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PAYROLL TAXES VS. WAGE TAXES: NON-EQUIVALENCE RESULTS

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Abstract

According to conventional wisdom the total tax wedge, which is the sum of payroll and wage taxes is sufficient to specify the distortion of wage formation caused by labour taxation. This paper casts doubt on this view by providing two reasons why this irrelevance conjecture may not hold in non-competitive labour markets when factors of production are complements. It is shown that gross nominal wages will increase if a revenue-neutral restructuring of labour taxes towards higher wage taxes reduces the wage elasticity of labour demand. In addition, it turns out that, even with constant labour demand elasticity, gross nominal wages increase as a result of higher wage taxes if the trade union's bargaining power is not comprehensive.

Keywords: tax wedge, payroll tax, wage tax, wage bargaining
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1. Introduction

According to conventional wisdom it does not matter who *de jure* pays the tax on labour. Gross nominal wages are the same regardless of whether the employer pays a payroll tax or the employee pays the wage tax. Layard, Nickell and Jackman (1991, pp. 209-210) use this text book idea¹ in their empirical study of non-competitive labour markets. They argue that the total tax wedge, which is the sum of the payroll and wage taxes, is sufficient to specify the distortion of wage formation caused by labour taxation. In theoretical studies on tax incidence and wage formation no distinction has usually been made between wage taxes and payroll taxes. However, in practice the two types of labour taxes seem to have different effects on wage formation [see e.g. Lockwood and Manning (1993) or Holm, Honkapohja and Koskela (1994)].

Holm and Koskela (1996) have just recently shown that for a monopoly trade union the equivalence result does not necessarily hold. If the tax base for the wage tax is smaller than the payroll tax because of tax allowances, a revenue-neutral tax reform which reduces the payroll tax and increases the wage tax also reduces the gross nominal wage. With a constant average tax burden, higher wage taxes imply higher marginal tax rates. Such an increase in tax progression leads trade unions to demand lower nominal wages since high marginal tax rates penalize nominal wage increases. It is important to point out that Holm and Koskela (1996) assume a constant labour demand elasticity.

This paper provides two other reasons why payroll taxes and wage taxes are not in general equivalent when factors of production are complements. It will be shown that gross nominal wages will increase if a revenue-neutral restructuring of labour taxes towards higher wage taxes reduces the wage elasticity of labour demand. In addition, it turns out that even with constant labour demand elasticity, gross nominal wages increase as a result of higher wage taxes if the trade union's bargaining power is not comprehensive.

¹ See any standard text book in public finance, e.g. Rosen (1995, pp. 281f).

Section 2 develops the model. Comparative statics results of tax rate changes are

presented in Section 3. Section 4 studies the impact of a revenue-neutral reconstruction of labour taxation and presents the main results. Section 5 concludes.

2. The model

We consider a single firm which produces good Y with capital K and labour L as inputs. The technology is linear-homogenous and is represented by a CES production function

$$Y = \left[K^{\frac{\sigma-1}{\sigma}} + L^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}, \quad (1)$$

where σ denotes the elasticity of substitution. We assume imperfect competition in the goods market, i.e. each single firm faces a downward sloping demand curve which is assumed to be iso-elastic:

$$Y = D(p) = p^{-\varepsilon}, \quad (2)$$

with $\varepsilon \equiv -(\partial D/\partial p) \cdot (p/D)$ denoting the output demand elasticity. To guarantee a profit maximum the output demand elasticity must exceed unity. The firm's output price is denoted by p . Profits are given by

$$\pi = pY - \tilde{w}L - rK, \quad (3)$$

whereby the firm considers the interest rate r and the wage rate \tilde{w} as given. The wage \tilde{w} paid by firms may consist of the nominal wage w , actually paid to the employee and a payroll tax t_p , i.e. $\tilde{w} = (1 + t_p)w$. Profit maximization with respect to labour yields the conditional labour demand function:

$$L = \tilde{w}^{-\sigma} \left[\tilde{w}^{1-\sigma} + r^{1-\sigma} \right]^{\frac{\sigma}{1-\sigma}} Y. \quad (4)$$

Defining the share of labour cost in total cost by $s \equiv \tilde{w}L/cY$, with $c = c(\tilde{w}, r)$ denoting the (constant) marginal cost, the wage elasticity of labour demand can be derived analogously to the case of perfect competition [cf. Allen (1938) or Hamermesh (1993)]:

$$\eta_{LL} \equiv \frac{L_e \tilde{w}}{L} = -\sigma + s(\sigma - \varepsilon), \quad (5)$$

where L_i denotes the partial derivative of L with respect to i .

The trade union operates at the firm level. Its objective is to maximize the income of its N members. Each worker inelastically supplies one unit of labour if employed, or zero labour if unemployed. In the former case the worker receives the *after-tax wage income*, in the latter case the unemployed member is entitled to *unemployment benefits*.

To show that payroll tax and wage tax are not equivalent even if tax bases are equal we assume the personal tax exemption to be zero. The nominal after-tax wage then depends on the nominal wage rate w , which is determined by the union, and the wage tax t_w : $w(1-t_w)$. Unemployment benefits are denoted by b and are assumed to be nominally fixed. The objective function of the trade union can then be written as²

$$V^* = w(1-t_w)L + b(N-L). \quad (6)$$

The nominal wage is determined in a bargaining process between the trade union and the firm and the firm unilaterally determines employment. We use the 'right-to manage' approach to model the bargaining procedure. This model represents the outcome of the bargaining by an asymmetric Nash bargaining.³ The fall-back position of the trade union is given by $V^0 = bN$, i.e. all members receive their reservation wage which is equal to the unemployment benefits. The fall-back position for the firm is given by zero profits, i.e. $\pi^0 = 0$. The Nash bargaining maximand can then be written as

$$\Omega = (V^* - V^0)^\beta \pi^{1-\beta}, \quad (7)$$

with β representing the bargaining power of the trade union. Using $V \equiv V^* - V^0$, the first-order condition with respect to nominal wage is

$$\Omega_w = 0 \Leftrightarrow \beta \frac{V_w}{V} + (1-\beta) \frac{\pi_w}{\pi} = 0, \quad (8)$$

² The use of a linear objective function is for analytical convenience.

³ This approach can be justified either axiomatically (cf. Nash 1950), or strategically (cf. Binmore, Rubinstein and Wolinsky 1986).

where variables with subscripts refer to partial derivatives (e.g. $V_w = \partial V / \partial w$). Provided that

$\Omega_{ww} < 0$, equation (8) defines the negotiated nominal wage from Nash bargaining as a function of b , t_w , t_p , and r so that we have $w = w(b, t_w, t_p, r)$.

3. Comparative statics

In the following we will analyse the way the negotiated nominal wage reacts to changes in the wage tax and the payroll tax. From $w_{t_w} = -\Omega_{wt_w} / \Omega_{ww}$ and the fact that a change in the wage tax rate only affects the trade union's objective function, we can infer that

$$\text{sign}(w_{t_w}) = \text{sign}(VV_{wt_w} - V_w V_{t_w}) = \text{sign}(b). \quad (9)$$

If t_w increases, the wage surplus, lost by those fired, declines at a higher percentage than the benefits for those who remain in employment. It becomes profitable for the trade union to bargain for a higher nominal wage because the possible increase in labour income of those employed more than outweighs the income loss of those workers who are laid off.

Unlike an increase in the wage tax, changes in the payroll tax affect both the trade union's and the firm's objective functions. The sign of the change in the nominal wage is given by

$$\text{sign}(w_{t_p}) = \text{sign}(\Omega_{wt_p}) = \text{sign}\left(\frac{\beta}{V^2} [VV_{wt_p} - V_w V_{t_p}] + \frac{1-\beta}{\pi^2} [\pi\pi_{wt_p} - \pi_w \pi_{t_p}]\right). \quad (10)$$

To understand the reasoning behind the total effect, we will analyse the effects on the objective function of the trade union and the firm separately. The payroll tax affects the income of the trade union via changes in the labour demand elasticity only:

$$\text{sign}(VV_{wt_p} - V_w V_{t_p}) = \text{sign}\left(\frac{\partial \eta_{LL}}{\partial t_p}\right). \quad (11)$$

From the partial derivative of the trade union's objective function $V_w = (1-t_w)L + [w(1-t_w) - b]L_w$ it can be seen that constant labour demand elasticity implies that the benefits of a wage increase for those employed fall at the same rate (fewer workers are employed) as the losses for those fired (more workers will be fired). If the labour demand

becomes less elastic the benefits fall at a lower rate. It becomes profitable to demand higher nominal wages.

The partial derivative of the labour demand elasticity is given by

$$\frac{\partial \eta_{LL}}{\partial t_p} = s_p (\sigma - \varepsilon), \quad (12)$$

with

$$s_p = s_w w = \frac{s}{(1+t_p)} (1-s)(1-\sigma) \begin{cases} > \\ = \\ < \end{cases} 0 \Leftrightarrow \sigma \begin{cases} < \\ = \\ > \end{cases} 1. \quad (13)$$

Assuming factors of production to be complements, i.e. $\varepsilon > \sigma$, condition (11) reduces to

$$\text{sign}(V V_{w_p} - V_w V_p) = \text{sign}(\sigma - 1). \quad (11a)$$

If substitutability is low, i.e. $\sigma < 1$, the share of labour cost in total cost increases with the payroll tax. If substitutability is high, i.e. $\sigma > 1$, it decreases with the wage rate. A larger share s implies that a one percent change in the wage rate induces a larger increase in total cost and, consequently, lower output. This will lead firms to offset more workers. Hence, if s increases, labour demand becomes more elastic. This weakens the bargaining position of the trade union as the potential losses of a nominal wage increase go up and the other way round if s decreases.

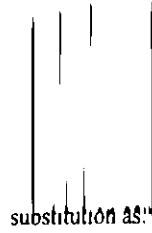
With respect to the firm's bargaining position, it can be shown that

$$\text{sign}(\pi \pi_{w_p} - \pi_w \pi_p) = \text{sign}(\sigma - 1) \quad (14)$$

If substitutability is low, i.e. the labour share in total cost increases, profits will fall at a higher rate if the nominal wage rises as a consequence of an increase in the payroll tax. Therefore the firm will strongly oppose nominal wage increases and demand lower wages.

Hence if substitutability is low, the trade union's bargaining position becomes weaker while the firm's position becomes stronger. Both effects of an increase in the payroll tax work

into the same direction. We can summarize the total effect depending on the elasticity of



$$w_r \begin{cases} < 0 & \text{as } \sigma < 1 \\ = 0 & \text{as } \sigma = 1. \\ > 0 & \text{as } \sigma > 1 \end{cases} \quad (15)$$

In what follows we assume that the total effect on gross wages $\bar{w}_r = w + (1 + t_p)w_r$ is always positive, i.e. a payroll tax will not be fully shifted to the workers.⁵

4. Variations in the structure of labour taxes

Now we are ready to analyse the impact a revenue-neutral change in the structure of labour taxation has on wage determination and employment. Consider a marginal tax reform which shifts the tax burden from employers who pay the payroll tax to workers who pay the wage tax, while keeping the government tax revenue constant. The government budget constraint is⁶

$$G = (t_w + t_p)wL. \quad (16)$$

The partial derivatives with respect to the tax rates can be written as

$$G_{t_p} = wL \left[1 + \frac{(t_w + t_p)}{(1 + t_p)} \eta_{LL} + \frac{(t_w + t_p)}{w} (1 + \eta_{LL}) w_r \right], \quad (17)$$

and

$$G_{t_w} = wL \left[1 + \frac{(t_w + t_p)}{w} (1 + \eta_{LL}) w_r \right]. \quad (18)$$

It is assumed that $G_{t_p} > 0$ and $G_{t_w} > 0$, i.e. the marginal tax revenues are positive. The total differential of the gross wage rate $\bar{w} = w(1 + t_p)$ with respect to t_w and t_p is

$$d\bar{w} = (1 + t_p)w_r dt_w + w dt_p + (1 + t_p)w_r dt_p. \quad (19)$$

⁴ If both factors were substitutes, i.e. $\varepsilon < \sigma$, the effects would work in the opposite direction and it would not be possible to determine the sign of the effect on the wage negotiations.

⁵ This is also in line with empirical evidence. See e.g. Lockwood and Manning (1993) and Holm, Honkapohja and Koskela (1994).

⁶ Here, we do not include unemployment benefits in the budget constraint as this does not affect our result. If a revenue-neutral shift increases employment, then unemployment benefits payments fall and both tax rates can be further reduced, and this always increases employment.

The revenue-neutral restructuring of labour taxation is described by

$$dt_p = -G_{t_r} G_{t_r}^{-1} dt_w. \quad (20)$$

Substituting the RHS of (20) for dt_p in equation (19) and utilizing the equations (17) and (18) yields

$$\begin{aligned} \left. \frac{d\tilde{w}}{dt_w} \right|_{d\tau=0} &= G_{t_r}^{-1} \left[G_{t_r} (1+t_p) w_{t_r} - G_{t_w} w - G_{t_r} (1+t_p) w_{t_r} \right] \\ &= w L G_{t_r}^{-1} \left[(1-t_w) w_{t_r} - w - (1+t_p) w_{t_r} \right]. \end{aligned} \quad (21)$$

To sign condition (21) consider the monopoly trade union first. The optimal wage for a monopoly trade union is given by $w = b\eta_{LL}/(1+\eta_{LL})$. In this case, we have

$$w_{t_r} = \frac{w}{(1-t_w)} > 0. \quad (22)$$

Substituting (22) for w_{t_r} in condition (21) and utilizing condition (15) yields

$$\left. \frac{d\tilde{w}}{dt_w} \right|_{d\tau=0} \begin{cases} > \\ = \\ < \end{cases} 0 \quad \Leftrightarrow \quad \sigma \begin{cases} < \\ = \\ > \end{cases} 1. \quad (23)$$

Consider first $\sigma < 1$. A revenue-neutral increase in the wage tax increases the gross wage and reduces the payroll tax. This implies that the labour demand elasticity increases, and both the lower payroll tax and the higher wage tax lead *cet. par.* to higher nominal wages. The higher wage tax exactly offsets the direct effect of a lower payroll tax on the gross wage, i.e. $(1-t_w)w_{t_r} = w$ in equation (21). As $w_{t_r} < 0$ the gross wage goes up. In contrast, for $\sigma > 1$, the labour demand elasticity falls. Trade unions lose less if they succeed in increasing nominal wages and firms win less if they oppose the increase. The gross wage goes down. All this can be summarized as follows:

PROPOSITION 1: If nominal wages are set by a monopoly trade union and tax bases are equal, a revenue-neutral tax reform which reduces the payroll tax and increases the wage tax will increase the gross wage if the elasticity of substitution is less than unity. The gross wage is unaffected if the elasticity of substitution is equal to one.

Usually, models in the trade union literature assume constant labour demand elasticity,

thereby implicitly assuming $\sigma = 1$, i.e. a Cobb-Douglas technology. Even in this case, however, the equivalence of payroll tax and wage tax only holds for the monopoly trade union case. In the more general case of the right-to manage model with $\beta < 1$, the equivalence result no longer holds. To see this, we have to expand upon the role of the bargaining power β of trade unions. Consider the general case of the "right-to-manage" model with $\beta < 1$, where the nominal wage is determined in wage negotiations between trade unions and firms. The change in the negotiated wage due to a change in t_w is given by

$$w_{t_w} = \frac{\frac{\beta w b}{L x^2}}{\Omega_{ww}} > 0, \quad (24)$$

where $\Omega_{ww} = \beta A/V^2 + (1-\beta)B/\pi^2$, $A = VV_{ww} - V_w^2 < 0$, $B = \pi\pi_{ww} - \pi_w^2 > 0$, and $x = w(1-t_w) - b$. Taking the partial derivative with respect to the bargaining position of the trade union after some manipulations yields:

$$\frac{\partial w_{t_w}}{\partial \beta} = \frac{-\frac{wb}{Lx^2\pi^2} B}{\Omega_{ww}^2} < 0. \quad (25)$$

Moreover, we have $w_\beta = -\Omega_{w\beta}/\Omega_{ww} > 0$. Hence, if the bargaining power of the trade union is less than one, the nominal wage is lower, while its reaction to the wage tax is higher. For both of these reasons an increase in the wage tax more than offsets the direct effect a lower payroll tax has on the gross wage. This is summarized in proposition 2.

PROPOSITION 2: If $\sigma = 1$ and the trade union's bargaining power is not comprehensive, a revenue-neutral tax reform which reduces the payroll tax and increases the wage tax will increase the gross nominal wage.

Finally, consider the general case where the labour demand elasticity might be affected by the restructuring of labour taxation. From equations (21) and (25) we can infer that by starting from the monopoly trade union case (22) it follows immediately that for $\beta < 1$, $(1-t_w)w_{t_w} - w > 0$ and utilizing equation (15) gives:

$$\left. \frac{d\bar{w}}{dt} \right|_{k_t=0} > 0 \quad \Leftrightarrow \quad \sigma \leq 1. \quad (26)$$

This yields corollary 1.

COROLLARY 1: If the trade union's bargaining power is not comprehensive, a revenue-neutral tax reform which reduces the payroll tax and increases the wage tax will increase the gross nominal wage if the elasticity of substitution is less than or equal to unity.⁷

5. Concluding remarks

It is often argued that it does not matter who formally pays the labour tax bill. This is true for competitive markets but if labour markets are unionized, the equivalence result does not hold. Holm and Koskela (1996) show that the tax incidence of the payroll tax is different from the tax incidence of a wage tax because tax bases are different. This paper shows that even if tax bases are the same, payroll taxes and wage taxes are normally not equivalent when factors of production are complements if (i) the labour demand elasticity is not constant or (ii) the bargaining power of the trade union is not comprehensive.

If the elasticity of substitution is less than one, a revenue-neutral shift towards higher wage taxes lowers the labour demand elasticity. This makes trade union fight harder for nominal wage increases while firms become less reluctant to accept them. Gross wages will rise as a consequence.

Moreover, if the labour demand elasticity is not affected by such a restructuring of labour taxation, the equivalence of payroll taxes and wage taxes may not hold. If the trade union's bargaining power is not comprehensive, higher wage taxes will increase gross wages.

These results cast doubt to the rather commonly held view according to which the total tax wedge is sufficient to describe the effects of labour taxation on wages.

⁷ The result for $\sigma > 1$ is ambiguous. It still holds that the lower the bargaining power of the trade union is, the more likely a revenue-neutral shift of labour taxes towards wage taxes will increase gross wages.

References

- Allen, R.G.D. (1938): *Mathematical Analysis for Economists*, Macmillan: London.
- Binmore, Kenneth G. and Ariel Rubinstein and Asher Wolinsky (1986): "The Nash Bargaining Solution in Economic Modelling," *Rand Journal of Economics* 17, pp. 176-188.
- Hamermesh, Daniel S. (1993): *Labor Demand*, Princeton University Press: Princeton NJ.
- Holm, Pasi, Seppo Honkapohja and Erkki Koskela (1994): "A Monopoly Union Model of Wage Determination with Capital and Taxes: An Empirical Application to the Finnish Manufacturing," *European Economic Review* 38, pp. 285-303.
- Holm, Pasi and Erkki Koskela (1996): "Tax Progression, Structure of Labour Taxation and Employment," *Finanzarchiv* 53, pp. 28-46.
- Layard, Richard, Stephen Nickell and Richard Jackman (1991): *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lockwood, Ben and Alan Manning (1993): "Wage Setting and the Tax System," *Journal of Public Economics* 52, pp. 1-29.
- Nash, John (1950): "The Bargaining Problem," *Econometrica* 18, pp. 155-162.
- Rosen, Harvey S. (1995): *Public Finance*, Irwin: Chicago, 4th edition.

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