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The impact of mergers and acquisitions on profitability and employee remuneration in UK manufacturing industry

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Abstract: This paper provides a systematic empirical analysis of the effects of merger and acquisition activity on profitability and firm level employee remuneration in the United Kingdom, using a specially constructed database for the period 1979-1991. It finds that both profitability and wages rise following acquisition, and firms that merge within the same industry division experience larger increases in profitability and pay their workers higher wages than those engaged in unrelated acquisitions.

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1. Introduction

There is a popular conception that mergers and acquisitions are detrimental to the wages of the employees in a target firm. Indeed, authors such as Shleifer and Summers (1988) argue that take-overs are largely motivated by the opportunity they offer to renege on implicit labour contracts and to reduce or eliminate extra-marginal wage payments. This is what this paper seeks to examine, using a newly constructed database for the United Kingdom. In section two we review the existing theoretical and empirical literature and argue that this view is a partial one and the behaviour of wages needs to be considered alongside the determination of profits if a complete picture is to be formed. Section three sets out the empirical modelling strategy that this review suggests. Section four then describes the construction and the sample characteristics of the database that is used, and presents the results of the econometric estimations. Section five concludes.

2. Mergers, Wages and Profits

In an influential paper, Shleifer and Summers (1988) argue that the presence of extra-marginal wage payments act as an incentive for merger. Such payments manifest themselves in the variation in wage rates across apparently observationally equivalent individuals (Krueger and Summers, 1988), though the reason for their existence is open to debate. Akerlof (1982) suggests that firms offer 'gifts' in excess of the minimum wage required for recruitment in order to elicit additional effort from their workforce. Alternatively, Lazear (1979) considers a situation in which firms can only imperfectly monitor the effort of their employees who thus have an incentive to shirk. In order to eliminate this incentive firms pay young workers a wage less than their marginal product and older workers more than their marginal product. The promise of such deferred compensation induces individuals to increased effort since they will lose this benefit if they are caught shirking and dismissed.

Such long-term wage relationships are beneficial to both the firm and the individual as they serve to promote relationship-specific human capital investments by the stakeholders (Williamson, 1985). However since all future contingencies are hard to foresee, large elements of these contracts are implicit and managers must be trusted to uphold the spirit of these contracts. Ex post however, it may be in the interest of shareholders to renege on such agreements. For example, in the model of Lazear (1979) it may be in the interest of the firm's owners to lay off older workers who are paid more than their marginal products. However since the existing management are committed to the contract, drastic re-organisational change may be necessary for shareholder gains to be realised. In this context, mergers offer an opportunity to renege on implicit contracts and expropriate the rents associated with them. As evidence for this claim Shleifer and Summers (1988) cite the large windfall gains that accrued to shareholders following the wave of corporate restructuring in the 1980s[i], which they argue cannot be explained by improvements in efficiency.

Another important means by which workers may obtain extra-marginal wage payments is via union membership. However ownership change may not simply offer an opportunity to renegotiate wage contracts but may also influence the structure of the industry and hence the rents that are available for division. Horn and Wolinsky (1988) for example consider the theoretical impact of merger on wages and profits in a duopolistic industry in which there is a single union. The firms produce output (x_i) using labour as the only input (l_i) using constant returns to scale technology. The demand for each company's product is given by:

$$p_i(x_i, x_j) = a - cx_j - x_i \qquad\qquad i \neq j = 1,2 \qquad\qquad (1)$$

Where $c, |c| \leq 1$ parameterises the nature of the relation between the products. If $c > 0$ the products are substitutes and if $c < 0$ they are complements. If it is assumed that the firms are quantity setters then, for given wages w_i, the Cournot-Nash equilibrium yields an equilibrium output of

$$x_i(w_i, w_j) = l_i(w_i, w_j) = \frac{a(2-c) + cw_j - 2w_i}{4 - c^2} \qquad (2)$$

and an equilibrium profit for each firm of:

$$\mathrm{p}_i(w_i, w_j) = \left[\frac{a(2-c) + cw_j - 2w_i}{4 - c^2} \right]^2 \qquad (3)$$

Wages in the Horn and Wolinsky model are then the outcome of a bargain between each firm and the union.

In the event of failure to reach an agreement a firm will cease production and so its disagreement payoff is zero profits. The union will however be able to continue supplying labour to the other firm. Assuming that it continues to operate at the anticipated equilibrium level, then this implies a fallback level of utility for the union[ii] given by $w_j^S l_j(w_j^S, w_i^S)$. Hence if we consider the Nash-Rubinstein solution to this bargaining game, the wage will be the outcome of:

$$w_i^S = \arg\max_{w_i} \mathrm{p}_i(w_i, w_j^S)[w_i l_i(w_i, w_j^I) + w_j^S l_j(w_j^S, w_i) - w_j^S l_j(w_j^S, w_i^S)] \qquad (4)$$

This implies bargained wage and employment levels prior to merger of:

$$w_1^S = w_2^S = w^S = \frac{a(2-c)}{8 - 2c} \qquad l_i(w^S, w^S) = \frac{a(6-c)}{(2+c)(8-2c)} \qquad i = 1,2 \qquad (5)$$

Within such a framework mergers affect the bargaining positions of the two parties and hence the wage, employment and profit outcomes. If the firms merge they will now be

able to able to act as a monopolist in the product market and will choose levels of output

$$\hat{x}_i(w_i, w_j) = \hat{l}_i(w_i, w_j) = \frac{a(1-c) + cw_j - w_i}{2 - 2c^2} \qquad (6)$$

in order to maximise the sum of the two firm's profits.

$$\hat{p}(w_1, w_2) = \frac{1}{4(1+c)} \left[(a - w_1)^2 + (a - w_2)^2 + \frac{c(w_1 - w_2)^2}{1-c} \right]^2 \qquad (7)$$

Clearly, for given input prices, this will lead to higher joint profits than if the firms set prices separately:

$$\hat{p}(w_1, w_2) > p_1(w_1, w_2) + p_2(w_1, w_2) \qquad (8)$$

However, it is important to note that the bargained level of wages will change as a result of the change of industry structure. Now both the firm and the union will have zero fallback positions in the event of a strike, as all production will cease. Assuming symmetric bargains, the bargained wage level will therefore be that which maximises the Nash product:

$$v^s = \arg\max_w \hat{p}(w, w) w \hat{l}(w, w) \qquad (9)$$

which implies that the wage level after merger is given by $v^s = \dfrac{a}{4}$. By comparing the profit level before and after merger, it can be seen that when the two firms produce substitute products ($c > 0$), then the profits of the merged firm will be less than that of the sum of the two un-merged entities ($\hat{p}(v^s, v^s) < 2p(w^s, w^s)$) and the wages paid will be higher ($v^s > w^s$). The profit gains from monopolising the product market are more than offset by the weakened bargaining position vis a vis the union. Hence the incentive to merge and the implied wage outcome crucially depend on whether the firms considered operate in the same product market.

A number of authors have looked at these issues econometrically though the results obtained are mixed. For the period 1982-1986 Becker (1995) finds that shareholder returns following merger were higher in unionised target firms (41%) than in non-union target firms (35%). This he attributes to a recouping of rent, in the form of wage premiums and higher fringe benefits, that amounts to a loss of 8% of annual earnings or 50% of the union wage gap.

The findings of Rosett (1990) are more modest. Looking at the US, he compares the wage contracts set in the two periods prior to the merger with those two years after and finds that wage concessions represent only between 1-5% of shareholder gains. Also, wage growth appears to *increase* marginally for workers in those firms subjected to hostile take-overs. Similarly Neumark and Sharpe (1996) and Brown and Medoff (1988) find only weak evidence that industry related wage premia or rising wage profiles reflect rents or quasi rents paid to workers, and offer little support for the hypothesis that take-overs transfer wealth from workers to shareholders. In this context Fallick and Hassett (1996) point out that although unionised firms are more likely to be subject to take-over, since acquirers are also more likely to be unionised there is not strong evidence that these actions are motivated by wealth transfers. In further work however, Gokhale et al (1995) suggest that the impact may be more subtle and take-overs may reduce extra-marginal wage payments to more tenured workers by reducing their employment and by flattening wage-seniority profiles.

Turning to the impact of the relationship between the acquirer and the target, Lichtenberg and Kim (1989) find that horizontal mergers severely depress the wages of airline workers in contrast to the predictions of the Horn and Wolinsky model. Peoples (1990) however shows that despite these wage cuts airline workers still received wages

comparable to those in other highly unionised industries. He concludes that although horizontal acquisition plays no role in determining union wages, since such activity serves to increase the wages of non-union workers, the union wage premium is actually eroded.

To summarise, both previous theoretical and empirical work suggests that mergers may impact on the wage level of firms by reducing extra-marginal wage payments. However if wages are set via bargains with a union then ownership change may also affect the structure of the industry and have knock on effects for wages via the level of profits. Theory also suggests that whether the merger is between firms in the same or different product markets will also have a bearing on the wage outcome, with the model of Horn and Wolinsky (1988) suggesting that wages will fall less, or may increase, if the merging firms produce related products. These considerations will inform the econometric work that is undertaken. Wage and profit equations will be estimated and the impact of merger will be assessed. A distinction will be however be made in this analysis between horizontal and vertical acquisition. The following section sets out the empirical modelling strategy in more detail.

3. Empirical modelling strategy
a. Wage Equation

In this paper we model wages as the outcome of a bargain between a firm and a union. In the presence of rent sharing, the bargained wage rate (W) can be expressed as a function of the profit level (π), and a rent-splitting parameter (j) that reflects the relative bargaining skill of the union and the firm (Blanchflower et al, 1990). X is a vector of external variables that affect the wage outcome such as the alternative income

available to the typical worker, the industry-specific unemployment rate and union strength[iii]

$$W = f(X) + \jmath\,p \tag{10}$$

For the purpose of econometric estimation we modify model (10) in several directions. First, a lagged wage variable is included since movement of wages to equilibrium may not be instantaneous. Second, exploiting the panel nature of our data set, we incorporate individual effects (f_i) to control for unobserved factors that affect wages. Such factors may include firm-specific human capital attributes, working conditions and managerial ability. Third we allow for the hysteresis effects that predicts a negative correlation between the level of bargained wages and the growth of the workforce (Nickell and Wadhwani, 1990).

Since our aim is to quantify the impact of mergers on the level of wages, we augment (10) by including $R_{it} = 1$ if firm i is involved in a related acquisition at time t and 0 else and $U_{it} = 1$ if the merger is with a firm in a different industry. The estimated wage equation can then be expressed as:

$$w_{it} = a_0 w_{it-1} + a_1 \Delta l_{it} + a_2 w_{it}^a + \sum_{m=0}^{4} g_{0m} R_{it-m} + \sum_{m=0}^{4} g_{1m} U_{it-m} + g_2 Conc_{it} + g_3 Union_{it}$$
$$+ g_4 Skill_{it} + \jmath_{it} p_{it} + time\,dummies + f_i + error, \tag{11}$$

where w, l are the logs of wages and employment respectively. Alternative wages (w^a) are proxied by two-digit industrial averages, domestic market concentration (*Conc*) is measured by the 10-firm concentration ratio and union strength by the proportion of workers in the industry who are members of a trade union (*Union*). The proportion of workers who have A-levels or equivalent in the industry (*Skill*) controls for the level of human capital in the workforce. Finally, time-dummies are included to capture

economy-wide factors that affect wage settlements[iv], such as aggregate demand conditions,

Since it is possible that profits in the wage equations may be endogenously determined, we follow the approach of Nickell and Wadhwani (1990) and instrument[v] them using their own past values (Abowd and Lemieux, 1993). We also allow for possible heterogeneity in the rent-splitting parameter[vi] and model φ as $\varphi(\pi_{it-1};\upsilon)$ where υ is a random disturbance term.

b. Profit Equation

The profit equation in this analysis will be based on standard Cournot quantity setting games where the number of firms is fixed. The non-dynamic version shows that the price cost margin is positively correlated with own market share; inversely related to the industry price elasticity of demand and is also influenced by the degree of inter-firm strategic responses[vii]. Much of the prior empirical work on the determination of price-cost margins is based on the Cowling and Waterson (1976) formulation of the homogenous product oligopoly model in which, assuming coincidence of average and marginal costs, the equilibrium profit margin is given by:

$$\left(\frac{p}{S}\right)_i = MS_i(1+\lambda_i)/e \tag{12}$$

where S_i is sales, MS_i is company *i* market share, λ_i is the conjectural variation term (which reflects the firm's belief about how rival firms will alter output in response to changes in its output); and e is the (absolute) value of the industry price elasticity of demand.

The unobservable λ_i has been the attention of much debate in the literature. In the Clarke and Davies (1982) formulation the response λ_i is related to the ratio of all other firms summed market shares relative to own market share: $\lambda_i = [\alpha_i(1 - MS_i)]/MS_i$. Substitution into the above equation yields:

$$\left(\frac{p}{S}\right)_i = [\alpha_i + (1 - \alpha_i)MS_i]/e = [\alpha_i(1 - MS_i) + MS_i]/e \qquad (13)$$

Thus the firm level margin is simply a weighted average of the margin under the monopoly solution, $(p/S)_i = 1/e$, and the outcome under the Cournot case, $(p/S)_i = MS_i/e$. Under this modelling procedure the term α_i has a straightforward interpretation: $\alpha_i = 1$ implies complete collusion and $\alpha_i = 0$ implies Cournot conjectures. For values of $0 < \alpha_i < 1$ we have the intermediate case (see Cowling, 1982 and Machin and Van Reenen, 1993). It is clear from the above case that the degree of inter-firm collusion (α_i) interacts with the $(1 - MS)$ term which is important from an empirical perspective (Kwoka and Ravenscraft, 1986).

Traditionally α_i (which is unobservable) has been made a linear function of industrial concentration, as in Clarke and Davies (1982), Kwoka and Ravenscraft (1986) and Machin and Van Reenen (1993). We follow this approach by also supposing that $\alpha_i = \lambda CONC$ (where $CONC$ is a suitable measure of industrial concentration). Substituting this into the margin equation yields:

$$\left(\frac{p}{S}\right)_i = [\lambda CONC + (1 - \lambda)CONC)MS_i]/e = [\lambda CONC(1 - MS_i) + MS_i]/e \quad (14)$$

Thus, the profit margin is determined by market share, concentration and the interaction between them. In our estimation we also include other measures that previous theoretical and empirical research has suggested influences company

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profitability: import intensity, union density, skill structure and prior levels of profitability. The rationale for the inclusion of these is clear. The degree of international competition is likely to restrain the ability to raise prices above costs (Machin and Van Reenen, 1993). Hence, trade inflows are associated with lower margins. Similarly, profit margins are likely to be lower due to union rent-seeking behaviour (Freeman and Medoff, 1985, Dowrick, 1989). Also a more highly skilled labour force leads to an increase in margins. Finally, it is well known that profit margins exhibit a high degree of persistence. To cater for this effect we introduce a lagged margin term. It is theoretically admissible by appealing to the role of adjustment costs in setting output[viii]. As in the wage equation we allow for unobservable fixed effects that can impact on the firm margin by employing a fixed effects estimation procedure.

Since this paper focuses on the impact of organisational change via merger activity, an innovation in our analysis is to incorporate such effects by including $R_{it} = 1$ if firm i is involved in an horizontal acquisition at time t and 0 else and define $U_{it} = 1$ if the firm is engaged in an unrelated merger. We therefore estimate a profitability equation that has the following form (Geroski $et\ al$, 1993)

$$p_{it} = b_0 p_{it-1} + b_2 MShare_{it} + b_3 Mshare*Conc_{it} + b_4 Conc_{it} + b_5 \operatorname{Im} ports_{it}$$
$$+ b_6 Union_{it} + b_7 Skill_{it} + \sum_{m=0}^{4} d_{0m} R_{it-m} + \sum_{m=0}^{4} d_{1m} U_{it-m} + e_{it}$$
(15)

4. Data analysis and econometric results

The primary source of information relating to mergers and acquisitions is the London Share Price Database. Consistently defined labour market variables for manufacturing are available for the period 1979-1991 so this defines our sample period. Take-overs involving foreign or nationalised companies are not considered[ix]. Our final sample consists of 223 mergers and acquisitions made by 154 firms which were classified into

related and unrelated mergers[x]. Economic and financial data were obtained for each firm using Datastream, with aggregate industrial, labour market and trade statistics being assembled from a variety of sources (see Data Appendix). A control group of 236 firms was also selected using three basic criteria: the firms should neither be acquired nor be involved in any major acquisitions during the sample period; the relevant economic information is available for at least three consecutive years; the growth rate of total assets should not exceed 100% for any one period[xi].

In Table 1 we present summary statistics for wages and employment for *single* acquirers and their target firms during the years of mergers. A noteworthy result is that both the wage rates and employment are significantly higher in acquiring firms. This is in accordance with the findings of earlier studies.

By way of a preliminary analysis of the impact of acquisition, we adopt the approach of Brown-Medoff (1988) and estimate an equation[xii] of the form:

$$w_{it} = a\, w_{it-1-M} + b_0 l_{it-1-M} + g_1 R_{it-M} + g_2 U_{it-M} + error \qquad (16)$$

where M denotes the number of lag under investigation[xiii]. This allows us to identify the net impact of mergers and acquisitions on wages, with the results being presented in Table 2.

This analysis indicates that wages exhibit significant initial falls in firms making unrelated acquisitions before regaining initial levels two years after mergers. There is however no evidence of wage falls for related mergers. This type of analysis is however limited by the fact that it does not explicitly control for firm-specific or industry-level factors that also influence the movements of wages. For a more satisfactory assessment of the impact of

acquisitions on wages we turn to the results obtained from the structural models that control for these micro and macroeconomic influences.

We adopt a heteroskedasticity and autocorrelation consistent (HAC) IV procedure[xiv] (Baltagi, 1995) since we estimate a pooled dynamic panel model with firm-specific heterogeneity factors. This is estimated in levels since, given the high persistence in the wages and rents series, estimates based on first-differenced specifications are likely to prove inaccurate (Staiger and Stock, 1997)[xv]. Tables 3 and 4 present the results. The results of using a GLS-AR(1)[xvi] procedure are included for comparison.

a. Profitability

Turning to the impact of acquisition on profitability, Table three indicates that the standard industrial organisation drivers of company performance are replicated in our data set. After controlling for company specific fixed effects and macro-economic factors (by the inclusion of time dummies) the effect of market share is positive and significant as is the impact of industry concentration. Positive adjustments in either of these factors augment the value function of the firm. The market share-concentration interaction term is negatively signed suggesting that companies that increase market share in concentrated markets do so at the expense of lower profits. Also, as would be expected, increases in foreign competition (as measured by import intensity) have a negative impact on profitability. This is in contrast to some earlier studies that have found little role for import competition (Conyon and Machin 1991, Machin and Van Reenen 1993), though they are in line with those of Stewart (1990). Union effects on the other hand are in general poorly determined. As with prior studies (e.g. Geroski and Jacquemin, 1988, and Machin and Van Reenen, 1993) we also observe a high degree of persistence in company level performance.

Turning to the impact of mergers, Table 3 indicates that there is an increase of £300-400 in the mean operating profit per employee[xvii] of the acquiring companies three and four years after acquisition, a result that is robust to the type of estimator used. Table 4 investigates this impact further by breaking the merger effect into that deriving from related and from unrelated acquisitions. These results indicate that although both merger types impact positively on profits, the timing and magnitude of these effects differs. The point estimates are higher and the impact is more immediately felt if a firm acquires a target in the same industry division.

b. Wages

The impact of mergers and acquisitions on wages will depend on the extent to which labour shares the increase in the profits observed in the above analysis and on whether the organisational change means that it can extract a larger share of rents ceteris paribus. The dynamic wage equations that show the impact of acquisition are summarised in Tables 5 and 6. The equations are well determined and are as would be expected by theory. An increase in alternative wages raises wages, as does an increase in the skill level of the workforce. The impact of unionisation is also positive, though this effect is badly determined statistically.

Turning to the impact of merger, Table 5 indicates that on average the impact of acquisitions is to increase average wages by between 2.1- 2.5% in the acquiring firms two years after mergers. Since this is prior to the increase in profits observed in the previous section, this suggests that the increase in the wage premium is due to factors other than sharing in the increase in profits following merger. It appears that the union is able to extract a larger element of surplus ceteris paribus. Table six investigates whether this

effect varies depending on the type of merger. It indicates that much of this observed increase is due to the positive impact that related acquisitions have on wages, which are boosted by between 3.5% and 7.6%. By contrast the impact of unrelated mergers is initially negative (though insignificant), with the benefits of the merger to wages only feeding through after two years. This distinction accords with the predictions of the Horn and Wolinsky (1988) model, where mergers between firms in related product markets lead to greater wage gains for the union.

5. Conclusions

Previous authors such as Shleifer and Summers (1988) have argued that organisational change may be motivated by the opportunity that it offers to renege on implicit labour contracts and hence to increase shareholder returns. Ownership change may also however influence wage rates by affecting the structure of the product market and hence the bargained wage outcome. These issues are examined in this paper. It provides a systematic empirical analysis of the effects of merger and acquisition activity on profits and firm level employee remuneration in the United Kingdom using a specially constructed database for the period 1979-1991. The results found accord more with the predictions of a bargaining model than the implicit contract interpretation. Both profits and wages rise following acquisition, with the size and timing of impacts differing according to the type of acquisition being considered. Workers whose firms are involved in a merger with a firm in the same industry will obtain larger wage increases than if the firms produce unrelated products.

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Data Appendix

1. Acquisition information is obtained from the London Share Price Database Reference Manual. We classified acquired and acquiring firms into two-digit industries using data from the National Statistical Office and Datastream.

2. *Employment (l)* is the firm's total number of employees, Datastream item no. 219.

3. *Wages(W)* is the total remuneration of employees of the group excluding directors, Datastream item no. 215

1. *Profitability(*p*)* is obtained by dividing net profits from the firms normal trading activities before depreciation and operating provisions, Datastream item no. 135, by the total number of employees.

5. *Market shares* (*Mshare*) are calculated form *sales,* which is the amount of sales of goods and services relating to the normal activities of the company, Datastream item 104.

6. Two-digit industry level *real wages, concentration* and *import penetrations are* computed from various editions of Census of Production, which cover some 167 manufacturing industries corresponding to a four-digit ISIC level of aggregation.

7. Industry level *union density* and the proportion of skilled workers in the industry are calculated from the Labour Force Survey.

Table 1

Average wages and employment by types of acquisition

Variable	Related		Unrelated		P-value*	
	Acquiring	Acquired	Acquiring	Acquired	Related	Unrelated
Wages	10.65 (28.9)	9.48 (24.7)	10.37 (26.7)	9.68 (19.6)	.008	.057
Employment	18109 (5.13)	4050 (2.77)	15058 (3.26)	3394 (3.11)	.000	.002

*P-value of the difference between acquiring and acquired

Table 2
Net effects (% change and t-values)[xviii] of mergers on wages

by type of acquisitions

Lag	Related	Unrelated
0	.01 (.08)	-4.8 (3.87)
1	-.02 (.13)	-2.6 (1.99)
2	1.56 (.93)	1.3 (.92)
3	.01 (.37)	.001 (.05)
4	.01 (.05)	.03 (.17)

Table 3
Impact of mergers on profitability
Coefficients (t-ratios)

Regressor	Dynamic IV	Dynamic GLS
p_{it-1}	.76 (9.10)**	.75 (9.44) **
$Skill_{it}$	.82 (1.97) **	1.61 (2.39) **
$Mshare_{it}$	2.99 (1.75) *	3.37 (2.16) **
$Conc_{it}$	.01 (2.36) **	.01 (2.18) **
$Mshr* Conc_{it}$	-.04 (1.23)	-.05 (1.72) *
$Union_{it}$	-.67 (.78)	-.97 (1.09)
$Import_{it}$	-.93 (2.30) **	-.81 (2.22) **
$Merger_{it}$	.18 (.70)	.30 (1.18)
$Merger_{it-1}$	.03 (.22)	.05 (.30)
$Merger_{it-2}$	.30 (1.56)	.34 (1.67) *
$Merger_{it-3}$	.39 (2.10) **	.41 (1.97) **
$Merger_{it-4}$	.36 (2.07) **	.47 (2.45) **
Joint year effects	Significant	Significant
R-squared	.71	
IV validity test (p-values)	.77	

Table 4

Impact of mergers on profitability by type:
Coefficients (t-ratios)

Regressor	Dynamic IV	Dynamic GLS
p_{it-1}	.76 (9.24)**	.75 (9.55)**
$Skill_{it}$	.81 (1.99)**	1.65 (2.45)**
$Mshare_{it}$	2.91 (1.73)*	3.31 (2.10)**
$Conc_{it}$	.01 (2.38)**	.01 (2.16)**
$Mshr* Conc_{it}$	-.04 (1.10)	-.05 (1.56)
$Union_{it}$	-.67 (.79)	-1.02 (1.17)
$Import_{it}$	-.94 (2.35)**	-.81 (2.23) **
R_{it}	.66 (1.40)	.80 (1.70) *
R_{it-1}	.14 (.61)	.18 (.67)
R_{it-2}	.63 (1.68)*	.72 (1.93) *
R_{it-3}	-.08 (.14)	.28 (.79)
R_{it-4}	.58 (1.74)*	.53 (1.63)
U_{it}	-.21 (1.09)	-.15 (.85)
U_{it-1}	-.11 (.65)	-.10 (.61)
U_{it-2}	.08 (.51)	.03 (.17)
U_{it-3}	.35 (1.76)*	.50 (2.41) **
U_{it-4}	.22 (1.25)	.42 (1.85) *
Joint year effects	Significant	Significant
R-squared	.72	
IV validity test (p-values)	.87	

Table 5
Impact of mergers on wages:
Coefficents (t-ratios)

<u>Regressor</u>	Dynamic IV	Dynamic GLS
w_{it-1}	.67 (5.77) **	.95 (89.87) **
w_{it}^{a}	.16 (2.23) **	.04 (1.88) *
Δl_{it}	-.15 (2.04)**	-.11 (5.59) **
Conc$_{it}$	-.002 (2.44) **	-.0003 (1.70) *
Union$_{it}$	.08 (1.29)	-.004 (.10)
Skill $_{it}$	.24 (2.86) **	.08 (2.33) **
Merger$_{it}$	2.3 (.92)	.30 (.28)
Merger$_{it-1}$	1.5 (1.26)	1.0 (.97)
Merger$_{it-2}$	2.5 (2.26) **	2.10 (2.14) **
Merger$_{it-3}$	.10 (.08)	.40(.56)
Merger$_{it-4}$	1.7 (1.79) *	1.1 (1.46)
p$_{it}$.	.002 (.68)	-.001 (.69)
p$_{it}$. p$_{it-1}$	.0003 (2.77) **	-.00002 (.65)
Joint years effect	Significant	Significant

Table 6
The impact of mergers on wages by type:[xix]
Coefficients (t-ratios)

<u>Regressor</u>	Dynamic IV	Dynamic GLS
w_{it-1}	.68 (6.09) **	.94 (90.57) **
w_{it}^{a}	.16 (2.28) **	.04 (1.90) *
Δl_{it}	-.15 (2.23) **	-.11 (5.75) **
Conc$_{it}$	-.002 (2.47) **	-.003 (1.66) *
Union$_{it}$	.07 (1.23)	-.006 (.2)
Skill $_{it}$	.23 (2.80) **	.08 (2.32) **
R$_{it}$	7.6 (2.40) **	3.5 (2.38) **
R$_{it-1}$	2.1 (1.61)	1.0 (.92)
R$_{it-2}$	1.8 (1.37)	1.5 (1.41)
R$_{it-3}$	-2.4 (1.06)	.2 (.02)
R$_{it-4}$	1.8 (.1.37)	1.5 (1.21)
U$_{it}$	-2.0 (.65)	-2.6 (1.37)
U$_{it-1}$	1.0 (.51)	1.0 (.64)
U$_{it-2}$	3.3 (2.31) **	2.8 (1.80) *
U$_{it-3}$	.03 (.21)	1.0 (.93)
U$_{it-4}$	1.8 (1.60)	1.0 (.93)
p$_{it}$.	.002 (.65)	-.001 (.71)
p$_{it}$. p$_{it-1}$	.0003 (2.82) **	-.00002 (.47)
Joint years effect	Significant	Significant
R-squared	.86	
IV validity (p-values	.37	

Notes

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[i] Jarrell, Brickley and Netter (1988) estimate that, for the US, the shareholders of target firms obtained premiums averaging 35% in 1980-1985.

[ii] The union is assumed to maximise the wage bill $w_1 l_1 + w_2 l_2$ paid to their members.

[iii] Note that such an equation may be derived even in the absence of a trade union. For example, wage solutions with elements of rent-sharing may emerge when non-unionised workers are in a position to wield insider power deriving from the skill they possess (Lindbeck and Snower, 1986 and Blanchflower et al, 1996) or an optimal contract framework with risk averse employer and employees. In these cases φ can be shown to be a function of the ratio of the firm's relative risk aversion to the workers' relative risk aversion.

[iv] Theory predicts that industry-and macroeconomic (i.e. group-specific) variables play an important role in the determination of wages at firm level. However since such variables do not generally exhibit sufficient variation in a typical panel with large firms, the corresponding parameters could be badly determined. By contrast, some authors (cf. Moulton, 1986) have argued that when aggregate variables are used as regressors, the standard errors of the model parameters are likely to be underestimated if intragroup error correlations are not accounted for, increasing the likelihood of spurious regression.

[v] Blanchflower et al (1996) assume that current bargains are based on past rents rather than current ones and use lagged rents in the wage equation. Another possibility is to assume that mergers do not affect wages independently of rents and consider a recursive system in which the rents equation is estimated first, followed by the wages equation.

[vi] This parameterisation is in contrast to Pesaran and Smith (1995) who assume that the relevant coefficients are random draws from a common distribution.

[vii] the degree of implicit "collusion"

[viii] Machin and Van Reenen (1993) propose a model where the firm maximises a discounted profit stream subject to quadratic output adjustment costs. The resulting estimating equation has a lagged performance term.

[ix] We required employment, wages and productivity data for at least three consecutive years.

[x] A horizontal merger is defined as the case where the acquiring and acquired firms belong to the same 2-digit SIC code.

[xi] The average employment size (and wage rates) in the sample is 16752 (10.69) for acquiring firms and 3812 (10.18) for the control group.

[xii] Unlike Brown and Medoff we have pooled the data across years in order to take into account for industry-specific fixed effects and macro-economic factors (via time dummies).

[xiii] On experimentation we conclude that a maximum number of four lags seems reasonable given the time dimension of our data. The average number of years an acquiring firm was observed is 9.

[xiv] The AR(2) error term captures some of the neglected dynamics via the `comfac' restrictions.

[xv] It is not always easy to find a natural experiment (external instrument) for rents as in Abowd and Lemieux (1993).

[xvi] The errors are assumed to be serially correlated, and estimation is done within a generalised linear modelling framework, which in this case is asymptotically equivalent to iterated maximum likelihood. See Baltagi and Griffin (1997) for the merits of this type of estimator in the presence of response parameter heterogeneity.

[xvii] Profits are measured in units of £1000

[xviii] All t-ratios in this paper are given in absolute values.

[xix] The coefficients on the merger dummies are given as percentage effects.