

The Effects of Wage Inequalities and Organisational Change on Economic Growth and Employment Performance

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The Effects of Wage Inequalities and Organisational Change on Economic Growth and Employment Performance

Part I. Outline of research hypotheses

1. Introduction

The relationship between economic growth and employment depends crucially on the behaviour of firms and labour market institutions. Recent work on 'endogenous growth' has highlighted the contribution to sustained long-term growth of the way firms manage their human and knowledge resources (Romer, 1994). At the close of his Journal of Economic Literature survey of the causes of European unemployment, Bean (1994) concluded that there were diminishing returns to further analysis of macro-economic data, and recommended more work at the micro level. This project will look at the micro level because the decisions of firms with regard to employee management strongly influence both economic growth and employment. We propose to look at one area in particular: the relationship between pay inequalities and business and employment performance, and to focus our analysis on performance at the detailed industry level. Rewards play a central part in firms' performance management systems, and they also influence the employment costs of different categories of workers and so affect job openings. Our overriding questions are:

- a) whether large pay inequalities in themselves are sufficient to generate good growth and employment performance, as competitive economic theory would predict; and
- b) how far the exceptions to this view, in which small inequalities coexist with good performance, can be explained by reference to different approaches to performance management within firms and the way firms manage their industrial relations?

A very influential view in economic policy circles is that the superior economic growth and employment performance of the US in recent years, compared with many EU countries, has arisen because wage inequalities have been allowed to rise creating high rewards to motivate initiative and reward skills, and enabling those with few skills to 'price themselves back into jobs'. The diagnosis has been applied in Europe. Among the higher skilled, the Lindbeck report on Sweden argued that compressed wage differentials had reduced incentives to work hard and invest in training and so damaged Sweden's economic performance (Lindbeck et al. 1993). Among the lower skilled, the OECD Jobs Study argued that western Europe's unemployment difficulties had been made worse by rigid and compressed wage structures (OECD, 1994). If correct, this view has profound implications for reform of the 'European social model' whose philosophy underpins European-level social policy. Although far from uniform across European countries, this model has, by and large, favoured a long-term reduction of pay inequalities, including those between women and men. It has also favoured the growth of multi-employer bargaining and social dialogue which generally reduce the sensitivity of firms' pay bills and wage structures to short-run shifts in product and labour markets.

Our project will test this proposition by comparing the experiences of several EU countries and those of their largest trading partners, the US and Japan. It will also test an alternative view: that the relationship between performance and rewards depends on the kinds of performance that management wishes to promote, and the conditions under which it is provided. Greater inequalities in rewards do not of themselves imply greater incentives for performance. If firms need to promote team production, large pay inequalities may be counterproductive. Unless high rewards are attached to the kinds of performance management wants there is every reason to believe they will demotivate staff and encourage them to direct their efforts to the wrong goals. It is our belief that the kind of employee performance that firms want differs according to the personnel management and industrial relations context.

Thus, if we follow the ‘New Economics of Personnel’ (NEP) (Lazear, 1998), we should expect the type of pay system used to be more critical than the overall size of pay differentials. Where individual employee output is easily measured it makes sense to tie pay to results. Where such measurement is difficult, time rates of pay and collective bonuses make more sense. Under a system of occupational or professional labour markets, the critical pay differentials are those between trainees and skilled staff, and between skilled and alternative jobs in semi-skilled occupations. With enterprise internal labour markets, the critical pay differentials focus on age and length of service in the enterprise as these reward on-the-job training and loyalty. With cooperative industrial relations, it is common to promote greater equality both within and between bargaining groups, whereas under more adversarial bargaining, greater diversity can be expected. One important qualification of this literature is that employee motivation depends upon there being a fair chance of gaining the rewards on offer. We therefore expect the presence of gender discrimination in the workplace to reduce the effectiveness of such incentives as women may not have an equal chance of benefiting from them. The same qualification applies to the incentive value of internal labour markets and solidary bargaining structures.

Until recently, it has only been possible to test these theories on the basis of rather aggregate comparisons of pay inequality and bargaining structures between countries (e.g. Freeman and Katz, 1995, and Teulings and Hartog, 1998). Lack of data comparability between countries, the limited number of countries permitting such comparisons, and the often small sample size have greatly limited progress on this important question. We need comparisons between countries because of the range of institutional diversity they represent, but we need also comparisons between sectors because we know that institutional arrangements and management practices vary greatly within countries.

The 1995 European Structure of Earnings Survey (ESES) provides a unique opportunity to test the relationship between pay inequalities and economic performance. It provides very rich data on pay structures, pay systems and bargaining arrangements on a comparable basis across Europe. It is also possible to link its results with other European data on economic and employment performance for about 150 3-digit industries and services (in Eurostat’s Structural Business Statistics database, SBS). The very richness of this data set will also enable us to formulate and test the theoretical links between pay inequalities and performance in much more detail than previously. It will be possible to look at a wide range of pay differences, including, by occupation, training, gender, job tenure, pay system and contract type,

firm size and detailed sector. On a more limited basis, we propose also to extend our comparisons to Japan and the US.

There is however one major limitation on the data published by Eurostat in the NewCronos database. The data are grouped into tables, and many of the key variables for our analysis cannot be accessed simultaneously which severely limits multivariate analysis. This can only be achieved using the original micro-data. We shall also need access to the micro-data in order to link detailed earnings data with that from other sources, and notably, to make full use of the disaggregated performance data in Eurostat's Structural Business Statistics.

Hence our proposal consists of two elements:

- a) a scientific project on the effects of pay inequalities on business and employment performance, and
- b) a proposal to establish access to the micro-data held currently by the National Statistical Institutes (NSIs) which carried out the survey for Eurostat.

2. Policy relevance and relevance to Fifth Framework Programme priorities

We are submitting our proposal under two headings from the Programme's call for proposals:

- Research Task 9: the relationship between growth and employment;
- Cross-cutting dimension: the generation, use and accessibility of high quality comparable European data.

a) *European economic policy relevance: pay, growth and employment*

As mentioned in the introduction, recent thinking on European growth and employment has highlighted the need for greater work on factors at the enterprise level. 'Endogenous growth' theories stress the importance of knowledge and human resources, and some of the papers for the OECD Jobs Study stressed the need to look at the effects of firms' employee management practices on employment and access to jobs (Marsden 1994). In presenting our research hypotheses below, we argue that the study of pay inequalities in the context of firms' performance management, skill formation, and industrial relations policies will shed new light on the relationship between firms' business performance, employment, and firm-level growth.

This complex of issues requires research competence of many kinds, and the ability to relate high quality econometric work to the findings of case study research on firms and labour institutions. It also requires a good understanding of the latest work on rewards and personnel management. We believe our **multidisciplinary** team, which spans economics, sociology, personnel management and comparative industrial relations has the right mix of skills to tackle this issue. Most of us have worked together on previous projects at various times, and so we form a cohesive team genuinely interested in what the others have to contribute.

As European economic and monetary union progress, individual governments are gradually giving up several of the traditional tools of macro-economic control. This

makes it more important to understand the macro consequences of micro-level decisions by firms and labour institutions. What are the effects of firms' personnel and reward policies on their business performance and workers' access to jobs? How far do current pay and job classification norms of industry-level collective agreements enhance or hinder business and employment performance? The persisting gender wage gap, whose suppression is one of the objectives of European employment policies, will also be addressed in this study: are firms' pay incentive systems gender biased?

b) *The development of comparative European data*

Our project will be a path-breaking contribution to the development of comparative European labour market statistics. We build directly on the excellent foundations laid by Eurostat and the member states' National Statistical Institutes in the 1995 European Structure of Earnings Survey (ESES). This survey is now complete and Eurostat has published tabular data for all countries in the NewCronos data base.

Our proposal is to set up a system for work on the micro-data taking full advantage of the million or so individual observations for the ESES, which are currently available only in four-dimensional tables. Work on the micro-data will enable a large number of multivariate analyses taking advantage of the large number of socio-economic variables actually included in the survey. It will also enable the work to be carried out comparatively across several EU countries. So far, eight national statistical institutes have agreed to take part in our project and to assist in developing a system for comparative work on the micro-data while respecting all the norms of data protection. They are Belgium, Denmark, France, Germany, Ireland, Italy, Spain and the UK. We propose to set up the comparative micro-data on a central server, which will facilitate comparative analysis, and to develop a set of protocols which will enable approved researchers and statistical offices to access the data. Such an exercise has not been undertaken before at the European level, and promises to be a model for future comparative European work on other large-scale data sets. Our work will influence the design of the next European Structure of Earnings Survey due in 2002, particularly with regard to easier analysis of the under-used micro-data.

Our team also includes distinguished researchers from Japan and the United States so that we can explore the scope for further comparison with micro-data from these countries.

3. The hypotheses and their predictions in outline

There has been a tendency in the debate about the effects of pay inequalities on performance to focus on overall pay dispersions because of data limitations and so to treat inequalities in the abstract and performance as a simple quantity. The pay inequalities that serve to allocate labour across labour markets may not always be compatible with those dictated by performance management policies within firms (Solow 1990). To disentangle all these themes it is useful to think of the relationship between pay inequalities and economic performance in different contexts. These relate to the state of competition and institutional organisation of labour and product markets, and personnel management policies within the enterprise which cover such issues as performance management, training, and workplace relations.

From the literature, the most important types of context to emerge are those of labour and product markets, and enterprise management. These can be further broken down as shown below.

a) *Market organisation contexts*

- competitive labour and product markets;
- non-competitive, decentralised market power;
- non-competitive ‘corporatist’ bargaining;

b) *‘Personnel management’ contexts:*

- different approaches to managing employee performance;
- different kinds of workplace training systems;
- ‘cooperative’ and ‘adversarial’ workplace industrial relations.

Very simply we might list some of the key hypotheses and their predictions as to the effects of pay inequalities on business and employment performance.

The kind of performance stressed in each of these contexts differs, as do the variables stressed by performance incentives (Table 1).

Table 1. Contexts, type of pay inequality and economic performance.

	Type of variable boosting/depressing economic performance
<i>Market organisation contexts:</i>	
Competitive labour and product markets	Investments in skills, and job mobility
Non-competitive, decentralised market power	Lack of product market competition leads to bargaining of big pay differences between firms and industries.
Non-competitive ‘corporatist’ bargaining;	Bargaining structure overrides potential gains from employers’ monopoly power; reduces ‘rent-sharing’ behaviour.
<i>‘Personnel management’ contexts:</i>	
Different patterns of employee management;	Pay systems tailor incentives to the type of performance firms require.
Different kinds of workplace training systems;	Skills establish key pay contours across occupational markets. In firm internal labour markets, rewards are tied to internal upgrading and promotion, often proxied by length of service or age.
‘Cooperative’ and ‘adversarial’ workplace industrial relations.	Cooperative workplace relations tend to compress inequalities and adversarial relations tend to increase differences between bargaining groups.

We also plan to look at several of these questions with a historical perspective, taking advantage of the surveys of 1966, 1972 and 1978 in several countries. This is especially relevant as firms' personnel policies and labour institutions change over time and their influence is often slow to take effect.

4. Wage inequalities, their market context, and performance

In this and the next section we spell out our research hypotheses in more detail explaining how the relationship between inequalities and economic and employment performance varies in each of the six types of context just outlined.

4.1 The pure competitive context: individual negotiation

In a system of weakly institutionalised competitive labour markets, one would expect the primary role of pay differentials to be that of allocating labour between different economic uses. Thus wage differentials will reward workers' skills and experience, and compensate them for demanding jobs or bad working conditions because this is what employers need to pay to attract the kinds of labour they require. Unless differences between industries and firms of different sizes reflect such factors, one would not expect them to be rewarded. Likewise for age and job tenure.

On the whole, competitive labour markets are associated with relatively weak ties between workers and firms. Strong attachments, be they the result of firm-specific skills or high costs attached to job changing, weaken the ability of workers to find comparable jobs elsewhere, and of firms to find alternative workers, and so reduce competitive pressures.

Although the long-run rewards for skill and job demands might be the same as in other kinds of labour market, in competitive labour markets, one would expect larger short-run, and more flexible wage inequalities than where wages are set by collective bargaining or set by firms' internal human resource policies. Investments in new skills and job search take time and are risky and so larger short-run differentials will tend to encourage swifter adjustments of supply and demand than small ones. Likewise for employers, if there are greater risks attached to hiring workers without certified skills, a lower starting wage could encourage them to take them on.

In this context, the weaker attachment of workers to firms and the primacy of the price mechanism as an allocator of labour lead one to expect long-run pay differentials to correspond to workers' investments in their productivity, such as time spent training or searching for the right job. But also one would expect short-run pay differentials to be greater and more variable because of the need to encourage workers and firms to take risks and invest in new skills as demand changes.

In terms of employment performance, it is often argued that compared with the other contexts, that of the competitive market, with flexibility of relative wages, gives rise to better results, at least in quantitative terms. On the other hand, the quality of such jobs has often been questionable (eg. Blau and Kahn 1996, and Houseman, 1995).

4.2 The decentralised collective bargaining context

The competitive context hinges on competition in both product and labour markets. Departures from both of these may occur in the decentralised collective bargaining context. If customers cannot easily switch to alternative suppliers or products, firms may use their market power to raise profits, and their employees may then bargain either individually or collectively for a share in these. This is one form of 'rent-sharing', and one source of pay inequalities. Likewise, for many workers the employment relationship is long term, and the attachments between workers and firms are strong. Much experience is specific to particular firms, and the costs of job changing can be high, as are those of finding new workers. This can be another area in which power relations between the parties affect pay inequalities. Employees may be forced to take lower pay because they cannot easily change jobs, and employers may be forced to pay higher wages because they cannot easily replace those they have trained in specialist skills.

Recently, Teulings and Hartog (1998) stressed the importance of such bargaining power in shaping pay inequalities. In this environment, pay inequalities often include an element of 'rent-sharing'. If the employer benefits from limited competition in its product market, then the rents obtained from consumers may be shared with its employees. Either party can take advantage of the difficulty the other has respectively in finding an alternative job, or alternative workers, to bargain the other one down. Pay inequalities arising in this case do not enhance economic performance. Thus, a considerable part of pay differences between industries which does not correspond to differences in skills or job characteristics may be the result of such rent sharing, and is not economically productive.

This situation is particularly likely to occur with decentralised collective bargaining. Indeed, this was the main argument of Teulings and Hartog: that decentralised bargaining will lead to large pay inequalities following differences in bargaining power. This is most likely to follow firms' product market power because the ability of organised labour to bargain up its wages depends primarily on the scope for consumers to switch to alternative products or sources of supply. Thus product market competition is one of the strongest determinants of labour's collective bargaining power over pay. This is confirmed by Stewart's (1990) finding that the union mark-up in Britain was greatest where the employer had significant product market power. The other major source of labour's collective market power in Britain that he identified was the now abolished 'closed shop'.

Such 'non-competitive' pay inequalities are likely to lead to slower growth in output and productivity, and slower adjustment, and so we have a rival prediction to that of the competitive hypothesis evoked earlier. Moreover, it can be distinguished by looking at the state of competition in firms' or industries' main product markets and at information from surveys of bargaining practices.

Turning to employment performance, some of the most interesting recent work concerns low wage employment, and the importance of localised employer bargaining power to depress wages. Notable among such work is that of Card and Krueger (1995), who show that such power is more pervasive than previously thought. It helps explain why so often increases in minimum wages have not had the expected effect of reduced employment. In an ingenious argument, Card and Krueger argue that low

wage sector employers can choose between low pay and high turnover, or slightly higher pay and less turnover. Their market power in the first case is manifest in the high work loads that go with the low pay-high turnover model as employees have always to cover unfilled vacancies. When minimum wages are raised slightly, it is often enough to push employers to the lower turnover position so that employment rises as deliberately unfilled vacancies fall.

A key contributor to such employer power lies in the restricted labour market opportunities available to certain categories of workers. For example, many women combine family responsibilities and work, and so can only seek jobs near their homes. By using evidence from other sources, we can identify some of the factors that would indicate whether certain categories of low paid workers are suffering this kind of disadvantage, and hence whether their low pay is a sign of a competitive or a non-competitive market for their labour, and hence whether the differential is likely to boost employment or not.

4.3 The corporatist bargaining context

Small wage differentials need not be bad for performance if they are associated with compensating gains from institutional arrangements they support. One of the most powerful arguments in this respect is that corporatist bargaining systems, which bring reduced wage differentials, also bring compensating economic advantages from the higher levels of cooperative work relations they promote.

Corporatist theory has two strands: macro wage bargaining, and micro-level productivity. Since Calmfors and Driffill (1988), most attention has focused on the macro-economic consequences of centralised pay bargaining which have been seen as promoting economic performance through economic stability and the ability to control inflation without using deflationary policies. The price paid, it was argued, was loss of microeconomic efficiency from compressed wage structures.

Recently, Teulings and Hartog (1998) have reinvigorated the micro-economic aspect to argue that corporatist bargaining systems compress only those wage differentials that arise from non-competitive factors. This is because corporatist bargaining systems restrain individual groups from using their local monopoly power. They argue that corporatist bargaining has generally left educational and skill differentials intact, but reduced industry and firm size differentials. The former are essential to ensure an adequate supply of skilled labour and adequate incentives to take on management responsibilities. The latter, if not associated with skill mix or working conditions, are most commonly associated with rent sharing of the kind discussed earlier. Thus corporatist bargaining enhances economic performance by reducing monopolistic pressures and the associated economic distortions.

Do reduced pay disparities under corporatist bargaining harm employment performance? Two arguments need to be considered. On the one hand, if reduced differentials are dictated by the organisational needs of solidaristic, encompassing organisations, then they may harm job prospects of the least skilled unless such solidarity leads to the support of other policies, such as training for the low skilled. On the other hand, if corporatism removes the incentives for exploiting local monopoly power of the kind that , such as occurs under decentralised bargaining, then the outcome is more likely to favour employment. The difference between these two

views can be tested by looking at which kinds of pay differentials are compressed under different kinds of bargaining structure.

The effects of corporatism can be assessed from two angles. First, our sample of countries covers a range of positions on the various scales devised for national level corporatism, such as those of Schmitter, or of Calmfors and Driffill (see OECD 1997 Ch. 3). Among the countries in our study, Denmark, Germany, and sometimes Italy, are usually classed among the more corporatist, whereas the UK, the US and sometimes France are classed among the least corporatist and most decentralised.

Second, we can use ESES data on bargaining structure to look within countries to identify those sectors with and without corporatist-type bargaining systems. There is variation both between industrial sectors, and especially between services and industrial sectors and between the public and private sectors. The non-union sector also merits some attention as some highly educated non-union workers have considerable individual bargaining power whereas others with few skills have very little. Here the ESES data on educational level will be of great use.

5. Wage inequalities, employee management systems and performance

An increasing body of research (e.g. Dore (1996), Piore (1991), Reynaud (1989), Soskice (1994), Streeck (1992)) suggests that different constellations of enterprise management, labour institutions and business systems function with different patterns of incentives. Hence, in considering whether large pay inequalities improve or inhibit economic performance we need to consider the kinds of employee performance they are designed to encourage. For example, where employee performance is easily individualised and measured, it may be sensible to offer strong financial incentives for individual performance. If team work is required, large differentials may actually inhibit performance because they are divisive.

Our project will look at pay inequalities and performance in three enterprise level contexts: pay for performance incentives; incentives for different types of training and skill formation; and incentives for cooperative working.

5.1 New Economics of Personnel and ‘pay for performance’.

One of the insights of the ‘New Economics of Personnel’ (NEP) is that it is not what workers are paid that generates performance so much as how they are paid. Large pay differentials of themselves will fail to generate higher performance unless they are made contingent on performance. Hence the interest in various kinds of performance related pay. However, the theory predicts that pay for performance will get the best results only under certain kinds of working conditions. These are summarised in Table 3, based on Fernie and Metcalf (1998). For example, according to the NEP, firms will use pay for performance when the costs of measuring output are low, and will pay time rates when measurement costs are high. Likewise with the cost of measuring workers’ effort. If work conditions are such that output and effort measurement costs are high, then firms will not find it worthwhile. In many respects, the predictions of the NEP are quite close to those of personnel specialists and industrial sociologists who studied the workings of pay systems in the 1950s and 1960s. Their position was compared with that of NEP by Fernie and Metcalf under

the heading of the 'British Institutional School' (BIS) (Table 2). Thus we see from both a theoretical economic point of view, and the case-study based inductive theory of Personnel Management and Organisational Sociology, that the relationship between pay inequalities and economic performance depends on the context in which work is carried out.

The table also shows some of the possible indicators we can use fairly easily to identify enterprise management contexts. We can then test whether the theoretically predicted matching of pay systems and different market and management contexts lead to better performance outcomes.

Table 2. Work context and pay-performance linkages

Work context	Predicted Pay-performance linkages			Possible statistical indicators of management contexts		
	NEP	NEP	BIS			
	Pay by PRP/PBR if:	Pay by basic if:		ESES indicator	SBS/DAISIE indicator	Other sources
Output measurement costs	Low	High	Same			Type of technology
Cost of measuring input/effort	High	Low	Same			Large batch v. custom and process production
Supervision intensity, programmability	Low	High	Same	Ratio of supervisors		
Span of control	High	Low	-	Ratio of supervisors		
Workgroup size	Large	Small	Same			WERS, REPNSE
Job task	Repetitive	Wide range	Same			
Team production	Unimportant	Important	-			EPOC
Labour intensity	High	Low	Similar	ESES employment	Investment/worker	
Rapid technical change	No	Yes	Similar		Rate of investment	
Skill bias of technical change	Yes	No	Opposite	Compare skill composition to 1978		
Worker heterogeneity	High	Low	-	Occupational diversity		
Wage in alternative firm	High	Low	Same	Dispersion of pay for same occupation within branch		
Elasticity of effort wrt wage	High	Low	Same			
Risk aversion	Low	High	Same (wages) Opposite (jobs)	Job tenures	Branches with stable output.	
Union recognition	No	Yes	Opposite	Bargaining coverage		
Tenure	Short	Long	Same	Job tenures		
No. of occupations	Few	Many	Similar	Occupational diversity		
Cost of monitoring output quality	Low	High	Same			
Competition	High	Low	Opposite		No. of firms & share of imports in domestic market	

Source: Fernie and Metcalf (1998) for details of NEP and BIS.

Key: NEP: 'New Economics of Personnel'; BIS: 'British Institutional School'. For acronyms of variables see the section on statistical sources.

Our hypothesis in this case is that whether different incentive pay systems will promote performance depends on the context in which they are applied. The task of our research then will be to identify different types of work context, again using a variety of sources in addition to the ESES, see what kinds of incentives are in place, and test this relationship on economic performance. The ESES includes a number of variables relating to pay systems: use of payment-by-results, bonuses, overtime, and linking with Eurostat's labour cost survey, data on certain kinds of fringe benefits.

5.2 Pay, training and human resource systems

It is widely believed that a good supply of skilled labour is essential for good economic performance as firms' investment plans are not constrained by bottlenecks in the supply of essential skills.

Wage differentials play an important role in determining the supply of skills. According to Becker's (1975) theory, for skills which are 'general', that is, transferable between firms, wage differentials play a determining role because workers have to meet the full cost of their training. Employers would be unwilling to do so because workers take their skills with them when they leave the firm. For this kind of skill, under competitive conditions, one would expect large skill differentials to be an essential incentive for workers to train, and to be essential for an adequate supply of skilled labour.

Outside the realm of strongly competitive labour markets we may consider two possible effects of wage differentials on the supply of general skills. The first concerns weakly institutionalised markets but in which there are nevertheless many obstacles to competition. The second concerns institutionally regulated occupational markets. We then look at training incentives in enterprise internal labour markets.

a) *Weakly institutionalised qualified labour markets*

In recent years, attention has shifted to imperfections in labour markets that enable employers to fund even a large part of the cost of such general training. Becker had assumed that such skills were easily recognisable by other employers, but leaving aside the case of certified skills for the moment, there are several reasons to believe that this may not be so. For example, skills are often packaged in different ways in different firms so it is difficult to assess the skills of a person from another firm. As a result other firms will be willing to offer only a wage that is below the worker's true potential productivity. As a result, the firm providing training is under less pressure than Becker had assumed to pay the full value of the skilled worker's output. Such 'wage compression' creates scope for employers to provide general training so long as the skills remain opaque to other employers (Acemoglu and Pischke, 1999). One prediction then is that labour market imperfections will enable firms to pay skilled workers less than the value of their output, and so recoup some of their investment in the workers' general skills.

b) *Institutionalised occupational labour markets*

In the second case, the institutional framework itself is likely to contribute to the transparency of general skills and so promote a closer approximation to the competitive position. As a result, one would expect larger skill differentials than under the weakly institutionalised model. A second factor pushing in this direction, highlighted by Marsden and Ryan (1990), is that institutional regulation can often make it easier for firms to offer low rates of pay to trainees, thus enhancing the skilled/trainee differential. The reason, they argue, is that institutional regulation helps to reduce the risk that low paid trainees will be used as a source of cheap general labour by enabling the parties to monitor more closely the work done by trainees and apprentices. Institutional regulation can facilitate greater employer finance for general training by restraining 'free riders' and thus ensuring the cost is spread evenly across all employers using the skills.

c) *Enterprise internal labour markets*

The other major type of training system concerns the skills developed within firms' internal labour markets. Within these, because the skills are not easily transferable, skill differentials will be affected by two main factors. First, lack of external competition means that the rewards for skill will be negotiable within a fairly wide margin between management and skilled personnel. Secondly, because training is likely to be spread over a long period, one would expect it to be correlated with tenure. Although there has been much debate about the nature of tenure effects in recent years, several of the competing hypotheses lead to the same outcomes. Pay may rise with tenure because of increasing skill, or because of incentive schemes designed to retain people with such skills. Even some 'sorting' or 'selection' theories are consistent with the same result, as once employers have invested heavily in selecting the right personnel, at entry, and then for promotion, they will want to ensure they retain them. So, in the presence of internal labour markets, one would expect pay to rise with some measure of the long-standing relationship with the firm. The simplest such indicator is job tenure, but this only captures the average value of longer service workers. Interestingly, some recent research in France has suggested that employers have found a less blunt indicator in the form of further training (Béret and Dupray, 1998).

The pattern of wage differentials depends heavily on whether a particular labour market is dominated by occupational skills that are mobile between firms, or by skills that are specific to a particular employer, and organised into an enterprise internal labour market. In the first case, wage differentials will need to reflect workers' investments in training and in labour market experience. In the second, they need to reflect firm-specific tenure related either to on-the-job learning, or incentives offered by employers to discourage labour turnover. Thus, the institutional structure of labour markets will determine whether pay is tied closely to occupational skills, as Zimmerman (1998) demonstrates for Germany, or to enterprise-specific skills and tenure, as is more common in France and Italy (Marsden 1990).

Our hypothesis then is that the kind of pay inequalities appropriate to the market structure will be those most likely to lead to good economic performance. As for employment performance, the prediction is that, in both occupational and internal labour markets, if institutional arrangements protect skilled workers against substitution by cheap trainee labour, then incumbent workers will tolerate low trainee rates of pay which facilitate access. On the other hand, if they fear such rates will lead to use of trainees and junior workers as cheap labour, when they have the bargaining power, they will generally oppose them.

The countries might be characterised according to the predominance of occupational and internal labour markets as follows:

Occupation	Internal labour markets	Occupational labour markets
Blue collar	F, B, J, US	GB, Germany,
Intermediate white collar	F, B, J, US, GB	Germany
Professional	F, J	GB, G, US(?)

5.3 Pay, cooperative and adversarial workplace relations

In some respects, the arguments about the effects respectively of cooperative and adversarial work place relations are a microcosm of the ‘corporatist’ versus ‘decentralised’ relations discussed earlier. Generally, one would expect adversarial relations to generate greater inequalities because they encourage individual groups of workers to bargain for as much as they can get. And management may use large differentials to ‘buy’ acceptance of organisational change.

However, it would be mistaken just to transpose the arguments based on national and sectoral bargaining systems to the enterprise level because many firms, even in decentralised bargaining environments, are developing cooperative workplace relations. One of the most notable elements in this is the development of team-working. Various forms of this have been spreading through both industry and services, and with it, has come a shift in the focus of management control systems. Team-working depends on a high degree of cooperation not just between workers but also between workers and management. Indeed, the greater operational autonomy given to workers could, in a strongly adversarial environment, be turned against management as a basis for work group bargaining power.

Thus, we would expect firms pushing ahead with new team-based forms of work organisation to be developing more egalitarian wage structures, at least among the workers engaged in this kind of system. One of the most persuasive theoretical arguments for more equal pay structures with team working can be found in Aoki’s (1988) analysis of pay incentives and work organisation in large Japanese firms, which he compared with the ‘bureaucratic’ work organisation and large pay inequalities of archetypal US firms. US firms too have been seeking to break away from the ‘bureaucratic’ employment model and to move towards the more participative patterns found in Japan as a number of surveys testify (e.g. Osterman, 1994, Lawler et al. 1992, Appelbaum and Batt, 1994), although as in Europe, progress has been limited, as shown by the EPOC survey of participative management in Europe (European Foundation 1997).

Our prediction here is that cooperative workplace systems will favour smaller wage differentials between bargaining groups when these are in the same enterprise, and within parts of the workforce where team working is widespread. Where the patterns of pay differentials and patterns of workplace cooperation converge economic performance will be best.

On employment performance, the outcomes are likely to be mixed. Adversarial bargaining is quite likely to lead to polarisation between the covered and non-covered bargaining sectors with some displacement of employment towards the latter. In this bargaining régime, employees and their unions may also see employer-provided training, especially for the unqualified, as a threat to their position and so resist it. Cooperative relations may enhance ‘insider’ power at the expense of ‘outsiders’, and so the more egalitarian pay structures associated with team work may diminish job openings for outsiders, especially the least skilled. On the other hand, cooperative relations may be more likely to encourage job training and thus access for the unqualified.

5.4 Overview

The implications of the six types of context for the relationship between pay inequalities and economic and employment performance are summarised in Table 4.

Table 3. Summary relationships between pay inequalities and economic performance

Context		Do large pay differences boost:	
		business performance?	employment performance?
Competitive market	Individual negotiation	Yes: boost incentives	Yes: ‘price’ people into jobs
Non-competitive markets	Decentralised bargaining	No: reflect local monopoly power	Yes: but access to ‘non-insider’ jobs
	Corporatist bargaining	No: damage coop between bargaining groups.	No: threat to corporatist system
Personnel management	Hierarchical control	Yes: boost management’s disciplinary threat	Yes: ‘price’ lowest skilled into jobs
	Cooperation and horizontal control	No: damages in-group cooperation	No: will tend to push low skill workers into other sectors
Training systems	Occupational labour market	Yes: if they reward skill	Yes: low trainee rate favours access to training places.
	Internal labour market	Yes: if they boost promotion ladders	Probably yes: but incumbent workers may oppose because of fears of substitution by cheap labour.
Workplace IR	Adversarial	Yes: enable employers to ‘buy change’, but may also reflect monopoly power	Yes, but employment displacement to non-covered sector
	Cooperative	No: create incentives for individual groups to break away.	No, unless union favours job training for unqualified.

6. Measuring institutional arrangements, inequalities and performance outcomes

To test our hypotheses, we propose to identify the market and institutional contexts, and their related patterns of pay inequalities, and then measure their business and employment performance outcomes.

6.1 Identifying market and institutional contexts, and data sources

a) *Market contexts:*

a) We shall assess the state of product market competition using data on product market concentration and share of imports in markets. The former is a traditional measure of market power, but often criticised in recent years (eg. Geroski, 1988, Stewart, 1990), and the latter an indicator of market openness. These can be obtained from Eurostat's Structural Business Statistics (SBS) and NewCronos;

- The SBS series started in 1975, and has undergone a number of improvements in sectoral and firm-size coverage and in the variables included. From 1975, it includes core variables on output, value added, employment, productivity, firm size, and average earnings by detailed NACE industry. The data were published in paper format from 1975, and since 1992 have been published in electronic format only as part of the DAISIE database, and since 1995, as part of the Structural Business Statistics data base.¹

b) data on bargaining decentralisation and corporatism can be obtained by using the corporatism scales discussed earlier, and also the ESES data on bargaining coverage and levels by industry.

b) *Human Resource Management contexts:*

The main data sources we propose to use for each set of variables are summarised in Table 4 below. These provide a rich supply of information on firms' human resource policies, training systems and bargaining arrangements.

For the comparative work, the expert judgement of the research teams will be needed to apply the data to detailed three-digit pay and performance data because the sample sizes for institutional information are generally much smaller than for earnings surveys. However, in some countries, some of the hypotheses can be tested directly on national surveys such as the British WERS and the French REPOSE surveys which contain a good deal of information on pay systems, institutional arrangements, personnel management, and some subjective economic performance indicators.

¹. DAISIE - Annual Industrial Survey (Database price 550 ECU) Covers structural statistics on industry, including energy and water as well as the construction sector (NACE Rev 1 sections C to F). For each EU Member State it provides very detailed annual data by activity (NACE Rev. 1 four-digit codes) and offers a large number of variables (employment, production, turnover, added value, investment, etc.). Regional data, down to NUTS 2, is now available as part of the DAISIE domain. Data to 1995 includes enterprises of 20+ employees. From 1995 all enterprises are included.

Table 4. Main data sources for personnel management and industrial relations.

Country	Human resource policies	Training	Bargaining arrangements
Belgium	BERD	LFS and Cedefop	BERD, ESES
Denmark	EPOC	LFS and Cedefop	ESES
France	REPONSE	LFS and Cedefop	REPONSE, ESES
Germany	IAB panel	LFS and Cedefop	IAB panel, ESES
Ireland	University College Dublin IR survey	LFS and Cedefop	UCD IR survey, ESES
Italy	Federmeccanica	LFS and Cedefop	Federmeccanica, CESOS, ESES
Spain	Registers of collective agreements	LFS and Cedefop	Registers of collective agreements, & ESES
UK	WIRS and WERS	LFS and Cedefop	WIRS, WERS, & ESES

Key:

- BERD: Belgian Employee Relations Database, 1998: a sample of c. 160 firms given rich data on institutional arrangements in the workplace.
- CESOS: Report on Italian industrial relations 1996/97: rich source of general Italian industrial relations institutions.
- EPOC: (Employee Direct Participation in Organisational Change) (1997) New forms of work organisation: Can Europe deliver its potential?. European Foundation for the Improvement of Living and Working Conditions, Dublin. (c. 6000 establishments). Includes data on new work systems by broad industry.
- ESES: (European Structure of Earnings Survey): Countries provide data on levels of collective agreements in operation in establishments (See Eurostat document CPS 97/24/1. Structure of Earnings: arrangements for implementing the Regulation (EC) no. 2744/95).
- Federmeccanica: Survey of industrial relations in the engineering industry (1979-95), 3000 establishments, with rich data on workplace representation and pay systems.
- IAB panel: Institut fuer Arbeitsmarkt- und Berufsforschung panel of establishments. Includes questions on workplace representation, pay systems and collective agreements.
- LFS: Labour force survey. Rich source on skills and training.
- REPONSE (French workplace industrial relations survey) (c. 2500 establishments in 1993 & 1998). Rich data on workplace institutions and pay systems.
- University College Dublin, Smurfit Business School Industrial Relations Survey. Rich source of data on workplace institutions.
- WERS (Workplace Employee Relations Survey), WIRS (Workplace Industrial Relations Survey) (c. 2000 establishments, 1990 & 1998). Rich data on workplace institutions and pay systems, and some subjective performance data.

6.2 Business performance outcomes

The relationship between pay inequalities and growth most plausibly passes through their effects on business performance. Many other factors intervene between business performance and an economy's growth such as government economic policies. To analyse these would overextend our project and so we propose to leave these to other projects. However, if there is a relationship between pay inequalities and growth, then it is hard to imagine what it could be if it did not pass through firms' business performance.

Ideally, we would explore business performance at the level of individual firms. However, there is no such data covering all the countries of the EU, and the national data sets like WERS and REPOSE which cover firms' personnel management and industrial relations have only limited information on pay, and at best, managers' subjective judgements on their plant's economic performance. There is therefore little alternative to working on three- and four-digit industry performance data. Such data have been available at the detailed industry level from 1975 (the paper publication of 1990/91 data alone showed figures for about 140 separate industries). For the year of 1995 ESES, Eurostat's Structural Business Statistics (SBS) database also covered a number of service sectors, and covered firms of all sizes.

By comparing ESES results with those of the SBS at detailed three and four-digit levels we shall in fact be comparing the average position of pay incentives on the average performance across a number of firms. If personnel practices and pay structures varied greatly between the firms in question, this would be a serious problem. However, in practice, we believe the personnel practices are likely to be relatively homogeneous between firms at this level. The reason is that they are often subject to common institutional rules concerning pay, job classifications and training. A good illustration is provided by French plant level job classifications and pay structures. Despite a 15-20% mark-up between plant level and industry agreement pay rates, the same broad pay rules shape local pay structures (Eyraud et al. 1990).

The most likely source of heterogeneity in personnel practices at the three and four digit NACE level comes from plant size, and this is covered in both the ESES and the SBS.

Thus, we believe we can legitimately trace the effects of different types of pay inequalities on the business performance of these detailed sectors.

In addition, because it takes time for firms to alter their pay structures, we are not concerned with short-term, year-to-year variations in economic performance. In this respect, the SBS offers something not available from those national surveys which link pay and firm performance in a given year: we are able to look at performance over a relatively long time period, and the data series run, with some changes, from 1975 until the present day, and we can certainly look in detail at output and productivity performance and investment rates over a five or ten year period.

6.3 Employment performance outcomes

Pay inequalities affects employment performance in four ways:

- their effect on the general business dynamism of the firms in a particular sector which will affect their general demand for labour;
- by the effect of the relative price of different categories for labour;
- by the openness of different employee management systems to outside labour.
- Gender wage inequalities which may discourage investment in human capital

Employment performance can be observed directly from the ESES in cross-section, using the full range of employee and workplace characteristics recorded, and over time for those countries which took part in the 1978 survey (and 1990 in Germany and 1992 in France). The SBS gives employment levels on a yearly basis for each three and four-digit industry, and the Labour Force Survey gives year to year data on employment structures, albeit at a fairly aggregated level.