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The Choice of Organizational Form by Closely-Held Firms in Sweden: Tax vs. Non-Tax Determinants*

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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

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1. Introduction

A central goal of the entrepreneurship policy of the Swedish government,¹ and plausibly of many other governments, is to generate favorable conditions for the emergence and growth of firms that can compete globally and generate employment nationally. The business tax system is an important policy tool in this context, since the tax law can potentially affect various aspects of business decisions: The design of the tax system affects the distribution of net-of-tax returns to risky projects, and is hence likely to affect both the probability that such projects are undertaken and the degree of risk-taking. Taxes affect the relative net return from starting up an entrepreneurial project, compared to being employed, and may hence affect the level of self-employment in general. Furthermore, the design of the tax system may affect business decisions related to issues such as the source of financing of a project, or the choice of legal form of organization of a firm.²

In this paper, we focus on the last of these issues; the link between the tax system and the choice of business organizational form. Why is this a relevant topic to study? First, if business owners adjust their choice of form of organization to the tax rules, at the expense of non-tax factors, this constitutes an efficiency loss. Second, if firms of certain organizational form are treated more favorably by the tax system, this gives them a competitive advantage, merely due to the tax rules, compared to other types of firms. We will find in particular that Swedish corporations face a tax advantage over non-corporate firms. Since new entrants are much more likely to be non-corporate, these tax incentives inevitably reduce rates of entry. If entrants are the testing grounds for new technology and new business models, then these tax incentives reduce the externalities generated from such innovative activity, leading to further efficiency losses.

In order to analyze how the Swedish tax treatment of closely-held firms affects their choice of legal form of organization, we first calculate how the effective tax rate differs due to organizational form.³ We will then test empirically the degree to which such tax differences have affected firms' choice of organizational form, using data on Swedish firms in 2004–2008.

The organization of the paper is as follows: Section 2 provides an overview of our study in relation to the previous literature, followed, in section 3, with a summary of the key provisions in the Swedish tax law that lead to differential effective tax rates for corporate and non-corporate firms. Section 4 describes the specification that we estimate in the empirical work. Section 5 provides more information about the data sets we use in the study, while section 6 reports our empirical estimates. Section 7 discusses the economic implications of our results.

2. Overview of our study and relation to the previous literature

Before we turn to the analysis of taxes and choice of form of organization in Sweden, we start this section by discussing how taxes influence the choice of business organizational form, and relate our empirical approach to the existing literature.

First, what factors have had important effects on the choice of organizational form by firms in Sweden? Both taxes and non-tax considerations can potentially be relevant.

Widely-held firms certainly have a strong non-tax incentive to incorporate. In particular, both the greater ease of shares trading and the limited liability available if the firm chooses to be corporate make it much easier to sell equity to outside investors, and thereby spread the firm's risk-bearing across more investors. Not surprisingly, it is rare to find large non-corporate firms.

For closely-held firms, these non-tax considerations may still exist, but are much less central. Closely-held firms rely much more on debt than on equity finance, presumably because it is too costly for outside investors to gather enough information about the firm to be willing to buy the firm's equity. As a result, these firms would not gain much from the ease of share trading available to corporations. In addition, limited liability makes it harder to raise debt finance, and as a result is likely, on net, to be a disadvantage to a closely-held firm.⁴ In addition, incorporation requires a minimum amount of capital and greater legal expenses. Given these non-tax incentives, most smaller firms choose to be non-corporate.

Tax considerations, though, can potentially push firms to change their choice of organizational form. The firm faces very different tax provisions if it is corporate rather than non-corporate. A corporation not only faces corporate taxes on any earnings not paid out as wages or interest, but shareholders in addition face personal tax liabilities on dividend payouts and realized capital gains on the firm's shares. Non-corporate firms, by contrast, face payroll taxes and personal income taxes on the firm's profits, though with lower personal tax rates on the presumed rate of return to the firm's capital. Non-corporate firms may also find it easier to evade taxes, given the more lenient accounting requirements they face.

Firms with tax losses face different tax treatment if they are corporate rather than non-corporate. Non-corporate firms are allowed to deduct capital losses up to SEK 100,000 against other wage income during the first five years of its existence. For a corporate firm, these rules are less favorable: a fraction of capital losses can be used to offset other capital gains, and a smaller fraction of any remaining losses can be deducted from other capital income. At least for new firms, there is a clear tax advantage to being non-corporate when losses are possible.

On net, tax liabilities can be quite different if the firm chooses to be corporate rather than non-corporate. These tax differences vary across firms and over time, and have the potential to be an additional important determinant of a firm's choice of organizational form.

The academic literature on tax and non-tax determinants of organizational form choice is quite limited. Most previous studies examine U.S. data. MacKie-Mason and Gordon (1997) estimate tax distortions to the choice of incorporating, using aggregate U.S. data, by industry, for 1959–1986. The 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 U.S. data but from an earlier period: 1900–1937. Goolsbee (2004) instead uses U.S. cross-state data on the retail sector for year 1992, and estimates the effect of the state corporate tax on the share of retail businesses that are corporate. Using these data yields much larger effects: here, a 10 percentage point increase in the corporate tax rate is estimated to reduce the corporate share of firms by about 25 percent.

All of these studies, though, use aggregated (national or state) data, thereby including widely-held firms that have a clear choice of organizational form as well as closely-held firms where the choice can depend much more on particular tax and non-tax factors.

Our study has several advantages over this prior work. First, we provide evidence for Sweden, shedding light on the degree to which results from the U.S. carry over to a very different institutional setting. Second, we have data on individual firms, giving us greater opportunity to estimate the effects of particular factors on the choice of organizational form. Tax effects in particular are likely to be much larger in Sweden given how much higher Swedish tax rates are compared to U.S. rates. Finally, we can focus on closely-held firms where choices are more likely to respond to incentives.

Our data are available for all firms and all individuals in Sweden, though, for a limited time period: 2004–2008. In compensation, we have substantial cross-sectional variation in tax and non-tax incentives each year. In addition, there were important changes in the tax law in 2006, allowing us to examine the responses to this tax reform.

To begin with, we make use of individual income data from the tax authority income registers. Here, individuals report whether they are an owner of a non-corporate or a closely-held corporate firm. These data include a firm identifier for the individual's main source of income. With this identifier, we then have information from business-level tax returns on the income and other characteristics of the firm. This allows us to examine how the choice of the firm's organizational form depends on the characteristics of both the firm and the personal characteristics and tax status of the owner.

The link between owner and firm cannot be identified for non-corporate partnerships. We therefore must confine our study to sole proprietorship and closely-held corporations. Sole proprietorships make up more than 80% of non-corporate firms.

The data show that the higher-income firms in our sample of closely-held firms face quite strong tax incentives to operate in corporate form, earning on average four to six percent more net-of-tax if they incorporate. These incentives became stronger during our sample period, and became yet stronger after our sample period.⁵ Smaller firms, in contrast, face on average relatively neutral tax incentives, with a slight tax advantage to being non-corporate for those firms with the least business income.

In our empirical work, we find that tax incentives have had major effects on the choice of organizational form among closely-held Swedish firms. In particular, for firms already facing a small tax advantage to being corporate (0 to 3 percent higher income if corporate), an increase by 1% in the after-tax income if corporate increases the fraction of firms that choose to incorporate by 3.3%. In contrast, for firms that face a tax advantage to being non-corporate or a larger tax advantage to being corporate, any marginal change has little effect on the choice of organizational form—these firms seem to be inframarginal. On net, we forecast

that 1.4% of all closely-held firms will shift to corporate form when the after-tax income if corporate grows by 1%.

A 1 percentage point cut in the statutory corporate tax rate, for example, would raise net-income by 1.4%, leading to a forecasted increase in the fraction of corporate firms by 4.6% among those firms already facing a small tax advantage to being corporate, and by 2% among all firms. This result is very similar to that in Goolsbee (2004), in his study of the retail sector, where firms also tend to be closely-held.

Non-tax factors are also found to have large effects on a firm's choice to incorporate. As expected, firms with more capital assets and employees are more likely to incorporate. In addition, firms owned by individuals with higher expected income, as proxied by being older, married, male, a college graduate, and having higher past income, are more likely to be corporate. Owners of more successful firms will have stronger incentives to diversify their risks by seeking outside equity investors, creating pressure to incorporate.

Why do these results matter? As has been found in the past, we find that smaller firms tend to be non-corporate while larger firms prefer to incorporate. Tax incentives on average reinforce these non-tax incentives, favoring incorporation among the quartile of firms with the highest income, but providing closer to neutral tax incentives for other firms. Any tax distortion can induce firms to make choices that generate non-tax costs, and efficiency losses.

Under the tax treatment of non-corporate firms, business income faces the same tax treatment as would have occurred if the individual received the same income as an employee who invested savings in the financial market. Those facing a more favorable treatment for corporate income face a tax advantage if they run a business. Such a tax distortion artificially induces too much self-employment, except to the extent that self-employment generates positive externalities, e.g. from information spillovers to other firms.

The Swedish law encourages self-employment only for larger firms, though, putting smaller firms at a competitive disadvantage. These provisions therefore discourage entry of new firms, which inevitably start small, leading to less competition. Entrepreneurial firms (those accepting high risks by testing new products or technology) in particular would want to start small until there is evidence that the business plan will in fact pay off. When taxes put small firms at a competitive disadvantage, entrepreneurial activity is discouraged.⁶

Note, though, that we have focused on closely-held firms. According to findings in Edin et al. (2005), the Swedish tax law, following the tax reform of 1991, treated widely-held corporations even more favorably than closely-held corporations.⁷ This concern helps explain the more generous tax rules introduced since then for closely-held corporations. According to Sørensen (2008, Table 1.2), by 2007 these new tax rules had resulted in very similar effective tax rates for closely- and widely-held corporations.⁸ By contrast, there have been no comparable changes in the tax treatment of non-corporate firms. Non-corporate firms are then not only at a tax disadvantage relative to closely-held corporations but also relative to widely-held firms.

We now turn to the calculation of tax rates for different forms of business organization.

3. Swedish small business taxation⁹

3.1 IMPLICATIONS FOR HYPOTHETICAL FIRMS

Swedish closely-held businesses are organized as non-corporate sole proprietorships, non-corporate partnerships, or closely-held corporations (CHCs). This section provides an overview of the tax rules applicable to these types of firms,¹⁰ and derives the tax rates that apply to particular types of firms.

Tax payments depend not only on statutory tax provisions but also on a variety of choices available to the firm. For a CHC, the business owner can choose to extract income either as wages or as capital income. Wages faced a 22.9% payroll tax rate, and municipal and national income taxes on income net of payroll taxes at rates ranging from approximately 30% to 55%. During our sample period, capital income from a CHC was first taxed at the corporate rate of 28%. Dividends and capital gains received by shareholders were then taxed as capital income at a 30% rate as long as they were below a specified fraction of the book value of the owner's equity in the firm.¹¹

For a non-corporate firm, business income was instead subject to the payroll and personal income taxes. The owner had the option, though, of paying a 30% personal income tax rate on income up to the value of assets in the firm times a presumed rate of return on these assets.

For most levels of income, having business income classified as capital rather than as earned income will yield a lower tax rate. (The exception is for very low incomes, where the general allowance, and, from 2007 on, the earned income tax credit, gives rise to lower average tax rates for earned income.) The tax schedule, therefore, has sets of special rules for CHCs and for non-corporate firms respectively that limit the amount that can be classified as capital income. These rules, especially those for CHCs, have been highly debated and criticized for punishing closely-held corporations in comparison to widely-held corporations.¹² The rules have consequently been subject to repeated changes. Starting from 2006, they have gradually become more generous through reductions in the tax rate on capital income from CHCs, and through allowing a larger share to be extracted as capital income.¹³ The new rules particularly favor firms with large wage payments and business assets. The 2006 rules also contain an alternative provision that allows any CHC, irrespective of wages and assets, to classify a set amount of SEK 127,250 as capital income.¹⁴ The rules for non-corporate capital income have in contrast remained stable.¹⁵

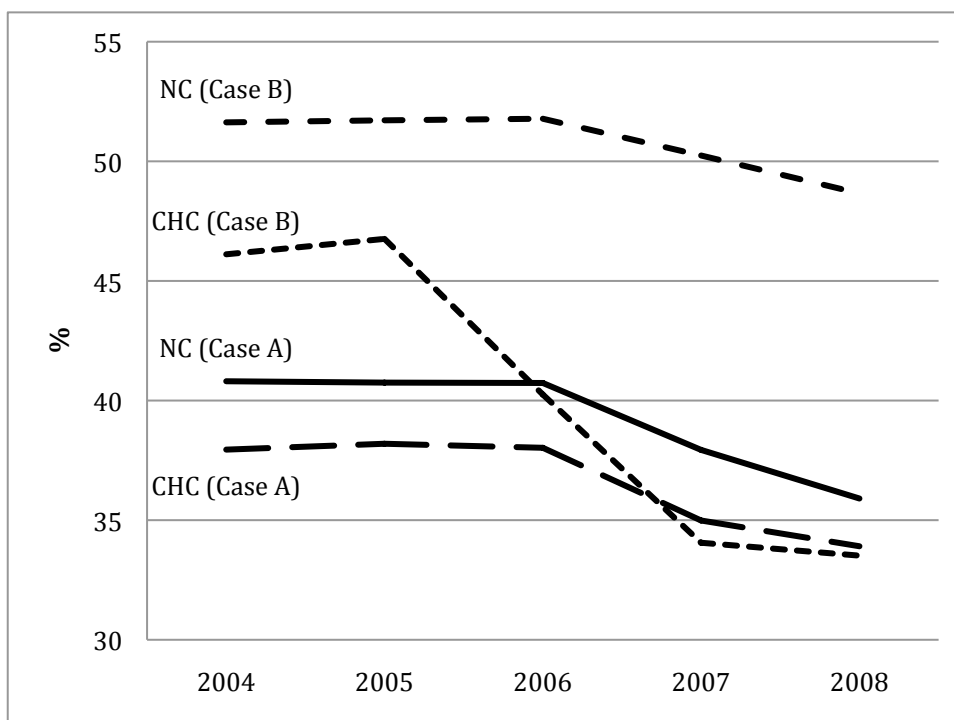
To give a sense of relative tax rates faced by corporate and non-corporate firms, we first examine the average tax rate faced by some hypothetical firms, depending on whether they are corporate or non-corporate. In one hypothetical firm (case A), we set all of the following variables to SEK 500,000: business income; wage sums to employees the previous year; the owner's wages (including payroll tax) during the previous year; and business net assets. In case B, we assume that the same factors are all equal to SEK 1,000,000. (The annual salary, net of payroll tax, of an average production worker was SEK 336,000 in 2010¹⁶, and SEK 1 ≈ USD 0.15.) In each case, pre-tax income is assumed to be the same regardless of the choice to incorporate or not.

Even with all of this information, calculating the tax liability of these firms remains a complex task. In particular, taxes depend on a number of decisions: first, whether income is taken out of the firm or

retained,¹⁷ and, in the former case, whether it is extracted as earned income/wages or as capital income. We calculate the average tax rate under the assumption that all business income is taken out of the firm and taxed the same year.¹⁸ We furthermore assume that the business income is divided between capital and earned income in the manner that minimizes taxes.

Figure 1 shows the resulting average tax rates for 2004–2008 for these two hypothetical businesses, depending on whether they operate in corporate or non-corporate form.

Figure 1: Average tax rate (%) for businesses with different characteristics



Note: Case A assumes that business income in the current year, as well as business assets, employee wage sum and owner wage sum the previous year all equal SEK 500,000, while case B assumes that the same figures equal SEK 1,000,000. NC denotes non-corporate firms, and CHC denotes closely-held corporate firms.

Figure 1 shows that the average tax rates decreased slightly for all these firms starting from 2006, but the decrease was much larger for the high-income CHC. While taxes on the lower-income firm (case A) are only reduced by a couple of percentage points by incorporating, the tax gains from incorporating for the higher-income firm (case B) are substantial.

In Table 1, we examine the sensitivity of these average tax rates to the particular characteristics of these two hypothetical firms. The table reports the difference between the average tax rate paid if non-corporate or corporate. Our base case for each firm is 2006. Table 1 then varies one characteristic of the firm at a time, to show its implications for the firm’s differential tax treatment. In particular, column 2 allows the business

income to vary from SEK 0 to SEK 1,000,000, holding the other characteristics of the firm fixed, column 3 allows the business assets to vary, column 4 allows the wage sum to vary, while column 5 allows the year to vary, in each case holding the other attributes fixed at their initial value.

Here we find that, for panel A, the difference in average tax rates is particularly sensitive to the level of income and to business assets. In particular, average taxes are higher for the non-corporate firm when net business assets are low. This is due to the rule, implemented in 2006, that closely-held corporations are allowed to take out a set amount as capital income, even when business assets or wage sums are low. In panel A varying the wage sum does not affect the tax differential, since the owner's wage (SEK 500,000) is too low to qualify for increased capital income based on wage sums.

In panel (B), taxes are in general much lower if the firm is corporate. Increasing the employee wage sum now has a large effect on the tax differential. The tax differential is, furthermore, much larger by the end of the period, especially from 2006 onwards.

Table 1 Differential average tax rate (%) between CHCs and non-corporate business owners, by firm characteristics

		Vary business	Vary assets	Vary	Vary year
Panel (A): Starting	Tax difference at	(1)	(2)	(3)	(4)
	0	0.00	5.46	2.71	2.86
	100,000	-1.60	4.91	2.71	2.56
	250,000	-1.52	4.08	2.71	2.71
	750,000	2.71	2.71	2.71	2.95
	1,000,000	1.99	1.33	2.71	2.00
Panel (B): Starting	Tax difference at	(1)	(2)	(3)	(4)
	0	0.00	9.40	-0.13	5.52
	100,000	-4.83	9.63	-0.13	4.96
	250,000	-3.54	9.98	-0.13	11.53
	750,000	10.88	11.09	6.23	16.19
	1,000,000	11.53	11.53	11.53	15.14

3.2 BUSINESS TAX RATES IN SWEDEN VS. THE U.S.

In the former section, we found that these two hypothetical firms normally faced higher tax rates if they chose to be non-corporate, with more dramatic differences for the larger firm. As discussed in the introduction, most of the empirical literature on taxes and choice of organizational form uses U.S. data. Given what we know from the U.S. case, how can we expect the Swedish business tax system to affect the

choice of organizational form? This section discusses differences and similarities between the Swedish and the U.S. tax systems that may be of importance for the results of the study.

As in Sweden, non-corporate business profits in the U.S. are taxable in full, under both the personal-income tax and the payroll tax, though without a reduced rate for “capital income.” Again as in Sweden, corporate profits are taxable under the corporate tax, while dividends and realized capital gains are then taxable under the personal (but not the payroll) tax. Capital gains (and more recently dividends) face a lower tax rate under the personal tax, but unlike in Sweden there is no limit on the amount of income qualifying for this lower tax rate. Corporate tax rates have varied substantially over time relative to the top personal tax rate, being much smaller until the 1980’s and slightly higher in most years since 1986.

Nonetheless, on net, in the U.S. there have been large tax savings for business owners in top personal tax brackets from operating in corporate form. Business losses are, on the other hand, fully deductible under the personal-income tax if the firm operates as non-corporate, while potential tax savings from losses incurred by a corporation are very limited.²⁰

As a result, firms anticipating tax losses in the immediate future face strong tax incentives to operate in non-corporate form, while those anticipating profits normally gain from being corporate. Gordon and MacKie-Mason (1994), MacKie-Mason and Gordon (1997), and Goolsbee (1998, 2004) provide evidence that these large tax distortions have had modest effects on the fraction of activity in the corporate sector, but more so in industries dominated by smaller firms.

In Sweden, the cap on capital income for CHCs limits the gains from incorporating for a firm expecting profits. In addition, non-corporate firms are allowed some profits to be taxed at the lower “capital income” tax rate. The Swedish tax law also favors the non-corporate form for firms expecting tax losses, but to a much more limited extent than in the U.S. In sum, this suggests that even though the incentives to operate as corporate if expecting profits, and as non-corporate if expecting losses, are also inherent in the Swedish tax code, they are likely to be much weaker than in the U.S. case.

However tax rates are, in general, much higher in Sweden than in the U.S. Personal and payroll tax rates in Sweden are, for example, each roughly twice as high as in the U.S., while the corporate tax rate is lower than in the U.S., which in itself creates much larger tax advantages to operating in corporate form. This suggests that the Swedish tax code may have much larger effects on firm behavior.

In sum, the tax treatment of business income in Sweden differs markedly from the U.S. case – both in terms of the structure of the tax system and in terms of tax rates. The question we examine is how much these tax distortions have affected the choice of organizational form by Swedish firms, with a focus on closely-held firms where tax considerations are much more likely to affect the choice of organizational form.

4. Empirical strategy²¹

The basic empirical strategy we use examines the probability that a firm chooses to incorporate as a function of the tax incentives it faces and the non-tax characteristics of the firm and its owner.

In particular, assume that a given firm receives pretax income of 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 $c > 0$.

To judge what non-tax factors lead firms to incorporate, we let $c = Z\gamma + \tilde{\varepsilon}$, where Z is a vector of characteristics of the firm and the owner that can potentially affect the non-tax advantages of choosing a particular organizational form.

Taxes can also affect the choice of organizational form. In calculating the average tax rate faced by a firm, depending on its choice of organizational form, we assume that the firm makes a choice for a two-year period based on its pre-tax income in the first year and the resulting distribution for possible incomes in the second year. The firm can shift taxable income between these two years through use of periodic funds and equalization funds to reduce its expected tax liabilities.²² We also assume that a non-corporate firm chooses how much of its income to classify as capital income, and a CHC chooses how much to pay out as wages rather than dividends, in order to minimize its tax liabilities.

Given these assumptions, we then calculate the average tax rate the firm would face if it is either corporate or non-corporate. Denote the average tax rate on its income Y if it chooses to be non-corporate by m . If instead the firm incorporates, then the profits are first subject to corporate tax at rate τ . Let the average fraction of the after-corporate-tax profits paid in personal taxes be denoted by e , and the overall tax rate on corporate income by τ^* , where $(1 - \tau^*) \equiv (1 - \tau)(1 - e)$.

If the firm can change its decision every year, then it prefers to be non-corporate if

$Y(1 - m) > Y(1 + c)(1 - \tau^*)$, or equivalently if

$$(1) \quad c = Z\gamma + \tilde{\varepsilon} < \frac{\tau^* - m}{1 - \tau^*},$$

assuming $Y > 0$.²³ 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.

We instead assume that the firm considers the implications of its choice over a two-year period, based on the information it has in the first year about its characteristics, including its taxable income that year. It then

trades off the non-tax advantages of corporate form with the difference in the expected present value of tax liabilities if corporate rather than non-corporate, given the distribution of possible ex post profits in the second year.

We then re-express equation (1), taking into account implications over the two year period. In particular, let NY^c denote the present value of expected net-of-tax profits if the firm incorporates, and let NY^{nc} denote these net-of-tax profits if the firm is instead non-corporate. Taking into account both tax and non-tax considerations, the firm will choose to be corporate if:

$$(2) \quad \frac{NY^c - NY^{nc}}{NY^c} + Z\gamma + \tilde{\varepsilon} > 0$$

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.

5. Data and descriptive statistics

An advantage compared to previous studies is that we have access to detailed micro level data for both firms and individuals. We can then take account of many more features of the tax code in the tax calculations, and can control for a large set of non-tax factors in the empirical analysis. This section describes the data set and provides a summary description of the distribution of the average tax rates faced by firms in the sample, depending on their chosen form of organization.

The data set spans 2004–2008.²⁴ At the individual level, it consists of register-based information from Statistics Sweden on different types of annual incomes, as well as socio-demographic characteristics for all individuals aged 16-64. It also includes an indicator for whether the individual is self-employed in a non-corporate business, or an owner of a closely-held corporation.

From a separate data set we have information from the tax returns for each business on its annual business revenues, total wage payments, and business assets. The data set also contains a detailed classification of industrial sector, and whether the business is corporate or non-corporate. The combination of these sources of data provides a broad base of information about both business owners and firms.

A key issue is how we link the individual business owners to their businesses. For owners of non-corporate sole proprietorships, this is straightforward, as the firm identification code in the business level data coincides with the personal identification code in the individual data.²⁵ For owners of closely-held corporations, no such direct link is available, and we need to rely on indirect information to obtain an approximate link between owners and firms. In particular, we will define individual A as an owner of firm B, if: *i*) individual A is classified as owner of a closely-held corporation in the self-employment indicator contained in the individual level data set; *ii*) individual A is registered as employed at firm B,²⁶ and *iii*) firm B

is classified as a corporation. If an individual is, in this manner, found to be linked to several firms, we will assume that she/he owns the firm from which he/she obtains the highest annual wage income.

We inevitably will mis-classify a few individuals, particularly individuals who are classified as owners of a CHC but have links to several corporate work-places. In order to test whether the results are robust to such mis-classifications, we will also run the regression-analysis including only CHC-owners with links to one workplace, and test the robustness of the results to excluding closely-held firms that have more than one owner.²⁷

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. Table 2 shows descriptive statistics for the variables that are included in our analysis, divided into owners of non-corporate and closely-held corporate firms. The table first shows our main variable of interest, *YTDiff*, which measures the percent impact on net-of-tax income if a corporation chooses to be a sole proprietorship. The table also gives summary statistics for the firm-level characteristics that are needed for the tax calculations, and/or are included in the regression analysis, and owner background characteristics.

Table 2 Descriptive statistics regression sample

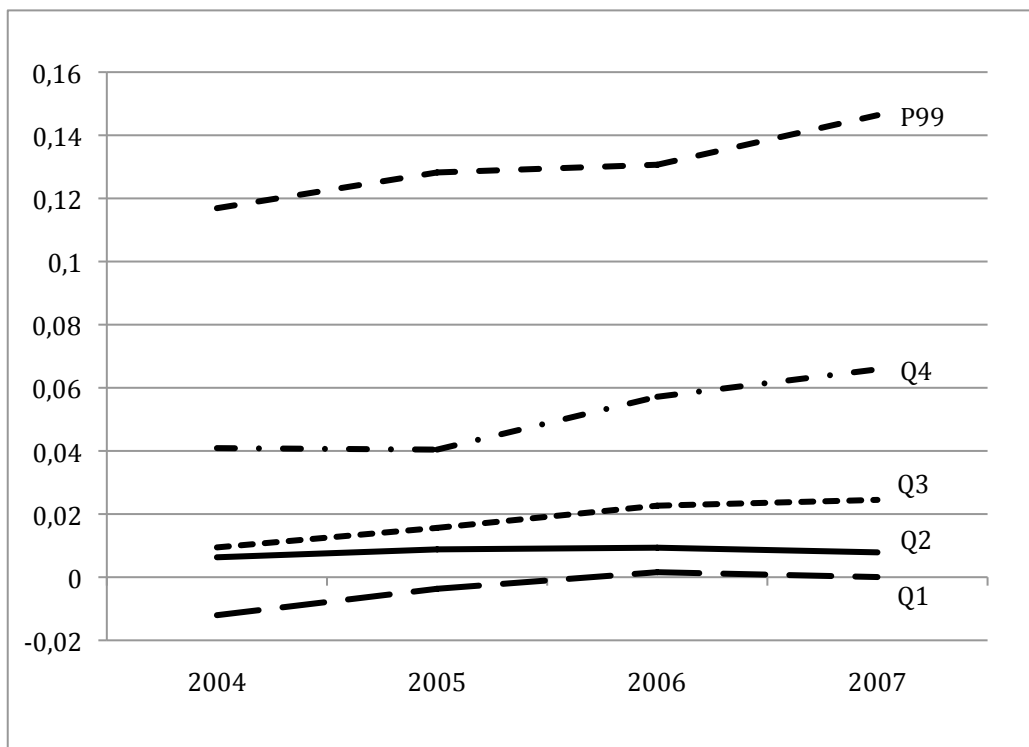
Variables	Sole Proprietors (SP)			Closely-held corporations (CHC)		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
<i>Net-of-tax business revenue</i>						
<i>YTDiff</i> ((A – B)/A)	209580	0.97	4.25	159288	3.08	5.37
<i>Firm level characteristics</i>						
Wage sum employees _{t-1}	209498	29959	148968	159220	564745	1567499
Wage sum owner _{t-1} ²⁸	209580	175525	149216	159288	307910	160568
Capital assets _{t-1}	209580	119105	552081	159288	871657	1682306
Business revenue _{t-1}	209580	245046	237477	159288	625413	526790
Average income previous 5	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 ²⁹	209580	0.61	0.49	159288	0.73	0.44

The descriptive statistics for the variable *YTDiff* in Table 1 show that the firms in our sample that are organized as non-corporate on average lose almost one percent in net-of-tax business income, due to taxes, relative to what they would have received if they incorporated. This implies that there must be a sufficient non-tax advantage to being non-corporate to have outweighed this tax penalty. The closely-held corporate firms on the other hand would on average lose 3 percent by instead being non-corporate. This is in line with

what we would expect if tax rates in fact affect the choice of organizational form. The standard deviation of tax incentives is very high, however, suggesting that non-tax factors may at times push firms to choose an organizational form that is penalized under the tax law.

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. We plot the variable separately over business owners with business revenue in each quartile (Q1–Q4).³⁰

Figure 2: The difference in present value 2-period net-of-tax income of being corporate instead of non-corporate, YTdiff, as share of the net-of-tax income if corporate



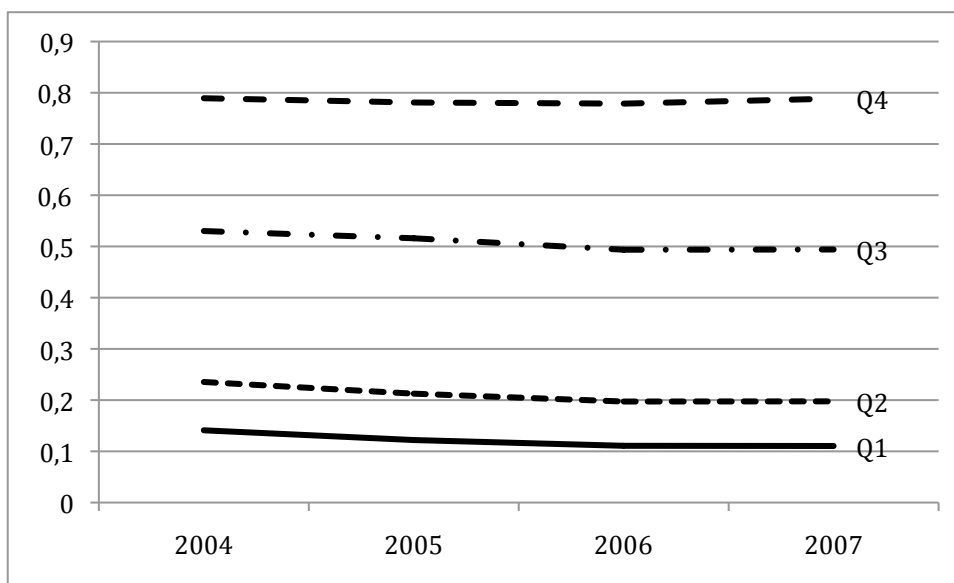
Note: Q1 denotes the lower 25 percentiles of firms with respect to business income in t ; Q2 denotes percentiles 26-50; Q3 percentiles 51-75; and Q4 the upper 25 percent of the income distribution. P99 denotes the top percentile of the business income distribution.

As can be seen in Figure 2, the average business owner in all three upper income quartiles, especially the top quartile, would increase her after-tax-income by incorporating. Furthermore, the tax gains from incorporating 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-corporate form. The tax gains are even higher for the top percentile of firms, where the net-of-tax income differential is between 10 and 15 percent during 2004–2008. The average business owner in the lower quartile, however, gains from being non-corporate during the first few years of

our data, and is after that roughly neutral.³¹ The pattern in Figure 2 corresponds to what we found in the stylized examples of Figure 1 and Table 1: for all firms except for the smallest, there is a tax gain from being corporate that grows with the size of the firm as well as over time.

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 with respect to 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 choose to incorporate, 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 follow a slowly decreasing trend over time, while the share of closely-held corporations is stable, or increasing a little, for the upper income quartile.

The descriptive analysis above suggested that incorporating can decrease the average tax rate, especially for firms with higher business income, and more so during the last years of our data period. We next turn to the regression analysis in order to investigate whether the tax differential affects the choice of organizational form, when we control for non-tax factors.

6. Regression Analysis

6.1. BASELINE RESULTS

In the previous sections, we found that effective tax rates can differ substantially depending on whether the firm is non-corporate or a closely-held corporation.

In this section we estimate empirically the role of both tax and non-tax factors in a firm's choice of organizational form. Since we have access to a large set of both firm level and individual level characteristics, we can examine an extensive list of non-tax factors. First, firms with more capital are likely to gain more from incorporating due to their resulting improved access to risk sharing through outside equity finance; we include dummy variables for each decile of the distribution of capital assets. Second, during our sample period, capital assets of SEK 100,000 were required for a firm to be eligible to incorporate, leading us to include a dummy variable if this condition is satisfied. Third, corporations tend to be more common in some industries than in others; we therefore include dummy variables for each one-digit industry. Fourth, firms that have employees, and thereby face a fixed liability, gain more from having access to equity finance in order to diversify risks; we include a dummy for having employees. We also include the owner's average income during the five previous years (measured in million SEK) as an additional indicator of the expected scale of the business. The sector information is measured in period t , while the dummy variables for capital assets and employees are based on lagged values.³²

It is also possible that personal characteristics, such as gender, age, education and marital status may affect the choice of form of organization, perhaps by serving as proxies for the expected size of the firm. We therefore add dummy variables to some of the specifications for gender, 5-year age-groups, marital status and being a college graduate, all measured in period t .

Finally, we include year dummies in some of the specifications, to check if aggregate time trends in the choice of organizational form affect the results.

The resulting regression specification is as follows. A firm chooses to incorporate if and only if :

$$(3) \quad \alpha + \beta \cdot Y\text{TDiff}_i + Z_{it}\gamma + X_{it}\delta + \kappa_t\lambda_t + \tilde{\varepsilon}_{it} > 0,$$

Here, $Y\text{TDiff}_i$ denotes the percent drop in after-tax income if a corporation chooses instead to be non-corporate. Z_{it} contains the business level non-tax factors described above (dummy variables for capital assets; industry sector dummies, and having employees), while X_{it} is a matrix of the personal background dummy variables for gender, 5-year age-groups, marital status and being a college graduate. κ_t contains yearly dummy variables, and ε_{it} is a normally distributed regression error term.

If business owners react to tax incentives when choosing organizational form, we expect a positive β – all else equal, a higher net-of-tax return to being corporate rather than non-corporate increases the incentive for a business owner to incorporate.

The results of the regression specification in equation (3) are given in Table 3. The coefficients shown are the average marginal effects in percent from a probit-estimation.³³ Note that column (5) shows the results when we assume tax-evasion along the lines of the estimates provided in Engström and Holmlund (2009).

Table 3 Regression results³⁴ Dependent variable: *dCHC*

VARIABLES	(1)	(2)	(3)	(4)	(5)
<i>Ytdiff</i>	2.366*** (0.029)	0.732*** (0.020)	0.762*** (0.021)	0.750*** (0.021)	0.126*** (0.006)
Average income 5		0.143*** (0.007)	0.142*** (0.007)	0.115*** (0.007)	0.163*** (0.007)
<i>Employees_{t-1} > 0</i>		0.230*** (0.002)	0.229*** (0.002)	0.229*** (0.002)	0.240*** (0.002)
<i>Capital_{t-1} > 100k</i>		0.0758*** (0.0044)	0.0758*** (0.0044)	0.0746*** (0.0044)	0.0746*** (0.0044)
Capital asset	No	Yes	Yes	Yes	Yes
Sector dummies	No	Yes	Yes	Yes	Yes
Year dummies	No	No	Yes	Yes	Yes
Owner background	No	No	No	Yes	Yes
Tax evasion	No	No	No	No	Yes
Log Likelihood	-243703	-131248	-131138	-129701	-130319
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 3 suggest that a one percent increase in the net income from operating in corporate rather than non-corporate form leads, on average, to a 0.75 percentage point increase in the probability that the firm incorporates. The size of the coefficient is robust across specifications in columns (2)–(4), i.e. when gradually more non-tax factors, as well as time dummies, are added to the regression. The coefficient obtained when no non-tax factors are included in the specification, column (1), is more than double in size, which confirms that tax incentives favoring incorporation are positively correlated with non-tax incentives favoring incorporation.

Column (5) shows that the fit of the regression deteriorates dramatically (with a dramatic drop in the Log Likelihood) if we impose the estimates for the extent of tax evasion found in Engström and Holmlund (2009).³⁵ Apparently, this adjustment introduces substantial measurement error in our calculation of tax incentives, severe enough that the coefficient of the tax variable is virtually zero.

Among the non-tax factors, we find that having employees in particular is strongly correlated with being corporate. Having more capital also leads more firms to incorporate. Owners with higher previous average income, and who are male, married, in their 40s or 50s, and have a college degree, are all much more likely to incorporate.

6.2. RESULTS: HETEROGENEOUS EFFECTS

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.³⁶ In particular, we allow for differential effects: i) for firms with sufficient capital to have the option to be corporate (column (2)); ii) for firms with employees; iii) for firms in the service sector, and iv) for different segments of the net-of-tax income measure *YDdiff*. The latter is done by introducing a piece-wise linear function of *YDdiff*, with changes in the slope at values 0% and 3%.

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

Table 4, Regression results, Dependent variable: *dCHC*, Heterogeneous effects

VARIABLES	Baseline	Capital	Employees	/Non/ Service	Spline <i>YDdiff</i>
	(1)	(2)	(3)	(4)	(5)
<i>YDdiff</i>	0.750*** (0.021)				
<i>YDdiff: Capital_{t-1} ≤ 100k</i>		0.395*** (0.019)			
<i>YDdiff: Capital_{t-1} > 100k</i>		1.108*** (0.037)			
<i>YDdiff: Employees_{t-1} = 0</i>			0.789*** (0.024)		
<i>YDdiff: Employees_{t-1} > 0</i>			0.661*** (0.036)		
<i>YDdiff: Non Service Sector</i>				1.143*** (0.044)	
<i>YDdiff: Service Sector</i>				0.589*** (0.022)	
<i>YDdiff: YDdiff < 0%</i>					0.190*** (0.051)
<i>YDdiff: YDdiff 0-3%</i>					3.254*** (0.126)
<i>YDdiff: YDdiff > 3%</i>					0.069*** (0.029)
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	-129701	-129670	-129701	-129638	-128663
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 in column 2 suggest that tax rates matter a bit more for firms with sufficient capital in the previous year to incorporate, while those in column 4 suggest that the effect is smaller for firms in the service sector. As seen in column 3, tax effects do not seem to differ much depending on whether the firm has employees.

The most striking result, as seen in column 5, is that taxes matter at the margin only for firms that already face a small tax advantage to being corporate (a gain of zero to three percent of income if corporate). Here, a 1% increase in income if corporate increases the fraction of firms that are corporate by 3.3%. For other firms, both those with a tax advantage to being non-corporate and those already facing a larger tax advantage to being corporate, tax changes have minimal effect. Presumably, these firms face sufficiently strong combined tax and non-tax incentives that marginal changes in tax incentives rarely change behavior.

In addition to the specifications shown above, we have also run a set of alternative specifications to test the robustness of the results. First, we used an alternative assumption for the effective payroll tax. Second, in order to avoid any chance that business owners are linked to the wrong firm, we included only business owners with links to one workplace, and 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. Finally, 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 results, available in Edmark and Gordon (2012), yield qualitatively similar impacts of tax changes on the choice of organizational form.

7. Policy discussion

Our findings indicate that i) the tax system in Sweden favors corporate over non-corporate firms, except at very low levels of business income. Firms with more capital assets or large wage sums especially gain from being corporate. ii) We also find that this tax distortion has strong effects on a firm's choice to be corporate or non-corporate: 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,³⁷ 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 for a corporate firm by 1.4%,³⁸ leading to a 4.6% increase in the fraction that incorporate among firms facing relatively neutral incentives, and a 1% increase across all firms.

This estimated effect of taxes on the choice of organizational form is much larger than those found in most past studies. For example, MacKie-Mason and Gordon (1997) found using aggregate time-series data for the U.S. that a one percentage point increase in the corporate tax rate reduced the fraction of capital allocated to corporate firms by 0.2%. Studies using aggregate data, though, are dominated by large firms, which rarely change organizational form due to taxes, as a result of the large non-tax advantages they face from being corporate.

Our study, in contrast, is confined to closely-held firms, where non-tax factors are a less dominant consideration. Our results are approximately half the size of those found in Goolsbee (2004). While we found that a one percentage point increase in the corporate tax rate would reduce the fraction of firms that

incorporate by 1%, Goolsbee estimated that the same tax change would reduce the fraction of retail firms that incorporated by 2.5%.

These tax distortions can generate efficiency costs for a variety of reasons. For one, they often induce firms to choose an organizational form that is less attractive on non-tax grounds, creating inefficiencies.

Under the non-corporate tax structure, business owners largely face the same effective tax rates they would have faced if they had earned the same income as an employee with comparable investments in financial assets. Taxes then do not create any important distortions to the choice to become self-employed in a non-corporate business.

However, Swedish taxes often provide a strong tax advantage to running a corporate business. Due to non-tax factors, only larger firms with more experienced owners gain from being corporate. The tax law, by favoring such activity, encourages those with high incomes to become business owners, and puts these firms at a competitive advantage relative to smaller firms, which gain instead from being non-corporate. Competitive pressures from new entrants, which tend to be non-corporate for non-tax reasons, is therefore undermined.

New entrants also tend to be the testing ground for new technologies and new business models. These new entrants normally gain from being non-corporate due to non-tax considerations. By putting non-corporate firms at a tax disadvantage the tax law also discourages entrepreneurship and the resulting innovation. The loss of new ideas, with the resulting broader benefits to the economy, is then a further source of efficiency loss due to these tax distortions.

Our study has not attempted to document the magnitude of these responses, though, simply demonstrating that taxes push in this direction.

Omitted from our study as well is the tax treatment of widely-held firms. Edin et al (2005) find that widely-held corporations have faced large tax advantages relative to closely-held corporations.³⁹ This recognition led to a series of tax reforms, both during and after our sample period, reducing effective tax rates on closely-held corporations. The calculations in Sørensen (2008) suggest that the result is a fairly neutral tax treatment of closely- and widely-held corporations. There have been no equivalent changes in the tax treatment of non-corporate firms, instead opening up an important tax gap between corporate and non-corporate firms, which we find has had important effects on firm behavior.

What might the efficiency gains from the reduction in the previous tax advantage to widely-held, over closely-held corporations, be? One important complication here is that widely-held firms face strong incentives to report high earnings, in order to raise their perceived value in the financial market. By Swedish law, accounting earnings equal taxable income, implying that widely-held firms face pressures to exaggerate rather than reduce their taxable income. Closely-held firms, in contrast, simply have an incentive to reduce their taxable income wherever feasible. When firms shift to being widely-held, reported taxable income and therefore tax payments likely increase, implying an efficiency gain.

In principle, a similar argument can be used to justify a tax advantage for closely-held corporations over non-corporate firms. If non-corporate firms can evade taxes more easily than CHCs, due to the more lax

accounting rules they face, then a higher statutory rate on non-corporate firms helps offset their greater ease of tax evasion. We have no information about the extent of any differential evasion by form of organization, however Engström and Holmlund (2009) estimate that non-corporate business owners understate their taxable income by around 40%, while owners of closely-held corporations understate their earnings by around 15%. Existing statutory advantages to closely-held corporations are small in comparison.

While firm behavior clearly responds to tax incentives, we are, as a result, less confident in characterizing the direction and size of existing tax distortions.

References

- Altshuler, R and A. J. Auerbach (1990), 'The Significance of Tax Law Asymmetries: An Empirical Investigation', *Quarterly Journal of Economics*, **105**, 61–86.
- Baumol, W. J. (2004), 'Entrepreneurial Enterprises, Large Established Firms and Other Components of the Free-Market Growth Machine', *Small Business Economics*, **23**, 9–21.
- Baumol, W. J. (2007), 'Small Firms: Why Market-Driven Innovation Can't Get Along Without Them', Paper presented at the IFN conference in Waxholm.
- Bjuggren, P.-O., G. Du Rietz and D. Johansson (2007), '3:12-reglerna: en ekonomisk analys', *Ekonomisk Debatt*, **35**, 18–29.
- Bjuggren, P.-O. and D. Johansson (2008) "Svar till Edin och Lodin angående 3:12-reglerna. Replik", *Ekonomisk Debatt*, **36**, 57–59.
- Casson, M., (2002a), 'Entrepreneurship, Business Culture and the Theory of the Firm'. In Acs, Z. J. and Audretsch, D. B. (eds.), *The International Handbook of Entrepreneurship Research*, Springer Verlagh, Berlin and New York.
- Casson, M. (2002b), *The Entrepreneur: An Economic Theory*, Edward Elgar, Northampton, Ma.
- Du Rietz, G. (2003), 'Effektivitetsproblem med höga skatteklar', Ratio Working Papers No. 37.
- Edin, P.-O., I. Hansson and S.-O. Lodin (2005), 'Reformerad ägarbeskattning – effektivitet, prevention, legitimitet', Ministry of Finance, Swedish Government Report.
- Edin, P.-O. and S.-O. Lodin (2008), 'En analys av en felaktig analys av 3:12-reglerna', *Ekonomisk Debatt*, **36**, 55–66
- Edmark, K. and R. Gordon (2012). 'Taxes and the Choice of Organizational Form by Entrepreneurs in Sweden', IFN Working Paper No. 907, Stockholm: Research Institute of Industrial Economics (IFN).
- Engström, P. and B. Holmlund (2009), 'Tax Evasion and Self-Employment in a High-Tax Country: Evidence from Sweden', *Applied Economics*, **41**, 2419–2430.
- Gans, J. and L. Persson (2013). 'Entrepreneurial Commercialization Choices and the Interaction between IPR and Competition Policy', *Industrial and Corporate Change*, forthcoming.
- Goolsbee, A. (2004), 'The Impact of the Corporate Income Tax: Evidence from State Organizational Form Data', *Journal of Public Economics*, **88**, 2283–99.
- Goolsbee, A. (1998), 'Taxes, Organizational Form, and the Deadweight Loss of the Corporate Income Tax', *Journal of Public Economics*, **69**, 103–52.

- Gordon, R. H. and J. K. MacKie-Mason (1994), 'Tax Distortions to the Choice of Organizational Form', *Journal of Public Economics*, **55**, 279–306.
- Heshmati, A., D. Johansson and C. M. Bjuggren (2010), 'Effective Corporate Tax Rates and the Size Distribution of Firms', *Journal of Industry, Competition and Trade*, 10(3-4): 297–317.
- Jensen, M. and W. Meckling (1976), 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure', *Journal of Financial Economics*, **3**, 305–60.
- Lerner, J. and J. Tåg (2013), 'Institutions and Venture Capital', *Industrial and Corporate Change*, forthcoming.
- Lodin, S.-O., G. Lindencrona, P. Melz and C. Silfverberg (2009), *Inkomstskatt – en läro- och handbok i skatterätt*. Studentlitteratur, Lund.
- MacKie-Mason, J. K. and R. H. Gordon (1997), 'How Much Do Taxes Discourage Incorporation?', *Journal of Finance*, **50**, 477–505.
- Rothwell, R. and W. Zegveld (1982), *Innovation and the Small and Medium Sized Firm*, Pinter Publishers, London.
- Sanandaji, T. and P.T. Leeson (2013), 'Billionaires', *Industrial and Corporate Change*, forthcoming.
- Scherer, F., (1980), *Industrial Market Performance and Economic Performance*. Rand McNally, Chicago.
- Sørensen, P. B. (2008), *The Taxation of Business Income in Sweden*, Report to the Swedish Ministry of Finance, Stockholm, May.
- Thoresen, T. O. and A. Alstadsæter (2010), 'Shifts in Organizational Form under a Dual Income Tax System', *FinanzArchiv: Public Finance Analysis*, **66**, 384–418.

Notes

¹ See the webpage of the Swedish government, <http://www.regeringen.se/sb/d/5709/a/17240>.

² See for example the paper in this volume by Lerner and Tåg (2013) on the role of taxes in affecting use of venture capital financing by entrepreneurial ventures, and Sanandaji and Leeson (2013) on the determinants of risk-taking by new firms. See also Gans and Persson (2013) for the role of intellectual property right protection and competition policy for entrepreneurial commercialization choices.

³ We focus on the tax treatment of income from a running business. How the tax treatment of income from selling a business affects the incentives to undertake risk etc. is another interesting issue, but one that we leave for future research.

⁴ See Jensen and Meckling (1976) for a classic reference on the various non-tax factors affecting the choice of organizational form.

⁵ In 2009 and 2012, the amount of capital income that CHCs can extract and have taxed at a low rate of 20%, irrespective of capital and wage sums, was increased.

⁶ According to the literature on economic growth and entrepreneurship (see Scherer (1980), Rothwell and Zegveld (1982), Casson (2002a, 2002b), and Baumol (2004, 2007)), the entrepreneurial high-risk activity that takes place in small innovative firms constitutes the driving force for economic growth. This suggests that encouraging such activity is particularly important.

⁷ See also Thoresen and Alstadsæter (2010), who find that the Norwegian tax system has encouraged small business owners to organize as widely held corporations.

⁸ See Table 1.2 in Sørensen (2008).

⁹ Main sources: Lodin et al. (2009), Sørensen (2008), with the details summarized in Edmark and Gordon (2012).

¹⁰ For non-corporate firms, we will use the tax rules for sole proprietorships. The tax treatment of partnerships is in general similar.

¹¹ Since 2006, however, capital income from a CHC faces a tax rate of 20%.

¹² See e.g. the debate in the Swedish journal *Ekonomisk Debatt*: Bjurgren et al. (2007), Bjurgren and Johansson (2008), and Edin and Lodin (2008).

¹³ The increased allowed amounts of capital income, taxed at the lower rate of 20 percent, also apply to realized capital gains.

¹⁴ This amount, which has increased since 2006, is for income year 2010.

¹⁵ The share of allowed capital income increased during the 1990s, but has since remained unchanged.

¹⁶ See the salary statistics of Statistics Sweden, www.scb.se.

¹⁷ Both non-corporate firms and CHCs can use periodization funds to postpone taxation of profits. Non-corporate firms can also use so called expansion funds to retain business income in the firm.

¹⁸ In particular, we assume that no income is retained or put in periodization or expansion funds. This assumption will be relaxed when we calculate the tax rates used in the empirical analysis.

¹⁹ Throughout panel A (B) we assume that last year the owner paid herself a salary of SEK 500,000 (SEK 1,000,000).

²⁰ 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.

²¹ See Edmark and Gordon (2012) for a more detailed description of our empirical strategy

²² See Edmark and Gordon (2012) for a more detailed description of these funds and the gains from using them.

²³ When $Y < 0$, however, effective tax rates change. Also, the inequality reverses since the firm wants to increase its tax savings by facing a higher tax rate.

²⁴ Since our measure of the net-of-tax income differential is calculated over 2 years, we will be left with $t-1$ years of data in the regressions, 2004–2007.

²⁵ This link is not available for partnerships, so our analysis will only contain those non-corporate firms that are sole proprietors. According to the Swedish Companies Registration Office ("<http://www.bolagsverket.se>"), sole proprietorships account for 80 percent of all non-corporate firms.

²⁶ An owner of a closely held firm will typically obtain wage from his/her firm, and hence be registered as an employee.

²⁷ We may on occasion incorrectly measure the number of owners of some firms in the data. In particular, we only observe individuals 20-64 years old in the data, and focus only on CHC-owners for whom this CHC-ownership is their main income generating activity.

²⁸ For sole proprietors, who technically do not receive wage income, this refers to the personal income that is taxed as earned income.

²⁹ 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.

³⁰ Note that the taxes depend not only on income but also capital assets and wage sums. The tax rates are computed using an effective payroll tax of 20% for taxable income up to 7.5 basic amounts, following the calculations of Du Rietz (2003) regarding the size of offsetting social benefits over this range of incomes.

³¹ The change in 2006 is probably due to the introduction, that year, of the set capital amount that could be used by all CHCs, irrespective of capital assets held.

³² 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.

³³ Note that these coefficients measure the average across sample observations of the impact of a one percent change in *YTDiff* on the probability of incorporating. Given the probit specification, the estimated effect of a change in *YTDiff* varies across firms, with larger effects for firms that otherwise are close to indifferent about their choice of organizational form.

³⁴ The table shows the marginal effect averaged over the sample observations, obtained using the Stata command *margins*. The full set of coefficients is available in Edmark and Gordon (2012).

³⁵ In particular, Engström and Holmlund (2009) estimated that closely-held corporations understate their income by about 15% while owners of non-corporate firms understate their income by roughly 40%.

³⁶ More specifically, the estimates were obtained by adding the interaction of *YTDiff* and the categorical variable (along with dummies for the categories) to the model.

³⁷ 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.

³⁸ Specifically, the percent change in $1 - \tau$ in response to a 1% drop in τ is approximated by $1/(1 - \tau) \approx 1.4\%$.

³⁹ See also Heshmati et al. (2010) for a study on effective tax rates and the size-distribution of corporate firms.



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