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# Firm-level responses to a canceled dividend tax increase\*

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## Abstract

An increase in the dividend tax on shares of Swedish closely-held corporations, scheduled for January 1, 2018, was canceled at short notice. In a difference-in-difference setting, we examine how firms reacted to the canceled reform. We find that dividends payments increased in 2016 and 2017 and declined sharply in 2018, especially for cash-rich firms. However, cash holdings recovered quickly in 2018 and 2019, and the excessive dividend payouts did not affect investments. Paradoxically, the discontinued reform implied an additional tax burden for those engaged in intertemporal tax arbitrage.

*Keywords:* Owner level taxes, tax planning, investments, employment.

*JEL Classification:* H32; G35.

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# 1 Introduction

A central issue in economics is how to incentivize individuals and firms to use resources for productive purposes rather than for tax avoidance. Re-timing activities around pre-announced tax changes is often considered to be the most responsive margin of tax avoidance (Slemrod, 1995). If firms and their shareholders expect a permanent increase in the dividend tax in the next year, they have an obvious incentive to bring forward dividend payments before the turn of the year, while the tax remains low. Such intertemporal tax arbitrage may further harm economic growth through an indirect channel: excessive temporary dividend payments may reduce firms' cash holdings with potential implications for firm activity (Korinek and Stiglitz, 2009).

Can anticipated tax reforms affect firms' behavior without any implementation? We approach anticipation effects from a new angle by studying an unusual event in the history of Swedish tax policy. An increase in the dividend tax for a specific group of firms (closely held corporations), scheduled for January 1, 2018, was withdrawn by the government on August 26, 2017. The purpose of this paper is to document this policy episode, and its consequences for tax avoidance and firm activity.

Previous studies of anticipation responses to dividend tax reforms focus on reforms that actually occurred (e.g., Kari et al., 2008; Korkeamäki et al., 2010; Alstadsæter and Fjærli, 2009; Miller et al., 2024; Bilicka et al., 2022; Berman and Klor, 2024). Hanlon and Hoopes (2014) and Buchanan et al. (2017) are exceptions, who both document large dividend payouts by US listed firms by the end of 2010 and 2012 in an environment of political uncertainty.<sup>1</sup> Our paper differs from those papers in at least two important ways. First, we study private, non-listed firms, which are characterized by a high degree of ownership concentration and a close alignment of interests between owners and managers

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<sup>1</sup>The lower tax rates on ordinary capital gains and dividends implied by the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) were scheduled to expire on December 31, 2010, and quite close to that date it was uncertain whether there would be an extension, but eventually the lower tax was extended for two years. When the same issue arose at the end of 2012, the U.S. Congress reached a compromise that increased the top dividend tax rate from 15% to 20% on January 1, 2013 (plus an additional new tax on unearned investment income of 3.8%).

(Jacob and Michaely, 2017). Second, we present event-study estimates over a longer time period, exploiting the fact that there was a group of non-listed firms that would have been unaffected by the proposed tax increase and, hence, provides a natural control group. Our methodology draws on a recent quasi-experimental literature on firms' responses to dividend taxation using administrative micro-data (e.g., Yagan, 2015; Harju et al., 2022; Bach et al., 2024).

After winning the Swedish parliamentary elections in 2014, a left-green government came to power with the general intention of imposing more restrictive taxes on closely held companies. Swedish tax law discriminates between different types of shares. Non-listed shares of closely held companies (CHC:s) are taxed at 20% (within a dividend allowance), while other non-listed shares (widely held companies, WHC:s) are taxed at 25% (with no upper limit). The years leading up to the 2014 election were characterized by gradually more generous dividend allowances for CHC owners. However, in early 2015, the government appointed a committee that submitted a detailed proposal to amend the tax schedule in November 2016. The proposal included a 5 percentage point increase in dividend tax for CHC owners from January 1, 2018. The proposal was revised in the following months, but the dividend tax increase was included in a government bill submitted at the end of March 2017. As we document in this paper, this proposal was salient – frequently mentioned in news media and trending among internet searches. However, on August 26, 2017, the government withdrew the reform proposal due to an unexpected lack of support in parliament.

We document reform expectations and how the interest in the dividend tax rules evolved during our 2012–2019 study period using both qualitative and quantitative information from the media archive Retriever Research and Google Trends. We find qualitative/anecdotal evidence that tax advisors expected higher tax rates at least from 2015 onward, and we find that internet searches and the number of press articles spiked in 2016–2017.

In the spirit of, e.g., Yagan (2015), we then show in an event study framework how the dividend payouts of the treatment group (CHC:s) evolved relative to

the control group (WHC:s) in 2012–2019.<sup>2</sup> Firms in the treatment group expected an increase of 5 percentage points, while firms in the control group had no reason to expect a tax increase. While the trends in dividend-to-revenues are parallel in 2012–2013 among treatments and controls, there is a significant increase in 2014 among CHC:s, which coincides with a more favorable dividend allowance. We observe a peak in dividend payouts in 2016–2017 and a sharp drop in the first “post-reform year” 2018. In 2018–2019, the trends in dividend-to-revenue are parallel again, but at a higher level than in 2012–2013.

We believe that the long-run CHC-specific trend in the dividend-to-revenue ratio can be explained by growing dividend allowances. Under Swedish tax rules, unutilized dividend allowances are accumulated with interest, and even if the rules for calculating the dividend allowance were held constant after 2014, the aggregate stock of allowances grew fast. In fact, if we express dividends as a fraction of the dividend allowance, i.e. the amount of income shareholders may declare as capital gains taxed at the lower rate of 20%, the share is fairly similar in 2012–2015 and in 2018–2019. However, in 2016–2017 there is a surge in the dividend-to-dividend allowance ratio, which can only be understood in the light of the tax reform expectations.

The sharp drop in dividend payouts in 2018 translates into a significant and substantial elasticity of 4.0 of dividend payouts with respect to the expected change in the net tax rate. The decline was likely mitigated by the fact that the cancellation was known from late August through the end of 2017.

In further analyzing the indirect effects of the canceled reform on firms’ behavior, we distinguish between cash-rich and cash-poor firms. The response channels are expected to differ between these two groups. Cash-poor firms are likely to finance investments with external equity, aligning with the “old view” of dividend taxation. In contrast, cash-rich firms are better equipped to finance investments using retained earnings. According to the “new view” of dividend taxation, dividend taxes do not affect investment incentives for firms financing investments using retained earnings, as they do not affect the cost of capital. This distinction has significant implications for firm activity, especially in envi-

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<sup>2</sup>The division between CHC:s and WHC:s in Sweden has also been exploited by Alstadsæter et al. (2017) when studying the 2006 dividend tax reform.

ronments with financial frictions.

Our evidence shows that cash-rich firms exhibit a very strong anticipation response. Importantly, we also observe a sharp decline in cash holdings in 2017, consistent with the intertemporal tax arbitrage hypothesis of Korinek and Stiglitz (2009). However, cash holdings seem to recover quickly in 2018–2019, and we see no evidence that real corporate activity would be affected by the excessive dividend payouts in 2016–2017. One interpretation is that it is relatively frictionless for owners of closely held firms with concentrated ownership to reinvest the money back into the firm. Companies can also use appropriations (e.g. delaying taxation) to restore cash holdings

Although the canceled reform does not appear to have affected real firm activity, the episode still has economic consequences. Paradoxically, the cancellation meant that CHC owners who withdrew more money in 2016–2017 than they otherwise would have still had to pay taxes on these excess dividends. These dividend tax payments were inevitably lost to the owners, who tend to be at the top of the Swedish income distribution.

This paper is organized as follows. In Section 2, we describe the relevant features of the Swedish tax system and how dividend distributions are made in Sweden. In Section 3, we document the events leading up to the discontinued dividend tax reform. Tax reform expectations are documented in 4. Section 5 presents our population-wide administrative data, while Section 6 discusses our empirical strategy. Section 7 reports the empirical analysis, and Section 8, finally, concludes the paper.

## **2 The Swedish tax system**

### **2.1 Taxing profits**

Sweden has a classical corporate tax system, which means that corporations and their owners are treated as separate tax entities. Corporate profits are double-taxed; first as corporate profits and then dividends and realized capital gains are taxed once more in the hands of the shareholders. The corporate tax rate, which applies to all corporations regardless of ownership structure, was 22%



during the time period 2013–2018.<sup>3</sup>

## 2.2 Owner-level taxation

The owner-level taxation of dividends and capital gains depends on (i) the ownership structure, and (ii) the owner's active involvement in the profit generation of the firm.

A limited liability company is considered being a *closely held corporation* (CHC) if a maximum of four partners own shares representing more than half of the votes in the company. Owners who are part of the same group of relatives are counted as a single owner.<sup>4</sup> Furthermore, owners who are significantly active in the enterprise are also counted as a single owner when defining a CHC.

Swedish tax law differentiates between the tax rates on dividends and capital gains between different types of shares. In our setting, the relevant distinction is the following:

- **Qualified shares in CHC:s.** The share is qualified if the owner meets the activity requirement, i.e. the owner's labor input has been significant for profit generation in the last 5 years.<sup>5</sup>
  - The tax rate is 20% on actual dividends and realized capital gains within a *dividend allowance*, see the next Section 2.3.
  - Any dividends or capital gains exceeding the dividend allowance are taxed progressively as earned income (up to a ceiling of 90 income base amounts).<sup>6</sup>

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<sup>3</sup>Before 2013 the tax rate was 26.3%. In 2019, the tax rate was lowered to 21.4%, and in 2021 it was set to its current value of 20.6%.

<sup>4</sup>Relatives of partners include father, mother, and grandparents, spouse, siblings, siblings' spouse and children, children and children's spouse, grandchildren and spouse of grandchildren etc.

<sup>5</sup>However, under the third-party rule, an active owner's shares are no longer qualified if a third party owns at least 30 percent of the corporation's shares. In this case, dividends and capital gains are taxed at 25 percent, i.e., according to the rules for non-qualified, non-listed shares. A third party is an investor who does not own qualified stock in the CHC.

<sup>6</sup>In 2024, this ceiling for income taxed as labor earnings corresponded to 6,858,000 SEK, approximately EUR 558,000 or USD 582,000.

- **Non-qualified shares in non-listed corporations.**

- The tax rate is 25% on *all* actual dividends and realized capital gains.

Different tax rules apply to shareholders of publicly traded companies.<sup>7</sup> However, we will focus on the differential tax rate between owners who declare dividends as active owners of CHC:s and those who declare dividends as passive owners of unlisted shares. Since our analysis is at the firm level, we will define a CHC as a non-listed corporation in which at least one shareholder owns qualifying shares. A WHC is defined as an unlisted corporation in which no shareholder owns qualifying shares.

### **2.3 Dividend allowances of CHC owners**

The rationale behind the income splitting rules is to prevent tax motivated income shifting in the Swedish dual income tax system, where labor income is taxed progressively and capital income is taxed at lower flat rates. In the absence of income splitting rules, business owners who work in their companies, e.g. owner-managers, would be able to shift all of their highly taxed labor income (the return to the labor effort exerted in the company) to comparatively leniently taxed dividends. When interpreting the results of this study, one should keep in mind that dividends distributed by CHC:s may be derived in part from labor income (Alstadscøter and Jacob, 2016; Pirttilä and Selin, 2011).

The dividend allowance determines how much dividends and capital gains CHC owners may tax at 20%. The CHC owner may either choose the “simplification rule” or the “main rule.” Dividend allowances that are unutilized a certain year are carried forward with interest to the next year. Hence, firms may use accumulated dividend allowances to make large dividend payouts (or selling the shares) a certain year.

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<sup>7</sup>Owners of publicly traded stock can choose between two different systems. (i) Conventional capital taxation implied a 30% flat tax on all actual dividends and realized capital gains throughout the study period. (ii) “ISK” accounts were introduced in 2012 and implied a 30% tax on a presumed rate of return on the stock value of shares. The presumed rate of return was a function of the risk-free rate of return (government lending rate).

Under the simplification rule, the dividend allowance is a fixed amount in proportion to the ownership share. An owner with a 100% ownership share were assigned an allowance of 2.75 income base amount (IBA), around USD 20,000, during the entire period of study.<sup>8</sup> The main rule is considerably more complex, however, it can yield a higher dividend allowance. The allowance is predominantly a function of the wage bill in the firm (including the owner's own wage). This part of the allowance is denoted the wage-based dividend allowance. For an owner to be eligible for the wage-based allowance in year  $t$ , the owner has to fulfill a specified wage-requirement in  $t - 1$ . We provide more information on how the allowance is calculated in Appendix A.

On January 1, 2014, there were reforms to the wage-based allowance that are relevant to our study. These were legislated at the end of 2013. Prior to 2014, the wage-based dividend allowance for owners opting for the main rule was 25% of the company's wage bill up to 60 IBAs. Above the 60 IBA kink, the wage-based allowance was 50% of the company's wage bill. As of January 1, 2014, the wage-based allowance is 50% (flat rate) of the company's wage bill, up to a very high ceiling. In addition, the maximum wage requirement for eligibility for the wage-based allowance was slightly reduced from 10 IBB to 9.6 IBB.<sup>9</sup> All this meant that a group of CHC owners could pay out more dividends at the low dividend tax rate of 20%.<sup>10</sup>

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<sup>8</sup>The income base amount is a Swedish administrative concept used, for example, to calculate social security entitlements. It is updated annually with an income index. In 2024, an IBA is SEK 80,600 (approx. EUR 7,000 or USD 7,300).

<sup>9</sup>Although the lower maximum wage requirement was legislated in late 2013 under the center-right coalition, it was not implemented until 2015 (for the dividend allowance calculated for 2015).

<sup>10</sup>As part of the same reform package, a capital share requirement for eligibility for the wage-based allowance was introduced. To be eligible for the wage-based allowance the shareholder must not own less than 4% of the shares. This rule change *ceteris paribus* affected firms with a large number of active owners with small ownership shares. The intention behind the capital share requirement was to combat income shifting in certain professions, but anecdotal evidence suggests that some firms reacted to this law change by re-organizing their businesses (Selin, 2021).

## 2.4 From profit generation to tax filing: the sequence

When studying the impact of expectations of tax changes on corporate behavior, it is important to understand the interplay of accounting practises, corporate tax filing, and personal tax filing.

The financial reporting of companies is typically made in 12 months intervals, which we refer to as the *financial year*. For many firms the financial year coincides with the calendar year (unbroken financial year), but for a substantial proportion of firms the financial year does not start in January (broken financial year). During the financial year the corporation uses its existing capital stock and labor to produce goods and services. The company has to keep records of all business events in real time.

After the end of the financial year, when the real activity already has taken place, the CEO prepares the annual report. *Appropriations* (“bokslutsdispositioner”) can be used to defer the taxation of a company’s profits to a later date, for example, by offsetting profits from one year against losses from another year. By smoothing tax payments in this way, the company may improve liquidity, for example to finance development and expansion. Appropriations are recorded in the balance sheet as untaxed reserves and as appropriations in the income statement at the end of the financial year.<sup>11</sup>

The annual report must be ready at least 6 weeks before the annual general meeting (AGM) if the company has an auditor.<sup>12</sup> The corresponding time limit for companies without accountant is two weeks. The shareholders should be called to the AGM six to four weeks before the AGM, which must be held no later than 6 months after the end of the financial year. The AGM approves the annual report, and dividends are considered as being in the hands of the shareholders on the date the report is approved. The annual report always

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<sup>11</sup>The total amount of untaxed reserves is disclosed under a separate heading between long-term liabilities and shareholders’ equity on the balance sheet. Importantly, untaxed reserves cannot directly be distributed as dividends. To distribute untaxed reserves to shareholders, the company must convert untaxed reserves into unrestricted equity by declaring them as profits and paying the corporate taxes, because only unrestricted equity can be paid out as dividends

<sup>12</sup>A private limited company is required to have an approved or authorized auditor if it reaches at least two of the following thresholds for each of the last two financial years: (i) more than 3 employees (on average), (ii) more than SEK 1.5 million in balance sheet total, and more than SEK 3 million in net turnover. The same thresholds must be achieved in both years.

contains the following elements: (i) management report, (ii) income statement, (iii) balance sheet, (iv) notes, and (v) signatures. In the management report ("förvaltningsberättelse"), the corporation reports, among other things, the corporate board's proposal on how the profit or loss is to be allocated. The total amount of dividends should also be specified there. The company is required to submit the annual report to the Swedish Companies Registration Office (SCRO) no later than one month after the AGM.

The board of directors may call extraordinary general meetings if there is something they want shareholders to decide on before the next AGM. The extraordinary general meeting may also decide on extra dividend payouts. Swedish law stipulates that the general meetings must exercise caution when paying out dividends: the consolidation requirement refers to the company's need to build up profits and increase its equity ratio, in other words its long-term ability to pay. The liquidity requirement means that the company must have enough money in the bank to ensure its short-term solvency.

The income statement and the balance sheet reported to the SCRO closely resemble the corporate income tax return. The due date for filing the corporate income tax return is at least seven months from the end of the financial year.<sup>13</sup>

As we already emphasized, dividends are also taxed at the personal level. When it comes to personal income taxation, the fiscal year always coincides with the calendar year. Dividend income should be declared the year in which the AGM (or the extraordinary general meeting) is held. For example, if the meeting is held on December 31, 2016, the dividend income belongs to capital income of 2016.

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<sup>13</sup>The due day is August 31, 2016, if the financial year ends on September 30-December 31, 2015, and it is December 1, 2016, if the financial year ends January 31 - April 30, 2016. The due day is January 15, 2017, if the financial year ends May 31 - June 30, 2016, and it is March 1 if the financial year ends on 31 July - August 31, 2016. The financial year always begins on the first of a calendar month.

## 3 The reform that never happened

### 3.1 Historical background

The special tax rules for closely held companies with active owners date back to 1991, when Sweden introduced dual income taxation, i.e. separate taxation of labor and capital income. In popular Swedish discussion, the income splitting rules are often referred to as the “3:12 rules” after a paragraph in the old tax law.<sup>14</sup> During the 1990s and early 2000s, these rules were heavily criticized in the public debate for being complex and far too restrictive for entrepreneurial activity. In 2006, the rules were reformed in two important ways. First, the dividend allowances became more generous through an expansion of the wage-based allowance and the introduction of the simplification rule (see Section 2.3). Second, the tax rate on dividends and capital gains within the dividend allowance was reduced from 30% to 20%. At the same time, the tax rate on dividends and capital gains from non-listed shares was reduced from 30% to 25%.

The 2006 reform was passed under a left-wing (social democratic) government. In the fall of 2006, a center-right coalition came to power, it was re-elected in 2010, and remained in power until the fall of 2014. During this period, the basic structure of the income splitting rules remained the same (including the dividend tax rates), but the dividend allowance rules were gradually made more generous. The reforms discussed in section 2.3, which were implemented on January 1, 2014, marked the last initiatives of the center-right coalition in this respect.

After the elections in September 2014, a left-green government (Social Democrats and Greens) was formed. However, the parliamentary situation from 2014 to 2018 was unstable. This is because the nationalist party (the Swedish Democrats) and the center-right parties actually held the majority of seats in parliament. The government’s first budget proposal was not passed in parliament. After this event the so-called December Agreement, announced on December 27,

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<sup>14</sup>Selin (2021) provides a comprehensive historical background to the 3:12 rules (in Swedish). A more compact overview in English of the Swedish, Norwegian, and Finnish income splitting rules is to be found in Selin (2025).

2014, was made. This agreement between 6 out of 8 parties in parliament implied that the largest party constellation (excluding the nationalist party) should pass its budget proposal. It is central to the episode examined in this paper that the December Agreement expired on October 9, 2015, after the Christian Democrats (part of the center-right party coalition) no longer supported it.<sup>15</sup> For the remainder of the legislature, the government would pass its budgets, but the opposition was free to influence economic policy.

On January 15, 2015, the government appointed a committee with a mandate to reduce income shifting among CHC owners. The committee submitted a proposal on November 3, 2016. An important part of the proposal was to increase the dividend tax of CHC owners from 20% to 25%, thereby equalizing the tax rates of CHC:s and WHC:s. In addition, the committee proposed stricter rules for the dividend allowance; both the simplification rule and the wage-based allowance were affected by the proposal. Compared to the committee's proposal, the government's tax proposal presented on March 22, 2017 was less restrictive with respect to the dividend allowance. However, the increase in the dividend tax from 20% to 25% was retained. The tax proposal was heavily criticized by the center-right parties, and on June 15, 2017, the opposition threatened with a vote of no confidence against individual ministers. If a vote of no confidence gains majority in the parliament individual ministers are forced to resign. In this case, the threat was not directed against the prime minister and the government as a whole, but against individual ministers. On August 26, 2017, the government responded to this threat by withdrawing the proposal.

## 3.2 Timeline of events

We now summarize the events that were essential in shaping the expectations of tax advisors and corporate owners for the cancelled 2018 reform.

- September 18, 2013. The center-right wing government announces new rules for calculating the wage-based dividend allowance.

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<sup>15</sup>See Lind (2017) for a more detailed description of the rise and fall of the December agreement.

- January 1, 2014. New rules for the wage-based dividend allowance are introduced (see Section 2.3).
- September 14, 2014. Swedish parliamentary election. A new government coalition with the Social Democrats and the Green Party.
- January 15, 2015. A new government committee on the “3:12 rules” is appointed. Deadline: September 1, 2016.
- April 21, 2016. Deadline extended to November 1, 2016 (Dir. 2016:33).
- November 3, 2016. The government committee proposes (among other things) a higher tax rates on dividends received from CHC:s. The new legislation should be in effect from January 1, 2018.
- March 22, 2017. The government presents a *draft* to a referral to the Council on Legislation (Swedish: Lagrådet) (FI 2016/03965/S1). The draft bill contained the proposed dividend tax increase. In other respects, the draft bill was not identical to the committee proposal.
- June 8, 2017. The government submitted the referral to the Council on Legislation (Swedish: Lagrådet). This referral was identical to the proposal of March 22, 2017.
- June 15, 2017. The political opposition threatens ministers of the government with a “vote of no confidence” if the dividend tax increase is part of the government’s budget proposal.
- June 19, 2017. Statement of the Council on Legislation. Criticizes rule complexity, but does not object to the dividend tax increase.
- August 26, 2017. The government withdraws the tax proposal, including the dividend tax increase.



## 4 Documenting tax reform expectations

The aim of this Section is to describe the tax expectations of owners. Ideally, we would like to have access to a direct measure of the expectations about future tax policies. Unfortunately, such surveys are not available, nor can they be conducted in a meaningful way after the reform has been canceled. In our setting, the behavior of tax preparers is particularly relevant. Hassan et al. (2019) and Gallemore et al. (2024) construct time-varying firm-specific measures of tax expectations from quarterly earnings conference calls. Quarterly earnings conference calls are typically only available for publicly traded firms and cannot be used for the privately held firms on which we focus. Instead, we examine newspaper articles from the study period. Finally, we provide quantitative evidence from media archives and Internet searches.

### 4.1 Anecdotal evidence

By searching the press archives, we found valuable anecdotal evidence that business owners were anticipating a tax increase as early as 2015, after the committee was appointed by the government. However, there was an uncertainty about the timing of the reform. As early as February 2015, one tax advisor said the following in a trade magazine aimed at accountants, bookkeepers and tax advisors:

*“The committee’s directives are almost draconian for smaller companies. They focus on limiting the possibility to withdraw capital-taxed remuneration, thereby raising the effective tax on dividends and capital gains from the current 20 to 25 percent. In addition, the amounts considered to be capital returns could be reduced. Deterioration is underway, but it may take two or three years.”*<sup>1617</sup>

In early 2016, CHC owners are encouraged to be prepared to make excess dividend distributions during the tax year. A KPMG tax advisor makes the follow-

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<sup>16</sup>Hans Peter Larsson of PwC (a leading tax advisor company) in Resultat 2/2015, released on February 20, 2015. “Resultat” was a publication of FAR (Föreningen Auktoriserade Revisorer (FAR), which is the institute for the accountancy profession in Sweden.)

<sup>17</sup>All quotes in this Section have been translated from Swedish.

ing statement in March 2016 in the same trade magazine:

*“For closely held corporations, it may be appropriate to have some unrestricted capital in the accounts that are prepared now. This at least opens up the possibility of making a dividend during the year, should conditions deteriorate as a result of the presumed changes to the rules for closely held companies, the so-called 3:12 rules. The proposal for changes will be presented in September at the latest.”<sup>18</sup>*

However, the committee’s deadline was extended to November. When the committee’s proposal finally became official information on November 3, 2016, a well-known journalist specializing in tax advice made the following recommendation in an interview:

*“Since the proposals, if they become reality, will not enter into force until 2018, it is important for owners of closely held corporations to make maximum use of the current rules now, both in the tax return for 2016 and 2017. You should simply take out as much dividend as possible, and above all, you should take out the dividend that you have saved on the K10 form, so-called accumulated dividend allowances. [...] Let’s say you have an IT company with 10 employees, you are faced with a choice: should I invest the money and let the company grow or should I take it out? Now you are encouraged to take it out. This is because, until 2018, dividends can be paid at a five percent (sic) lower tax rate. Companies that fail to do so will be penalised with higher taxes later on.”<sup>19</sup>*

Concerns that investment will be distorted by excessive dividend payouts in anticipation of the 2018 reform have also been expressed among CHC owners. In February 2017, an article in the business newspaper *Dagens Industri* reported that several entrepreneurs testified that they had been advised by their auditors to maximize dividends before the legislation was passed. One hotel owner interviewed said that for several years she and her partner had prioritized reinvesting the company’s profits in the business. “Especially since we became property owners. Everything goes back into the building, which is ne-

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<sup>18</sup>Tomas Grunditz, authorised tax advisor at KPMG in Jönköping, Sweden, in Resultat 3/2016. Released on March 20, 2016.

<sup>19</sup>Anders Andersson interviewed in Breakit (digital Swedish news site on entrepreneurship) on November 4, 2016. <https://www.breakit.se/artikel/5410/experten-sa-paverkasditt-foretag-av-nya-3-12-forslagen>

glected.” Now, the hotel owners have been advised to take as much of the profit as possible this year. “The consequence is that we have to stop the development work we are doing,” she says.<sup>20</sup>

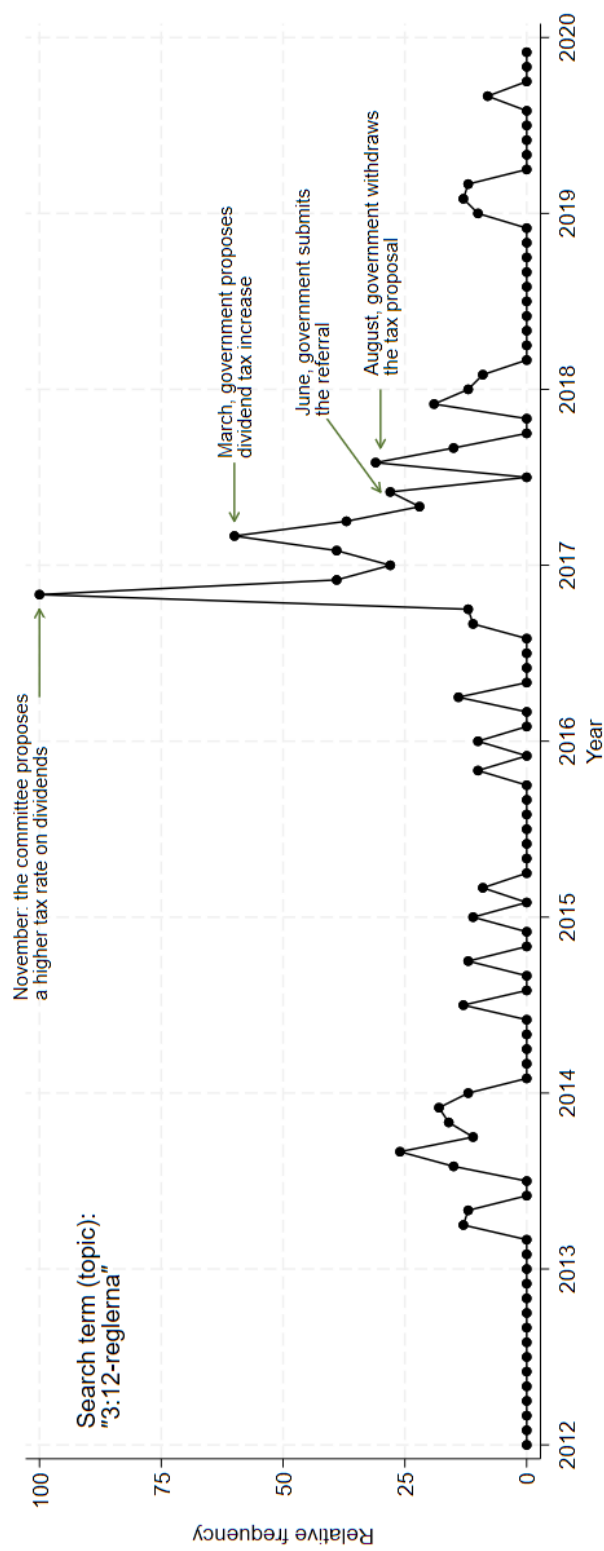
## 4.2 Quantitative evidence of tax awareness

Figure 1 provides quantitative evidence of tax reform expectations from Google Trends. The graph reflects the relative frequency of Google searches on the topic “3:12 rules”, which is a common name for the income splitting rules that determine the tax treatment of dividends from closely held Swedish corporations. The frequency of searches related to the tax rules gives some measure of the general interest of this topic. There is some interest already at the time of the announcement of the 2014 reforms, i.e. around September 2013. However, there is a very noticeable spike in Google searches in November 2016, when the government committee proposed the dividend tax increase. The higher interest in the tax rules continues during the spring 2017. There is also a smaller spike when the government announced the cancellation of the tax reform in August 2017, although August 2017 is significantly smaller than both November 2016 (announcement of the committee proposal) and March 2017 (announcement of the government proposal).

As a supplement to the Google Trends analysis, Figure 2 shows monthly frequencies from the Retriever Research media archive. The graph shows how many print articles, web articles, and TV/radio articles that mention the phrase “3:12 Rules”. Figure 2 tells a similar but not identical story to Figure 1. In this graph, too, the increased interest in the tax rules during 2013 is easily seen. There is also a spike in November 2016, around the time of the committee’s proposal. However, the government’s proposal in March 2017 attracted significantly more media attention. There is a spike in March 2017. Media interest is also significant in June 2017, when there was a heated political debate about the planned tax increase. Finally, there is a clear spike in August 2017, at the time

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<sup>20</sup>Dagens Indsutri, February 21, p.7. The article is entitled “Företagare: Vi tar ut vinsterna före ändringen.”



**Figure 1:** Google Trends. The graph shows the relative monthly frequency of Google web searches for the Swedish term (topic) "3:12-reglerna", where the month with the highest frequency (November 2016) is normalized to 100. The topic "3:12-reglerna" is suggested by the Google Trends search engine when searching for "3:12," and it captures the exact phrase and misspellings. The "3:12 rules" is a popular phrase for the special tax rules for owners of closely held companies in Sweden. Topics are generally considered more reliable by Google Trends. The specified time period is 2012-01-01 to 2019-12-31 (our study period). The geographical area is limited to Sweden. The URL link to the corresponding Google search is <https://trends.google.com/trends/explore?q=%2Fg%2F11dyjslmv&date=2012-01-01%2F202019-12-31&geo=SE>. Data were downloaded 2024-08-31.

of the cancellation.<sup>21</sup>

In summary, our qualitative analysis indicates that tax advisors expected the tax increase in early 2015, and our quantitative analysis indicates a broad interest in the government's plans in 2016–2017.

## 5 Data and estimation sample

### 5.1 Data structure

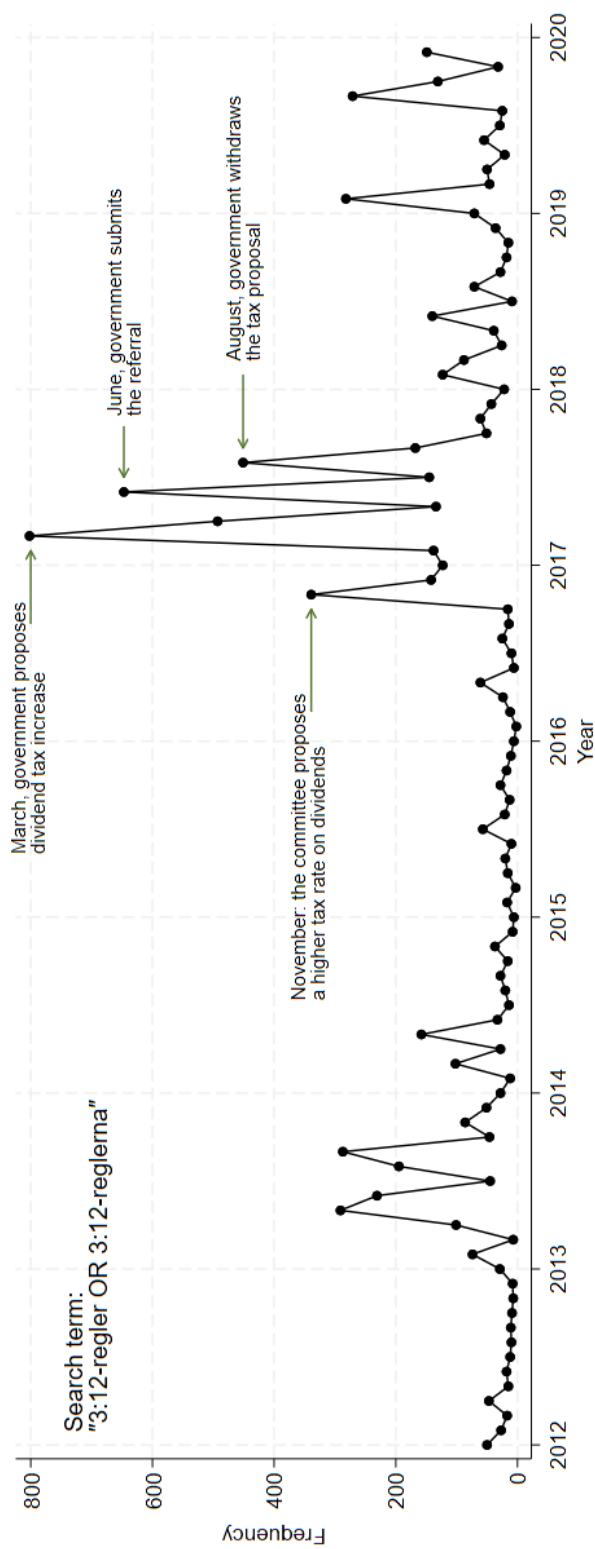
We use data from the so-called FRIDA data source from Statistics Sweden. FRIDA contains income tax returns of the universe of Swedish firms, e.g. corporations, sole proprietorships, and partnerships. Owners of qualified CHC shares can be linked to individual tax returns. From 2012 and onwards, we also observe the link between owners of non-qualified shares in non-listed companies and their corporations conditional on that the owner either receives dividends or sell shares.

The variables in the data files directly correspond to the boxes in the declaration forms. We primarily use the following declaration form files:

- **The INK2 form** (Inkomstdeklaration 2) is an income tax return submitted by corporations, regardless of ownership structure. It contains detailed information on income, financial position, and tax adjustments. We define investments from the left hand side of the balance sheet and the income statement.
- **The K10 form** is submitted by the qualified owner of the closely held corporation. The form is an attachment to the personal income tax return. In this form, the CHC owner declares dividends received from a CHC, capital gains from selling corporate shares, and the dividend al-

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<sup>21</sup>One would perhaps expect the increase to be greater in August 2017. It should be noted that the government called a press conference on a Saturday (August 26), when not many journalists are working.



**Figure 2:** Retriever Research. The graph shows the absolute monthly frequency of media articles containing the search term. Media includes print, web, TV/radio. We use the union of the search terms "3:12-regler" and "3:12-reglerna" ("3:12-regler OR 3:12-reglerna"). The "3:12-rules" is a popular term for the special tax rules for owners of closely held corporations in Sweden. The specified time period is 2012-01-01 to 2019-12-31 (our study period). We limit the geographical scope to Sweden. Retriever Research (Mediearkivet) can be accessed through Uppsala University Library, for example. Our search was made 2024-09-13.

lowance.<sup>22</sup> Importantly, the K10 must be submitted by the owner regardless of whether the corporation distributes any dividends during the tax year. Otherwise, the owner fails to accumulate dividend allowances. As already mentioned, an individual may file several K10 forms if she owns many closely held corporations.

- **The K12 form** is submitted by the non-qualified owner of a non-listed corporation for a tax year when the company distributes dividends or when the non-qualified owner sells shares and realizes a capital gain/loss. Unlike the K10 form, the link does only exist when the firm distributes dividends or sells shares.

## 5.2 Corporate groups

Companies are often organized as corporate groups. To identify corporate group structures, we use Statistics Sweden's corporate group register, which contains information on which company is the parent company and which companies are subsidiaries. Subsidiaries can then in turn own subsidiaries at lower levels in the group structure, and we observe these levels. An important distinction is between Swedish-owned and foreign-owned groups. In this paper, we only include Swedish-owned groups and companies. The reason is that dividends to the personal owners, i.e. the dividends covered by the dividend tax rules we are studying, are only paid by the parent companies. Intra-group dividends are not taxed at all. Therefore, the treatment status of the group (CHC vs. WHC) refers to the tax treatment of dividends paid by the mother company (top layer in the corporate structure) to the personal owners.

We do not have direct information on corporate group accounts; instead, we aggregate the balance sheet and net turnover manually from the information in the individual companies' tax returns. These consolidated accounts treat the parent company and its subsidiaries as a single entity. As far as possible, we

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<sup>22</sup>There are two entries in the K10 form. The owner may either use the "simplification rule" to calculate the dividend allowance. In that case, the owner receives a fixed amount. Alternatively, the owner may opt for the "main rule" in which the dividend allowance is calculated mainly as a function of the wage bill in the corporation.

eliminate all internal transactions to avoid double counting. More details on these corrections can be found in Appendix F.

### 5.3 Sample

Our analysis covers all non-listed and Swedish-owned corporations. A “corporation” in this context is either a stand-alone corporation or a corporate group. Moreover, we require firms to have at least one employee, revenues (net turnover) exceeding SEK 1,000,000, lagged fixed assets of at least SEK 100,000, and lagged balance sheet total (total assets) of at least SEK 500,000. The lower thresholds ensure that the companies operate on a significant scale and help to avoid problems related to misreported assets. We exclude firms in the public administration and defense category and firms with more than 987 employees, due to the lack of common support for different types of firms. The distribution of CHC and WHC firms across industries, revenue deciles, employment groups, and capital intensity quintiles can be found in Appendix B.4.

### 5.4 Switching of tax status

Over a long time horizon, there is a trend in favor of CHC ownership in Sweden. Selin (2021) reports that the share of the population filing a K10 form increased significantly between 2000 and 2020, with a population share of 5.6% in 2020. In our setting, business owners may switch from WHC to CHC status by correctly or incorrectly claiming to be active owners and filing a K10 form instead of a K12 form. Such a move may be tax advantageous under certain conditions, as CHC owners face a 5 percentage point lower tax rate than WHC owners. The reverse move – from a K10 form to a K12 form – is more complicated. To convert qualified shares (CHC) to non-qualified shares (WHC), the owner (or any of the owner’s relatives) may not participate in the earnings or management of the company or any of the company’s subsidiaries, or work for an unrelated closely held corporation within the same industry, for a period of five years.

It is common for firms to switch their tax status from WHC to CHC, see Appendix B.2. If we use the sample characterized in section 5.3 above and divide



the sample based on the tax status in the starting year 2012, we see that only 42.8% of all WHC:s in 2012 retain their tax status in 2019. However, the share of switchers does not seem to vary with reform expectations: 2016–2017 does not stand out compared to other years, see Appendix Figures B1 and B2.

In our baseline specification, we have chosen to restrict the sample to firms with constant tax status. Consequently, our results are not affected by firms that simultaneously change tax status and start paying dividends. However, we also report alternative specifications where we include “switchers” in the sample defined in section 5.3 and define treatment status based on tax status in 2012, see Appendix Figure E3.

	Closely Held Corporations				Widely Held Corporations			
	Mean	Median	10th %ile	90th %ile	Mean	Median	10th %ile	90th %ile
Paying dividend	0.526	1	0	1	0.084	0	0	0
Dividends / Rev.	0.047	0.007	0	0.125	0.01	0	0	0
Cash / L. B. S. Tot.	0.265	0.184	0.004	0.628	0.218	0.129	0.001	0.559
Inv. / Rev.	0.378	0.05	-0.115	0.845	0.462	0.048	-0.1	0.823
Employees	10	4	1	22	18	7	1	49
Labor Costs / Rev.	0.35	0.332	0.122	0.593	0.33	0.261	0.052	0.63
Balance Sheet Tot.	16,954	4,408	1,104	27,534	216,998	11,383	1,436	166,782
Fixed Assets	5,983	1,269	145	12,119	19,182	2,315	148	68,792
Share Tangible	0.834	0.776	0.011	1.286	1.36	0.779	0.008	1.451
Equity Ratio	0.489	0.483	0.142	0.844	0.416	0.386	0.046	0.841
Current Ratio	2.665	1.885	0.767	5.825	2.16	1.587	0.471	4.492
Quick Ratio	2.033	1.298	0.16	4.844	1.5	0.961	0.014	3.346
Firm year observations	451,110				20,367			
Unique firms	97,749				5,346			

**Table 1:** Descriptive statistics for CHCs and WHCs over the years 2012–2019 for the main sample.

*Note: Balance sheet total and fixed assets are in 1000 SEK.*

## 5.5 Descriptives

In Table 1, we report summary statistics for our main estimation sample, by tax status. There are far more CHC:s than WHC:s in our sample. Another striking discrepancy between the two groups is that a substantially larger share of CHC:s pay out dividends. More than half of the CHC:s distribute dividends, while the corresponding share of WHC:s is below 10%. This difference is plausibly related to the fact that many CHC owners are owner-managers that convert some of their wage income to capital income. In addition, Table 1 shows that WHC:s are over-represented among very large firms.

## 6 Empirical strategy

We document the tax reform episode using an event study approach. We index the individual firm with  $i$ , the calendar time with  $t$ , and estimate the following specification:

$$y_{it} = \sum_{t=2012}^{2019} \delta_t CHC_i + X_{i,t}\beta + \alpha_i + \gamma_t + \epsilon_{it}, \quad (1)$$

where  $y_{it}$  is the outcome variable.  $CHC_i$  is a dummy variable that takes the value 1 if the firm is a CHC during the whole estimation period and zero otherwise.  $\alpha_i$  and  $\gamma_t$  refer to firm-specific and time-fixed effects, while  $X_{i,t}$  is a vector of control variables including industry (the first letter of the Swedish Standard Industrial Classification (SNI), with 18 industries in our sample), average revenue, profit margin, and labor costs in 2012–2013, and growth in revenue, profit margin, and labor costs in 2012–2013, all interacted with calendar year factors, as well as a fourth-order polynomial in firm age. We include industry-year effects to control for differential macroeconomic shocks and firm age to account for the maturity of firms.

We chose 2018 as the reference year. In a typical event study regression, the reference year is the period before the event. In our setting, the situation is different because 2018 is the sharp cutoff: starting in 2018, firms and shareholders know that they will not experience a dividend tax reform in the near future. In particular, we want to estimate the difference between 2017 when firms have

incentives to bring forward their dividends, and 2018 when no such incentives are present.

To reduce the influence of outliers, we Winsorize (top-code and bottom-code) scaled outcomes at the 1th and 99th percentiles unless otherwise specified. This is a standard procedure in micro-studies on firm-level responses to taxes (see e.g. Yagan, 2015).<sup>23</sup> The regressions are weighted by the number of employees.

The weights serve two purposes. First, firms with a larger number of employees are given a larger weight in the regressions. Second, following Yagan (2015), we utilize the reweighing method proposed by DiNardo et al. (1996) (DFL), which allows us to standardize the employment and capital intensity composition of our sample throughout the sample period.<sup>24</sup> The DFL reweighting approach offers a flexible means to account for shocks that vary with time, firm size, and production technology. Moreover, it enables us to maintain consistency in observable traits over time and across different types of firms during our analysis. In the reweighing process, we envision a counterfactual scenario where the composition of firm sizes and capital intensities within the sample would have remained unchanged, thereby mirroring the distribution observed for a reference group (we use CHC:s in 2013 as our reference group).

The employment groups are constructed from a Fibonacci sequence, with 1 being the lower bound in the bottom group and 233 is the lower bound in the top group. The assignment into employment size categories is based on the number of employees. We exclude firms with more than 987 employees due to a lack of common support. Capital intensity groups are defined using quintiles for the ratio between balance sheet total and revenue. To illustrate, our sample reveals that in 2018, WHC:s had a greater proportion of large and capital intensive firms. Consequently, the reweighing procedure will down-weight such firms, thereby ensuring a constant distribution of these observable traits. Further technical details are covered in Online Appendix D and a robustness

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<sup>23</sup>A robustness analysis conducted without Winsorization can be found in Appendix E.2.

<sup>24</sup>Yagan (2015) reweighted based on lagged average revenue and industry. We define firm size based on employment. Due to the income splitting rules, CHC:s that have more employees are more similar to WHC:s. Furthermore, we adjust for capital intensity to compensate for the fact that revenue is neutral to production technology, while employment is not.

analysis conducted without DFL reweighting can be found in Appendix E.2.

## 7 Results

In this section we present and discuss our main results.

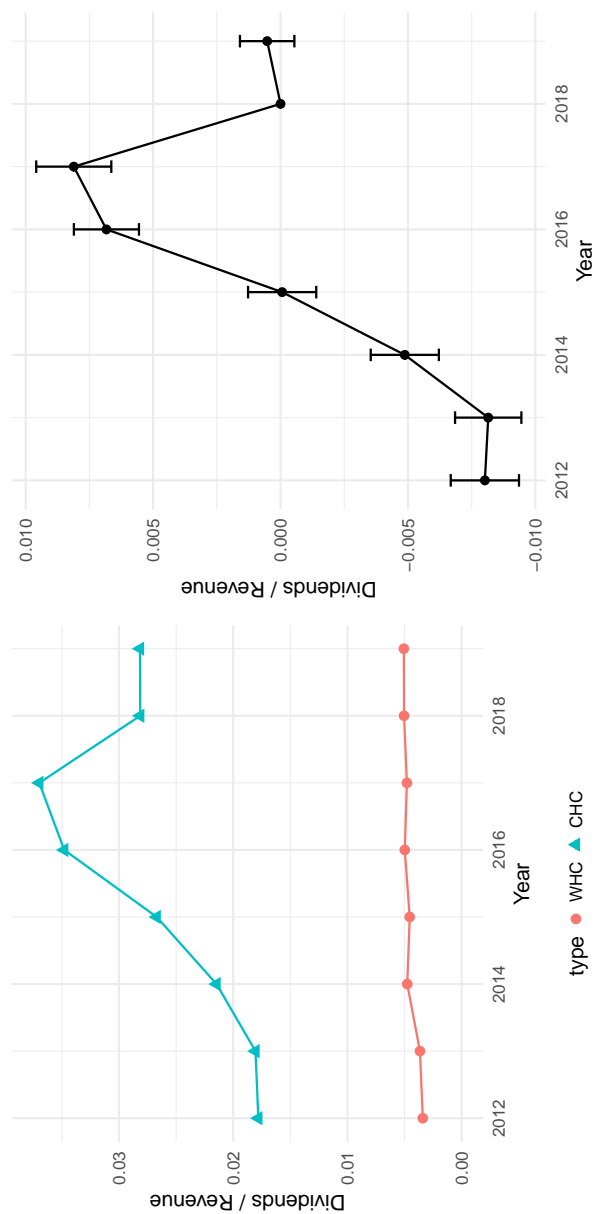
### 7.1 Dividend payouts

We begin by analyzing the direct effect of the discontinued reform on dividend payouts. In Figure 3a, we first show the average dividend-to-revenue ratio, weighted by the number of employees, over the 2012–2019 estimation period. In Figure 3b, we then report the regression coefficients from the event study specification of Equation (1) above.

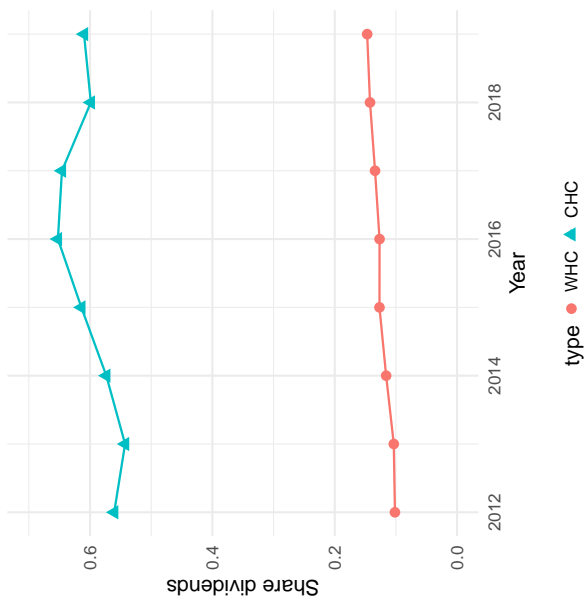
We see that dividend payouts evolve in parallel for the two groups in 2012–2013, the first two years of data. There is a relative increase in dividend payouts among CHC:s starting in 2014 and culminating in 2017, the year in which the reform was discontinued. Dividend payouts are at an exceptionally high level in 2016 and 2017, around 3.5 percent of sales in the CHC group. In 2018, there is a noticeable drop in dividend payouts for the treatment group. The drop in the dividend-to-revenue ratio is estimated to be 0.97 percentage points. This estimate is robust to alternative specifications.<sup>25</sup> It is also substantial. To see this, one can compute a dividend payout elasticity with respect to the *proposed* change in the after-tax rate, which is  $\frac{0.05}{1-0.2} = 6.25\%$ . The percentage change in the outcome between 2017 and 2018 is  $\frac{0.97\%}{3.83\%} \approx 25.3\%$ . Thus, the elasticity of dividend payouts with respect to the anticipated net-of-tax change is  $\frac{25.3}{6.25} \approx 4.0$ .

We consider the drop between 2017 and 2018 to be a causal effect of the discontinued reform. There were no other relevant reforms in 2018 that can explain the drop. Moreover, the dramatic changes in dividend payouts do not covary with the business cycle. Figure C1 in Appendix C shows a series of macroeconomic indicators for Sweden during the sample period 2012–2019. For most of the period, Sweden experienced moderate growth in real GDP per capita, and in 2017–2019, the economy grew at a relatively stable rate. In addition, the

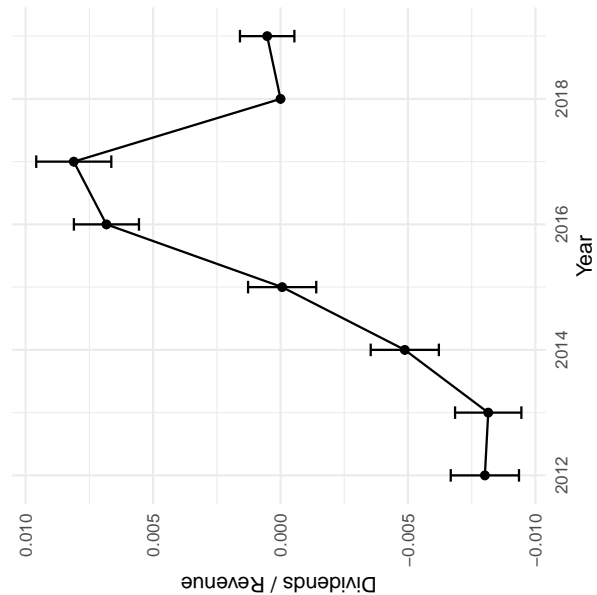
<sup>25</sup>A number of robustness checks are reported in Appendix E.2.



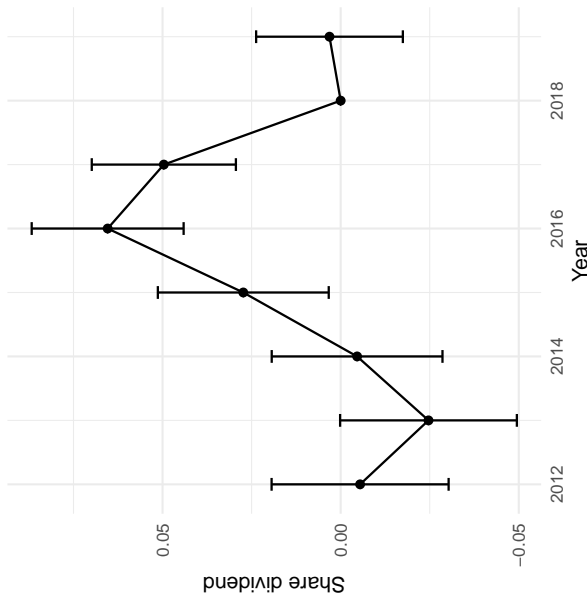
(a) Dividend-to-revenue ratio



(c) Share dividends



(b) Event-study coefficients



(d) Event-study coefficients

Figure 3: Dividend payouts

unemployment rate in Sweden declined over the period 2014–2018. Note that our estimates, in any case, would be robust to business cycle conditions under fairly flexible assumptions, as we have a difference-in-differences setup where we control for industry interacted with calendar year.

## 7.2 The role of the dividend allowance

A striking feature of figures 3a and 3b is that there appears to be a long-term trend in dividends among CHCs. Although the 2017–2018 decline is both large and significant, the dividend-to-revenue ratio does not return to 2012–2013 levels. To understand this phenomenon, we need to further examine the role of the *dividend allowance*. As emphasized in the section 2.3 above, there is a cap on the amount of dividends that CHC owners are allowed to tax at 20%. Each year the owner receives a new allowance. As discussed in section 2.3, the rules for calculating new allowances were reformed in 2014, when the so-called wage-based allowance became more generous. However, there is another part to the story. Unused allowances are carried forward to future years with interest.<sup>26</sup> Therefore, if dividend allowances do not bind, the stock of allowances tends to grow also when the rules are held constant.

In Figure 4a, we show the averages of (i) new dividend allowances, (ii) the growth in saved allowances, and (iii) the stock of accumulated allowances by year. Note that we use two separate axes to illustrate the levels in terms of income base amounts (IBAs). The new allowances are a function of both the deterministic rules for calculating the allowance and the firm’s behavior (e.g., the previous year’s payroll). The accumulated allowances depend on the amount of dividends that are paid out and, to some extent, the government lending rate. We observe a clear jump in new dividend allowances in 2014. We also see that there is a continuous growth in accumulated allowances, with a slight slowdown in 2017–2018, when company owners consumed larger portions of the allowances.

In Figure 4b, we show how dividends as a share of the total dividend allowance (the new allowance plus the accumulated allowances) evolve over time.

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<sup>26</sup>The rate of return is set at the government lending rate plus 3%. In 2025, the yield is 4.96%.

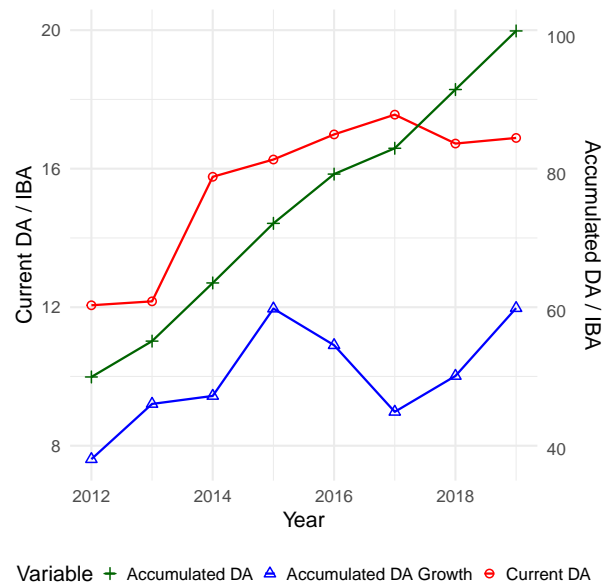
At this point, we make an important observation: Dividends as a share of the allowance are at about the same level in 2018–2019 as they were at the beginning of the period. Nevertheless, the excessive dividend payments in 2016–2017 and the sharp decline in 2018 are striking. One interpretation of the long-term trend visible in the dividend-to-revenue ratio of Figure 3a and Figure 3b could therefore be that CHC owners are simply accessing larger dividend allowances over time.

Note that we cannot use the control group of WHC:s in this exercise because WHC owners are not constrained by the dividend allowance. In Figure 4b, we also plot the dividend-to-revenue ratio (corresponding to the top line of figure 3a). We see that it takes a similar shape to the event study estimates of Figure 3b. The reason for this is that the dividend-to-earnings ratio in the control group exhibits only a weak upward slope over the period.

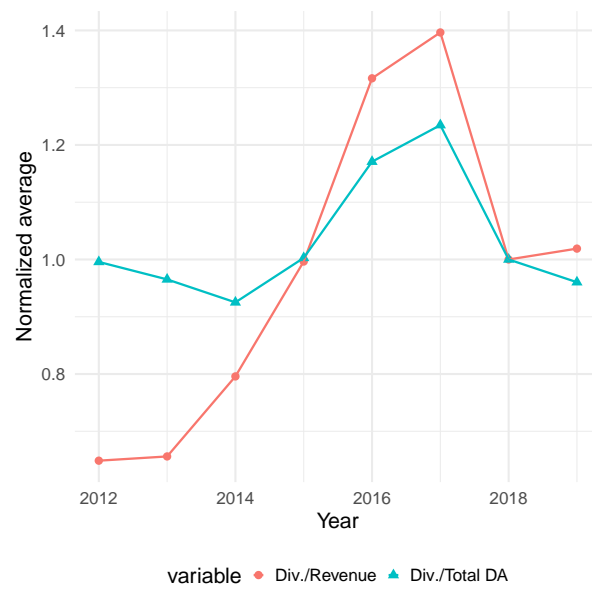
In Appendix E.3, we conduct an analysis of the heterogeneous response among CHCs with different levels of accumulated dividend allowances in the pre-period. From this analysis, we find that the increase in dividend payments is higher among firms with more accumulated dividend allowances (see Figure E8). Furthermore, we find that the cash holdings of the less constrained firms decline following the anticipation period, while the cash holdings of more constrained firms are unaffected.

### **7.3 Indirect outcomes**

In Appendix E.1, we document how various firm level variables behave around the discontinued tax reform. In Figure E1, we replace the dependent variable in Equation (1) with the firm's cash holdings as a fraction of lagged total assets. Cash holdings appear to decline in CHC:s 2016–2017, but recover in 2018–2019. The decrease in cash is likely due to excessive dividend payouts in 2016–2017, and in section 7.4 below, we will discuss this issue further, focusing on cash-rich firms. However, we do not observe a clear effect on leverage (Figure E1b of Appendix E.1). We also find no effect on investment (figure E1c of the appendix). There is a downward trend in labor costs (appendix figure E1d), but we caution against interpreting this as an effect of the cancelled reform. We do not exclude



(a) Dividend allowances



(b) Dividends as share of allowance

**Figure 4:** The role of dividend allowances



that it could be related to the trend increase in the dividend-to-revenue ratio and the growing dividend payouts.

## 7.4 Cash-rich vs. cash-poor firms

The distinction between the “new” and the “old” views is central to corporate tax theory. The new view or “the trapped equity view” implies that neither investment nor dividend distributions will be affected by permanent (and unanticipated) dividend tax changes conditional on that retained earnings is the marginal source of finance. An “old view firm,” on the other hand, finances marginal investment with external equity injections. Higher future taxes increase the expected cost of capital for these firms and therefore lower investment incentives.<sup>27</sup>

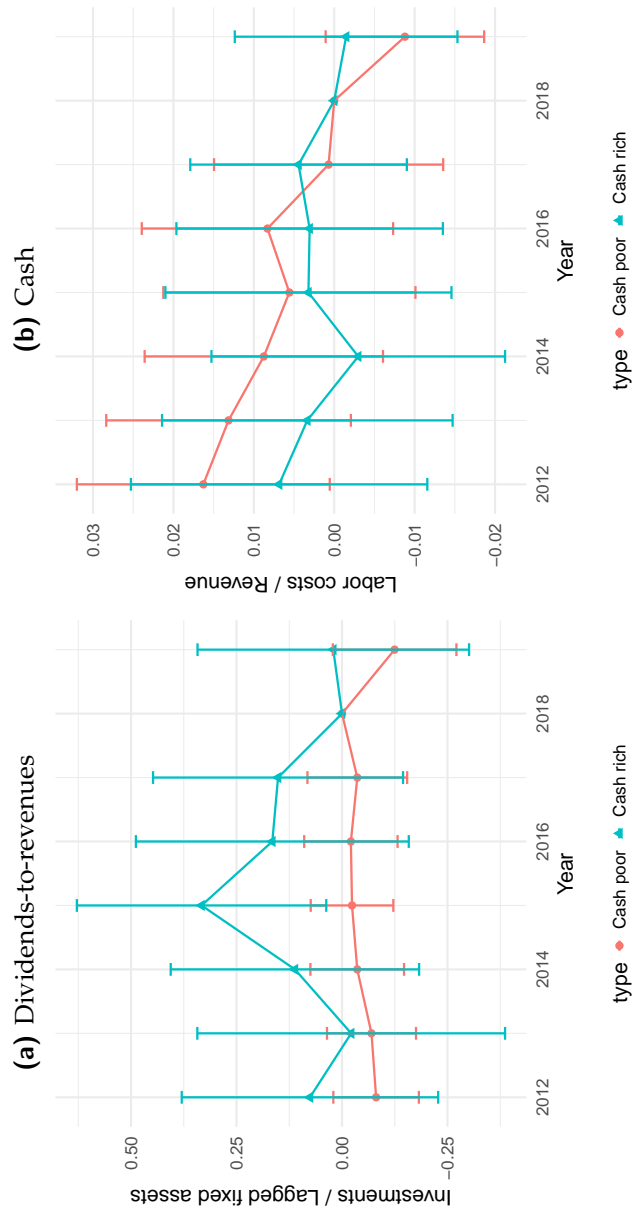
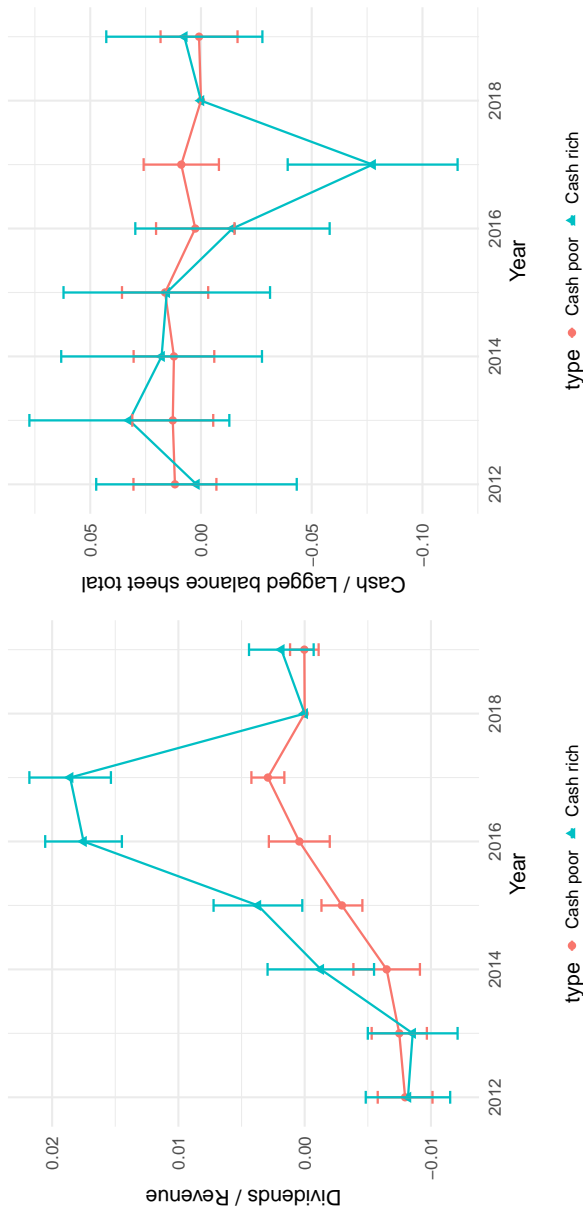
Previous research on the same Swedish micro data source on firms’ responses to a dividend tax cut in 2006 (that actually occurred) strongly emphasizes the role of access to internal funds. Alstadsæter et al. (2017) find that cash-constrained firms increase investment after the 2006 dividend tax cut relative to cash-rich firms. Jacob (2021) shows that firms with limited internal funds increase productivity and wages relative to firms with more internal funds in response to the same reform. We also expect our discontinued dividend tax increase to affect cash-rich and cash-poor firms differentially. Cash-rich firms have more funds to distribute as dividends, and even if shareholders reinject the distributed equity in the firm directly, the extra dividend tax payment incurred by the financial operations is inevitably lost.<sup>28</sup> By contrast, cash-constrained firms have less cash to distribute, and are more reliant on external funding and borrowing (Lin and Flannery, 2013).

Korinek and Stiglitz (2009) showed theoretically that *anticipated* dividend

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<sup>27</sup>See Chetty and Saez (2010) for a pedagogical illustration of the old and the new view and the references therein.

<sup>28</sup>Moreover, in the real world tax avoidance require planning, co-ordination among shareholders, and an annual or extraordinary general meeting. Moreover, the law prevents corporate owners from paying out too much dividends a specific year. Due to such frictions, firms cannot respond immediately to changes in the information set. If so, a discontinued dividend tax increase may bring about changes to firms’ liquidity and equity ratios, which in turn may impact on real firm behavior.



**(c) Investment** **(d) Labor costs**

**Figure 5: Outcomes for cash-rich firms**

tax hikes can still discourage investment – even when it is financed by retained earnings. The mechanism is that mature “new view” firms pay a lot of dividends when they anticipate a dividend tax hike. This reduces investment in future periods when investment opportunities arrive stochastically. A key difference between our tax episode and the anticipated tax change in Korinek and Stiglitz (2009) is that our tax change never materialized, which means that firm owners face incentives to reinject cash in the firm directly following the discontinued reform. A central issue in our setup is how quickly cash holdings recovered in 2018–2019.

To illuminate the important role of cash-holdings we divide our estimation sample into five equally sized quintile groups based on cash holdings in proportion to revenue. To avoid mean reversion, we rank firms based on median cash-to-revenue holdings in the three years 2010, 2011, and 2012. In Figure 5, we plot coefficients for the top-quintile group, i.e. “cash-rich firms” and the bottom quintile, i.e. “cash-poor firms,” from the event-study specification of Equation (1) with four different outcome variables. To begin with, Figure 5a shows that cash-rich firms’ dividend-to-revenue ratios reacted considerably more strongly than other firms to the tax episode covered in this paper. The 2017–2018 drop amounted to 1.857 percentage points for cash-rich firms, while it was much smaller for cash-poor firms. Needless to say, these results were to be expected, because by definition cash-rich firms have more money to distribute than the cash-poor.

In Figure 5b, we report the event study coefficients for cash holdings. Interestingly, there is a sharp drop in cash holdings in 2017 for cash-rich firms. This dip is almost surely a consequence of the excessive dividend payouts in 2016–2017. However, cash holdings bounce right back in 2018. Given that cash-holdings recovers so quickly, it would be highly surprising if there would be an effect on investments in cash-rich firms. Figure 5c confirms that there was no significant effect on capital investment. This holds for both cash-rich and cash-poor firms. Theoretically, one could hypothesize that cash-poor “new-view” firms lower their investment during anticipation period, because they expect higher future dividend taxes (higher cost of capital). However, as can be inferred from Figure 5c, we do not observe such a response. Finally, there was no

response in labor costs (see Figure 5d).

In addition, we have conducted a heterogeneity analysis of “Small” and “Large” firms based on pre-period employment levels (see Appendix E.5). From this analysis, we find that large firms reacted earlier to the anticipated tax reform and also faced a decline in cash holdings, which remained about 2% of the balance sheet total below the pre-reform levels in 2018–2019.

## **7.5 Extra taxes paid**

In summary, it does not appear that the discontinued dividend tax reform had an impact on real business activity, even though dividend payments accelerated in 2016–2017. However, this does not mean that tax reform expectations were without consequences. A business owner who withdrew money from the firm and then reinvested the money immediately after the repeal will not receive a refund for the 2016–2017 dividend tax payments – those funds are inevitably gone. We have done back-of-the-envelope calculations that suggest the additional tax payments amounted to 4.08 billion SEK, in our sample. If our estimates are generalizable to the whole population of CHC firms, these excess tax payments would amount to 7.25 billion SEK.

## **8 Concluding discussion**

We examine an rare but informative event in the history of Swedish tax policy. An increase in the dividend tax on shares of closely held firms, scheduled for January 1, 2018, was canceled at short notice. We examine how firms reacted to the canceled reform and find that firms responded by paying dividends to owners in the “pre-reform” period, with a sharp decline in 2018. Our analysis shows that reforms that do not materialize can still affect income reporting, although we find no evidence that real firm activity was affected. It is noteworthy to mention the uncertainty of the parliamentary support for the proposed tax reform – the right-wing opposition was opposed to the tax hike and it was not clear how the Swedish nationalist party would have voted, if the proposal had

made it to the parliament. This uncertainty could have affected the strength of the tax expectations.

When interpreting the results, it is important to note that the treatment group, by definition, includes firms with concentrated ownership. Moreover, owners often work in their own firms. As a result, the agency problems that arise from the separation of ownership and control (Chetty and Saez, 2010) are largely absent in our setting, see also Jacob and Michaely (2017). In our context, firm responses and shareholder responses largely go hand in hand. It is also important to keep in mind that, at least for smaller firms, dividends also reflect a shift from labor income to dividend income. Accordingly, our paper adds new insights into the tax planning behavior of owners of closely held firms, with Harju and Matikka (2016) and Alstadsøter and Jacob (2016) as previous references.

We have seen that the elasticity of dividend payouts with respect to the proposed change in the net-of-tax rate is large, at 4.0. However, one should keep in mind that the firms in our quasi-experimental setting already updated their information sets at the end of August 2017. Presumably, the response would have been even larger if the information sets had been updated closer to January 1, 2018.

Finally, it may be tempting to draw the policy conclusion that this kind of “fake reform”, which increases the tax payments of high-income earners without distorting economic activity, is an effective policy instrument for raising tax revenue. This may be true for one-time events like the one we studied. However, repeated threats of higher taxes that firms learn about are unlikely to have the same effect.

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# Appendix

## A The dividend allowance

The purpose of this section of the appendix is to show how dividend allowances are calculated in Sweden. First, we need to define some concepts. The owner's share capital,  $C$ , is defined as the acquisition value of the owner's shares ("omkostnadsbelopp"). The standard rate of return ("klyvningsräntan"),  $r^S$ , is the interest rate used to determine the presumed return on the investment in the CHC. During the study period, the standard rate of return is given by the government lending rate plus 9 percentage points. The government lending rate ("statslåneräntan") is widely used in tax legislation and reflects the risk-free long-term interest rate (average market interest rate on government bonds with a remaining maturity of at least five years).

Unused dividends are carried over to the next year and earn interest at  $r^U$ . Throughout the study period, this interest rate is equal to the government lending rate plus 3 percentage points. The wage base,  $W$ , is the sum of all wages of the company and its subsidiaries during the calendar year preceding the tax year. This rule applies even if the company has a broken fiscal year. The employee payroll includes the owner's own wages. The income base amount, IBA, is an administrative concept used in Sweden to determine pension levels, for example. It is updated annually and indexed to nominal income growth in the Swedish economy.

The dividend allowance can be calculated in either two ways:

- **Simplification rule:** If the owner opts for the simplification rule the dividend allowance (DA) of the individual owner  $i$  of corporation  $j$  in tax year  $t$  is given by

$$DA_{ijt}^{SIMPLE} = k \times IBA_t \times \frac{C_{ijt}}{C_{jt}} + (1 + r^U) \times NDA_{ij,t-1}, \quad (A1)$$

where  $\frac{C_{ijt}}{C_{jt}}$  is the individual's ownership share, and  $NDA_{ij,t-1}$  is the unused dividend allowance since last year, i.e.  $DA_{ij,t-1}$  net of dividends and

capital gains in the previous period. The parameter  $k$  is a factor that determines the size of the new dividend allowance. This factor was  $k = 2.75$  throughout the study period.

- **Main rule:** The main rule for calculating the dividend allowance can be formulated in the following way:

$$\begin{aligned}
 DA_{ijt}^{MAIN} = & \underbrace{r^S \times C_{ijt}}_{\text{capital based allowance}} + \\
 & \underbrace{\{\rho_1 \times \min[W_{j,t-1}, 60 \times \text{IBB}] + \rho_2 \times \max[W_{j,t-1} - 60 \times \text{IBB}, 0]\} \times \frac{C_{ijt}}{C_{jt}}}_{\text{wage based allowance}} + \\
 & \underbrace{(1 + r^U) \times \text{NDA}_{ij,t-1}}_{\text{saved allowance}}
 \end{aligned} \tag{A2}$$

where  $r^S$  is the presumed rate of return defined above.  $C_{ijt}$  is the equity injected by the individual  $i$  in corporation  $j$  up to year  $t$ . Total share capital in corporation  $j$  is denoted by  $C_{jt}$ , and  $W_{jt}$  is the total wage bill of corporation  $j$ . (There is a maximum wage based allowance that we do not capture in the above equation.) Before 2014 the wage based allowance was calculated with  $\rho_1 = 0.25$  and  $\rho_2 = 0.5$ . From and 2014 and onwards the relevant parameters are  $\rho_1 = \rho_2 = 0.5$ . The wage requirement implies that the corporate owner's own wage bill in the *previous year*  $W_{ij,t-1}$  from corporation  $j$  must satisfy

$$W_{ij,t-1} \geq \min\{6 \times \text{IBA}_t + 0.05 \times W_{j,t-1}, q \times \text{IBA}_t, \} \tag{A3}$$

where  $W_{jt}$  is the company's total wage sum (including the owner's own wage). The factor  $q$  was  $q = 10$  for tax years 2012–2015 and  $q = 9.6$  for tax years 2016–2019. Since the wage requirement is defined based on lagged wages, the reduced maximum requirement applies to wages from 2015 onwards.

Importantly, the dividend allowances pertains to a specific individual who owns

qualified shares in a corporation (or mother corporation). Accordingly, an individual taxpayer who owns several CHC:s may be eligible for several separate dividend allowances. However, an individual may not use the simplification rule for more than one corporation. In our firm level analysis, we aggregate dividend allowances at the firm level.

## B Variable definitions and descriptive statistics

### B.1 Definitions

The FRIDA dataset provides the necessary information for our analysis, including the firm's financial statements, tax status, and the dividends distributed to the owners. We determine the tax status (or firm type) based on the reports filed 2012. A firm is classified as a Closely Held Corporation (CHC) if denoted as such in the INK2 form. Conversely, a Widely Held Corporation (WHC) is defined as a non-listed limited liability company. We disregard firms that were publicly listed at any point between 2012–2019.

We define dividends using the K10 and K12 forms, which are declared by all individuals receiving dividend payments from a non-listed corporation during the fiscal year. Investments are defined as the change in fixed assets plus the reported depreciation. This gives a measure of gross investment in the firms. In the FRIDA data, depreciations are reported as an aggregate. Therefore, we cannot measure gross investments in tangible assets (like Yagan, 2015, for example). To get a measure of investments in tangible capital, we have also consider the growth in tangible fixed assets as well. Since we got different classes of tangible capital in our data, we also explore investments by type such as the growth of machines and equipment.

Moreover, we define revenue as the net revenue in SEK, which represents sales after deducting VAT and rebates. Debt refers to all non-equity liabilities of the firm. Cash is defined as the aggregate of liquid assets. Labor costs represent the total labor expenses for the firm, inclusive of payroll taxes, in SEK. Lastly, the industry is defined using the first two digits of the firm's SNI (*svensk näringsgrensindelning*).

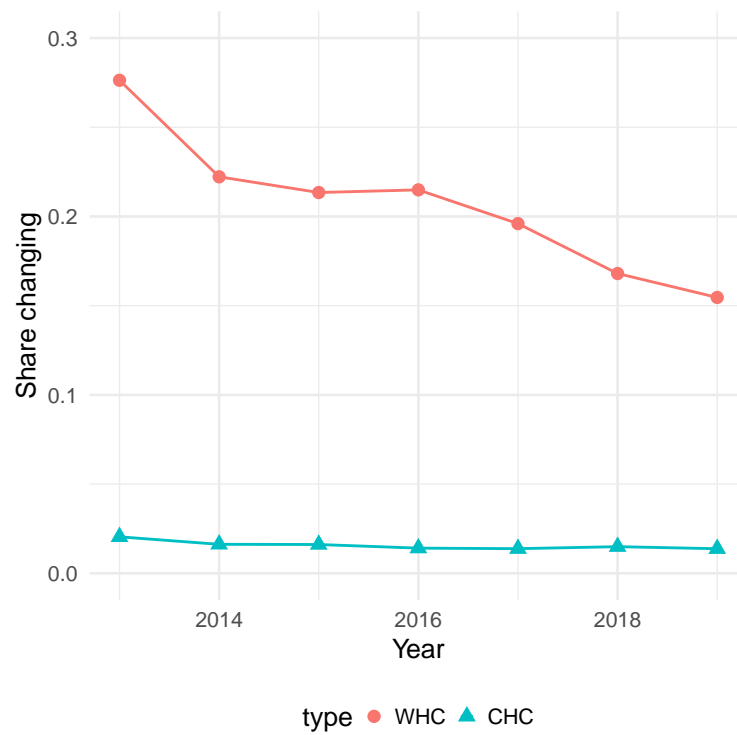
## B.2 Switching tax status: graphical evidence

This section provides some graphical support for the discussion in Section 5.4. From Figure B1, we find that there is a relatively large share of WHC firms that change their tax status over time while the CHC firms are more likely to remain. Figure B2 shows that the share of firms changing tax status between year  $t - 1$  and year  $t$  has been stable for CHCs and that there is a declining trend in the share of WHCs changing status.



**Figure B1:** Share of firms having the same tax status as in 2012.

Note: Only firms fulfilling the selection criteria presented in Section 5.3 are included.



**Figure B2:** Share of firms changing tax status between year  $t - 1$  and  $t$ .  
Note: Only firms fulfilling the selection criteria presented in Section 5.3 are included.

### B.3 Descriptive statistics

Table B1 provides a comprehensive overview of the unweighted summary statistics for the corporations in our sample. All nominal values, denoted in thousands, are adjusted to the 2018 real SEK value and represent annual measurements. The data is compiled from a substantial sample size, encompassing 97,749 CHCs and 20,367 WHCs, yielding over 470,000 firm-year observations.

We find that WHCs typically have a larger average balance sheet total compared to CHCs. However, the median values are relatively similar. This trend is also observed in the real revenue figures and in the number of employees. These findings suggest a more extended tail in the distribution of operational scale among WHCs, indicating a wider range of company sizes within this group. Interestingly, despite these differences in financial metrics, both WHCs and CHCs have similar labor costs and investments. We also find that the equity ratio, current ratio, and quick ratio are, in general, higher for CHCs suggesting that a larger fraction of these firms' assets are financed with equity rather than debt.

Table B2 presents the unweighted and weighted means for the summary statistics from Table B1. We find that the weighted average number of employees is 37 while the unweighted mean is 10 for CHCs and 18 for WHCs. We find that the larger and more mature firms are more likely to pay dividends. We also find that the financial indicators are more similar when considering the weighted averages.

Table B3 presents summary statistics for different samples. Apart from our baseline sample, we consider a sample where we keep firms that change tax status, however, still defining treatment status (CHC or WHC) using the status in 2012. Furthermore, we also consider a sample where we keep the firms that change tax status, put no requirements on common support in terms of firm size and capital intensity, and lower our requirements on the firms' scale of operations requiring no employees, only 100,000 SEK in annual net revenue and lagged balance sheet total, and 50,000 in lagged fixed assets. As expected, we find that when firms that change tax status are included, the share of WHCs that pay dividends increases. This as one important factor motivating a change from a WHC to a CHC status is to be able to use the income splitting rules and

receive the lower tax rate on dividends. We also find that when switchers are included, the average investment rate among WHC:s increases substantially. For the inclusive sample, we find that the upper tail of the distribution becomes much longer both when considering the average number of employees and the average balance sheet total.

	Closely Held Corporations				Widely Held Corporations			
	Mean	Median	10th %ile	90th %ile	Mean	Median	10th %ile	90th %ile
Paying dividends	0.526	1	0	1	0.084	0	0	0
Dividends / Rev.	0.047	0.007	0	0.125	0.01	0	0	0
Cash / L. B. S. Tot.	0.265	0.184	0.004	0.628	0.218	0.129	0.001	0.559
Inv. / L. Fixed A.	0.378	0.05	-0.115	0.845	0.462	0.048	-0.1	0.823
Employees	10	4	1	22	18	7	1	49
Labor Costs / Rev.	0.35	0.332	0.122	0.593	0.33	0.261	0.052	0.63
Balance Sheet Tot.	16954	4408	1104	27534	216998	11383	1436	166782
Fixed Assets	5983	1269	145	12119	19182	2315	148	68792
Share Tangible	0.638	0.776	0.011	1	0.629	0.779	0.008	1
Equity Ratio	0.489	0.483	0.142	0.844	0.416	0.386	0.046	0.841
Current Ratio	2.665	1.885	0.767	5.825	2.16	1.587	0.471	4.492
Quick Ratio	2.033	1.298	0.16	4.844	1.5	0.961	0.014	3.346
Firm year observations				451,110				20,367
Unique firms				91,231				5,025

**Table B1:** Descriptive statistics for CHCs and WHCs over the years 2012–2019 for the main sample.

*Note: Balance sheet total and fixed assets are in 1000 SEK.*



	Closely Held Corporations		Widely Held Corporations	
	Mean	Weighted Mean	Mean	Weighted Mean
Paying dividends	0.526	0.589	0.084	0.112
Dividends / Rev.	0.047	0.029	0.01	0.005
Cash / L. B. S. Tot.	0.265	0.227	0.218	0.225
Inv. / L. Fixed A.	0.378	0.456	0.462	0.584
Employees	10	37	18	37
Labor costs / Rev.	0.35	0.362	0.33	0.342
Balance Sheet Tot.	16954	67274	216998	175651
Fixed Assets	5983	17576	19182	21219
Share Tangible	0.638	0.708	0.629	0.639
Equity Ratio	0.489	0.47	0.416	0.436
Current Ratio	2.665	2.146	2.16	2.007
Quick Ratio	2.033	1.198	1.5	1.17
Firm year observations		451,110		20,367
Unique firms		91,231		5,025

**Table B2:** Descriptive statistics for CHCs and WHCs over the years 2012–2019 for the main sample.

*Note: Balance sheet total and fixed assets are in 1000 SEK.*

	Main sample		Switchers included		Inclusive	
	CHC	WHC	CHC	WHC	CHC	WHC
	Mean	Mean	Mean	Mean	Mean	Mean
Paying dividends	0.526	0.084	0.504	0.2	0.624	0.2
Dividends / Rev.	0.047	0.01	0.051	0.025	0.017	0.004
Cash / L. B. S. Tot.	0.265	0.218	0.264	0.337	0.186	0.184
Inv. / L. Fixed A.	0.378	0.462	0.398	0.669	0.533	0.648
Employees	10	18	13	38	120	238
Labor costs / Rev.	0.35	0.33	0.351	0.352	0.208	0.195
Balance Sheet Tot.	16954	216998	21712	303008	224720	1323510
Fixed Assets	5983	19182	10875	109340	102183	707477
Share Tangible	0.638	0.629	0.636	0.617	0.725	0.623
Equity Ratio	0.489	0.416	0.461	0.371	0.431	0.334
Current Ratio	2.665	2.16	2.648	2.242	2.374	2.164
Quick Ratio	2.033	1.5	2.025	1.667	0.785	1.252
Firm year obs.	451,110	20,367	503,053	52,313	1,695,880	323,585
Unique firms	91,231	5,025	103,700	13,084	231,255	48,573

**Table B3:** Descriptive statistics for CHCs and WHCs over the years 2012–2019 for the main sample, the sample including corporations that switch tax status, and a more inclusive sample.

*Note: For the inclusive sample, we have no requirements on employees or common support (as described in Section D), we limit the sample to firms with at least 100'000 SEK in annual revenue and lagged balance sheet total and 50'000 SEK in lagged fixed assets. Balance sheet total and fixed assets are in 1000 SEK.*

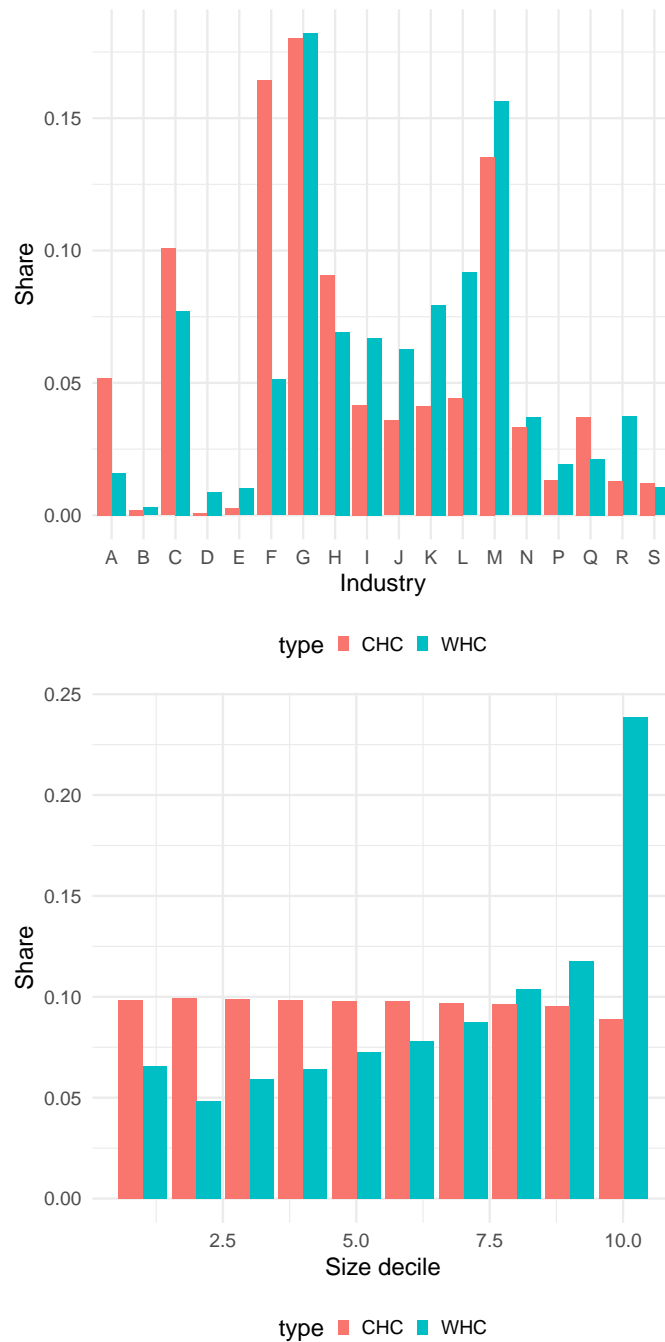
## **B.4 CHC and WHC specific distributions**

Figures B3 and B4 shows the distribution of CHC and WHC firms across employment size groups, capital intensity ratio quintiles, industry, and average lagged revenue deciles or “size” as defined in Yagan (2015). We find that CHC and WHC firms are relatively evenly distributed across industries. However, there is a slight overrepresentation of WHCs among very large firms in terms of the number of employees and lagged average revenue (or “size”).



**Figure B3:** Distribution of CHC and WHC firms across employment groups and capital intensity ratio quintiles.

Note: For the employment groups, the first interval is closed (i.e., [1, 2]), while the following groups have an open lower bound (i.e., (2, 3], (3,5], etc.).

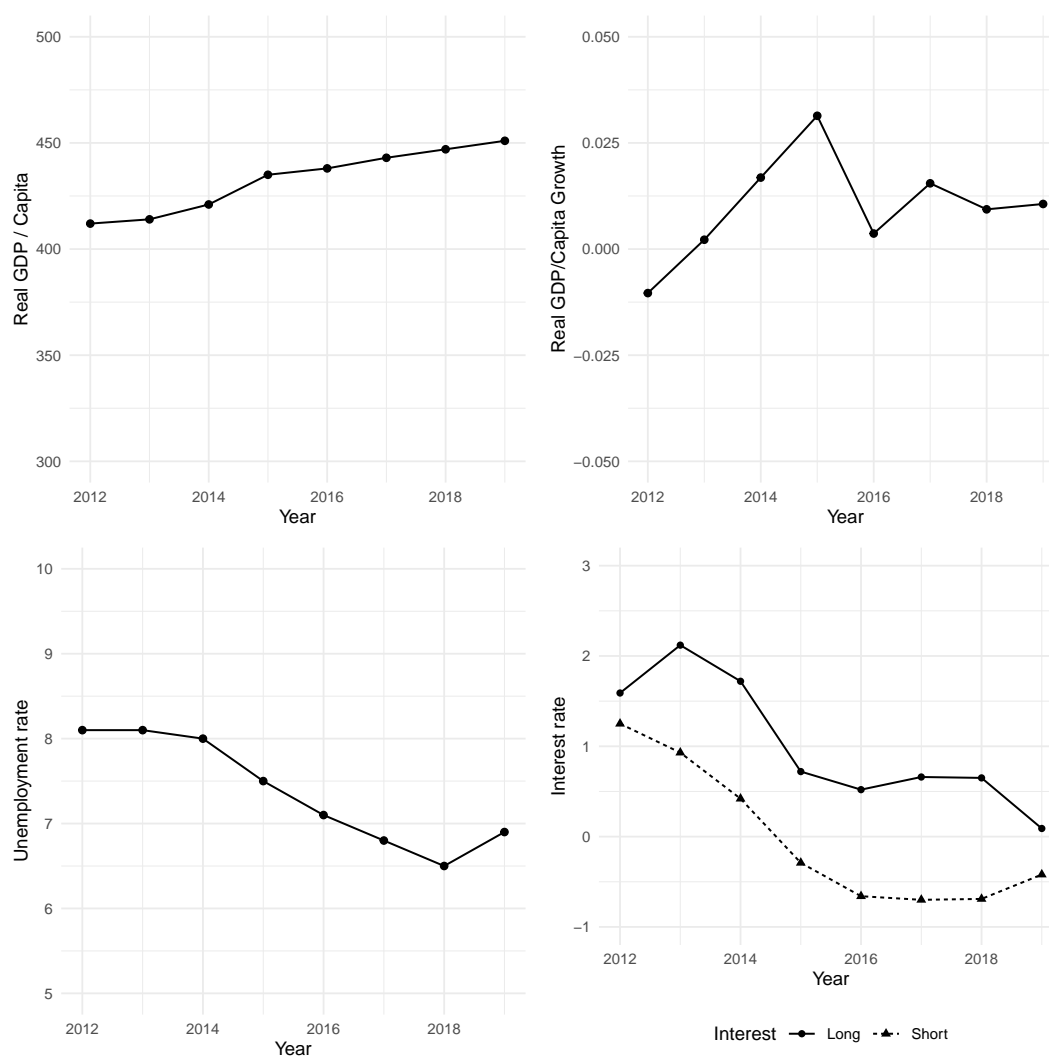


**Figure B4:** Distribution of CHC and WHC across industries and size deciles (defined as lagged average revenue following Yagan (2015)).

Note: Industries are defined as follows: agriculture, forestry and fishing (A), mining and quarrying (B), manufacturing (C), electricity, gas, steam, and air conditioning supply (D), water supply, sewage, waste management and remediation activities (E), construction (G), transportation and storage (H), accommodation and food service activities (I), information and communication (J), financial and insurance activities (K), real estate activities (L), professional, scientific and technical activities (M), administrative and support service activities (N), education (P), human health and social work activities (Q), arts, entertainment and recreation (R), other service activities (S).

## C Business cycle indicators

In Figure C1, we graph the development in the gross domestic product (GDP), GDP growth, unemployment, and interest rate during the time period of study, 2012–2019.



**Figure C1:** Macroeconomic statistics during the sample period.

## D DFL weighting

We implement the DFL reweighting method across 18 distinct groups, which comprise two types of firms spanning nine years. We designate the CHCs in 2013 as the benchmark group, enabling us to account for any disparities in number of employees and capital intensity. The employee categories follow a Fibonacci-sequence and capital intensity level is defined as annual quintiles of total assets over revenue. This results in a total of 93 bins. To ensure common support, our analysis is confined to bins that contain a minimum of 5 firms for each tax status. This reduced the final bin count to 62, mainly resulting from a lack of CHC firms with more than 987 employees. However, only 40 out of 5,065 WHC firms and 53 out of 91,284 CHC firms were lost due to the common support requirement.

The weighing process is carried out in two stages. Initially, each firm-year observation is assigned a weight based on the firm's employment level relative to all firms within the same year-type group, denoted as  $g$ . Each firm is weighted according to its proportional contribution to the total employment of firms sharing the same tax status for that year. Furthermore, we denote the initial weight for the firm-year observation  $f$  as  $s_f$ . We will use  $f'$  to represent firm-year observations in general,  $b$  to denote the size-capital intensity bin, and  $\check{g}$  for the reference group. The weight for each observation is then calculated as follows:

$$w_{fbg} = s_f \frac{\sum_{f' \in b \cap f' \in \check{g}} s_{f'}}{\sum_{f' \in b \cap f' \in g} s_{f'}} \frac{\sum_{f' \in g} s_{f'}}{\sum_{f' \in \check{g}} s_{f'}}. \quad (D1)$$

From Equation D1, we see that for firms that are part of the reference group  $\check{g}$ , their weight is identical to the weight allocated in the initial step, denoted as  $s_f$ . All other observations are assigned a final weight  $w_{fbg}$ , which either inflates or deflates their initial weight based on whether its bin size is larger or smaller in its group compared to the base group. The first fraction in the equation adjusts the final weights so that within each group  $g$ , the sum of the weights assigned to an industry-size bin matches the weights assigned to that bin in the reference group. The second fraction ensures that the total final weight assigned to a

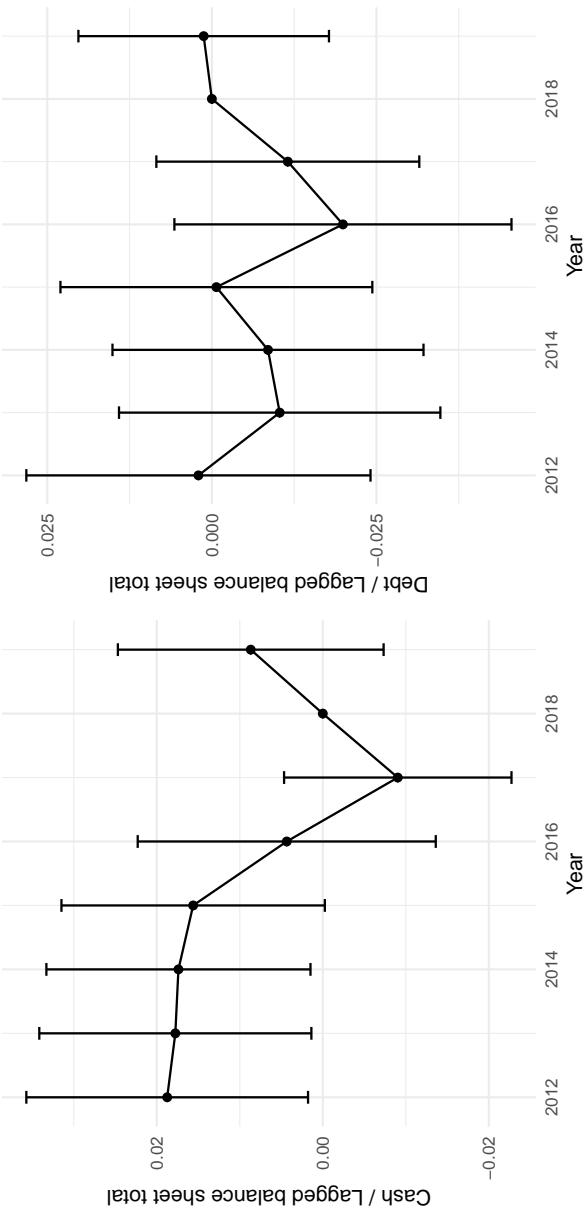
group equals the sum of the group's initial weight, i.e.,  $\sum_{f' \in g} w_{fbg} = \sum_{f' \in g} s_{f'}$  for all  $g$ .



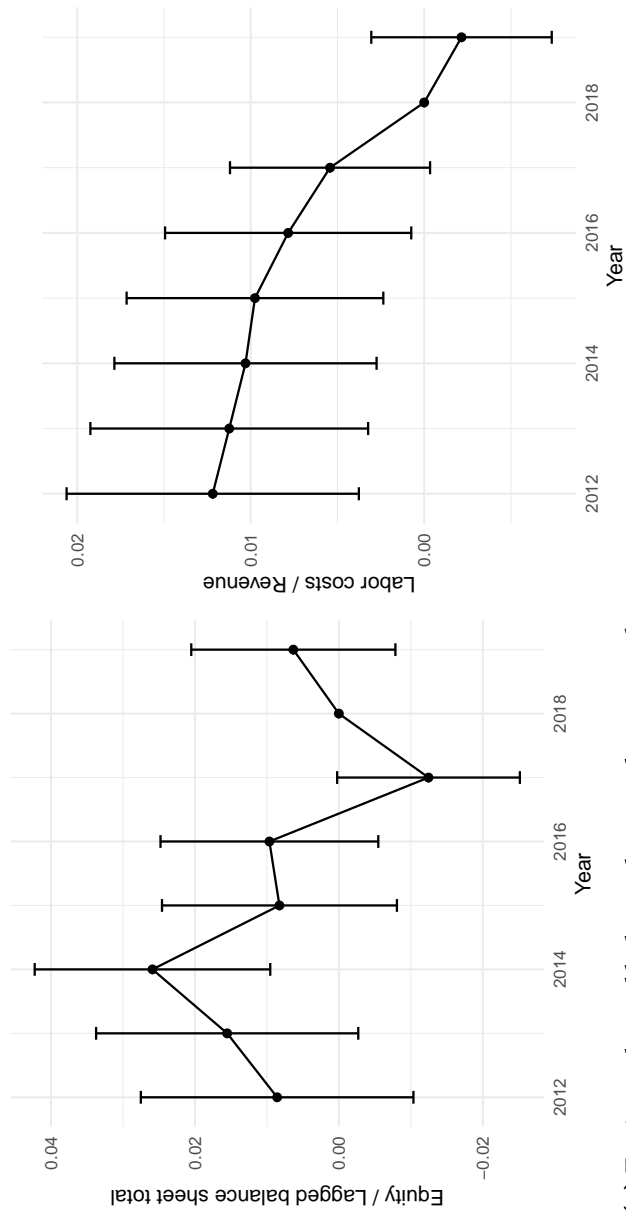
## **E Additional results and robustness**

### **E.1 Firms' outcomes**

Figure E1 reports indirect outcomes for the sample of firms using the regression from Equation (1) and Figure E2 shows outcomes for investments using three different definitions; gross investments, growth in tangible fixed assets, and growth in machines and equipment. From Figure E1, we find that the cash holdings declined for CHCs after 2014, reaching its low-point 2017 and recovering slightly 2018–2019. We also find tendencies for a decline in Equity in 2017, however, recovering to 2012 levels in 2019. We find no effect on debt and a downward trend in labor costs. The downward trend in labor costs could be a result of income shifting, as the amount of dividends paid by CHCs increased over time. From Figure E2, we find no evidence for a decline in investments for CHCs. For all measures of investments, the 2018–2019 levels are not lower than in the pre-period.

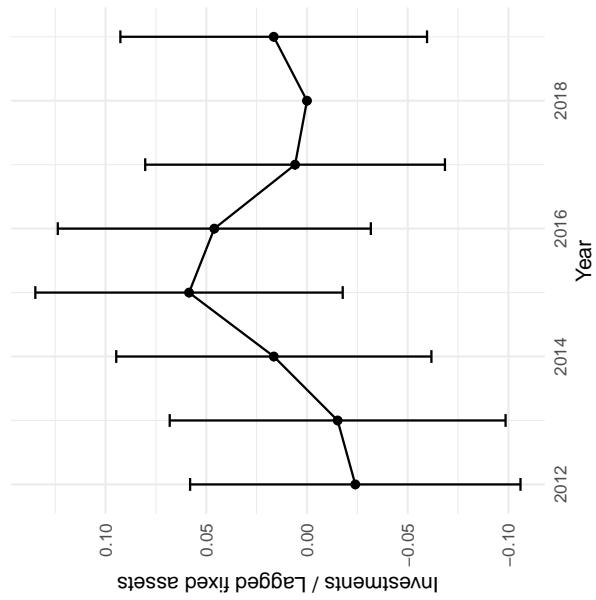


**(a)** Cash-to-lagged balance sheet total event-study coefficients **(b)** Debt-to-lagged balance sheet total event-study coefficients

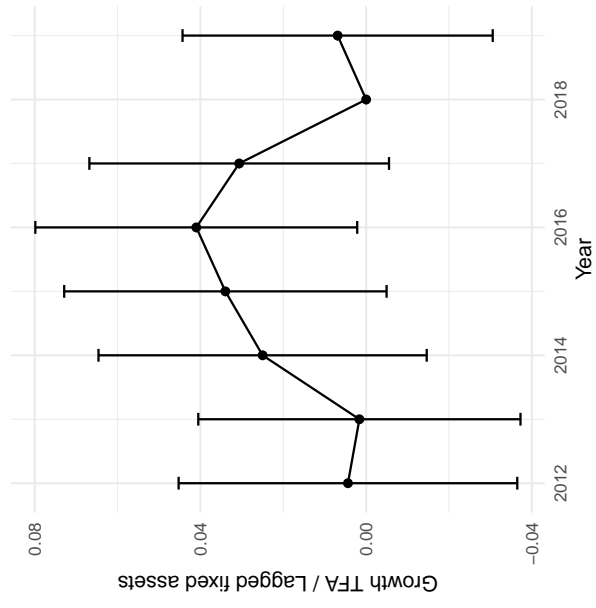


**(c)** Equity-to-lagged balance sheet total event-study coefficients **(d)** Labor costs-to-revenue event-study coefficients

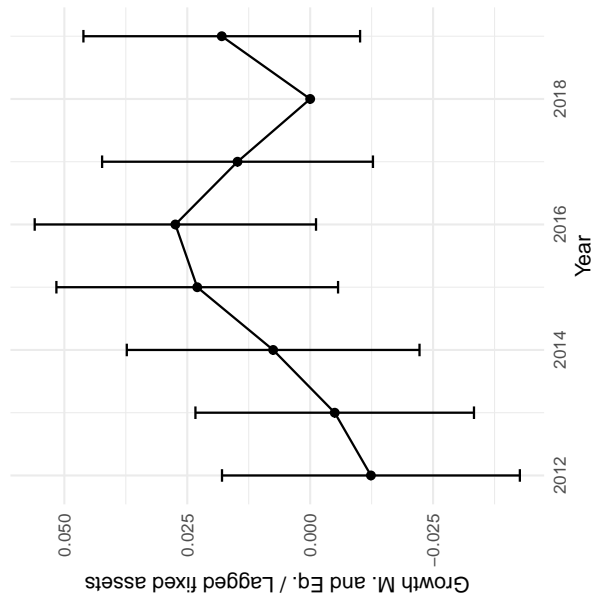
**Figure E1: Indirect outcomes**



(a) Gross investments (investments) event-study coefficients



(b) Growth in tangible fixed assets event-study coefficients



(c) Growth in machines and equipment event-study coefficients

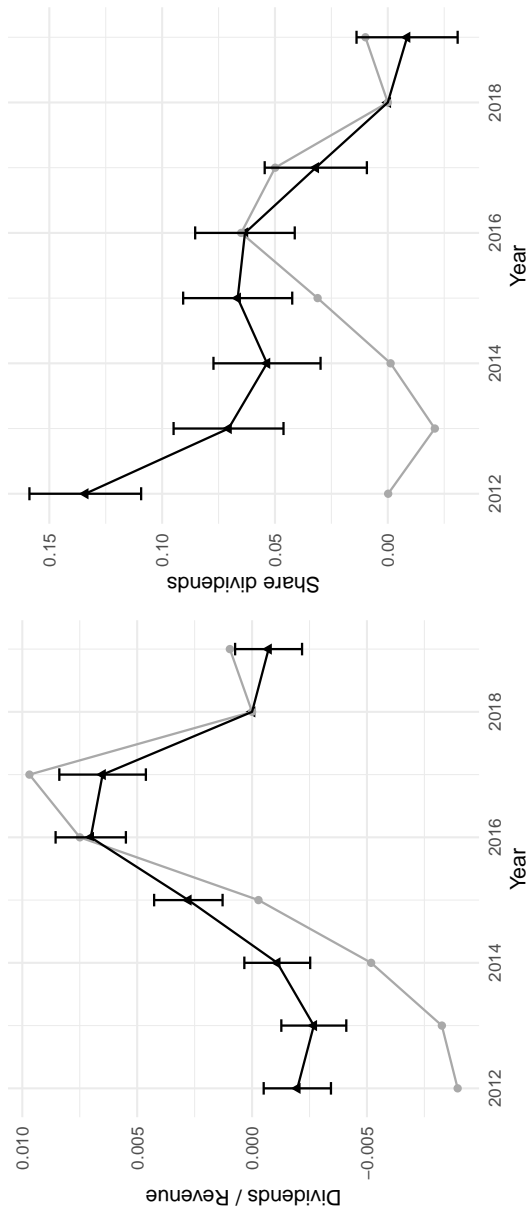
**Figure E2:** Regression outcomes baseline sample with different measures of investments.

## **E.2 Robustness of main effect**

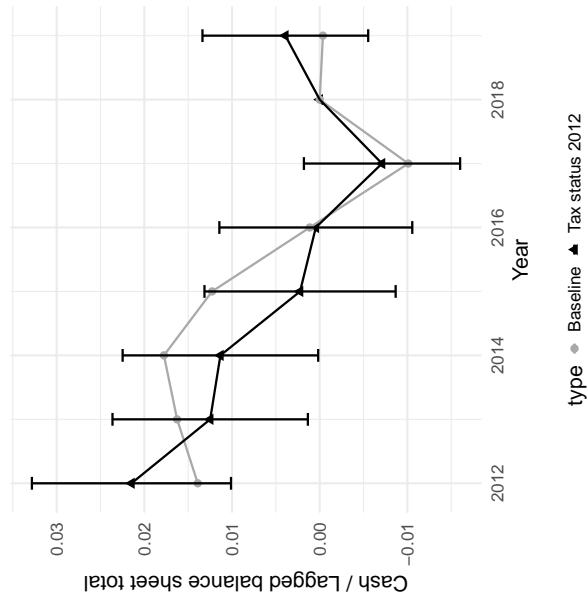
In this section, we present a number of robustness checks for our main results related to dividend payments, cash holdings and investments. In all figures, we include the baseline outcomes as reference. Figure E3 shows regression results when including firms that switch tax status, Figure E4 shows regression results without weighting, Figure E5 shows regression results when weighting by 2012 employment, Figure E6 shows regression results when excluding all covariates, and Figure E7 shows regression results without any Winsorization. Overall our main findings are robust to these alterations.

When including firms that switch tax status (Figure E3), we find that the dividend-to-revenue ratio before and after the anticipation period are fairly similar (i.e., no increasing trend). This is likely due to the fact that firms that change tax status, by definition, have no accumulated dividend allowances. However, when considering the extensive margin, we find an downward trend. This is likely driven by firms that switch from a WHC-status to a CHC-status likely do so in order to access the preferential tax treatment for dividend payments. For cash and investments, we find similar results as the baseline.

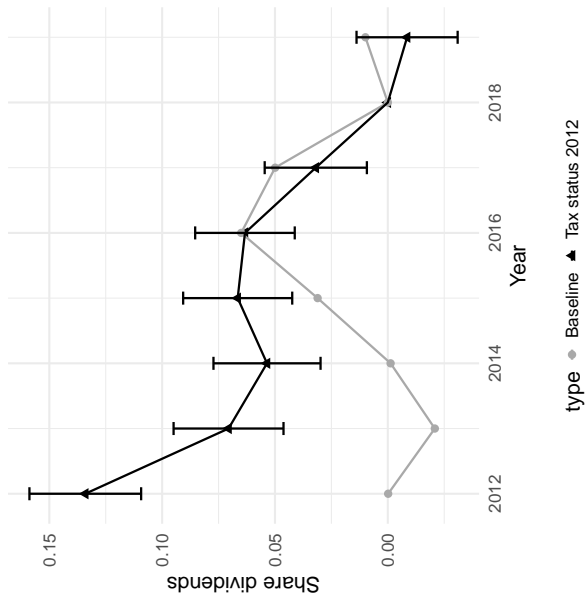
From Figure E4 and E5, we find that the weighting does not affect our main results. Figure E6 shows that the covariates have a very minor impact on our estimates and from Figure E7 shows that our findings are robust to the Winsorization.



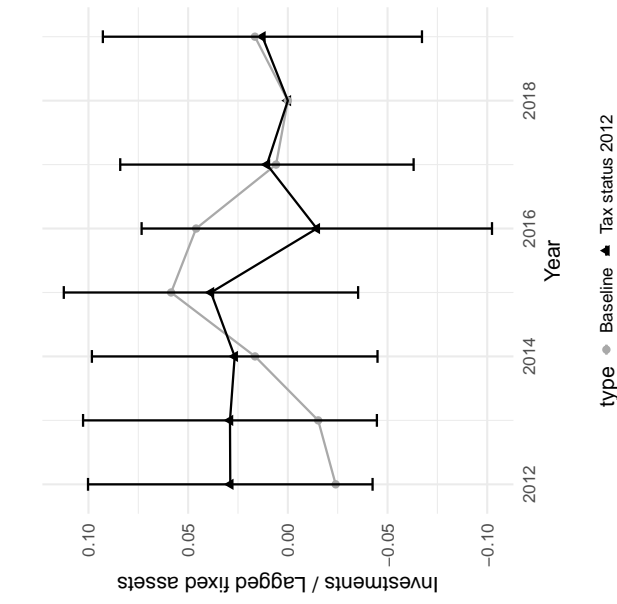
(a) Dividend-to-revenue event-study coefficients



(b) Cash-to-lagged balance sheet total event-study coefficients

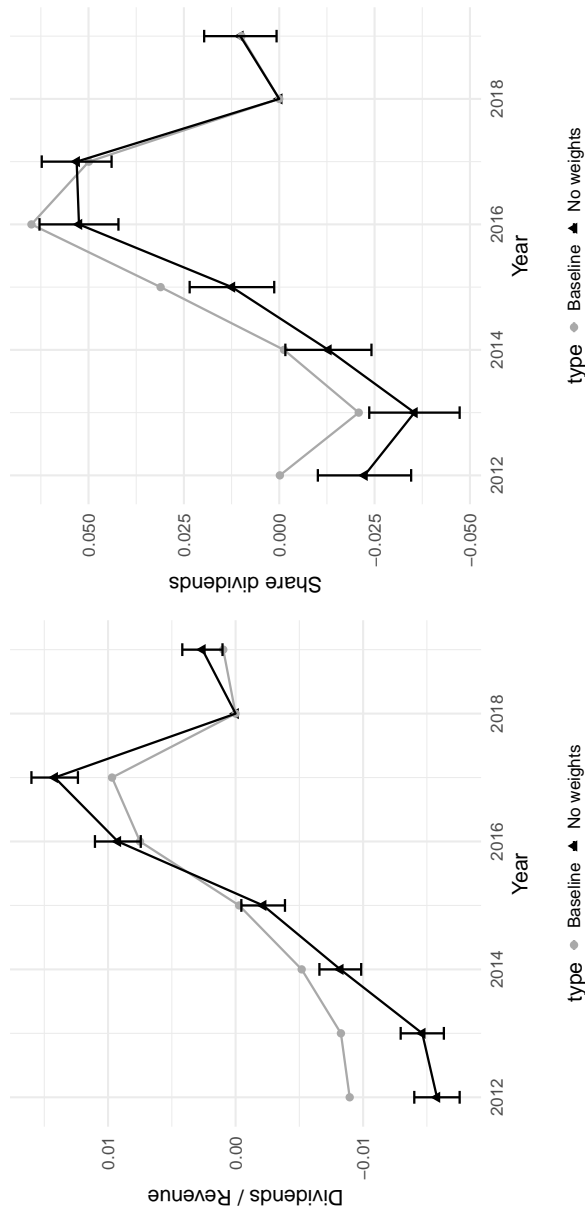


(c) Share dividends event-study coefficients



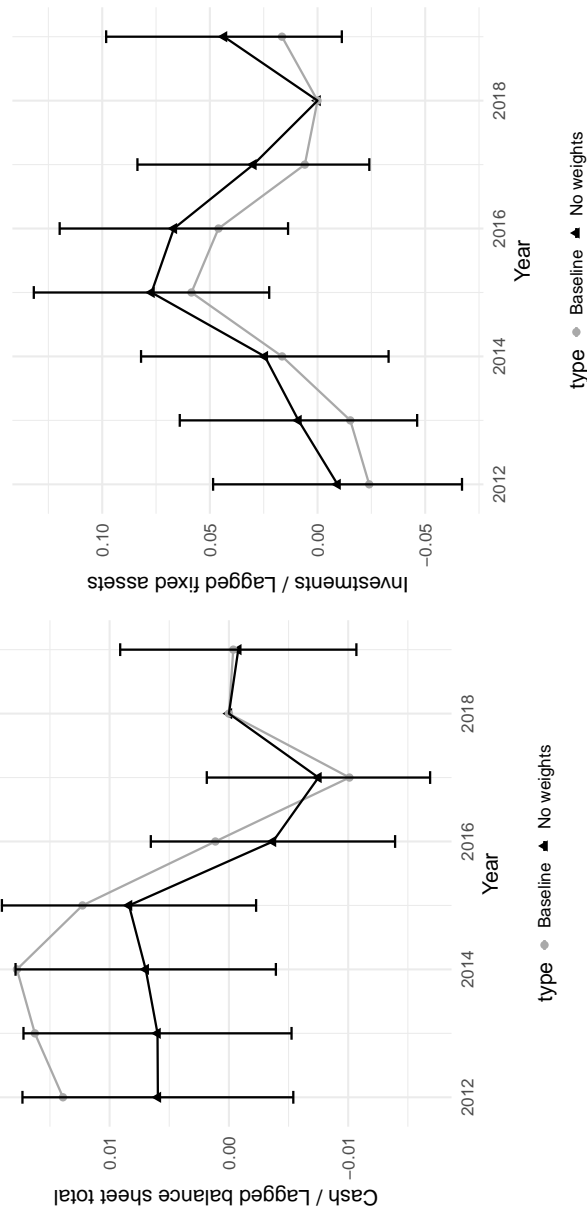
(d) Investments event-study coefficients

**Figure E3:** Robustness check including firms switching tax status.



**(b) Share dividends event-study coefficients**

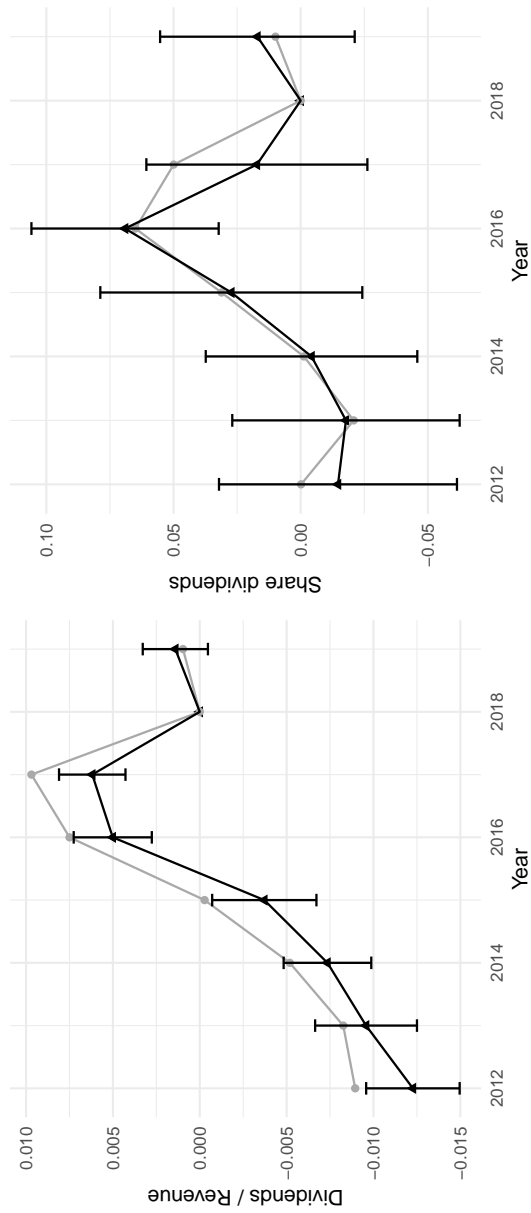
**(a) Dividend-to-revenue event-study coefficients**



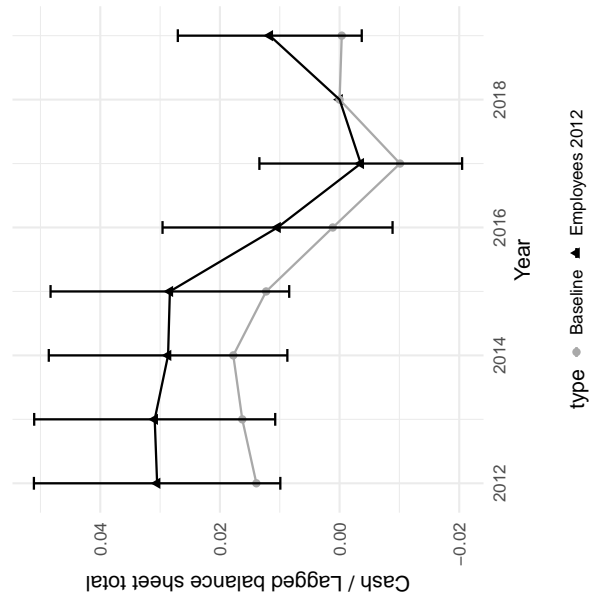
**(c) Cash-to-lagged balance sheet total event-study coefficients**

**(d) Investments event-study coefficients**

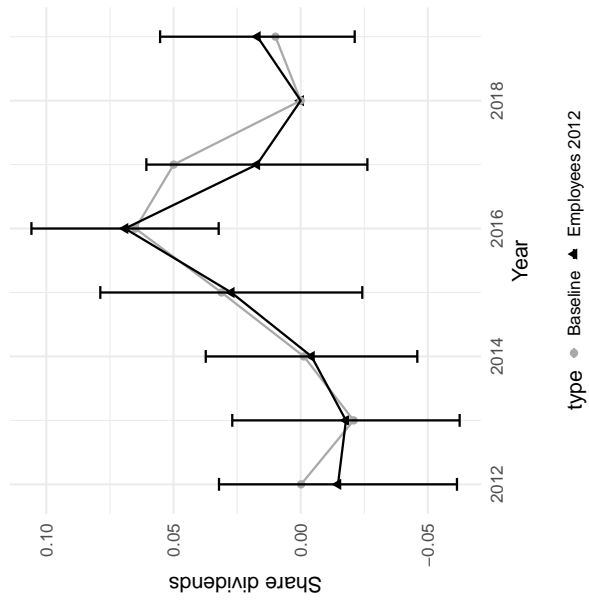
**Figure E4: Robustness check no weighting.**



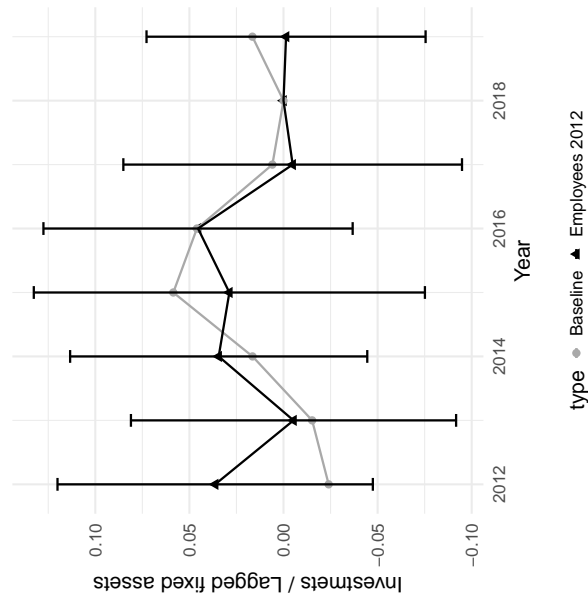
(a) Dividend-to-revenue event-study coefficients



(c) Cash-to-lagged balance sheet total event-study coefficients

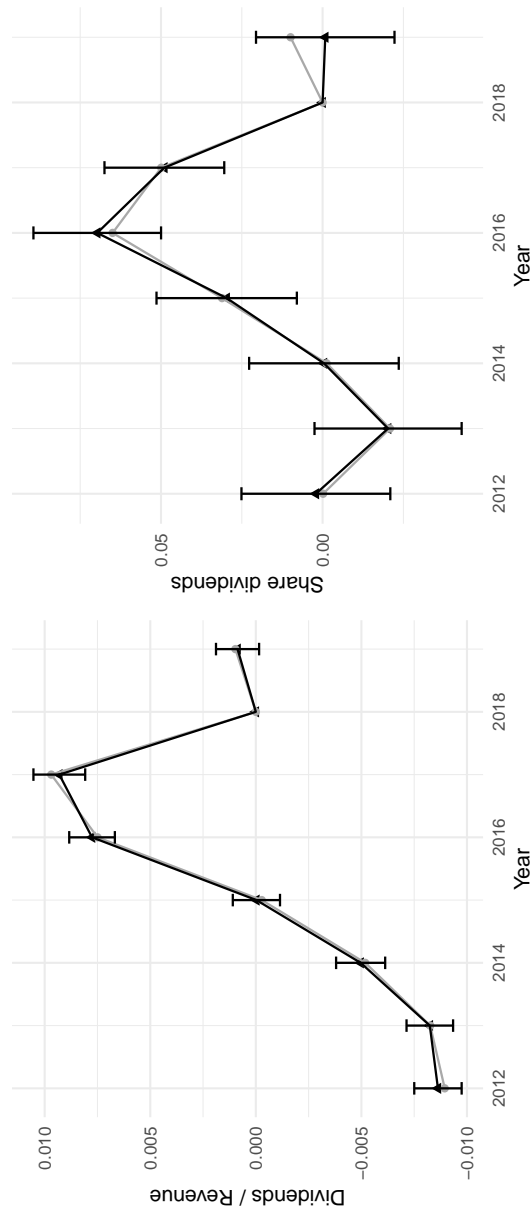


(b) Share dividends event-study coefficients

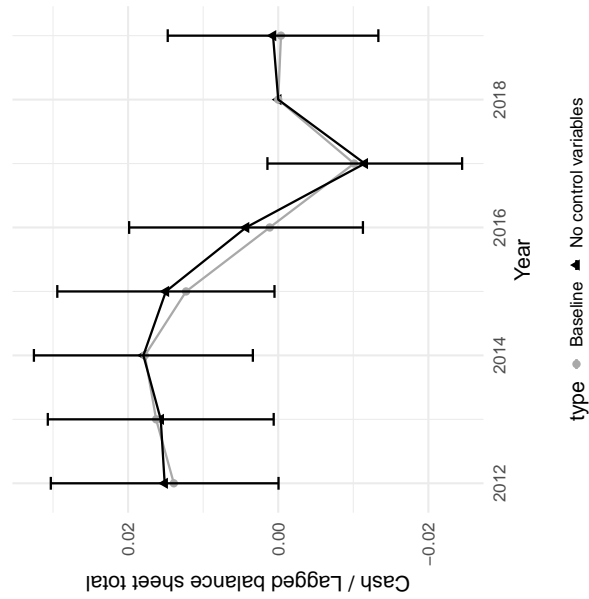


(d) Investments event-study coefficients

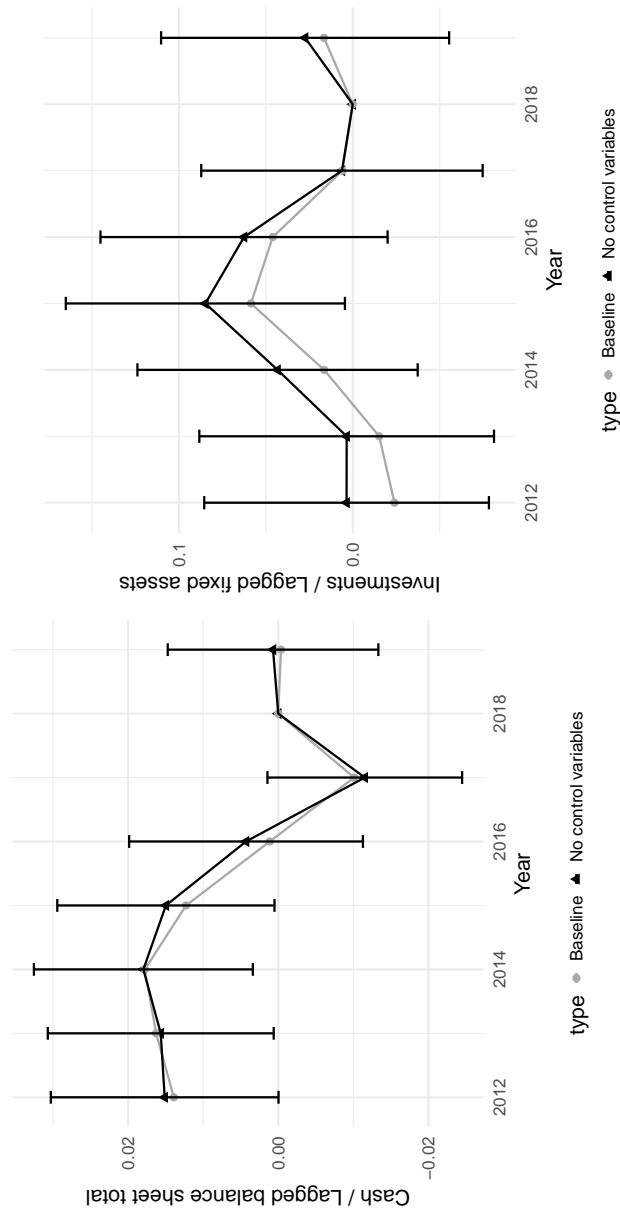
**Figure E5:** Robustness check weighting using employment in 2012.



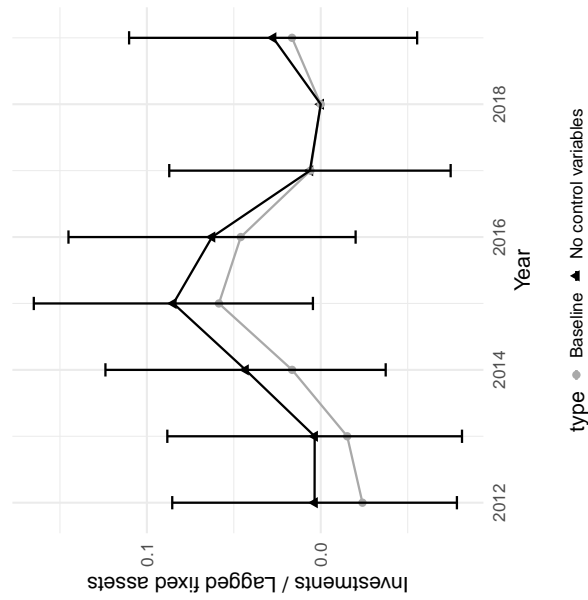
**(a)** Dividend-to-revenue event-study coefficients



**(b)** Share dividends event-study coefficients



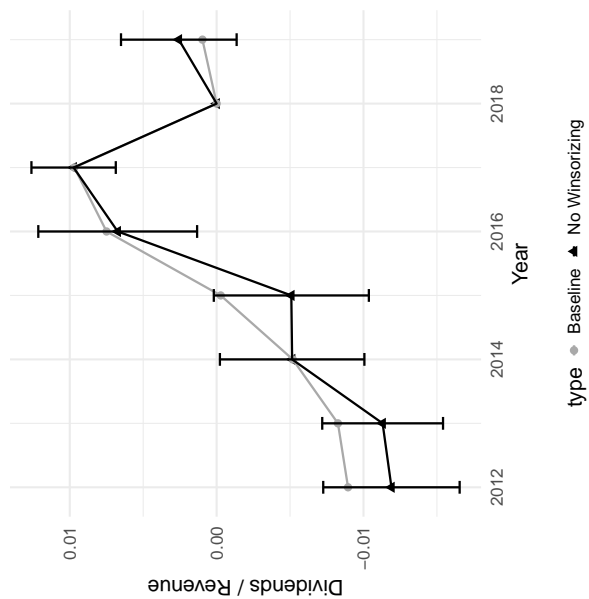
**(c)** Cash-to-lagged balance sheet total event-study coefficients



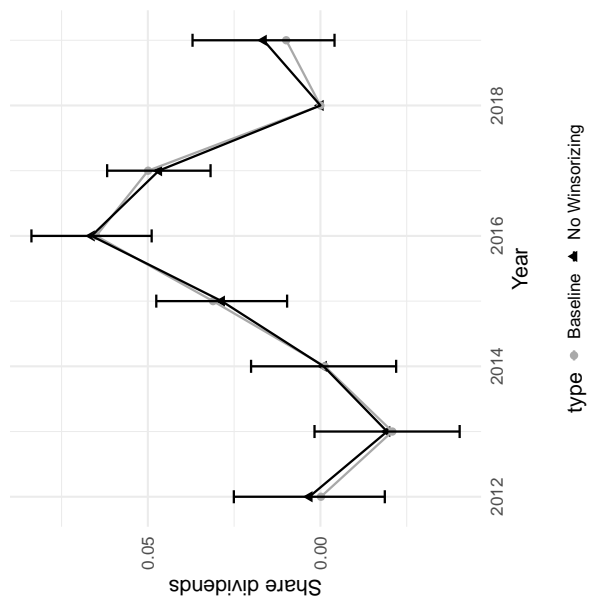
**(d)** Investments event-study coefficients

**Figure E6: Robustness check no covariates.**

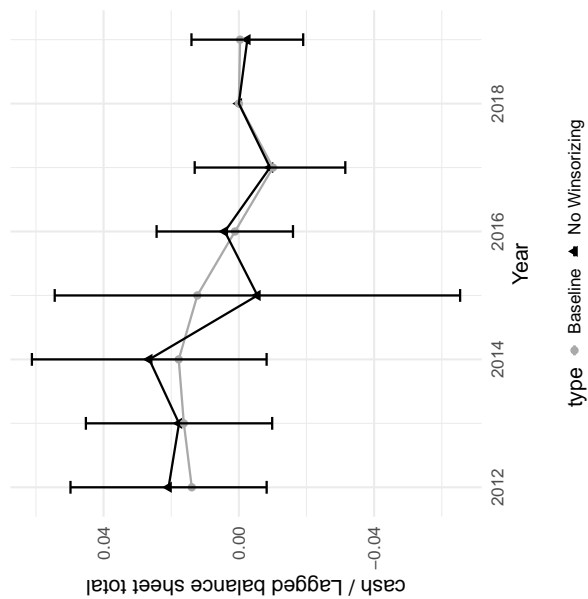




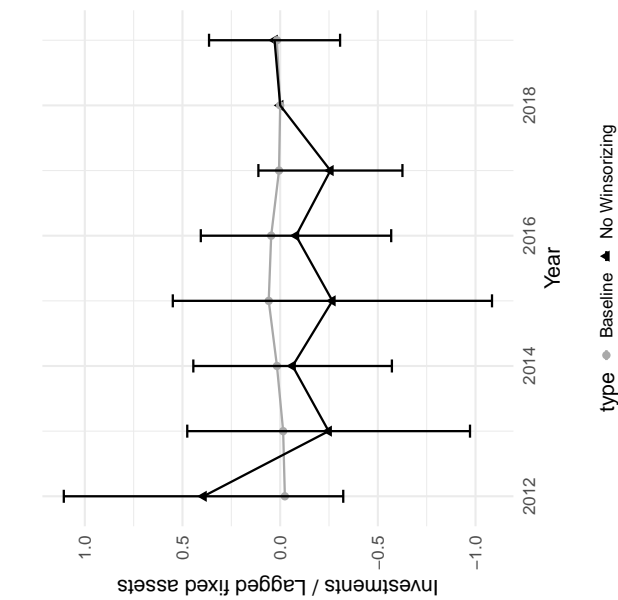
(a) Dividend-to-revenue event-study coefficients



(b) Share dividends event-study coefficients



(c) Cash-to-lagged balance sheet total event-study coefficients



(d) Investments event-study coefficients

Figure E7: Robustness check, no Winsorization.

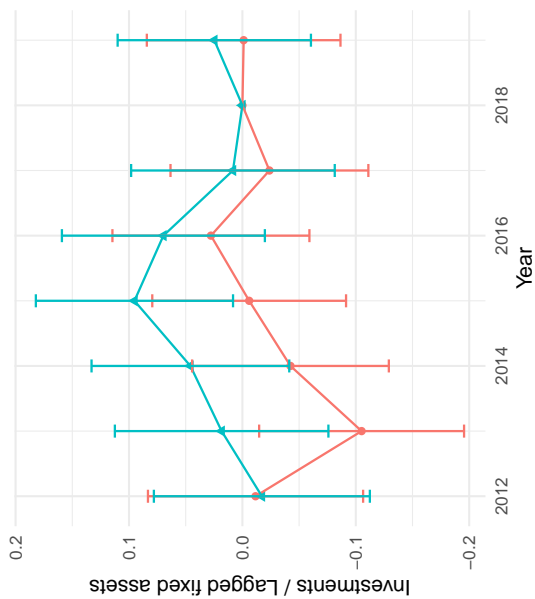
### **E.3 Heterogeneity by pre-period dividend allowances**

As discussed in Section 7.2, the accumulated dividend allowances are important as this determines the amounts of dividends from CHCs that receives the preferential tax treatment. In order to estimate how these allowances affect the anticipation effects, we group CHCs into quintiles based on the median level of saved dividend allowances over revenue during the years 2012, 2013, and 2014. We define the bottom 20% as “Capped” and the top 20% as “Not capped”. We run the regression from Equation (1) separately using these limited sets of CHCs and all WHCs. Figure E9 shows the event study coefficients for dividend payments, cash holdings, investments, and labor costs. We find that the response in dividend payments is larger among firms with more accumulated allowances. Furthermore, we find a reduction in cash holdings among the “Not capped”-firms while the “Capped”-firms are not affected. However, there is no effect on investments for either group. We find a decline in the labor costs among firms with higher dividend allowances. However, this effect could be driven by owners engaging in income-shifting and should be interpreted with caution.



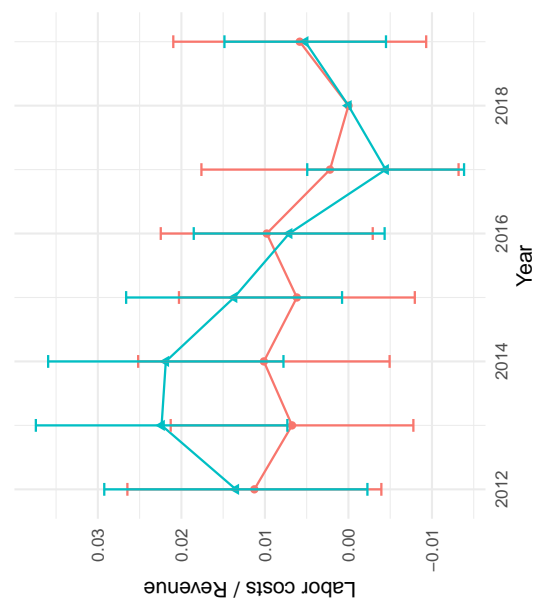
type ● Capped ▲ Not capped

**(a) Dividends-to-revenues**



type ● Capped ▲ Not capped

**(b) Cash**



type ● Capped ▲ Not capped

**(c) Investment**

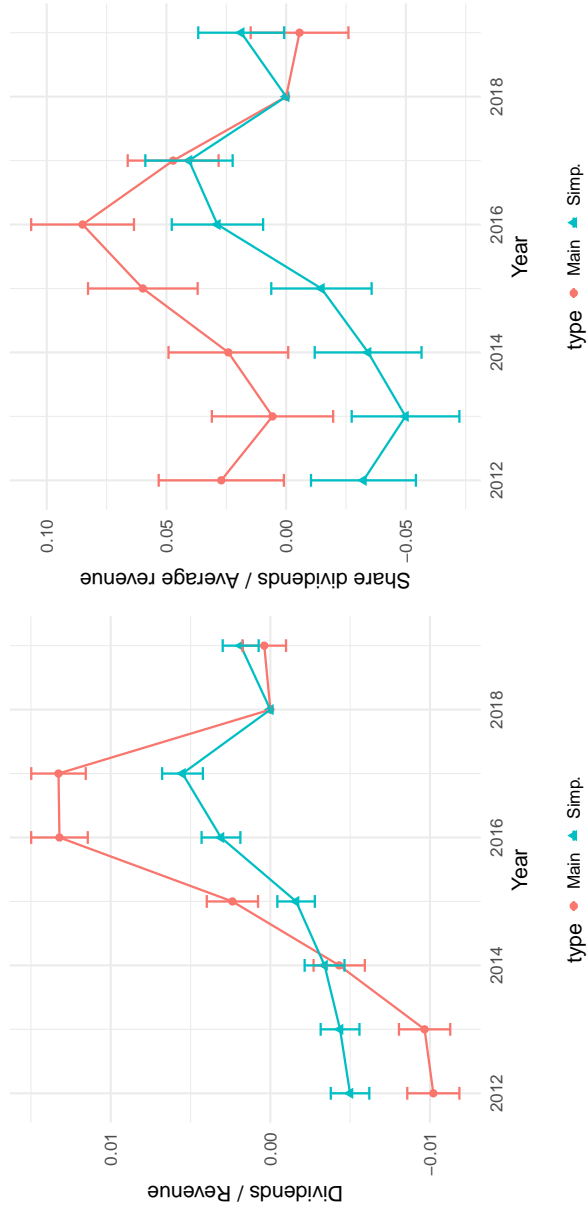
type ● Capped ▲ Not capped

**(d) Labor costs**

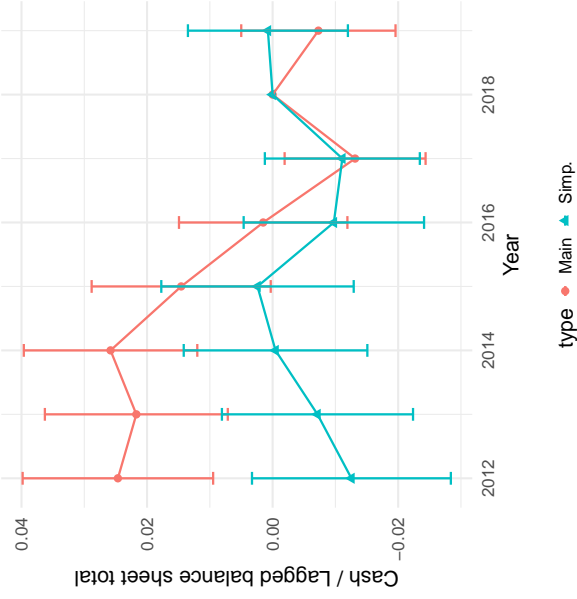
**Figure E8: Outcomes for cash-rich firms**

## **E.4 Heterogeneity by tax rule**

CHC owners can choose either the simplification rule or the main rule. In this analysis, we divide the treatment group into firms whose owners always used only the simplification rule and firms whose owners always used only the main rule when calculating their dividend allowances. We run the regression from Equation (1) separately using these limited sets of CHCs and all WHCs. Figure E9 shows the event study coefficients for the main outcome variables from this exercise. We see that those following the main rule (i) increase their dividends significantly more in 2013–2015, (ii) pay out much larger dividends in the “peak” years of 2016–2017, and (iii) experience a significantly larger decline in 2018. We also find that the cash holdings for the CHCs implementing the main rule declines between 2014 and 2017, while the CHCs using the simplification rule are unaffected. We find no effect on investments for neither group.

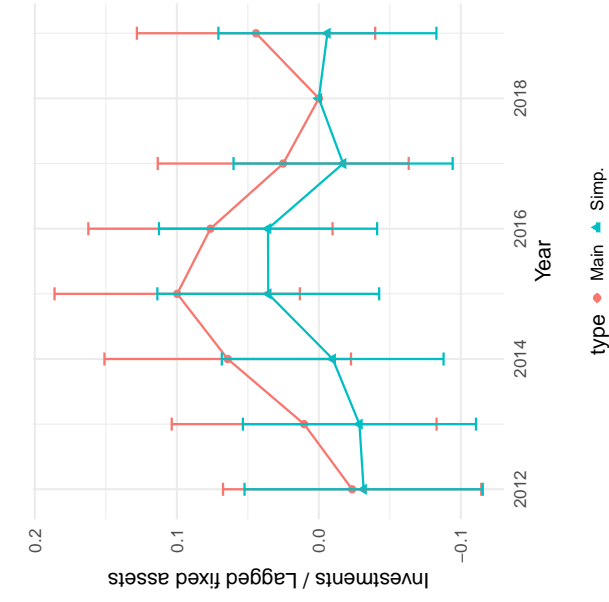


(a) Dividend-to-revenue event-study coefficients



(c) Cash-to-lagged balance sheet total event-study coefficients

(b) Share dividends event-study coefficients

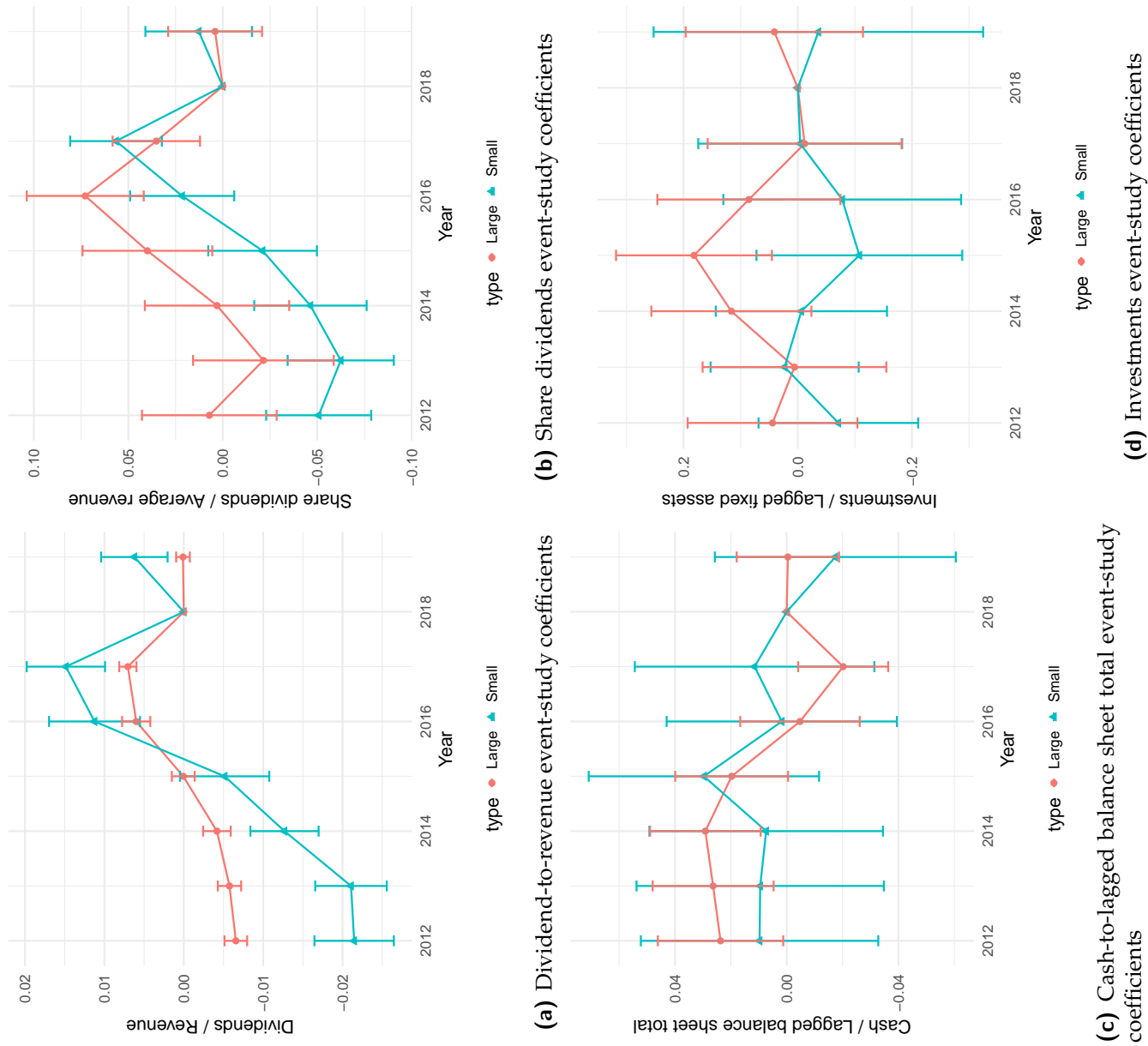


(d) Investments event-study coefficients

**Figure E9:** Heterogeneity in outcomes for CHCs that always use only the simplification rule ("Simp.") or always use only the main rule ("Main") when calculating their dividend allowances.

## **E.5 Heterogeneity by firm size**

In this appendix, we present a heterogeneity analysis based on firm size. We group all firms into quintiles based on the median level of employment during the years 2012, 2013, and 2014. We define the bottom 20% as “Small” and the top 20% as “Large”. We run the regression from Equation (1) separately using these limited sets firms. Figure E10 shows the event study coefficients for the main outcome variables from this exercise. We see that large firms react earlier to the anticipated tax reform, with an extensive margin peak in 2016 compared with 2017 for small firms. We also find that the large firms react less in terms of the increase in dividend-to-revenue payments. However, in terms of cash holdings, there is a reduction in cash for large firms that remain below the pre-period levels in 2018–2019. We find no evidence that investments are lower after the anticipation period when compared with the levels in 2012–2013.



**Figure E10:** Heterogeneity in outcomes for CHC:s that belong to the top- and bottom quintiles in pre-period employment levels.

## F Corporate group data

The purpose of a consolidated financial statement is to present the parent company and its subsidiaries as a single entity.<sup>29</sup> All internal transactions must be eliminated to avoid double counting. Income tax return form 2 (INK2) is used to make these adjustments, along with information from the corporate group register.

### F.1 Balance Sheet

On the asset side of the balance sheet, we must adjust for shares in group companies (long- and short-term), and receivables from group companies (long- and short-term). Equity and liabilities (the right side of the balance sheet) should be adjusted for shares in group companies (long- and short-term), liabilities to group companies (long- and short-term), and dividends from subsidiaries to the parent company.

#### F.1.1 Shares in Group Companies

Elimination of the parent company's shareholding in the subsidiary. The parent company's shareholding must be eliminated against the subsidiary's equity. Shares in group companies in the parent company and equity in the subsidiary: The item "shares in group companies" represents the share that the parent company holds in the subsidiary. In INK2, this item is sometimes zero, which is likely incorrect. In such cases, we use the restricted equity of the subsidiary instead. It is worth noting that the item "shares in group companies" in the parent company is sometimes greater than the restricted equity of the subsidiary. However, in many cases, shares in group companies correspond to the restricted equity ownership share in the subsidiary. Therefore, we use the restricted equity of the subsidiary multiplied by the ownership share in the subsidiary to replace "shares in group companies" (only if this item is zero for the parent

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<sup>29</sup>The first version of this appendix section was drafted by Sofia Andersson, who provided research assistance.



company). We do this for all ownership levels and use the new value only if the share in the group company is zero.

### **F.1.2 Received Dividends – Tax-Free**

Dividends to group and associated companies—only internal dividends need to be adjusted for. In the income tax return, there is item “4.5b”, “Bookkeeping income not to be included – dividends”. This item corresponds to the dividends the parent company has received from subsidiaries and is tax-free. This item probably includes all business-related shares. This also applies to dividends from associated companies (which are also tax-free).

### **F.1.3 Receivables/Liabilities to Group and Associated Companies**

It is not possible to distinguish between internal receivables and liabilities to group companies and receivables and liabilities to associated companies during the period, but we can observe long- and short-term receivables and liabilities separately. Since we cannot distinguish which receivables and liabilities are with associated companies, assets, equity, and liabilities will not be balanced. An associated company is a company in which the holding does not confer a controlling influence, but in which the holding is at least 20% of the voting rights.

## **F.2 Summary of Items to Be Adjusted For**

*Assets - Summary of posts to be adjusted for on the left hand side of the balance sheet:*

- 2.7 Shares in group companies, financial assets.
- 2.24 Shares in group companies, short-term investments.
- 2.9 Receivables from group and associated companies, financial assets.
- 2.20 Receivables from group and associated companies, short-term investments.

*Equity and Liabilities - Summary of items to be adjusted for on the right side:*

- 2.7 Shares in group companies, financial assets.
- 2.24 Shares in group companies, short-term investments.

#### *Equity and Liabilities*

- 2.38 Liabilities to group and associated companies, long-term liabilities.
- 2.47 Liabilities to group and associated companies, short-term liabilities.

#### *Dividends*

- 4.5b Bookkeeping income not to be included - dividends.

### **F.3 Calculation of Equity, Minority Interest, and Total Assets**

Total equity is calculated (total equity in the balance sheet is not adjusted for minority interest):

$$\begin{aligned} \text{equity} = & \text{total equity (parent company)} + \text{total equity (subsidiary)} \\ & - \text{shares in group companies (including short term)} \\ & - \text{dividends to the parent company} \end{aligned} \quad (\text{E1})$$

Calculation of minority interest:

$$\begin{aligned} \text{Minority interest} = & \text{equity (restricted and unrestricted)} \\ & + \text{untaxed reserves} * (1 - \text{tax}) \\ & * (1 - \text{parent company or the given ownership level share}) \end{aligned} \quad (\text{E2})$$

When calculating the balance sheet's right-hand side, all subsidiaries' items must be included, regardless of the ownership share. In the consolidated financial statements, the minority interest is reported as a separate item. In general, this calculation should be performed for each year and group. Equity and

liabilities (right-hand side balance sheet):

$$\begin{aligned}\text{total equity and liabilities} &= \text{total equity and liabilities (parent company)} \\ &\quad + \text{total equity and liabilities (subsidiary)} \\ &\quad - \text{shares in group companies (including short term)} \\ &\quad - \text{dividends to the parent company} \\ &\quad - \text{long and short term liabilities to group companies}\end{aligned}\tag{E3}$$

Total assets (left-hand side balance sheet):

$$\begin{aligned}\text{total assets} &= \text{total assets (parent company)} + \text{total assets (subsidiary)} \\ &\quad - \text{shares in group companies (including short term)} \\ &\quad - \text{receivables from group and associated companies} \\ &\quad \quad \quad (\text{including short term})\end{aligned}\tag{E4}$$

## F.4 Income Statement

Internal sales, revenues, and costs between companies within the group must be eliminated because they affect net revenue. Corporate groups often consist of multiple subsidiaries that may transact with each other (e.g., one subsidiary sells goods or services to another within the group). If internal sales are not corrected, they are included as revenue for both the selling subsidiary and the buying subsidiary, leading to double counting of revenue at the group level. This overstates the overall revenue and gives a misleading picture of the group's actual sales.

Revenues and costs (internal sales) between companies within the group must be eliminated because they affect net revenue. This is done by adjusting the net revenue post with the sum of the result from shares in group companies.

- 3.1 Net revenue minus 3.12 result from shares in group companies

## F.5 Other notes

- Eliminate *minority interest*: We solve this by multiplying with the companies' (parent company's) ownership share (total equity, restricted, and unrestricted) within the group (the remainder is minority ownership).
- *Group contributions given and received* (these items are found in the income statement). We make no adjustments for these.
- *Untaxed reserves* should be split into deferred tax and equity – removes the corporate tax (1-tax)