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Taxes and the Choice of Organizational Form by Entrepreneurs in Sweden

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Abstract

This paper makes use of individual data for 2004 to 2008 on owners of closely-held businesses in Sweden to estimate the role of both tax and non-tax determinants in the choice to be a closely-held corporation vs. a proprietorship. While lower-income individuals face relatively neutral incentives, higher income households face strong tax incentives to be corporate. The data suggest a strong response to these tax incentives. Many conventional non-tax determinants are confirmed in the data as well.

JEL Codes: G32, H25, G38

Keywords: self-employment, entrepreneurship, taxation of closely-held businesses, business organizational form

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1 Introduction

The tax treatment of a Swedish firm varies depending on whether it chooses to operate as a non-corporate firm, a closely-held corporate firm, or a widely-held corporate firm. The aim of this study is to investigate to what degree firms change their choice on a form of organization in response to tax incentives.

A variety of non-tax factors affect a firm's choice of form of organization as well, as emphasized by Jensen and Meckling (1976). Corporations by default have limited liability, they have unlimited life, and owners of corporate shares can sell their shares without changing the legal status of the firm. Due to these non-tax factors, large firms are almost always corporate and widely held, regardless of tax incentives.

As a result, this study will focus in particular on a firm's choice between being a non-corporate firm or a closely-held corporation.[2] Non-tax factors may still matter for the choice between these two forms of organization, but past empirical evidence from other countries suggests that taxes can easily matter as well.

Past empirical evidence, though, is largely based on U.S. data. The tax law in the U.S. is dramatically different from that in Sweden. To begin with, tax rates in Sweden are far higher than in the U.S., in itself suggesting the potential for much larger effects on firm behavior. In addition, though, the structure of the tax code in Sweden is very different from that in the U.S.

In the U.S., income from a non-corporate business is taxable in full under both the personal-income tax and the payroll tax, while business losses are fully deductible under the personal-income tax. Profits from a corporation are taxable under the corporate tax, and then dividends and realized capital gains are taxable under the personal (but not the payroll) tax. The corporate tax rate at times has been low relative to the top personal tax rates, while capital gains (and more recently dividends) face much reduced tax rates under the personal tax, generating potentially large tax savings for business owners in top personal tax brackets from operating in corporate form. Potential tax savings from losses incurred by a corporation are very limited however.[3] As a result, firms anticipating tax losses in the immediate future face strong tax incentives to operate in non-corporate form. Gordon and MacKie-Mason (1994), MacKie-Mason and Gordon (1997), and Goolsbee (1998, 2004) provide evidence that these large tax distortions have indeed affected firms' choice of organizational form, though mainly in industries dominated by smaller firms.

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[2] See Thoresen and Alstadsæter (2008) for a study in Norway of the decision to establish a widely-held corporation.

[3] Business losses can be ”carried back” three years, to offset past profits, or ”carried forward” up to fifteen years to offset future profits. Altshuler and Auerbach (1990) document that in practice corporations with tax losses receive only limited reductions in their tax liabilities.

The tax treatment of corporate vs. non-corporate firms is dramatically different in Sweden than in the U.S. To begin with, personal and payroll tax rates in Sweden are each roughly twice as high as in the U.S., while the corporate tax rate is lower than in the U.S., in themselves creating much larger tax advantages than in the U.S. to operate in corporate form.

However, the opportunities to convert ordinary taxable income into more lightly taxed dividends and capital gains through incorporation are much more limited in Sweden, due to their use of a dual income tax. Under a dual income tax, capital income from a closely-held corporation is capped at a presumed rate of return (specified in the tax law) times the book value of the individual's assets in the firm, with all remaining income taxed as labor income. As described in more detail in section 2, the specific definitions of presumed capital income are more attractive for corporate than for non-corporate firms. However, the cap remains an important restriction limiting the potential tax savings through incorporation.

Tax losses are also treated very differently in Sweden than in the U.S. There are no immediate tax savings, regardless of organizational form, unlike in the U.S. For a non-corporate firm, capital losses up to SEK 100,000 during the first five years of a firm's existence can be deducted against other wage income. For a corporate firm, capital losses can to a limited extent be used to offset other capital gains, or to an even more limited extent other capital income. The tax law still favors the non-corporate form for firms expecting tax losses, but to a much more limited extent than in the U.S.

Whether tax distortions to the choice of organizational form matter more or less in Sweden than in the U.S. is therefore unclear. The aim of this paper is to provide evidence on the effects of these distortions in Sweden.

The available data for a study of tax distortions in Sweden are far better than those available for past studies in the U.S. In the U.S., there is no useful information available about the choices made by individual entrepreneurs. Data sources reporting an individual's income from a business do not report organizational form, while those breaking down income by organizational form do not differentiate between passive investments and income from the individual's own business. The only available data by form of organization report aggregate income and assets each year from the corporate and non-corporate sector. Academic studies are then confined to examining the effects of variation over time in average tax rates, but cannot examine differences in the choices made by individuals depending on their tax bracket.

In Sweden, we have available very detailed register based data at both the individual and the firm level over 2004–2008. The individual level data consists of information from Statistics Sweden on different types of annual incomes, as well as socio-demographic characteristics on all individuals aged 16–64. It also contains an indicator for whether the individual is self-employed in a non-corporate business, or

owner of a closely held corporation. The business level data is based on business level tax returns, and contains information on all businesses, except for the financial sector. The combination of these sources of data provides broad information about both business owners and firms.

To our knowledge, there exist no other studies on tax distortions and organizational form using Swedish data. Previous studies on tax incentives and small business have mainly treated the decision to become self-employed (see Hansson 2010, and Fölster 2002) or capital lock in-effects (see Daunfeldt et al 2010).

Why should we care about the size of any effect of taxes on choice of organizational form? When firms change their behavior in response to tax distortions, they end up choosing a form of organization that is less attractive on non-tax grounds. When a firm is just induced to change behavior, the result is normally a loss in tax revenue and an equal loss of efficiency due to non-tax differences between the two organizational forms.

Of course, these existing tax provisions distort many other aspects of behavior. To the degree that tax incentives favor the corporate form, for example, they provide a competitive advantage to firms that can more easily operate in corporate form. Past evidence, as well as casual observation, suggests that large firms are almost uniformly corporate, whereas new entrants and other small firms are normally non-corporate. Tax provisions favoring the corporate form then put new entrants at a competitive disadvantage, thereby discouraging entrepreneurial activity.

The tax treatment of losses vs. profits also affects the incentive to undertake risky projects. Firms with large profits are typically corporate, while firms with losses are typically non-corporate. Differences between the tax rates on corporate profits and non-corporate losses can then affect risk taking, again mattering for the extent of entrepreneurial activity. Tax rates also affect investment incentives, and the incentives to hire workers.

Tax distortions to the choice of organizational form per se reflect just one aspect of the economic impact of the differential tax treatment of corporate vs. non-corporate firms. The question focused on in this paper is how important this particular effect of the tax law is.

The organization of the paper is as follows. The next section provides a brief overview of the empirical work undertaken in this paper, suitable for a general reader. Sections 3 and 4 provide more detailed descriptions of the tax distortions and the estimation strategy, respectively, appropriate for specialists. Section 5 discusses the data, and section 6 specifies the regression equation and provides a graphical analysis of key variables. Empirical results are reported in section 7, while section 8 compares these results to the previous literature and discusses their economic implications.

2. Overview of empirical strategy

Past empirical work estimating the effects of taxes on organizational form had to deal with the limitation that only aggregate time series data on choices of organizational form are available. The basic theory, drawn for example from MacKie-Mason and Gordon (1994), compared the after-tax return earned by a firm if it operates in non-corporate or corporate form.

Assume a firm's pretax income is Y if it chooses to be non-corporate, and $Y(1+c)$ if it chooses to be corporate, where c captures any non-tax implications of this choice of organizational form. The value of c varies by firm, with a presumption based on the discussion in Jensen and Meckling (1976) that smaller firms prefer to be non-corporate and larger firms prefer to be corporate. Ignoring taxes, any given firm will be corporate if its $c > 0$. Let the density function for c be denoted by $f(c)$. Ignoring taxes, the fraction of firms that will be non-corporate equals $\int_{-\infty}^{0} f(c)dc$. Similarly, if the average value of Y for firms with any given value of c equals $Y(c)$, then the forecasted fraction of income received by non-corporate firms would be $\int_{-\infty}^{0} Y(c)f(c)dc/Y*$, where $Y*$ is aggregate firm earnings.

How do taxes affect these forecasts? For simplicity assume that taxable income equals economic income. If the firm chooses to be non-corporate, then this income is taxable under the owners' personal income tax, partly as capital income and partly as earned income. Denote the average personal tax rate of the owners of the firm by *m.*[4] If instead the firm incorporates, then the profits are first subject to corporate tax at rate τ.[5] What is left net of corporate taxes can then be used to finance dividend payouts or retained to generate capital gains, which are taxed at realization. Let the average fraction of the after-corporate-tax profits paid in personal taxes be denoted by *e.* Denote the overall tax rate on corporate income by τ^*, where $(1-\tau^*) \equiv (1-\tau)(1-e)$.

A given firm then prefers to be non-corporate if $Y(1-m) > Y(1+c)(1-\tau^*)$, or equivalently if

[4] Note that *m* includes the payroll tax.

[5] The firm has the option to pay out earnings as wages. Wage payments from a corporation face the same tax treatment as income from a non-corporate firm, so we focus on the corporate earnings net of wage payments, which face a different tax treatment.

(1) $$c < \frac{\tau^{*} - m}{1 - \tau^{*}},$$

assuming $Y > 0$.[6] The higher the owners' personal tax rate, the lower the cut-off value for *c*, and the fewer firms that will choose to operate in non-corporate form.

To proceed from this forecast for an individual firm to a forecast for the whole economy, the easiest approach is to assume that *m* and *c* are independent. The fraction of firms that are non-corporate then depends on the average within the population of potential entrepreneurs of the tax expression on the right-hand side of equation (1).[7] This is the approach used, for example, in the papers by MacKie-Mason and Gordon (1997), and Goolsbee (1998). MacKie-Mason and Gordon (1997) use U.S. aggregate data for 1959–86, while Goolsbee uses aggregate U.S. data from 1900–39. Goolsbee (2004) instead looks across states at differences in the overall corporate share among various parts of the retail sector.

The approach used in this study differs for a variety of reasons from that used in these past studies. First, we do have data for individual firms, so we can use equation (1) directly to forecast the probability that any given entrepreneur will choose to operate in non-corporate form. In addition, we have selective information about the nature of the firm, including its industry, and size (assets). Each of these can potentially affect the non-tax benefits/costs of being corporate. In particular, let $c = Z\gamma + \tilde{\varepsilon}$. We can then forecast the probability that any firm is non-corporate as a function of the tax variable in equation (1) along with the vector *Z.*

Also, the past studies implicitly assume that firms are always profitable. For a firm with losses, though, the expected coefficient on the tax term changes sign. With individual data, we can take into account the tax treatment of profits vs. losses.

Past studies ignored payroll taxes, a poor choice in hindsight since non-corporate income in the U.S. is subject to payroll taxes while non-wage receipts from a corporation are not subject to payroll taxes. Payroll taxes are sufficiently important in Sweden that we do take them into account.

[6] When $Y < 0$, however, the inequality reverses. Also, while tax losses are deductible under the personal income tax (at least in the U.S.), loss offset under the corporate tax is very limited, implying a much smaller value for τ^{*} when the firm has losses.

[7] One approach to measure τ and *m* uses the maximum corporate and personal tax rate. Alternatively, studies use the average corporate tax rate (taxes paid divided by pre-tax profits) and the implicit tax rate embodied in municipal bond interest rates, under the assumption that owners of municipal bonds are representative of potential business owners.

Having panel data available, an additional set of issues arises. When a firm makes a choice of organizational form, for how long will this choice remain in place? Equation (1) implicitly assumes that the firm can change form each year, and makes its choice based on knowledge of its ex post income. Yet there are likely to be serious costs to a firm of changing its form of organization.

In this paper, we take one step towards relaxing the assumption used in this prior work by assuming that the firm makes its choice for a two year period, knowing (as in past studies) its ex post income in the initial year but facing uncertainty about its taxable income in the subsequent tax year.

We assume that individuals make this choice of organizational form to maximize the present value of after-tax income over this two year period, implicitly assuming risk neutrality. They would then choose to incorporate if

(2) $$\sum_{s=t}^{t+1}\left(\frac{1}{1+d}\right)^{s-t} E(1-m_s)Y_s < (1+c)\sum_{s=t}^{t+1}\left(\frac{1}{1+d}\right)^{s-t} E(1-\tau_s^*)Y_s$$

Here, *d* is the after-tax interest rate, m_s is the average tax rate in year *s* (equal to tax payments divided by income if the firm chooses to be non-corporate), while τ_s^* equals personal plus corporate tax payments as a fraction of income if the firm instead chooses to be corporate.[8]

Equivalently, the firm will incorporate if

(2a) $$Z\gamma + \tilde{\varepsilon} > \frac{\tau_t^* - m_t + E(1+\tilde{g})(\tau_{t+1}^* - m_{t+1})/(1+d)}{1-\tau_t^* + E(1+\tilde{g})(1-\tau_{t+1}^*)/(1+d)}$$

Here, $Z\gamma + \tilde{\varepsilon}$ captures the non-tax benefits from being corporate, $\tilde{g} \equiv \tilde{Y}_{t+1}/Y_t - 1$ measures each possible growth rate in the firm's income between the two years. In the estimation, we forecast the distribution of possible incomes for the firm in year *t* + 1, given income in year *t*, and then calculate the implications of each possible income for the tax rates faced. Given the resulting tax expression, we can forecast the probability the firm chooses to incorporate, for any assumed distribution function for $\tilde{\varepsilon}$. We assume that $\tilde{\varepsilon}$ is distributed normally, and therefore use a probit estimator.

[8] In year *t*, income is known, and each tax rate is set equal to the average tax rate the firm faces if it chooses that organizational form.

One complication ignored in past studies is tax evasion. One implication of incorporating is that the firm faces tighter auditing regulations, making at least some forms of tax evasion more difficult. To test for a possible role of differential tax evasion, we use estimates, based on Swedish income and expenditure data, provided by Engström and Holmlund (2009). These suggest that households with at least one self-employed member (owners of closely held corporate or non-corporate firms) underreport their total income by around 30%. Underreporting seems to be more prevalent among owners of non-corporate firms, compared to owners of closely held corporations, although this difference is not statistically significant. Based on the estimates in Engström and Holmlund (2009), we will explore an alternative specification in which we assume that owners of closely held and non-corporate firms underreport by 15% and 40% of their business income, respectively.

The above discussion ignores, though, a variety of complications in the Swedish tax law not present in the U.S. We discuss several of these complications in more detail in the next section. In many cases, we take into account the complications and solve for the behavior of the firm that minimizes its tax liabilities for each choice of organizational form. In some other cases, though, we had to ignore particular complications in the estimation.[9]

3. Further information about the tax law

This section supplements the information in section 1, providing more information about the Swedish tax law, our measurement of the resulting tax incentives, and then the estimation method used in the analysis. We begin with a description of the main rules for taxation of entrepreneurial income for non-corporate firms (sole proprietors and unlimited partnerships) compared with those for closely held corporations.[10]

3.1 Tax rules for non-corporate firms

The income of a sole proprietor or a partner in an unlimited partnership to begin with is divided between earned income and unearned income. Earned income is subject to:

a) a payroll tax, with a rate equal to 22.9% in 2009 applied to gross earnings.[11]

[9] In particular, we take as given the capital and labor force of the firm when considering its choice of organizational form, even though the tax incentives affecting investment and hiring decisions differ for corporate vs. non-corporate firms. For example, Pirttilä and Selin (2011) find that the introduction of the dual tax system in Finland led to an increase in taxable capital income of the self-employed.
[10] Main sources: Lodin et al. (2009), Sørensen (2008).
[11] The payroll tax for self-employed non-corporate business owners is slightly lower than that for employees (23.9% in 2009). Up to a certain earnings level, SEK 429,500 in 2009, higher payroll tax payments make the

b) a municipal income tax, at a rate between 28% and 34% across municipalities.[12]

c) a slightly-progressive central government income tax, at rates of 0%, 20% and 25%.

Taxable income for municipal and central government income taxes is measured net of deductions for: the payroll tax; a basic allowance (varies with income; min SEK 11,000 and max SEK 18,000); and, from 2007 on, an earned income tax credit (which reduces taxable earned income at all income levels).

The total marginal tax rate on earned income for a small business owner is hence roughly 0.51–0.685%, depending on income bracket.[13]

Unearned income for owners of a non-corporate firm is subject to a flat tax rate of 30%.

A key issue then is the division of the income from a non-corporate business between "earned" and "unearned" income. Owners of a non-corporate firm have the right to reclassify as unearned income an amount equal to the capital invested in the firm times a presumed rate of return. This presumed rate of return has been set equal to a long-term government bond rate + 5%. This so called "positive interest allocation"[14] is voluntary and can be made only if the net capital held in the firm at the beginning of the year exceeds SEK 50,000.

If there is a net capital deficit > SEK 50,000 at the beginning of the year, the firm is on the other hand required to report interest income on this deficit. The rule for calculating this interest income is to use an interest rate that is 4 percent lower than that for the "positive interest allocation." This amount is reported and taxed in the firm, and is deductible from capital income.[15]

Sole proprietors and unlimited partnerships also have the option to reinvest income in the firm in so called "expansion funds", which are taxed at the corporate rate rather than as earned income. The aim here is to imitate the tax treatment of retained earnings in a corporation. The yearly investment in the expansion fund cannot exceed the taxable business income, and in addition, the accumulated after-tax allocation to the fund cannot exceed the net business equity.

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individual eligible for higher social benefits, reducing the effective tax rate. Above this wage level, however, there is no link between payroll taxes and the level of social benefits, so that the individual faces the full statutory rate.

[12] In the empirical work, we set this rate equal to the average rate over the municipalities each year.

[13] These figures ignore the link between payroll tax payments and social benefits.

[14] The Swedish term is *positiv räntefördelning*.

[15] The purpose of this "negative interest allocation" (*negativ räntefördelning)* is to avoid having the firm owner deduct private interest payments from high taxed firm earned income.

When the funds reinvested in an expansion fund are extracted, the funds are at that date taxable as earned income, but with a rebate of past taxes paid on these funds at the corporate rate.

There is a clear tax advantage to withdrawing money from these expansion funds in years when the firm has negative taxable income: past taxes paid at the corporate rate are still refunded but no earned-income tax is owed as long as the firm is still running a deficit even with these extra funds. There is also a gain from deferral of any tax payments above those due at the corporate rate.

A cost of use of expansion funds, though, is that any expansion funds are subtracted from the capital stock used in calculating allowed ”unearned” income.

3.2 Tax rules for closely held limited corporations (CHC's)

To set up a closely held corporation, the owner must invest at least SEK 50,000 of his/her own funds in the business.[16] In addition, to be viewed as closely held, there must be at most 4 owners who control more than half of the shares (where owners belonging to the close family count as one owner), and the shares cannot be traded on a regulated exchange.

Corporate income is subject to begin with to a corporate income tax rate of 26.3%.[17]

In addition, dividends and capital gains from closely held corporations were taxed at a 30% rate until 2005 and at a 20% rate since then, to the extent that these capital gains plus prior dividends are less than the amount available for "unearned income", according to special rules for CHCs. Under these rules, unearned income is limited to a presumed rate of return times the acquisition costs of the owner's shares in the firm, where the presumed rate of return equals the long-term government bond interest rate plus 9%.[18]

In addition, firms are allowed to increase their unearned income by a "wage-sum" amount. Under current rules, the extra allowed unearned income equals 25% of the sum of the wages paid to the owner and to employees, up to a given level, and 50% of these wage payments above this level.[19]

[16] Before April 1, 2010, this figure was SEK 100,000.
[17] The corporate tax rate was 28% during 1995-2008.
[18] The interest rate premium was initially set at 5%, and increased to 7% in 2004, and to 9% in 2009.
[19] To be eligible for this "wage sum" allocation to unearned income, the owner's wage payments must be greater than the minimum of SEK 667,500 or (SEK 267,000 + 0.05*wage sum).

From 2006, firms can opt for a simplified rule instead of the acquisition cost and wage-sum based rules, and simply have a set amount classified as unearned income. This amount was initially set to SEK 64,950, but increased to 120,000 in 2009.

Another set of special tax relief rules[20] for CHCs were in place during 1997–2005. During this period, CHC-owners paid no personal taxes on a share of their dividend income or capital gains on shares. This amount was calculated as 70% of the government long-term bond rate times the acquisition cost of the shares plus a wage-sum based amount. These rules were abolished when new, more generous, wage sum rules for CHCs were introduced in 2006.

Unused capital-taxed income can be saved, with interest, to coming years. This was also true for unused tax relief amounts.

Any additional dividends above the amounts that qualify as unearned income are subject to personal earned income tax, although not to payroll tax.[21] Capital gains above the amounts that qualify as unearned income have been viewed to be half unearned income and half earned income, and taxed accordingly, although they are still not subject to payroll taxes.[22] Capital gains beyond a higher limit[23] were again subject to capital tax.

3.3 Tax treatment of business losses

All firms have the possibility to carry losses forward to future tax years.[24] This can be done as long as the firm exists. (However, no interest is added to preserve the present value of the deduction).

3.3.1 Realized capital losses

Realized losses on shares in a CHC give rise to the following tax treatment:[25]

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[20] *Lättnadsreglerna*.

[21] In the tax calculations, we will assume that dividends never exceed the amounts that qualify as unearned income, but assume that additional income is instead taken out as earned income. This should be optimal in most cases: When paid out as dividends, corporate tax and personal earned income tax is levied, while wages are subject to payroll tax and earned income tax. While the corporate tax is a bit lower than the statutory payroll tax, the effective payroll tax is lower for wage payments up to approximately 7.5 basic amounts, and in addition, wage payments increase the future amounts that are subject to the more favorable tax treatment for unearned income

[22] This rule was in place until 2005, abolished in 2006, but reintroduced in 2008 and 2009, and could be applied retroactively on sales made in 2007. In 2010, it was again abolished. When the rule was not in effect, capital gains were entirely taxed as earned income.

[23] Over a 6-year period, the amount of capital gains that were subject to earned income taxation was limited to 100 income basic amounts (the Swedish term is inkomstbasbelopp).

[24] *Rullning av underskott*. See Chapter 40 of the Swedish Income Tax Law (Inkomstskattelagen (1999:1229))

a) Since 2006, two-thirds of the capital loss can be deducted against gains on other listed or unlisted shares that are realized the same year.

b) Seventy percent of the two-thirds of the capital loss, to the extent not deductible against capital gains, can be deducted against other capital income.

c) If the remaining net capital income of the individual is negative; the tax payer is entitled to a tax credit equal to 30% of the remaining deficit up to SEK 100,000, and equal to 21% of the remaining deficit above SEK 100,000.[26]

d) Excess credits, i.e. exceeding income and property tax payments, are lost.

3.3.2 Rules for sole proprietors and unlimited partnerships

In contrast, if a sole proprietor records a business loss during the year he goes out of business, he may deduct seventy percent of the loss against his taxable capital income during that year, and can carry forward any remainder for two years.[27]

An exception is made for newly set up firms, which may deduct business losses up to SEK 100,000 against other earned income during the first five years of the firm. Note, however, that expansion funds expand the degree to which losses can be deducted.

3.4 Possibilities to shift income over time

There are some, but restricted, possibilities to shift the timing of taxable income within the same firm, through so-called periodic funds.[28] Limited companies are allowed to shift up to 25%, and sole proprietorships and unlimited partnerships up to 30%,[29] of the business surplus into these funds. The forwarded funds can be held for a maximum of six years until they are returned as taxable earnings. Since the funded capital can be returned at any point within the 6-year period, the funds can be used to offset tax losses, providing a form of loss carryback.[30]

[25] See Chapter 48 §20, and Chapter 67 §10 of the Swedish Income Tax Law (Inkomstskattelagen (1999:1229)).
[26] The total credit, though, is limited to the combined taxes paid on earned income and on property.
[27] See Sørensen (2010).
[28] *Periodiseringsfonder*.
[29] Before 2002: these figures were 20% for limited corporations and 25% for sole proprietors and unlimited partnerships.
[30] For CHC's, starting from year 2005, the law attempts to eliminate any gain from deferral through these funds by adding to the withdrawals an accounting rate of return equal to 72% of the ten-year government bond rate. For non-corporate firms, in contrast, there are no attempts to neutralize the gains from deferral.

4. Construction of tax variables and estimation methods

4.1 Construction of tax variables

Several issues must be dealt with carefully when measuring the taxes paid by a corporate or a non-corporate firm with any given level of income.

Consider first non-corporate tax payments. One choice the firm faces is the extent to which some of the income should be classified as “unearned” income. When the individual would face an overall tax rate on earned income below that due on capital income, then it is preferable not to classify income as ”unearned”.[31] Only those facing a marginal tax rate on earned income above that on unearned income will choose to reclassify. Once earned income payments reach this limit, the owner will instead claim further payouts as ”unearned” income, until these payouts reach the allowed limit for ”unearned” income. At that point, any further payouts will take the form of earned income. We assume that the individual in fact makes this choice to minimize tax payments.

A second choice faced by a non-corporate firm is the extent to which profits will be transferred into expansion funds. By doing so, the individual pays tax at the corporate rate rather than the personal tax rate on the transferred funds. When the funds are withdrawn, the past corporate taxes are rebated and personal taxes are owned on the withdrawn funds. Withdrawals are more attractive in years when personal tax rates are low. An additional cost of use of expansion funds, though, is that any expansion funds are subtracted from the capital stock used in calculating allowed ”unearned” income.[32]

In particular, use of an expansion fund reduces expected tax liabilities whenever

$$(3) \qquad (T'-\tau) > (r+.05)\frac{T'-c}{d}\left(1-\frac{1}{(1+d)^n}\right)+\frac{T_f^{'}-\tau}{(1+d)^n}$$

The left-hand side captures the immediate tax savings from paying taxes at the corporate rate rather than the personal tax rate on the money shifted into an expansion fund. The first term on the right-hand side measures the present value of the extra taxes due while funds remain in the expansion fund due to the drop in allowed ”unearned” income, where *c* is the tax rate on capital income and *d* is the after-tax discount rate. Here, we assume that money remains in the expansion fund

[31] This occurs at low income levels due to the basic allowance and the earned income tax credit,

[32] Another obvious cost of using the expansion funds is that the money cannot be immediately used by the business owner, but are locked in the fund.

for *n* years, The last term measures the extra taxes due in the future when money is taken out of the expansion fund, where $T_f^{'}$ is the tax rate in the future that in expectation will be faced on withdrawals of funds.

Back-of-the-envelope calculations suggest that expansion funds are an attractive option whenever $E(T_f^{'} - c)$ is less than about two-thirds of $T^{'} - c$.[33] In the estimation, we calculate the contributions to expansion funds in period *t* that minimize expected taxes assuming that they must be withdrawn in period *t*+1.

Similarly, non-corporate firms need to choose how much to shift to periodic funds. Such shifting is worthwhile as long as

$$(4) \qquad T' > \frac{T_f^{'}}{(1+d)^n} \; .$$

We again assume that the firm chooses contributions to periodic funds to minimize expected taxes, assuming they must be withdrawn in period *t*+1.

A CHC also has a range of choices. For one, among funds it chooses to pay out to the owner, should these payouts take the form of dividends or wages? Wage payments are deductible expenses for the firm, so that the only taxes due are payroll taxes and personal taxes on earned income. Dividends are not deductible expenses for corporate tax purposes, and the payouts are taxed as ”unearned” income until the payouts are so large that they are instead reclassified in part as earned income.

Wage payouts dominate dividends as long as:

$$(5) \qquad (1-t)(1-T') > (1-\tau)(1-c)$$

When the individual’s income is smaller than the basic allowance, $T^{'} = 0$. In addition, at such low incomes, extra payroll tax payments generate extra social benefits, leading to $t \approx 0.16$.[34] At these low income levels, we find that wage payments

[33] In our calculations, we used a pre-tax discount rate of 3%, implying an after-tax discount rate of 2.1% and set *n* = 5.

[34] Du Rietz (2003) suggests that the effective payroll tax should be set slightly lower than the “special payroll tax” on passive entrepreneurial income and on employer’s contributions to employees’ retirement pensions funds, for income levels below 7.5 basic amounts. Sørensen (2008) on the other hand, argues that the effective payroll tax for the lower income levels is approximately zero. We will follow Du Rietz and set the effective

dominate dividends. In fact, we find that wage payments continue to dominate dividend payment for a non-trivial section of the lower end of the income distribution. Once wage payments are high enough that the marginal earned income tax is higher than the capital tax, the individual does better by switching to dividends when making any further payouts, until dividends no longer qualify as ”unearned” income. For each observation, we calculate the form of payout that minimizes the individual’s expected taxes.

To what extent, though, should funds be paid out? Consider retention of a krona compared with payout of a krona in dividends and then a new investment of a krona in the firm. In both cases, the firm is left with the same amount of funds, and in both cases the same corporate taxes are paid. In the second case, taxes are due now on the payout. With new investment in the firm, however, the basis value for the firm’s shares used in calculating ”unearned” income increases, expanding the eligible amount of ”unearned” income by (r+.09) in all future years that the individual holds these shares. In addition, the increase in the basis value reduces future capital gains taxes when these shares are sold. The present value of these extra taxes due as a result of this payout, assuming that the firm is paying out wages as well as ”unearned” income, equals:

$$T' - \frac{(r+.09)(T'-c)}{d}\left(1-\frac{1}{(1+d)^n}\right) - \frac{.5(T'-c)}{(1+d)^n} \qquad (6)$$

Here, we assume that the capital gains will be realized *n* years in the future, and that accumulated unearned income will have reached the maximum allowed value so that marginal capital gains will be taxed half as earned income and half as capital income.

Our calculations suggest that the firm breaks even by paying out funds if shares will be held for roughly another seven years, with payouts becoming more attractive the longer the shares will be held.[35] Based on these calculations, we assume in the empirical work that all profits are in fact paid out each year.[36]

Should a CHC place funds in a periodic fund? The rules are the same as for a non-corporate firm except that, from year 2005 on, the taxable amount on withdrawal accrues interest at the long-term bond rate. Rather than expression (11), the net benefits for a CHC from making use of periodic funds are positive if:

payroll tax equal to 0.16 for income levels below 7.5 basic amounts, but will also test the sensitivity of the results to using the assumption by Sørensen.

[35] Here, we assume that $r = .03$, $d = .021$, $c = .3$, while $T' = .5$.

[36] With this assumption, we can also ignore any deferred capital gains taxes due on retained funds.

(7) $$T' > \frac{T_f(1+.72r)^n}{(1+d)^n}$$

Note that r = 0 until year 2004, but is positive from 2005 on. Since $d = .7(1-t)r$ due to taxes, from 2005 on use of periodic funds makes sense only if the chance of facing a much lower tax rate in the future is high. We calculate the contribution to periodic funds that minimizes a CHC's expected taxes, assuming the funds must be withdrawn in period $t+1$.

4.2 Generating measures of tax incentives

To form expectations about Y_{t+1}, we assume that the owner extrapolates using information about earnings, Y_t, and its capital stock, K_t, in the current year. In particular, we make use of the following regression to forecast the distribution of possible profits in the following year:

(8) $$Y_{t+1} = a + b_1 \max(Y_t, 0) + b_2 \max(Y_t^2, 0) + c_1 \min(Y_t, 0) + c_2 \min(Y_t^2, 0) + dK_t + \tilde{\upsilon}_{t+1}$$

Here, the coefficients b_1 and b_2 capture both mean-reversion and possible on-going growth in the firm among firms with past profits, and similarly for coefficients c_1 and c_2 among firms with past losses. We also include the firm's capital stock, K_t, to help control for variation in expected profits by size of firm.

We estimate these equations separately each year, restricting the sample to those who were self-employed in year *t*.

The distribution of possible outcomes around the forecasted value depends on the distribution of $\tilde{\upsilon}_{t+1}$. We assume that

(9) $$|\tilde{\upsilon}_{t+1}| = a + b_1 \max(Y_t, 0) + b_2 \max(Y_t^2, 0) + c_1 \min(Y_t, 0) + c_2 \min(Y_t^2, 0) + dK_t + \tilde{\eta}_{t+1}$$

Here the dependent variable is the absolute value of the residual from equation (1). We also assume a separate relationship between risk and past profits for firms with past profits vs. losses. This relationship is again estimated separately in each year.

Given the expectation of substantial heterogeneity, we re-estimate equation (8) using generalized least squares, dividing through all variables by the forecasted standard deviation of the error terms.

In order to construct the variables needed to estimate equation (2a), we then use the estimates from equations (8) and (9) to simulate a distribution of possible profits for the firm in year $t+1$, for any given observed values for profits and the capital stock in year t, drawing from the observed residuals.[37] For each possible outcome, we can calculate tax payments assuming either form of organization, directly enabling us to calculate expected tax payments.

5. Data

The empirical analysis is conducted by linking data for 2004–2008 on individuals' incomes, employment status and socio-demographic characteristics with tax return data on small businesses.

The individual income data come from the tax authority income registers, and are based on tax returns and statements of income. They contain yearly gross amounts of earned income (i.e. wage income and income from non-corporate entrepreneurial activity), and capital income.

The data furthermore contain an indicator of the main income-generating activity of an individual as of November each year, which classifies individuals as employed, non-corporate business owner, or owner of a closely held corporate firm.[38] This measure will be used as the indicator of organizational form of the firm in the empirical analysis.

The business level data is based on business level tax returns,[39] and contains information on all businesses, except for the financial sector, over 2004–2008. The data contains measures of annual business revenues, total wage payments, and aggregate measures of business assets. It also contains a detailed classification of industrial sector, and whether the business is corporate or non-corporate.

A key issue is how we link the individual business owners to their businesses. For owners of sole proprietorships, this is straightforward, as the firm identification code

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[37] Specifically, we draw the 5th, 10th, .., 95th percentile value from of the normalized distribution of residuals, multiply by the estimated standard deviation for the residuals coming from equation (4) and then add this to the forecasted value for profits coming from the coefficient estimates in equation (3).

[38] When constructing this measure of income, Statistics Sweden inflates non-corporate business income by 1.6, in order to account for likely understating of income. Corporate business ownership is identified if the individual files taxes as owner of a closely held corporate business *and* this was the main income generating activity.

[39] For non-corporate firms, these coincide with the personal tax returns, as the income of the business is in this case not separated from the personal income of the owner.

in the business level data coincides with the personal identification code in the individual data. The link between owner and firm can however not be identified from our data for non-corporate partnerships, which means that our empirical analysis will be based only on the non-corporate firms that are sole proprietorships. Sole proprietorships make up more than 80% of the non-corporate firms.[40]

For owners of closely held firms, no such direct link is available, and we need to rely on indirect information to obtain an approximate link between owners and firms. To link individual and business data in this case, we make use of a data set which contains links to all workplaces from which the individual received earned income exceeding SEK 1,000 (USD 110)[41] during the year. These data contain information on the earned income from each workplace, as well as whether the individual is linked to the workplace as a non-corporate business owner or as an employee (where the latter includes corporate business owners who are employed by their own firm). Specifically, we assume that an individual who is classified as CHC-owner according to the indicator described above, owns the business from which he or she received the largest amount of earned income during the year, as long as the business is also classified as a corporate business in the business level data set.[42] [43] Inevitably, this procedure misclassifies the business-link for at least some of the CHC-owners in the data. We will therefore test the robustness of the results to only including CHC-owners with links to one workplace.

In the empirical analysis, we exclude firms that are owned by the government sector, as well as firms in the agricultural, forestry and fishing sectors. Only working-age individuals, aged 20–64, are included in the data, and we study only owners of businesses that are either sole proprietorships or closely held corporations.[44]

In order to avoid having a few extreme values drive the estimation results, we also exclude the top and bottom 0.5 percent of observations of business revenue; and of our measure of tax incentives (see eq. (10) below). We also exclude the top and bottom 0.1 percent of the observations of the variable previous personal income. Finally, we exclude the 2.5 percent of the firms where the observed number of

[40] See the Swedish Companies Registration Office: www.bolagsverket.se.

[41] The currency conversion throughout the paper is made using the approximate PPP-adjusted conversion rate for 2010, SEK 9 = USD 1, reported by the OECD (http://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE4) .

[42] Since the indicator for employment status is based on the status in November each year, we only include workplaces/firms from which the individual received earned income during that month.

[43] 62% of the observations for corporate business owners in our sample were linked to only one workplace, whereas 38% had links to several workplaces. For those with links to several workplaces, we use the following decision rule to link owners to workplaces: a) The workplace data contains an indicator of whether the individual is related to the workplace as an employee or as a sole proprietor: owners of closely held corporations will be classified as employees: after eliminating the links that do not have this classification, 85 percent of the observations for CHC-owners have links to only one workplace. b) For the remaining 15 percent, we keep the workplace that yielded the highest annual income.

[44] The reason for focusing on these two forms of ownership is that there is no available link between owners and firms in our data for the other forms of ownership.

owners exceeds four, since a firm is closely held only if it has at most four owners.[45] [46]

After the above modifications, we are left with 367,868 observations over the years 2004-2007[47]: 209,580 sole proprietors and 158,288 owners of closely held corporations. Summary statistics for the sample of business owners, divided into owners of non-corporate and corporate firms, is given in Table 1. The table first shows the net-of tax income over the 2-year period if the firm organizes as corporate or non-corporate, and our variable of main interest, *YTdiff*, which measures the percent impact on net-of-tax income if a corporation instead chooses to be a sole proprietorship. The table also gives summary statistics of the firm-level characteristics that are needed for the tax calculations and/or are included in the regression analysis; and of owners' background characteristics.

[45] Since the rules that determine whether a corporation is closely held count all close family members as one owner, this probably excludes too many firms. In any case, the number of firms that are excluded is small, and does not change the qualitative results (the result with all firms is available upon request).
[46] Note that firms are in addition regarded as CHCs only if their shares are not traded on a regulated exchange. This we cannot observe in our data.
[47] Since we model the explanatory net-of-tax expected income variable over t and t+1, we will lose one year in the data construction, and will in effect use years 2004-2007 in the analysis.

Table 1 Descriptive statistics regression sample

Variables	Sole Proprietors (SP) Obs	Mean	Std. Dev.	Closely held corporations (CHC) Obs	Mean	Std. Dev.
Net-of-tax business revenue differential:						
YTdiff	209580	0.97	4.25	159288	3.08	5.37
Firm level characteristics:						
Wage sum employees ($t-1$)	209498	29959	148968	159220	564745	1567499
Wage sum owner ($t-1$)[48]	209580	175525	149216	159288	307910	160568
Capital assets ($t-1$)	209580	119105	552081	159288	871657	1682306
Business revenue (t)	209580	245046	237477	159288	625413	526790
Owner background characteristics:						
Average personal income previous 5 years	209580	179447	158089	159288	329966	209161
Age	209580	46	11	159288	48	9
Dummy male	209580	0.63	0.48	159288	0.83	0.38
Dummy university education	208682	0.52	0.50	158913	0.57	0.50
Dummy married/cohabiting[49]	209580	0.61	0.49	159288	0.73	0.44

Note that the individual business owner is the unit of observation in our data: while sole proprietorships are always one-person-businesses, the closely held firms may have more owners. We will account for this in the regression analysis by allowing for correlation among owners of the same firm when we calculate the standard errors. We will also test the robustness of the results to excluding the share of closely held firms that have more than one owner.[50]

Before we move on to the results of the empirical analysis, the following section will present the estimation details and give a descriptive analysis of the tax incentives and choice of organizational form.

[48] For sole proprietors, who technically do not receive wage income, this refers to the personal income that is taxed as earned income.

[49] In the data, we can only observe if a non-married couple is cohabiting if they have common children. Cohabiting individuals without common children will be classified as single.

[50] We are still likely to misclassify the number of owners of some firms in the data, partly due to the fact that we only observe individuals 20-64 years old in the data, and partly since the classification of CHC-owners only captures those with CHC-ownership as the main income generating activity.

6. Estimation

6.1 Specification of the regression equations

In the theoretical model in section 2, we modeled the choice of organizational form as a function of the tax schedule, and derived the condition (see equations (2) and (2a)) for when a business owner would opt to incorporate rather than operate as a non-corporate firm. In order to test this prediction empirically, we make use of business and business owner data on non-corporate and closely held corporate firms over the period 2004–2008.

The tax schedule gives rise to variation in the tax treatment of the two types of firms, both over time and across income groups.[51] We will make use of both of these sources of variation in the regression analysis. Specifically, we pool all years of data, and, based on equation (2), we estimate the choice of organizational form in year t, given income in year *t* and given the tax incentives faced in years *t* and *t* + 1.

Before turning to the estimation details, we state again the condition, derived in equation (2) section 2, under which the business will be corporate. Noting that, under the dual tax system, both the corporate and the non-corporate business owner are likely to have a mix of earned and capital income from the firm, we rewrite equation (2) in the following manner: The business will choose to incorporate if

$$(10) \qquad Z\gamma + \tilde{\varepsilon} + \frac{\sum_{s=t}^{t+1} [EY_s(T_s^c) - EY_s(T_s^{nc})]/(1+d)^{s-t}}{\sum_{s=t}^{t+1} EY_s(T_s^c)/(1+d)^{s-t}} > 0,$$

where $Y(T^{nc})$ denotes net of-tax income under the non-corporate tax schedule, and $Y(T^c)$ denotes net-of-tax tax income under the corporate tax schedule.

As equation (10) illustrates, in our model the choice of organizational form is a function of the percent change in after-tax income over the next two years if a corporation chooses instead to operate in non-corporate form. Equation (10) furthermore illustrates that the firm will choose to incorporate as long as any tax benefits from being non-corporate are not large enough to outweigh the non-tax benefits from incorporating.

[51] In particular, the tax treatment depends on business revenue; capital assets (for non-corporate firms); acquisition cost of shares (CHC); and wage costs (CHC).

In order to estimate equation (10) empirically, we should include all relevant non-tax factors that are likely to influence the decision to incorporate. One plausible non-tax factor that affects the choice of organizational form is the capital assets of the firm: firms with more capital gain more from incorporating due to the resulting improved access to outside finance and risk sharing. Second, corporations tend to be more common in some industries than in others, and third, firms that have employees (so face a fixed payroll) gain more from the risk sharing facilitated by corporate status. Based on these considerations, we include dummy variables for each decile of the distribution of capital assets, as well as a dummy for whether the business has capital assets worth at least the SEK 100,000 that were required for incorporating during our data period. We also include dummy variables for: one-digit industry[52]; a dummy for having employees (other than the owner), and we include the owner's average income during the five previous years (measured in million SEK), as an additional indicator of both scale of business and access to capital. The sector information is measured in period *t*, while the dummy variables for capital assets and employees are based on the lagged values.[53]

In some of the regressions we will furthermore add individual background covariates, including dummy variables for gender, 5-year age-groups, marital status and being a college graduate, all measured in period *t*, in order to further capture differences in access to capital as well as attitudes to risk.

Finally, we will estimate equation (10) with and without year dummies, in order to check whether aggregate time trends in the choice of organizational form affect the results.

The resulting regression specification implies that the firm will choose to be corporate if

(11) $$\alpha + \beta \cdot YTdiff_{it} + Z_{it}\gamma + X_{it}\delta + \kappa_t \lambda_t + \tilde{\varepsilon}_{it} > 0,$$

and conversely. Here, $YTdiff_{it}$ denotes the percent drop in after-tax income if a corporation chooses instead to be non-corporate, i.e. the third variable in equation (10). Z_{it} contains the business level non-tax factors described above (dummy variables for capital assets; 1-digit industry; for having employees; and the average income of the owner during the 5 previous years), and X_{it} is a matrix of the personal background dummy variables listed above. κ_t contains yearly dummy variables, and ε_{it} is the regression error term.

[52] Some categories were merged due to few observations.

[53] However, since we lack information on year 2003, for 2004, the current values are used for all variables. We will therefore test the robustness of the results to excluding year 2004.

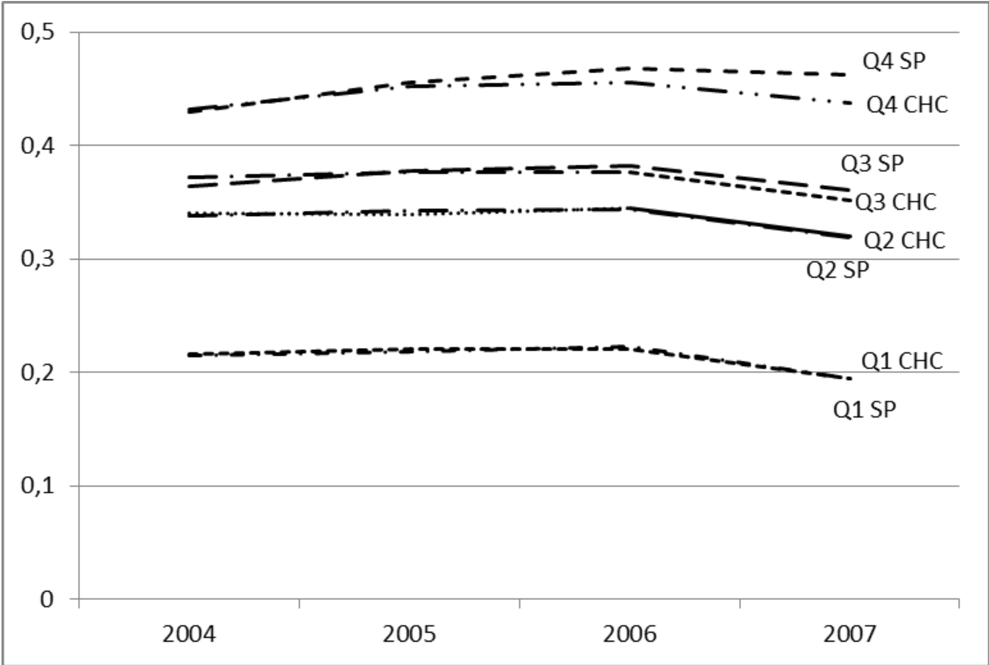
If business owners react to tax incentives when choosing organizational form, we expect a positive beta-coefficient – all else equal the business owner would choose the organizational form that gives the higher net-of-tax income. Before we turn to the regression results, we will, however, check whether such a pattern is visible in the data.

6.2. Descriptive analysis

This section gives a graphical description of the tax treatment of corporate and non-corporate small businesses and the resulting choice of business organizational form.

First, Figure 1 shows the average tax rates, as calculated for year *t*, over 2004–2007 if firms choose to organize as sole proprietors (SP) or closely held firms (CHC) respectively. In particular, the figure graphs the tax rates averaged separately over business owners with business revenue in each quartile (Q1–Q4).[54]

Figure 1: Average tax rate year *t* if a sole proprietorship (SP) vs. a closely held corporation (CHC), for each quartile of the business income distribution.



Note: Q1 denotes the lower 25 percentiles of firms w r t business income in t,, Q2 denotes percentiles 26-50, Q3 percentiles 51-75, and Q4 the upper 25 percent of the income distribution.

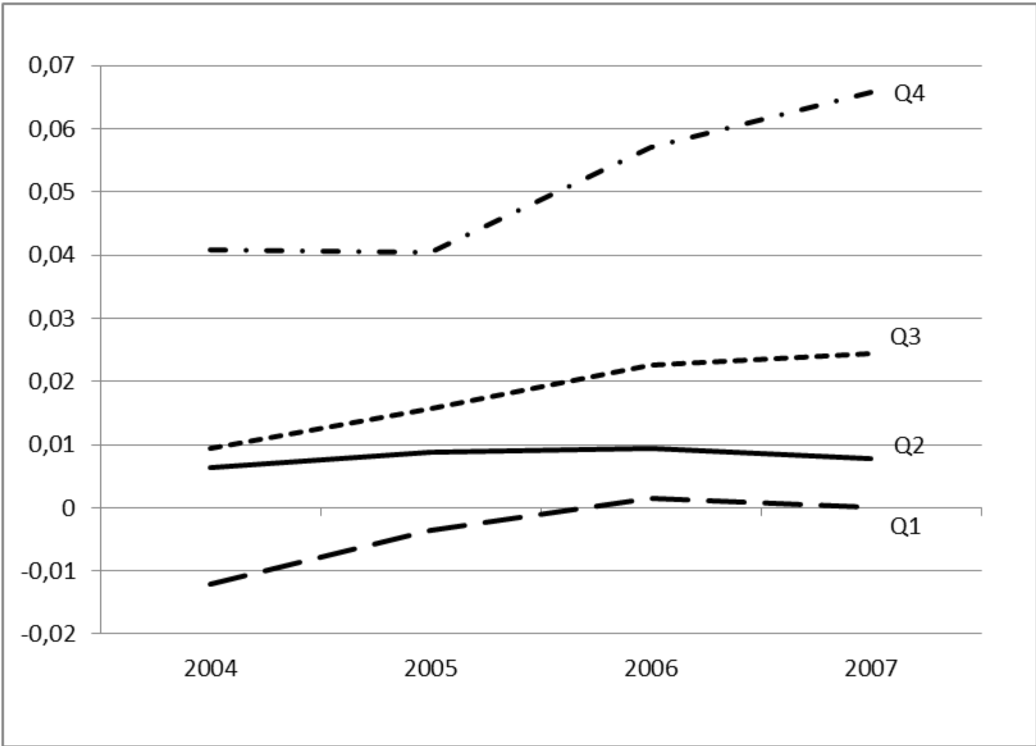
Figure 1 shows that the taxes paid by the business owners in the two lower income quartiles would not differ much depending on the choice of organizational form.

[54] Note that the taxes depend not only on income but also capital assets and wage sums. Note also that the tax rates are calculated assuming an effective payroll tax of 20% for earned income below 7.5 basic amounts.

However, for the two higher income quartiles, and especially for the highest quartile, starting from 2006 there is an increasing tax advantage from incorporating.

Figure 2 graphs the key variable in the regression on business organizational form: the percent drop in 2-year after-tax income if the firm chooses to operate in non-corporate, instead of corporate, form. Similar to Figure 1, the graph shows the average values separately for each quartile of the owner business revenue distribution. (Note, however, that while Figure 1 only shows the tax incentives for year *t*, Figure 2 shows the tax incentives as modeled in equation (2), i.e. based on tax rates in year *t* and *t* + 1.)

Figure 2: The percent drop in present value of 2-period net-of-tax income if a corporation were instead non-corporate.[55]



Note: Q1 denotes the lower 25 percentiles of firms w r t business income in t, Q2 denotes percentiles 26-50, Q3 percentiles 51-75, and Q4 the upper 25 percent of the income distribution.

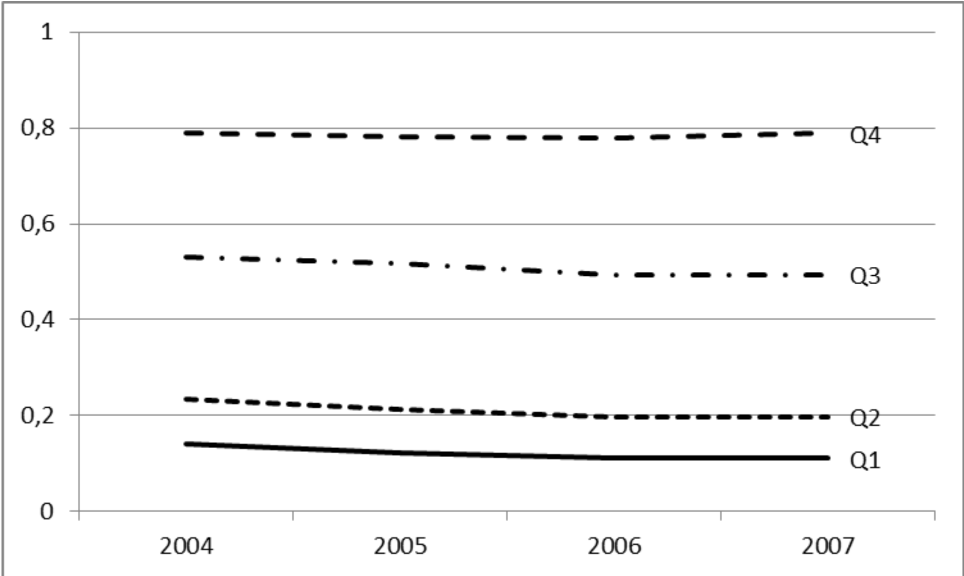
As can be seen in Figure 2, on average business owners in all three upper income quartiles, especially the top quartile, would face a drop in after-tax income if they choose a non-corporate form for their business. Furthermore, the tax penalty from being non-corporate increase over time for the two upper quartiles. By the end of the period, the average business owner in the top income quartile would lose more than 6 percent of her 2-period net-of-tax-income if she were to go from corporate to non-

[55] The tax rates are computed using an effective payroll tax of 20% for taxable income up to 7.5 basic amounts (see footnote 30 for details).

corporate form.[56] The average business owner in the lower quartile, however, gains from being non-corporate in the first couple of years, and is then neutral.[57]

In order to get a first indication of whether the tax incentives are correlated with the actual choices of organizational form made by the business owners in our data, Figure 3 graphs the share of business owners that are owners of closely held corporations, for each of the four business revenue quartiles.

Figure 3: Share of owners of closely held corporations



Note: Q1 denotes the lower 25 percentiles of firms w r t business income in t, Q2 denotes percentiles 26-50, Q3 percentiles 51-75, and Q4 the upper 25 percent of the income distribution.

Figure 3 shows that choosing to operate as a closely held corporation is much more common in the higher income quartiles: close to 80 percent of the business owners in the upper business income quartile are owners of a closely held corporation, compared to less than 20 percent in the lower quartile.

As for changes over time, it is hard to detect any dramatic development in Figure 3: for the three lower income quartiles the share of firms that incorporate follows a slowly decreasing trend over time, while the share of closely held corporations is stable, or increasing a little, for the upper income quartile.

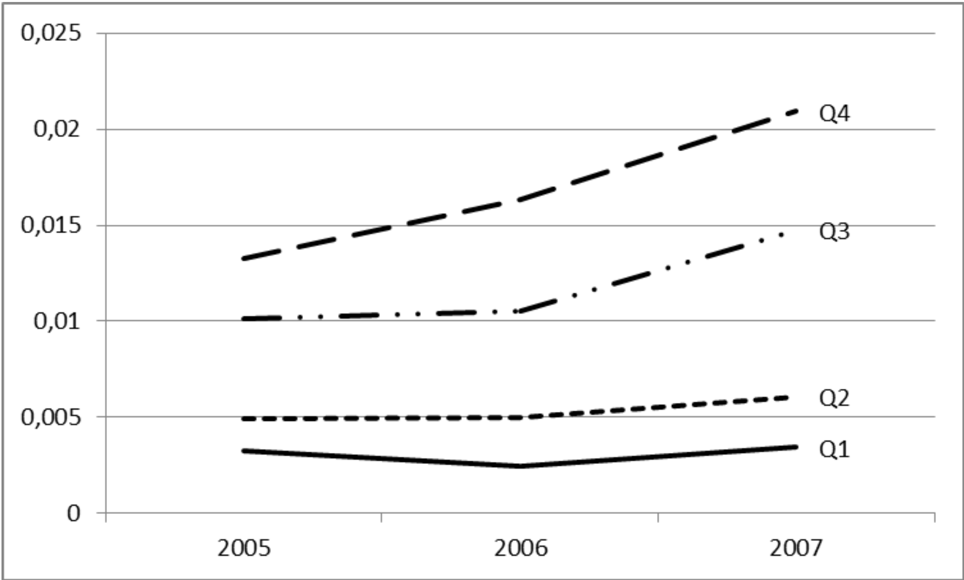
This aggregate pattern could however be due both to changes in the composition of firms covered in the data, and to actual changes in organizational form among firms.

[56] It can be noted that the tax gains are even higher for the top percentile firms, where the net-of-tax income differential is between 10 and 15 percent during 2004–2008.

[57] The decrease in the tax advantage for non-corporate firms from 2006 on is probably due to the introduction in that year of the set capital amount that could be used by all CHCs, irrespective of capital assets held.

In order to get a better feeling for what is driving the pattern in the data, Figures 4 and 5 plots the share of owners that change organizational form from year *t* - 1 to year *t*, divided into those that change from non-corporate to CHC, and the reverse.[58] (Since we need information on the organizational form the previous year in order to do so, this reduces the data window to three years, 2005–2007.)

Figure 4: Share of business owners that change from sole proprietorship to closely held corporation between year *t* – 1 and *t*



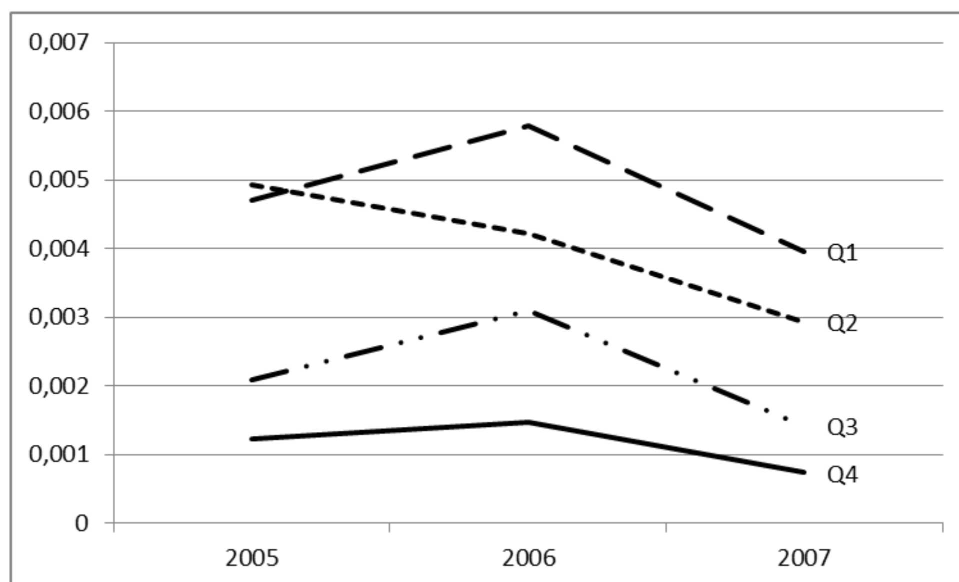
Note: Q1 denotes the lower 25 percentiles of firms w r t business income in t, Q2 denotes percentiles 26-50, Q3 percentiles 51-75, and Q4 the upper 25 percent of the income distribution.

When we plot only the share that changes from non-corporate to corporate form, we first of all see that this share is rather small: the overall share of firms that incorporate is around 1 percent yearly. The pattern however corresponds roughly to what we would expect given the tax incentives: the share of firms that incorporate is higher in the higher income brackets, and increases in years 2006 and 2007 for the two upper income quartiles, but remains fairly stable for the lower quartiles.

The share that changes from corporate to non-corporate, in Figure 5, is even smaller, around a third of a percent in the aggregate, and seems to follow a weak negative trend over the period we study, although with a slight jump in year 2006.

[58] Note that our focus is on the business owner: i.e. a change in organizational form means that the owner goes from being the owner of a closely held corporation (sole proprietorship) to being owner of a sole proprietorship (closely held corporation). Since the id number of the firm changes as the organizational form does, we cannot be certain that it is that particular business that changes organizational form: we may also capture cases where the individual goes from being the owner of one firm, to being the owner of *another* firm with a different organizational form.

Figure 5: Share of business owners that change from closely held corporation to sole proprietorship between year t-1 and t



Note: Q1 denotes the lower 25 percentiles of firms w r t business income in t, Q2 denotes percentiles 26-50, Q3 percentiles 51-75, and Q4 the upper 25 percent of the income distribution.

Taken together, Figures 1–2 indicate a more favorable tax treatment for closely held corporations in the upper income quartile starting from 2006, and in general larger tax gains from incorporating for higher income firms. Figures 3–5, show that the share of corporate firms is much larger in the higher income brackets, but the changes over time are small. While the graphical analysis gives some indication that tax incentives could play a role in the decision to incorporate, the picture is far from clear. However, the figures do not adjust for differences in non-tax incentives, and in order to do so, we now turn to the regression analysis.

7. Results

7.1 Regression results

This section presents the results of the empirical analysis, where we test for the effects of both tax and non-tax factors affecting the choice of organizational form by closely-held firms. Based on the theoretical model in section 2, we analyze how the likelihood that a firm is a closely held corporate business, instead of a non-corporate sole proprietorship, is related to the differential tax treatment of the two types of firms.

The first step in the estimation is to forecast the mean and variance of income in year $t + 1$ given income in year t. Results are reported in Tables A.1 and A.2 in the Appendix.

Based on these results, we can then construct our measure of the tax incentives to incorporate. The result of the regression specification in equation (11) is given in Table 2. The coefficients shown are the average marginal effects on the probability of being corporate coming from a probit-estimation.[59]

The specification in column (1) includes no covariates; column (2) includes average personal income of the owner during the five previous years (measured in SEK 10,000); one digit industry dummy variables measured in $t - 1$; a dummy variable for whether the business has employees (other than the owner(s)); and dummy variables for business capital assets in $t - 1$. The latter are defined as dummies for each decile of the capital asset distribution and a dummy for whether the business has at least the SEK 100,000 of capital assets that are required for incorporating. Column (3) adds year dummy variables; and column (4) further adds the set of personal covariates: dummy variables for gender; being married; having completed a university education; and 5-year age intervals. Finally, column (5) account for underreporting of incomes according to the estimates in Engström and Holmlund (2009), that is, we assume that the business income reported for tax purposes by a non-corporate firm is only 60 percent of its true business income, while reported income for a corporate firm is only 85 percent of its true business income.

[59] The average marginal effects were computed using the STATA command margins.

Table 2, Regression results equation (11) Organizational form.[60]

VARIABLES	(1)	(2)	(3)	(4)	(5)
Ytdiff	2.366***	0.732***	0.762***	0.750***	0.126***
	(0.029)	(0.020)	(0.021)	(0.021)	(0.006)
Average income 5 years (in million SEK)		0.143***	0.142***	0.115***	0.163***
		(0.007)	(0.007)	(0.007)	(0.007)
$Employees_{t-1} > 0$		0.230***	0.229***	0.229***	0.240***
		(0.002)	(0.002)	(0.002)	(0.002)
$Capital_{t-1} > 100k$		0.0758***	0.0758***	0.0746***	0.0746***
		(0.0044)	(0.0044)	(0.0044)	(0.0044)
Capital asset dummies	No	Yes	Yes	Yes	Yes
Sector dummies	No	Yes	Yes	Yes	Yes
Year dummies	No	No	Yes	Yes	Yes
Owner background covariates	No	No	No	Yes	Yes
Tax evasion	No	No	No	No	Yes
Log Likelihood	−243703.45	−131248.17	−131137.97	−129700.72	−130319.04
Observations	368,868	368,859	368,859	367,589	367,594

Robust standard errors in parentheses, clustered at the firm level, *** p < 0.01, ** p < 0.05, * p < 0.1

The results in Table 2 suggest that tax incentives have a positive and statistically highly significant effect on the choice of organizational form: a one percent point increase in the net income from operating in corporate rather than non-corporate form leads to a 0.75 percentage point increase in the likelihood that the business owner chooses to be corporate.

When we assume underreporting of business income, in column (5), the coefficient of the tax variable goes virtually to zero, but also the log-likelihood substantially worsens. While we cannot reject the importance of evasion based on such estimates, we can conclude that this simple procedure does not successfully capture the effects of evasion on the incentives faced by firms.

Table 2 also shows that non-tax factors are strongly correlated with the choice to incorporate: firms with more capital or with employees, and owners with higher previous average income are all much more likely to incorporate. The share of corporations differs between sectors, and owners of CHCs are more likely to be male; married; in their 40–50s; and more often have college degrees, than their non-corporate counterparts.

[60] The full set of coefficients is shown in Table A.3 in the Appendix.

7.2 Alternative specifications

7.2.1 Variation in tax effects across firms

The results so far assume that the impact of taxes is the same regardless of the characteristics of the firm, or the magnitude of the tax differential. In Table 4, we allow for variation in the impact of taxes across types of firms.

In particular, we allow for differential effects: i) for firms with sufficient capital to have the option to be corporate; ii) for firms with employees; iii) for firms in the service sector, and iv) for different segments of the net-of-tax income measure *YTdiff*. The latter is done by introducing a piece-wise linear function of *YTdiff*, with changes in the slope at values 0% and 3%.

Table 4 shows the average marginal effects of *YTdiff* for the respective categories, that is, column (2) shows the marginal effects for the firms without and with sufficient capital to be corporate, respectively, column (3) shows the same for firms without and with employees, etc. For reference, Column (1) reproduces the baseline result from column (4) in Table 3.

Table 4, Regression results equation (11) Heterogeneous effects.

VARIABLES	Baseline	Capital	Employees	/Non/ Service sector	Spline *YTdiff*
	(1)	(2)	(3)	(4)	(5)
YTdiff	0.750***				
	(0.021)				
YTdiff: $Capital_{t-1}$ ≤ 100k		0.395***			
		(0.019)			
YTdiff: $Capital_{t-1}$ > 100k		1.108***			
		(0.037)			
YTdiff:$Employees_{t-1}$ = 0			0.789***		
			(0.024)		
YTdiff:$Employees_{t-1}$ > 0			0.661***		
			(0.036)		
YTdiff: Non Service Sector				1.143***	
				(0.044)	
YTdiff: Service Sector				0.589***	
				(0.022)	
YTdiff: *YTdiff*<0%					0.190***
					(0.051)
YTdiff: *YTdiff* 0-3%					3.254***
					(0.126)
YTdiff: *YTdiff*>3%					0.069***
					(0.029)
Firm characteristics	Yes	Yes	Yes	Yes	Yes
Capital asset dummies	Yes	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Owner background covariates	Yes	Yes	Yes	Yes	Yes
Log Likelihood	−129700.72	−129670.14	−129700.58	−129638.25	−128662.68
Observations	367,589	367,589	367,589	367,589	367,589

Robust standard errors in parentheses, clustered at the firm level, *** p < 0.01, ** p < 0.05, * p < 0.1

The results suggest that the effect of taxes is a bit larger for firms with sufficient capital to be corporate (column (2)), and a bit smaller among firms in the service sector (column (4)). Whether the firm has employees or not does on average not seem to matter much for the size of the effect.

The tax effect, however, is estimated to be much larger when *YTdiff* is between 0 and 3 percent (column (5)). Here, we find that increasing the income if corporate by one

percent relative to the income if non-corporate raises the probability of incorporating by 3.3 percent. In contrast, when *YTdiff* is outside this range, marginal changes have virtually no impact on the probability of being corporate. Presumably, these firms are infra-marginal, almost entirely corporate (when *YTdiff* is high) or non-corporate (when *Ytdiff* is negative), and do not respond to marginal tax changes.

7.2.2 Additional robustness tests

We have also run a set of alternative robustness tests: First, we used an alternative assumption for the effective payroll tax, and, second, we included only business owners with links to one workplace, in order to reduce the risk that CHC-owners are linked to the wrong workplace. Third, we excluded all CHCs with more than one owner, since it is less clear how the decision on organizational form is made when there are several owners. Fourth, we omitted year 2004 from the estimation, since for 2004 we do not have access to information on lagged variables that are needed for the tax calculations, and instead use current values for that year. The tax coefficients from these alternative specifications, which are given in Table A.4 in the Appendix, range from 0.64–0.84.

8. Discussion and conclusion

The objective of this paper has been to examine the impact of tax incentives on the choice of organizational form in Sweden, using detailed data on the choices of organizational form for firms during the time period 2004–2008. During this time period, there were many changes in the tax law, and firm owners potentially experienced dramatic changes in the financial position of their firm, potentially affecting the relative attractiveness on tax grounds of one form of organization over the other.

When we calculate the tax incentives facing small business owners over this period, ignoring differential rates of tax evasion by organizational form, we find that, for the business owners in the higher end of the business income distribution, the tax system favors organizing as a CHC rather than a sole proprietorship, and more so during the last years of our data period. For lower income levels the differences in tax rates due to organizational form are much smaller, and change less over time. These findings are similar to those of Sørensen (2008), who studies the 2007 tax rules. He finds that the average effective tax rates are roughly similar for CHCs and sole proprietors when pre-tax business profits are SEK 500,000, but that the average effective tax rates are higher for sole proprietors when pre-tax business profits are SEK 1,000,000 or higher.[61]

[61] See Table 1.2 in Sørensen (2008).

The results of the regression analysis show a large and highly statistically significant impact of tax incentives on the choice of organizational form. In particular, a one percent increase in net income if corporate is estimated to lead to 3.3 percentage points more firms being corporate among firms not already facing a decisive tax distortion,[62] and a 0.75% increase among all firms. If the corporate rate were reduced by one percentage point, for example, this would increase the net-of-tax income if the firm is corporate by $1/(1-\tau)\% \approx 1.4\%$, leading to an 4.6% increase in the fraction that incorporate among firms facing relatively neutral incentives, and a 1% increase across all firms.

How do these results compare with the previous literature? As discussed in section 1, most previous studies examine US data. Gordon and MacKie-Mason (1997) estimate tax distortions to the choice of incorporation, using aggregate US data, by industry, for 1959-1986. Their results suggest that cutting the non-corporate tax rate by 10 percentage points would cause a trivial 0.2 percent of total assets to shift out of the corporate sector. Goolsbee (1998) estimates effects of the same order of magnitude when he uses similar US data but from an earlier period: 1900-1937.

Goolsbee (2004) instead uses US cross-state data for year 1992, and estimates the effect of the state corporate tax on the share of business activity that is corporate. He estimated that an increase in the corporate tax rate by one percentage point reduced the corporate share of firms by about 2.5%. In contrast, we forecast that this one percentage point increase in the corporate tax rate would reduce the overall fraction of firms that incorporate by 1%. This is half the size of estimate in Goolsbee (2004), but still substantially larger than previous studies. In both cases, these stronger results are likely due to a focus on smaller firms. Goolsbee's estimates, though, capture firm sorting across states as well as changes in organizational form, so do not entirely correspond to our estimates.

To conclude, our calculations show that for a large share of business owners, the Swedish statutory tax provisions favor the corporate over the non-corporate form, and this tax distortion has a large positive effect on the propensity to incorporate. After our sample period, the tax treatment of CHCs has become yet more generous,[63] implying that the distortions due to the tax differential are now yet larger.

Tax differentials by organizational form lead to choices of organizational form that are suboptimal on non-tax grounds. Favoring corporate firms also discourages the entry of start-up firms, which are normally non-corporate because of non-tax factors, resulting in a fall in rates of entrepreneurship and productivity growth.

While we find large effects of differences in tax incentives across taxpayers, we can be less confident about the size of existing tax differentials due to possible differences in tax evasion rates by organizational form. While statutory tax rates favor

[62] When firms already face at least a 3% gain in net-income from being corporate, further tax advantages to being corporate no longer seem to matter. Similarly, if firms face a tax advantage from being non-corporate, further advantages to being non-corporate no longer matter.

[63] In 2009, the alternative allowed set dividend amount (that can be used by all closely held firms, irrespective of wage sums and shares acquisition costs, see section 3.2), was increased to 2.5 times the basic amount, and the amount of owner wage that is required for using the wage based amounts, was reduced.

the corporate form, non-corporate firms are likely in a position to evade taxes more easily. There are inevitable questions, therefore, about the size of existing tax differentials, raising questions about what direction of tax reform will reduce existing distortions.

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Appendix

A1 Tax calculation

This section describes how we calculate the tax payments for the business owner.

Allocation of income

We take business income (including wage income of the owner) as given, and allocate the revenues to be taxed between earned and unearned, as well to periodic funds and (for sole proprietors) expansion funds, in the following manner, that approximately minimizes tax payments:

If the business makes a profit:

- Allocate business income as earned income until the marginal tax rate on earned income exceeds the tax rate on unearned income.
- Allocate remaining business income as unearned (positive interest allocation[64] for sole proprietors, and tax relief amount and normal dividend amount[65] for closely held corporations) up to the maximum allowed amount.
- In period 1: Allocate remaining business income to periodic fund and, if sole proprietor, expansion fund, if the conditions in equations (8), (9) and (12) are satisfied. (Note that for closely held firms, we assume that no profits are retained, as discussed in relation to equation (11).) If periodic/expansion funds are used, allocate the maximum allowed amount to the funds.[66]
- In period 2: Assume that all business income is taken out, i.e. assume zero allocation to periodic and expansion funds, and return any existing funds to taxation.
- Classify the remaining business income as earned income.

If the business makes a loss:

- If the business makes a loss, we calculate the immediate tax savings for sole proprietors due to the deduction against other earned income, for losses up to SEK 100,000. This rule only applies during the 5 first years of the firm, but since we lack information on the age of firms, we apply it to all sole proprietorships.

Omissions:

- We disregard expected tax savings in the future due to forwarding of losses.
- Since we have limited information on realized profits and losses, we disregard the tax rules for realized profits/losses.
- For firms in forestry/agriculture, or with business real estate, there are special tax rules that lower effective tax rates. While we exclude all firms whose main activity is forestry or agriculture from the analysis, we cannot observe whether the included business owners, whose main business activity is elsewhere, also have some forest/agriculture activity. We also cannot observe whether the firm owns real estate.

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[64] *Positiv räntefördelning*.

[65] *Lättnadsutrymme* and *normalt utdelningsutrymme*.

[66] That is, either zero or the maximum amount is allocated to the funds. This is done to simplify the tax calculations. Judging from summary statistics for closely held corporations, generously made available by Håkan Sehlin, this is a reasonable assumption.

Tax calculations

Given the above allocation over different types of incomes and funds, we calculate the tax payments in the following manner:

Earned income:

Earned income is subject to payroll tax, personal municipal and central government earned income tax, and a general social fee,[67] which since 2006 is fully compensated through a tax reduction. There is a general allowance of between SEK 11,000-18,000, and, since 2007, there is an earned income tax credit.

Payment of the payroll tax increases the social insurance benefits up to a level of approximately 7.5 basic amounts (approximately USD 33,500 in 2007). We follow DuRietz (2003) (and as a test of robustness, Sørensen (2008)) and take account of this by reducing the payroll tax to 0.2 (0) percent for amounts below this level.

Capital income:

Capital income is taxed according to the special rules that limit the amount of capital income from small businesses (see details in sections 2.1 and 2.2).

Corporate tax:

Corporate tax is levied on corporate capital income, as well as on expansion funds.

A2 Data details

Owner's pre-tax business income is defined as: the business result, i.e. business revenue minus costs, divided by the number of owners (i.e. we assume that all own an equal share), and for CHC-owners we also add the pre-tax wage that was paid out to the owner. (As measure of business result, we use the variable "Resultat före bokslutsdispositioner och skatt" from the data base Företagens ekonomi, Statistics Sweden.)

In order to calculate tax payments, for corporate firms we need information on the wage sums to employees and to the owner the previous year, and the acquisition value of the owner's shares. For sole proprietors, we need information on the business capital assets by the end of the last year.

We use the following information to construct measures of these variables:

Net business assets are defined as: total assets minus total debt. (The variables used are "Summa omsättningstillgångar", "Summa anläggningstillgångar", "Summa långfristiga skulder" and "Summa kortfristiga skulder", from the data base Företagens ekonomi, Statistics Sweden.)

As a measure of the business wage sum for all employees except the owner/s/, we use information on total wages paid out to employees (minus wage payments to the owner/s/), from the data base Företagens ekonomi, Statistics Sweden.

The owner's wage payments from the business come from individual level data from the Table Anst, Statistics Sweden, which contains information on annual earned income from all workplaces from where the individual received income of at least SEK 1000 during the year.

[67] Allmänna egenavgifter.

Our data lacks information on the acquisition value of the owner's shares. Instead we use the owner's share of business capital assets as of last year as a proxy for this.

For all years, except for 2004, the capital assets and wage based variables that are used for the tax calculations are the lagged values. Since we lack complete information for year 2003, the values for 2004 are the current values.

A3 Additional results

Table A.1, Regression results equation (8), year-wise estimations. Dependent variable: Y_{t+1}, in million SEK.

VARIABLES	2004	2005	2006	2007
$\max(Y_t,0)$	1.006***	1.006***	0.995***	0.970***
	(0.00522)	(0.00508)	(0.00480)	(0.00427)
$\max(Y_t^2,0)$	−0.083***	−0.089***	−0.058***	−0.0703***
	(0.002)	(0.002)	(0.002)	(0.001)
$\min(Y_t,0)$	−0.881***	−0.678***	−1.008***	−0.691***
	(0.128)	(0.154)	(0.180)	(0.184)
$\min(Y_t^2,0)$	−0.060	1.31	−0.855	−0.702
	(0.581)	(0.829)	(0.978)	(0.985)
K_t	0.0225***	0.0361***	0.0173***	0.00806***
	(0.0008)	(0.0009)	(0.0008)	(0.0006)
Constant	46,658***	52,697***	62,375***	54,272***
	(1,661)	(1,722)	(1,830)	(1,777)
Observations	105,719	108,719	114,038	120,690
R-squared	0.568	0.566	0.578	0.572

Standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A.2, Regression results equation (9), year-wise estimations. Dependent variable: $|\tilde{\upsilon}_{t+1}|$

VARIABLES	2004	2005	2006	2007
$\max(Y_t,0)$	0.227***	0.231***	0.260***	0.272***
	(0.004)	(0.004)	(0.003)	(0.003)
$\max(Y_t^2,0)$	0.0177***	0.0187***	0.0116***	0.0045***
	(0.0018)	(0.0015)	(0.0012)	(0.001)
$\min(Y_t,0)$	−2.019***	−1.803***	−2.365***	−2.411***
	(0.0937)	(0.113)	(0.131)	(0.131)
$\min(Y_t^2,0)$	−3.71***	−1.75***	−5.24***	−4.88***
	(.427)	(.607)	(.708)	(.704)
K_t	0.0295***	0.0309***	0.0239***	0.0153***
	(0.0006)	(0.0007)	(0.0006)	(0.0004)
Constant	56,450***	59,499***	60,254***	53,397***
	(1,219)	(1,259)	(1,326)	(1,269)
Observations	105,719	108,719	114,038	120,690
R-squared	0.241	0.253	0.270	0.285

Standard errors in parentheses, *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A.3, Regression results Baseline specification, full set of coefficients.

VARIABLES	(1)	(2)	(3)	(4)	(5)
YTdiff	2.366***	0.732***	0.762***	0.750***	0.126***
	(0.0288)	(0.0204)	(0.0206)	(0.0205)	(0.00619)
Average income 5 years		0.143***	0.142***	0.115***	0.163***
		(0.007)	(0.007)	(0.007)	(0.007)
Employees $t-1>0$		0.230***	0.229***	0.229***	0.240***
		(0.002)	(0.002)	(0.002)	(0.002)
Capital $t-1>$ 100k		0.0758***	0.0758***	0.0746***	0.0746***
		(0.0044)	(0.0044)	(0.0044)	(0.0044)
Capital assets decile 1		−0.158***	−0.156***	−0.155***	−0.171***
		(0.005)	(0.005)	(0.006)	(0.005)
Capital assets decile 2		−0.0132*	−0.0123	−0.0105	−0.0291***
		(0.0079)	(0.0079)	(0.0079)	(0.0079)
Capital assets decile 3		0.122***	0.123***	0.125***	0.104***
		(0.005)	(0.005)	(0.005)	(0.005)
Capital assets decile 4		0.215***	0.216***	0.216***	0.198***
		(0.004)	(0.004)	(0.004)	(0.004)
Capital assets decile 5		0.218***	0.219***	0.218***	0.200***
		(0.006)	(0.006)	(0.006)	(0.006)

Capital assets decile 6	0.237***	0.238***	0.236***	0.219***
	(0.006)	(0.006)	(0.006)	(0.006)
Capital assets decile 7	0.263***	0.265***	0.263***	0.245***
	(0.006)	(0.006)	(0.006)	(0.006)
Capital assets decile 8	0.306***	0.308***	0.304***	0.283***
	(0.006)	(0.006)	(0.006)	(0.006)
Capital assets decile 9	0.355***	0.357***	0.352***	0.331***
	(0.007)	(0.007)	(0.007)	(0.006)
Sector dummy 1	0.114**	0.115**	0.115**	0.128***
	(0.050)	(0.050)	(0.049)	(0.046)
Sector dummy 2	0.137***	0.137***	0.134***	0.149***
	(0.050)	(0.050)	(0.049)	(0.046)
Sector dummy 3	0.197***	0.198***	0.189***	0.203***
	(0.050)	(0.050)	(0.049)	(0.045)
Sector dummy 4	0.229***	0.235***	0.220***	0.208***
	(0.072)	(0.073)	(0.073)	(0.070)
Sector dummy 5	0.255**	0.253**	0.222**	0.222**
	(0.101)	(0.101)	(0.100)	(0.100)
Sector dummy 6	0.105**	0.106**	0.106**	0.114**
	(0.050)	(0.050)	(0.049)	(0.046)
Sector dummy 7	0.0153	0.0168	0.0255	0.0334
	(0.0497)	(0.0502)	(0.0493)	(0.0457)
College graduate			0.0331***	0.0336***
			(0.0023)	(0.0023)
Male			0.0228***	0.0245***
			(0.0026)	(0.0026)
Married			0.0321***	0.0331***
			(0.0021)	(0.0021)
Age 25–29			0.00052	−0.00078
			(0.00998)	(0.00986)
Age 30–34			0.0133	0.0126
			(0.0100)	(0.0099)
Age 35–39			0.0219**	0.0215**
			(0.0010)	(0.0098)
Age 40–44			0.0316***	0.0310***
			(0.0099)	(0.0098)
Age 45–49			0.0391***	0.0376***
			(0.0100)	(0.0098)
Age 50–54			0.0409***	0.0381***
			(0.0100)	(0.0099)
Age 55–59			0.0475***	0.0430***
			(0.0099)	(0.0098)
Age 60–64			0.0307***	0.0239**
			(0.0100)	(0.0099)
Year 2005		−0.00196***	−0.00286***	0.00012
		(0.00063)	(0.00064)	(0.00064)

Year 2006			−0.0146***	−0.0153***	−0.0076***
			(0.0010)	(0.0010)	(0.0010)
Year 2007			−0.0195***	−0.0196***	−0.0120***
			(0.0012)	(0.0012)	(0.0012)
Tax evasion	No	No	No	No	Yes
Log Likelihood	−243703.45	−131248.17	−131137.97	−129700.72	−130319.04
Observations	368,868	368,859	368,859	367,589	367,594

Robust standard errors in parentheses, clustered at the firm level, *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A.4, Regression results equation (11), Robustness tests

VARIABLES	Alternative effective payroll tax[68]	CHC-owners with link to one workplace only	Only CHCs with one owner	Years 2005–2008
	(1)	(2)	(3)	(4)
YTdiff	0.836***	0.719***	0.637***	0.844***
	(0.027)	(0.021)	(0.019)	(0.025)
Average income 5 years	0.0121***	0.0881***	0.0599***	0.0971***
	(0.0072)	(0.00713)	(0.0063)	(0.0077)
$Employees_{t-1} > 0$	0.231***	0.213***	0.169***	0.226***
	(0.002)	(0.002)	(0.002)	(0.002)
$Capital_{t-1}$>100k	0.0748***	0.0672***	0.111***	0.0741***
	(0.0044)	(0.0046)	(0.0042)	(0.0044)
Capital asset dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Owner background covariates	Yes	Yes	Yes	Yes
Log Likelihood	−130097	−101404	−98166	−95303
Observations	367,587	310,050	298,685	267,188

Robust standard errors in parentheses, clustered at the firm level, *** p < 0.01, ** p < 0.05, * p < 0.1.

[68] This specification set the effective payroll tax equal to zero for earned income below 7.5 basic amounts, see footnote 30.