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Dividend taxes and income shifting

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Dividend taxes and income shifting

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Dividend taxes and income shifting*

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ABSTRACT

This paper analyzes whether a dividend tax cut for owner–managers of closely held corporations encourages income shifting, income generation, or both. We use rich, micro data from Sweden for the period 2000–2011 comprising the entire Swedish population, as well as firm- and individual-level data for all owner–managers in closely held corporations, partnerships, and self-employed. We find robust evidence of extensive income shifting across tax bases in response to the 2006 dividend tax cut. Relative to owners of unincorporated businesses, owner–managers of closely held corporations do not increase total income. Instead, they relabel earned income as dividend income. The income shifting effect is stronger for owner–managers with tax incentives and with easier access to income shifting through a high ownership share.

Keywords: Income shifting, income generation, dividend taxes, closely held corporations, owner–managers

JEL classification: H21, H25, H3

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1. Introduction

Governments often use tax incentives to stimulate entrepreneurship and economic growth (e.g., Lee and Gordon 2005). While some reforms target specific industries or large multinational companies, other reforms target small and medium-sized businesses. Cutting dividend taxes for small businesses can be seen as a way to increase investment, thereby stimulating activity in firms and the economy. A lower dividend tax rate reduces the required rate of return on investments financed by new share issues (Harberger, 1962, 1966; Feldstein, 1970; Sørensen, 1995). If dividend tax cuts reduce the cost of capital, financially constrained firms may increase investment following a dividend tax cut (Becker, Jacob, and Jacob, 2013; Alstadsæter and Jacob 2014).[1] However, in addition to these intended investment effects, beneficial tax rules for particular groups create incentives and opportunities for income shifting (Stiglitz, 1985; Slemrod, 1995; Gordon and Slemrod, 2000). Income shifting is the process of transferring income across time, income categories, and tax brackets to reduce total tax payments. This is legal tax avoidance and does not involve immediate real effects; it is a purely tax-motivated relabeling of existing income. Very little is known empirically about the income shifting of individuals. Pirttilä and Selin (2011) provide evidence of income shifting around the introduction of the dual income tax system in Finland in 1993, which reduced the marginal tax rates on capital income for some taxpayers. The authors find little or no response from ordinary wage earners, but self-employed individuals seem to have increased reported capital income.

We investigate whether a dividend tax cut encourages owner–managers in closely held corporations (CHCs) to participate in income shifting, income generation, or both. Swedish tax law defines a corporation as closely held if four or fewer active shareholders own at least 50% of the shares. A shareholder is active if contributing considerably to the corporation's profit

[1] Further, the openness of the economy drives the effect of a dividend tax cut. A decrease in the dividend tax rate for smaller corporations in an open economy can decrease the cost of capital if these firms are owned by domestic investors (Apel and Södersten, 1999; Jacob and Södersten, 2012; Lindhe and Södersten, 2012).

generation.[2] These owner–managers can determine how much corporate profit to distribute as wages and dividends. By reclassifying highly taxed income (labor income) as a lower-taxed type of income (dividend income), individuals can reduce their total tax payments and increase their net-of-tax income for the same before-tax income.

The 2006 Swedish tax reform reduced the dividend tax rate for owner–managers in CHCs by 10 percentage points. Labor and corporate income tax rates remained constant. As a result, incentives to relabel labor income as dividend income increased. The reform also increased the imputed dividend allowance, which is the amount of dividends taxable at the favorable dividend tax rate. Dividends in excess of the imputed dividend allowance are taxed as earned income at the owner level. This isolated dividend tax change in dividend income is advantageous since our results on income shifting behavior in this context are not affected by concerns about the macroeconomic effects that accompany large tax reforms, such as around the introduction of the dual income tax.[3]

Using rich Swedish micro data on corporations, partnerships, self-employed businesses, and their owner–managers, we are able to observe reported income across several tax bases for the period 2000–2011. Our panel data of the entire Swedish population comprise information on income and socioeconomic variables. We use a matching difference-in-difference estimator around the 2006 tax changes and compare the income of owner–managers of CHCs to the income of owners of unincorporated businesses (who were not affected by the dividend tax cut). We find robust evidence of income shifting behavior. Owner–managers of CHCs have substituted earned income with dividend income since the reform. On average, CHC corporation owners shifted about 6%, or SEK 30,000, of their overall income from labor

[2] Multiple family members count as a single shareholder when we define whether a corporation is closely or widely held. A shareholder is active if contributing to the firm's profit generation to a *considerable extent*. See Section 2 of the present paper for a description of the rules and see also Alstadsæter and Jacob (2012, Chapter 3 and Appendix I) for a thorough discussion of these rules and the 2006 rule changes.

[3] See Agell, Englund, and Södersten (1996) on the 1991 introduction of the Swedish dual income tax system. Our paper also relates to theoretical papers on the dual income tax, such as those of Fjaerli and Lund (2001), Lindhe, Södersten, and Öberg (2002, 2004), and Sørensen, 2005.

income to dividend income. We find no evidence that the overall income of CHC owners increased relative to that of owners of unincorporated businesses. This indicates that CHC owners did not generate additional income in response to the dividend tax cut. Instead, they shifted income across tax bases.

We further evaluate heterogeneity in income shifting across owner–managers by investigating the role of tax incentives in income shifting. Our empirical results suggest that income shifting behavior is more pronounced for high-income CHC owners who enjoy larger tax benefits from converting labor income into dividend income. Finally, we test whether access to income shifting affects the magnitude of the income that is relabeled. We find that individuals with a high ownership share and thus stronger influence on dividend payout policies and wage structure shift more income across bases than owners with minority interests. In fact, CHC owners with minority shareholdings are less able to shape the income shifting process according to their preferences.

Our sample covers the entire population of business owners and we exploit the differences across these individuals. One potential concern about this study is external validity, since income shifting incentives apply to only a small fraction of individuals. However, these individuals, namely, CHC owners, are an important fraction of the entire economy. These CHC owners, or about 3% of the population, generate about 7.6% of the total income and contribute about 8.5% to income tax revenue (2007 values). Further, in the academic literature, CHCs represent an important yet often overlooked part of the economy. About 60% of all corporations are closely held. Therefore, CHC owner income shifting is of great relevance for policy makers and the economy.

This paper is part of a broader exploration of the effects of dividend tax policy on participation in tax avoidance and tax evasion (Alstadsæter and Jacob 2013a, 2013b) and on the investment and payout behavior of unlisted firms (Jacob and Alstadsæter 2013; Alstadsæter and Jacob 2014). The paper closest to this one is that of Alstadsæter and Jacob (2013a), who

analyze the establishment of specific tax-sheltering firms. Access, awareness, and incentives explain the heterogeneity observed in tax avoidance participation. In contrast, the present paper provides empirical evidence of the magnitude of and heterogeneity in the income shifting of owner–managers from the labor income tax base to the dividend income tax base.

Income shifting activity across tax bases distorts aggregate statistics (Slemrod, 1995; Gordon and Slemrod, 2000). It can lead to inaccurate conclusions on the effectiveness of tax stimulus packages. Our results imply that the comprehensive evaluation of any tax reform needs to consider all tax bases that are affected. Myopic focus on a single tax base when evaluating a tax reform can lead to misleading conclusions, for instance, if labor supply elasticities are measured only by labor income without accounting for high-income individuals' potential to relabel wage income as capital income (le Maire and Schjerning, 2013). Our results also point toward a potential policy trade-off. A reduction in dividend taxes leads to income shifting. At the same time, a reduction in the dividend tax rate can improve the allocation of investments as funds are shifted from cash-rich to cash-poor firms (Becker, Jacob, and Jacob 2013; Alstadsæter and Jacob 2014). Hence, policy makers face a trade-off between increasing income shifting opportunities and raising efficiency through the improved allocation of investments.

2. The Swedish tax code, the 2006 tax reform, and tax incentives

Sweden has a dual income tax, with a progressive tax on earned income and a proportional tax on capital income. Progressivity in the tax on earned income stems from a basic flat municipality tax and two additional state taxes, that apply at different thresholds. Earned income comprises labor income and profits from unincorporated businesses. Wages are additionally subject to social security contributions at the firm level. Up to a certain threshold, these contributions generate benefits to the employee in the form of health insurance, unemployment benefits, and pension benefits. However, above this threshold, these

contributions cease to generate additional benefits and become a pure tax.[4] The resulting combined marginal tax burden on labor income ranges from 31.6% to 67.2% (2005 values). Capital income is taxed at the proportional tax rate of 30% at the individual level. Since dividends are also taxed at the corporate level, the combined tax burden on dividends amounted to 49.6% until 2005. For high-income earners, there was a 17.6 percentage-point difference in the top marginal tax rates on wage income and dividend income. This represented a strong incentive to reclassify wage income as dividend income to reduce total tax payments.

The so-called 3:12 rules apply to active owners of CHCs and are designed to limit the scope of income shifting. A corporation is closely held if four of fewer active shareholders own at least 50% of the shares.[5] A shareholder is active if contributing considerably to the firm's profit generation (see Alstadsæter and Jacob, 2012, Chapter 3 and Appendix I, for a detailed description of the rules). We denote active shareholders as owner–managers. Dividends to the owner–managers of CHCs that are within an imputed *Dividend allowance* are taxed as dividends and dividends exceeding the dividend allowance are taxed as earned income.[6] Under the so-called general imputation rule, the dividend allowance is a function of equity and wage costs for the firm and is distributed to each owner–manager according to ownership share.[7] Table 1 provides an overview of developments in marginal tax rates for the period 2000–2011.

[Insert Table 1 about here]

In 2006, the taxation of dividends from CHCs was reformed to foster entrepreneurship, investment, and job creation.[8] Given a budget of SEK 1 billion in granted tax relief, the government tried to achieve these goals by making tax rules more beneficial for business

4 See Table A1.2 in Alstadsæter and Jacob (2012) for these exact thresholds and more discussion.

5 Multiple family members count as a single shareholder in the definition of a CHC.

6 Prior to 2006, shareholders were also allowed a small tax-exempt dividend. This was limited to 70% of the interest rate on government bonds, which varied between 4% and 5% during the period 2001–2005. If not utilized, these allowances for tax-exempt dividends could be carried forward. The 2006 tax reform abandoned tax-exempt dividends and reduced the dividend tax rate from 30% to 20% for owner–managers of CHCs. Accumulated unused allowances for tax-exempt dividends could be utilized after 2006, but with a time restriction outside our sample period.

7 See Alstadsæter and Jacob (2012) for a thorough description of the imputation rules.

8 Edin et al. (2005), Government Bill 2004/05:1; Government Bill 2005/06:40; and Government Bill 2006/07:1.

owners. Specifically, the tax rate on dividends within the dividend allowance was lowered from 30% to 20%. This reduced the combined tax burden on dividends from CHCs from 49.6% to 42.4%. The maximum difference in marginal tax rates between earned income and dividend income increased thereby to 24.8 percentage points. The 2006 reform also increased the dividend allowance substantially for most owner–managers of CHCs. This is the result of i) a more generous calculation of the dividend allowance that partially includes owner wages in the base for imputing the dividend allowance under the general rule and ii) an alternative, optional fixed dividend allowance independent of equity, wage costs, and activity in the firm, that is, the simplification rule. About 80% of shareholders taxed according to the 3:12 rules choose the simplification rule in determining their dividend allowances post-2006.

In sum, the 2006 reform increased the incentive to shift income across tax bases, since the top marginal tax rate difference between wage income and dividend income increased by 7.2 percentage points. The reform also increased the scope for income shifting, since more dividends could be paid out at the reduced rate due to the increased dividend allowance. Subsequent changes to the dividend allowance further increased the ability to shift income during 2007–2011. Both changes considered together, this reform effectively decreased the tax burden on dividends within the 3:12 rules. More income could be shifted from labor to capital income after the reform and to a lower dividend tax rate than before. We thus expect that owners of CHCs have reclassified labor income as dividend income to a greater extent since 2006. Whether the reform also encouraged an increase in economic activity among these firms is an empirical question that can be answered only by considering the dividend income tax base and the labor income tax base of the owners in combination.

3. Data and variables

We use the Firm Register and Individual Database provided by Statistics Sweden. This data set is a combination of two main data sources: corporate tax statements and income tax

statements. The first data set comprises a full sample of all corporations, partnerships, and self-employed in Sweden for the period 2000–2011. The tax returns include information on tax balance sheet items and the profit and loss statement. The second and main data source for our empirical analysis is a panel data set of the income tax returns of the Swedish population. We can link the firm panel and individual panel data through the K10-Forms (for CHCs), the N3A form (for partnerships), or a unique identifier (for the self-employed). We identify CHCs using the link from the corporate tax panel to the individual panel via the K10-Form. A link via the N3A data between firm and individual data identifies partnership owners. In our empirical analysis, we compare the owners of CHCs to the owners of unincorporated businesses, namely, partnerships and self-employed businesses. Figure 1 illustrates the data structure.

[Insert Figure 1 about here]

We exclude observations with missing information on age, gender, or marital status. We also censor extreme observations outside the first and 99th percentiles of the income distribution to prevent extreme values and outliers from distorting and losing precision in our estimates. Finally, we include only observations for which the individual's age is between 18 and 70. Our final data set consists of 302,534 business owners and 3,410,540 observations over the period 2000–2011, with 50% of the observations comprising CHC owner–managers and 50% comprising the self-employed and owners of partnerships.

As our dependent variables, we use overall taxable income (*Overall Income*), defined as an individual's gross total income before tax payments. Overall income covers earned income, capital income, dividend income, and tax-exempt income elements, for example, tax-exempt dividends from CHCs. Further, we use earned income and dividends, where *Earned income* is defined as the sum of (pre-tax) labor income and (pre-tax) income from self-employment and partnerships. Labor income comprises earnings (the variable *CARB* in the data) and excludes taxable benefits such as unemployment insurance and pension income. The variable *Dividend income* is the sum of dividends from listed corporations, unlisted widely

held corporations, and CHCs. As measures of income composition, we use the percentage of income derived from earned income (*% Earned Income*) and the percentage of income received as dividends (*% Dividend Income*). For socioeconomic variables, we obtain information on age, gender, marital status, level and type of education (with dummies indicating whether the individual has higher education in law, business, or IT), and job occupation (with dummies indicating whether the individual works as a consultant or accountant or in the public sector). All variables are defined in Table A.I of Appendix 1.

4. Definition of the treatment and control groups

We define the treatment and control groups based on pre-reform characteristics to ensure that the status is not affected by the reform itself. The treatment group comprises individuals who were owner–managers of CHCs during all three pre-reform years 2003–2005. This condition ensures that the decision to establish a CHC or to remain a CHC was not affected by the 2006 tax reform. Put differently, the treatment is not a function of the reform. The control group consists of a sample of business owners who either participated in a partnership or were self-employed during 2003–2005. We thus compare business owners with access to income shifting (CHC owners, or the treatment group) to business owners with limited income shifting opportunities (owners of unincorporated businesses, or the control group).

Our identification of income shifting effects is based on the change in the incentive and scope for relabeling labor income as dividend income. Our treatment group, CHC owners, experienced a change in incentives in 2006. The control group was unaffected by this change. Since we base assignment to the treatment and control groups on the 2003–2005 status, owners of partnerships could change their organizational form to a CHC. We would still assign these to the control group, since these individuals were partnership owners prior to the reform. The opportunity to change organizational form works against finding evidence of income shifting,

since the control group would respond similarly. In this case, the estimates presented in Sections 5 and 6 are lower-bound estimates.

To ensure that the business owners in the control and treatment groups are similar and that they differ only in access to income shifting (CHCs versus the self-employed), we additionally apply exact one-to-one matching without replacement. We use the decile of labor income distribution, the decile of capital income distribution, demographic characteristics, and county fixed effects as matching variables. The matching is performed on pre-reform characteristics for the years 2003–2005. In the Web Appendix, we describe in detail the matching procedure. The empirical analysis uses the matched sample throughout.

5. Income shifting or income generation: Graphical evidence

As discussed above, the 2006 tax reform increased both the incentive and access for owner–managers in CHCs to reclassify wage income as lower-taxed dividend income within the dividend allowance. The simplest way to find indications for income shifting is to track overall income and income composition over time. Figure 2 plots the change in overall income over the 2000–2011 sample period with the base year 2000. That is, we scale by overall income at the fiscal year 2000. The average overall income of CHC owner–managers increases steadily over the sample period (*black line*). However, the income of owners of unincorporated businesses increases similarly (*gray line*). This indicates that our treatment and control groups follow a common trend with respect to overall income. Put differently, growth in overall income is similar across groups and CHC owners do not appear to generate additional income.

[Insert Figure 2 about here]

Figure 3 considers income composition to identify income shifting behavior. Panel A plots the percentage of income derived from earned income, that is, income that is taxed at the progressive income tax rate. Panel B uses the percentage of income realized as dividend income, that is, income that is taxed at the reduced proportional tax rate. Panel A also shows

that earned income comprises the overwhelming part of overall income. Prior to the reform, business owners in the treatment and control groups realized about the same percentage of income in the form of earned income. The share of earned income then dropped below 90% for CHC owners after the reform, while it remained at about 95% for owners of unincorporated businesses.

The isolated result that the percentage of earned income decreased after the reform is not a sign of income shifting per se; CHC owners could simply have realized capital gains. Therefore, we plot the percentage of income derived from dividends in Panel B of Figure 3.[9] Prior to the reform, CHC owners derived about 2.8% of their total income from dividends. Immediately after the 2006 reform, the percentage of dividend income of CHC owners jumped to about 7.2%. It increased to 9.4% in 2007 to reach about 11% in 2008 and thereafter. The business owners in our control group derived about 1.3% of their overall income from dividends and this percentage remained stable throughout the period.

[Insert Figure 3 about here]

The increasing share of dividends among owner–managers of CHCs is mainly due to the increase in the dividend allowance after 2006. Between 2006 and 2011, the dividend allowance under the simplification rule increased from SEK 64,950 (2006) to 127,750 (2011). Since 80% of CHC owners apply this rule, the scope for income shifting increased. In addition, most owner–managers using the general rule experienced large increases in their imputed dividend allowances due to changes in the imputation methods, for instance, by including owner wages in the imputation base. The descriptive statistics in Table 2 support these findings.

[Insert Table 2 about here]

From the graphical analysis, we conclude that the overall incomes of CHC owners and business owners of unincorporated businesses follow a common trend. Since CHC owners

[9] We include tax-exempt dividends in dividend income that CHC owners could pay out prior to 2006.

have managed to generate a larger fraction of their income in the form of dividends that substitute for earned income as of 2006, the dividend tax cut of 2006 appears to have spurred income shifting. We next analyze income development and income composition for our treatment and control groups in more detail.

6. Income shifting or income generation: Matching difference-in-difference estimates

6.1 Baseline results

We provide matching difference-in-difference estimates of the effect of the 2006 tax cut on overall, earned, and capital income. Since our aggregate observations can be driven by heterogeneity across individuals, we need to control for individual socioeconomic factors. We thus specify the regression model as

$$Income_{i,t} = \alpha_1 + \beta_1 \cdot Treatment_i \times Post_t + \delta \boldsymbol{\theta_{i,t}} + \alpha_i + \alpha_c + \alpha_t + \varepsilon_{j,t} \qquad (1)$$

where $Income_{i,t}$ represents our dependent variables, estimated separately. We use five dependent variables: 1) overall pre-tax income (*Overall Income*), 2) pre-tax earned income (*Earned Income*), 3) pre-tax dividend income (*Dividend Income*), 4) the percentage of income derived as earned income *(% Earned Income*), and 5) the percentage of income derived as dividend income *(% Dividend Income*). All variables are measured for individual *i* in year *t*. The first three variables are included as natural logarithms. When assessing pre-tax income variables, we take tax-exempt dividends into account. That is, we add tax-exempt dividends from the CHC to overall pre-tax income and to capital income to assess total income from the firm independent of payout channel. In addition, since some business owners have zero dividends or even zero earned income, the number of observations is smaller when we use the natural logarithm of earned income or of dividend income. To address concerns that this could result in selection bias, we additionally use the percentage of income derived as earned income and the percentage of income derived as dividend income as dependent variables, which are defined for the entire sample.

We include an indicator variable, *Treatment*, that is equal to one if a taxpayer owns a CHC during 2003–2005; that is, the individual is in our treatment group. The dummy *Treatment* is equal to zero for the matched owner of an unincorporated business. Therefore, in our regressions, about 50% of the observations are CHC owners and 50% are owners of unincorporated businesses. The variable *Post* is a dummy variable that equals one for the years 2006–2011. Our variable of interest is the difference-in-difference estimate (β_1). In the presence of income shifting, we expect β_1 to be negative for *Earned Income* and for *% Earned Income;* β_1 is predicted to be positive for dividend income and *% Dividend Income*. A positive estimate for overall income would be an indication of income generation.

The vector $\boldsymbol{\theta_{i,t}}$ contains the socioeconomic variables for age, marital status, education (with dummies for higher education in business, IT, law, or medicine), and profession (with dummies for being a consultant, an accountant, or a public employee). We include individual fixed effects (α_i), county (of residence) fixed effects (α_c), and year fixed effects (α_t). Since we include year fixed effects, the effect of the reform ($Post$) is not identified and thus not included in the regression. The effect of *Treatment* is not identified due to the inclusion of individual fixed effects. We use robust standard errors clustered at the individual level. We obtain very similar results when excluding all control variables and fixed effects (see Tables A.7 and A.8 of the Web-Appendix).[10]

We use two different sample periods in our tests. First, we compare outcomes from 2005 with those of 2006 to test whether CHC owners immediately responded to the tax reform. Table 3 presents the regression results using the *short-term response sample*. The results are in line with the notion of income shifting. In fact, the negative coefficient of *Post*×*Treament* in Column 1 for the natural logarithm of the overall income indicates that CHC owners did not generate additional income relative to the business owners of unincorporated businesses.

[10] Matching alters neither the sign nor the significance of the results (see Tables A.3 to A.6 of Web-Appendix). The results are very similar when using the more heterogeneous sample and confirm our findings.

Instead, they generated less overall private income (about 2% less). However, this result disappears when we use the long-term sample described below. The results in Columns 2 and 3 indicate that earned income decreased by 5.2% while dividends increased by 58% from 2005 to 2006. Translated into currency terms, this implies that earned income decreased by SEK 15,961 and that dividend income increased by SEK 14,983.[11] This indication of income shifting behavior is further supported by the results in Columns 4 and 5. CHC owners decreased the share of earned income of their overall income by 2.2%. At the same time, the percentage of dividend income of overall income increased by 3.0% from 2005 to 2006. Since the overall income of CHC owners did not increase relative to that of business owners of unincorporated businesses, the results reflect income shifting in response to a dividend tax cut. It appears that owner–managers of CHCs relabeled earned income as dividend income in response to the 2006 reform to reduce total tax payments.

[Insert Table 3 about here]

The second sample we analyze is the entire sample period. The *long-term sample* covers 2000–2011. Table 4 presents the coefficient estimates. We obtain robust evidence that the overall income of CHC owners has not increased relative to that of business owners of unincorporated businesses after 2006 (Table 4, Column 1). In contrast to the immediate response, the long-term estimate for overall income is not significant (p-value = 0.934) and confirms the graphical evidence of Figure 1, that there is no systematic change in the overall income of owner–managers of CHCs compared to that of unincorporated business owners. Instead, our results support income shifting behavior. Relative to the earned income of owners of unincorporated businesses, that of CHC owners decreased by 7.1% and the dividend income of CHC owners more than doubled (+240%) from the pre-reform period 2000–2005 to the post-reform period 2006–2011 (Table 4, Columns 2 and 3). In line with the graphical evidence,

[11] Both values are obtained from multiplying the coefficient estimate with the sample mean of earned income of SEK 306,934 and of dividend income of SEK 25,832 respectively.

our estimate in Column 4 suggests that, relative to the control group, CHC owners decreased the share of earned income of their overall income by about 5.6%. At the same time, the share of dividend income increased by about 6.1%. Relative to the average income of CHC owners of about SEK 495,000 over the sample period, this translates into a shifted amount of about SEK 30,000 per year. This result also shows that the long-term response is almost twice as high as the immediate response of about 3% of overall income. One explanation is the increase in income shifting opportunities after 2006. Since the dividend allowance increased steadily over time, the scope for income shifting increased over time as well. Figure 2 illustrates this trend. The results also indicate that income shifted from earned income to dividend income and not to capital gains income. In sum, the observed behavior reflects income shifting across the tax bases of CHC owners in response to a dividend tax cut.

[Insert Table 4 about here]

6.2 Effect of tax incentives in income shifting

After having established the result that income shifting exists across CHC owners, we next focus on heterogeneity in the response to the 2006 tax reform. The changes in the 3:12 rules were most beneficial for individuals subject to the state tax of 20 percentage points on earned income. The effective tax burden on dividends of 42.4% was then below the income tax burden on labor income of at least 51%. See Table 1 for a detailed description of the tax rates, thresholds, and development over time.

Individuals below the state tax threshold had no incentives for this type of income shifting. We therefore split the sample into two groups according to the prior year's tax status (*State Tax Level 1*). If the CHC owner was subject to the first level of state tax in the prior year (*State Tax Level 1* = 1), we classify this individual as in the *High Tax* group. Individuals who were subject only to municipality tax in the prior year (*State Tax Level 1* = 0) are classified as

in the *Low Tax* group. Figure 4 plots the difference in *% Dividend Income* and in *% Earned Income* between these two groups over time.

[Insert Figure 4 about here]

Prior to the reform, the difference in the percentage of overall income derived as dividend income (earned income) between *High Tax* and *Low Tax* is positive (negative) and constant over time. That is, individuals subject to the state tax received a larger (smaller) fraction of their income as dividends (earned income). This observation is in line with the tax optimization behavior of CHC owners. Around the 2006 tax reform, the difference in the percentage of overall income derived from dividends increases from 1.2% prior to the reform to about 4.5% after the reform. That is, CHC owners with tax incentives increased the share of dividends to a larger extent than CHC owners who had not been subject to the state tax in the prior year. At the same time, the *High Tax* group decreased earned income to a larger extent than the *Low Tax* group.

We additionally test these graphical results in a regression framework. In Table 5, we rerun the regressions from Table 4 but restrict the sample to CHC owners to analyze the cross-sectional variation in the response to the 2006 tax reform. We use the percentage of overall income derived as earned income (*% Earned Income*) and as dividend income (*% Dividend Income*) as our dependent variables. These two variables reflect the income composition of CHC owners and are the best indicators of income shifting behavior. Table 5 presents the estimates of regression *% Earned Income* and *% Dividend Income* on the interaction *Post×State Tax Level 1*. We add control variables and fixed effects as before. We additionally analyze the effect of the top tax (*State Tax Level 2*) on income shifting behavior. If our identifying assumptions hold, the post-reform income shifting effect should increase in the marginal tax rate.

We find empirical support for exactly this. The negative coefficient of *Post×State Tax Level 1* in Column 3 indicates that CHC owners subject to the state tax reduced earned income

by 2.8%. If the CHC owner was subject to the top tax, *% Earned Income* decreased by an additional 1.9%. The results for *% Dividend Income* show that dividend income increased almost symmetrically. If a CHC owner was subject to the first level of the state tax, the increase was 3.3 percentage points higher than for a CHC owner who was not subject to the state tax. The positive and significant interaction of *Post×State Tax Level 2* indicates that the percentage of overall income realized as dividends increased by an additional 1.4% after the reform if the CHC owner was subject to the top tax. In sum, this result indicates that heterogeneity in participation in income shifting is related to the (lack of) tax incentive.

[Insert Table 5 about here]

6.3 Heterogeneity in access to income shifting

Next, we examine the role of access to income shifting. Alstadsæter and Jacob (2013a) show that not every taxpayer with tax incentives and tax awareness actually participates in income shifting. An individual needs access to income shifting. A lack of access can explain why not all who have a tax incentive actually participate in legal tax avoidance. Our definitions of control and treatment groups, that is, CHC owners versus owners of partnerships and self-employed, follow the logic of this argument, since only the owner–managers of CHCs are able to relabel earned income as dividend income from the CHC. We next exploit differences in access to income shifting across CHC owners. In particular, we argue that income shifting from earned income to dividend income depends on bargaining power and ownership share in the company. An owner–manager who fully owns a company can decide on the optimal wage–dividend mix. If an owner–manager, however, owns only a minority share, the owner–manager has less bargaining power and opportunity to shift income from the labor to the capital income tax base. For example, Jacob and Alstadsæter (2013) show that the tax sensitivity of the corporate payouts of unlisted firms is related to the number of firm owners.

To test the prediction that access to income shifting affects the extent to which income is shifted across tax bases, we sort CHC owners according to their ownership share. The *High Share* group comprises CHC owner–managers who own more than 75% of the CHC. The *Low Share* group comprises CHC owner–managers who own less than 25%. Following the logic of Figure 4, Figure 5 presents the differences in *% Earned Income* and *% Dividend Income* between the *High Share* and *Low Share* groups. Prior to the reform, the difference in *% Earned Income* and *% Dividend Income* is very close to zero. That is, income composition is similar across groups. After the reform, the ability to adjust the income composition in accordance with the changed incentives is higher for the *High Share* group than for the *Low Share* group. More specifically, *High Share* CHC owners can increase (decrease) dividends (earned income) to a larger extent than *Low Share* CHC owners.

[Insert Figure 5 about here]

Table 6 quantifies the differences in the ability to adjust to the changed incentives in a regression framework. The estimates are based on the sample of all CHC owners. We include an interaction between *Post×High Share* and *Post×Low Share*. As in Table 5, we use *% Earned Income* and *% Dividend Income* as dependent variables. The results in Columns 3 and 6 show that *relative* to the average CHC owner with an ownership share between 25% and 75%, *Low Share* CHC owners increased their share of earned income and decreased the share of dividend income. That is, owners with less control over the firm shifted less income than the average CHC owner. In contrast, *High Share* CHC owners could additionally reduce their share of overall income derived from earned income by 0.7%. At the same time, they increased the share of dividend income by 1.3%. These coefficient estimates are relative to those of CHC owners with an ownership share between 25% and 75%.

[Insert Table 6 about here]

The results in Tables 5 and 6 indicate substantial heterogeneity in the income shifting response: CHC owners with incentives and the ability to shift income across tax bases utilized the income shifting opportunities created by the 2006 tax reform and CHC owners with low levels of shares in the firm benefited substantially less from these opportunities.

7. Conclusion

We find robust evidence of income shifting in response to a dividend tax cut. The owner–managers of CHCs increase dividends from CHCs while reducing wage income. The extent of income shifting is positively associated with tax incentives and the ability to shift income. High-income owner–managers substitute highly taxed labor income with lower-taxed dividend income. Through this income shifting process, owner–managers can reduce their total tax payments and experience higher after-tax income growth vis-à-vis the owners of unincorporated businesses. Further, there are frictions in the scope for income shifting. Owner–managers with low ownership share shift less income across bases due to a lack of bargaining power over majority shareholders. In contrast, owner–managers with high ownership utilize income shifting opportunities more intensively.

The observed behavior has implications for fiscal policy, the design of tax systems, and the evaluation of tax reforms. In general, the presence of income shifting has several effects on the economy (Gordon and Slemrod, 2000). First, the efficiency of the tax system is reduced. Second, tax revenues decline. Third, income inequality increases; that is, if mainly highly taxed individuals benefit from this kind of tax planning, income inequality increases and this reduces vertical equity. In addition, horizontal equity is reduced, since only informed individuals with awareness of the tax incentives and methods of tax planning participate in tax-minimizing activity (Alstadsæter and Jacob, 2013a). Fourth, income shifting provides misleading statistics. Focusing on a single tax base produces misleading statistics if income is shifted across tax bases.

Finally, the presence of income shifting indicates that a policy trade-off: A reduction in dividend taxes leads to income shifting, with all the potential effects stated above. At the same time, a reduction in the dividend tax rate can improve the allocation of investments, since funds are shifted from cash-rich to cash-poor firms. Becker, Jacob, and Jacob (2013) show this allocation effect for listed firms in OECD countries and Alstadsæter and Jacob (2014) provide empirical evidence that this effect also holds for unlisted corporations. A dividend tax reduction shifts investments from cash-rich to cash-poor firms and thereby increases efficiency. Hence, policy makers face a trade-off between income shifting opportunities while raising efficiency through the improved allocation of investments.

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Appendix 1: Variable Definitions

Table A.I: Variable Definitions

Variable	Description
Dependent Variables	
Overall Income	Overall taxable income (Earned Income + Capital Income), in SEK
Earned Income	Earned income is the sum of labor income from all sources and business profits from unlimited liability firms, in SEK. Labor income comprises earnings (variable *CARB* in the data) and excludes taxable benefits such as unemployment insurance or pension income.
Dividend Income	Dividends from widely held corporations and CHCs, in SEK
% Earned Income	Ratio of Earned Income to Overall Income
% Dividend Income	Ratio of Dividend Income to Overall Income
Individual-Level Variables and Matching Covariates	
Post	Dummy variable that equals 1 if year after 2005
Treatment	Dummy variable that equals 1 if CHC owner over 2003–2005 period
Age	Age in years
Female	Dummy variable that equals 1 if female
Married	Dummy variable that equals 1 if married
Econ_Edu	Dummy variable that equals 1 if business/economics higher education
IT_Edu	Dummy variable that equals 1 if information technology degree
Law_Edu	Dummy variable that equals 1 if law degree
Med_Edu	Dummy variable that equals 1 if medical degree
Accountant	Dummy variable that equals 1 if job occupation is an accounting firm
Consultant	Dummy variable that equals 1 if job occupation is a consulting firm
Public Employee	Dummy variable that equals 1 if employed by a government entity

Figure 1: Data Structure

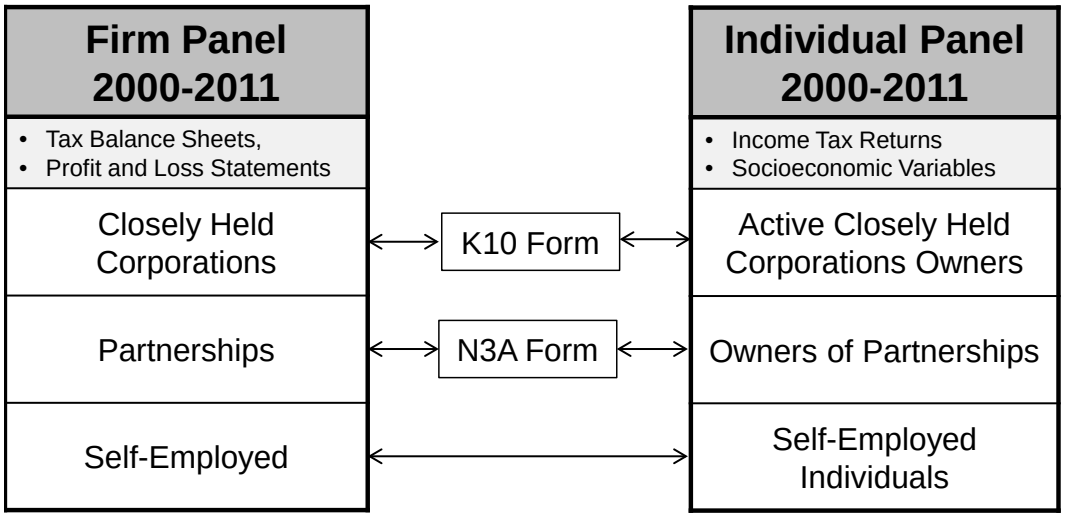
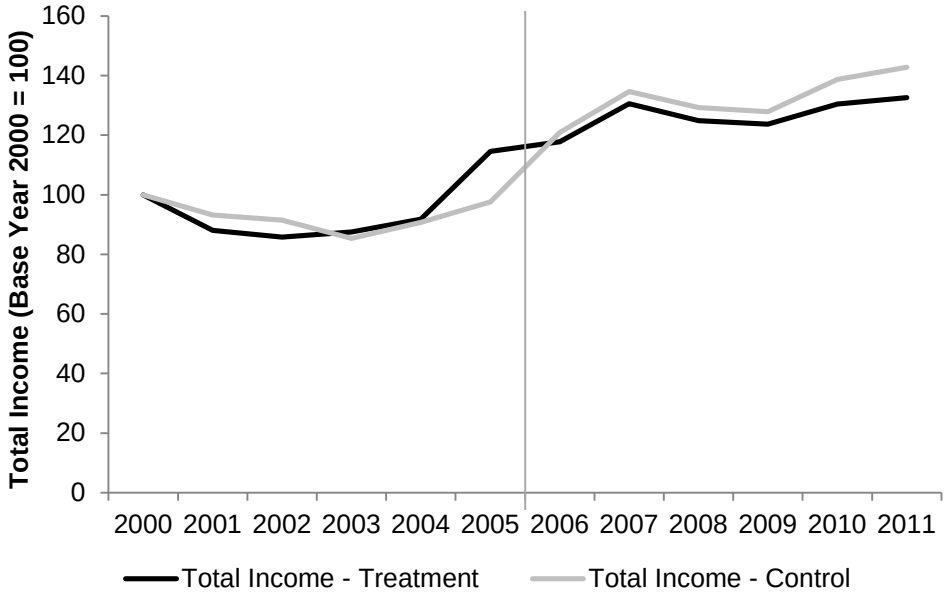
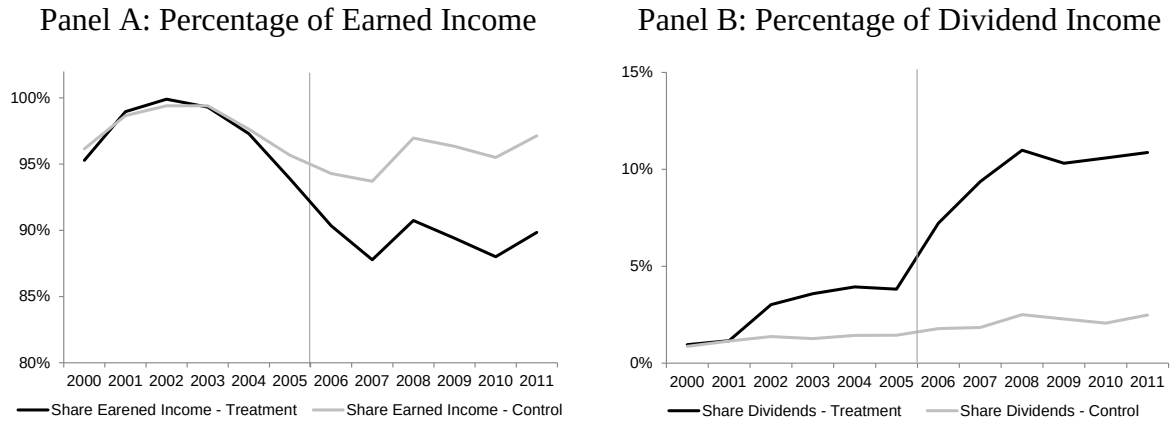


Figure 2: Overall Incomes of Treatment and Control Groups, 2000–2011



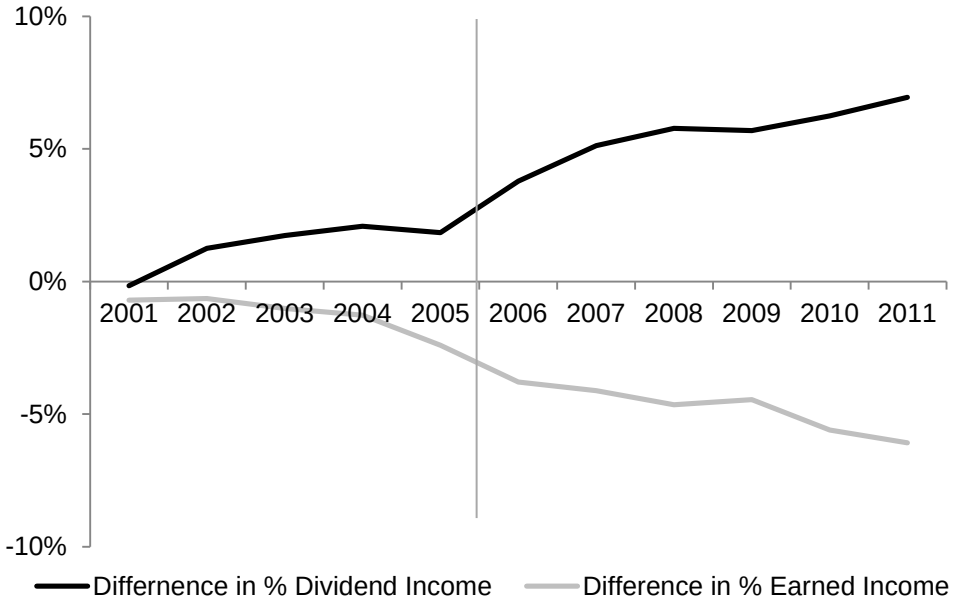
This figure shows the average overall income of our treatment group, CHC owners (*black line*), and the overall income of our control group, the owners of partnerships and the self-employed (*gray line*). Overall income is scaled by overall income for the year 2000. The vertical line separates pre-reform from post-reform years.

Figure 3: Income Composition of the Treatment and Control Groups



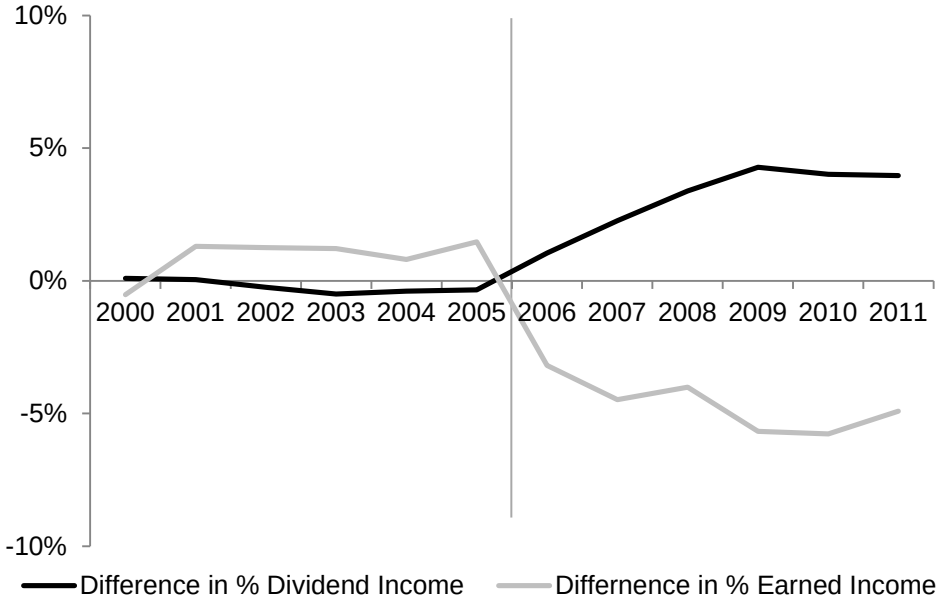
This figure presents the percentage of overall income received as earned income (Panel A) and the percentage of overall income received as dividend income (Panel B). The black line comprises our treatment group, CHC owners. The gray line represents our control group, the owners of partnerships and the self-employed. The vertical line separates pre-reform from post-reform years.

Figure 4: Tax Incentives and Income Shifting, Within-CHC Owner Analysis



This figure presents the difference in the percentage of overall income derived as dividend income (*black line*) and as earned income (*gray line*) between CHC owners subject to the central government tax and CHC owners subject only to the municipality tax. The vertical line separates pre-reform from post-reform years.

Figure 5: Ownership Share and Income Shifting, Within-CHC Owner Analysis



This figure presents the difference in the percentage of overall income derived as dividend income (*black line*) and as earned income (*gray line*) between CHC owners with an ownership share of 75% or more (*High Share*) and CHC owners with an ownership share of 25% or less (*Low Share*). The vertical line separates pre-reform from post-reform years.

Table 1: Marginal Tax Rates in Sweden, 2000–2009

This table presents marginal tax rates on labor and capital income over the 2000–2009 period. Labor income is subject to a municipality tax, two levels of state tax, and social security contributions. Up to a certain threshold, these contributions generate benefits to the employee in the form of health insurance, unemployment benefits, and pension benefits. However, above this threshold, these contributions cease to generate additional benefits and become a pure tax. See Alstadsæter and Jacob (2012), Appendix I for an overview on these thresholds

Earned Income

Year	Municipality tax	State tax 1	Threshold State tax 1 (in SEK)	State tax 2	Threshold State tax 2 (in SEK)	Social security tax	Combined top marginal wage tax
2000	30.4	20	254,600	5	398,500	32.9	66.4
2001	30.5	20	271,500	5	411,100	32.8	66.5
2002	30.5	20	290,100	5	430,900	32.8	66.5
2003	31.2	20	301,000	5	447,200	32.8	67.0
2004	31.5	20	308,800	5	458,900	32.7	67.2
2005	31.6	20	313,000	5	465,200	32.5	67.2
2006	31.6	20	317,700	5	472,300	32.3	67.2
2007	31.6	20	328,600	5	488,600	32.4	67.2
2008	31.4	20	340,900	5	507,100	32.4	67.1
2009	31.5	20	380,200	5	538,800	31.4	66.9
2010	31.6	20	384,600	5	545,200	31.4	67.0
2011	31.6	20	395,600	5	560,900	31.4	67.0

Dividend Income CHC

Year	Corporate Tax Rate	Dividend Tax Rate (within allowance)	Combined Dividend Tax Rate*
2000	28	30	49.6
2001	28	30	49.6
2002	28	30	49.6
2003	28	30	49.6
2004	28	30	49.6
2005	28	30	49.6
2006	28	20	42.4
2007	28	20	42.4
2008	28	20	42.4
2009	26.3	20	41.0
2010	26.3	20	41.0
2011	26.3	20	41.0

*Combined tax rate for dividends within the dividend allowance. Dividends exceeding the dividend allowance are first taxed at the corporate income tax rate, and then taxed as earned income at individual level.

Table 2: Descriptive Statistics of Dependent Variables and Tax Variables

		Treatment Group N=(1,700,819)		Control Group N=(1,709,722)		Relative Change
		2000-2005	2006-2011	2000-2005	2006-2011	
Overall Income	Mean	426,887	566,602	237,732	321,061	-2.3%
	Median	289,300	377,850	204,300	262,700	2.0%
	Std. dev.	1,732,944	1,851,418	617,792	1,280,048	
Earned Income	Mean	339,832	396,734	219,170	275,622	-9.0%
	Median	286,400	343,100	199,300	251,400	-6.3%
	Std. dev.	352,658	371,353	170,056	222,652	
Dividend Income	Mean	15,290	75,979	3,210	10,637	165.5%
	Median	663	3,368	229	422	323.7%
	Std. dev.	103,657	342,620	98,360	645,464	
% Earned Income	Mean	0.9739	0.8929	0.9769	0.9544	-0.0584
	Median	1.0084	0.9618	1.0036	1.0000	-0.0431
	Std. dev.	0.2262	0.2556	0.2464	0.2459	
% Dividend Income	Mean	0.0275	0.0986	0.0129	0.0222	0.0618
	Median	0.0023	0.0095	0.0012	0.0017	0.0067
	Std. dev.	0.0708	0.1732	0.0368	0.0683	
State Tax Level 1	Mean	0.4811	0.4629	0.2234	0.2326	-0.0275
	Median	0.0000	0.0000	0.0000	0.0000	0.0000
	Std. dev.	0.4996	0.4986	0.4165	0.4225	
State Tax Level 2	Mean	0.1802	0.1819	0.0623	0.0705	-0.0065
	Median	0.0000	0.0000	0.0000	0.0000	0.0000
	Std. dev.	0.3844	0.3857	0.2417	0.2559	

Table 3: Matching Difference-in-Difference Estimates, Short Term Responses

This table presents regression results using the matched sample of CHC owners (treatment group) and owners of unlimited liability firms (control group) restricted to 2005 and 2006. We use overall income, earned income, dividend income, the percentage of overall income derived as earned income (*% Earned Income*), and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables are described in Table A.I of the Appendix. We include a reform dummy and county fixed-effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**-0.020*** **	**-0.053*** **	**0.456*** **	**-0.022*** **	**0.030*** **
	(0.002)	**(0.002)**	**(0.008)**	**(0.001)**	**(0.000)**
Age	0.006***	0.001***	0.039***	-0.003***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married	0.064***	0.091***	-0.027***	0.020***	-0.001***
	(0.003)	(0.003)	(0.010)	(0.001)	(0.000)
Econ_Edu	0.121***	0.096***	0.217***	-0.012***	0.007***
	(0.004)	(0.004)	(0.015)	(0.001)	(0.000)
IT_Edu	0.532***	0.482***	0.744***	-0.026***	0.014***
	(0.014)	(0.014)	(0.043)	(0.004)	(0.002)
Law_Edu	0.136***	0.143***	0.109**	-0.000	-0.001
	(0.013)	(0.013)	(0.049)	(0.003)	(0.001)
Med_Edu	0.641***	0.666***	0.512***	0.015***	0.001
	(0.009)	(0.009)	(0.030)	(0.002)	(0.001)
Public Employee	0.256***	0.305***	-0.124***	0.038***	-0.012***
	(0.009)	(0.008)	(0.039)	(0.003)	(0.001)
Consultant	0.196***	0.216***	0.065***	0.018***	-0.003***
	(0.005)	(0.005)	(0.020)	(0.001)	(0.001)
Accountant	0.142***	0.163***	0.397***	0.011***	0.013***
	(0.008)	(0.007)	(0.032)	(0.002)	(0.001)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	580,195	577,049	433,918	581,655	581,655
R^2	0.142	0.136	0.130	0.033	0.072

Table 4: Matching Difference-in-Difference Estimates, Long-Term Responses

This table presents regression results using the matched sample of CHC owners (treatment group) and owners of unlimited liability firms (control group). We use overall income, earned income, dividend income, the percentage of overall income derived as earned income *(% Earned Income*), and the percentage of overall income derived as dividend income *(% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables cover the interaction between *Post* and *Treatment* and individual characteristics (see Table A.I of the Appendix). We further include control variables, year fixed-effects, county fixed-effects, and individual fixed-effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**-0.000**	**-0.074*****	**0.871*****	**-0.056*****	**0.061*****
	(0.002)	**(0.002)**	**(0.007)**	**(0.001)**	**(0.000)**
Age	0.040***	0.041***	0.103***	0.000*	0.002***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Married	0.004*	0.022***	0.078***	0.013***	0.002***
	(0.002)	(0.002)	(0.010)	(0.001)	(0.000)
Econ_Edu	0.135***	0.163***	-0.040	0.018***	-0.005***
	(0.015)	(0.015)	(0.039)	(0.004)	(0.001)
IT_Edu	0.066	0.105**	-0.155	0.020*	0.001
	(0.049)	(0.047)	(0.107)	(0.012)	(0.005)
Law_Edu	0.133***	0.139***	-0.031	0.022***	-0.009***
	(0.030)	(0.029)	(0.077)	(0.007)	(0.002)
Med_Edu	0.262***	0.302***	-0.160	0.038***	-0.012***
	(0.039)	(0.040)	(0.098)	(0.009)	(0.004)
Public Employee	0.087***	0.093***	-0.023	0.012***	-0.003***
	(0.005)	(0.005)	(0.017)	(0.002)	(0.001)
Consultant	0.001	-0.007**	0.041***	0.013***	0.000
	(0.003)	(0.003)	(0.011)	(0.001)	(0.000)
Accountant	-0.006	-0.002	-0.114***	0.013***	-0.009***
	(0.006)	(0.006)	(0.021)	(0.002)	(0.001)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	3,395,814	3,376,069	2,495,395	3,405,792	3,405,792
R^2	0.680	0.702	0.718	0.463	0.451

Table 5: The Effect of Tax Incentives on Income Shifting, Within-CHC Owner Analysis

This table replicates the results of Table 3 but uses CHC owners only. We use the percentage of overall income derived as earned income (*% Earned Income*) and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. We include the interaction between a dummy variable indicating if a CHC owner is subject to the first level of the state tax (*State Tax Level 1*) in the prior year. *State Tax Level 2* is defined similarly for the second state tax threshold. We include additional control variables, year fixed-effects, county fixed-effects, and individual fixed-effects as described in Table A.I of the Appendix. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively

	% Earned Income			% Dividend Income		
Post × State Tax Level 1	-0.035***		-0.028***	0.037***		0.033***
	(0.001)		(0.001)	(0.001)		(0.001)
Post × State Tax Level 2		-0.033***	-0.019***		0.031***	0.014***
		(0.001)	(0.001)		(0.001)	(0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,333,620	1,333,620	1,333,620	1,333,620	1,333,620	1,333,620
R^2	0.531	0.531	0.532	0.468	0.465	0.468

Table 6: The Effect of Ownership Share on Income Shifting, Within-CHC Owner Analysis

This table replicates the results of Table 3 but uses CHC owners only. We use the percentage of overall income derived as earned income (*% Earned Income*) and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. We include the interaction between a dummy variable indicating if a CHC owner owns at least 75% of his firm (*High Share*). *Low Share* is a dummy variable indicating if a CHC owns less than 25%. We include additional control variables, year fixed-effects, county fixed-effects, and individual fixed-effects as described in Table A.I of the Appendix. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively

	% Earned Income			% Dividend Income		
Post × High Share	-0.015***		-0.007***	0.017***		0.013***
	(0.001)		(0.001)	(0.001)		(0.001)
Post × Low Share		0.031***	0.027***		-0.024***	-0.017***
		(0.001)	(0.001)		(0.001)	(0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,340,935	1,340,935	1,340,935	1,340,935	1,340,935	1,340,935
R^2	0.519	0.520	0.520	0.473	0.473	0.473

Web-Appendix

Dividend taxes and income shifting

Annette Alstadsæter[1] and Martin Jacob[2]

Part I: Matching Procedure

The first part of this appendix describes the matching procedure used in the paper. The main purpose of our matching approach is to reduce differences across the treatment and control groups. As the treatment group, we use CHC owners who owned (at least) one CHC during 2003–2005. As the control group, we use the owners of partnerships and self-employed who did not participate in a CHC during 2003–2005. We employ an exact one-on-one matching approach where we match one member of the control group to a CHC owner. We match according to the following list of criteria based on 2003, 2004, and 2005 characteristics:

1. *Decile of Earned Income Distribution* is the decile score of the earned income distribution calculated over the entire population and for each single year. Earned income is the sum of labor income from all sources and business profits from unlimited liability firms.
2. *Decile of Dividend Income Distribution* is the decile score of the dividend income distribution calculated over the entire population and for each single year. Dividend income comprises dividends from widely held corporations and CHCs.
3. *Age* denotes the age of the individual in years.
4. *Married* is a dummy variable equal to one if the individual is married and zero otherwise.
5. *Econ_Edu* is a dummy variable that equals one if the individual has a higher education in business/economics.

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6. *IT_Edu* is a dummy variable that equals one if the individual has an information technology degree.
7. *Law_Edu* is a dummy variable that equals one if the individual has a law degree.
8. *Econ_Edu* is a dummy variable that equals one if the individual has a medical degree.
9. *Public Employee* is a dummy variable that equals one if the individual is employed by a government entity.
10. *Consultant* is a dummy variable equal to one if the individual's job occupation is consulting.
11. *Accountant* is a dummy variable that equals one if the individual's job occupation is accounting.
12. *County of Living* denotes a vector of dummy variables for the Swedish states.
13. *Region of Birth* denotes a vector of dummy variables for the geographic region of birth, for example, Sweden, the Nordic countries, Asia, Europe, America, Africa, and so forth.

Tables A.1 and A.2 summarize the means of these variables and the dependent variables from our main tests in the paper before and after matching. In the last column, we calculate the percentage change in the difference between the treatment and control groups due to matching. Table A.1 uses all the sample years, 2000–2011. Table A.2 presents the statistics for the years in which we match (2003–2005). The number of observations indicates that the control group is larger prior to matching. Matching ensures that the treatment and control groups are of similar size. Both Tables A.1 and A.2 show that matching reduces the differences across groups. For example, the difference in *% Earned Income* over the 2003–2005 period decreases by more than 72% due to matching. Other differences, for example, in *Age*, *Married*, or *Econ_Edu*, decrease by 19% to 51%. Since the control group is not

substantially larger, some differences remain. Therefore, we include these control variables in the regression analysis.

The results presented in the paper are robust to using either the full sample or the matched sample. The paper presents the matched sample results. These results are also presented in Part II of this Web-Appendix.

Table A.1: Matching and Differences between the Treatment and Control Groups, All Sample Years

	Full Sample			Matched Sample			Decrease in Difference
	Treatment N=1,700,425	Control N=2,029,845	Difference	Treatment N=1,700,818	Control N=1,709,722	Difference	
Total Income	494,042.80	263,724.70	230,318.10	495,177.30	278,132.30	217,045.00	5.8%
Earned Income	367,392.40	237,571.60	129,820.80	367,644.70	246,539.70	121,105.00	6.7%
Dividend Income	43,871.13	5,843.47	38,027.66	44,953.43	6,810.81	38,142.62	-0.3%
% Earned Income	0.94	0.98	-0.05	0.93	0.97	-0.03	30.5%
% Dividend Income	0.06	0.02	0.05	0.06	0.02	0.04	1.8%
State Tax Level 1	0.47	0.21	0.26	0.47	0.23	0.24	6.4%
State Tax Level 2	0.18	0.06	0.12	0.18	0.07	0.11	5.3%
Age	50.16	49.27	0.89	50.16	50.59	-0.43	51.3%
Married	0.66	0.58	0.07	0.66	0.61	0.05	30.7%
Econ_Edu	0.16	0.09	0.07	0.16	0.10	0.06	19.1%
IT_Edu	0.02	0.01	0.01	0.02	0.01	0.01	12.9%
Law_Edu	0.01	0.01	0.00	0.01	0.01	0.00	9.8%
Med_Edu	0.03	0.02	0.01	0.03	0.02	0.01	-12.2%
Consultant	0.01	0.01	-0.01	0.01	0.01	-0.01	-23.2%
Public Employee	0.07	0.03	0.03	0.07	0.04	0.03	14.4%
Accountant	0.02	0.01	0.01	0.02	0.01	0.01	18.3%

Table A.2: Matching and Differences between the Treatment and Control Groups, 2003–2005

	Full Sample			Matched Sample			Decrease in Difference
	Treatment N=434,995	Control N=523,050	Difference	Treatment N=435,020	Control N=442,453	Difference	
Total Income	440,174.20	236,816.60	203,357.60	440,726.50	250,989.50	189,737.00	6.7%
Earned Income	357,553.50	220,476.60	137,076.90	357,789.10	230,001.30	127,787.80	6.8%
Dividend Income	21,170.12	3,282.92	17,887.20	21,580.17	3,796.60	17,783.58	0.6%
% Earned Income	0.97	0.99	-0.02	0.97	0.97	-0.01	72.1%
% Dividend Income	0.04	0.01	0.02	0.04	0.01	0.02	4.0%
State Tax Level 1	0.47	0.20	0.28	0.47	0.22	0.26	6.5%
State Tax Level 2	0.18	0.05	0.13	0.18	0.06	0.12	5.0%
Age	49.06	48.30	0.76	49.06	49.68	-0.62	18.4%
Married	0.66	0.58	0.07	0.66	0.61	0.05	33.6%
Econ_Edu	0.16	0.09	0.08	0.16	0.10	0.06	18.4%
IT_Edu	0.02	0.01	0.01	0.02	0.01	0.01	12.7%
Law_Edu	0.01	0.01	0.00	0.01	0.01	0.00	8.7%
Med_Edu	0.03	0.02	0.01	0.03	0.02	0.01	-12.6%
Consultant	0.01	0.01	-0.01	0.01	0.01	-0.01	-16.3%
Public Employee	0.08	0.04	0.04	0.08	0.05	0.03	14.7%
Accountant	0.02	0.01	0.01	0.02	0.02	0.01	18.0%

Part II: Additional Tables and Results

Table A.3: Main Results for the Full Sample, Short-Term Responses

This table replicates the results of Table 3 but uses the full sample instead of the matched sample. We use overall income, earned income, dividend income, the percentage of overall income derived as earned income (*% Earned Income*), and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables are described in Table A.I of the Appendix. We include a reform dummy and county fixed-effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**-0.028*** **	**-0.056*** **	**0.460*** **	**-0.018*** **	**0.030*** **
	(0.002)	**(0.002)**	**(0.008)**	**(0.001)**	**(0.000)**
Age	0.007***	0.002***	0.041***	-0.004***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married	0.069***	0.093***	-0.018*	0.018***	-0.001***
	(0.003)	(0.003)	(0.010)	(0.001)	(0.000)
Econ_Edu	0.133***	0.103***	0.243***	-0.016***	0.007***
	(0.004)	(0.004)	(0.015)	(0.001)	(0.000)
IT_Edu	0.538***	0.485***	0.760***	-0.030***	0.014***
	(0.014)	(0.014)	(0.043)	(0.004)	(0.002)
Law_Edu	0.141***	0.145***	0.125***	-0.003	-0.001
	(0.013)	(0.012)	(0.048)	(0.003)	(0.001)
Med_Edu	0.622***	0.647***	0.500***	0.013***	0.001
	(0.009)	(0.009)	(0.029)	(0.002)	(0.001)
Public Employee	0.253***	0.295***	-0.097**	0.032***	-0.011***
	(0.009)	(0.008)	(0.038)	(0.003)	(0.001)
Consultant	0.200***	0.216***	0.083***	0.014***	-0.003***
	(0.005)	(0.005)	(0.019)	(0.001)	(0.001)
Accountant	0.144***	0.164***	0.382***	0.011***	0.012***
	(0.008)	(0.007)	(0.032)	(0.002)	(0.001)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	633,047	629,666	460,541	635,176	635,176
R^2	0.167	0.152	0.147	0.039	0.079

Table A.4: Main Results for the Full Sample, Long-Term Responses

This table replicates the results of Table 4 but uses the full sample instead of the matched sample. We use overall income, earned income, dividend income, the percentage of overall income derived as earned income *(% Earned Income*), and the percentage of overall income derived as dividend income *(% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables cover the interaction between *Post* and *Treatment* and individual characteristics (see Table A.I of the Appendix). We further include control variables, year fixed-effects, county fixed-effects, and individual fixed-effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**-0.020*** **	**-0.091*** **	**0.859*** **	**-0.054*** **	**0.061*** **
	(0.002)	**(0.002)**	**(0.007)**	**(0.001)**	**(0.000)**
Age	0.042***	0.043***	0.104***	-0.000	0.002***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Married	0.007***	0.025***	0.072***	0.014***	0.002***
	(0.002)	(0.002)	(0.010)	(0.001)	(0.000)
Econ_Edu	0.125***	0.153***	-0.038	0.016***	-0.004***
	(0.015)	(0.015)	(0.038)	(0.004)	(0.001)
IT_Edu	0.060	0.096**	-0.145	0.016	0.001
	(0.048)	(0.047)	(0.105)	(0.012)	(0.004)
Law_Edu	0.127***	0.131***	-0.022	0.021***	-0.008***
	(0.028)	(0.027)	(0.075)	(0.007)	(0.002)
Med_Edu	0.261***	0.300***	-0.150	0.041***	-0.012***
	(0.038)	(0.038)	(0.092)	(0.009)	(0.003)
Public Employee	0.092***	0.095***	-0.018	0.012***	-0.002***
	(0.005)	(0.005)	(0.017)	(0.002)	(0.001)
Consultant	0.002	-0.006*	0.043***	0.012***	0.000
	(0.003)	(0.003)	(0.011)	(0.001)	(0.000)
Accountant	-0.004	0.002	-0.109***	0.013***	-0.008***
	(0.006)	(0.006)	(0.021)	(0.002)	(0.001)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	3,708,074	3,686,464	2,649,708	3,722,782	3,722,782
R^2	0.682	0.702	0.728	0.454	0.453

Table A.5: The Effect of Tax Incentives on Income Shifting, Within-CHC Owner Analysis, Full Sample

This table replicates the results of Table 5 but uses the full sample of CHC owners. We use the percentage of overall income derived as earned income (*% Earned Income*) and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. We include the interaction between a dummy variable indicating if a CHC owner is subject to the first level of the state tax (*State Tax Level 1*) in the prior year. *State Tax Level 2* is defined similarly for the second state tax threshold. We include additional control variables, year fixed-effects, county fixed-effects, and individual fixed-effects as described in Table A.I of the Appendix. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	% Earned Income			% Dividend Income		
Post × State Tax Level 1	-0.034***		-0.028***	0.036***		0.032***
	(0.001)		(0.001)	(0.001)		(0.001)
Post × State Tax Level 2		-0.033***	-0.018***		0.030***	0.014***
		(0.001)	(0.001)		(0.001)	(0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,342,026	1,342,026	1,342,026	1,342,026	1,342,026	1,342,026
R^2	0.529	0.528	0.529	0.467	0.464	0.467

Table A.6: The Effect of Ownership Share on Income Shifting, Within-CHC Owner Analysis, Full Sample

This table replicates Table 6 but uses the full sample of CHC owners. We use the percentage of overall income derived as earned income (*% Earned Income*) and the percentage of overall income derived as dividend income (*% Dividend Income*) as dependent variables. We include the interaction between a dummy variable indicating if a CHC owner owns at least 75% of his firm (*High Share*). *Low Share* is a dummy variable indicating if a CHC owns less than 25%. We include additional control variables, year fixed-effects, county fixed-effects, and individual fixed-effects as described in Table A.I of the Appendix. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	% Earned Income			% Dividend Income		
Post × High Share	-0.015***		-0.007***	0.017***		0.012***
	(0.001)		(0.001)	(0.001)		(0.001)
Post × Low Share		0.031***	0.027***		-0.024***	-0.018***
		(0.001)	(0.001)		(0.001)	(0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,349,847	1,349,847	1,349,847	1,349,847	1,349,847	1,349,847
R^2	0.517	0.517	0.517	0.472	0.472	0.472

Table A.7: Main Results without Matching Covariates, Short-Term Responses

This table replicates the results of Table 3 but excludes control variables. We use overall income, earned income, dividend income, the percentage of overall income derived as earned income *(% Earned Income*), and the percentage of overall income derived as dividend income *(% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables cover the interaction between *Post* and *Treatment* and the main effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**-0.020*** **	**-0.054*** **	**0.459*** **	**-0.022*** **	**0.030*** **
	(0.002)	**(0.002)**	**(0.008)**	**(0.001)**	**(0.000)**
Main Effects	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No
Individual FE	No	No	No	No	No
Year FE	No	No	No	No	No
County FE	No	No	No	No	No
Observations	580,195	577,049	433,918	581,655	581,655
R^2	0.099	0.094	0.082	0.006	0.064

Table A.8: Main Results without Matching Covariates, Long-Term Responses

This table replicates the results of Table 4 but excludes control variables. We use overall income, earned income, dividend income, the percentage of overall income derived as earned income *(% Earned Income*), and the percentage of overall income derived as dividend income *(% Dividend Income*) as dependent variables. Overall, earned, and dividend income are defined as natural logarithm. Independent variables cover the interaction between *Post* and *Treatment* and the main effects. Standard errors (reported in parentheses) allow for heteroskedasticity and are clustered at the individual level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Overall income	Earned Income	Dividend Income	% Earned Income	% Dividend Income
Post × Treatment	**0.003**	**-0.075*** **	**0.931*** **	**-0.058*** **	**0.062*** **
	(0.002)	**(0.002)**	**(0.007)**	**(0.001)**	**(0.000)**
Main Effects	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No
Individual FE	No	No	No	No	No
Year FE	No	No	No	No	No
County FE	No	No	No	No	No
Observations	3,395,814	3,376,069	2,495,395	3,405,792	3,405,792
R^2	0.115	0.101	0.115	0.019	0.102

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