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Understanding Ireland's top corporation taxpayers

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Understanding Ireland's top corporation taxpayers

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Abstract

Ireland's corporation tax revenues are highly concentrated among a small number of large, foreign-owned multinationals. In 2022, just ten corporate groups accounted for three-fifths of all corporation tax receipts. We use a granular approach to better understand this concentration. Using publicly available financial statements, we develop an extended list of corporate groups who are likely to be among the highest taxpayers in Ireland. We estimate that just three corporate groups accounted for around a third of all corporation tax revenues from 2017 to 2021, with ICT and pharma-chem being the top sectors. The concentration of receipts makes firm- or sector-specific shocks a significant driver of fluctuations in Ireland's corporation tax receipts. This underlines the risks posed by over-relying on these revenue flows to fund permanent measures.

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1. Introduction

Ireland's corporation tax receipts are highly concentrated. This has been recognised for quite some time by the main economic institutions that monitor Ireland (Fiscal Council, 2022; Central Bank of Ireland, 2022; Department of Finance, 2022a; European Commission, 2022; IMF, 2022; OECD, 2022a; McCarthy 2023). In 2022, just ten corporate groups accounted for three-fifths of all corporation tax receipts (McCarthy, 2023).

Furthermore, Ireland's public finances have become increasingly reliant on corporation tax receipts. In 1984, corporation tax receipts comprised 4% of overall tax revenues. By 2022, these receipts accounted for over a quarter of all tax revenues, having overtaken VAT receipts in terms of their importance (Department of Finance, 2023a).

These receipts could be subject to sharp reversals. Corporation tax receipts are more volatile than other major tax heads; prone to larger forecast errors; concentrated in a handful of groups; and they are exposed to changes in the global tax environment (Fiscal Council, 2022). This is why Ireland's Fiscal Council has pointed to the potential risks posed by an overreliance on such an unpredictable source of revenue in terms of funding recurrent government spending.

These assessments focus on the aggregate behaviour of corporation tax. In this paper, we develop a more granular approach to better understand who the leading taxpayers are.

Our paper makes two main contributions to the existing literature. First, we use publicly available financial statements to develop an extended list of corporate groups who are likely to be among the highest taxpayers in Ireland. Second, we develop four approaches to estimate how much corporation tax each group might have paid in Ireland between 2017 and 2021. The choice of approach depends on the available data and the financial year-end of the group. A range of approaches are necessary to overcome the fact that most groups avail of exemptions, such that they are not required to disclose the amount of corporation tax they pay in Ireland.

Our results confirm that Ireland's corporation tax revenues are highly concentrated among the largest taxpayers. According to our estimates, just three corporate groups accounted for around a third of all corporation tax revenues in 2021. Furthermore, this share remained high and close to a third throughout the five-year period from 2017 to 2021. Given the increases in corporation tax revenues overall, this leads to three corporate groups accounting for 8% of total tax revenues in 2021, up from 5% in 2017. We also find that just two sectors—ICT and pharma-chem—appear to account for over 90% of the corporation tax paid by the top ten groups in 2021.

In terms of the structure of the paper, Section 2 provides some background on the sharp increases in Irish corporation tax revenues in recent years, as well as the growing concentration of these revenues among the leading taxpayers. Section 3 describes the data and methodological approaches we use to estimate the amount of corporation tax paid in Ireland by the country's leading taxpayers. Section 4 presents the empirical findings: we show our estimates for how much each of the top ten highest taxpayers paid in 2021, and the four preceding years. We also analyse what sectors account for most of the corporation tax paid by these groups. Section 5 discusses the implications arising from the high level of concentration: idiosyncratic firm- or sector-specific shocks are likely to be some of the most important drivers of fluctuations in the volume of corporation tax receipts. Section 6 concludes by summarising the main findings of the paper.

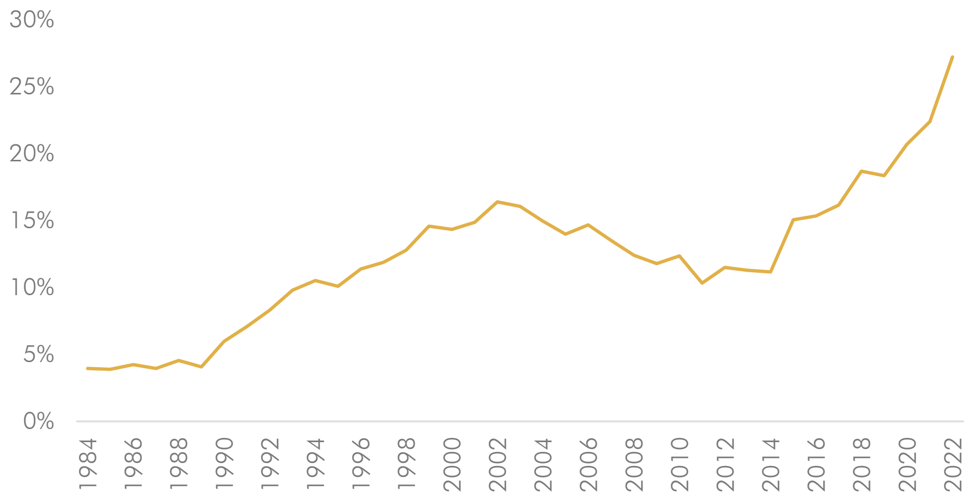
2. Background and context

In this section we explore the recent surge in Irish corporation tax revenues, as well as the growing concentration of these revenues among a handful of large groups.

The exposure of Ireland's public finances to corporation tax revenues has increased substantially over the past four decades; in 1984, corporation tax receipts comprised 4% of total tax revenues, while the equivalent share reached a record 27% in 2022 (Figure 1). In other words, over a quarter of all tax revenue in 2022 was due to corporation tax—a figure without an historical or cross-country comparison for this tax head (Department of Finance, 2023b). Indeed, the Department of Finance forecast that corporation tax revenues will continue to account for over a quarter of all tax revenues until 2026, at least (Department of Finance, 2023c).[2]

Figure 1: Corporation tax receipts accounted for over a quarter of all tax revenues in 2022

% share of total tax receipts



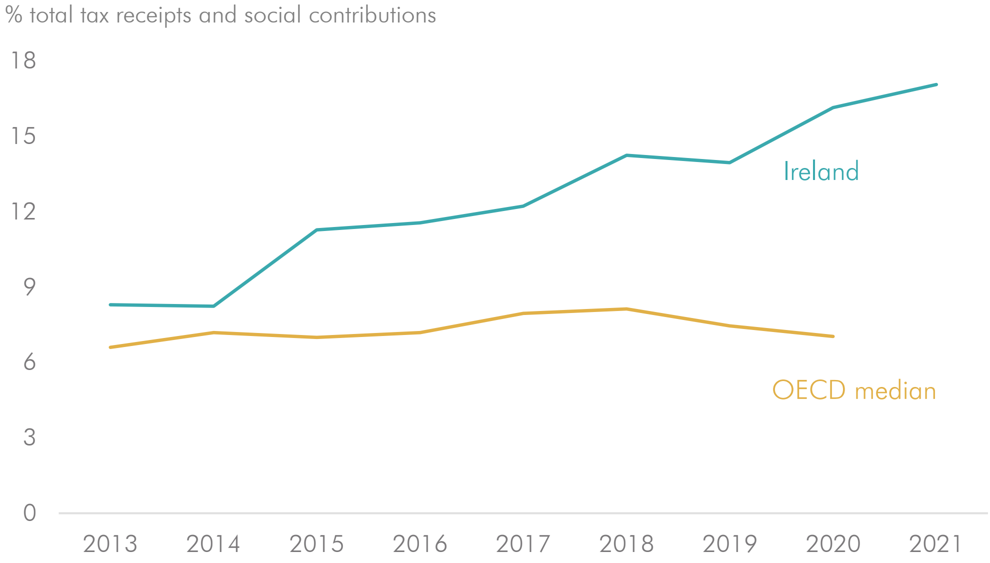
Source: Department of Finance (2023a); and own workings.

The relative importance of corporation tax revenues has grown significantly in the eight-year period from 2015–2022. This follows a sharp increase in corporate

[2] In their most recent publication, the Department of Finance forecast corporation tax revenues as far as 2026 (Department of Finance 2023c).

profitability of foreign multi-nationals and structural changes to both the Irish and, in particular, international tax systems (McGuinness and Smyth, 2019; Department of Finance, 2022a; Parliamentary Budget Office 2022; McCarthy, 2023; Central Statistics Office, 2023).[3] Corporation tax receipts have more than tripled, from €6.9bn in 2015 to €22.6bn in 2022 (Department of Finance, 2023a). In 2023, corporation tax revenues are projected to increase by a further 7% year-on-year and reach €24.3 billion by year-end (Department of Finance, 2023c).

Figure 2: Ireland's reliance on corporation tax revenues is very high by international standards



Source: OECD Global Revenue Statistics Database (2022b). Notes: 2020 is the most recent year for which OECD median data is available. Total tax revenue includes social contributions.

Ireland's reliance upon corporation tax receipts as a tax revenue source has long been very high by international standards, but has increased. Figure 2 shows how Ireland's dependence on corporation tax revenues was over double the OECD

[3] For example, the OECD's initial Base Erosion Profit Shifting (BEPS) measures, agreed in 2015, comprised a very significant package of international tax reforms. By aligning the location in which a company's profit is recorded with the location of the economic substance that generates that profit, the OECD BEPS measures have led to multinationals "onshoring" their intellectual property (IP) assets to countries, such as Ireland, where this economic substance exists (Coffey 2017). Given these onshored IP assets generate significant profits, the initial OECD BEPS measures have contributed to the exceptional growth in Irish corporation tax revenues since 2015 (Coffey 2020b; Department of Finance 2022a; Parliamentary Budget Office 2022).

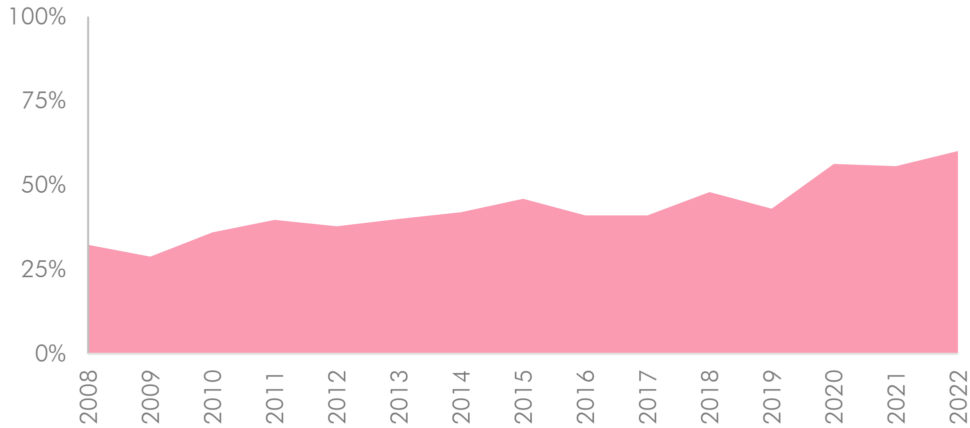
median OECD in 2020, even prior to the steep jump in these revenues in 2021 and 2022 (OECD, 2022b).

Corporation tax receipts tend to be more unpredictable than other tax heads (Mourre and Princen, 2015; Tax Forecasting Methodology Review Group, 2019; Fiscal Council, 2022). They are prone to sudden reversals, subject to large forecast errors, concentrated in a small number of foreign multinationals, and exposed to changes in the global tax environment (Fiscal Council, 2022). This underscores the risks posed by over-relying on these revenue flows to fund permanent measures.

Furthermore, as Irish corporation tax receipts have swelled, revenues have become more concentrated among a small number of large foreign-owned multinationals, the bulk of whose revenues are generated outside of Ireland (Fiscal Council, 2022). Figure 3 shows how the top ten highest paying corporate groups accounted for 60% of total corporation tax receipts in 2022, up from around a third in 2008 (McCarthy, 2023; Fiscal Council, 2022). [4]

Figure 3: Top ten groups represent rising share of corporation tax receipts

% total corporation tax receipts

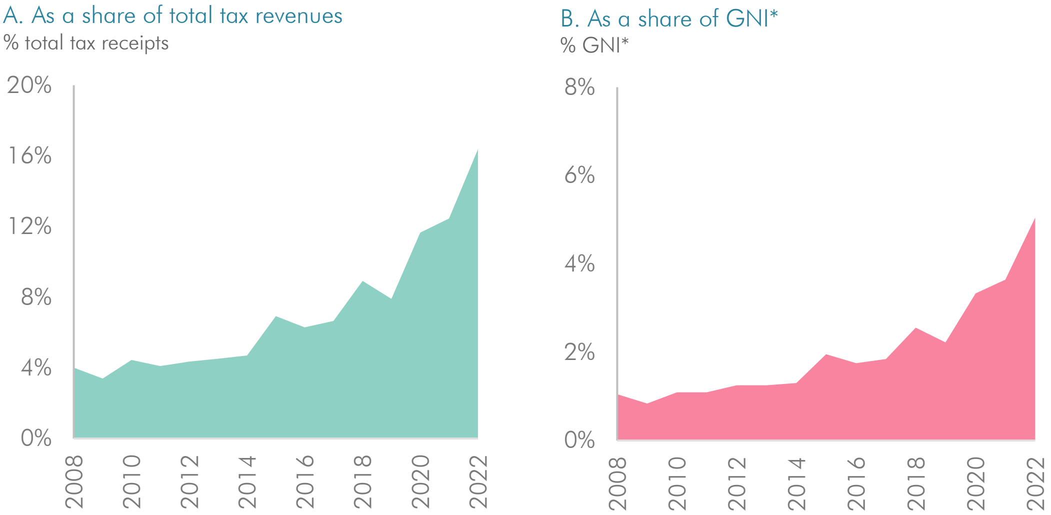


Sources: Fiscal Council workings, McCarthy (2023) and previous publications. Notes: A corporate group consists of "individual companies or affiliates that are members of the same corporate entity grouped together" (McCarthy, 2023). The composition of the top ten highest paying groups may change from one year to another.

[4] The composition of the top ten highest paying corporate groups may change from one year to another (McCarthy 2023).

In addition, payments by the top ten groups comprised 16% of total tax revenues in 2022, over four times the equivalent share in 2008 (Figure 4A). In other words, payments by these top ten groups represented almost one-in-every-six euro of total tax revenues in 2022. Figure 4B shows how the top ten groups accounted for 5% of GNI* in 2022, up from 1% in 2008.

Figure 4: Corporation tax payments by the top ten groups



Sources: Fiscal Council workings, Central Statistics Office (2022), Department of Finance (2023a), Department of Finance (2023c), McCarthy (2023) and previous publications. Notes: A corporate group consists of "individual companies or affiliates that are members of the same corporate entity grouped together" (McCarthy, 2023). The composition of the top ten highest paying groups may change from one year to another. For nominal GNI*, we use the actual outturns provided by the Central Statistics Office for each year from 2008-2021. For 2022, we use the Department of Finance's estimate.

Although the Revenue Commissioners do not identify or publish data on the highest paying corporation taxpayers, it is likely that many are foreign-owned multinationals trading in either the ICT or pharma-chem sectors: payments by foreign-owned multinationals constituted 86% of total corporation tax receipts in 2022, while over three-fifths of all corporation tax revenues in 2022 were derived from two multinational-dominated sectors, namely manufacturing[5] and ICT services (McCarthy, 2023).

[5] Manufacturing comprised mainly of 'pharmaceutical and chemical manufacturing' and 'ICT manufacturing' in 2022 (McCarthy, 2023).

This concentration risk provides the rationale for this paper, namely, to get a better understanding of who the leading corporation taxpayers in Ireland are and to estimate how much they pay.

3. Data and methodology

In this section, we explore in detail the data and methodological approaches we use to estimate the amount of corporation tax paid in Ireland by the country's leading taxpayers.

Our analysis relies solely upon publicly available financial information. We also focus on corporate groups rather than on individual companies. A corporate group consists of "individual companies or affiliates that are members of the same corporate entity grouped together" (McCarthy 2023). It is possible that, in any given year, multiple members of the same group could feature among the top ten taxpaying companies published by the Revenue Commissioners (McCarthy 2019). This potentially understates the concentration risk associated with these revenues.

In 2022, the top ten highest paying corporate groups accounted for three-fifths of all corporation tax receipts (McCarthy 2023).[6]

We begin by identifying those corporate groups with the potential to be large corporation taxpayers in Ireland. We use a variety of sources, including media articles, the Irish Times Top 1000 companies database, and various other rankings of multinational companies that track global revenues and profits (see Table 1). We end up with a list featuring dozens of corporate groups who we believe are among Ireland's largest corporation taxpayers. While this approach may not include every large taxpayer in Ireland, we are confident that this extended list includes the vast majority of the highest corporation taxpayers in Ireland.

[6] By comparison, the top ten highest paying companies accounted for 57% of all corporation tax receipts in 2022 (McCarthy, 2023).

Table 1: Key information sources

Source	Purpose	Data Limitations
The Irish Times Top 1000 Companies	Ranks corporate groups that make statutory filings in Ireland according to the size of their annual profits, turnover and other metrics. This provides a useful starting point when seeking to identify the leading corporation taxpayers in Ireland.	Excludes the profits earned by some Irish subsidiaries. Does not differentiate between profits earned inside and outside of Ireland. Limited company information is publicly accessible. Access to the database is only available via a subscription charge.
Companies Registrations Office (CRO)	Most Irish tax resident companies must file financial statements every year with the CRO. We use the online search function on the CRO website to source the financial statements of a company for a small fee.	Only the financial statements for the two most recent accounting years are publicly accessible. However, we obtain, on request, the historical financial statements of tax resident subsidiaries. Some groups only file consolidated financial statements, availing of section 357 of the Companies Act 2014. This limits what can be determined from the financial statements.
Securities and Exchange Commission (SEC)	Publicly traded US companies must file a Form 10-K annually with the SEC containing the company's financial statements. Although its primary focus is the global parent, the Form 10-K also lists the group's worldwide subsidiaries alongside the jurisdiction of incorporation of each. This provides a useful starting point when seeking to identify those subsidiaries located in Ireland. The Form 10-K also provides the following information: - US/non-US split of key areas of interest (for example, revenues, profit before tax, provision for corporation tax expense). - Actual corporation tax payments globally. This information can be very useful for those groups whose Irish subsidiaries account for a large share of their non-US operations.	Besides listing the parent company's subsidiaries, the Form 10-K provides limited additional information specific to the subsidiaries located in Ireland.
IDA Ireland	Provides a breakdown of foreign companies doing business in Ireland according to, among other things, the sector in which they operate and their country of origin.	Does not include any financial data

Next, we aim to identify all Irish tax resident subsidiaries of each of these corporate groups. This process may vary, depending on the group. For example, for publicly traded US companies, the ultimate parent must file a list of significant subsidiaries with the Securities and Exchange Commission (SEC) alongside the jurisdiction of incorporation for each. A company incorporated in Ireland is deemed to be Irish tax resident, except where it is considered tax resident elsewhere under the provisions of a double taxation agreement (Revenue Commissioners, 2023b).[7] Therefore, this provides a useful starting point from which to begin compiling a list of a group's Irish tax resident subsidiaries.

We then access publicly available historical financial statements for each Irish tax resident subsidiary from the Companies Registration Office (CRO). In most cases, the statements from a subsidiary's two most recent accounting years are available to download from the CRO website for a small fee. In addition, we obtained, on request, the historical financial statements of tax resident subsidiaries stretching back to 2017.

Ideally, we would be able to add up the corporation tax paid by each corporate group's Irish tax resident subsidiaries to get the amount of tax paid by the group in Ireland. However, most large groups avail of exemptions, such that they are not required to disclose the amount of corporation tax they pay in Ireland.[8] Consequently, there are several limitations to our analysis which we discuss in greater detail in the Appendix.

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[7] In addition, a company will be treated as Irish tax resident if it is managed and controlled in Ireland, regardless of its place of incorporation (Coffey, 2017; PwC, 2023).

[8] Financial Reporting Standard 101 'Reduced Disclosure Framework' (FRS 101) is one of a number of accounting standards issued by the Financial Reporting Council—the accounting standard setter for both Ireland and the UK. Paragraph 8 of FRS 101 lists several disclosure exemptions for a "qualifying entity", defined as a "member of a group where the parent of that group prepares publicly available consolidated financial statements which are intended to give a true and fair view (of the assets, liabilities, financial position and profit or loss) and that member is included in the consolidation" (Financial Reporting Council, 2022).

Most group subsidiaries meet this definition of a qualifying entity. Therefore, they may avail of a number of disclosure exemptions, including an exemption from the requirement to prepare a statement of cash flows. Consequently, most subsidiaries do not disclose how much corporation tax they pay in Ireland.

As a proxy measure for cash tax payments, we develop four approaches to estimate the annual corporation tax payments made by a range of large corporate groups in Ireland in a given year. The choice of approach depends on the available data and the financial year-end of the group.

For each group, we derive five estimates—one for each accounting year ended from 2017–2021 (five years in total).[9] We then rank each group according to their estimated corporation tax payment in 2021.

Most large US multinationals prepare their financial statements in US dollar terms as this is their functional currency. On the other hand, the Revenue Commissioners and the Department of Finance publish their corporation tax revenue statistics in euros. These currency differences pose a challenge when deciding what exchange rate to use when determining the corporation tax paid in Ireland. Where necessary, we use the annual average US dollar-to-euro exchange rate published by the OECD for each of the years of the financial statements in question.[10]

Next, we describe in detail each of the four methodological approaches we use.

Approach 1

The first approach applies to those corporate groups that file financial statements with the CRO for every subsidiary within the group. We:

i. identify each subsidiary's provision for corporation tax expense in the profit and loss statement.
ii. estimate the share of each subsidiary's provision for corporation tax expense that is attributable to Ireland. Relevant information can usually be found in the tax reconciliation section of the financial statements (see

[9] We focus on this five-year period as we obtain, on request, comparable data from the Revenue Commissioners as to how much the top-ten highest paying groups paid during this five-year period. These official outturns are an important indicator of the accuracy of our estimates (see Section 4).

[10] We discuss the limitations of using the annual average US dollar-to-euro exchange rate in the Appendix point 1.

Appendix point 2).[11] For example, this section can contain references to the impact of foreign withholding tax charges or foreign tax rates on the provision for corporation tax expense figure. We then adjust the expense figure for the stated impact of these charges. Among the largest taxpaying subsidiaries, we generally find that the foreign tax adjustment is relatively small, indicating that most of the profit is subject to tax in Ireland (as an example, see Coffey 2021).

iii. add the estimates for each of the subsidiaries to get an estimate of the group's provision for corporation tax expense attributable to Ireland.

Crucially, a subsidiary recording a provision for corporation tax expense in its financial statements is not the same as it making a cash tax payment to the Revenue Commissioners. The deviation may be due to timing differences. For example, if a cash tax payment is made after the financial year end, the payment would be recorded in a different financial year to that in which the expense is recorded. Alternatively, deferred tax assets may be used to reduce a company's tax liability (Coffey 2020a; McCarthy 2023). Further information on these differences is available in Appendix points 3 and 4. We use Approach 1 to estimate the corporation tax payments of seven of those that we identify as the top ten highest taxpayers in 2021.

Approach 2

However, we cannot apply the first approach to all corporate groups. Some groups only file consolidated financial statements, availing of section 357 of the

[11] Companies are not required to publish a country-specific breakdown of where they make corporation tax payments. Therefore, although the tax reconciliation section of the financial statements can be helpful, it is not possible to precisely compute the share of a company's provision for corporation tax expense figure that is attributable to Ireland. This represents a limitation of our analysis (see Appendix point 2).

Companies Act 2014.[12] In these instances, the consolidated financial statements present the activities of the parent company and its subsidiaries as one group and no information is publicly available in terms of what happens at the level of each subsidiary within the group.

This limits what can be determined from the financial statements, including the breakdown of where taxes are paid. Some corporate groups may have dozens of subsidiaries, of which only a fraction are tax resident in Ireland. This absence of a subsidiary-level breakdown means that the provision for corporation tax expense attributable to Ireland cannot be estimated as above.

As a work-around, our second approach uses monthly Exchequer corporation tax revenue data, published by the Department of Finance (Department of Finance 2023a). In Ireland, large corporate groups pay corporation tax in three instalments. The first and second instalments are paid in the sixth and eleventh months of the company's current accounting period, while the third instalment is paid in the ninth month of the following accounting period (Revenue Commissioners 2023a).

For example, a large Irish tax resident company with a December year-end would make preliminary corporation tax payments in June and November of the relevant accounting year. It would then have until the following September to file its tax return and pay the final outstanding amount.

Analysis of company filings shows that most large corporate groups have a December year-end. In these instances, it is very difficult to separate the preliminary tax payments of these groups from the payments of other large corporation

[12] Companies are obliged to annex their financial statements to their annual return filing with the CRO each year. However, section 357 of the Companies Act 2014 provides an exemption to a subsidiary from the requirement to annex its financial statements to its annual return once certain conditions are met. To avail of the exemption, the parent company must be established under the laws of a European Economic Area state and provide a guarantee over "all commitments entered into" by the subsidiary. Although derived from the EU Accounting Directive (Directive 2013/34/EU), the effect of section 357 has existed in Irish company law since 1986 (Eversheds Sutherland, 2019; Houses of the Oireachtas, 2022).

taxpayers. As a result, it is possible that at least one large group has been omitted from our estimate of the top-ten corporation taxpayers (see Appendix point 5).

However, a small number of large corporate groups have relatively atypical financial year-end dates that fall in months other than December – this approach allows inferences to be drawn from the monthly official statistics on this group of firms.

Our second approach applies to one large multinational corporate group that files consolidated financial statements. We:

i. note the sixth and eleventh months of the financial year for all of the corporate groups we assess. These are the months in which a group's Irish tax resident subsidiaries pay their first and second preliminary tax instalments. In total, companies pay 90% of their estimated tax due for the financial year in these two months.

ii. verify that this specific group's two preliminary tax instalments are due in months less likely to be impacted by the payments of other large corporation taxpayers. We note that only one other large corporation taxpayer makes a preliminary tax payment in one of the same months as the group, but is a much smaller taxpayer.

iii. use the monthly Exchequer corporation tax revenue data. For one preliminary tax payment month (month 11 of the group's accounting year), we assume that all corporation tax receipts recorded are solely attributable to the corporate group. For the other month (month 6 of the group's accounting year), we assume that the main group in question plus the other large taxpayer with the same calendar year end account for all of the corporation tax paid this month.

    For month 6, we derive our estimate of the other large taxpayer's annual tax payment using one of the other approaches. We then get

45% of this other taxpayer's annual payment since companies pay 90% of the tax due for the year in two preliminary tax instalments. We assume these two tax payments are split evenly across the two months.[13]

We then remove the estimated tax payment for the other large taxpayer from the monthly Exchequer corporation tax take for month 6 and assume the remainder is paid by the large corporate group that files consolidated financial statements and pays in this month.

iv. assume the sum of the tax revenues collected in month 6 and month 11 equates to 90% of that group's annual corporation tax payment.[13] To get the full amount of tax paid during the calendar year, we add on 10% of the previous year's tax payment, given the third instalment is paid the following year.

Equation 1 (see Appendix point 6) summarises our second approach. The estimate generated using our second approach carries a greater level of uncertainty than those estimates generated with the first approach. However, given the group makes preliminary tax payments in months less likely to be impacted by other large taxpayers, we believe the approach is a useful proxy to estimate the amount of corporation tax paid each year by the group in Ireland.

[13] Large companies (a company whose corporation tax liability was greater than €200,000 in the previous period) have two options when making their first preliminary tax payment in month 6 (Revenue Commissioners, 2023a). The amount due is either:

a. 50% of the preceding period's tax liability; or

b. 45% of the expected final tax liability in the current period.

The second preliminary tax payment in month 11 must bring the total paid up to 90% of the estimated liability for the period. We assume companies choose option (b). However, this may not always be the case; for example, if a company expects their current period's tax liability to be substantially greater than that for the previous period, they may opt to pay 50% of the preceding period's liability for cashflow reasons.

Approach 3

Our third approach estimates the corporation tax paid by a different corporate group that files consolidated financial statements in Ireland. Although it has a relatively atypical financial year-end date, the group makes preliminary tax payments in the same months as other larger corporation taxpayers. Consequently, neither the first nor the second approaches are applicable.

However, our research suggests this corporate group may have been among the top ten corporation taxpayers in Ireland in 2021. Therefore, we develop a bespoke third approach for this large corporate group. We:

i. download the global parent company's financial statements for each year from 2012–2021 from the group's website.

ii. note the global parent company's provision for corporation tax expense for each year. This expense is broken down into its US and non-US components. For each year, we find the share of the group's total provision for corporation tax expense (in other words, the US + non-US components) that is accounted for by the non-US provision for corporation tax expense.

    In 2018, the Tax Cuts and Jobs Act came into effect in the US; this makes the US and non-US breakdown more volatile from this year onwards.[14] However, for the period from 2012–2017, the non-US

[14] The Tax Cuts and Jobs Act came into effect in the US from 1 January 2018. It imposed a reduction in the headline Federal corporation tax rate from 35% to 21%. This required corporate groups to revalue their U.S. deferred tax assets and liabilities. In addition, the Act levied a one-time 'deemed repatriation tax' charge on a group's post-1986 undistributed earnings and profits previously held offshore. This tax charge was payable in the US. This group recorded the estimated additional tax liability in their financial statements for 2018; the US component of the group's provision for corporation tax expense rose sharply this year, as a result (Chalk et al, 2018; Barry, 2019). To identify what might be the Irish component of taxes paid, we focus on the period from 2012–2017 when analysing the relationship between the US and non-US components of the group's provision for corporation tax expense.

provision for corporation tax expense equates to, on average, around 44% of the total tax expense for the year.

iii. note the actual amount of cash tax paid globally by the group. Unfortunately, a breakdown of the US and non-US components of the cash tax paid is not publicly available. However, as a work-around, we assume that 44% of all cash tax paid globally is non-US, thus mirroring the US/non-US breakdown in the group's provision for corporation tax expense.

iv. assume that the non-US share of all cash tax paid remains at 44% during the five-year period from 2017–2021—with the one exception being 2018.[15]

v. assume that three-quarters of our estimates for non-US cash tax is paid in Ireland.[16]

Given the number of assumptions, the third approach, by necessity, carries a very high degree of uncertainty.

Approach 4

Our fourth approach is somewhat similar to Approach 2. We employ this approach to estimate the corporation tax paid by one corporate group that files consolidated financial statements in Ireland and shares a preliminary tax payment month with one

[15] In 2018, the group recorded a large cash tax payment that was much greater than other years. Given the tax implications arising from the introduction of the Tax Cuts and Jobs Act, it is likely that most of this tax was paid to the US. Therefore, for 2018, we assume the amount of tax the group paid in non-US jurisdictions is equal to the average of our non-US tax paid estimates for the 2015-2017 and 2019-2021 periods.

[16] We arrive at the three-quarters assumption based on information we have of other large taxpayers that make payments in the same month as this group. Outside of the US, our research also suggests it is likely that the group pays most of its corporation tax in Ireland. However, we do not know what share of its non-US tax liability is payable to Ireland. The group has hundreds of subsidiaries around the world, of which only a handful are based in Ireland. Therefore, our three-quarters assumption represents a much cruder assumption than we would like; however, the lack of subsidiary-level information means we are left with few alternatives, given the group is likely to be a key player in Ireland.

other large corporation taxpayer in month 6 and a different large corporation taxpayer in month 11. Our research suggests this corporate group is regularly among the top ten corporation taxpayers in Ireland. We:

i. turn to the monthly Exchequer corporation tax revenue data. For both preliminary tax payment months, we assume that the corporate group and one other large taxpayer account for all the corporation tax paid in each month.

   Importantly, the identity of the other large corporation taxpayer is different in each preliminary tax payment month. Therefore, to isolate the tax payment made by the corporate group in Ireland, we must strip out the estimated amount paid by one large taxpayer in month 6 and a different large taxpayer in month 11.

   For month 6, we revisit our estimates of the other large taxpayer's annual tax payments—we calculated these earlier using one of the previous approaches. For each year, we get 45% of this other taxpayer's annual payment since companies pay 90% of the tax due for the year in two preliminary tax instalments. We assume these two tax payments are split evenly across the two months[17].

   We then remove this estimated tax payment from the monthly Exchequer corporation tax take for month 6 and assume the remainder is paid by the corporate group. We repeat this process for month 11.

ii. sum up the estimated tax payments made by the corporate group in months 6 and 11 and assume the total equates to 90% of the entity's annual corporation tax payment. To get the full amount of tax paid

[17] See footnote 13 for additional information regarding the months in which large companies make preliminary corporation tax payments to the Revenue Commissioners.

during the calendar year, we add on 10% of the previous year's tax payment, given the third instalment is paid the following year.

Equation 2 (see Appendix point 7) summarises our fourth approach so far. However, a further adjustment is required because our approach delivers an estimate of the corporation tax paid by the group's subsidiaries in Ireland that is greater than the total provision for corporation tax expense recorded by the group for the years 2019, 2020, and 2021. Although the group has a significant presence in Ireland, only a fraction of the group's subsidiaries are tax resident here; therefore, we undertake the following adjustment. We:

iii. find the share of the group's total provision for corporation tax expense that is accounted for by our estimate of how much the group paid in Ireland in 2016, 2017, and 2018[18]. The average, across the three years, was 80%, which we use as the basis for estimating what share of the group's total provision for corporation tax is paid by its subsidiaries in Ireland from 2017–2021.

Our third and fourth approaches carry the greatest levels of uncertainty of the four different approaches employed in this paper. These approaches are, by necessity, much cruder than we would like. However, we are left with no alternative, given the absence of publicly available subsidiary-level information and the likelihood that these groups are among the largest corporation taxpayers in Ireland.

[18] These are the years for which our estimate of the group's corporation tax payment in Ireland (calibrated using Equation 2) is less than that of the group as a whole.

4. Results

In this section, we present the results from our empirical analysis. First, we examine how much corporation tax each of the top ten highest taxpayers paid in 2021, and how much these same groups paid in the four previous years, based on the estimates derived in Section 3. Second, we analyse what sectors account for most of the corporation tax paid by these groups.

Key Finding 1:

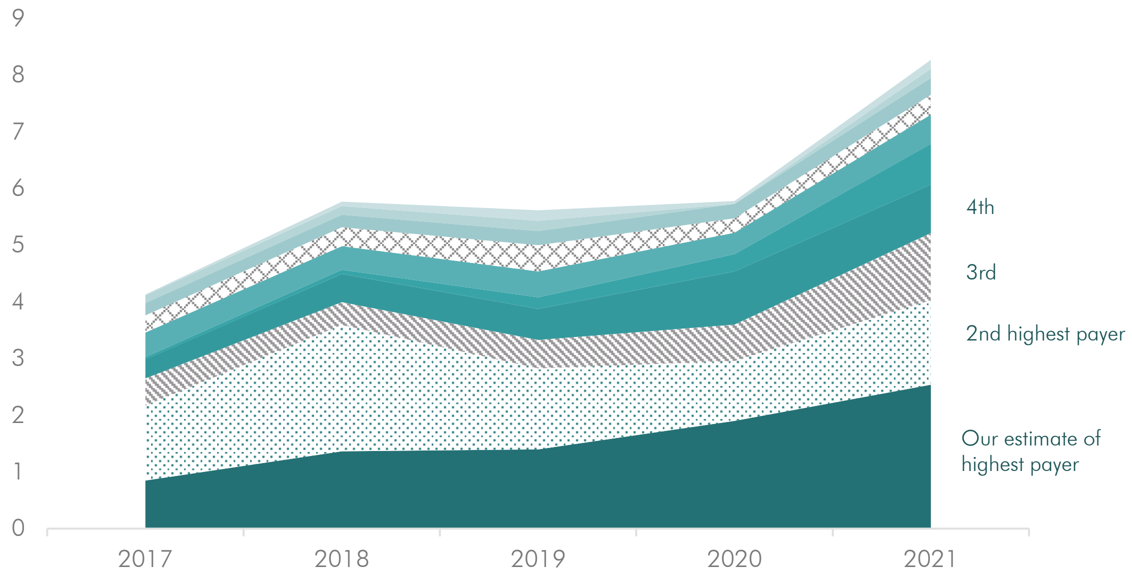
Just three corporate groups are estimated to account for around a third of all corporation tax receipts

We combine the results from all four approaches to estimate the amount of corporation tax paid by the top ten highest taxpayers in Ireland in 2021. We also estimate how much tax these same ten groups paid in the four preceding years. Figure 5 shows our results for each year, from 2017–2021, ranked according to the estimated corporation tax paid in 2021. Given the difficulties in identifying Ireland's leading corporation taxpayers and the challenges associated with accurately estimating the corporation tax paid by each group, the identities of the groups have been anonymised.

The estimated amounts paid are shaded according to the estimation method. The dashed, crossed and dotted-patterned areas in the chart represent the estimated corporation tax payments for each corporate group derived using the second, third and fourth approaches, respectively. The payments estimated using these approaches carry a greater margin of error than those estimated using the first approach.

Figure 5: Estimated payments of top-ten groups appear highly concentrated

Estimated corporation tax payment, € billion



Sources: Company financial statements and Fiscal Council workings.

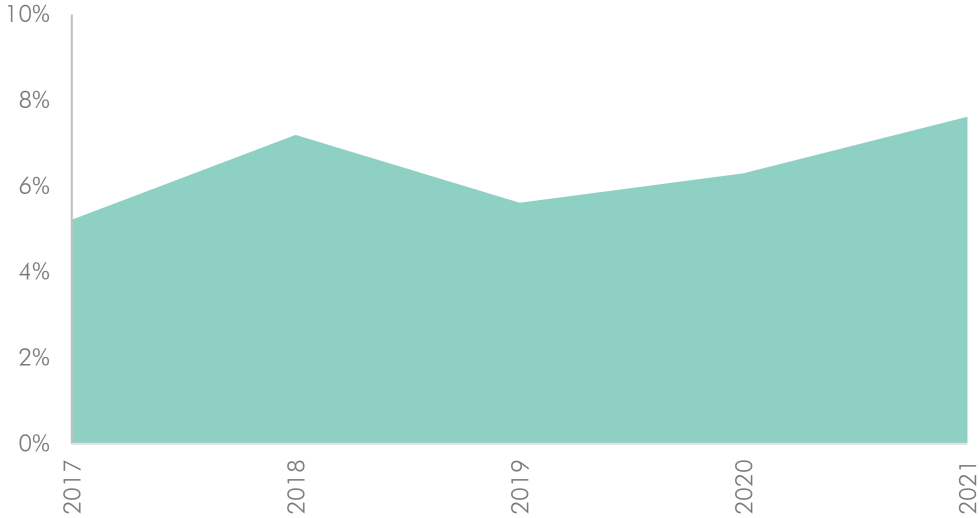
Notes: Most large corporate groups avail of exemptions, such that they are not required to disclose the amount of corporation tax they pay in Ireland. As a result, we develop four approaches to estimate how much corporation tax the top ten groups pay in Ireland. The dashed, crossed and dotted-patterned areas represent the estimates derived using the second, third, and fourth approaches, respectively. These estimates carry the greatest margin for error. We derive all other estimates using the first approach, based on publicly available information from company financial statements. Given the difficulties in identifying Ireland's leading corporation taxpayers and the challenges associated with accurately estimating the corporation tax paid by each group, we anonymise the identities of the groups.

Our results show that Ireland's corporation tax revenues are highly concentrated among a few large taxpayers. According to our estimates, just three corporate groups accounted for 34% of all corporation tax revenues in 2021. This share ranged from between 30% and 38% during the five-year period, from 2017 to 2021. The identities of these three groups did not change across the period.

Put another way, our estimates suggest that these three groups paid €5.2 billion in in corporation tax in 2021. These payments equated to 8% of total tax revenues in 2021, up from 5% in 2017 (Figure 6).

Figure 6: Estimated payments of top three groups has risen to 8% of total tax

Estimated % share of total tax revenues estimated to be from top three groups



Sources: Department of Finance (2023a), company financial statements and Fiscal Council workings. Note: We estimate how much corporation tax the top ten groups paid in 2021, as well as how much tax these same ten groups paid in the four previous years.

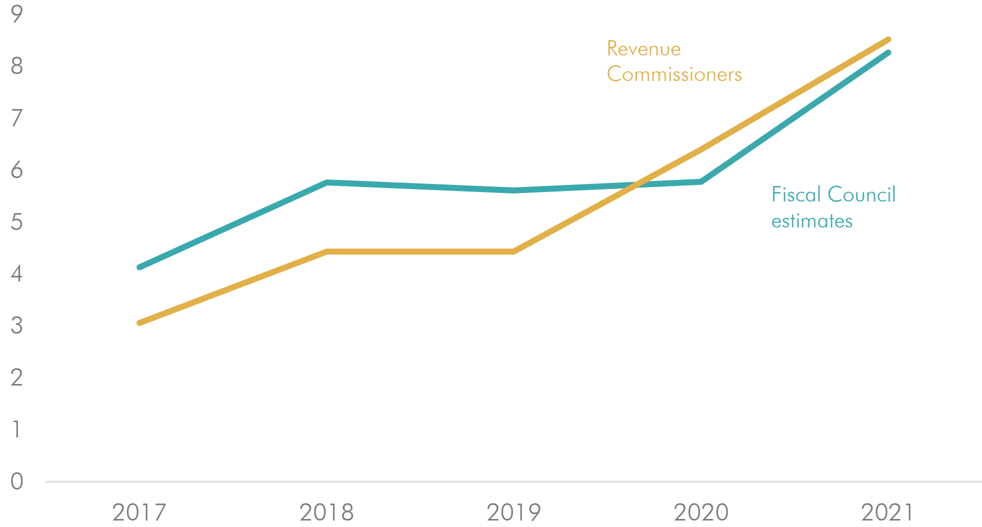
The Revenue Commissioners note that the composition of the top ten groups changes from one year to another. However, our analysis indicates that the identities of the highest paying groups among the top ten remain broadly unchanged year on year, although it is likely that there is some churn among groups at the lower end of the top ten.

In addition, official data from the Revenue Commissioners shows how much corporation tax the top ten groups paid in 2021, as well as how much tax these same ten groups paid in the four previous years.[19] In Figure 7, we compare our estimates of the corporation tax paid by the top ten groups with the actual amounts paid by these groups, as sourced from the Revenue Commissioners.

[19] The Revenue Commissioners publish the volume of corporation tax paid each year by the top ten highest paying companies, as well as how much tax these same companies paid in the previous four years (see, for example, McCarthy, 2023). However, they do not publish equivalent data for corporate groups. We are grateful to the Revenue Commissioners for providing us with this data for the corporate groups, on request.

Figure 7: Our top ten estimates are close to official data

Corporation tax paid, € billion



Sources: Company financial statements, Revenue Commissioners (on request), and Fiscal Council workings. Notes: We estimate how much corporation tax the top ten groups paid in 2021, as well as how much tax these same ten groups paid in the four previous years. In Figure 7, we compare our estimates with the official data, as sourced from the Revenue Commissioners.

In 2021, we estimate that the top ten groups paid €8.3 billion in corporation tax in Ireland. This estimate is close to the official outturn which amounted to €8.5 billion[20]. In addition, our estimates follow the general upward trend in the volume of corporation tax receipts attributable to the top ten groups since 2017.

However, some divergences do emerge between our estimates and the official outturns, notably that we overestimate how much tax the ten groups paid up to 2019 and we underestimate the rise in their corporation tax payments in 2020. These differences are perhaps unsurprising, given the challenges we face when estimating the amount of corporation tax paid by the leading taxpayers in Ireland (see Appendix).

[20] In their annual analysis of corporation tax payments, the Revenue Commissioners note that the top ten groups paid €8.563 billion in 2021 (McCarthy, 2022). However, this total has subsequently been revised downwards to €8.522 billion.

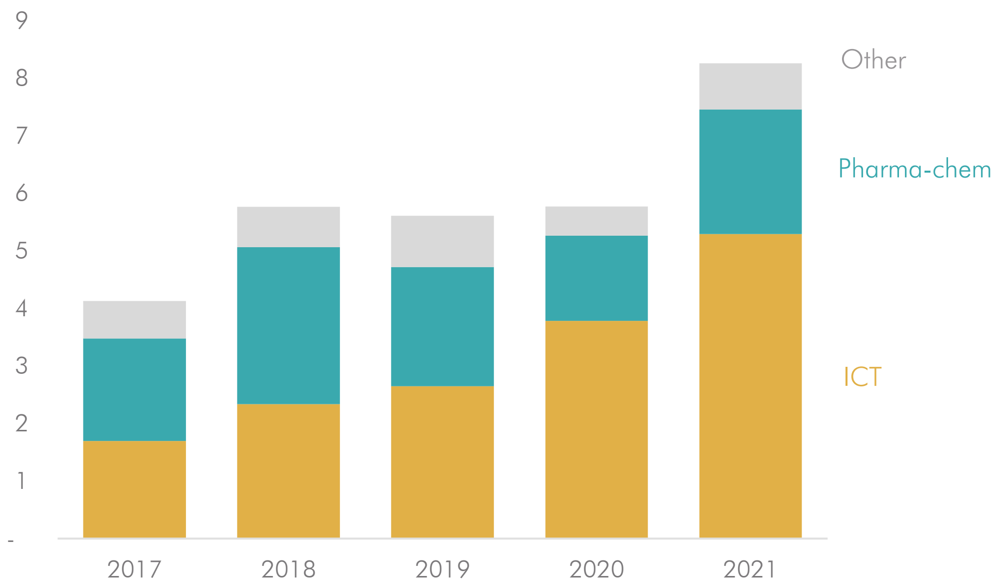
Key Finding 2:

The ICT and pharma-chem sectors are estimated to account for over 90% of the corporation tax paid by the top ten groups in 2021.

We examine what sectors account for most of the corporation tax paid by the top ten highest paying groups in 2021, according to our estimates. We also provide a sectoral breakdown of the payments by these same groups for the four previous years. Figure 8 shows that the ICT and pharma-chem sectors accounted for over 90% of all corporation tax paid by the top ten taxpayers in 2021. This share ranged from between 84% and 91% during the five-year period, from 2017 to 2021.

Figure 8: Top ten groups are dominated by ICT and pharma-chem

Estimated corporation tax payment, € billion



Source: Fiscal Council workings.

Note: We classify all subsidiaries of a group according to the principal activity of the group. For example, we would classify a subsidiary of a pharmaceutical group engaged in treasury operations as pharma-chem rather than financial and insurance. Given the subsidiary's operations are closely linked to the objectives and performance of the group, the principal risks and uncertainties of the subsidiary mirror those of the group (for example, government regulation or products coming off patent). On the other hand, the Revenue Commissioners take a different approach; they classify each subsidiary based on the subsidiary's own activity. In the example above, the Revenue Commissioners would classify the subsidiary as financial and insurance.

Crucially, we classify all subsidiaries of a group according to the principal activity of the group. Take the example of a pharmaceutical subsidiary that engages in treasury operations. In many cases, this subsidiary acts as a financing company, lending group profits to other group subsidiaries or engaging in investment trading and asset management activities on behalf of the group. This subsidiary's operations are closely linked to the objectives and performance of the group.

Consequently, the principal risks and uncertainties of the group (for example, government regulation, products coming off patent, drug approvals, changes of senior management) are also the risks and uncertainties of the subsidiary engaged in treasury operations. Therefore, regardless of the principal activity of the subsidiary, we assign it the same sector as the group.

On the other hand, the Revenue Commissioners take a different approach; they classify each subsidiary based on the subsidiary's own activity. For example, they would classify the subsidiary of the pharmaceutical group engaged in treasury operations as financial and insurance rather than pharma-chem (McCarthy, 2019).

Although the Revenue Commissioners do not publish a comparable sectoral distribution of the payments by the top ten groups, they do provide a sectoral breakdown of total corporation tax revenues each year. In 2022, the manufacturing and ICT sectors accounted for over three-fifths of all corporation tax revenues (McCarthy, 2023)[21].

However, it is likely this approach understates the amount of corporation tax attributable to these two sectors; for example, we find that multiple subsidiaries of ICT and pharma-chem groups engage in activities different from the principal activity of the group (for example, treasury operations). Some of these subsidiaries make sizable corporation tax payments.[22] In addition, we do not know what happens at the level of the subsidiary in those groups that only file consolidated

[21] The Revenue Commissioners do not publish corporation tax revenue data specific to the pharma-chem sector. Instead, they classify pharma-chem activities as manufacturing. In both 2021 and 2022, they note that manufacturing comprised mainly of 'pharmaceutical and chemical manufacturing' and 'ICT manufacturing' (McCarthy, 2023).

[22] A previous analysis by the Revenue Commissioners supports this finding. They found that the top thirty financial services companies paid around €2.5 billion in corporation tax between 2008 and 2012. However, they estimated that at least €500 million of this total was likely to have come from the treasury subsidiaries of corporate groups whose principal activity was not financial and insurance (Pigott and Walsh, 2014).

financial statements; it could be that these groups also have large subsidiaries whose principal activity might not be ICT or pharma-chem.

5. Discussion of findings

Ireland's corporation tax revenues are highly concentrated among a small number of large, foreign-owned multinational groups. In 2022, just ten corporate groups accounted for three-fifths of all corporation tax receipts (McCarthy, 2023).

However, among these leading taxpayers, the level of concentration is less well understood. We find that just three groups accounted for around a third of all corporation tax revenues in 2021. This share remained high and close to a third throughout the five-year period, from 2017 to 2021. Furthermore, just two sectors—ICT and pharma-chem—accounted for a substantial share of the corporation tax paid by the top ten groups during this time.

Given this level of concentration, one-off firm- or sector-specific shocks are likely to be some of the most important drivers of fluctuations in Ireland's corporation tax receipts. Consequently, the performance of these three firms should be closely monitored when assessing the future sustainability of volatile corporation tax revenues.

Take the example of a large, foreign-owned pharmaceutical group. Potential firm-specific shocks will be pivotal to how the group's profits and, hence, corporation tax payments in Ireland will evolve. These shocks include potential changes to senior management, so-called "patent cliffs" where key products come off patent, supply chain disruptions, group restructurings, or failures to get drug approval from regulatory authorities.[23] Potential sector-specific shocks to the pharmaceutical industry include greater industry-wide government regulation and a shortage of skilled labour. There are similar risks to the ICT sector, including changes in corporates strategies, pivots to new product forms, or a sudden change in consumer preferences owing to new entrants. Many of these firms have been highly profitable in recent years at the global level and these profits could come under pressure.

[23] A 'patent cliff' refers to a situation where a number of high value drugs come off patent in quick succession (Casey and Hannon, 2016).

Our results imply that idiosyncratic firm- and sector-specific shocks can significantly impact the volume of Ireland's corporation tax take. Moreover, this concentration risk is heightened, given the similar importance of the ICT and pharma-chem sectors to the country's goods and services exports (Casey and Hannon, 2016; United Nations Conference on Trade and Development, 2022; Department of Finance, 2022b).

In addition, large, foreign-owned ICT and pharma-chem groups share similar vulnerabilities from an international tax perspective. The bulk of their profits relate to their activities outside of Ireland (Fiscal Council, 2022), while most have their global headquarters in the US, meaning they are exposed to changes in the global tax environment.

What's more, many of these groups appear to prepare their financial statements in US dollar terms as this is their functional currency. As a result, fluctuations in the US dollar-to-euro exchange rate can impact the Irish corporation tax revenue take. In 2022, for example, the US dollar was particularly strong relative to the euro; although higher company profits were key, it is likely that the strong US dollar contributed to the sharp year-on-year increase in corporation tax revenues last year.[24]

There is a risk that policymakers may assume idiosyncratic shocks will disappear in terms of the whole economy impact. Within this context, Gabaix (2011) provides a useful example. In the US, the sales of the top 100 companies accounted for, on average, 29% of GDP between 1975 and 2008. Although it had previously been argued that individual shocks average out in the aggregate across an entire economy, Gabaix (2011) contends that this hypothesis breaks down when there is a fat-tailed distribution of firms. He estimates that idiosyncratic shocks to the top 100 firms in the US explain about one-third of the historical fluctuations in GDP growth.

[24] For some groups, revenues were lower than they would otherwise have been in some international markets due to the strength of the US dollar relative to local currencies. Although this will have reduced a group's taxable income in Ireland, it is highly probable that the strong US dollar had a net positive impact on the magnitude of Ireland's corporation tax revenues in 2022.

From the perspective of the "granular hypothesis", idiosyncratic shocks to large firms or dominant economic sectors have the potential to generate aggregate shocks with economy-wide effects.

Along these lines, the distribution of corporation taxpayers in Ireland is even more skewed towards the most important corporate groups. While aggregate fluctuations (for example, changes in the business cycle and elevated levels of inflation) are important drivers of the volatility of corporation tax revenues, these receipts are likely to be heavily impacted by the performance of a few large multinationals. When as few as three groups are estimated to account for one third of all corporation tax receipts, a shock to one of these companies can significantly impact the overall tax take.

Therefore, to better understand the origins of Ireland's corporation tax revenue boom, policymakers should not focus exclusively on economy-wide indicators, but also on the specific activities and performance of the largest taxpayers. The future path for Irish corporation tax receipts will, to a large extent, be dictated by the revenues and profits generated by these groups in their international markets.

In addition, decisions by these groups around where to locate their operations and how to arrange their tax structures will also have a large bearing on the volume of corporation tax paid in Ireland. Although many factors influence such decisions, the evolving global tax environment will play a key role in framing future group strategies. The largest taxpayers do not share the same organisational structures; therefore, it will be important to understand how each of these groups' structures will behave, should there be further changes in the international tax landscape. Such an understanding will be key when seeking to map out the future trajectory of Ireland's corporation tax revenues.

6. Conclusion

Ireland's corporation tax revenues are highly concentrated among a handful of large, foreign-owned multinational groups. In 2022, just ten corporate groups accounted for three-fifths of all corporation tax receipts (McCarthy, 2023).

This growing concentration of receipts suggests a more granular approach is warranted to better understand who the leading corporation taxpayers in Ireland are and estimate how much they pay.

Our paper contributes to the existing literature on the concentration of Irish corporation tax receipts in two main ways. First, using publicly available financial statements, we develop an extended list of corporate groups who are likely to be among the highest taxpayers in Ireland. Second, we develop four different approaches to estimate how much corporation tax each group pays in Ireland.

Our results show that Ireland's corporation tax revenues are highly concentrated among the largest taxpayers. According to our estimates, just three corporate groups accounted for around a third of all corporation tax revenues in 2021. This share remained high and close to a third throughout the five-year period, from 2017 to 2021. In addition, just two sectors—ICT and pharma-chem—accounted for almost all the corporation tax paid by the top ten groups during this time.

Given this level of concentration, one-off firm- or sector-specific shocks are likely to be some of the most important drivers of fluctuations in the volume of corporation tax receipts. Therefore, to better understand the origins of Ireland's corporation tax revenue boom, policymakers should not focus exclusively on economy-wide indicators, but also on the specific activities, performance, and group structures of the largest taxpayers.

Appendix

Limitations to our analysis

Ideally, we would add up the corporation tax paid by each corporate group's Irish tax resident subsidiaries to get the actual cash tax paid by the group in Ireland. However, most large groups avail of exemptions, such that they are not required to disclose the amount of corporation tax they pay in Ireland[25].

Therefore, as a proxy for these cash tax payments, we develop four different methodological approaches that enable us to estimate the annual corporation tax payments made by a range of large corporate groups in Ireland. However, our analysis is subject to the following limitations:

1) Fluctuations in the US Dollar to Euro exchange rate.

Most large US multinationals prepare their financial statements in US dollar terms as this is their functional currency. On the other hand, the Revenue Commissioners and the Department of Finance publish their corporation tax revenue data in euros.

These currency differences pose a challenge when deciding what exchange rate to use when determining the corporation tax paid in Ireland. We use the annual average US$ to € exchange rate published by the OECD here.

However, such an approach has its limitations. For example, a large Irish tax resident company with a June 2022 year-end would make preliminary corporation tax payments in December 2021 and May 2022. What's more, it would pay the outstanding amount of tax in March 2023. However, in this example, we would assume the tax is paid in full in 2022 (see Approach 1). Consequently, we would use the 2022 annual average US$ to € exchange rate; however, our approach would have its shortcomings in this scenario, especially when the exchange rate is volatile from one year to the next. Indeed, it could also be the case that the

[25] See footnote 8 for additional information regarding these disclosure exemptions.

exchange rate that matters could be the one for the month in which the company actually makes the payment (month 6 or 11 of their financial year).

2) Determining how much corporation tax is attributable to Ireland.

Ideally, large multinational corporate groups would publish data for each country in which they operate, including a country-specific breakdown of their revenues, profits, taxes paid, number of employees, and assets. However, corporate groups are not required to publish full country-by-country reporting of key tax and financial information.

For many group subsidiaries, the provision for corporation tax expense recorded in the financial statement includes both a domestic and a foreign tax component. However, in most cases, it is not clear what share of a company's profit is subject to tax in Ireland and what share is subject to tax in other jurisdictions.

A company's tax reconciliation statement can sometimes provide some insight. For example, there may be a reference to the impact of foreign tax rates or withholding taxes on the provision for corporation tax expense figure. In these instances, we adjust the expense figure accordingly. However, without publicly available, company-specific, country-by-country reporting information, it is not possible to precisely compute the share of a company's provision for corporation tax expense figure that is attributable to Ireland.

3) Timing differences between when a company records its provision for corporation tax expense in its financial statements and when it makes a tax payment to the Revenue Commissioners.

In Approach 1 and Approach 4, we use a company's provision for corporation tax expense as a proxy for its tax payment. We assume the tax expense is paid in full in the same year as its accounting year-end.

However, such an assumption has its their limitations. For example, a large Irish tax resident company with a June 2021 year-end would make preliminary corporation tax payments in December 2020 and May 2021. What's more, it would pay the final outstanding amount of tax in March 2022. However, our approaches would assume the tax is paid in full in 2021.

This represents a limitation to our analysis when comparing our annual corporation tax estimates with those of the Revenue Commissioners and the Department of Finance, both of whom track the inflows of corporation tax receipts in real time. Consequently, their data reflects the corporation tax paid during the calendar year regardless of the tax year to which it relates (McCarthy, 2023). This is likely one of the key reasons for discrepancies between our estimates and the actual corporation tax revenues recorded by the Revenue Commissioners and the Department of Finance.

4) Determining the share of the provision for corporation tax expense that will be paid.

For Approach 1 and Approach 4, we use a company's provision for corporation tax expense as a proxy measure of its corporation tax payments. However, a company recording a tax expense in its financial statements is not the same as it making a cash tax payment to the Revenue Commissioners.

One of the main reasons for this is that companies often separate their provision for corporation tax expense into "current tax" and "deferred tax".

Current tax represents the estimated amount of tax an entity expects to pay in respect of its taxable profit or loss for a period. The current tax expense will be paid. However, there may be a slight delay between when tax returns are filed and when the payment is actually made (Coffey, 2020a).

Take the example of a large Irish tax resident company with a December year-end. It would make preliminary corporation tax payments in June and November of the relevant accounting year. It would then have until the following September to file its tax return and pay the final outstanding amount. Therefore, the current corporation tax expense will be paid during the period in question or shortly after the year end (Coffey, 2020a).

On the other hand, it is not certain whether a deferred tax expense will be paid in the future. In those instances where it will be paid, the charge appears as a deferred tax liability on the balance sheet. Alternatively, a deferred tax expense may not be paid in the future; rather, it is offset against an existing deferred tax asset on the balance sheet (Coffey, 2020a). Where a company has previously generated large amounts of these assets, the provision for corporation tax expense will be much greater than the amount of tax the company actually pays.

Given the possibility that a deferred tax expense could result in the payment of corporation tax, we use an entity's total provision for corporation tax expense (in other words, current tax + deferred tax) as the proxy measure for the amount of tax the entity pays. This potentially represents a significant limitation of our analysis, given the possibility that we over- or under-estimate an entity's tax payment. However, the deferred tax expense recorded by the highest paying groups is relatively small when compared to their current tax expense. Therefore, this decision to use a group's total provision for corporation tax expense has relatively little impact on our estimates for the three highest paying groups.

5) Corporate groups that file consolidated financial statements in Ireland and have a December year-end.

We rely only upon publicly available information for this paper. Therefore, our granular analysis is limited by the decision of some corporate groups to only file consolidated financial statements in Ireland, using section 357 of the Companies Act 2014.

A small number of large corporate groups have relatively atypical financial year-end dates in months other than December. Our second, third and fourth approaches apply to these groups.

However, most Irish tax resident groups have a December year-end. These groups make one preliminary tax instalment in June and another in November—two months that are heavily polluted by the payments of other corporation taxpayers. In addition, a group with substantial operations in jurisdictions outside the US and

Ireland would make it very difficult to establish the share of its non-US provision for corporate tax expense that is payable in Ireland.

Therefore, it is possible that at least one such group has been omitted from our estimate of the top ten corporation taxpayers due to the difficulty in accurately estimating its annual corporation tax payment in Ireland.

6) A summary of our second approach

Our second approach can be summarised by Equation 1) as follows:

$$\text{Group } CT_t = Month\_6_t - CT\_Comp1_t + Month\_11_t + 0.1*CT_{t-1} \qquad 1)$$

Where:

- CT_t = corporation tax revenues paid by the corporate group to the Exchequer in year t.
- $Month\_6_t$ = total Exchequer receipts in month 6. This is equivalent to the first preliminary tax instalment in year t.
- CT_Comp1_t = estimated preliminary tax payment made by one other top ten corporation taxpayer in month 6.
- $Month\_11_t$ = total Exchequer receipts in month 11. This is equivalent to the second preliminary tax instalment in year t.
- CT_{t-1} = corporation tax revenues paid by the corporate group to the Exchequer in year t-1.

7) A summary of our fourth approach

Our fourth approach (as far as ii) can be summarised by Equation 2) as follows:

$$\text{Group } CT_t = Month\_6_t - CT\_Comp2_t + Month\_11_t - \qquad 2)$$

$CT\_Comp3_t + 0.1*Group\ CT_{t-1}$

Where:

- CT_t = corporation tax revenues paid by the corporate group to the Exchequer in year t.
- $Month\_6_t$ = total Exchequer receipts in month 6.
- CT_Comp2_t = estimated preliminary tax payment made by one top ten corporation taxpayer in month 6.
- $Month\_11_t$ = total Exchequer receipts in month 11.
- CT_Comp3_t = estimated preliminary tax payment made by one top ten corporation taxpayer in month 11.
- CT_{t-1} = corporation tax revenues paid by the corporate group to the Exchequer in year t-1.

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