



Economic Effects of Taxing Different Organizational Forms under the Nordic Dual Income Tax

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Abstract

This paper analyzes the economic effects of income splitting rules for closely held corporations and sole proprietorships/partnerships under the Nordic dual income tax. Income is split by imputing a return to capital, but the methods used for this differ between the Nordic countries. With a few notable exceptions, income splitting does well in the sense that the cost of capital is approximately the same in closely and widely held corporations. The special tax rules for sole proprietorships/partnerships manage to neutralize the impact of the high labor income tax on the cost of capital.

Keywords: dual income tax, tax avoidance, corporate and non-corporate taxation, cost of capital

JEL Code: H24, H25, H32

1. Introduction

The principal focus in much of past work on corporate taxation has been implications for real investment behavior. However, during the last decade policy makers and researchers have also focused on the possibilities of *income shifting* as one additional concern for the design of the business tax code (see for example Gordon and Slemrod, 1998). Firms may respond to tax incentives not only by changing real investment, but also by changing their form of organization—that is from corporate to non-corporate status—or by altering the form of compensation to shareholders, managers and other key employees. Though tax distortions to real investment may be a concern for all types of businesses, tax avoidance through the shifting of income between the personal and the corporate tax bases, is a practice mostly undertaken by small firms. Small firms may be organized as *closely held corporations*, as *partnerships* or as *sole proprietorships*, and apart from the tax treatment these legal forms are to a large extent close substitutes.

The tax legislators often face a difficult dilemma in designing tax rules for small businesses, since the more effectively tax motivated income shifting is combated, the greater

are the risks of worsened incentives for real investment and business expansion. The Nordic countries provide clear and interesting examples of attempts to escape this dilemma by enacting various rules of income splitting. An important part of the problem, and the immediate reason for the introduction of special tax rules, is the switch from the global income tax to the Nordic dual income tax in the beginning of the 1990's—where capital income is taxed at a lower rate than the top marginal tax rate on labor income. Thus, the taxpayer's total tax bill depends not only on his total income, but also on his income division. This has created new room for tax avoidance, especially for owners of small business firms who are able to lower tax payments by transforming labor income subject to a high marginal tax rate into capital income subject to a low tax rate.¹

The purpose of the paper is to present a simple and intuitive analysis of the income splitting rules in the Nordic countries, Sweden, Norway and Finland,² and determine their impact on the cost of capital. The paper extends Hagen and Sørensen's (1998) penetrating but largely general and verbal analysis of the problem of taxing small businesses and draws on Kari (1999) and Lindhe, Södersten and Öberg (2002), who studied the economic effects of the tax treatment of closely held corporations. In the present paper, and in contrast to Lindhe, Södersten and Öberg, both debt and equity are considered as sources of finance, and explicit expressions are derived for the cost of new share issues. Further, the present analysis includes both closely held corporations and partnerships/sole proprietorships.

We conclude that the Nordic tax rules for closely held corporations do well in the sense that they offer approximately the same cost of capital as for widely held corporations. Notable exceptions to this are found for Finland, where the cost of capital with retained earnings as the source of funds is considerably below that of widely held corporations, and for Norway, where debt financed marginal investments receive a substantial subsidy. The special tax rules for sole proprietorships/partnerships manage to neutralize the impact of the high labor income tax on the cost of capital, to the extent that the rate of return used for imputing income from capital coincides with the owner's pre-tax rate of return requirement.

After this introduction, Section 2 highlights the tax treatment of different organizational forms. Section 3 contains a simple model deriving the cost of capital, while Section 4 offers a summary of the results. Section 4 also contains a discussion of neutrality and possible tax distortions to the cost of capital deriving from the income splitting rules. Section 5 concludes.

2. Tax Treatment of Different Organizational Forms

This section briefly describes the tax code for corporate and non-corporate firms in Sweden, Finland and Norway. A summary of the different tax parameters in 2003 is presented in Table 1 at the end of the section.

2.1. Corporate Firms: Widely and Closely Held Corporations

For the purpose of this paper a *widely held corporation* (WHC) is a corporate business with many non-active owners, as opposed to a *closely held corporation* (CHC) which we define

as a corporation with a few active owners. In fact, a CHC in Sweden is a corporation with less than 5 owners (family members count as one) that control at least 50 percent of the voting power. However, in Finland a CHC is simply a corporation with unquoted shares, i.e. no restriction in the number of owners. A Norwegian CHC is a corporate business where at least two thirds of the shares are owned by active owners (family members count as one).

Corporate taxation in Sweden follows the classical system, while Finland and Norway have enacted imputation systems to mitigate the double taxation of corporate income. The tax code for CHC in Sweden requires dividend income to be split into capital and labor income. Dividends are taxed as capital income only when equal to or less than an imputed return on the acquisition price of the shares. If actual dividends exceed the level so defined (*normal dividends*), the difference (*excess dividends*) is taxed as labor income. If actual dividends are less than the imputed return, the difference is added to the basis for calculating normal dividends, and may also be withdrawn as normal dividends in a later year. The rules for taxing capital gains on the shares of CHC state in principle that half of the calculated gain is to be treated as labor income, and the other half as capital income.

Finland has adopted a similar version of the income splitting rule used in Sweden. However, an important difference is that capital income is determined as an imputed return on the net assets of the business (assets are valued at book value or at the tax assessed value). As in Sweden, if actual dividends exceed the imputed income, the difference is taxed as labor income. The imputation system for mitigating double taxation applies also to owners of CHC, and capital gains on shares in CHC are subject to capital income tax at the time of realization.

The Norwegian tax rules are based on a system that splits the income of CHC into two parts, denoted *personal income* and *capital income*, independently of the owner's dividend decision.³ Norway has chosen a *gross* method of income splitting, where the presumptive rate of return (defining capital income) is applied to the total assets of the corporation, and deducted from business income before interest to arrive at the owner's estimated personal income. Personal income is taxed at rates slightly exceeding the labor income tax rates. Norway operates an imputation system to mitigate corporate double taxation, and capital gains on shares in CHC are always regarded as capital income.

2.2. Non-Corporate Firms: Sole Proprietorships and Partnerships

All income from a sole proprietorship (SP) in Sweden, Finland and Norway is attributed to the proprietor and taxed in his hands, i.e. the SP is neither a legal person of its own, nor a taxable entity. The rules for taxing income from SP carry over with only slight modifications to partnerships.⁴ To mitigate the impact of the labor income tax, business earnings are split into income from capital and income from labor. The capital income component is imputed and the residual business income is categorized as labor income. The splitting models practiced in Sweden⁵ and Finland impute a return to net business assets, whereas in Norway the base is total (gross) business assets (as for CHC).

While the income splitting rules for CHC are mandatory, the division rules for SP are optional.

2.3. Summary of Tax Parameters

A summary of the relevant tax parameters for the Nordic countries is presented in Table 1.

The owner of a CHC in Sweden faces strong tax incentives to transform labor income, with a top total marginal tax rate of 67.0 percent, into capital income, with a total tax of 49.6 percent. These incentives are even more pronounced in Finland and Norway, where the imputation systems for mitigating corporate double taxation have effectively eliminated the personal dividend tax. Hence, the tax parameters clearly point to the need for special rules preventing income shifting under the Nordic dual income tax. In the case of SP (and partnerships) income splitting rather serves the purpose of mitigating the negative impact of the labor income tax on business incentives.

Table 1. Summary of tax parameters in Sweden, Finland and Norway 2003 (percent).

Items, parameters and definitions		Sweden	Finland	Norway
<i>Widely and closely held corporations</i>				
Statutory rate of corporation tax	τ	28	29	28
Personal tax on interest income	τ_{pi}	30	29	28
Personal tax on dividend income ^a	τ_{pd}	30	0	0
Personal tax on <i>realized</i> capital gain (WHC/CHC) ^b	τ_{pc}/τ_{pc}^w	30/43.1	29	28
Labor income tax (top marginal rate) ^c	τ_{pw}	56.17	55.83	49.3
General payroll tax	p	32.82	18–29	14.1–26.1
Total tax on income from corporate capital	$\tau + (1 - \tau)\tau_{pd}$	49.6	29	28
Total tax on labor income (top marginal rate)	$(p + \tau_{pw})/(1 + p)$	67	65.8	59.8
Imputed rate of capital income ^d	ρ	9.94	9.59	10
<i>Sole proprietorships and partnerships</i>				
Personal tax on capital income	τ_{pi}	30	29	28
Labor income tax (top marginal rate)	τ_{pw}	56.17	55.83	52.2
Payroll tax	p	31.01	18–29	14.1
Imputed rate of capital income	ρ	9.94	18	10

^aFinland and Norway use an imputation system implying an effective tax rate of zero.

^bIn the model the parameters τ_{pc} and τ_{pc}^w , ($=0.5\tau_{pw} + 0.5\tau_{pc}$, defined according to the tax rules) represent effective tax rates on accrued capital gains in WHC and CHC, respectively, while the numbers in the table refer to statutory tax rates on realized gains. The so called RISK scheme in Norway effectively eliminates the capital gains tax on marginal investments.

^cFor Norway the tax rate on personal income is slightly higher than the tax rate on labor income, 52.2 percent compared to 49.3 percent.

^dThe number 9.59 for Finland refers to the cash dividend (in percent of the capital base) taxed as income from capital. Since the rate of imputation for mitigating corporate double taxation is 0.29, the corresponding grossed-up dividend (including imputation credits) is 13.5 percent ($=9.59/(1 - 0.29)$). This latter number is given in the tax code.

3. The Model

This section derives the cost of capital for the organizational forms WHC, CHC and SP in Sweden, Norway and Finland. To make the analysis simple, we consider a single investment project of unit value and we ignore depreciation (as well as other aspects of the tax code with little impact on the problems considered here). Besides organizational form, the firm's cost of capital also depends on the source of finance, and we will consider both equity and debt. Further analysis of the results follows in Section 4.

3.1. Widely Held Corporations (WHC)

We let the statutory corporate tax rate be τ , and we assume that the return from the investment net of corporate tax is distributed to the owners as dividends. Dividends are taxed at the rate τ_{pd} , while τ_{pc} is the tax on (accruing) capital gains. With k denoting the owners' after-tax rate of return requirement, the minimum pre-tax rate of return on the marginal investment π must satisfy the condition

$$kq = \pi(1 - \tau)(1 - \tau_{pd}), \quad (1)$$

where the right hand side is the dividend net of tax, and q , on the left hand side, is the market valuation of the owners' investment in the project. When the investment project is financed by an issue of new equity, then $q = 1$, and we find from (1) that

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pd})}, \quad (2)$$

which is the cost of capital of a WHC with new equity as the marginal source of funds.

Sweden operates a classical system of corporate taxation and the dividend tax equals the personal tax on income from capital, $\tau_{pd} = \tau_{pi}$. In Finland and Norway, however, corporate double taxation is mitigated through the use of an imputation system. With ϕ denoting the rate of imputation, $1/(1 - \phi)$ may be interpreted as the pre-tax earning behind a dividend of unit value. This amount is taxed as income from capital at the rate τ_{pi} . As an offset against this, the shareholder is offered an imputation credit of $\phi/(1 - \phi)$. The effective rate of tax on cash dividends in Finland and Norway is therefore $\tau_{pd} = (\tau_{pi} - \phi)/(1 - \phi)$.

Turning next to the case where the investment is financed through retained earnings, i.e. a reduction in dividends, the well-known result of the *new view of equity* (cf. Auerbach, 1979; Sinn, 1987) holds that $q = (1 - \tau_{pd})/(1 - \tau_{pc})$. We then derive from (1)

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pc})}. \quad (3)$$

Finally, with debt as the marginal source of funds and i as the market rate of interest, we find that $\pi = i$, i.e. the cost of capital is independent of tax. The obvious reason for this is that debt interest is deductible against the base of the corporate income tax.

3.2. Closely Held Corporations (CHC): Income Splitting Rules

The sole owner of a CHC in the Nordic countries can withdraw business income from his firm both as dividends and as wages. The amount of wage income is not contingent on the effort put into the firm by the owner, but is instead determined as a result of the owner's tax planning activity, which we analyze below. Wages are deductible against the base of corporate income tax but are subject to a firm-level payroll tax at the rate p . The total tax paid by the owner on a unit of business income withdrawn as wage income is $(p + \tau_{pw})/(1 + p)$, where τ_{pw} is the personal labor income tax rate, leaving $(1 - \tau_{pw})/(1 + p)$ net of tax.

In Finland and Sweden, income distributed as dividends may be taxed at two different rates in the hands of the owner. *Normal dividends*, not exceeding an imputed return (to be defined below), are taxed at the personal dividend tax rate τ_{pd} (equal to τ_{pi} in Sweden and $(\tau_{pi} - \phi)/(1 - \phi)$ in Finland, as described above), whereas *excess dividends*, i.e. dividends in excess of normal dividends, are taxed as labor income, at the rate τ_{pw} in Sweden, and at the rate $(\tau_{pw} - \phi)/(1 - \phi)$ in Finland (since imputation credits are extended also to excess dividends). The net-of-tax income from a unit of pre-tax business income paid as normal dividends is therefore $(1 - \tau)(1 - \tau_{pd})$, compared to $(1 - \tau)(1 - \tau_{pw})$ and $(1 - \tau)(1 - \tau_{pw})/(1 - \phi)$, respectively, for excess dividends.

From the description of the Swedish tax system in Section 2, we find that

$$(1 - \tau)(1 - \tau_{pd}) > \frac{1 - \tau_{pw}}{1 + p} > (1 - \tau)(1 - \tau_{pw}), \quad (4)$$

which means that normal dividends dominate wage income which in turn dominates excess dividends as channels of withdrawing income from the CHC. Since the tax code does not impose any limitation on the amount withdrawn as wage income, (4) implies that the corporation will never make use of excess dividends as a method of distributing earnings.

With the rate of imputation equal to the corporate tax rate the Finnish tax rules imply that

$$(1 - \tau)(1 - \tau_{pd}) > (1 - \tau) \left(\frac{1 - \tau_{pw}}{1 - \phi} \right) > \left(\frac{1 - \tau_{pw}}{1 + p} \right), \quad (5)$$

i.e. normal dividends dominate excess dividends which in turn dominate wage income as forms of withdrawing cash income. A (tax minimizing) withdrawal of business income in excess of normal dividends will therefore take the form of *excess dividends*.⁶

In Norway, income splitting is accomplished in a different way, independent of the dividend decision. Income is split into capital income and so called *personal income*, obtained by subtracting total labor costs and imputed capital income from the CHC's gross earnings. Formally, personal income P is defined as

$$P = \Pi - (1 + p)W - \rho K, \quad (6)$$

where Π is the gross earnings of the CHC, W is the owner's wage income and p is the rate of payroll tax. The imputed income from capital is the presumptive rate of return ρ times the value of the firm's assets, K .

The amount reported as personal income P clearly depends on the owner's choice between wage income and dividends as forms of withdrawing cash income from the corporation.

Wage income W is taxed at a somewhat lower rate than is personal income in the hands of the owner. Withdrawing business earnings as wage income rather than dividends moreover saves both personal tax on dividends and corporate tax, since wage costs are deductible against the corporate tax bill. These tax savings are partially offset by the firm-level payroll tax, levied at the rate p , which is triggered by the withdrawal of wage income. Adding these partially offsetting tax effects makes it clear, however, that the owner will minimize his total tax bill by substituting wage income for dividends until no personal income need to be reported, $P = 0$.⁷ The effect of this is that

$$W(1 + p) = \Pi - \rho K. \quad (7)$$

By the firm's budget constraint, this means that—net of interest payment iB , corporate tax, new borrowing $\dot{B} \equiv dB/dt$, and outlays for investment I —there remains

$$D = (1 - \tau)(\rho K - iB) + \dot{B} - I, \quad (8)$$

to be paid as cash dividends.

3.3. *CHC—Equity Finance: New Equity*

We next turn to examining the effects of the special dividend taxation rules for the CHC's cost of capital. As before, we assume that the firm undertakes a new investment of unit value, and that the pre-tax return from the project is π . We first consider the case where the investment is financed by a new issue of equity. The new equity adds one unit to the acquisition cost of the CHC's shares, which is the base for income splitting in Sweden. The subsequent new investment likewise adds one unit to the net assets (the base for income splitting in Finland) of the firm as well as to its total assets (the base for income splitting in Norway). With k as the after-tax rate of return required by the owner on the market value of his marginal investment, denoted as q , and ρ as the presumptive rate of return used for income splitting, the pre-tax return π must satisfy the condition

$$kq = \frac{\rho}{1 - \tau}(1 - \tau)(1 - \tau_{pd}) + \left(\pi - \frac{\rho}{1 - \tau} \right) \left(\frac{1 - \tau_{pw}}{1 + p} \right), \quad (9S)$$

in Sweden, and

$$kq = \frac{\rho}{1 - \tau}(1 - \tau)(1 - \tau_{pd}) + \left(\pi - \frac{\rho}{1 - \tau} \right) \left((1 - \tau) \left(\frac{1 - \tau_{pw}}{1 - \phi} \right) \right), \quad (9F)$$

in Finland. In (9S) and (9F) the before-tax profit behind the normal dividend, $\rho/(1 - \tau)$, is taxed as income from capital and the residual, $\pi - \rho/(1 - \tau)$, as income from labor in Sweden and as excess dividends in Finland.⁸ With new equity as the marginal source of funds, $q = 1$. Rearranging equations (9S) and (9F) then gives the cost of capital for the CHC as

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pd})} + \left(\frac{k}{1 - \tau_{pd}} - \rho \right) \left(\frac{(1 - \tau)(1 - \tau_{pd}) - \left(\frac{1 - \tau_{pw}}{1 + p} \right)}{(1 - \tau) \left(\frac{1 - \tau_{pw}}{1 + p} \right)} \right), \quad (10S)$$

for Sweden, and as

$$\pi = \frac{k}{(1-\tau)(1-\tau_{pd})} + \left(\frac{k}{1-\tau_{pd}} - \rho \right) \left(\frac{(1-\tau_{pd}) - \left(\frac{1-\tau_{pw}}{1-\phi} \right)}{(1-\tau) \left(\frac{1-\tau_{pw}}{1-\phi} \right)} \right), \quad (10F)$$

for Finland. The first term on the right hand side of both expressions is the cost of capital of a WHC (cf. equation (2) above), and the second term of the expressions therefore measures the difference between the costs of capital of a WHC and a CHC. This difference depends in turn on the tax differential between normal dividends and the tax preferred form of withdrawing additional earnings from the firm, i.e. wage income for Sweden and excess dividends for Finland, but also on the difference between to the owner's required rate of return before the personal dividend tax, i.e. $k/(1-\tau_{pd})$, and the presumptive rate of return, ρ .

Given that the owner of the Norwegian CHC has an incentive to avoid paying tax on personal income ($P = 0$, cf. equations (7) and (8)), the pre-tax return π must satisfy

$$kq = \rho(1-\tau)(1-\tau_{pd}) + (\pi - \rho) \left(\frac{1-\tau_{pw}}{1+p} \right). \quad (11)$$

The first term on the right hand side of (11) is the after-tax dividend and the second term is the withdrawal of wage income, net of tax, needed to avoid taxable personal income from the marginal investment. With $q = 1$, we solve (11) for the cost of capital for a new share issue

$$\pi = \frac{k}{(1-\tau)(1-\tau_{pd})} + \left(\frac{k}{(1-\tau)(1-\tau_{pd})} - \rho \right) \left(\frac{(1-\tau)(1-\tau_{pd}) - \left(\frac{1-\tau_{pw}}{1+p} \right)}{\left(\frac{1-\tau_{pw}}{1+p} \right)} \right). \quad (12)$$

As in the expressions for Sweden and Finland, the first term on the right hand side equals the cost of capital of a WHC, while the second term measures the distortion in the CHC's cost of capital, compared to that of a WHC. The size of this distortion depends on the difference between total taxes on dividends and wage income, and also on the difference between the owner's pre-tax required rate of return and the presumptive rate of return, ρ .

3.4. CHC—Equity Finance: Retained Earnings

Deriving the cost of capital for CHC with retained earnings as the marginal source of funds is somewhat more complicated. A new investment financed by retained earnings does not add to the acquisition cost of the CHC's shares, and for the Swedish CHC, the effect of this is that the gross return π from the investment is fully taxed as wage income. For the marginal investment, the pre-tax return π must then satisfy

$$kq = \pi \left(\frac{1-\tau_{pw}}{1+p} \right). \quad (13)$$

Equations (9F) and (11), for Finland and Norway, are valid also in the retentions case, since a new investment financed by retained earnings adds to the base for income splitting in both countries.

To determine q , i.e. the value to the investor of the marginal investment, we note that there are several ways for the CHC to retain additional funds for investment. From the pecking order implied by the inequalities in (4), we find that the tax-preferred method of retaining earnings in Sweden is to reduce wage payments. To finance an investment of unit value the cut in wage payments must be sufficient to increase the CHC's before-tax profits by $1/(1 - \tau)$. Had this amount instead been distributed as labor income, the owner would have received $(1/(1 - \tau))((1 - \tau_{pw})/(1 + p))$, net of tax. With τ_{pc}^w as the (accruals) rate of capital gains tax, the capital gain (or market value of the marginal investment) q required to compensate the owner for this foregone wage income is obtained from

$$q(1 - \tau_{pc}^w) = \left(\frac{1}{1 - \tau} \right) \left(\frac{1 - \tau_{pw}}{1 + p} \right). \quad (14)$$

Eliminating q from (13) by using (14), we derive

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pc}^w)}, \quad (15)$$

which is the cost of capital for the Swedish CHC with retained earnings (i.e. reduced wage income) as the marginal source of funds.

In Finland, the tax-preferred way of retaining earnings is to reduce excess dividends, taxed at the rate $(\tau_{pw} - \phi)/(1 - \phi)$ in the hands of the owner. Hence, a new investment of unit value makes the owner forego the amount $(1 - \tau_{pw})/(1 - \phi)$, and we then derive q from the equation

$$q(1 - \tau_{pc}) = \left(\frac{1 - \tau_{pw}}{1 - \phi} \right), \quad (16)$$

where τ_{pc} is the (accruals) capital gains tax (the same for CHC and WHC in Finland). Eliminating q from (9F) by using (16), we obtain the cost of capital for the Finnish CHC with retained earnings (i.e. reduced excess dividends) as the marginal source of funds as

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pc})} - \rho \left(\frac{(1 - \tau_{pd}) - \left(\frac{1 - \tau_{pw}}{1 - \phi} \right)}{(1 - \tau) \left(\frac{1 - \tau_{pw}}{1 - \phi} \right)} \right). \quad (17)$$

The Norwegian CHC may choose between reducing the owner's wage income and dividends to finance additional investment. By invoking (and reversing) the argument for withdrawing sufficient wage income to avoid reporting *personal income* (i.e. putting $P = 0$, cf. equations (7) and (8)) we find that the tax preferred source of retained earnings is a reduction in dividends. The effect is that $q = (1 - \tau_{pd})/(1 - \tau_{pc})$, and using (11) we then derive

$$\pi = \frac{k}{(1 - \tau)(1 - \tau_{pc})} + \left(\frac{k}{(1 - \tau)(1 - \tau_{pc})} - \rho \right) \left(\frac{(1 - \tau)(1 - \tau_{pd}) - \left(\frac{1 - \tau_{pw}}{1 + p} \right)}{\left(\frac{1 - \tau_{pw}}{1 + p} \right)} \right). \quad (18)$$

3.5. *CHC—Debt Finance*

With debt finance, the cost of capital of the CHC is the market interest rate, i.e. $\pi = i$, in both Sweden and Finland. Debt interest is fully deductible against the corporate tax base, and the special rules for income splitting only affect the cost of equity. For the Norwegian CHC, however, new investment adds to the base of income splitting (i.e. total assets) also when the source of funds is borrowing.

When the pre-tax return from the marginal investment is π , the owner of the Norwegian CHC must withdraw an additional $(\pi - \rho)/(1 + p)$ of wage income to avoid reporting taxable personal income from the investment, cf. equations (7) and (8). By the firm's budget constraint, we then get the dividend from the project—net of interest payment, withdrawal of wage income and corporate tax—as $(\pi - i - (1 + p)((\pi - \rho)/(1 + p)))(1 - \tau) = (\rho - i)(1 - \tau)$. Since the owner's opportunity cost of the debt financed marginal investment is nil, the pre-tax return from the marginal investment must then satisfy

$$(\rho - i)(1 - \tau)(1 - \tau_{pd}) + (\pi - \rho)\left(\frac{1 - \tau_{pw}}{1 + p}\right) = 0, \quad (19)$$

where the first term is the after-tax dividend and the second term is the after-tax wage income. Solving (19) for the cost of capital finally yields

$$\pi = i + (i - \rho)\left(\frac{(1 - \tau)(1 - \tau_{pd}) - \left(\frac{1 - \tau_{pw}}{1 + p}\right)}{\left(\frac{1 - \tau_{pw}}{1 + p}\right)}\right), \quad (20)$$

where the numerator of the bracketed term is the difference between the total tax on dividends and total tax on wage income.

3.6. *Sole Proprietorships (SP)*

The sole proprietor's cash flow from his firm, net of tax and outlays for investment and debt service, may be written as

$$Q = \Pi - iB + \dot{B} - S - I, \quad (21)$$

where Π is the gross earnings of the firm, iB is the interest payment, $\dot{B} \equiv dB/dt$ is the flow of net borrowing and I is real investment. For the sole proprietor in Finland and Sweden, the tax bill S is defined as

$$S = \left(\frac{\tau_{pw} + p}{1 + p}\right)(\Pi - iB - R) + \tau_{pi}R. \quad (22)$$

Equation (22) means that taxable income is split into two parts. An amount R is taxed as capital income, i.e. at the rate τ_{pi} , whereas the residual income is taxed as earned income. As explained, the tax on earned income depends on both the income tax rate τ_{pw} and on the rate of payroll tax, p . The amount reported as capital income is a presumptive rate of return times the net assets of the firm, i.e. $R = \rho(K - B)$.

In Norway the SP's tax function is somewhat different

$$S^N = \left(\frac{\tau_{pw} + p}{1 + p} \right) (\Pi - R) + \tau_{pi}(R - iB), \quad (23)$$

which differs from equation (22) in that debt interest is deductible against the imputed capital income (which is not the case in Finland and Sweden), but not against the wage income of the proprietor. Moreover, the amount reported as capital income in Norway is a presumptive rate of return times the total assets of the firm, i.e. $R = \rho K$.

It is fairly straightforward to determine the implications of income splitting for the cost of capital of the SP. In the case of equity finance, the rules of the Nordic countries are identical. With k as the after-tax rate of return required by the SP, the pre-tax return π on a new marginal investment, must satisfy the condition (cf. equation (22))

$$k = \pi - \left(\frac{\tau_{pw} + p}{1 + p} \right) (\pi - \rho) - \tau_{pi}\rho, \quad (24)$$

which yields

$$\pi = \frac{k}{1 - \tau_{pi}} + \left(\frac{k}{1 - \tau_{pi}} - \rho \right) \left(\frac{(1 - \tau_{pi}) - \left(\frac{1 - \tau_{pw}}{1 + p} \right)}{\left(\frac{1 - \tau_{pw}}{1 + p} \right)} \right). \quad (25)$$

A new investment fully financed by debt, offers no additional income splitting in Finland and Sweden. Since debt interest is deductible against earned income (cf. equation (22)), the cost of capital of the SP is the market interest rate. For a debt financed marginal investment in the Norwegian SP, we require (cf. equations (21) and (23))

$$i = \pi - \left(\frac{\tau_{pw} + p}{1 + p} \right) (\pi - \rho) - \tau_{pi}(\rho - i), \quad (26)$$

which means that

$$\pi = i + (i - \rho) \left(\frac{(1 - \tau_{pi}) - \left(\frac{1 - \tau_{pw}}{1 + p} \right)}{\left(\frac{1 - \tau_{pw}}{1 + p} \right)} \right). \quad (27)$$

4. Neutrality and Distortions to the Cost of Capital

A summary of the results from the previous section is given in Table 2 below. The table shows the expressions for the cost of capital—along with the numbers of the corresponding equations in Section 3—for the different organizational forms and sources of finance. For easy reference, the table also includes the well-known expressions for the cost of capital of WHC.

In Finland and Sweden, the cost of capital with *debt finance* is the market interest rate, for all organizational forms. Debt interest is fully deductible, and the rules for income splitting in CHC and SP affect only the cost of equity. Norwegian income splitting affects all sources

Table 2. Summary of results.

Debt		Eq.	Equity (<i>RE</i> is retained earnings, <i>NI</i> is new equity issue)	Eq.
<i>Widely held corporation (WHC)</i>				
Sweden	i	–	$RE \frac{k}{(1-\tau)(1-\tau_{pc})}$	3
Finland			$NI \frac{k}{(1-\tau)(1-\tau_{pd})}$	2
Norway				
<i>Closely held corporation (CHC)</i>				
Sweden	i	–	$RE \frac{k}{(1-\tau)(1-\tau_{pc}^w)}$	15
			$NI \frac{k}{(1-\tau)(1-\tau_{pd})} + \left(\frac{k}{1-\tau_{pd}} - \rho \right) \times \left(\frac{(1-\tau)(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1+p}}{(1-\tau)\left(\frac{1-\tau_{pw}}{1+p}\right)} \right)$	10S
Finland	i	–	$RE \frac{k}{(1-\tau)(1-\tau_{pc})} - \rho \left(\frac{(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1-\phi}}{(1-\tau)\left(\frac{1-\tau_{pw}}{1-\phi}\right)} \right)$	17
			$NI \frac{k}{(1-\tau)(1-\tau_{pd})} + \left(\frac{k}{1-\tau_{pd}} - \rho \right) \times \left(\frac{(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1-\phi}}{(1-\tau)\left(\frac{1-\tau_{pw}}{1-\phi}\right)} \right)$	10F
Norway	$i + (i - \rho) \left(\frac{(1-\tau)(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	20	$RE \frac{k}{(1-\tau)(1-\tau_{pc})} + \left(\frac{k}{(1-\tau)(1-\tau_{pc})} - \rho \right) \times \left(\frac{(1-\tau)(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	18
			$NI \frac{k}{(1-\tau)(1-\tau_{pd})} + \left(\frac{k}{(1-\tau)(1-\tau_{pd})} - \rho \right) \times \left(\frac{(1-\tau)(1-\tau_{pd}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	12
<i>Sole proprietorship (SP)</i>				
Sweden	i	–	$\frac{k}{1-\tau_{pi}} + \left(\frac{k}{1-\tau_{pi}} - \rho \right) \left(\frac{(1-\tau_{pi}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	25
Finland				
Norway	$i + (i - \rho) \left(\frac{(1-\tau_{pi}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	27	$\frac{k}{1-\tau_{pi}} + \left(\frac{k}{1-\tau_{pi}} - \rho \right) \left(\frac{(1-\tau_{pi}) - \frac{1-\tau_{pw}}{1+p}}{\frac{1-\tau_{pw}}{1+p}} \right)$	25

of funds, however, and from equations (20) and (27) it is clear that for the cost of capital with debt finance to be independent of tax, the presumptive rate of return must be set equal to the market interest rate, i.e. $\rho = i$.

Turning to *new equity* finance, we conclude that, for Finland and Sweden, the presumptive rate of return must be set equal to the owner's pre-tax rate of return requirement, $\rho = k/(1-\tau_{pd})$, in order to equate the costs of capital of a WHC and a CHC, see equations (10S) and (10F). In Norway, the requirement for neutrality between CHC and WHC is that

$\rho = k/((1 - \tau)(1 - \tau_{pd}))$. For a precise comparison, however, we note that in Sweden dividends are taxed as income from capital, $\tau_{pd} = \tau_{pi}$, while both Finland and Norway have chosen to eliminate corporate double taxation through an imputation system at the shareholder level. With $\tau_{pd} = (\tau_{pi} - \phi)/(1 - \phi)$, and the rate of imputation equal to the corporate tax rate, $\phi = \tau$, the requirements for neutrality in Norway and Sweden actually coincide, i.e. $\rho = k/(1 - \tau_{pi})$. For Finland, the costs of capital of WHC and CHC turn out to be identical, when $\rho = k$.

In the case of *retained earnings*, neither the personal taxes on dividends and wage income, nor the special rules for determining the size of normal dividends (e.g. the presumptive return parameter ρ) matter for the cost of capital of the Swedish CHC (see equation (15)). Though this result may seem surprising, it is an exact parallel to the familiar finding of the *new view of equity*, that the cost of capital (for a WHC) with retained earnings as the marginal source of funds is independent of the tax on dividends (see equation (3)). Expression (15) implies that the CHC is in a *trapped equity* regime, where the high rate of tax on the marginal source of income (owner's wages) is exactly offset by a reduction in the opportunity cost of retaining funds for new investment. Hence, by equation (15), the CHC's cost of capital differs from that of a Swedish WHC only to the extent that the effective capital gains tax rate τ_{pc}^w is higher because of the special rules that apply when selling shares in a CHC (see Table 1).

In the absence of income splitting, the Finnish tax rules would also cause an equi-proportional reduction in the opportunity cost of retaining funds for investment and in the after-tax cash flow from the investment (i.e. by $(\tau_{pw} - \phi)/(1 - \phi)$). Thus, the *trapped equity* mechanism would make the cost of capital of the Finnish CHC identical to that of a WHC. However, the Finnish tax rules do allow income splitting based on the net asset value of the CHC, and the net asset value increases as the firm retains profits. Part of the return on the marginal investment will therefore be taxed as normal dividends (rather than as excess dividends), and as a result of this, the cost of capital of the CHC is driven below that of the WHC, see equation (17).

The Norwegian tax rules are similar to those of Finland by enabling part of the return on the marginal investment to be taxed as income from capital, also when the marginal source of finance is retained earnings (income splitting is based on the total assets of the CHC). There is a clear rationale for this in Norway, however. The reason for this is that (in the absence of income splitting) taxation causes a stronger reduction in the cash flow from the marginal investment than in the owner's opportunity cost of investing. As seen from equation (18), the cost of capital of the Norwegian CHC coincides with that of the WHC if the presumptive rate of return coincides with the owner's pre-tax rate of return requirement.

The expressions for sole proprietors' cost of capital with equity finance are identical for the Nordic countries. The presumptive rate of return must be set equal to the SP's pre-tax rate of return requirement, i.e. $\rho = k/(1 - \tau_{pi})$, for the cost of capital to be invariant to the taxation of earned income.

A general conclusion emerging from the analysis above, is that the Nordic models for income splitting are capable of achieving tax neutrality between CHC and WHC, provided that the presumptive rate of return ρ is chosen in an appropriate way. The notable exception

to this is in Finland, where the basis for imputing normal dividends—the net asset value of the CHC—drives the cost of capital with retained earnings below that of a WHC.

Whether or not the levels for the presumptive return actually chosen in the Nordic countries (see Table 1 in Section 2) meet the requirements for neutrality, is a different matter, however. With full certainty about the future, as assumed for the model of Section 3, it is reasonable to assume that the required rate of return, k , is the after-tax market interest rate, and the formal analysis then suggests that the presumptive rate of return should be set equal to the market interest rate. As the present levels for the presumptive return are considerably higher, we might therefore conclude that the tax systems of the Nordic countries favor investment in CHC compared to WHC.

It must be noted, however, that the presumptive rates of return of Table 1 have been chosen by the tax legislators with explicit reference to uncertainty, that is to include a *risk premium*. Considering this, we would clearly need a different model to judge possible tax distortions. Less strictly, we may still attempt to evaluate the allocation effects by somewhat loosely interpreting k in the present model as a risk-adjusted rate of return. For illustrative purposes, we may simply assume that the market interest rate is 5 percent, and that the after-tax rate of return requirement of stockholders is 7 percent. With a 30 percent personal tax on income from capital (as in Sweden), this requirement corresponds to a return of 10 percent before tax, that is 5 percentage points above the market interest rate.⁹ By equation (2), see Table 2, the cost of capital of a Swedish WHC with new equity is 13.9 percent. Since the presumptive rate of return is 10 percent, i.e. $\rho = 0.1$, the cost of capital of a CHC is the same (see Figure 1).

Using Swedish tax parameters, Figure 1 further illustrates the importance of the presumed rate of return to the cost of capital of a CHC (for new equity) and of a SP. For comparison, the horizontal lines represent the cost of debt and the WHC's cost of equity. As seen from Table 2, the SP escapes the two-tier taxation on the corporate form of organization, and (with $\tau_{pi} = \tau_{pd}$) the *vertical* distance between the downward sloping lines in the figure therefore measures the effect of corporate taxation on the CHC's cost of capital.

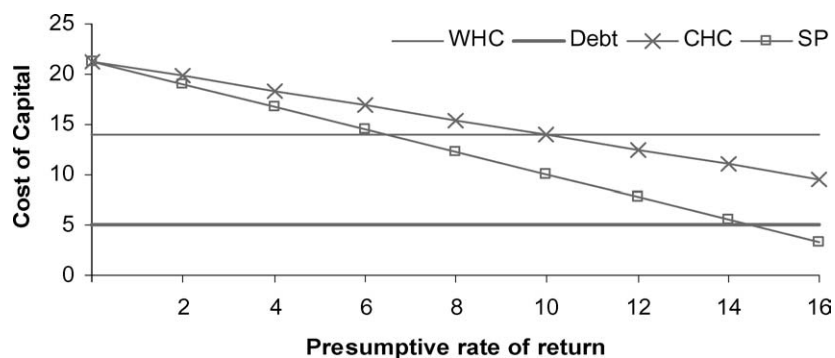


Figure 1. The presumptive rate of return and the cost of capital.

There are two instances of tax distortions to the cost of capital that warrant a separate numerical illustration. The first is the case of debt finance of a Norwegian CHC and SP. With the tax parameters as given in Table 1 (note that $\tau_{pd} = 0$, because of the imputation system) and $\rho = 0.1$, the second term of equations (20) and (27) in Table 2 takes the value -0.0396 , i.e. the cost of capital for a debt financed investment is almost four percentage points below the market interest rate of 5 percent.

The second case is where a Finnish CHC makes use of retained earnings as the marginal source of funds. With $k = 0.07$ and the tax parameters as given in Table 1 (assuming that the accruals rate of capital gains tax is half of the tax on realized gains), the first term of the cost of capital expression (17)—which is identical to the cost of capital of a WHC—takes the value of 0.114. However, with $\rho = 0.0959$, the second term of the expression is -0.082 . Income splitting hence drives the cost of capital down to 3.2 percent, that is considerably below the owner's after-tax rate of return requirement.¹⁰

5. Conclusions

In this paper we have analyzed the economic effects of the different income splitting rules that apply to closely held corporations (CHC) and sole proprietorships/partnerships (SP) in the Nordic countries. For CHC, the rules were enacted to combat the tax shifting incentives that followed from the introduction of the *Nordic dual income tax* in the beginning of the 1990's, whereas for SP, the intent of the special rules is to mitigate the impact of labor income taxation on investment incentives.

The Nordic countries have all chosen to split income by imputing a return to capital, but the techniques used for this differ in important ways. The Swedish tax code determines the amount of *normal dividends* by multiplying the acquisition cost of the CHC's shares by a presumptive rate of return. Income splitting therefore affects the cost of capital when new equity is the source of funds, but leaves new investment financed by a reduction in the owner's wage income unaffected. The cost of capital for the internally financed marginal investment does not depend on the labor income tax levied on the return to investment, however, since labor income taxation also causes an offsetting reduction in the owner's opportunity cost of investing: Wage income retained within the firm is in the *equity trap*.

The basis for determining normal dividends in Finland is the net assets of the CHC, and income splitting therefore affects investment financed by both new equity and retained earnings. As the *trapped equity* mechanism alone eliminates the impact of the labor income tax in the case of retained earnings, income splitting strongly favors CHC compared to WHC. Income splitting in Norway is based on the total assets of the CHC, and is therefore a determinant of the firm's cost of capital, irrespective of the source of funds. The method of income splitting differs from that of Finland and Sweden, however, and is independent of the firm's dividend decision. Whether income splitting distorts the cost of capital or not, compared to that of WHC, hinges on the relationship between the presumptive rate of return and the owner's pre-tax rate of return requirement. However, investments financed by debt receive a preferential tax treatment in Norway, since the presumptive rate of return is set above the market interest rate.

A further result for the Nordic countries is that income splitting for SP eliminates the effects of the high labor income tax on the cost of capital when the presumptive rate of return happens to coincide with the owner's pre-tax rate of return requirement. For Norway, the investment incentives of SP are exactly the same as for CHC, considering that the imputation system effectively eliminates the double taxation of corporate source income and that the corporate tax rate equals the personal tax rate on capital income.¹¹ The impact on capital costs differs somewhat between SP and CHC for Finland. In Sweden, however, SP has a lower cost of capital than CHC, because CHC suffers the two-tier taxation of corporate source income.

Clearly, there are a number of aspects to the tax treatment of different organizational forms that have been ignored in this paper. One such aspect is the impact on risk-taking. Of particular interest here is the differential tax treatment of normal and excess returns that is inherent in the income splitting rules. As pointed out by Hagen and Sørensen (1998), such a differential tax treatment in combination with full loss offset may in fact be beneficial to risk-taking, the well-known reason being that the higher marginal tax on the uncertain residual (excess) return provides a higher degree of income insurance to the investor. Additional aspects, at the core of the Nordic tax policy debate, concern the cost to the taxpayers of complying with the tax rules, and the possibilities for avoiding or evading the requirement to split income. While the borderline between WHC and CHC is clear in Finland (all corporations with unquoted shares are CHC), there is a widespread view that the classification as a CHC is subject to manipulation in both Norway and Sweden. The Norwegian rules that require corporations with less than two thirds of the shares owned by passive (outside) owners to register as CHC appear to be especially problematic. Various pro forma schemes have been set up where the active owners effectively retain control of the company even though they appear to be passive investors. An obvious topic for further research, finally, is the incentive for choosing one organizational form to the other, and for switching from being an employee to being a self-employed proprietor.

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Notes

1. Another aspect of income shifting—which we do not cover in this paper, but that is emphasized in Fuest and Weichenrieder (2002)—is the owner's incentives to retain income within the business (taxed at a low rate) in order to avoid high personal taxation. Based on a simple theoretical model of income shifting the authors show in an empirical evaluation in OECD countries that an increase in the personal interest tax rate by 1 percentage point increases the fraction of savings within the firm roughly by 2.6 percentage points.
2. No special rules for owners of closely held corporations are in place in Denmark and Iceland. The income splitting rules for sole proprietors in Denmark are similar to those in the other Nordic countries.

3. Hagen and Sørensen (1998, p. 59).
4. Partnerships in Sweden are however legal persons, but income from these businesses is nevertheless taxed in the hands of the owners/partners.
5. The Swedish model is referred to as interest distribution. Sweden also allows income retained within the business, as a so-called *expansion fund*, to be taxed at a rate equal to the corporate tax rate. The two modes of income splitting may be used simultaneously, but they are not additive, since the amount allocated to the expansion fund will reduce the base used to calculate the interest distribution. In the following we have ignored the expansion fund provisions.
6. Despite the apparent tax disadvantage, the owner of the CHC may still want to withdraw wage income sufficient to make maximum use of future social security benefits linked to current wage earnings. This complication is ignored in the following.
7. The incentive to withdraw wage income to avoid reporting personal income is formally demonstrated in Lindhe, Södersten and Öberg (2002, p. 590).
8. Note that ρ is defined as the maximum cash dividend taxed as income from capital. The Finnish tax code specifies the grossed-up dividend incl. imputation credits, i.e. $\rho/(1 - \phi)$. See also table footnote 'd'.
9. The extra pre-tax return to shareholders in Sweden for holding stocks instead of bonds over the period 1919–1990 was slightly higher, or 6 percentage points.
10. Kari (1999) points to the possibility that the Finnish system even may drive the cost of capital below zero.
11. Both the capital gains tax (for the marginal investment) and the personal dividend tax are effectively zero in Norway.

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