



KATHOLIEKE UNIVERSITEIT
LEUVEN

Faculty of Economics and
Applied Economics

Department of Economics

Does Rent-Sharing Exist in Belgium? an Empirical Analysis
Using Firm Level Data.

by

Maarten GOOS
Jozef KONINGS

Financial Economics

Center for Economic Studies
Discussions Paper Series (DPS) 00.19
<http://www.econ.kuleuven.be/ces/discussionpapers/default.htm>

August 2000



**DISCUSSION
PAPER**

Does Rent-Sharing Exist in Belgium?

An Empirical Analysis Using Firm Level Data

Maarten Goos and Jozef Konings*

Centre for Economic Studies, Catholic University of Leuven, Belgium
and
LICOS, Centre for Transition Economics, Catholic University of Leuven,
Belgium

August 2000

Address for correspondence:

Maarten Goos

LICOS

Debériotstraat 34

3000 Leuven

Belgium

Email: maarten.goos@econ.kuleuven.ac.be

Abstract

This paper is the first which provides evidence for rent-sharing in Belgium using firm level data. It uses a panel of annual firm level data and shows that a rise in the firm's profitability leads after some years to an increase in worker's income. The profit-per-head elasticity of wages is about 0.1 and Lester's range of wages is estimated at approximately 60 percent of the mean wage.

* We would like to thank Benoît Mahy for constructive comments. The usual disclaimer applies.

I. Introduction

Most models of the labour market assume wages not simply being determined by supply and demand of labour, but rather by some endogenous process of wage determination such as wage bargaining or efficiency wage payments. Hence, a natural unemployment rate is explained through the interaction of the wage and a price setting curve (as in Layard et al. [1991]). Since the seminal work by Blanchflower & Oswald [1994], the micro economic fundamentals of wage curves have been the focus of much recent research in labour economics. This paper contributes to a further understanding of the micro economic foundations of wage determination in Belgium.

While wage curves using household survey data have been estimated for Belgium¹, suggesting wage setting is consistent with endogenous models of wage determination, there is no direct evidence on how important rent-sharing is between workers and firms. Therefore this paper addresses the following questions: (i) Is there evidence of persistent rent-sharing in the Belgian economy, which is consistent with non-competitive models of wage determination? (ii) How important is rent-sharing in terms of the elasticity of pay with respect to profitability, (iii) Can rent-sharing explain observed wage inequality in Belgium?

Rent-sharing assumes that the firm's ability to pay explains its wage payments. There may be various reasons to find a positive causality with firm profitability determining the level of pay.² First, the presence of uncertainty may lead to an observed positive correlation between wages and profitability, assuming some persistency in profits and wages. Typically, these models draw from optimal contract theories.³ A second reason why rent-sharing might occur are insider forces that cause externalities on the labour

¹ See Janssens & Konings [1998].

² Note that rent-sharing does not include efficiency wage considerations since the latter assumes wage payments to determine firm-profitability. However, this reversed causality with respect to rent-sharing will necessitate finding instruments for profits in any partial regression analysis.

³ A theoretical framework in which both workers and the firm are assumed to be risk-averse is given by Blanchflower, Oswald & Sanfey [1996].

market.⁴ If they exist, insider forces are supposed to have significant bargaining power over the worker's wages. Insiders simply demand part of the rents made by the firm. Unionization can lead to insider forces however its presence is not a necessary condition. A final reason why wages may be positively correlated with profits is that firms face product demand shocks and, at the same time, a strictly upward sloping labour supply curve exists. Intuitively, the upward sloping labour supply curve could be the result of temporary frictions causing a positive short-run correlation between wages and profits.⁵ Contrary to the two foregoing arguments, the latter is consistent within a competitive labour market framework however only in the short-run.

If there is bargaining over wages, there is also scope for rent-sharing. Therefore empirically, rent-sharing often refers to insider forces only. The dependence of wages on establishment prosperity is related to the degree of decentralisation in the wage setting procedure. Theoretically, complete centralisation as an institution leaves no scope for independent wage adjustments at the firm level while controlling for worker's skills or working conditions. In practice however, centralised agreements can be thought of as wage norms from which the firm might deviate but which can be costly.⁶ Typically, Northern European countries are characterised by relative centralised bargaining while the US labour market exhibits relative decentralisation. Germany is usually regarded as an intermediate case. So can be Belgium.

Different approaches have estimated the impact of the sector's or firm's ability-to-pay upon wages using a collective bargaining framework at the firm or sector level. First, there are a number of papers which focus explicitly on the impact of profits-per-employee on the level of pay. For example, examining rent-sharing in US manufacturing, Blanchflower, Oswald & Sanfey [1996] combine individual information from the Current Population Survey with two-digit profit variables constructed from the NBER's Productivity Base. Evidence is obtained from an unbalanced panel covering the 1964-1986 time-span. Estimates suggest that a rise in

⁴ For a theoretical framework, see Section II.

⁵ For a theoretical framework, see Blanchflower, Oswald & Sanfey [1996].

⁶ See Holmlund & Zetterberg [1991].

the sector's ability to pay leads after some years to an increase in the long-run level of individual wages. Estimation procedures control for worker's characteristics and for industry fixed effects. Moreover, Blanchflower, Oswald & Sanfey [1996] extract information from the NBER Trade and Immigration Databases to break the data down by the proportion of unionized employees. Results show that rent-sharing is not solely driven by the high-union sectors, suggesting the existence of explanations other than the union's bargaining power. According to the same line of reasoning, using non-US data at the firm or sector level, Blanchflower, Oswald & Garrett [1990] (Britain), Christophides & Oswald [1992] (Canada) and Hildreth & Oswald [1997] (Britain) suggest some kind of ability-to-pay effect upon wages to exist. All these studies tend to find a small but significant impact going from lagged profits to wages, with an elasticity of around 0.04. However, Nickell [1999] argues that these estimated elasticities are largely underestimating the presence of rent-sharing since weak instrumenting has dragged down the profit effect in this group of papers. Choosing instruments more carefully, Abowd & Lemieux [1993] (Canada) and Van Reenen [1996] (Britain) find elasticities of around 0.3 for quasi-profits and the latter also estimates the profit-per-head elasticity of wages to be 0.2.⁷

Second there exists the group of papers that focus on the impact of value added or sales per employee together with quasi-rents, among them being Nickell & Wadwhani [1990], Holmlund & Zetterberg [1991], Currie & McConnell [1992] and Nickell & Kong [1992]. For example, Nickell & Wadwhani [1990] use a sample of 219 large manufacturing companies in the UK over the period 1972-1982. They find no significant impact of the firm's profit-per-head on remuneration using profits after tax from the EXSTAT data tape to calculate real profits per worker. A significant positive impact however is found for the firm's average revenue product growth and financial performance. In general, all studies find a significant impact of value-added or sales per employee on wages but the impact of rents or quasi-rents on wages varies systematically across countries.

⁷ It can be argued however that the estimated elasticity of about 0.3 for quasi-rents is overstated. See Nickell [1999] for a discussion.

Third, a number of papers directly estimate the impact of product market power on wages. Overall these papers provide some evidence of the sharing of monopoly rents and of higher wages being associated with the existence of market power. However, the question whether these higher wages and the ability to extract rents are associated with unions or with other wage setting mechanisms remains an open question.⁸ For example, Machin & Manning [1992] and Konings & Walsh [1994] both find evidence for rent-sharing in the high-union sector but not in the low-union sector. By contrast, Van Reenen [1996] and Nickell & Wadwhani [1990] suggest rent-sharing not to be driven by union coverage.

This paper is the first to investigate the issue of rent-sharing in the Belgian economy using a unique panel data set of *firm level* data combined with sector information. In the remainder, this paper will first provide a theoretical model and a model in terms of observables. Section III covers a description of the data and gives some summary statistics. Section IV discusses the estimation methodology and reports the results. Section V returns to theoretical insights and gives a discussion of the obtained results. Finally the paper concludes.

II. Theoretical Background

Focussing on the impact of profit-per-employee on wages, two models of rent-sharing through collective bargaining are commonplace. The first only assumes collective bargaining about wages at the first stage where after the firm sets employment given the wage in the second stage as, for example, in Blanchflower, Oswald & Sanfey [1996]. By contrast, Abowd & Lemieux [1993] model the case where there is bargaining about wages and employment. Despite the fact that both models produce the same wage equations, they are fundamentally different in that in the right-to-manage model employment is highly endogenous with regard to wages whereas in an

⁸ For a discussion, see Nickell [1999].

efficient contract bargaining framework employment does not directly depend on the bargained wage.⁹ However, both bring forward the hypothesis of wages being driven by the firm's good fortune.

Consider as the basic framework a model of decentralised wage setting at the firm level.¹⁰ In particular, assume only wages are set through negotiations between the firm and the insiders present in that firm. Then, it can be shown that the equilibrium wage is determined by the outside wage available in the event of a bargaining dispute, w^0 , the probability of becoming unemployed, U , the relative bargaining strength of the insiders, Φ and the level of profit-per-employee, Π/n .

The corresponding statistical specification that acts as the bedrock for the regressions in this paper is given by

$$\log w_{ijt} = \mathbf{b}_0 + \mathbf{b}_1 \log U_{jt} + \mathbf{b}_2 \log w_{jt}^0 + \mathbf{b}_3 \log(\Pi/n)_{ijt} + \mathbf{b}_4 \log HR_{ijt} + \mathbf{e}_{ijt}$$

where index ijt stands for firm i in sector j at time t . The dependent variable is the logarithm of the average real annual wage in firm i . Sector unemployment rates are given by U_{jt} and the sector average real annual wage per worker is noted by w_{jt}^0 . To control for worker characteristics at the firm level, HR_{ijt} measures the number of white-collar workers relative to the number of blue-collar workers within the firm. Note however that unobserved compensating differentials could still exist and therefore affect the estimates. An unobserved shifter control at the individual level is given by \mathbf{e}_{ijt} .

The sign of \mathbf{b}_1 is expected to be negative since sector unemployment rates signal labour market tightness to the insiders. High sector unemployment rates inform the workers about the low probability of finding another employer in the same sector. Therefore wage claims will be moderated. Note that the above bargaining framework is a sufficient however not a necessary conditions for finding a negative relationship

⁹ For a discussion, see Booth [1990].

¹⁰ See Blanchflower, Oswald & Sanfey [1996].

between real wages and sector unemployment. In particular, a negative coefficient b_1 could also be predicted from an efficiency wage framework. Since high sector unemployment rates imply low probabilities of finding alternative jobs, firms can lower wage payments while maintaining a motivated workforce. Although the hypothesis of efficiency wage payments is fundamentally different from rent-sharing considerations, it is straightforward that its presence can influence the estimations. According to the same line of reasoning, the bargaining framework predicts a positive coefficient of b_2 . Both, b_1 and b_2 measure the outside forces in the bargaining framework. Inside forces are proxied by the impact of rents-per-employee on real firm-level wages where b_3 is expected to be positive. Testing the above rent-sharing framework requires controlling for worker's skills and working conditions. Therefore equation (6) explicitly includes the ratio of white over blue collar workers and can include in practice sector, regional and time dummies.

The remainder of this paper is an attempt to confront the different theoretical hypotheses with Belgian firm level data. It tests the standard competitive model predicting that no relationship can exist between wages and the firm's ability-to-pay in the long run.

III. Description of the Data

The analysis draws partially upon a random draw from company account's data reports of Belgian firms during the period 1987 to 1994. The data are obtained from the National Bank of Belgium (NBB) where firms are required to submit their company accounts. The number of firms observed each year is approximately 2500. During the 1987-1994 time span, firms are allowed to enter or exit the data. The total number of observations was initially set at 18 959 of which 13 614 were finally retained. The average employment level is 324 and employment ranges from 20 to 52 849 employees.

To control for outside forces, sector unemployment rates were deducted from the monthly bulletin of labour statistics, published by the RVA (Rijksdienst Voor Arbeidsbemiddeling). Consumer price indexes were drawn from the BELGOSTAT data source of the NBB as to obtain real values for wages and profits.

Table 1 includes some summary statistics of the key explanatory variables for the period 1987 to 1994.

Table 1: Basic Features of the Data		
	Sample measure (x 1000 BEF)*	Std. Dev.
Firm-average wage per worker*	823.200	253.622
Firm-average profits-per-head*	362.099	549.856
Firm's human capital ratio	3.466	17.313
Sector-unemployment rate	13.870	4.451
Sector-average wage*	845.558	133.558

All annual wages are expressed as real wages, i.e. nominal wages divided by the consumer price index with 1990 the reference year. Also average profits are expressed in real terms and nominal profits are taken directly from the company accounts database. Average wages and profits are constructed by dividing annual labour costs and profits by the average number of employees in each firm for each year respectively. The firm's human capital ratio controls partially for the worker's characteristics at the firm level. It is the ratio of the average number of white-collar workers to the average number of blue-collar workers in the firm. It is straightforward from Table 1 that profits vary more relative to wages. Considering a time series for the Belgian economy, real profits-per-employee were at a maximum level in 1989, increased before and declined thereafter.

A number of reasons explain the drop in the size of the data from 18 959 initially to 13 614 when running regressions. The most important was the exclusion of 3512 loss-making firms. The reason being that for the sub-sample of loss-makers, rent-sharing

was not an issue. By contrast, small but significant negative estimates are obtained for the profit-per-head elasticity of wages suggesting insider forces to rise real wages even if positive profits remain absent. Therefore, we believe that wage setting behaviour in loss-making firms could deserve some extra attention from the researcher's point of view. This however would be beyond the scope of this paper.

IV. Estimation and Results

This paper examines three types of equations. First, microeconomic earnings functions are calculated to provide an estimation benchmark. It is straightforward however that profits-per-employee are endogenous. If shocks to profits take time to be passed on in greater remuneration, it might be possible to consider the equation structure as recursive. The appropriate structure for estimation would then be to regress wages on lagged values of profits. Third, an instrumental variable estimation is obtained by a two-stage least squares procedure.

Table 2 is an estimation of the loglinear form of equation (6). The estimated equation includes a dummy variable for each year to control for economy wide movements from 1987 to 1994. Column (2) introduces one-digit industry dummies to control for industry fixed effects. The human capital ratio holds guard against the possibility that wages are higher merely because the firm employs people with high levels of human capital.

Table 2: Yearly Log Earnings Equation for Belgium, 1987-1994

	Log (6)	Incl. Industry Dummies
Log sector-unemployment rate	-0.030**	-0.021
Log sector-average wage	0.221**	0.871***
Log profits-per-employee	0.060**	0.056**
Log human-capital ratio	0.075**	0.089**
Time dummies	Yes	Yes
R ²	0.365	0.411
DF	11	19
N	13614	13614
F	531.38	414.76

Notes: The dependent variable is the natural logarithm of the employee's average earnings. Sector unemployment, sector-average wage and profit-per-employee are expressed as logarithms. Estimation by OLS.

*** indicates significance at the 1% level using White-standard errors.*

The profit-per-head elasticity of wages is approximately 0.06 and is significant at the 1% level. An elasticity of 0.06 has important consequences. Firm profitability is much more volatile than wages are. To have an impression of the relative impact of profits on wages, the range of wages due to rent-sharing can be calculated following Lester [1952]. Lester's range measures to which extend differences in profits-per-head could explain difference in wages and is based upon the idea that, when the number of observations is large, 4 times the standard deviation is the approximate width of the 95 percent confidence interval for a future observation. So, if the spread of a distribution can be captured by four times its standard deviation, it seems that profit variability can explain deviations from the mean real wage of about 36%. (This number emerges from multiplying 0.06 with 4 times 549,856/362,099). Given the

average real annual wage of BEF 823 200 in Table 1, rent-sharing can explain the existence of all wages above BEF 526 920 and below BEF 1 119 480. So, variability in profitability between firms contributes substantially to the observed wage inequality in Belgium. Note also that the obtained estimate is close to the evidence of rent-sharing in the studies outlined in the previous section.

Outside forces seem to be important in wage determination. If sector dummies are included, an increase in the average sector wage by 10% rises the equilibrium wage as the outcome of the bargaining process by about 9%. As could be expected, the sector-unemployment rate is negatively related to wages but only significant if industry dummies are not allowed to have any explanatory power.

Moulton [1986] and others have pointed out that t-statistics can be artificially large using these kinds of micro equations. Combining a dependent variable that has about 13 000 observed values with an independent variable that has only approximately seventy different observations causes the difficulty.¹¹ In general two ways can be taken to avoid the statistical pitfall. First, the data can be compressed into cell means (that is, average values for each industry for each year). Estimation on this new sample satisfies Moulton's condition in that the level of aggregation should be the same at both sides of the equation. However by compressing firm level data into cell-means, this aggregation of observations might induce a loss of information. Second, Dickens & Katz [1984] suggest another approach as a possible solution to the aggregation problem, which results from the correlation between the firm's characteristics and the deviations of these characteristics from sector averages. For a sufficient number of firms in each sector, wage equations can be estimated reliably in two steps. First, wages are regressed on the firm's characteristics plus sector dummies. Then, the coefficients of the industry dummies serve as the dependent variables where the industry characteristics are set as regressors. Results of this two-stage estimation are shown in Table 3. With regard to firm level information, the results are similar to those of Table 2. Using Lester's methodology, profits now explain approximately

¹¹ Note however that this is only true for the coefficients on sector unemployment and sector average wages.

34% of the deviation from the mean wage. However, the estimates for the coefficient of the sector unemployment and average-sector-wage elasticity of earnings seem not to be robust although the elasticities show the expected sign in both Table 2 and Table 3. Using the two-stage procedure, the evidence suggests industry unemployment to have a significant negative impact on wages. Compared to the benchmark OLS estimator, sector-average wages have a less strong impact on wage setting. Nevertheless, the estimated elasticity remains significant. To conclude, Table 3 confirms the existence of some causal relationship between profits-per-head and wage payments for firms in Belgium.

The estimates in Tables 2 and 3 are only a first pass at the problem. As outlined before, profits are endogenous. Therefore, in estimating a function where the equilibrium wage is determined by the level of profit-per-employee, it is necessary to bear in mind the simultaneity between profitability and pay. In general, there are two ways to handle the problem. First, if shocks to profits only affect wages after some time, the long-run effect of profits on wages can more accurately be estimated by setting lagged profits instead of profits as independent variables. If a statistical relation between profits and pay can be found using lagged values of the firm's ability-to-pay, standard competitive theory does not provide any explanation for the observed rent-sharing. The second possible approach is to find a good instrumental variable. However, very often this route cannot be easily exploited. For example, demand shocks could prove to be helpful instruments if they are measured properly. This is because demand shocks are supposed to enter the earnings equation only through the profits-per-employee variable. However, it is difficult to find persuasive exogenous shocks that increase consumer prices in reality.¹² This paper uses both, the recursive equation and the instrumental variable approach (however with lagged profits as instruments) to examine rent-sharing in Belgium.

¹² As an alternative, Blanchflower, Oswald & Sanfey [1996] have been experimenting with sector-average cost shocks of input factors different from labour. The results produce the same general conclusion as the lags procedure but with less precision.

Table 3: Two-Stage Log Earnings Equation for Belgium, 1987-1994, Using Industry Dummies from First-Stage Regression as the Dependent Variable.

	First-Stage	Second-Stage
Log sector-unemployment rate	-	-0.040**
Log sector-average wage	-	0.143**
Log average profits-per-employee	0.056**	-
Log human-capital ratio	0.089**	-
Year dummies	Yes	Yes
Sector dummies	Yes	No
R ²	0.4101	0.1988
DF	17	9
N	13614	13614
F	457.06	177.76

Notes: Estimation by OLS.

*** indicates significance at the 1% level using White-standard errors.*

The results of applying OLS to the recursive equation are captured in Table 4. Estimation uses the logarithm of average-firm wages as the dependent variable. The independent variables are the logarithms of the sector-average unemployment rate, the sector average wage rate, the employer's ability-to-pay per worker at time $t-1$, $t-2$, $t-3$ and a proxy for the level of human capital required by the firm. Time dummies control for overall economic changes during the period 1987 to 1994. If appropriate, sector dummies are included to control for sector fixed effects.

Table 4: Log Earnings Equation for Belgium, 1987-1994, Using Lagged Profits.

	(1)	(2)	(3)	(4)
Log sector-unemployment rate	-0.055	-0.029	-0.054	-0.067**
Log sector-average wage	1.091**	0.998**	1.042**	-
Log average profits- per-employee <i>t-1</i>	0.027**	0.054**	-	-
Log average profits- per-employee <i>t-2</i>	0.023**	-	-	-
Log average profits- per-employee <i>t-3</i>	0.033**	-	0.059**	-
Log human-capital ratio	0.088**	0.090**	0.092**	0.094**
Year dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	No
R ²	0.4468	0.4106	0.4228	0.2812
DF	21	19	19	17
N	5656	10278	6668	13614
F	193.56	315.09	218.77	359.87

*Notes: The dependent variable is the natural logarithm of the employee's average earnings. Sector unemployment, sector-average wage and profit-per-employee in *t-1*, *t-2* and *t-3* are expressed as logarithms. Estimation by OLS.*

*** indicates significance at the 1% level using White-standard errors.*

The results in Table 4 are consistent with rent-sharing theory. Seemingly, increases in profits lead to higher levels of pay. Various specifications are set in columns (1) to (3). The largest coefficient is found in column (3) where only the profit-per-employee in *t-3* is included. The coefficient of 0.059 means that a doubling of firm profitability

would, after some years, be associated with a rise in pay of approximately 6 percent. Column (3) of Table 4 therefore contradicts the standard competitive framework. As it seems, profits only feed through into higher wages gradually which is inconsistent with a short-run point of view. So Table 4 shows again that the variability in profitability between firms contributes substantially to the observed wage inequality in Belgium.

Column (4) estimates the effect of sector unemployment on wage payments while controlling for human capital within the firm. This relationship is better known as a wage curve and the unemployment elasticity of wages is normally estimated around -0.1.¹³ If bargaining between insiders and the firm is important, the sector unemployment rate reflects only part of the story. The effect of sector unemployment on pay is endogenous and the model can be respecified using the bargaining procedure as is done in columns (1) and (2). As follows from Table 4, the unemployment elasticity of wages then diminishes to about -0.05.

Table 5 switches to an alternative estimation method. From the analysis above, it is straightforward that lagged profits might be valuable instruments to solve for the least squares of the sample's first moment conditions. The instrumental variable estimations are obtained using a two-stage least squares procedure.

The principle results of this paper are presented in Table 5. Columns (1) and (2) use the logarithm of profits-per-employee in $t-1$ and $t-3$ as instruments respectively. Relative to the results in column (3) of Table 4, the profit-per-employee elasticity of wages increases to 0.098. Coefficients for the other regressors, however, are similar to those obtained in the recursive equation except for that outside forces become separately statistically insignificant. So evidence for rent-sharing is even stronger using instrumental variable estimators. A doubling of the profits will feed through into wages, increasing the level of pay permanently with about 10%. Differences in profits between identical firms can explain about 60% of deviations from the mean wage.

¹³ See for example Janssens & Konings [1997] for Belgium. A summary of recent estimates is given by Blanchflower & Oswald [1995]. Note however that the analysis in this paper considers the impact of sector unemployment rates instead of regional unemployment rates on real wages.

Table 5: Instrumental Variable Estimation (2 SLS) of Log Earnings Equation for Belgium, 1987-1994.

	(1)	(2)
Log sector-unemployment rate	-0.019	-0.066
Log sector-average wage	0.844**	0.677
Log average profits-per-employee	0.084**	0.098**
Log human-capital ratio	0.085**	0.084**
Year Dummies	Yes	Yes
Sector Dummies	Yes	Yes
R ²	0.4109	0.3982
DF	19	19
N	10278	6668
F	317.58	206.96

Notes: The dependent variable is the natural logarithm of the employee's average earnings. Sector unemployment, sector-average wage and profit-per-employee are expressed as logarithms. Estimation by 2 SLS.

*** indicates significance at the 1% level using White-standard errors.*

The evidence for rent-sharing is robust to the inclusion of different dummy variables. First, sector fixed effects did not moderate the profit elasticity of wages. If certain sectors then can be labelled as unionised relative to others, union bargaining does not solely drive the paper's rent-sharing findings. It can be argued that besides unions, firm-characteristics play an important role in the wage-setting procedure. Relating insider's power to the size of the firm does not alter the findings of Table 5. Insiders have power independent of the number of workers employed by the firm. Finally, controlling for regional differences, the profit elasticity of wages equalises the value in column (2) of Table 5.

V. Checking Interpretations and Comparing Results

The results of Section 4 produce evidence for rent-sharing in a not-standard competitive framework. It provides profits-per-head elasticities of wages similar to those found in other studies quoted at the beginning of the text.

This might seem unsurprising, given that the results draw upon a dataset from a highly unionised country. This paper is the first to find evidence of rent-sharing for Belgium and one of the few that uses firm level data. Using Blanchflower's terminology, rent-sharing can best be thought of in the context of a labour market externality where insiders act as external forces. Given the theoretical framework used throughout the paper, contract theory and efficiency wage payments are not explicitly captured. Moreover, it can be argued that efficiency wages make it hard to understand the role of lagged profit values. Although the model therefore only considers the presence of insider power, interpreting some estimates one might overlook the importance of incentive mechanism design. Because efficiency wages are set in a principal-agent relationship, they cannot be observed explicitly in the model of Section II. But estimating the causal relationship between profits-per-head and wages using equation (6) does not exclude the effects of, say, efficiency wage payments neither.

Another important objection to the performed rent-sharing analysis is given by Reder [1980]. He argued that the true model is a competitive one, however with slow adjustments. If this is correct, evidence of rent-sharing is misleading. The relation between profits and pay is caused by a temporary move up the labour supply curve in booming industries. One way of testing the assumptions of partial adjustment is to incorporate into the regression a set of current and lagged employment variables. If the competitive framework with gradual adjustment is correct, the effects of rent-sharing should destroy the statistical significance of the profit variable. When employment at t , $t-1$ and $t-2$ are included as regressors and the 2SLS estimator is applied, the profit terms are unaffected.

Another criticism could be to argue that the wage equation is a misspecified inverted labour demand curve. Using data from firm's accounting reports, only labour demand can be accurately estimated. With a Cobb-Douglas production function, for example, profit maximisation can generate a positive association between profits-per-head and pay. However, the significance of lagged profits back to $t-3$ is hard to match with the idea that the wage equation might be representing an inverted labour demand relationship.

In sum, it is not easy to see how the estimates of Table 4 and 5 of Section IV could be compatible with the standard competitive labour market framework. Although temporary frictions could induce a short-run positive relationship between profits and wages, this seems to be overruled by the finding here of a steady-state effect. So another route is to argue that insiders play an important role at the firm level. Employers and employees bargain over profits that might lead to the results stated above.

From a policy point of view it is important to recognise that wages are determined in an endogenous way and not simply through the interaction of supply and demand. A number of policy implications could be derived. First, related to the debate about minimum wages, based on the results here it is likely that minimum wages play a minor role in wage determination and hence in explaining unemployment due to the fact that the wage is correlated with firm profits. Therefore, reducing minimum wages is unlikely to going to have an effect on (un)employment.

Second, the results suggest that firm-profitability is an important factor in explaining wages and wage inequality. Thus, product market spillovers to the labour market are likely to be important. This suggests that a flexible product market may be important to enhance flexibility in the labour market. This is a theme for further research, but is often ignored in formulating policy implications. Questions which come to mind are related to the relationship between competitiveness in the product market and unemployment. In particular, if product markets are not competitive it is likely that

wages will be higher and therefore unemployment will be higher. It is therefore important that anti-trust authorities monitor firm behaviour in the product market.

VI. Conclusions

Wages and profits can provide a positive relationship for several reasons. Within the standard competitive framework, an increase in profits induces a shift up the labour supply curve and hence a rise in wage payments. However, in the long run, the labour supply curve is supposed to be perfectly elastic. This paper shows that worker's remuneration follows earlier movements in profitability and therefore the standard competitive analysis does not capture the findings here. Different ways to save the competitive analysis framework were tested and seemed insufficient to explain the profit-wage relationship. As a steady state fact, workers eventually receive some of the gains made by the firm. This is the central prediction of not-standard competitive theories in which rents are divided between firms and employees. According to one theory, insiders and employers may bargain over profits. Here, insider forces that cause externalities on the labour market imply rent-sharing. Using the most elegant and simple bargaining framework, evidence suggests changes in the firm's profitability to have an effect upon pay. The elasticity of wages with respect to profit-per-employee is 0.1. Lester's range of pay is then approximately 60% of the mean wage.

References

- [1] Abowd, J., Lemieux, T. [1993], "The Effects of Product Market Competition on Collective Bargaining Agreements: the Case of Foreign Competition in Canada", *Quarterly Journal of Economics*, 108, pp. 983-1014.
- [2] Blanchflower, D., Oswald, A., Garret, M. [1990], "Insider Power in Wage Determination", *Economica*, LVII, pp. 363-370.
- [3] Blanchflower, D., Oswald, A. [1994], *The Wage Curve*, The MIT Press, 481 pp.
- [4] Blanchflower, D., Oswald, A. [1995], "An Introduction to the Wage Curve", *Journal of Economic Perspectives*, Vol. 9 (3), pp. 153-167.
- [5] Blanchflower, D., Oswald, A. & Sanfey, P. [1996], "Wages, Profits and Rent-Sharing", *Quarterly Journal of Economics*, February, pp. 227-250.
- [6] Booth, A. [1990], *The Economics of the Trade Union*, Chapter 4, Cambridge University Press, Cambridge, pp. 83-119.
- [7] Christophides, L., Oswald, A. [1992], "Real Wage Determination and Rent-Sharing in Collective Bargaining Agreements", *Quarterly Journal of Economics*, 107, pp. 985-1002.
- [8] Currie, J., McConnell, S. [1992], "Firm-Specific Determinants of the Real Wage", *Review of Economics and Statistics*, 74 (2), pp. 297-304.
- [9] Dickens, W. & Katz, L.F. [1987], "Inter-Industry Wage Differences and Industry Characteristics", in Lang, K. & Leonard, J., *Unemployment and the Structure of Labor Markets*, Basil Blackwell, Oxford, pp. 48-90.
- [10] Hildreth, A., Oswald, A. [1997], "Rent-Sharing and Wages: Evidence from Company and Establishment Panels", *Journal of Labour Economics*, 15 (2), pp. 318-337.
- [11] Holmlund, B., Zetterberg, J. [1991], "Insider Effects in Wage Determination: Evidence from Five Countries", *European Economic Review*, 35, North-Holland, pp. 1009-1034.
- [12] Janssens, S. & Konings, J. [1998], "One More Wage Curve: The Case of Belgium", *Economic Letters*, vol. 60, p. 223-227.

- [13] Konings, J., Walsh, P. [1994], "Evidence of Efficiency Wage Payments in UK Firm Level Panel Data", *Economic Journal*, 104, pp. 542-555.
- [14] Layard, R., Nickell, S., Jackman, R. [1991], *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford Univ. Press, Oxford.
- [15] Machin, S., Manning, A. [1992], "Testing Dynamic Models of Work Effort", *Journal of Labour Economics*, 10 (3), pp. 288-305.
- [16] Moulton, B.R. [1986], "Random Group Effects and the Precision of Regression Estimates", *Journal of Econometrics*, Vol. XXXII, pp. 385-397.
- [17] Nickell, S. [1999], "Product Markets and Labour Markets", *Labour Economics*, 6, pp. 1-20.
- [18] Nickell, S., Kong, P. [1992], "An Investigation into the Power of Insiders in Wage Determination", *European Economic Review*, 36, pp. 1573-1599.
- [19] Nickell, S., Wadwhani, S. [1990], "Insider Forces and Wage Determination", *The Economic Journal*, Vol. 100 (June), pp. 496-509.
- [20] Van Reenen, J. [1996], The Creation and Capture of Rents: Wages and Innovation in a Panel of UK Companies, *Quarterly Journal of Economics*, 111 (1), pp. 195-226.

