.
- Buettner, T., Overesch, M., Schreiber, U., Wamser, G., 2012. “The impact of thin-capitalization rules on the capital structure of multinational firms,” *Journal of Public Economics* 96, 930–938.
- Buettner, T., Wamser, G., 2013. “Internal debt and multinational profit shifting: Empirical evidence from firm-level panel data,” *National Tax Journal* 66, 63–95.
- Clausing, K., 2003. “Tax-motivated transfer pricing and US intrafirm trade prices,” *Journal of Public Economics* 87, 2207–2223.
- Clausing, K. A., 2016. “The effect of profit shifting on the corporate tax base in the United States and beyond,” *National Tax Journal* 69, 905–934.
- Coles, J. L., Patel, E., Seegert, N., Smith, M., 2022. “How do firms respond to corporate taxes?” *Journal of Accounting Research* 60, 965–1006.
- Collins, J., Kemsley, D., Lang, M., 1998. “Cross-jurisdictional income shifting and earnings valuation,” *Journal of Accounting Research* 36, 209–229.
- Davies, R. B., Martin, J., Parenti, M., Toubal, F., 2018. “Knocking on tax haven’s door: Multinational firms and transfer pricing,” *The Review of Economics and Statistics* 100, 120–134.
- De Simone, L., 2016. “Does a common set of accounting standards affect tax-motivated income shifting for multinational firms?” *Journal of Accounting and Economics* 61, 145–165.

- De Simone, L., Huang, J. J., Krull, L. K., 2020. “R&D and the rising foreign profitability of U.S. multinational corporations,” *The Accounting Review* 95, 177–204.
- De Simone, L., Klassen, K. J., Seidman, J. K., 2017. “Unprofitable affiliates and income shifting behavior,” *The Accounting Review* 92, 113–136.
- De Simone, L., Klassen, K. J., Seidman, J. K., 2022. “The effect of income-shifting aggressiveness on corporate investment,” *Journal of Accounting and Economics* 74, 101491.
- Deloitte, 2025. “Tax guides and highlights,” <https://dits.deloitte.com/TaxGuides>. Online; accessed October 27, 2025.
- Deng, Z., Rane, S. G., 2024. “Products, services, and tax-motivated income shifting,” *National Tax Journal* 77, 7–38.
- Dharmapala, D., Riedel, N., 2013. “Earnings shocks and tax-motivated income-shifting: Evidence from european multinationals,” *Journal of Public Economics* 97, 95–107.
- Dischinger, M., Knoll, B., Riedel, N., 2014. “The role of headquarters in multinational profit shifting strategies,” *International Tax and Public Finance* 21, 248–271.
- Dischinger, M., Riedel, N., 2011. “Corporate taxes and the location of intangible assets within multinational firms,” *Journal of Public Economics* 95, 691–707.
- Dowd, T., Landefeld, P., Moore, A., 2017. “Profit shifting of U.S. multinationals,” *Journal of Public Economics* 148, 1–13.
- Dyreng, S. D., Markle, K. S., 2016. “The effect of financial constraints on income shifting by U.S. multinationals,” *The Accounting Review* 91, 1601–1627.
- Dyreng, S., Hills, R., Markle, K., 2023. “Using Financial Accounting Information to Estimate the Income Shifting of U.S. Multinationals.”

- Egger, P., Keuschnigg, C., Merlo, V., Wamser, G., 2014. “Corporate taxes and internal borrowing within multinational firms,” *American Economic Journal: Economic Policy* 6, 54–93.
- Fuest, C., Hugger, F., Neumeier, F., 2022. “Corporate profit shifting and the role of tax havens: Evidence from german country-by-country reporting data,” *Journal of Economic Behavior & Organization* 194, 454–477.
- Goldbach, S., Møen, J., Schindler, D., Schjelderup, G., Wamser, G., 2021. “The tax-efficient use of debt in multinational corporations,” *Journal of Corporate Finance* 71, 102119.
- Green, D. H., Henry, E., Parsons, S. M., Plesko, G. A., 2022. “Incorporating Financial Statement Information to Improve Forecasts of Corporate Taxable Income.,” *The Accounting Review* 97, 169–192.
- Green, D. H., Plesko, G. A., 2016. “The relation between book and taxable income since the introduction of the schedule M-3,” *National Tax Journal* 69, 763–783.
- Griffith, R., Miller, H., O’Connell, M., 2014. “Ownership of intellectual property and corporate taxation,” *Journal of Public Economics* 112, 12–23.
- Grubert, H., 2012. “Foreign taxes and the growing share of u.s. multinational company income abroad: Profits, not sales, are being globalized,” *National Tax Journal* 65, 247–281.
- Heckemeyer, J. H., Overesch, M., 2017. “Multinationals’ profit response to tax differentials: Effect size and shifting channels,” *Canadian Journal of Economics/Revue canadienne d’économie* 50, 965–994.
- Hines, J. R., 2010. “Treasure islands,” *Journal of Economic Perspectives* 24, 103–126.
- Hines, J. R., Rice, E. M., 1994. “Fiscal paradise: Foreign tax havens and american business,” *The Quarterly Journal of Economics* 109, 149–82.

- Hopland, A. O., Lisowsky, P., Mardan, M., Schindler, D., 2018. “Flexibility in income shifting under losses,” *The Accounting Review* 93, 163–183.
- Huizinga, H., Laeven, L., 2008. “International profit shifting within multinationals: A multi-country perspective,” *Journal of Public Economics* 92, 1164–1182.
- Huizinga, H., Laeven, L., Nicodeme, G., 2008. “Capital structure and international debt shifting,” *Journal of Financial Economics* 88, 80–118.
- Jacob, J., 1996. “Taxes and transfer pricing: Income shifting and the volume of intrafirm transfers,” *Journal of Accounting Research* 34, 301–312.
- Kalemli-Özcan, Ş., Sørensen, B. E., Villegas-Sanchez, C., Volosovych, V., Yeşiltaş, S., 2024. “How to construct nationally representative firm-level data from the orbis global database: New facts on SMEs and aggregate implications for industry concentration,” *American Economic Journal: Macroeconomics* 16, 353–374.
- Klassen, K. J., Laplante, S. K., 2012. “Are U.S. multinational corporations becoming more aggressive income shifters?” *Journal of Accounting Research* 50, 1245–1285.
- Kohlhase, S., Pierk, J., 2020. “The effect of a worldwide tax system on tax management of foreign subsidiaries,” *Journal of International Business Studies* 51, 1312–1330.
- Langenmayr, D., Liu, L., 2023. “Home or away? Profit shifting with territorial taxation,” *Journal of Public Economics* 217, 104776.
- Markle, K., 2016. “A comparison of the tax-motivated income shifting of multinationals in territorial and worldwide countries,” *Contemporary Accounting Research* 33, 7–43.
- Mills, L. F., Newberry, K. J., 2004. “Do foreign multinationals’ tax incentives influence their U.S. income reporting and debt policy?” *National Tax Journal* 57, 89–107.

- Newberry, K. J., Dhaliwal, D. S., 2001. “Cross-jurisdictional income shifting by U.S. multinationals: Evidence from international bond offerings,” *Journal of Accounting Research* 39, 643–662.
- OECD, 2024. “OECD Data Explorer, FDI Main Aggregates, BMD4,” [https://data-explorer.oecd.org/vis?df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD_FDI%40DF_FDI_AGGR_SUMM&df\[ag\]=OECD.DAF.INV&df\[vs\]=1.0&dq=AUT.LE_FA_F.USD_EXC%2BRC.....A.&pd=2005%2C2019&to\[TIME_PERIOD\]=false&vw=tb](https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_FDI%40DF_FDI_AGGR_SUMM&df[ag]=OECD.DAF.INV&df[vs]=1.0&dq=AUT.LE_FA_F.USD_EXC%2BRC.....A.&pd=2005%2C2019&to[TIME_PERIOD]=false&vw=tb).
- Ortmann, R., Schindler, D., 2023. “Income shifting and management incentives,” Mimeo.
- Petersen, M. A., 2009. “Estimating standard errors in finance panel data sets: Comparing approaches,” *Review of Financial Studies* 22, 435–480.
- PwC, 2025. “PwC Worldwide Tax Summaries,” <https://taxsummaries.pwc.com>.
- Reiter, F., Langenmayr, D., Holtmann, S., 2021. “Avoiding taxes: Banks’ use of internal debt,” *International Tax and Public Finance* 28, 717–745.
- Statistik Austria, 2024. “Number of foreign affiliates in Austria increased in 2022,” <https://www.statistik.at/fileadmin/announcement/2024/10/20241004Auslandsunternehmen2022EN.pdf>. Online; accessed January 27, 2025.
- Statistik Austria, 2025. “Foreign affiliates statistics,” <https://www.statistik.at/en/statistics/industry-construction-trade-and-services/foreign-affiliates-statistics>. Online; accessed January 21, 2025.
- Tax Foundation, 2019. “Corporate Tax Rates around the World, 2019,” <https://files.taxfoundation.org/20191209111406/Corporate-Tax-Rates-around-the-World-2019.pdf>. Online; accessed January 27, 2025.

Tax Foundation, 2021. “Territoriality of Tax Systems in Europe,” https://taxfoundation.org/data/all/eu/territoriality-tax-systems-europe-2021/?utm_source=chatgpt.com. Online; accessed October 9, 2025.

Tax Foundation, 2025. “2024 European Tax Policy Scorecard,” <https://taxfoundation.org/research/all/eu/2024-european-tax-rankings/>. Online; accessed May 20, 2025.

Tørsløv, T., Wier, L., Zucman, G., 2023. “The missing profits of nations,” *The Review of Economic Studies* 90, 1499–1534.

Weyzig, F., 2013. “Tax treaty shopping: Structural determinants of foreign direct investment routed through the netherlands,” *International Tax and Public Finance* 20, 910–937.

A Appendix

A.1 Variable Descriptions

Table A1: Variable Descriptions

Variable	Description	Source
Tax Rate Differential	Maximum tax rate differential in percentage points defined as Austrian statutory corporate income tax rate (25% throughout our sample period) minus the lowest foreign statutory corporate income tax rate within the MNE group.	Tax Foundation /AMDC
Inward Shifter	Indicator variable equal to 1 if the tax rate differential is negative, and 0 otherwise.	Own calculations
Outward Shifter	Indicator variable equal to 1 if the tax rate differential is positive, and 0 otherwise.	Own calculations
Taxable Income	Taxable income as reported on the corporate tax return (data item: kz2605, "Einkünfte aus Gewerbebetrieb").	AMDC
Pre-Tax Profit	Profit or loss before tax as reported in the profit and loss statement (data item: p_l.before_tax).	Orbis
Disparity	Profit or loss before tax as reported in the profit and loss statement (data item: p_l.before_tax) minus taxable income as reported on the corporate tax return (data item: kz2605).	AMDC /Orbis
Total Assets	Total assets as reported on the balance sheet (data item: total_assets)	Orbis
Fixed Assets	Fixed assets as reported on the balance sheet (data item: fixed_assets)	Orbis
Costs of Employees	Costs of employees as reported in the profit and loss statement (data item: costs_of_employees).	Orbis

Variable	Description	Source
Write-Downs	Non-deductible capital write-downs as reported on the tax return (data item: kz9294, “6/7 der gemäß Par. 12 Abs. 3 Z 2 zu verteilenden Abschreibungen und Verluste hinsichtlich von Beteiligungen im Sinne des Par. 10”).	AMDC
Deduction Limitation	Non-deductible interest and royalty expenses as reported on the tax return (data item: kz9318, “Hinzuzurechnende Zinsen und Lizenzgebühren gemäß § 12 Abs. 1 Z 10”).	AMDC
Domestic Dividends	Tax-exempt domestic dividend income as reported on the tax return (data item: kz9298, “Beteiligungserträge gemäß Par. 10 Abs. 1 Z 1 bis 4”).	AMDC
Foreign Dividends	Tax-exempt foreign dividend income as reported on the tax return (data item: kz9314, “Beteiligungserträge gemäß Par. 10 Abs. 1 Z 7 (internationale Schachtelbeteiligung)”).	AMDC
Interest	Interest expense as reported in the profit and loss statement (data item: interest_paid).	Orbis
Debt	Long-term debt as reported on the balance sheet (data item: long_term_debt).	Orbis
Average Interest Rate	Interest expense (data item: interest_paid) divided by long-term debt (data item: long_term_debt) as reported in the profit and loss statement and the balance sheet.	Orbis

Note: Variable definitions. All variables identified at the entity-year level over the period 2012-2019.

A.2 Background on the Financial Accounting and Tax Treatment of Dividend Income in Austria

Corporations in Austria must prepare and file annually unconsolidated financial statements in accordance with Austrian GAAP.²² An Austrian entity that acquires shares in another (domestic or foreign) corporation must record those shares as a financial asset in its financial statements, initially recognized at acquisition cost. The acquiring entity (parent) recognizes income from this investment only when the acquired entity (subsidiary) distributes its after-tax profits as a dividend. This approach, known as the *cost method* of accounting for shareholdings in corporations, applies regardless of the parent's ownership stake, i.e., independent of whether the parent owns 10%, 40%, or 100%. Under the cost method, dividends received do not affect the carrying amount of the financial asset on the parent's balance sheet. This approach contrasts with the *equity method* U.S. firms must apply, under which the parent recognizes its share of the subsidiary's after-tax profits on an accrual basis (Blouin and Robinson, 2023).

For tax purposes, the Austrian corporate income tax code (KStG) provides a participation exemption for dividend income, i.e., Austria operates a territorial tax system. Under this regime, dividend income is excluded from the parent's taxable income, provided that the subsidiary's profits were already subject to corporate taxation (see § 10 KStG). As a result, dividend income increases the parent's pre-tax financial statement profits but does not affect its taxable income (see section A.3 for details).

Case A below illustrates the financial accounting and tax treatment of dividend income in Austria. Austrian parent A owns 80% of Dutch subsidiary S. Assuming a 25% tax rate in the Netherlands, S reports pre-tax financial statement profits of EUR

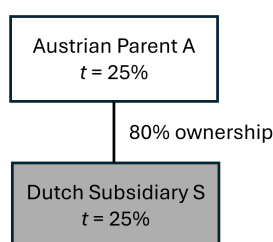
²²According to § 246 UGB, parent entities with at least one subsidiary must additionally prepare and file consolidated financial statements if they exceed two out of the following three thresholds for two consecutive years: (i) total assets of the parent and its subsidiaries to be included exceed EUR 30 million, (ii) total net revenue exceeds EUR 60 million, (iii) the average annual number of employees exceeds 250. Alternatively, parent entities must file consolidated financial statements if they exceed two out of the three consolidated thresholds: (i) total assets exceed EUR 25 million, (ii) net revenue exceeds EUR 50 million, (iii) the average annual number of employees exceeds 250.

2,000 (= earnings before interest and taxes (EBIT)), a tax expense of EUR 500, and after-tax financial statements profits of EUR 1,500 (= 2,000 - 500). S distributes its total after-tax financial statement profit, so that parent A receives dividend income of EUR 1,200 (= 80% of 1,500). This income increases A's EBIT by EUR 1,200, resulting in a pre-tax financial statement profit of EUR 5,700.

Parent A derives its taxable income from its pre-tax financial statement profits by applying several tax adjustments, a process known in Austria as "Mehr-Weniger Rechnung". Given that dividend income is tax exempt in Austria, A subtracts EUR 1,200 from its pre-tax financial statement profit of EUR 5,700, yielding taxable income of EUR 4,500. Applying Austria's 25% tax rate on A's taxable implies a tax expense of EUR 1,125. After deducting the tax expense from the pre-tax financial statement profit of EUR 5,700, parent A reports an after-tax financial statement profit of EUR 4,575. Importantly, the dividend income does not affect the carrying amount of A's 80% investment in subsidiary S reported on A's balance sheet.

In Case B, we extend the previous example by additionally incorporating financial income and expenses, specifically interest expenses of EUR 600 and interest income of EUR 1,400, which both affect parent A's financial income and thus its pre-tax financial statement profit. Parent A again adjusts its pre-tax financial statement profits for tax-exempt dividend income when determining its tax base (in the right column; assuming interest expenses are deductible and interest income is taxable). Taxable income is again taxed at 25%, yielding tax expense of EUR 1,325 and an after-tax financial statement profit of EUR 5,175. If interest expenses were non-deductible, A would have to add the interest expenses back to the pre-tax financial statement profit when computing its taxable income.

Financial Accounting and Tax Treatment of Dividend Income



After-tax Profit of Subsidiary S:

EBIT	2,000
- Tax Expense	-500
After-tax Financial Statement Profit	1,500

Case A: Financial Statement Profit and Taxable Income of Parent A

(No Additional Financial Income and Expenses)

Profit and Loss Statement (Financial Statement Profit)		Tax Return (Taxable Income)	
EBIT	4,500	Pre-tax Financial Statement Profit	5,700
+ Dividend Income (Financial Income)	1,200	- Dividend Income	-1,200
Pre-tax Financial Statement Profit	5,700	Taxable Income	4,500
- Tax Expense	-1,125	Tax Expense (t = 25%)	1,125
After-tax Financial Statement Profit	4,575		

Case B: Financial Statement Profit and Taxable Income of Parent A

(Additional Financial Income and Expenses)

Profit and Loss Statement (Financial Statement Profit)		Tax Return (Taxable Income)	
EBIT	4,500	Pre-tax Financial Statement Profit	6,500
+ Dividend Income	1,200	- Dividend Income	-1,200
+ Interest Income	1,400	Taxable Income	5,300
- Interest Expense	-600	Tax Expense (t = 25%)	1,325
Pre-tax Financial Statement Profit	6,500		
- Tax Expense	-1,325		
After-tax Financial Statement Profit	5,175		

A.3 Cross-country Comparison of the Financial Accounting and Tax Treatment of Dividend Income

Financial Accounting Treatment. The financial accounting treatment of shareholdings in subsidiaries in the preparation of unconsolidated financial statements, and, consequently, the recognition of dividend income, is largely uniform across EU member states and aligned with the Austrian framework described in Section A.2. National financial accounting rules, harmonized through the EU Accounting Directive (Directive 2013/34/EU), which EU member states were required to implement by July 20, 2015, govern the structure and presentation of entities' balance sheet and the profit and loss statement. For shareholdings in subsidiaries, most member states require the use of the cost method. Under this method, financial investments are recognized at acquisition cost and subsequent dividend payments do not affect the carrying amount of the asset. Instead, consistent with the Accounting Directive (Art. 13, Annex V, item 9), dividend income is recognized as a separate line item in the profit and loss statement, increasing the pre-tax financial statement profit of the parent entity in the period in which the subsidiary distributes such dividends. Although the EU Accounting Directive allows EU member states to permit the equity method for shareholdings exceeding 20%, this option is restricted to *consolidated* financial statements. Accordingly, in *unconsolidated* financial statements, which are the focus of our study, shareholdings are systematically accounted for using the cost method, such that dividend income affects financial statement profits but not balance sheet valuations.

Tax Treatment. Under the EU Parent-Subsidiary Directive (Council Directive 2011/96/EU), member states are required to provide relief from the economic double taxation of dividend income. To qualify, a parent entity must hold at least 10% of the shares in an EU-resident subsidiary. Most EU member states, as well as several non-EU countries, satisfy this requirement by fully exempting dividend income from

corporate taxation at the parent level, consistent with a “territorial” tax system. Accordingly, the tax treatment of dividend income in these countries closely mirrors the Austrian framework described in Section A.2. Several EU member states apply partial exemption regimes. For example, Germany formally exempts 100% of dividend income from the tax base but treats 5% as a deemed non-deductible expense, yielding an effective exemption rate of 95% (§ 8b dKStG). France, Italy, Slovenia, and Spain also apply 95% exemption rules. Ireland is the only EU member state that fully taxes foreign-source dividend income. The country mitigates economic double taxation by crediting foreign taxes paid (Tax Foundation, 2021), an approach closer to a “worldwide” tax system.

Cross-Country Comparison. Table A2 summarizes the financial accounting and tax treatment of dividend income across most EU member states and the UK. The second column reports the extent to which dividend income is exempt from corporate taxation, while the third column identifies the relevant local GAAP provisions requiring the use of the *cost method* for shareholdings reported in *unconsolidated* financial statements. As discussed above, this requirement is consistent with the EU Accounting Directive, which mandates that dividend income be reported as a separate line item in the profit and loss statement.

Overall, the table highlights a high degree of harmonization within the EU with respect to (i) the recognition of dividend income, (ii) the application of the cost method in unconsolidated financial statements, and (iii) the tax exemption of dividend income. Consequently, the Austrian tax and financial accounting frameworks analyzed in this study are broadly representative of those in other EU member states, supporting the external validity and generalizability of our findings.

Table A2: Financial Accounting and Tax Treatment of Dividend Income in the EU and the UK

Country	Tax Treatment (% of Dividend Tax Exemption)	Financial Accounting Treatment (Local GAAP provision for the Cost Method)
Austria	100	§ 231 (2) Z10 UGB
Belgium	100	A.R. C.Soc. Article 3:163 Annex 6
Bulgaria	100	SC No. 1 - Predstaviane na finansovi otcheti (Presentation of Financial Statements), 18.1. Section B, Article 5
Croatia	100	Zakon o računovodstvu (Accounting Act), Poglavlje VI., Članak 18 (13); NN 107/2025, Pravilnik o strukturi i sadržaju godišnjih financijskih izvještaja, Prilog I
Cyprus	100	The Companies Law (Cap. 113), Article 157H, Fourteenth Annex
Czech Republic	100	Vyhláška č. 500/2002 Sb. (Decree No. 500/2002 Coll.), Annex No. 2, IV.1.
Denmark	100	Årsregnskabsloven § 23(1), cf. Annex 2
Estonia	100	Accounting Act § 18(3), Annex 2
Finland	100	Tilinpäätöslaki 1336/1997, Chapter 3, 1§
France	95	Code de commerce, Articles R123-193; ANC, Recueil des normes comptables françaises, art. 1222-76
Germany	95	§ 275 HGB
Greece	100	Law 4308/2014 (Greek Accounting Standards), Article 16; Appendix B, Models B.2.1. and B.2.2.
Hungary	100	Act C of 2000 on Accounting, Section 70; Schedule No. 2 and 3
Ireland	0	Companies Act 2014, Schedule 3, Part II, Section A, 2.(1); Section B

Italy	95	Art. 2425(c), no. 15 del Codice Civile
Latvia	100	Gada pārskatu un konsolidēto gada pārskatu likums (Law on Annual Statements and Consolidated Annual Statements), Chapter III, Section 9; Annex 2 and 3
Luxembourg	100	Loi comptable de 2002, Titre II, Chapitre II, Section 5, Art. 46
Netherlands	100	Burgerlijk Wetboek, Boek 2, Titel 9, Artikel 2:377 BW
Portugal	100	Decreto-Lei n.º 158/2009, norma contabilística e de relato financeiro 20, parágrafos 29 a 30; Código de Contas 79
Romania	100	OMFP 1802/2014 (Reglementările contabile privind situațiile financiare anuale individuale și situațiile financiare anuale consolidate) 761
Slovakia	100	Act no. 431/2002 on Accounting, Article 18(4); Measure No. 23054/2002-92 Article 9
Slovenia	95	Slovenian Accounting Standard 15 & 21
Spain	95	Plan General de Contabilidad (Real Decreto 1514/2007, III, 13)
Sweden	100	Årsredovisningslag Chapter 3, Section 3, Appendices 2 and 3
UK	100	The Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008, SI 2008/410, Sch 1, Pt 1, Section B, Profit and loss account formats

Note: This table summarizes the financial accounting and tax treatment of dividend income across EU members states and the UK. Information on the tax treatment of dividend income is collected from Tax Foundation (2025), Deloitte (2025), and PwC (2025). Information on local GAAP provisions and the application of the cost method in unconsolidated financial statements is collected from the website of the International Federation of Accountants and local accounting regulation.

A.4 Additional Descriptive Statistics and Regression Results

Location of Affiliates with the Lowest Statutory Tax Rate. Table A3 reports the location of the affiliate with the lowest foreign tax rate within each MNE group. In accordance with AMDC confidentiality requirements, we aggregate observations by geographic region and by foreign tax rate categories. Thus, we report individual countries only when the number of observations is sufficiently large.

Table A3: Affiliate Location with Lowest Tax Rate within MNE groups

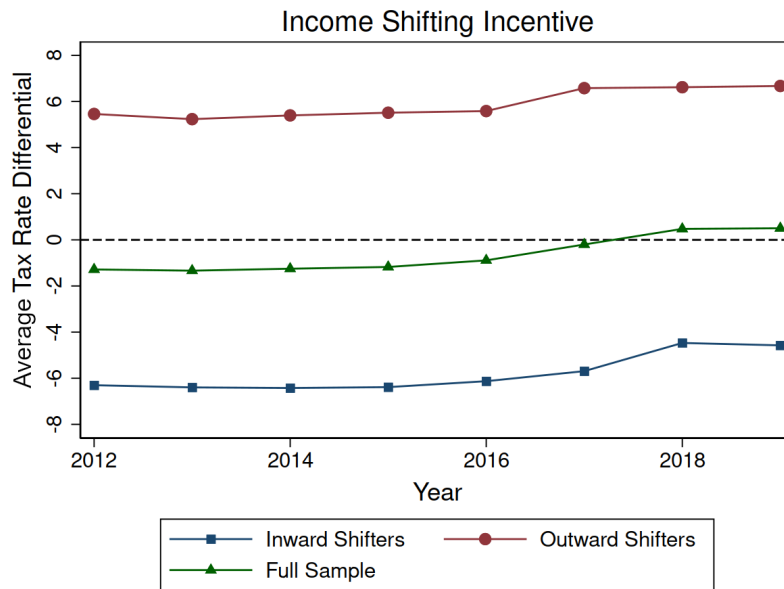
Lowest-Tax Country	Entity-Years	Average Tax Rate
British Overseas	64	0.0
Low-Tax European	85	10.0
Medium-Tax European	124	11.0-15.0
Eastern Europe	421	16.0-20.0
South-West Asia	153	16.5-21.0
United Kingdom	286	20.6
Switzerland	613	21.2
Nordics	307	22.0-23.0
Asia	88	24.0-25.0
Netherlands	376	25.0
Austria		25.0
Italy	321	29.2
Germany	2,099	30.1
Japan	172	33.0
United States	903	35.4
France	341	35.9
Rest of Europe	239	25.0-33.0
Rest of World	102	25.0-34.0
Total	6,717	

Note: This table presents the region (and if possible the country) in which the entity with the lowest tax rate in the MNE group is located. Regions are grouped by the average statutory corporate income tax rate of each country during our sample period. For data confidentiality reasons, we are not allowed to disclose individual countries where less than five MNE entities are active.

Tax Rate Differential Over Time. Figure A1 presents the evolution of the tax rate differential and the associated income-shifting incentives over time. The green triangle line depicts the average tax rate differential for the full sample, the red dotted line

represents the average tax rate differential for entities with outward-shifting incentives, and the blue square line for entities with inward-shifting incentives. For earlier sample years (i.e., until 2017), we observe a weak incentive to shift income into Austria (green triangle) which changes to a weak outward shifting income in the final two sample years (2018 and 2019). This shift is caused by reductions in foreign statutory corporate income tax rates rather than changes in Austria's tax rate, which remained stable at 25% throughout our sample period (see section 2.1).

Figure A1: Development of Tax Rate Differential Over Time

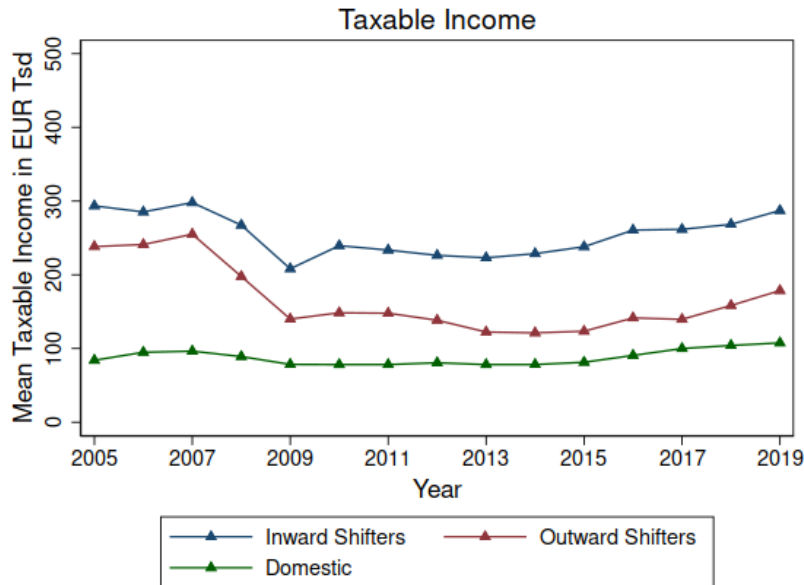


Note: This figure presents the development of the mean $TaxRateDifferential_{i,t}$ over our sample period. We use data from the AMDC for 2012–2019 and show the mean for the full sample and separately for the subsample of entities with inward-shifting incentives and those with outward-shifting incentives. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group.

Taxable Income Over Time. Figure A2 visualizes the development of mean taxable income over time. The blue line represents MNE entities with inward-shifting incentives, the red line represents those with outward-shifting incentives, and the green line depicts domestic-only entities, which are not included in our primary sample.

Inward- (outward-)shifting incentives refer to cases where the Austrian statutory corporate income tax rate is lower (higher) than the lowest foreign statutory corporate income tax rate within the MNE group. As expected, entities with inward-shifting incentives report higher taxable income relative to those with outward-shifting incentives. Domestic-only entities consistently report lower than taxable income than both groups of MNE entities. The global financial crisis primarily affected MNE entities, which experienced a pronounced decline in taxable income between 2007 and 2009, whereas domestic-only entities remained largely unaffected. Beginning in 2017, MNE entities show stronger growth in taxable income compared to domestic-only entities.

Figure A2: Development of Taxable Income Over Time



Note: This figure shows the development of the mean $TaxableIncome_{i,t}$ over our sample period. We use data from the AMDC for 2005–2019 and show the mean separately for MNE entities with inward-shifting incentives, MNE entities with outward-shifting incentives, and domestic-only entities.

Tax Semi-Elasticity Over Time. Figure A3 shows the evolution of the estimated tax semi-elasticity and its 90% confidence interval over time. We present these estimates for the full sample (Panel (a)), entities with inward-shifting incentives (Panel (b)), and entities with outward-shifting incentives (Panel (c)). Inward- (outward-)shifting

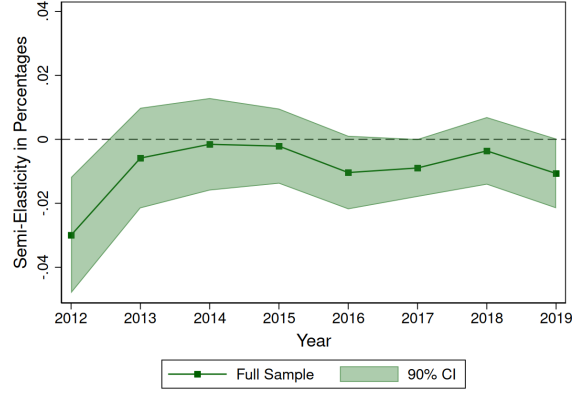
incentives refer to cases where the Austrian statutory corporate income tax rate is lower (higher) than the lowest foreign statutory corporate income tax rate within the MNE group. To obtain these estimates, we re-estimate our primary specification with taxable income as the dependent variable (i.e., the specification reported in Table 3, Panel A, column (2)) but interact $TaxRateDifferential_{i,t}$ with separate year indicators.

The estimates exhibit meaningful time-series variation, plausibly reflecting the effect of contemporaneous policy reforms. For instance, the semi-elasticity becomes less negative (i.e., entities in our sample shift less income) in 2014, coinciding with Austria’s introduction of an interest and royalty deduction limitation. In contrast, the semi-elasticity becomes more negative after the introduction of non-public Country-by-Country reporting in 2016 and the implementation of a CFC rule in 2019, both of which could facilitate additional outward shifting. These patterns are visible in the full sample and are particularly pronounced among entities with outward-shifting incentives.

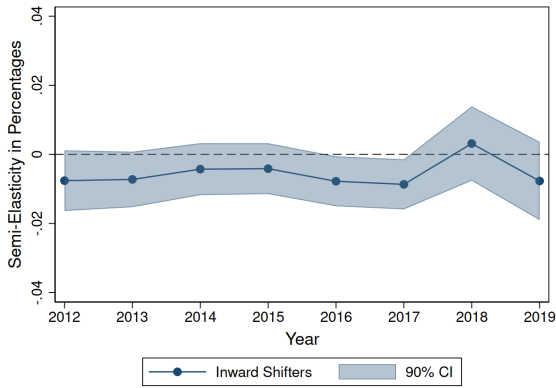
Heterogeneity in Income Shifting. Table A4 examines heterogeneity in income-shifting estimates. Consistent with our primary analysis, we use taxable income reported on tax returns as the dependent variable in equation (1). We then split our sample based on entity characteristics that are likely associated with heterogeneity in income shifting.

Panel A, columns (1) and (2) compare entities with inward- versus outward-shifting incentives based on the sign of the tax rate differential. We again define MNE entities as facing inward-shifting (outward-shifting) incentives when Austria’s statutory corporate income tax rate is lower (higher) than the *lowest* foreign statutory corporate income tax rate within the MNE group. Among inward shifters, the estimated semi-elasticity is statistically insignificant and close to zero. In contrast, for outward shifters, the semi-elasticity increases in magnitude to -1.9, more than twice our baseline estimate. A muted response among inward shifters is consistent with Austria being an average-

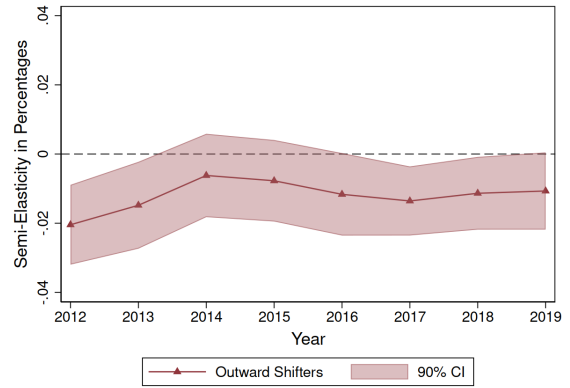
Figure A3: Development of Tax Semi-Elasticities Over Time



(a) Full Sample



(b) Inward Shifters



(c) Outward Shifters

Note: This figure shows the development of the tax semi-elasticities over our sample period. We use data from the AMDC for the years 2012–2019. To obtain these tax semi-elasticities, we re-estimate the specification in Table 3, Panel A, column (2) after interacting $TaxRateDifferential_{i,t}$ with separate year indicators. Panel (a) shows estimates for the full sample, Panel (b) shows estimates for entities with inward-shifting incentives (i.e., Austria’s statutory corporate income tax rate is lower than the lowest foreign statutory corporate income tax rate within the MNE group), and Panel (c) for estimates with outward-shifting incentives (i.e., Austria’s statutory corporate income tax rate is higher than the lowest foreign statutory corporate income tax rate within the MNE group).

tax jurisdiction during our sample period, making it a less attractive destination for shifted profits than traditional tax havens or low-tax countries. In fact, most inward-shifting incentives arise from relationships with German entities, which face a tax rate of roughly 30% and therefore a tax rate differential of about 5 percentage points. Given that income-shifting structures entail fixed costs (Davies et al., 2018; Goldbach et al., 2021), the differential might be too small to incentivize income shifting from Germany to Austria. Moreover, prior research indicates that MNEs are generally reluctant to shift profits away from the parent jurisdiction (e.g., Germany), especially when the receiving affiliate is located in a medium-tax country (e.g., Austria) (Dischinger et al., 2014). Finally, because the OFATS and IFATS data do not report “sister relationships” (see Section 4), we might not capture the precise inward-shifting incentives.

Columns (3) and (4) split entities based on whether the MNE group includes a tax haven affiliate, using the list from Hines (2010).²³ For Austrian MNE entities with a tax haven affiliate, the estimated semi-elasticity is -4, which is more than four times our baseline estimate of -0.9; the estimate for entities without tax-haven ties is statistically insignificant. Columns (5) and (6) further separate EU and non-EU tax havens and show that income shifting is particularly pronounced among MNE entities with EU tax-haven ties, underscoring the importance of tax havens in facilitating income shifting.

Panel B of Table A4 exploits variation in entity characteristics associated with specific income-shifting strategies. Columns (1) and (2) show that the taxable income reported by manufacturing entities does not respond to income-shifting incentives, whereas non-manufacturing entities exhibit a tax semi-elasticity of -1.3. This pattern suggests that relatively immobile tangible assets in manufacturing limit opportunities to shift profits through strategies that require intangible assets, such as intra-group

²³This list includes Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Cook Islands, Costa Rica, Cyprus, Djibouti, Dominica, Gibraltar, Grenada, Guernsey, Hong Kong, Ireland, Isle of Man, Jersey, Jordan, Lebanon, Liberia, Liechtenstein, Luxembourg, Macao, Maldives, Malta, Marshall Islands, Mauritius, Micronesia, Monaco, Montserrat, Nauru, Netherlands Antilles, Niue, Panama, Samoa, San Marino, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Martin, St. Vincent and the Grenadines, Switzerland, Tonga, Turks and Caicos Islands, Vanuatu.

royalty payments. Consistent with this interpretation, low sales entities (column (4)) shift substantially more income than high-sales entities (column (3)), indicating that low-sales entities can employ a broader set of shifting strategies, including intra-group debt financing and royalty payments. High-sales entities, in contrast, have to primarily rely on transfer pricing for intra-group sales of goods and services.

Columns (5) and (6) directly examine the role of debt financing by comparing high- and low-debt entities, where high debt is defined as being in the top quartile of the long-term debt-to-total assets distribution. High-debt entities exhibit a semi-elasticity of -2, whereas the estimate for low-debt entities is -0.0041 and statistically insignificant. These results indicate that interest deductions on intra-group debt are likely an important shifting strategy in our sample.

Table A4: Heterogeneity in Income Shifting

Panel A: Inward vs. Outward Shifters; Tax Haven vs. Non-Tax Haven Ties

	ln(Taxable Income)					
	(1) Inward Shifter	(2) Outward Shifter	(3) Tax Haven	(4) Non-Tax Haven	(5) EU Tax Haven	(6) Non-EU Tax Haven
Tax Rate Differential	-0.0007 (0.0052)	-0.0188* (0.0110)	-0.0400* (0.0230)	-0.0029 (0.0040)	-0.0598** (0.0275)	-0.0087* (0.0049)
$\gamma_i = \gamma_j$	$p = 0.14$		$p = 0.11$		$p = 0.07^*$	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Entity FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4,145	2,011	955	5,724	1,216	5,461
R^2	0.78	0.76	0.78	0.77	0.77	0.77

Panel B: Manufacturing vs. Non-Manufacturing; High vs. Low Sales; High vs. Low Debt

	ln(Taxable Income)					
	(1) Manu- facturing	(2) Non-Manu- facturing	(3) High Sales	(4) Low Sales	(5) High Debt	(6) Low Debt
Tax Rate Differential	0.0042 (0.0059)	-0.0127** (0.0055)	0.0013 (0.0048)	-0.0102** (0.0049)	-0.0200** (0.0090)	-0.0041 (0.0039)
$\gamma_i = \gamma_j$	$p=0.04^{**}$		$p=0.09^*$		$p=0.10^*$	
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Entity FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,558	5,147	1,355	4,109	1,520	4,943
R^2	0.75	0.77	0.73	0.76	0.80	0.78

Note: This table presents the results of analyzing heterogeneity in income-shifting estimates. We use entity-level data from the AMDC and Orbis for the years 2012-2019. The dependent variable is the natural logarithm of $TaxableIncome_{i,t}$, defined as taxable income reported on corporate tax returns. $TaxRateDifferential_{i,t}$ is a measure for income-shifting incentives, defined as the Austrian statutory corporate income tax rate minus the lowest foreign statutory corporate income tax rate within the MNE group. *Inward Shifter* (*Outward Shifter*) means the Austrian statutory corporate income tax rate is lower (higher) than the lowest foreign statutory corporate income tax rate, which induces incentives for inward (outward) shifting. *Tax Haven* (*Non-Tax Haven*) indicates Austrian MNE entities that have at least one (no) tax haven affiliate in their corporate group. We identify tax havens based on the Hines (2010) list. *EU Tax Haven* (*Non-EU Tax Haven*) limits the sample to entities with ties to EU (non-EU) tax havens. *Manufacturing* indicates entities in the manufacturing sector. *Non-Manufacturing* indicates all other industries. *High* (*Low*) *Sales* is defined as an entity in the top (bottom) quartile of the distribution of sales. *High* (*Low*) *Debt* is defined as an entity in the top (bottom) quartile of the distribution of total debt. We test for differences in coefficients across columns using a fully interacted model. Control variables include fixed assets and the costs of employees, both transformed by the natural logarithm. All outcome variables are winsorized at the 1% level. We cluster standard errors by entity. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.