SPANISH PAY SETTING INSTITUTIONS AND PERFORMANCE OUTCOMES

Simon Milner and David Metcalf

Banco de España - Servicio de Estudios
Documento de Trabajo nº 9420

SPANISH PAY SETTING INSTITUTIONS AND PERFORMANCE OUTCOMES

Simon Milner and David Metcalf (*)

(*) We are grateful to Spanish colleagues Manuel Arellano, Samuel Bentolila, Juan J. Dolado, Juan F. Jimeno and Gustavo Nombela for comments on an earlier draft. We acknowledge, with thanks, research assistance from Polly Vizard for Part II. We are grateful to the Banco de España for financial assistance. This paper was produced as part of the Centre for Economic Performance's Programme on Industrial Relations. The Centre for Economic Performance is financed by the Economic and Social Research Council.

Banco de España - Servicio de Estudios
Documento de Trabajo nº 9420

In publishing this series the Banco de España seeks to disseminate studies of interest that will help acquaint readers better with the Spanish economy.

The analyses, opinions and findings of these papers represent the views of their authors; they are not necessarily those of the Banco de España.

ISBN: 84-7793-323-5
Depósito legal: M-24451-1994
Imprenta del Banco de España

ABSTRACT

Links between Spanish industrial relations institutions and performance outcomes are examined. Part I considers changes in various institutions since the end of the Franco period: the structure of collective bargaining; trade union organisation; the activities and structure of management; the scope of bargaining; and the extent of informal bargaining. It goes on to see how such changes have affected macroeconomic performance. Part II examines the flexibility of the industrial wage structure. It considers how the relative job performance by sector is influenced by the flexibility in the pay structure and by minimum wage legislation.

Introduction

Linking industrial relations institutions to performance outcomes is rather popular these days, but very difficult to do properly. This paper focusses on two such links. Part I considers how the Spanish system of collective bargaining influences macroeconomic performance. It emphasises the importance of the coverage, level and co-ordination of bargaining, and the role of the state, in influencing macroeconomic performance. Part II concentrates on microeconomic efficiency by examining the link between the flexibility in the structure of industrial wages and relative employment. Evidence is presented on the industrial pay-productivity-jobs nexus and on the impact of minimum wage legislation on employment.

It has to be emphasised that much of the discussion here is tentative. The information on changes in institutions is rather fragmentary. There is an urgent need for more workplace and company data which would permit a firmer discussion of the association between industrial relations institutions and outcomes.

Commentators have noted that, over the last decade, a dichotomy has arisen in the Spanish labour market. One group of workers and firms is covered by traditional collective bargaining, while in the second group fixed-term contracts dominate. In any one workplace there may also be collective bargaining coverage with some employees on permanent contracts and some on fixed-term contracts. This paper is largely concerned with the impact of traditional collective bargaining. To the extent that fixed-term contracts have taken an important hold in Spain, the impact of collective bargaining on macroeconomic performance and microeconomic efficiency may have moderated somewhat in the last ten years. A companion paper analyses the contribution of the new contractual arrangements to the performance of the Spanish labour market.

PART I

INDUSTRIAL RELATIONS INSTITUTIONS AND MACROECONOMIC PERFORMANCE

1. Introduction

At the macro level the performance of the labour market is a crucial determinant and barometer of overall economic performance. The main policy objective is to create the most effective pay/jobs trade-off whilst still providing sufficient incentives for continuous improvement in micro efficiency. Most commentators on labour markets - national, local or occupational - cite the institutions of different markets as particularly influential in determining relative performance. Particularly highlighted, is the role of industrial relations institutions alongside other factors such as social security laws, the unemployment benefit system and the provision of training. There is now a reasonably well-established debate on the relative merits of alternative industrial relations institutions which concentrates on the structures and role of collective bargaining.

Four features of the industrial relations system are considered influential: the coverage of collective bargaining; the relative importance of the different levels at which collective bargaining takes place; the degree of coordination of collective bargaining - both intra- and inter-party; and the role of the state. This part analyses the performance of the Spanish labour market in recent years in the context of this debate and these four areas.

Section 2 outlines the main features of the Spanish industrial relations system and identifies key changes in institutions since the end of the Franco period in 1975. In some areas the picture is relatively clear, for example, on the coverage of collective bargaining, but there is very little information on other important aspects of the system such as the activities of management and the degree of informal collective bargaining. Some speculation concerning the possible influence of particular institutional features is also included here. Section 2 concludes by attempting to classify the Spanish system compared to its own past and compared to the UK system.

Section 3 reviews the literature on collective bargaining institutions and comparative economic performance. Although the literature has blossomed since the seminal studies by Bruno and Sachs (1985) and Calmfors and Driffil (1988), the debate is still relatively polarised in camps supporting one or the other of the two studies. While Bruno and Sachs found a relatively linear relationship between the degree of centralisation and performance, Calmfors and Driffil found a non-linear, hump-backed relationship with both centralised and decentralised economies performing better than their intermediate competitors. The alternative findings of the two camps hinge on the relative classification of different countries on the separate rankings of centralisation or corporatism. Section 3 concludes by suggesting that an alternative approach to this debate is to consider longitudinal information on economic performance in countries undergoing significant changes in collective bargaining structures.

Finally, Section 4 attempts to draw together information from the preceding sections to examine the crucial question of what the debate on industrial relations institutions and performance implies for Spain. Perhaps unsurprisingly, knowledge of the details rather than the stylised facts of Spanish industrial relations makes a definitive classification of the system extremely difficult, both with respect to the past and to other countries. This section also provides preliminary analysis of changes in institutions and economic performance over the last fifteen years.

Policies for improving Spanish economic performance through changing industrial relations institutions are not immediately apparent. In part, this is because of rather significant knowledge and data insufficiencies which suggest that what Spain needs most of all is a thorough national survey of industrial relations practices - particularly at workplace and enterprise level. In the UK workplace level, information is provided through the three Workplace Industrial Relations Surveys (WIRS) in 1980, 1984 and 1990 and there have also been enterprise level surveys (for example - Marginson *et al.*, 1988). Policies to change institutions cannot be made on the basis of inadequate information about how the existing institutions actually operate at the moment.

2. The Post-Franco Spanish Industrial Relations System

2.1. Introduction

Spain is still a relatively fledgling democracy compared to other western European economies and therefore perhaps unsurprisingly its collective bargaining system is still evolving. While elements of Franco's highly regulated system remain - industrial level collective bargaining and virtually mandatory works councils - there are also facets of a more laissez-faire approach to industrial relations such as free trade unionism and a right to strike. Descriptions of the Spanish 'system' by Lucio (1992), an International Labour Organisation mission (ILO, 1985) and McElrath (1989) amongst others, provide a quite complex picture of some seemingly contradictory industrial relations features.

The remit here is to identify key changes in the collective bargaining system in the years of new democracy and therefore an overview of the practice of industrial relations. Key changes are those which appear to have had (or in the absence of evidence, could have) a significant impact on the functioning of the system, the parties involved in bargaining and/or, perhaps most importantly, on labour market outcomes. By identifying the key changes in the Spanish collective bargaining system this should provide a perspective with which to characterise the current Spanish system and to speculate about possible effects on performance.

In some areas there is an abundance of data which provides a detailed picture of the current state of, and changes in, the collective bargaining system - such as the number of workers covered by collective agreements at different levels of bargaining. However, in other important areas there is little or no reliable information. Disparities in the amount of information available, combined with the inevitable contradictions of a still evolving system, mean that the overall picture of change is considerably blurred. Hence conclusions about the characterisation of Spanish collective bargaining (initially with respect to the UK) is contingent on some speculation. This is particularly evident when trying to assess the degree of informal bargaining taking place outside the regulated, formal system.

Five areas are examined in varying degrees of detail: the structure of collective bargaining; trade union organisation; the activities and structures of management; the scope of bargaining; and finally the extent of informal bargaining. In each area the main features of the system and the key changes since 1975 are documented and briefly discussed.

2.2. Collective bargaining structure

Key points:

a. Compared to under Franco collective bargaining is deregulated.
b. However, the system is still highly regulatory compared to the UK.
c. High and (since early 1980s) sustained level of collective agreement coverage.
d. Multiplicity of bargaining levels operating simultaneously, but degree of duality slightly reduced from late 1980s.
e. Attempts at concertation (social contracts) of 1977-1987 now abandoned (though possibility of revival considered in 1993).
f. Increasing concentration of bargaining at industry level (by province or region) away from national and enterprise bargaining. This raises questions concerning the role of works councils.
g. Little evidence, but suggestions by commentators that the bargaining system is more fragmented than official figures show.
h. Collective bargaining rights for public administration workers increasingly extended especially with 1984 Law on Trade Union Freedom.

Discussion:

a. Comparisons with Franco

Although Franco's government became increasingly less authoritarian in the area of industrial relations, particularly during the expansionary years of the 1960s (*los años de desarrollo*), the system has become significantly less regulated since his death in 1975.

Section b points out that despite large changes compared to the UK, the Spanish State still directs and regulates the organisation of collective bargaining quite extensively. There are two key areas of deregulation compared to under Franco. First, the State no longer intervenes directly to determine the outcomes of collective bargaining by sanctioning (or refusing to sanction) the contents of collective agreements. This has not prevented governments from attempting to influence pay settlements and the like, through voluntary incomes policies and concertation agreements with the social partners, but these have had no legal force as under Franco. The second major source of deregulation concerns the freedom of industrial relations actors to form independent trade unions and employers organisations. Under Franco legal trade unions and employers' groups were centrally organised and directed by the State for each industry. Concomitant with these two major areas of deregulation have been a right to strike, a right to independent worker representation, and rights of trade union association for most public sector workers.

b. Comparison with the UK

Deregulation has not, however, seen the Spanish system of collective bargaining move towards the UK system of virtually complete freedom of action by employers with some constraints on unions, in the name of a deregulated labour market. Although the State no longer seeks to directly control the outcomes of bargaining, it still sets many of the rules of bargaining. Note that in all the areas listed below, Spanish collective bargaining is significantly more regulated than the UK's. The principal provisions of the legal framework which influence collective bargaining structure are:

i. Workers have a right to representation through elected worker representatives at enterprise level - number elected depends on firm size.

ii. Elections for worker representatives are held every four years (every two years before 1985). Elections are regulated by the State but there is no government intervention in the process for which unions are solely responsible.

iii. In firms with over 50 employees, worker representatives form a works council which is then the

bargaining agent in the firm, should bargaining take place.

iv. In industries with sector agreements, the 'most representative' unions and employers' associations are accorded negotiation status dependent on performance in works councils elections (unions) and on the number of affiliated firms (employers' organisations).

v. The level of bargaining is determined by the parties not the State. Note though, that the parties have not seen fit to radically change the level of (formal) bargaining away from that which operated under Franco.

vi. All collective agreements have to be registered with the Ministry of Labour (or regional equivalent) to check that they are legal (do not breach minimum or maximum conditions of employment on pay, hours, holidays etc) but not to otherwise sanction their substantive contents.

vii. Collective agreements are legally binding on all employers and employees included in their remit. However these agreements only establish minimum terms and conditions. Employer agreements are used to establish over-award benefits for a significant minority of covered workers.

viii. Some provision for the extension of agreements to similar but uncovered firms, but apparently rarely used. Estimates vary but it is likely that extensions affect less than 20 agreements a year.

c. High coverage of collective agreements

Presumably because of the legal framework summarised above, the great majority of Spanish employees have their pay and conditions determined by collectively negotiated agreements. Recent estimates (Jimeno and Toharia, 1991) are that about 75% of employees (excluding public administration) are covered by at least one collective agreement (see Table 1 and Figure 1 for a summary of the available information up to 1991). Jimeno and Toharia point out that there are

problems with the official data on coverage, hence their lower estimated figure. Among the problems are: upward bias from double counting since some workers are covered by both enterprise and sector/region agreements and because estimates are those of the bargaining parties; and downward bias because some agreements are not included in the calculation (for instance two year agreements are not recorded in the second year). Moreover some data points do not include information on the most industrialised regions of Catalonia and the Basque Country.

Despite these problems it is readily apparent that collective bargaining coverage is extremely high in Spain especially relative to the low level of trade union density (see Section 3). The characteristics of firms and workers in the small non-collective bargaining sector is relatively undocumented apart from that by the industrial sector. Coverage is lower in agriculture, the food industry, transportation, personal services and hotels and catering. Jimeno and Toharia suggest that the lack of an updated census of firms is one of the main reasons for the absence of representation at some enterprises. It therefore also seems probable that non-covered firms are likely to be quite small, relatively new firms and possibly located in less developed areas.

The official data suggests that after a large increase in the proportion of employees covered by collective bargaining in the late 1970s, the proportion has remained relatively stable over the 1980s and into the early 1990s. There appears to be something of a data blip in the series at 1981 showing an improbably large dip in coverage. This data is reported at face value in Table 1 but Figure 1 also describes a more credible progression between 1980 and 1982. Comparisons of coverage pre and post 1975 are not very sensible since collective bargaining was not free from government interference before 1975.

d. Multiplicity of bargaining levels

In the fifteen or so years of democratic government, collective bargaining in Spain has operated at all four of the following levels: workplace; enterprise; sector (usually by province or region); and national. It seems that in large part these levels have been

functioning concurrently rather than consecutively. Most commentators would identify Spain with the Donovan description of British industrial relations circa the late 1960s - formalised multi-employer bargaining, occasionally directed by national incomes policies or in Spain's case 'framework agreements', and supplemented by enterprise and/or workplace bargaining - leading to wage drift. Although data on the coverage and levels of collective bargaining appears to be quite comprehensive - breakdown of the data is also available by sector and region - the absence of survey data does make assessing in exact detail the relative importance of different levels of bargaining quite difficult.

e. Increasing dominance of multi-employer bargaining?

Table 2 and Figure 1 provide a summary of the best available information on the relative importance of enterprise and multi-employer bargaining at sector level, in terms of the proportion of covered employees in each category. Although there are still a large number of enterprise agreements (and indeed the number of agreements has increased), the proportion of covered workers under them declined from around 20% in 1980 to 15% by 1990. There is some debate about whether or not this decline is significant, since it occurred mainly in the early part of the 1980s and since then the relative importance of company bargaining has remained relatively constant. Some commentators have also suggested that the relative importance of multi-employer agreements is overstated by the official figures, since in reality employers' associations can only guess at the number of employees directly affected by a sectoral or regional collective agreement.

Note that the official data records enterprise and workplace agreements in the same category, but although it is not possible to distinguish them in the data most commentators state that workplace agreements are uncommon. This slight shift to sector level bargaining from firm level, combined with the abandonment of framework agreements after 1986, indicates that there have been concurrent moves of both centralisation and decentralisation in Spanish collective bargaining.

f. Concertation abandoned

Table 3 provides information on various attempts at concertation between the social partners in the last fifteen years. Although there has been no economy-wide agreement since 1986, such high level agreements were a regular occurrence in the earlier years of democratic government. Each of the agreements was relatively ad hoc and each involved different combinations of the social partners, which presumably made enforcement of voluntary restraint somewhat difficult. There was apparently no attempt to establish formal tri- or bi-partite bargaining institutions at national level to match the bi-partite ones at sector level.

Most commentators suggest that there was fairly unanimous support for the abandonment of concertation agreements among unions, employers and government - though it is not clear whether this was because the agreements were not working or because all sides wanted more flexibility at lower levels. The fact that the absence of concertation agreements has not been accompanied by a decentralisation of bargaining from sector to firm level (see next point) suggests that flexibility may not have been the main motivation. Jimeno and Toharia (1991) contend that concertation still exists implicitly in Spain, since the end of formal national agreements has not led to widening of the pay distribution which might have been expected. They argue that although bargaining has shifted to the arena of sector agreements - because parties still look to macroeconomic factors, particularly expected inflation, when negotiating pay settlements - a form of coordination emerges. If this is the case then it could suggest that the level at which bargaining takes place may be less important than the degree of coordination of pay negotiations.

Note that after the perhaps unexpected survival of the Gonzalez administration after the 1993 election, the government sought a three year "social pact" to rein back pay settlements with the two main unions and the Confederación de Organizaciones Empresariales de España (CEOE) for the first time since 1986. This may be in part a reflection of the apparent failure to engender voluntary wage restraint through the ERM. At the time of writing, it appears that this initiative has failed (Financial Times, 28.10.93). Prime Minister Gonzalez has stated that even in the absence of a "social pact" his government will

still push through labour reforms including a relaxation of hiring and firing laws and the decentralisation of collective bargaining (Financial Times, 11.10.93).

g. Fragmentation

Despite the official data, some recent commentators have suggested that in reality the Spanish system is more fragmented and informal than this data reveals. It is not clear on what basis these opinions are formed. Purely speculating, one possibility concerns the activities of works councils in enterprises covered by sector agreements. There appears to be no legislation which limits the activities of these bodies in such a situation and it may be that they are conducting informal and over-award negotiations at enterprise level which is not recorded in official data on collective bargaining, but is picked up in the extent of wage drift above sector-based settlements. However, as discussed in Section 2.4., assessing the degree of informality from data on wage drift is very difficult since it could also be the result of individual employers' decisions to pay over-award increases for reasons other than informal collective bargaining.

h. Public administration

Collective bargaining for employees in publicly owned enterprises is governed by the same legislation as the private sector. However, public administration has specific regulations on, for example, union membership, collective bargaining rights and rights to strike. Most commentators choose to concentrate on the private sector and therefore there appears to have been no recent English language commentary on industrial relations in public administration. The report of the ILO's 1984 mission to Spain discusses relaxation of restrictions governing some public administration workers to bring their rights more into line with the private sector. It is not clear how far this deregulation has progressed.

2.3. Trade union organisation

Key points:

a. Very low density after short-lived surge in membership in 1977-78.

b. Dominance of two largest union confederations maintained but rise of public sector unions after 1984. Duopoly may be more harmful than single peak union organisation.
c. Unions appear more akin to political parties than traditional (stereotypical) worker organisations.
d. Multi-unionism widespread but its effect is probably mollified through single table bargaining.
e. Craft versus general unions not allowed to become an issue because of laws over representation rights.
f. Closed shop illegal and apparently not an issue.
g. Incorporation: difficult to decide whether it is union leaders, the government or employers who are incorporated.

Discussion:

a. Union density

There is no legal requirement on unions to disclose their membership figures which means that estimates of union density have an even larger margin of error than might otherwise be the case. Density figures are based on self-reporting by unions at periodic intervals, and appear not to have been verified by survey data on individuals or employers. There is consensus, however, on the fact that union density has declined considerably since its post-Franco peak in 1978 at around, or just over, 50% of the employed workforce (Lawler and Rigby, 1986, p.254). The ILO mission put density in 1984 at between 15 and 25%, and more recent estimates suggest that this declined further to between 10 and 15% by the end of the decade. There are various explanations for the decline including: unfulfilled expectations of democracy, a legal framework which negates the need for membership; lack of workplace union organisation to aid recruitment; a vicious circle of weak unionism; the virtual absence of check-off arrangements. At the very least we can say that if trade union strength is an important influence on economic performance in Spain, that strength is not derived from high union density. Trade union strength is orchestrated through legally regulated collective bargaining which predominantly operates at sector level.

b. Duopoly unionism

The dominant factor of trade unionism in Spain is the duopoly of the Comisiones Obreras (CCOO) and the Unión General de Trabajadores (UGT) since the fall of Franco. Their relative strengths and degree of influence compared to other unions and each other is best gauged by results in works councils elections since 1978 - collated in Table 4. It is clear that the influence of the two confederations has increased over the 1980s such that they jointly gained over 80% of the votes in the 1990 elections. Relative to each other, the UGT overtook the CCOO over the course of the 1980s, perhaps in spite of its association with and support for the PSOE government up to 1988. Whilst the development of this dual system is inherently interesting, in the context of collective bargaining and economic performance the existence of two peak worker organisations rather than one, could be a contributory factor in the poor pay-unemployment trade-off performance of Spain over the 1980s. Although the CCOO and UGT jointly encompass a high proportion of the working population, if they are operating competitively this may have hindered (and might continue to hinder) the operation of a centralised collective bargaining system.

c. Unions as political parties

The system of worker representative elections seems to have created unions which act more as political parties than more "typical" trade unions elsewhere - as in the UK. Trade union strength in Spain derives, as with political parties (in a democracy), from performance in elections rather than necessarily the level of membership - although presumably there may be positive effects on the former if membership is high and/or well-organised. Changes to the law on works councils' elections in 1984 would appear to have accentuated the concern with electoral performance for unions: a lengthening of the electoral cycle from two to four years; and new rules governing which unions are entitled to negotiate at sector level depending on electoral performance. Union leaders, as politicians, may be less accountable, may be more likely to offer and perhaps press for higher than efficient terms and conditions, and may be less aware of the implications of their actions than in other settings.

d. Multi-unionism and single table bargaining

A Spanish employer cannot choose, unlike his UK counterpart, to recognise only one union for collective bargaining or indeed not to recognise a union at all, since the system of worker representative elections has ensured multi-union presence on works councils and on the majority of sector level negotiating bodies. Table 5 gives some indication of the degree of multi-union representation in collective bargaining institutions, suggesting that around 60-70% of enterprise agreements and nearly all sector agreements involve more than one union.

The issue of multi-unionism has received some empirical attention in the UK recently, though there is a general lack of theoretical basis for the findings. Machin *et al.* (1993) have investigated the effect of multi-unionism on pay, financial performance and the incidence of industrial action using data from the 1984 *Workplace Industrial Relations Survey*. They found that when multiple unions bargain separately they are associated with higher pay, poorer financial performance and a greater likelihood of strike action than other unionized establishments. However, that research also suggests that these effects are mitigated when multiple unions negotiate jointly with management rather than separately. Metcalf *et al.* (1993) find a similar result on strike action over pay settlements using data from the Confederation of British Industry (CBI) Pay Databank survey covering UK manufacturing in the 1980s.

A priori it seems unlikely that multi-unionism has an important part to play in explaining Spain's poor aggregate real wage flexibility, since although multi-unionism is widespread it is almost always accompanied by single table bargaining. Even though single table bargaining depends nominally on the establishment of a joint bargaining position between the various unions (McElrath, 1989), apparently this is rarely the case. So it may well be that at both enterprise and sector level, the potentially harmful effects of multiple unionism are mollified by single table bargaining. However this conclusion is pure speculation in the absence of information about the mechanics of enterprise and workplace bargaining.

e. Craft versus general unions

Small, craft or professional unions do exist in Spain (see Lawler and Rigby, 1986, *inter alia,* for details) but again the legislative framework on collective bargaining rights prevents them gaining a strong voice at the most important, sector level negotiations. The rules regarding 'most representative' union status stipulate that a union must gain at least 10% of the works council delegates or staff representatives nationwide (or 15% in a particular region if the union is regionally based) to be able to negotiate on the relevant sector bodies. Consequently the craft versus general union issue which particularly affected (afflicted) British trade unionism in the 1960s and 1970s is not significant in Spain. Having said this, it may be that the conflict between skilled and unskilled workers' interests is played out by informal, and therefore unrecorded means at workplace or enterprise level. Again this is an area where reliance on official data may provide an unreliable picture of industrial relations in Spain and highlights once again the need for a Spanish WIRS or perhaps a *Firm-level Industrial Relations Survey* (FIRS).

f. Closed shop

The closed shop is illegal in Spain and it does not appear to have ever been an issue since 1975 (or before then). However, a related matter is that of 'solidarity contributions' - a levy on non-union members who are covered by union bargained collective agreements - which has been proposed as a means both to strengthen precarious union finances and to tax free-riders. (One justification for the post-entry closed shop is to prevent free-riders on collective bargaining.) Although solidarity contributions are now permissable in Spain (they were illegal at one time) they can only be levied voluntarily. It seems unlikely that legislation will be altered to legalize the closed shop or compulsory solidarity contributions.

g. Incorporation

There is a belief among some British commentators on industrial relations that in the 1970s and early 1980s shop stewards were incorporated into management, such that the former were more likely to espouse the opinions and values of the latter than of the workers

they were supposedly representing. A recent dissenting voice has claimed that in fact management was incorporated into the shop stewards' way of thinking in the 1970s and that the 1980s and 1990s have witnessed the 'de-incorporation' of management (Dunn, 1993). This debate appears to be an interesting means to characterize the nature of and changes in the industrial relations systems in different countries. *A priori* it seems straightforward to argue that in the Spanish case union leaders have been incorporated into a sector-based bargaining system and therefore pay little regard to the opinions and attitudes of workers. However, it may also or instead be employers' group leaders who are incorporated into the value system and attitudes of trade union leaders, although the fact that few individual employers have broken away from sector agreements suggests that this is unlikely. This area deserves greater attention, in particular towards some means of testing the extent and effects of incorporation.

One point of particular interest concerns the employer representatives on sector level agreements. It appears that large employers are more likely to be represented on sectoral negotiating bodies than smaller employers. These large employers probably have somewhat different interests from smaller employers and may be more willing to collude with unions over pay to the detriment of flexibility.

2.4. Management

Key points:

a. Main employer organisation apparently strong but conflicting reports.
b. Importance of small firms.
c. No mention of anti-trade union practices except for underground economy.
d. Little good data on human resource management.
e. Multinationals: some information on extent of inward investment but little on employment practices of these firms.
f. Generally inadequate information on the activities of management in this area.

Discussion:

Perhaps unsurprisingly there seems to be very little information on the organisation, attitudes and practices of Spanish management in respect of industrial relations. There are some broad themes suggested in the literature but insufficient data to substantiate the points. Here again a problem arises from the reliance on officially recorded data on registered agreements for information on collective bargaining.

a. The role of the main employers organisation

The role and importance of employers' associations has received fairly minimal - and then mainly descriptive - attention in industrial relations. The literature concentrates on analysing the origins of such organisations, their internal structures and their functions in relation to members (*inter alia*, Sisson, 1987 and Windmuller and Gladstone, 1984), rather than on predicting or measuring their effects on economic outcomes. There seems to be some agreement between commentators that the role of such associations in multi-employer collective bargaining depends wholly on the support of member firms rather than on compulsion. Such firms favour higher level bargaining over pay and conditions in order to "neutralise trade union activity at workplace level" (Sisson). In the UK's case the breakdown of multi-employer bargaining from the late 1960s came about because it was seen as no longer neutralising shop steward activity.

Most of the English language descriptions of Spanish industrial relations ignore the role of individual employers or of management and instead concentrate on the role of the CEOE - the peak employers' organisation. Over 90% of employers in Spain are members of the CEOE, from all sectors, regions, private and public, small and large, and whether Spanish or foreign owned. The CEOE is actually a confederation of around 50 sectoral and 100 territorial employers' groups, such that many firms will have a double affiliation to the CEOE through a sector and a territorial body.

What is perhaps more important than the structure of the CEOE, is its role in collective bargaining - the extent to which it is able to direct affiliates in order to coordinate pay settlements and its ability to enforce compliance with sectorally agreed changes in terms and conditions. Lucio (1992) states that compared to other areas of

operation the CEOE has been more "directive" in areas of industrial relations but that the loose confederate structure has sometimes created problems of enforcement. An example was the National Construction Confederation's over-award payment of 2.5 percentage points above the CEOE's recommendations in 1990. McElrath (1989) states that the degree to which affiliates follow the CEOE's directives in bargaining is simply not known. He also suggests that small and medium sized firms have been pushing for more decentralisation within CEOE but states that the extent to which this is occurring or even has occurred, is not clear. Presumably the extent of wage drift away from CEOE guidelines would be a good measure of the influence and strength of the employers' association. Either way there does seem to be some case for arguing that Spain has followed other developed countries in favouring multi-employer bargaining in order to prevent extensive trade union activity at workplace level. However, should trade unions gain a stronger foothold at workplace level, then individual employers may increasingly break away from the multi-employer framework to bargain directly with unions.

b. The importance of small firms

According to Sisson *et al.* (1991, p.97), compared to other EC countries, Spain has the highest proportion of workers (41%) in small firms (i.e. under 10 employees) and the lowest proportion (8%) in firms with more than 500 workers. The industrial relations of small and medium sized firms in Spain has been investigated by Miguelez (1988) but he does not provide (presumably because of inadequate extant data sources) a particularly illuminating picture of how such firms' practices or structures differ from larger enterprises. Lucio (1992) states that the predominance of small-scale enterprise "means that their industrial relations and personnel practices are the prevalent pattern", however, without substantive data it is not clear how this conclusion is reached (Lucio quotes an article in Spanish by Prieto c. 1991, but does not detail Prieto's data source).

c. Anti-trade union practices

Although not explicitly discussed there do not appear to be widespread anti-trade union practices (and therefore presumably

attitudes) amongst management. Estivill and de la Hoz (1991) state that there are two main reasons for a general absence of such practices in Spain: first, union organisation at workplace level is so weak that unions are not a significant threat to managerial prerogatives; and second, anti-trade union practices would effectively be anti-works councils practices and therefore illegal. There is no Spanish equivalent of the National Labor Relations Board (NLRB) union recognition elections, through which employers can legitimately pursue anti-union policies. There are two illegal ways in which employers could pursue anti-union policies. First, by non-compliance with sectoral collective agreements. A second and quite prevalent means of avoiding unions and legislation on worker representation is through the black economy. However, it may be very difficult to determine what influence the practices of unions and government labour legislation have had on the growth of the informal economy.

d. Human resource management (HRM)

Human resource management techniques emphasize the individual worker, workplace or company at the expense of collective organisation. The techniques include: employee involvement, for example through a greater voice for workers and better communications; performance appraisal; and payment systems which focus on individual merit and company performance. There is little good data on HRM practices in Spain. A couple of the more recently published overviews on Spanish industrial relations assert that there has been some growth in the use of HRM practices (Lucio, 1992, Estivill and de la Hoz, 1991) largely through the influence of multi-nationals. Neither study suggests that these developments are widespread or that they threatened the established worker representative system, and moreover neither study is able to supply empirical estimates of the development of HRM. This is hardly surprising given that debate still rages about how to define HRM in theory, let alone how to identify it in operation, and that data at enterprise level is scarce.

There is one comparative study which has examined the development of HRM across the EC using data from the Price Waterhouse Cranfield project on the HRM practices of large firms

(over 200 employees). Filella (1991) asks whether there is a 'Latin model of HRM'. His conclusions are fairly unconvincing mainly because he does not discuss the representativeness of the data and some of the results are ambiguous. For example, one finding is that 80% of Spanish managers said that unions had become more influential over the last three years, compared to an average of around 50% of other EC managers. This is a fairly broad question which could be interpreted in a host of different ways - does it mean influential in the firm, in the industry, in political life? Is this a positive or a normative response? And most importantly, what's the benchmark? Filella does not provide even simple data on the relative use of HRM practices across the different EC countries.

e. Multinationals

Buckley and Artisien (1988) document the importance of inward investment by multinational firms in the major Spanish manufacturing industries but there is apparently little known about the impact of these firms on the management of industrial relations. Lucio (1992) states that the multinationals were among the first firms to develop informal bargaining under Franco, and that there is some evidence that they are also at the forefront of introducing HRM practices such as quality circles and performance related pay. Again hard data is very difficult to come by.

f. Generally little information on the activities of management in this area

Assessment of the role of management structures, organisation and strategies connected to industrial relations in Spain is made extremely difficult because of the dearth of reliable information on these issues. In many ways the study of Spanish industrial relations is now at the stage that the study of the UK system was in the late 1960s/early 1970s. The focus is all on the structures and institutions of collective bargaining and on the role of trade unions within those. In the UK some analysis of the management of human resources is seen as fundamental to any understanding of industrial relations as a whole. All the points discussed in this section result in unsubstantiated conclusions because of this lack of information on the

industrial relations practices of Spanish management (apart from that which is officially recorded in industrial and enterprise collective agreements). Perhaps the Cranfield Price Waterhouse project will produce more reliable and interesting data than has been published to date. However, first impressions of the data collected are not favourable.

2.5. Bargaining scope

Key points:

a. Conflicting evidence but some suggestion that the scope of agreements was reduced in 1980s.
b. If true, this suggests management is either deciding issues unilaterally or is informally negotiating changes at workplace level.

Discussion:

a. Scope of agreements

There is not a great deal of discussion of bargaining scope in the studies of Spanish industrial relations. The ILO Mission Report (1985) provides details on the scope of the 1983 framework agreement (AI) which was extremely comprehensive, covering: pay; productivity; hours of work; absenteeism; the structure of collective bargaining; the promotion of employment; health and safety; and trade union rights. The ILO report also states that this, like other framework agreements, formed merely the starting point for sector and enterprise level bargaining. More recently commentators state that the scope of bargaining has reduced to concentrate on pay and hours (Estivill and de la Hoz, 1991; Lucio, 1992). If true this is concomitant with the decentralisation of bargaining away from economy-wide agreements. One elucidation of the reduction in bargaining scope (particularly to exclude employment promotion) could be that whilst at national level unions were prepared to trade wage increases for promises of economic stimuli to raise employment, at non-national levels the trade-off is less immediate and apparent.

b. How are formerly bargained issues now decided?

In the UK there has been a reduction in bargaining scope over the last decade with the resultant corollary that managers are now much more likely to be taking decisions independently of unions and collective bargaining over working practices and arrangements. Although this may also be the case in Spain, it could be that many of the issues which were formerly bargained over collectively in the formal settings are now being bargained over informally at workplace level. This could be one explanation for the Cranfield Price Waterhouse survey results on the proportion of Spanish managers reporting an increase in union influence. Again this is an area which may prove especially difficult to illuminate.

2.6. Formality and informality

Key points:

a. Not clear how to judge the extent of informal bargaining at workplace.
b. Contradiction: commentators say fragmented bargaining in an environment of low unionisation and little workplace organisation - so who are managers negotiating with?
c. Need for information on workplace bargaining.

Discussion:

a. Measuring the extent of informal bargaining

One means of testing the degree of informal bargaining is to measure the extent of wage drift, and particularly changes in the level of wage drift as the locus of bargaining has shifted to sector level. There are problems with this outcome measure, however, since factors other than informal bargaining could be responsible for wage drift. These include efficiency wages for skilled workers and the insider/outsider problem. One measure of the extent of workplace (and presumably informal) bargaining is the Cranfield Price Waterhouse project data. Hegewisch (1991) reports on the level of "basic pay determination in the private sector for manual workers" across various European countries. While 61% of the 259 Spanish firms surveyed, report that the industry or region is the level at which basic pay is determined, 21% and 17% cite the enterprise and

workplace respectively (8% say individual level). This suggests that workplace bargaining is not as uncommon as some other authors suggest. Moreover Hegewisch's data concerns only 'basic pay determination' rather than total remuneration including bonuses and the like. Without adequate data it is very difficult to accurately judge the extent of workplace bargaining. But at the very least the Cranfield data suggests more decentralisation than the official data.

b. The contradiction of fragmented bargaining and low unionisation

There is something of an anomaly in the assertion by some commentators that Spanish collective bargaining is far more informal and fragmented than the official data suggests in an environment of low unionisation and weak or non-existent workplace organisation. It does beg the question of who management is conducting this informal bargaining with. Perhaps the worker representatives have become like shop stewards who do not require the support of well organised union structures to exert pressure on management on behalf of their fellow employees. Presumably these representatives must be performing some function where formal collective bargaining is taking place at multi-employer level.

2.7. Characterising the Spanish industrial relations system

Although all sorts of changes in the Spanish industrial relations system are fascinating and no doubt important for explaining different aspects of economic performance, for the purposes of this paper four areas are of crucial importance.

a. The coverage of collective bargaining

Both relative to other Organisation for Economic Cooperation and Development (OECD) economies and its recent history, the coverage of collective bargaining is very high in Spain and has remained high since the early 1980s. This contrasts markedly with the UK which has witnessed an enormous decline in coverage especially since the mid-1980s such that as from 1990 (at the latest) the UK became a predominantly non-unionised economy.

b. The levels of collective bargaining

The debate over the consequences of collective bargaining structures on economic performance revolves much more around the relative importance of different levels of bargaining, than overall coverage. Unfortunately the Spanish experts on collective bargaining worry that the data on relative importance does not provide an accurate picture of changes that have taken place. In other words although the data suggests a simultaneous decentralisation away from economy-wide bargaining down to sector level bargaining (by region) and a centralisation from company to sector bargaining - the experts believe that company bargaining has actually increased in importance. This all matters rather a lot since determining what the structure of collective bargaining looks like and how it has changed is a crucial building block towards understanding the impact (if any) of such changes on performance.

c. Coordination

Prima facie the degree of coordination between the social partners has declined since the mid-1980s after the end of national bargaining pacts. In terms of intra-party coordination, it does appear that whilst the main two trade unions have maintained internal coordination through control of sector level bargaining, employer coordination (if it ever existed) is quite weak. These are the stylised facts regarding coordination but there is a stark need for more information on intra-party negotiations and means of agreement enforcement. Either way, it does appear that Spain still has a more coordinated collective bargaining system than the UK where neither unions nor employers are at all coordinated.

d. The role of the state

Although the state no longer has to ratify the contents of collective agreements, compared to the UK the Spanish industrial relations system is still highly regulated. Without doubt the most important feature in this respect are the legal props for collective bargaining in terms of the rights to union representation through union elections for a large majority of workers. By providing a guarantee of union recognition, the state removes what some might regard as a basic liberty of the employer - to choose whether or not to recognize

a trade union. The Spanish system could be described as a circumscribed, voluntarist system in which the employer and union have considerable freedom to operate but no freedom to choose whether or not they bargain with each other in the first place.

3. Collective Bargaining Institutions and Labour Market Performance

3.1. Introduction

Since the mid-1980s a number of economists have considered the comparative influence of different collective bargaining systems on labour market and macroeconomic performance. Bruno and Sachs (1985) set the terms for the debate in their analysis of the performance of 17 OECD economies up to 1979, by employing an index of corporatism as one explanatory variable concerned with the institutions of industrial relations. The political sociologists had already suggested that the degree of corporatism of individual countries' collective bargaining systems was a key factor in explaining different records of industrial conflict (Crouch 1985) but for economists this was relatively novel ground. Since 1985 there have been a number of comparative studies examining this issue, using various performance measures and alternative indices to delineate types of bargaining system. This section distils the evidence from 14 such studies, examining their key findings, the points of debate between authors in the area and the implications of their results.

The theoretical link between collective bargaining systems and macro performance is well known - turning on the negative externalities of disaggregated bargaining. If bargaining takes place at the national level, the parties are aware of the implications of any pay settlement for prices (and therefore real wages), for growth and for employment/unemployment. In an environment of non-national bargaining, bargainers operating at a more decentralised level will be less concerned about the wider implications of their pay settlement and pay leapfrogging is more likely. Newell and Symons (1987) state that the centralisation and performance concept is directly analogous to the analysis of cartels, in that given pay restraint by all other bargainers,

there is an incentive for individual groups to cheat by breaking away from the centrally set norm.

Virtually all of the empirical studies on this subject fall into two distinctive groups: those like Bruno and Sachs who find a linear (and positive) relationship between corporatist (or centralised) institutions and superior performance; and those who discern a non-linear relationship (a hump or U-shaped relationship), such that both highly centralised (corporatist) and highly decentralised (non-corporatist) economies perform well compared to their intermediate counterparts. The most well known study suggesting the latter relationship is by Calmfors and Driffil (1988). The principal explanation for the contradictory findings of the two sets of studies centres on the different means of ranking institutional forms. In particular, the specific ranking of certain, high performing economies on the three or four scales which have been developed is the key to the different results obtained.

The debate appears to have reached something of a stalemate, since there is no objective means of choosing which is the most appropriate or accurate method of scoring the degree of corporatism or centralisation. Therefore critiques tend to focus on subjective assessments of the individual scales employed. Moreover, it is always possible to argue that an individual country is ranked incorrectly on an individual scale even if the most suitable scale could be agreed upon. Therefore attempting to produce another, more acceptable ranking of national bargaining systems will not provide a way forward in this area. A judgement on whether the linearites or the non-linearites are correct depends on an initial assessment of the credibility of the alternative rankings used.

However, this debate could be progressed in another way by examining the effect on performance of changes in the collective bargaining institutions of individual countries. A disappointing feature of all but one of the studies summarised here is that they do not take account of changes in national systems. Instead, it is implicitly assumed that each economy's relative ranking remains fixed over the period of study even if data is taken from a reasonably long time period. The UK is not alone in undergoing enormous changes in its collective bargaining system since the 1970s (and indeed in the 1970s) yet the possible impact of these changes is more or less ignored in the

majority of the studies. The whole debate about collective bargaining systems and performance could be given fresh impetus by examining economic performance in individual countries over two or three decades, taking account of important changes in the institutions of collective bargaining.

3.2. Characterising national collective bargaining systems

The starting point for all these studies is a bargaining institutions measure which permits a meaningful categorization of the various OECD economies. Five ranking scales are shown in Table 6 and the accompanying notes explain the construction of each scale. There have been two main approaches, assessing respectively the degree of corporatism and the degree of bargaining centralisation. The distinction is more than mere semantics since the alternative linear/non-linear findings depend heavily on the different rankings produced by the corporatism and centralisation scales. Moreover the basis of Calmfors and Driffil's argument against Bruno and Sachs and others is that their corporatism measure obscures as much as it reveals about the impact of labour market institutions.

Crouch, and Tarantelli (1986) have each produced indices of corporatism - although they are based on similar dimensions. Calmfors and Driffil developed an alternative centralisation index. The latter authors argue that their index is superior to either of the corporatism indices since it is less subjective than measures of corporatism and that the mechanisms which affect the functioning of the labour market are more easily understood in reference to their index rather than the alternatives. On the other hand those favouring the corporatism measures would argue that Calmfors and Driffil's scale is too limiting and does not take account of consensual tendencies in some countries even in the absence of institutions of national bargaining.

Crouch's corporatism index was first used in an economics setting by Bruno and Sachs such that in the economics literature it has become synonymous with them rather than Crouch. The index is the sum of scores (0, 1 or some indeterminate point in between) on four indicators: the extent of union movement centralisation

(centralised=1); of shop-floor autonomy (low=1); of employer coordination (high=1); and the presence of works councils (yes=1). Bruno and Sachs provide a ranking based on this index of 17 OECD countries with Austria, (West) Germany, the Netherlands, Norway and Sweden as clearly corporatist economies and at the non-corporatist lower end the US, Canada and Australia. Tarantelli's index is quite similar except that he ranks countries on only three characteristics: the degree of 'neocooption' of trade unions and employers' organisations (covering both the degree of political consensus and the level of integration and cooperation of social partners with the machinery of government); the degree of bargaining centralisation; and the 'neoregulation' of industrial conflict (extent of dispute procedure provision). Each country is scored from 1 to 5 on each indicator (very low through to very high) and the sum of these scores determines their respective rankings. The resultant scale is reasonably similar to Crouch's except that Japan is ranked much higher (just after Austria and Germany and before the Scandinavian countries), and Italy and the UK rank bottom of the corporatist pile - considerably lower than either the US or Canada.

Compared to both these indices, Calmfors and Driffil's scale is more simple, concerning itself only with the degree of bargaining centralisation. This is estimated as the sum of two scores on: the extent of coordination within national union and employer federations; and the number of parallel central organisations (on each 'side') and the degree of cooperation between them. The resulting scale ranks Germany, Japan and Switzerland much lower than their respective rankings on the corporatism scales. What in effect Calmfors and Driffil are estimating with the first indicator is the degree of centralisation, and with the second some degree of consensus or cooperation. On closer examination of their centralisation ranking it is clear that the first of these two dimensions is doing the work. Only the US and Canada score a lowly 1 on the second dimension with all other countries scoring 2 or 3. By comparison, there is a more obvious polarisation on the first indicator with half the countries scoring 1 or less, and half scoring 2 or more. It seems odd that Calmfors and Driffil give the two dimensions equal weight when they are particularly interested in investigating the impact of centralisation.

A clear-cut example of this problem is provided by the UK. It achieves the lowest ranking of all 17 countries on the first dimension (0+) because bargaining is so decentralised, and a 3 on the second because there is only one peak organisation for both labour and capital. Given that the first dimension indicates that there is no coordination (i.e. centralisation) of bargaining within either of these bodies (Trades Union Congress (TUC), CBI), the actual number of parallel confederations is surely of no consequence. Perhaps the existence of one TUC and one CBI mean that the institutions of centralisation are in place and therefore this may indicate a degree of coordination potential but that surely should not be used as a measure of the role of existing bargaining institutions. One imagines that close inspection of the composition of the Calmfors and Driffil index (and other indices) would provide other examples of curious classification. If the UK was ranked alongside the US and Canada on the Calmfors and Driffil index as a highly decentralised economy, their non-linear relationship might well break down.

Soskice (1990) argues that the Calmfors and Driffil index suffers from the problem of misclassification because it does not allow for the possibility of effective economy-wide coordination resulting from concerted action on the side of employers only - irrespective of union institutions and behaviour. He cites the examples of Switzerland and Japan to show that employer coordination over pay can produce similar beneficial outcomes to dual coordination environments. He then produces an alternative version of the Calmfors and Driffil index on this basis and finds a linear relationship with his chosen measures of economic performance.

Two alternative and illuminating approaches are provided by Newell and Symons (1987) and Layard (1990) respectively. The novelty in the approach of Newell and Symons is to use the Bruno and Sachs' index but to also examine the influence of changes in the degree of corporatism in three countries (Germany, the UK and Japan) over time. Their approach is somewhat crude, delineating corporatist and non-corporatist periods but at least they allow for the possibility of changing environments. In contrast, Layard eschews the corporatism and centralisation indices in favour of testing the influence of some of their constituent parts on unemployment performance. He examines the separate importance of employer coordination, union

coordination and union coverage rather than combining them into an overall ranking. This is a particularly rewarding approach since in the studies which use the alternative indices of bargaining systems, it is not possible to determine which, if any, of the constituent parts of the indices is particularly influential.

Only two of these studies, Freeman (1988) and Layard (1990), take account of the relative importance of collective bargaining as a whole within the respective countries examined. This is surely an important oversight. The US labour market is distinctive not particularly because bargaining is so decentralised but rather because it is predominantly non-union - collective bargaining covers only a small minority of employees. Even if pay setting in the small unionized sector was centralised, surely we would not categorize the US as a corporatist or centralised economy. Furthermore, changes in the industrial relations environment of the UK over the last 15-25 years suggest enormous changes in the coverage of bargaining as well as movements towards extensive decentralisation. A highly unionized, highly decentralised economy will presumably be expected to perform differently from a low (or medium) unionized, highly decentralised economy. In short, the effect of different bargaining institutions must also depend to some extent on the relative levels of collective bargaining coverage.

3.3 Measuring performance

The fourteen studies summarised in Table 7 employ between them a large range of performance measures depending in part on their subjective assessments of what constitutes good performance. This debate is principally concerned with labour market performance - most studies concentrate on unemployment, employment and wage setting performance. Most popular, unsurprisingly, is an unemployment level measure, used by Bean, Layard and Nickell (1985), Calmfors and Driffil, Freeman, Layard, Soskice and Pohjola (1992). Three of these studies also examine changes in unemployment - Bean *et al.*, Calmfors and Driffil, and Pohjola. Rowthorn (1992) however, criticizes the unemployment performance measure on the grounds that it does not take account of political, social and economic institutions which may

keep the unemployment rate down by artificial adjustment of the labour supply, particularly of women and foreign workers. He is particularly concerned to highlight Austria here, since it has enjoyed good unemployment performance largely as a result of adjusting labour supply. Therefore Rowthorn favours the employment rate as a more appropriate labour market performance measure. This measure is also employed by Calmfors and Driffil, Freeman, and Pohjola.

Various authors point out that the results of the unemployment and employment rates may be misleading since these performance measures may be more influenced by economic policy decisions as by underlying bargaining institutions - i.e. by both the demand and the supply side. It may be more appropriate to examine the response of wage bargainers to changes in unemployment brought about by external or internal shocks. Real wage flexibility, or its obverse real wage rigidity, is conventionally measured as the decline (or change) in real wages resulting from a 1 percentage point rise in unemployment. This performance indicator is considered in four studies - Bean *et al.*, Newell and Symons, Pohjola, and Heylen (1992). What is particularly enlightening about this indicator is that it reveals how economies respond to adverse macroeconomic situations - how bargainers respond in bad times.

Composite performance indicators have been used in various studies. Particularly prevalent is Okun's "misery index" - constructed as the sum of unemployment and inflation rates. This is another means of considering the economic policy/labour institutions mix. Alternative misery indices include: a measure combining the rate of inflation and the growth rate (Bruno and Sachs); the unemployment rate combined with the current account deficit as a percentage of GDP; and Rowthorn's INDEED index - the employment rate plus a wage equality measure (1 minus a wage dispersion score).

3.4. Findings

As stated in the introduction the studies divide up quite distinctively into the "linearites" and the "non-linearites" in their findings. Some argue that their results show that corporatism is superior to non-corporatism on a reasonably monotonic scale. The

sceptics argue that both highly centralised and highly decentralised economies perform to a similar level compared to the poor performing intermediate economies.

a. There is a positive, linear relationship between the degree of corporatism or centralisation and performance

In studies employing either rank correlation techniques or more sophisticated regression analysis, a positive, monotonic relationship is found between a number of the performance variables and one of the bargaining institutions scales. These findings were confirmed in all six different studies published before Calmfors and Driffil produced their sceptical view and in three of the other eight studies in Table 7. Layard and Soskice each fall into the linear camp even though they do not actually employ either of the corporatism indices in their studies. Actually both of their studies concentrate on the effect of employer coordination on performance, and Layard in particular finds that this is the single most important institutional variable for explaining variation in unemployment performance - holding all else equal - across 20 OECD countries (1983-88).

b. Both highly corporatist (centralised) and highly non-corporatist (decentralised) economies perform best

Calmfors and Driffil's findings have been supplemented since 1988 with four studies which examine other outcome variables and/or different time periods to those of the original authors. Most of these four reiterate the significant non-linear relationship between the Calmfors and Driffil index and unemployment rates and changes, employment rates and real wage flexibility. However, two of the four also test Tarantelli's corporatism index alongside Calmfors and Driffil and duly find a linear relationship.

Again the principal reason for these conflicting results is the index of bargaining institutions used. Calmfors and Driffil confirm this by running the tests in other studies (specifically Bean *et al.* and Newell and Symons) with their index, instead of Bruno and Sachs' and declare that the monotonic relationship no longer holds up. In addition Soskice changes the ranking of two high performers in the Calmfors and Driffil scale (Switzerland and Japan) from uncoordinated

to coordinated and finds a linear relationship between the revised scale and the mean unemployment rate for the late 1980s and one misery index.

Therefore the crucial question is which of the competing indices of bargaining institutions has more merits? Calmfors and Driffil argue that their scale allows an examination of one aspect of corporatism - the level of collective bargaining - and therefore does not cloud the issue with intermediary variables. The question of which index is most appropriate is surely unresolvable since the indices are so subjective anyway.

3.5. Implications

The often unanswered question stemming from this group of empirical studies and theories is what are the policy implications - particularly for the poor performers in the OECD? It seems rather facetious to state that the Layards and Soskices of this world advocate moves towards more corporatist or centralised structures of bargaining, whereas Calmfors and Driffil and others argue for either a Swedish style system or the polar extreme of the decentralised US. The disparity of views is particularly apparent for policy implications for quite decentralised economies like the UK and Italy. The implications of the Calmfors and Driffil study for the UK is that the most feasible means of improving performance is to move to a US style model rather than a centralised type system.

There are two overriding and interrelated issues on this question of policy implications which deserve consideration. First concerns the endogeneity of corporatism. There must be something of a worry that the causation between bargaining environment and macro performance cuts both ways - consensus and the institutions of it are fostered by good performance. Perhaps it is only a well-functioning labour market and product market which can support a consensus based, centralised bargaining system since parties are dividing up growing spoils.

Second, and far more important, is the question of whether or not it is actually possible for poor performers to fundamentally change their collective bargaining system, in particular from a non-corporatist to a corporatist system. Archer (1992) provides a critical analysis of the so-called tradition-bound thesis advocated by Crouch that policy

makers cannot choose to be corporatist because the factors which determine whether an economy is corporatist or liberal (non-corporatist) were at play in the eighteenth and nineteenth centuries. This thesis therefore holds that whether or not an economy is conducive to corporatism is a function not of contemporary choices but rather of long-established traditions and therefore decisions made many decades ago. Archer is critical of Crouch's view, using the example of Australia in the 1980s to argue that here is an example of a country without the corporatist tradition which established (fairly successfully) a consensus over economic policy. However given the recent (perhaps temporary) breakdown in national bargaining in Australia, perhaps Crouch is correct in the long term. Although corporatist experiments may succeed in the short term, countries are unable to permanently move from a non-corporatist to a corporatist system. If Crouch is correct, then the policy implications of all these studies may be minimal.

4. What are the Lessons for Spain?

4.1. Introduction

In this section the key issue is what does the institutions and performance debate imply for Spain? The most obvious way to approach this is to consider whether or not the relative rankings of Spain on the scales detailed in Table 6 are consistent with the observed poor performance of the labour market. Consistent may not necessarily mean causation but this will at least provide some indication of whether or not Spain's industrial relations institutions can help to explain poor performance. Table 6 reveals that where Spain has been included in three of the five scales (either in the original or updated versions) it has been categorized alongside other poor performers and is therefore consistent with both the linear and non-linear theoretical relationships. However, there are some important caveats to this relatively straightforward conclusion.

Another means of considering this key issue is to examine evidence on changes in institutions since 1975 alongside various performance indicators. This provides supplementary evidence to the cross-country comparisons and takes account of the major criticism of

the studies summarized in Table 7 - that they fail to consider the impact of institutional changes within national economies. Admittedly, there are also problems with interpretation of time series evidence such that it must be seen as a supplementary rather than a wholly alternative means of analysis.

4.2. Spain's relative institutional ranking and performance

Layard, Nickell and Jackman (1991) provide updated versions of the two main scales in Table 6 - Tarantelli's neo-corporatism index and Calmfors and Driffil's centralisation of bargaining index. On both scales Spain is assigned a ranking amongst the other three poor performing EC countries - France, the UK and Italy. In Tarantelli's index this puts Spain at the bottom of the scale, whereas Spain is placed around the middle on the Calmfors and Driffil's scale with other intermediate bargaining systems. Spain's worse than average labour market performance is therefore consistent both with the linear relationship suggested by Tarantelli and others, and the hump-shaped relationship suggested by Calmfors and Driffil in their analysis.

The single example of Spain therefore reinforces the picture that the fundamental difference between the two views of institutions and performance rests on both what criteria are used for categorizing countries and where individual countries are placed on the resulting scales. Note that Layard's quasi-index of employer coordination also includes Spain (Layard, 1990). It is ranked among the least coordinated group which is again consistent both with Layard's predictions and findings. Therefore Spain can be cited as a country in need of more centralisation by one camp, and of either more decentralisation or centralisation by the other. Though there does appear to be more weight of evidence to suggest that, with high union coverage, centralised bargaining performs best.

Caveats over this relatively straightforward conclusion arise when the building blocks of the two main scales are reconsidered alongside evidence on changes in the Spanish industrial relations system detailed in Section 2. To recap, Tarantelli's index is based on three dimensions: the neo-cooption of unions and employers' associations into government; the centralisation of bargaining; and the neo-

regulation of conflict through dispute procedures. Whilst the exact scoring of Spain on these three dimensions could be debated at length, perhaps more important is the notion that, especially on the first two dimensions, we might score Spain now very differently from Spain five or ten years ago. Relationships between government, unions and employers' associations changed markedly (on the surface at least) in the mid-1980s with the cessation of explicit attempts to promote coordination and consensus in collective bargaining, and the distancing of the UGT from the PSOE government. On the second dimension, whilst the locus of collective bargaining has certainly moved away from the national stage (indicating a lower score) it has not reached the state of affairs as in the UK, with company level bargaining dominating after the decline in industry-wide bargaining. On both these dimensions therefore, not only would an exact score be problematic, but also a one-off ranking would obscure the impact of important changes in industrial relations institutions.

Turning to Calmfors and Driffil's index, based on coordination within peak organisations and on the number of such parallel organisations on each side and the degree of coordination between them, similar problems of exact scoring and changes over time arise. Any attempt now to score Spain's institutions on these dimensions would have to take account of the end of national concertation agreements and produce a lower score and therefore ranking, than a similar attempt before 1986.

Therefore in the case of both these scales, whilst it is possible to argue about the exact scoring of the Spanish system relative to others, the more important difficulty appears to be that the indices provide something of a straightjacket by not taking account of changes in bargaining structures. There may be good reasons for worrying about introducing the notion of countries moving up or down in the rankings since this makes analysis more difficult and would probably provide a new focus for disagreement about the rankings. Identifying the key changes which are sufficiently important to warrant a re-ranking will provoke more debate than establishing a once and for all ranking. However, the difficulty of a task should encourage rather than diminish interest in it. One starting point to such an analysis is to

consider changes in Spanish bargaining institutions alongside changes in performance over time.

4.3. Time series evidence on institutions and performance

a. Introduction

In summarising the changes in Spanish industrial relations, Section 2 identified four dimensions on which to characterize the Spanish system: bargaining coverage; bargaining levels; the degree of coordination; and the role of the state. Whilst changes in the role of state and the degree of coordination are relatively difficult to quantify partly because of data inadequacies (coordination) and definitional difficulties (role of the state), identifying changes in the coverage and levels of bargaining is more straightforward.

To recap, Figure 1 illustrates the enormous increase in collective bargaining coverage from just over 30% in 1977 to around 80% in 1981 and subsequent stability of coverage for the following decade. Figure 1 also shows that after a slight rise in the proportion of employees covered by employer agreements up to a peak of around 14% in 1985, there has been a fall to around 12% in 1991. So in terms of the single employer/multi employer division there appears to have been insufficient change to warrant more detailed analysis - although there may have been more substantial changes in individual industries which could warrant more investigation. However, the key change in bargaining levels came about with the end of national level bargaining through the last concertation agreements in 1986. Therefore we have two identifiable phenomena to investigate - the massive rise in bargaining coverage in the late 1970s and the end of national bargaining after 1986.

This means of analysis has two rather obvious pitfalls. First, telling a story about the pattern of performance alongside changes in institutions implicitly assumes that all else stays relatively constant. There are a host of concurrent factors influencing each of the outcomes discussed such that any association with bargaining institutions change will not be clear cut. Second, it may also be that changes in performance lead to changes in institutions, rather than vice versa. Perhaps concertation agreements ended because of changes in

performance. It could be held, for example, that unions were responsible for the break-up of concertation in 1986. They had moderated their pay claims in the first half of the 1980s, then with macroeconomic expansion in the mid-1980s the pay claims increased as labour leaders refused to be bound by the concertation agreements. Thus a changed macroeconomic performance altered the institutional arrangements in the labour market. Another possibility is that collective bargaining coverage may have expanded because unemployment was rising so fast, rather than vice versa. These caveats concerning (i) other variables influencing institutions and performance and (ii) the nature of the causal relationship, should be kept in mind when considering the following evidence.

b. Changes in bargaining coverage and performance

Figures 2 to 5 show data on bargaining coverage against five different performance measures - respectively registered unemployment, real wage growth, the Okun index (inflation plus unemployment rates) and strike activity (measured in this case as days lost per thousand employees) for as many years as possible from 1977 to 1992. Although interpretation of this data can never be that rigorous, and some associations may be spurious, some possible themes worth further investigation do emerge.

Unemployment: There is a strong, positive correlation between the rise of collective bargaining and of unemployment in the decade up to 1987 (Figure 2). This suggests that the removal of direct government intervention in the terms and conditions set out in collective agreements - producing free collective bargaining - not only enabled and encouraged unions to extend the coverage of agreements (presumably in part because of employee preferences) but may also have provided an institutional framework augmenting insider-outsider problems.

Real wages: However there is also evidence (Figure 3) that as collective bargaining became more encompassing, there was relatively more real wage responsiveness to the growth of unemployment. Real wage growth peaked in 1977-79 as unemployment first took off but then came down quite rapidly to average 2-3% for the rest of the period. Between 1977 and 1984 more workers came under the

umbrella of collective agreements. Simultaneously the concertation agreements caused real pay rises to moderate under collective bargaining. Thus, as bargaining became more encompassing, this had a direct influence on movements in real wages.

Since 1986, despite the enormous rise in unemployment, real wages have continued to grow in virtually every year. It is possible that high levels of coverage are now insulating real pay: with less coverage (and no concertation) pay may be more flexible downwards.

Okun index: The Okun or misery index (Figure 4) measures the combined performance of inflation and unemployment, therefore reflecting the view that an increase in unemployment (especially if short-term) may be acceptable if inflation falls as a result. Whilst the rise in the index from 1978 to its peak of nearly 30% in 1983 occurred at a time of rising bargaining coverage, since 1983 the index has declined in virtually every year to reach a low of just over 20% in 1991. Note that the rise in this series between 1978 and the early 1980s is driven by the rise in unemployment - inflation is falling in just about every year in the period.

In the later period (post-1983) bargaining coverage remained consistently high. This suggests that whilst the growth of collective bargaining might be associated with an increasingly poor pay-jobs trade off, a high level of collective bargaining may not produce a progressively worsening position and in fact could well lead to improved performance.

Strike activity: Figure 5 provides data on strike activity measured both as days lost per thousand employees and per thousand covered employees (following the example of Milner and Metcalf, 1993). The second measure may be inappropriate, however, if a high proportion of days lost in the late-1970s arose from strikes in support of the extension of collective bargaining - and therefore involved a high percentage of non-covered workers. The data maps the considerable decline in strike activity in the 1980s compared to the late 1970s, but also shows that strike activity has remained relatively stable during the 1980s, unlike most other EC countries which have seen falls in activity (especially the UK). In terms of strike activity and bargaining coverage, the data shows a strong negative correlation between the rise in coverage and strike activity. However, stable and

high coverage has been associated with a stable and relatively high level of strike activity compared to other EC countries.

c. Changes in the level of bargaining and performance

Given the relative stability of bargaining coverage after 1980 and the emphasis in the literature reviewed in Section 3 on bargaining levels, the end of national concertation agreements in 1986 is obviously of crucial importance. Although there are considerable worries here because there are relatively few years of performance data since 1986, it does seem worthwhile to investigate performance before and after 1986.

Unemployment: The end of national bargaining came at a turning point in the registered unemployment series in 1987. Between 1987 and 1992 registered unemployment fell from about 20 to 15% (note though that self-reported unemployment as recorded in the *Encuesta de Poblacion Activa* did not fall as far as registered unemployment and increased substantially in 1992). However, since early 1992 unemployment has increased dramatically. It may well be fortuitous accident (for advocates of decentralisation) that unemployment started falling so soon after the end of national bargaining. There must be some suspicion that, on the other hand, falling unemployment removed the imperative to reinvigorate national bargaining. Indeed perhaps the recent rise in unemployment was the spur to the government's attempt to revive tri-partite negotiations in 1993.

Real wages: The data on real wage growth after 1986 provides some succour for advocates of decentralised bargaining, since not only has decentralisation not lead to an increase in real wage growth *per se* (as Layard might predict) but growth has remained quite stable despite falling unemployment. There does not appear to have been a build up of real wage pressure during concertation which was released after 1986. This may be because of union coordination in sector level bargaining arrangements which is producing an environment relatively similar to that operating under national agreements. It would be interesting to examine the experience of different sectors post-1986 to further investigate the impact of the end of national agreements on wage bargaining.

Okun index: Since the turning point in the Okun index series and its subsequent decline are largely governed by movement in the unemployment rate, any link between this outcome variable and the end of national bargaining must be attributable to any association with unemployment.

Strike activity: There does not appear to be a strong link between the end of national bargaining and either an increase or decrease in strike activity as measured by the days lost indices.

4.4. Conclusions

Even in the absence of reliable information about how industrial relations function at enterprise or workplace level, policy makers still have to make decisions about reforms to the system if economic performance is to be improved. It can not be stressed too strongly, however, that these conclusions are based on wholly inadequate data and are therefore purely speculative.

Legislative support for the institutions of collective bargaining are the principal explanation for high bargaining coverage in Spain. When bargaining coverage is high, it seems more sensible to advocate some form of centralised or at least coordinated system of collective bargaining in order to improve the pay-jobs trade off. Decentralised bargaining only appears to work in economies with low union presence. The political implications of removing state support for collective bargaining in Spain are probably too grave to warrant its consideration. Therefore as long as Spanish policy makers are prepared to support a unionized labour market, the most sensible option is to develop a more coordinated bargaining structure.

PART II

MICROECONOMIC EFFICIENCY: THE INDUSTRIAL PAY STRUCTURE AND EMPLOYMENT

1. Introduction

The key issue concerning flexibility in the industrial wage structure is whether or not the nexus of productivity change/wage change/employment change across industries has a favourable or unfavourable impact on jobs.

The importance of flexibility in relative wages in allocating labour across sectors (possibly also affecting aggregate employment) is not a new topic. Over a quarter of a century ago, Reddaway (1959) compared and contrasted the "institutional" approach with the "competitive" model of allocation in the labour market. In the institutional approach, "the essential characteristic is that the main way in which employment will either be increased or reduced is through 'direct action' by the employers, and that only exceptionally will they have to include a change in the relative wage offered in order to secure the desired number of workers". By contrast, the competitive approach puts wage flexibility to the fore and suggests that, in the short-run, sectors expanding (contracting) employment will raise (lower) their relative wages. An OECD Working Party examined this controversy and reported in 1965 that they "inclined to the view that the allocation of labour had been sensitive primarily to job vacancies and not to movements in relative wages" (quoted in OECD 1985a, p.106). It found sector-specific excess demand influenced sector real wage movements in only 2 out of 13 sectors and concludes that "This result casts considerable doubt on the role of relative wages in allocating labour between sectors of the economy, since it suggests that relative wages are not very responsive to sectoral shifts in labour requirements."

These different views of the labour allocation process were set out in a novel way by Bell and Freeman (1984). Their approach is particularly helpful in the present context because it concentrates on

whether or not the wage setting and labour allocation process across sectors aids aggregate employment.

They distinguish two types of flexibility. Under competitive flexibility, industry wages are responsive to shifts in demand for, and supply of, workers in particular industries and employment will be greater than if wages are inflexible. Under industry-productivity wage flexibility, the flexibility is due to industry-specific conditions, independent of shifts in demand or supply of labour and need not have beneficial employment effects. In particular, consider a labour market where wages respond flexibly to industry specific changes in value productivity per worker which do not reflect shifts in demand. The downward pay flexibility in response to declines in productivity per worker can certainly "save" jobs, but the upward flexibility of wages in response to increases in value productivity will, in the same sense, "cost" jobs - those industries experiencing a rapid growth of productivity will hire too few workers. In this system, if wages fall less with relative productivity declines than wages rise with relative productivity increases, the system of flexible wages will, net, result in less employment than would otherwise have been observed.

Therefore in principle there are two situations where wage flexibility among industries has positive employment consequences. First, when wages reflect competitive forces. Second, when wages are more flexible downwards than upwards to industry-specific productivity developments. We consider those in turn in Sections 2 and 3 respectively. In Section 2 we note that the tradition of this micro-research is based on a causal mechanism that runs from employment changes to pay changes. It is suggested that the causal mechanism may, in fact, go the other way.

Then in Section 4 we examine the way the industrial wage structure became more compressed during the 1980s. We then link the compression with relative employment movements across industries.

In Section 5, we present the pay-jobs, pay-productivity and compression results of Sections 2-4 respectively in a more disaggregated form. This Section uses collective bargaining coverage as a control variable.

Finally, we analyse the change in the bite of Spanish minimum wage laws (Section 6). The toughness of these laws has declined over time. The association between changes in minimum wages and employment is examined.

2. Pay Changes and Employment Changes

The evidence concerning pay changes and employment movements across 20 2-digit industries is set out in Table 8. The competitive approach states explicitly that, because the labour supply curve facing the firm is more elastic in the long run than in the short run, a positive correlation across industries between pay changes and employment changes should be stronger the shorter the time period. There is virtually no evidence of such competitive flexibility. Under competitive flexibility we expect a positive correlation between employment changes and pay changes in the short run (say over a one year period), but that association would become weaker as the period gets longer. For example, the correlation would probably be positive but non-significant over a five year period and zero over a longer period.

The correlations are presented for 1-year, 4-year and 8-year changes. It will be seen that more of the correlations using 1-year changes in pay and employment are negative than are positive, and none of the correlations are statistically significant. Further, the correlations using the 4-year data (1984-88) and 8-year data (1980-88) are strongly negative and strongly significant.

The preponderance of negative signs suggests that there may be an identification problem. It is possible that the labour supply curve to particular industries is shifting (rightwards) more rapidly than the labour demand curve. Such a shift could occur, for example, if the labour force participation of women rises rapidly. However, we normally think of labour supply in terms of occupational definitions rather than as being specific to any one industry.

This lack of any strong evidence of positive short-run (1-year) or medium-run (4-year) correlations in Spain is consistent with evidence from other OECD countries. The most comprehensive evidence is from the OECD (1985a, Chapter 4; 1985b, Chapter 2).

These documents survey important previous studies and present new information for OECD countries. Similar to Spain, over half the many 1-year correlations presented are negative (1985a, p.127). The OECD report concludes, reasonably, that the results "suggest the possibility that the importance of relative wages is outweighed or supplemented by many other factors as an allocation mechanism" (1985a, p.128 and p.129).

The tradition of research on the industrial wage structure has the causation running from changes in labour demand (employment) to changes in wages. There is an alternative causal mechanism which might account for the Spanish results. If positive employment changes are larger where positive pay changes are lower - the causation running from pay to jobs - a negative correlation like that in Table 1 would be found.

It is particularly noteworthy that the negative association between pay increases and employment changes was stronger in the second 4-year period (1984-88) than the first 4-year period (1980-84). In the latter part of the 1980s the Spanish labour market was more flexible than in the first half. For example, the importance of national collective bargaining declined, EC entry put pressure on traditional labour practices, female labour force participation rose and fixed-term labour contracts were permitted. These are certainly just the factors which might promote a causation (at sector level) running from moderate pay changes to greater employment.

3. Pay Changes and Labour Productivity Changes

Standard theory suggests no long-run association between pay changes and labour productivity changes across firms and industries. Any such correlation, if sustained over a long period, would be both inefficient and inequitable.

However, recent developments in the insider-outsider approach to pay-setting emphasise the link - at least in the short-run - between the fortunes of the firm and sector, and pay changes. If there is a positive association at industry level between pay changes and labour productivity changes it could still be employment-augmenting. The reasoning is as follows (Bell and Freeman, 1984; OECD, 1985b). On

the one hand, if relative pay falls in response to a fall in relative productivity, employment will be higher in these sectors than it would have been with no response in relative pay, i.e. some jobs are "saved". On the other hand, where relative pay rises in response to a rise in relative productivity, employment will be lower in these sectors than it would have been with no response in relative pay, i.e. some jobs are "lost". If (a) the relative productivity-increasing and relative productivity-decreasing sectors are of equal size; (b) they have equal elasticities of labour demand; and (c) they have identical (but different signed) relative productivity movements, then employment will be higher than it otherwise would have been providing there is a favourable asymmetry in the wage response. If relative pay falls more in sectors where relative productivity is falling than relative pay rises in sectors where relative productivity is rising, employment will be higher than it would be without this asymmetry.

The correlations between pay movements and labour productivity movements are set out in Table 9. Looking initially at the column reporting the correlation across all 15 2-digit manufacturing industries ("overall correlation"), we see that both 4-year correlations and the 8-year correlation are non-significant. Thus the evidence suggests that the industrial pay structure in Spain moves in accord with standard theory, i.e. pay movements appear to be unrelated to movements in labour productivity.

We report, out of interest, the corresponding correlations splitting the sample into industries with above average and below average changes in labour productivity. Strictly this split is only of interest where the correlation across the whole sample is significant and positive. The only instance approaching this is 1984-1988 ($r = 0.113$). In this instance, the pay movements are not employment-augmenting. This is because the correlation is much stronger in the industries with above average productivity increases ($r = 0.808$) than in those with below average productivity increases ($r = 0.153$).

This latter result is congruent with related analyses of Dolado and Bentolila (1992) and Draper (1992, reported in Dolado and Bentolila). Dolado and Bentolila calculate "insider weights" - which essentially measure the importance of the fortunes of the firm/sector rather than the aggregate economy in pay determination - for different

sectors. They find that insider weights are larger in fast growing sectors than in slow growing sectors. This could have two potentially adverse effects. First, it could import an inflationary bias into the wage-setting process along the lines of the familiar Scandinavian model. Second, it could hinder aggregate employment growth *via* similar routes to those set out by Bell and Freeman.

Draper supports this general thrust. She classifies sectors into two types. Laggard sectors, like construction and food manufacturing, are sheltered from foreign competition, and pay responds little to changes in labour productivity inside the firm. By contrast, dynamic sectors like chemicals and autos are open to foreign competition, use state-of-the-art technology and pay responds to internal conditions. This is in line with the "Scandinavian model" where insider weights vary across sectors and the variation is explained, partially, by the degree of openness and competition across sectors.

Spain appears to accord with standard theory rather more closely than some other OECD countries. There is no significant correlation in Spain between pay movements and changes in value added per worker. Nevertheless, it may be of interest to present the results for other OECD countries so that Spain can be put in context. The OECD study (1985b, Chapter 2) uses regression analysis with a highly disaggregated sample of 3-digit and 4-digit industries in Canada, France, Japan, Sweden, the UK and the USA to explain (cross-section) industry pay changes. Such pay changes derive from changes in sector specific value added, changes in shipments and changes in the skill composition. Movements in value added per worker are positively associated with pay movements in each of the six countries (but the association is not statistically significant in France or the UK). Evaluated on the basis of sample means, the elasticity of sectoral wage changes to sectoral productivity changes is as follows:

Canada	0.116	(manufacturing, 1970-80)
Japan	0.208	(manufacturing, 1970-79)
Sweden	0.026	(all industries, 1964-83)
USA	0.261	(all industries, 1958-80)

Thus employees do appear to get a share of industry-specific productivity changes. While this result holds across countries with very different systems of collective bargaining, the association is stronger in the USA and Japan where bargaining is decentralised than it is in Sweden where bargaining is more centralised.

This association between pay changes and productivity changes across industries is employment-augmenting in Canada, Sweden and the USA, but it has adverse affects on employment in Japan, while it has no effect in France and the UK. This is because in Canada, Sweden and the USA, more jobs are "saved" in sectors where productivity is falling than are "lost" in sectors where it is rising. The reverse is true for Japan.

4. Compression of the Industrial Wage Structure and Employment

There is evidence for both the USA (Wachter, 1974) and the UK (Metcalf, 1977) that the industrial wage structure gets compressed during incomes policy periods and unwinds again once the policy is relaxed. The rationale for such a finding might be that incomes policies inhibit the activities of strong groups in the workforce (typically towards the top of the pay structure) while protecting weaker groups. Alternatively the incomes policy might operate on an equal cash rather than an equal percentage formula for pay rises, which automatically compresses the wage structure.

In Table 10 some similar corresponding information is presented for Spain. (Unfortunately we cannot control other factors which have been shown to influence movements in the wage structure in the USA and UK - e.g. inflation and unemployment - because the time series is not long enough to permit regression analysis.)

Consider initially the last column. Over the whole period 1980-88 the Spanish hourly wage structure became substantially more egalitarian: the sectors which started with relatively high levels of hourly pay experienced lower increases than sectors with low pay levels. Thus the pay structure was compressed. It is interesting (and by contrast to the UK and US experience) that the compression was smaller in the first half of the 1980s - when an incomes policy was in

operation - than it was in the second half when the incomes policy was initially relaxed and finally abandoned.

More important is the apparent link between the movements in pay and in employment shown in the first column of Table 10. The sectors toward the top of the industrial wage distribution in 1980 - which, if one recalls, had the most moderate pay rises during 1980-88 - experienced a much stronger growth in employment during 1980-88 than those industries towards the bottom of the wage structure where pay rose more rapidly. The correlation is 0.438, statistically significant at 5%. In a nutshell, the compression of the wage structure appeared good for jobs, at least in its impact across industries (it is clearly impossible to test for the aggregate macroeconomic impact of the compression of the pay structure from this micro data).

These findings concerning the link between the structure of relative pay and employment are consistent with the evidence in Jimeno and Toharia (1992) who conclude that "this factor [i.e. the structure of relative wages] goes further towards explaining aggregate employment reductions than the evolution of the average wage level," (p.87). The results are also in line with those in Section 2 which noted the negative association between changes in pay and changes in employment.

5. Controlling for Coverage of Collective Bargaining

It might be expected that industries where collective bargaining coverage is relatively low would exhibit more flexibility of pay and employment than those industries where coverage is high. Tables 11-13 provide some very preliminary evidence on this issue. They replicate Tables 8-10 respectively, but present the information separately for those sectors with high and low coverage of collective bargaining.

It will be seen from Table 11 that there is only one significant positive association between employment changes and pay changes, either in sectors with high collective bargaining coverage or those with low coverage. This confirms that the "traditional" competitive allocation of the labour process whereby expanding (contracting)

industries raise (lower) their relative pay was not present in Spain in the 1980s.

What is particularly noticeable is that all the 4-year and 8-year correlations are negative. Two of those are highly significant for sectors with high coverage of collective bargaining. This tends to confirm the speculation in Section 2 concerning the direction of causation - possibly from pay to jobs rather than vice versa.

The data on pay changes and labour productivity changes in Table 12 provides no evidence that movements in sectoral relative wages detract from employment on this count. First, for sectors with deeper collective bargaining, none of the coefficients are significant. Second, for sectors with lower coverage of collective bargaining, the 1984-88 and 1980-88 correlations are significant and negative: high productivity growth sectors falling in the relative wage league table. Thus, if there is an insider-outsider problem (see Section 3), it is probably confined to sectors with above average coverage of collective bargaining. Certainly, there is no evidence in the low collective bargaining sectors that insiders in industries with rapidly growing labour productivity are taking the lion's share of the returns to the detriment of employment.

The relationship between movements in pay and jobs is set out more forcefully in Table 13. The bottom panel of this Table confirms that the compression of the pay structure took place in both high- and low-coverage of collective bargaining industries: all the correlation coefficients are negative. The strongest compression in relative pay was experienced by the sectors where collective bargaining is more pervasive.

The top panel of the Table then shows how the compression of the pay structure influenced the structure of employment. For the high-coverage sectors which, if one recalls, experienced the largest compression of the industrial wage structure, there is a positive association between initial pay level and subsequent employment growth. This precisely mirrors the aggregate results (discussed in Section 4). The sequence is (all in relative terms): high wage level - lower subsequent wage growth - larger subsequent employment growth.

By contrast, two of the correlations for the low-coverage sectors are negative (and significant). The sequence here appears to be: high initial wage level - lower subsequent wage growth (but only by a little bit, the coefficients are negative but non-significant) - lower subsequent employment growth (over 1980-88 and 1984-88).

The upshot of this analysis is to confirm the importance of splitting by sector. It is the sectors where collective bargaining coverage is highest which dominate the all-industry results. In addition, the compression of the wage structure in those sectors was the crucial element in all-industry findings of high relative pay levels - larger subsequent relative growth in jobs.

6. Minimum Wages and Employment

The link between various forms of minimum pay-setting and the aggregate level and structure of jobs has long been controversial and of interest. The most recent research for the UK and US casts doubt on the traditional claims that minimum wage legislation costs jobs. Manning and colleagues (e.g. Dickens *et al.*, 1993, Machin and Manning, 1992) present a modern monopsony model and conclude that, if anything, minimum wages boost rather than lower aggregate employment. For the US a recent (1992) issue of the Industrial and Labor Relations Review contained four articles on minimum wages: three found no link with employment and one found a very weak (adverse) association.

This is a potentially fruitful area of research for Spanish scholars. In what follows we are hardly able to scratch the surface of the link between minimum pay setting and jobs in Spain. These very provisional findings hint that the recent research results for the UK and US may also be similar in Spain.

Minimum wages in Spain are national (as in the US) and do not differ by industry (as in the UK). The bite of the national minimum wage for each of the 20 industries is set out in Figure 6. It will be seen that the bite or toughness - defined as the minimum relative to the average - has declined in virtually every industry. These charts are summarised in Table 14. This shows that the bite, averaged across 20 industries, declined from 32.2 to 25.6%. The industry where the

minimum bites most is number 45, footwear and clothing (41.1%) and the lowest bite is number 81, banking (8.8%).

In Table 15 some simple correlations between changes in the bite of minimum wages and changes in employment are presented. The left hand panel uses the daily minimum and the right hand panel uses monthly minimum information.

If a hike in the bite of the minimum wage detracts from employment in an industry, the correlation across industries between employment changes and bite changes would be negative and significant. It will be seen that no such coefficients are present. Rather, the bulk of the correlations are positive. Indeed, for the period 1980-88, the correlation is as high as +0.516 (significant at 1%) using hourly data.

It must be understood that the results in Table 15 are essentially the mirror-image of those in Table 8. This is because the (change in the) minimum wage is identical for all industries. Therefore we are essentially dealing with a simple correlation between changes in employment and changes in pay across 20 2-digit industries (the sign changes, for each correlation, between the two Tables because average pay changes become the denominator in Table 15).

It is possible that the Spanish minimum wage contributes to high macroeconomic levels of unemployment by causing the whole pay structure to be too high relative to labour productivity. We cannot investigate that possibility here. But, frankly, it seems most unlikely. The sector level information provides no support for the view that minimum wages are costing jobs. If anything, the data suggests the reverse causation: growing levels of unemployment in Spain may have encouraged a weakening of the minimum wage levels so that their bite has become less strong over time.

SUMMARY AND CONCLUSIONS

In **Part I** on Spanish institutions and macroeconomic performance it was shown:

Section 2.

- Coverage of collective bargaining is high relative to the low and probably declining level of union density.
- The centre of gravity of the level of collective bargaining is firmly at sector level; however, despite the lack of good information there is a suggestion of considerable informal bargaining at company level.
- There is some coordination in bargaining at sector level between the two main unions but coordination among employers is weak.
- Industrial relations are highly regulated by the state. Although employers and unions have considerable freedom to operate, they have no freedom to choose whether or not to bargain with each other in the first place.

Section 3.

- Using evidence from OECD countries, there is disagreement concerning which system of industrial relations yields the best macroeconomic outcomes. Some argue for a more corporatist/ centralist/coordinated system of collective bargaining. Others argue for either a very centralised system or a completely decentralised system.
- However, in this debate it is never clear whether: (i) the causal relationship really runs from institutions to performance; (ii) bad performers can change their bargaining institutions in the long run.

Section 4.

- In the period when coverage of collective bargaining has risen to comparatively high levels: (i) the non-accelerating inflation rate of unemployment has risen; (ii) while strikes remain high compared with other EC countries, strike activity has fallen over time.

- If the state supports unionisation and collective bargaining, it is probably best to pursue some form of co-ordinated bargaining (which does not necessarily imply centralisation or corporatist arrangements) so that bargaining externalities can be internalised.

Part II focussed on links between flexibility in the industrial wage structure and relative employment by sector. It was shown:

Section 2.

- As for most other OECD countries, there is no strong evidence that competitive forces dominate any observed flexibility in relative wages. The short-run correlation coefficients between pay changes and employment changes are negative. This suggests that any causation at sector level runs from lower pay increases to higher relative employment increases.

Section 3.

- There is no association, at sector level, between pay changes and changes in labour productivity.

Section 4.

- Industries with relatively high wage levels at the start of the period experienced relatively low pay increases during 1980-88 and had the largest relative growth in employment. Thus - at least at sector level - the compression of the pay structure appears employment-augmenting.

Section 5.

- When the sample is split according to whether or not the industry has below-average or above-average coverage of collective bargaining the above results concerning the pay-productivity-employment nexus are broadly confirmed. It is particularly noteworthy that the result concerning Section 4 is driven by pay and employment movements in the more highly covered sectors.

Section 6.

- The bite of Spanish minimum wage laws has weakened over time. There is no evidence that these minimum wages cost jobs.

TABLE 1

Coverage of Collective Agreements

Year	No. of Agreements	Number of Employers Covered (000s)	Number of Employees Covered (000s)	% of Employees Covered
1977	1349	557.1	2876.4	32.5
1978	1838	637.1	4629.2	53.7
1979	2122	657.8	4959.6	59.1
1980[1]	2564	877.7	6069.6	76.3
1981[2]	2694	672.7	4468.5	56.8
1982[2]	3385	889.3	6262.3	81.2
1983	3655	869.7	6226.3	81.1
1984	3796	836.9	6181.9	84.7
1985	3834	847.1	6131.1	84.8
1986	3790	891.8	6275.1	82.0
1987	4112	996.8	6867.7	86.1
1988	4096	958.3	6864.7	82.2
1989	4302	982.7	6993.8	78.8
1990	4595	1037.9	7623.9	82.2
1991	4781	1001.3	7791.9	83.1

Notes: 1. Data for the Basque Country and Catalonia not included.
2. Data for Catalonia not included.

Source: Boletín de Estadísticas Laborales, Ministerio de Trabajo y Seguridad Social, Table CON-1.

TABLE 2

Levels of Collective Bargaining

Year	Agreements			Workers Affected		
	Number	No. of Firm Level	% Firm Level	Number	No. by Firm Level	% by Firm Level
1981[1]	2694	1778	66.00	4435.2	928.9	20.94
1982	3385	2186	64.58	6262.9	985.7	15.74
1983	3655	2376	65.01	6226.3	1074.6	17.26
1984	3796	2539	66.89	6181.9	1060.5	17.15
1985	3834	2590	67.55	6131.1	1062.5	17.33
1986	3790	2588	68.28	6275.1	1092.8	17.41
1987	4112	2817	68.51	6867.7	1106.5	16.11
1988	4096	2826	68.99	6864.7	1070.4	15.59
1989	4302	3016	70.11	6993.8	1061.9	15.18
1990	4595	3254	70.82	7623.9	1132.6	14.86
1991	4781	3423	71.60	7791.9	1117.2	14.34

Note: 1. Data for Catalonia not included.

Source: Boletín de Estadísticas Laborales, Ministerio de Trabajo y Seguridad Social, Table CON-1.

TABLE 3

Economy-Wide Framework Agreements 1977-1986

Date	Name of Agreement	Parties Involved	Wage Increase Recommended
1977	Moncloa Pacts	Political Parties	Maximum 20%
1979	ABI	CEOE/UGT	20-22%
1980	AMI	CEOE/UGT/USO	13-16%
1981	AMI	CEOE/UGT/USO	11-15%
1982	ANE	Govt/CEOE/CCOO/UGT	9-11%
1983	AI	CEOE/UGT/CCOO	9.5-12.5%
1984	No agreement		
1985	AES	Govt/CEOE/UGT	5.5-7.5%
1986	AES	CEOE/UGT	7.2-8.6%

Notes:
ABI: Basic Interconfederal Agreement.
AMI: Interconfederal Framework Agreement.
ANE: National Agreement on Employment.
AI: Interconfederal Agreement.
AES: Economic and Social Agreement.
CEOE: Confederación de Organizaciones Empresariales de España (employers' organisation - comprehensive coverage).
UGT: Unión General de Trabajadores (general union - socialist).
CCOO: Comisiones Obreras (literally 'workers councils' - communist).
USO: Unión Sindical Obrera (general union - Christian Democrat).

Sources: Lucio (1992: Table 15.3), Miguelez and Prieto (1991: Cuadro 1, p.386)

TABLE 4

Performance in Worker Representatives Elections 1978-87
(% of votes cast)

	Excluding Public Administration					Public Administration Only	
Union	1978	1980	1982	1986	1990	1987	1990
CCOO	34.5	30.9	33.4	34.5	37.6	24.2	28.4
UGT	21.7	29.3	36.7	40.9	43.1	23.1	26.9
USO	3.9	8.7	4.6	3.8	3.0	-	0.9
Non-Members	18.2	14.6	12.1	6.7	3.9	-	2.4
ELA-STV	0.9	2.4	3.3	3.3	3.2	-	2.0
INTG	-	1.0	1.2	0.7	1.5	-	1.8
Misc.	20.8	13.1	8.7	10.1	6.4	27.8	18.2
CSIF	-	-	-	-	1.4	24.9	19.4

Notes: CCOO, UGT, and USO see notes to Table 3.
ELA-STV: Solidaridad de Trabajadores Vascos (union of Basque workers).
INTG: Intersindical Gallega (union of Galician workers).
CSIF: Public administration union.

Sources: Lucio (1992: Table 15.2, p.501) and Miguelez and Prieto (1991: Cuadro 1, p.229), Escobar (1993: Table 5, p.25).

TABLE 5

Multiple Unionism at the Bargaining Table

	Union Status of Representatives				
	CCOO	UGT	Other Unions	Non-Union	Total
No. of Agreements					
. Firm level	1568	1706	786	1227	3137
. Other levels	1008	1086	388	62	1297
. Total	2576	2792	1174	1289	4434
Workers Affected (000s)					
. Firm level	894	903	657	216	1034
. Other levels	5546	5676	1680	195	5968
. Total	6440	6578	2337	411	7051
No. of Representatives					
. Firm level	5798	5760	2815	3514	17887
. Other levels	3293	3644	1228	251	8416
. Total	9091	9404	4043	3765	26303

Notes: Agreements covered are those registered up to May 1991.
Degree of multi-unionism indicated by different union statuses summing to more than total.

Source: Jimeno and Toharia (1991: Table 1, p.27)

TABLE 6

Ranking of OECD Countries' Collective Bargaining Institutions

Bruno and Sachs	Tarantelli	Calmfors and Driffil	Layard	Soskice
1 Austria	1 Austria	1 Austria	1 Austria	1 Japan
2 Germany	2 Germany	2 Norway	1 Finland	1 Austria
3 Netherlands	3 Japan	3 Sweden	1 Norway	3 Switzerland
4 Norway	4 Sweden	4 Denmark	1 Sweden	3 Norway
4 Sweden	4 Denmark	5 Finland	1 Switzerland	3 Sweden
6 Switzerland	6 Norway	6 Germany	1 Denmark	6 Germany
7 Denmark	7 Australia	7 Netherlands	1 Germany	7 Netherlands
8 Finland	7 Netherlands	8 Belgium	8 Belgium	8 Italy
9 Belgium	9 Finland	9 New Zealand	8 France	9 France
10 Japan	10 US	10 Australia	8 Netherlands	10 UK
11 New Zealand	11 Belgium	11 France	8 Portugal	11 US
12 UK	12 Canada	11 Spain	8 Japan	
13 France	13 New Zealand	13 UK	13 Ireland	
14 Italy	14 France	14 Italy	13 Italy	
15 Australia	15 UK	15 Japan	13 Spain	
16 Canada	16 Italy	16 Switzerland	13 UK	
17 US	16 Spain	17 US	13 Australia	
		18 Canada	13 New Zealand	
			13 Canada	
			13 US	

Notes: 1. In original versions of Tarantelli's and Calmfors and Driffil's indices, Spain is not included. Revised versions of these indices including Spain are provided in Layard, Nickell and Jackman (1991: Table 7, p.418) and are reported here.

2. Construction of rankings shown overleaf.

Construction of Collective Bargaining Institutions Rankings

Bruno and Sachs: Corporatism ranking

Adapted from Crouch's (1985) assessment of corporatism indicators based on four dimensions:

1. *Union movement centralisation*
2. *Shop-floor autonomy*
3. *Employer coordination*
4. *Existence of works councils*

Countries are scored 0, 1 or ? on each indicator. The sum of these provides a corporatism index ranging from 0 to 4, from which the Bruno and Sachs ranking is produced.

Tarantelli: Neocorporatism ranking

Based on three dimensions:

1. *The degree of neocooption of trade unions and employers' representatives*. This measures both the extent of political and economic consensus and the extent of integration and cooperation of trade unions and employers' representatives into the machinery of government.
2. *The degree of centralisation of collective bargaining.* Incorporates factors such as: level of collective bargaining; centralisation of unions and employers' associations; existence of trilateral negotiations.
3. *The degree of neoregulation of industrial conflict.* Attempt to measure how much the rank and file are 'tamed' by institutions. Assessed by the extent of dispute procedure provision.

Countries are scored from 1 to 5 on each dimension and the total score produces a neocorporatism index and therefore a ranking.

Calmfors and Driffil: Centralisation of wage bargaining ranking

Constructed with reference to two factors:

1. *Coordination level within central organisations.* Combines information on level of coordination within national union confederations and within national

employer organisations - essentially a level of collective bargaining measure.

2. *Existence of parallel central organisations and their cooperation.* Reflects the number of central union and employer confederations and the degree of cooperations between them.

Both dimensions are scored between 1 and 3 to produce an overall score from 2 to 6 which is translated into the ranking in Table 6.

Layard: Employer coordination score

Simply a measure of the extent of employer coordination over pay bargaining, scored 1, 2 or 3. N.B. Layard uses this score in multivariate analysis rather than any rank numbers. Ranking in Table 6 is that implied by scores.

Soskice: Economy wide coordination score

Measure of extent of coordination in bargaining which emphasises employer coordination in particular although does take account of union coordination. Countries are scored from 0 to 5. Uses score in statistical analysis. Ranking in Table 6 is that implied by scores.

TABLE 7

Comparative Studies on Collective Bargaining Systems and Macroeconomic Performance

Author(s)	Data	Dependent Variables	Labour Institutions Measure	Controls	Findings
Bruno and Sachs (1985)	17 OECD countries 1965-79	. Tarantelli's misery index = rise in inflation + fall in GNP '73-79 cf '65-73 . Real wage gap '73-79	Crouch's corporatism ranking (CI) based on 4 factors: . TU central'n . Plant-level autonomy . Employer coordination . Works Councils	None	Strong -ve correlation between CI and both dep. vars. (second var. only if US excluded)
Crouch (1985)	18 OECD countries 1965-80	. industrial conflict '65-80 . mean peak inflation rate in mid-70s . chng in peak inflation rate mid-60s to mid-70s . Okun's misery index mid-70s	Neocorporatist/liberal distinction based on degree of employer and TU coordinaion	None	Neocorporatist group have better performance, sig. -ve corr. reported for 2nd and 3rd dep. vars.

TABLE 7 continued

Author(s)	Data	Dependent Variables	Labour Institutions Measure	Controls	Findings
Tarantelli (1986)	16 OECD countries 3 periods: 1968-74; '74-79; '80-83	Okun's misery index	Neocorporatism index based on 3 factors: . 'neocooption' of TUs . central'n of CB . 'neoregulation' of industrial conflict	None	-ve corr. between index and performance, stronger after oil shocks
McCallum (1986)	18 OECD countries 1974-84	. Okun's misery index . real wage rigidity (RWR) - levels and ▲s	Crouch's corporatism index (CI)	None	Sig -ve corr. between CI & Okun index levels 74-83 and ▲s 68/73 → 74/83 but not levels 83-4. Sig -ve corr. between CI and ▲s in RWR. Suggestion of increasingly non-linear results.
Bean, Layard and Nickell (1986)	17 OECD countries 1956-83	. RW responsiveness to chngs in U . influence of tax shock or external shock on RW . avg U level 80-83 . ▲U 56/66→80/83	Bruno and Sach's index	. labour force . capital stock . technical progress . demand . taxes . relative import prices . search intensity	Linear rather than hump shaped relationshop between all dep. vars. and corporatism

TABLE 7 continued

Author(s)	Data	Dependent Variables	Labour Institutions Measure	Controls	Findings
Newell and Symons (1987)	5 countries - UK, US, Sweden, Japan, FRG. 1955-83	Real wage responsiveness to Δs in U	Bruno and Sach's defn. of corp'sm. Delineate corp. and non-corp. periods in 3 countries	. militancy . equilibrium wage . real wages at t-1 . capital	Sweden and corp. periods of intermediate countries have highest RW responsiveness to changes in U
Freeman (1988)	19 OECD countries 1979-84	. E rate 84 . U rate 84 . Δlog E rate 79-84	. union density . cross industry wage disp - proxy for degree of central'n . Crouch's corp'sm measure	Change in log of output	Non-linear relationship between w disp. and perf. TU density n.s., corp'm measure sig. for E rate and cbng in E but not for U rate.
Calmfors and Driffil (1988)	17 OECD countries 1974-85 avg. Changes '74-85 cf '63-73	. Unemployment rate . Employment rate . Okun's misery index . U + current a/c deficit as % of GDP	Central'n ranking based on coordination within central bodies & between such bodies	None	Hump or U shape in rank corr.s for all levels of dep. vars. but not changes in them

TABLE 7 continued

Author(s)	Data	Dependent Variables	Labour Institutions Measure	Controls	Findings
Layard (1990)	20 OECD countries 1983-88	. mean U rate 83 -88	3 characteristics of bargaining system scaled low (1) to high (3): . coverage . employer coord. . union coord.	. replacement ratio . benefit duration . active labour market policies . change in inflation	Single most important factor is degree of employer coord. (-ve relationship), TU coord. & coverage also sig. cet. par.
Soskice (1990)	11 OECD countries 1985-89	. mean U rate . U & external balance misery index (C&D)	Ranking based on economy wide coordination (EWC) rating in period examined	Local pushfulness (LP) defined as the degree of local TU autonomy + adversarial/coop. IR	Sig -ve corr. of EWC and +ve effect of LP with both dep. vars.
Coricelli (1990)	16 OECD countries 1970-79, 1980-88, changes between decades	Okun's misery index	Tarantelli's ranking and C&D's ranking	None	Finds Tarantelli's index more satisfactory but does not properly test C&D's index

TABLE 7 continued

Author(s)	Data	Dependent Variables	Labour Institutions Measure	Controls	Findings
Pohjola (1992)	16 OECD countries 1968-85	. levels and Δs in E and U rates . growth of real GDP . RWR	Calmfors and Driffil's central'n index and Tarantelli's corp'sm index	None	Confirms hump shape for E levels and changes, U changes and RWR. Find +ve corr. between corp'sm and E levels and -ve with RWR. But all results don't stand up to stability tests.
Rowthorn (1992)	17 OECD countries 1973 and 1985	. E rate . wage dispersion . INDEED index = E rate + (1-wage disp. measure)	Calmfors and Driffil index	None	Confirms hump shape for E level in 85 but not 73, inverse corr. between C&D index & wage disp. for 73 & 85. Centralized economies have higher INDEED index esp. for 85.
Heylen (1992)	17 OECD countries combination of various time periods	Real wage flexibility - ranking based on mean of rankings from 8 other studies	Calmfors and Driffil index as augmented by Layard, Nickell and Jackman (1991)	. TU density . active LM policy . replacement ratio . benefit durations . institutional sclerosis	Confirms U shaped relationship between RWR and central'n index. Some coeffs. on index^2 n.s.

TABLE 8

Correlations Coefficients on Hourly Pay and Employment
Using Data for 20 2-digit Industries

Association between Employment Changes and Pay Changes

Period	Overall Correlation
1981	0.0882
1982	-0.1645
1983	-0.0413
1984	-0.0112
1985	0.2059
1986	-0.2339
1987	-0.1128
1988	-0.3359
1980-1984	-0.2963
1984-1988	-0.4789***
1980-1988	-0.4775***

Significance Levels
*10%
**5%
***1%

TABLE 9

Correlations Coefficients on Hourly Pay and Productivity
Using Data for 15 2-digit Manufacturing Industries

Association between Pay Changes and Labour Productivity Changes

Period	Overall Correlation	Correlation in Industries with Below Average Changes in Productivity	Correlation in those Industries with Above Average Changes in Productivity
1980-1984	-0.1360	0.2692	0.0510
1984-1988	0.1125	-0.1528	0.8082***
1980-1988	-0.1876	-0.0274	-0.8761***

Significance Levels
*10%
**5%
***1%

TABLE 10

Correlation Coefficients of Original Level of Hourly Pay on Changes in Employment and Pay for 20 2-digit Industries

Years	Employment Changes and Original Hourly Pay Level	Hourly Pay Changes and Original Level
1980-1984	0.4002*	-0.2292
1984-1988	0.1508	-0.7712***
1980-1988	0.4379**	-0.7710***

Significance levels
* 10%
** 5%
*** 1%

TABLE 11

Correlations Coefficients on Hourly Pay and Employment
Using Data for 20 2-digit Industries -
disaggregated by high and low collective bargaining coverage

Association Between Employment Changes and Pay Changes

	Correlation Coefficients		
Period	Overall Correlation	High CB Coverage	Low CB Coverage
1981	0.0882	0.1160	0.0825
1982	-0.1642	0.2740	-0.6024***
1983	-0.0413	-0.3370	0.5467***
1984	-0.0112	-0.0552	0.0553
1985	0.2059	0.2607	0.1339
1986	-0.2339	-0.4317**	0.2105
1987	0.1128	0.1665	0.0538
1988	-0.3359	-0.4076	0.1774
1980-1984	-0.2963	-0.3952	-0.0526
1984-1988	-0.4789***	-0.5544***	-0.1175
1980-1988	-0.4775***	-0.5325***	-0.0655

Significance Levels
*10%
**5%
***1%

TABLE 12

Correlations Coefficients on Hourly Pay and Productivity
Using Data for 15 2-digit Manufacturing Industries -
disaggregated by high and low collective bargaining coverage

Association between Pay Changes and Labour Productivity Changes

Period	Overall Correlation	Correlation in Industries with Above Average CB Coverage	Correlations in those Industries with Below Average CB Coverage
1980-1984	-0.1360	-0.2550	0.0931
1984-1988	0.1125	0.2758	-0.7947***
1980-1988	-0.1875	0.1046	-0.5255**

Significance Levels
*10%
**5%
***1%

TABLE 13

Correlation Coefficients of Original Level of Hourly Pay on Changes in Employment and Pay for 20 2-digit Industries - disaggregated by high and low collective bargaining coverage

Years	Employment Changes and Average Hourly Pay Level	Sectors with Above Average CB Coverage	Sectors with Below Average CB Coverage
1980-1984	0.4002*	0.3960*	0.2701
1984-1988	0.1508	0.2717	-0.8182***
1980-1988	0.4379**	0.4984***	-0.6037***

Years	Hourly Pay Changes and Original Level	Sectors with Above Average CB Coverage	Sectors with Below Average CB Coverage
1980-1984	-0.2292	-0.2567	-0.2302
1984-1988	-0.7712***	-0.7955***	-0.2037
1980-1988	-0.7710***	-0.8610***	-0.3093

Significance levels
* 10%
** 5%
*** 1%

TABLE 14

Minimum Wage Relative to Average Wage, Hourly Data

	Time Period or Industry	Minimum Wage/Average Wage (%)
1	Mean Across 20 Industries	
	1980	32.2
	1981	30.2
	1982	29.4
	1983	28.9
	1984	27.8
	1985	26.9
	1986	26.4
	1987	25.8
	1988	25.6
	Average 1980-88	28.2
2	Mean Over 9 Years by Industry	
	11	21.3
	15	17.8
	21	24.6
	22	23.0
	24	30.4
	25	21.8
	31	26.4
	33	25.7
	36	23.7
	41	29.0
	43	36.4
	45	41.1
	46	40.0
	47	26.8

TABLE 14 continued

	Time Period or Industry	Minimum Wage/Average Wage (%)
2	Mean Over 9 Years by Industry	
	48	26.7
	50	32.0
	61	32.1
	66	40.5
	72	34.9
	81	8.8
	Average Over 20 Industries	28.2

Source: Industry average wage data: as Section II.2.

Minimum wages: Table SMI-1, Boletín de Estadísticas Laborales, Ministerio de Trabajo y Seguridad Social

TABLE 15

Correlations Coefficients on the Bite of Minimum Wages and Employment Using Data for 20 and 33 2-digit Industries

Association between employment changes and changes in the bite of the minimum wage defined as national minimum wage/average wage by industry

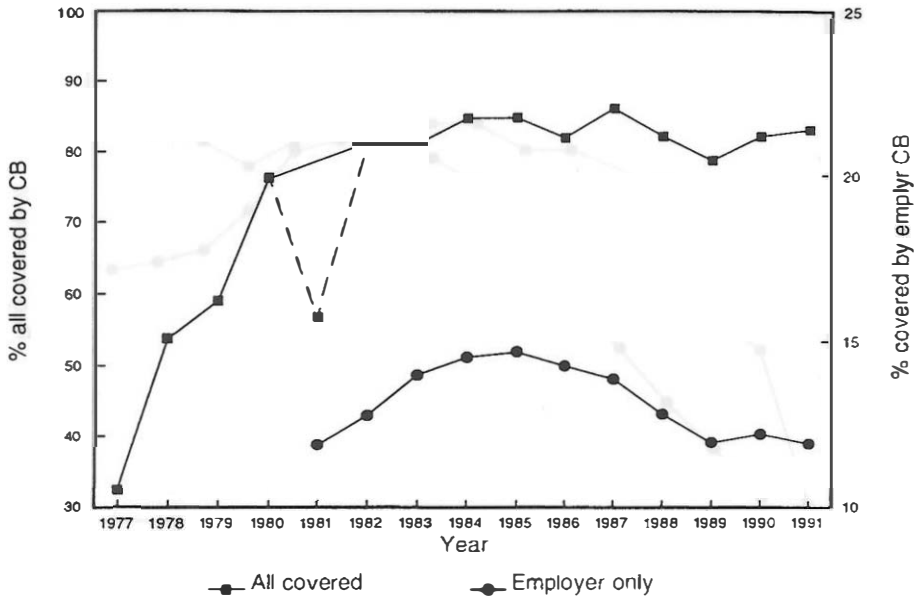
Period	Using Hourly Pay Data and National Minimum Daily Pay, n=20
1981	-0.1154
1982	0.1544
1983	0.0345
1984	0.0179
1985	-0.2017
1986	0.2332
1987	-0.1211
1988	0.3349
1980-1984	0.2865
1984-1988	0.4843***
1980-1988	0.5159***

Period	Using Monthly Pay Data and National Minimum Monthly Pay, n=33
1982	-0.0019
1983	-0.0515
1984	0.3565**
1985	0.2571
1986	0.1173
1987	0.2326
1988	-0.1111
1989	0.0428
1990	-0.0738
1991	0.3138**
1981-1986	0.0014
1986-1991	0.1416
1981-1991	-0.2323

Significance Levels
*10%
**5%
***1%

FIGURE 1

Bargaining Coverage and Levels 1977-1991

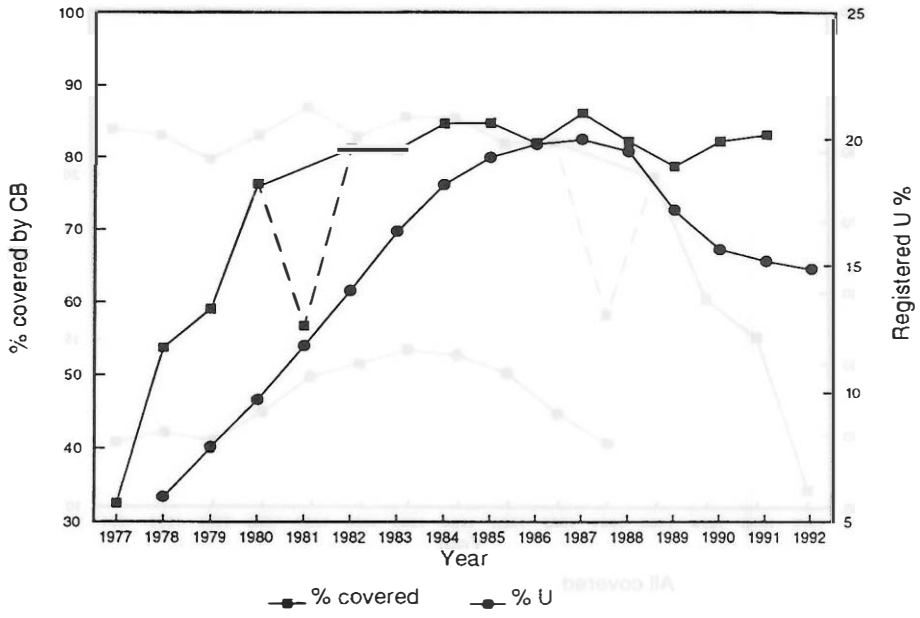


Source: Tables 1 and 2

Note: 1981 figure improbably low, see text

FIGURE 2

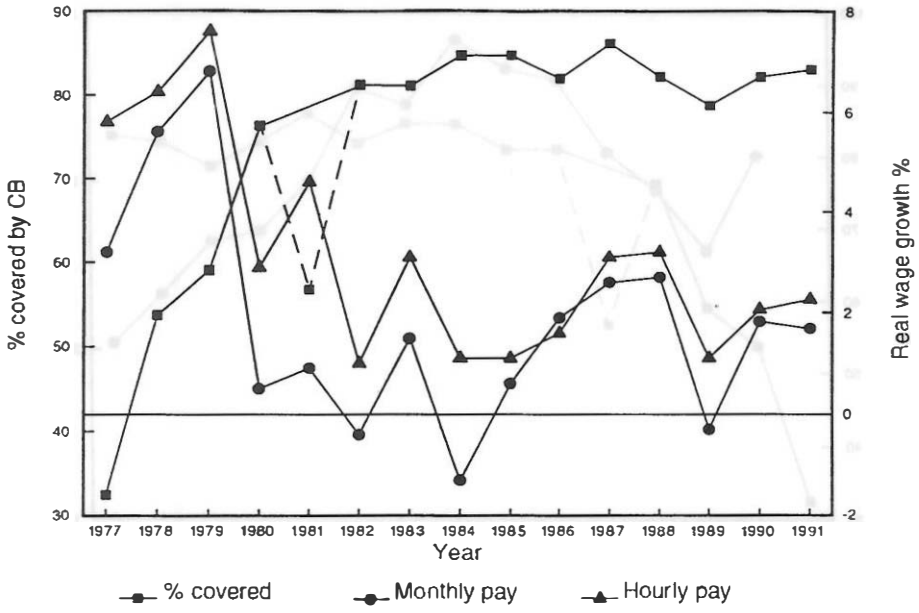
Bargaining Coverage and Registered Unemployment 1977-1992



Sources: Table 1 and Boletín de Estadísticas Laborales, MLR G1

FIGURE 3

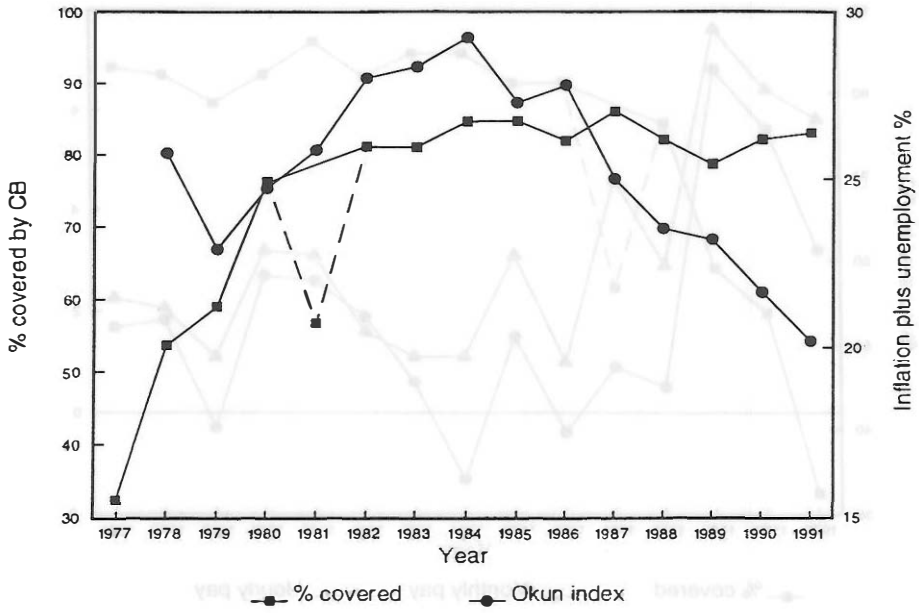
Bargaining Coverage and Real Wages 1977-1991



Sources: Table 1 and Boletín de Estadísticas Laborales IPC-1 and ESA-2, ESA-5

FIGURE 4

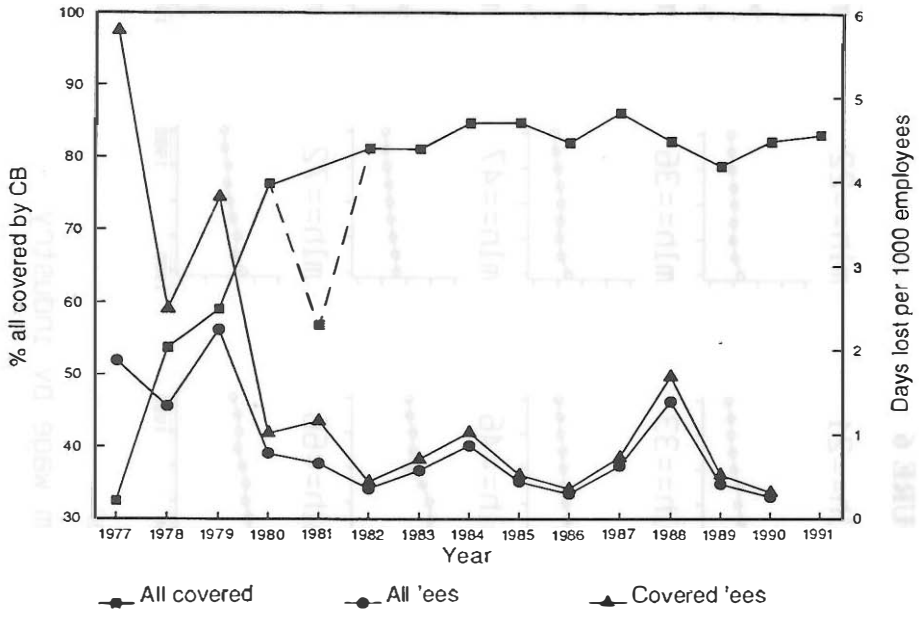
Bargaining Coverage and the Okun Index 1977-1991



Sources: Table 1 and Boletín de Estadísticas Laborales, IPC-1 and MLR G1

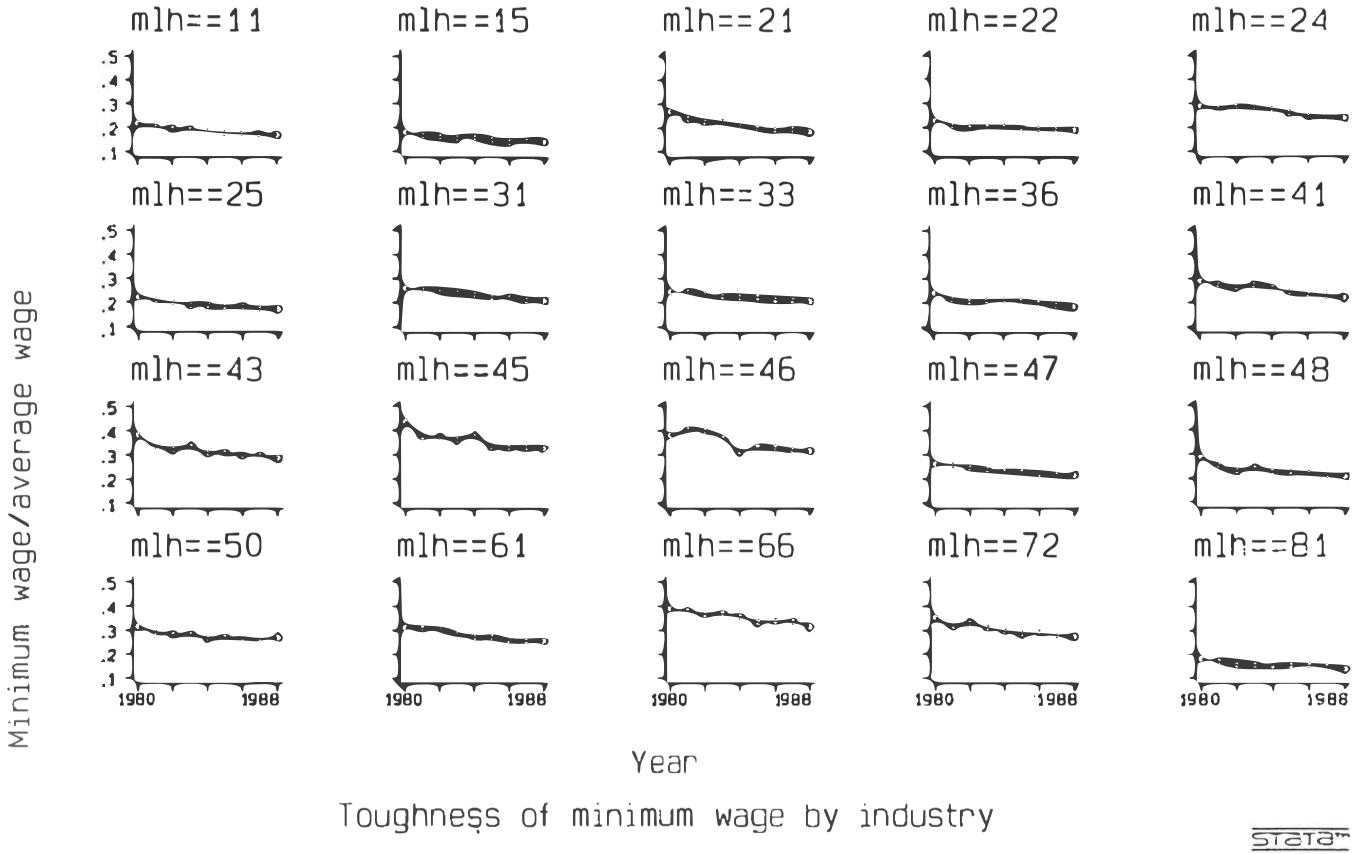
FIGURE 5

Bargaining Coverage and Industrial Action 1977-1991



Sources: Table 1 and Anuario Estadístico, Capitulo VII, 2.2, Huelgas

FIGURE 6


mlh==11
mlh==15
mlh==21
mlh==22
mlh==24
mlh==25
mlh==31
mlh==33
mlh==36
mlh==41
mlh==43
mlh==45
mlh==46
mlh==47
mlh==48
mlh==50
mlh==61
mlh==66
mlh==72
mlh==81
.1
.2
.3
.4
.5
1980
1988
Minimum wage/average wage
Year
Toughness of minimum wage by industry
Stata

APPENDIX 1

Matched Industry Details

1980-1988 Employment/Pay Correlations - 20 2-digit industries

Spanish	English	MLH
Extracción preparación y aglomer de combus. sólidos y coquerías	Coal extraction and manufacture of solid fuels	11
Electricidad gas y agua	Electricity, gas and water supply	15
Extracción de minerales	Extraction of minerals	21
Producción y primera transformación de metales	Production and primary transformation of metals	22
Industrias de productos minerales no metálicos	Non-metallic mineral industry	24
Industria química	Chemical industry	25
Fabricación de productos metálicos y construcción de maquinaria y equipo mecánico	Construction of metal products and construction of mechanical equipment and machines	31-32
Construcción de maquinaria y material eléctrico y construcción de maquinas de oficina y material electrónico	Construction of electrical machines and materials and construction of electronic office machines and materials	33-35
Construcción de vehículos automóviles y sus piezas de repuesto y construcción naval y otro material de transporte	Cars and spare parts and naval and other transport materials	36-38

Industrias de productos alimenticios bebidas y tabaco	Food, drink and tobacco	41-42
Industria textil	Textiles	43
Industrias del calzado, vestido y otras confecciones textiles	Footwear and clothing	45
Industrias de la madera, corcho y muebles de madera	Timber, cork and wooden furniture	46
Industrias del papel y fabric. de art. de papel, Artes Gráficas y edición	Paper and paper products	47
Industrias de transformación del caucho y materias plasticas y otras industrias manufactureras	Processing of rubber and plastic materials and other manufacturing industries	48-49
Construcción	Construction	50
Comercio al por mayor interm. comerc. y recuperación de productos y comercio al por menor	Wholesale distribution, scrap and waste metals, commission agents and retail distribution	61-65
Restaurantes, cafés, hostelería	Restaurants, cafes and hotels	66
Otros transportes terrestres	Other inland transport	72
Instituciones financieras y seguros, inmobilarias. Servicios a las empresas. Alquileres	Banking, finance, insurance, business, services	81-85

1980-88 Productivity/Pay Data: 15 2-digit industries

Spanish	English	MLH
Extracción preparación y aglomer de combus sólidos y coquerias	Coal extraction and manufacture of solid fuels	11
Electricidad gas y agua	Electricity, gas and water supply	15
Extracción de minerales	Extraction of minerals	21
Producción y primera transformación de metales	Production and primary transformation of metals	22
Industrias de productos minerales no metálicos	Non-metallic mineral industry	24
Industria química	Chemical industry	25
Fabricación de productos metálicos y construcción de maquinaria y equipo mecánico	Construction of metal products and construction of mechanical equipment and machines	31-32
Construcción de maquinaria y material eléctrico y construcción de maquinas de oficina y material electrónico	Construction of electrical machines and materials and construction of electronic office machines and materials	33-35
Construcción de vehículos automóviles y sus piezas de repuesto y construcción naval y otro material de transporte	Cars and spare parts and naval and other transport materials	36-38
Industrias de productos alimenticios bebidas y tabaco	Food, drink and tobacco	41-42
Industria textil	Textiles	43

Industrias del calzado, vestido y otras confecciones textiles	Footwear and clothing	45
Industrias de la madera, corcho y muebles de madera	Timber, cork and wooden furniture	46
Industrias del papel y fabric. de art. de papel, Artes Gráficas y edición	Paper and paper products	47
Industrias de transformación del caucho y materias plasticas y otras industrias manufactureras	Processing of rubber and plastic materials and other manufacturing industries	48-49

APPENDIX 2

Data Sources

Employment Data
Employees in employment (asalariados) by industry.
33 classifications (matched to 20 pay and 15 value added classifications).
Annual 1980-1991 (matched to 1980-88 pay and value added data).
Source: Table 16, Encuesta de Población Activa, Boletín de Estadísticas Laborales, Ministerio de Trabajo y Seguridad Social.

Value Added Data
Value added by industry.
26 classifications (matched to 15 pay and employment classifications).
Annual 1980-1989 (matched to 1980-88 pay and employment data).
Source: Cap. IX, 2.1.7,(Valor añadido) Anuario Estadístico.

Pay Data
Average hourly pay by industry.
23 classifications (matched to 15 value added classifications and 20 employment classifications).
Annual 1980-1988.
Source: Encuesta de Salarios en la Industria y Servicios, Instituto Nacional de Estadística.

Collective Bargaining Data
Workers covered by collective bargaining by industry (all agreements).
Classifications 33.
Annual 1981-1991.
Source: Table Con-15, Boletín de Estadísticas Laborales Ministerio de Trabajo y Seguridad Social.

Minimum Wages Data
Daily and monthly minimum wage (salario mínimo interprofesional) for 18 years old and above.
Annual 1980-1993.
Source: Table SMI-1, Boletín de Estadísticas Laborales, Ministerio de Trabajo y Seguridad Social.

REFERENCES

Archer, R., 'The Unexpected Emergence of Australian Corporatism' in Pekkarinen, J., et al., 1992.

Bean, C., Layard, R. and Nickell, S. 'The Rise in Unemployment: A Multi-Country Study', Economica, Vol. 53, Supplement, 1986, pp.1-22.

Bell, L. and Freeman, R., 'Does a Flexible Industry Wage Structure Increase Employment? The US Experience', mimeo, November 1884.

Bruno, M. and Sachs, J., (1985), *Economics of Worldwide Stagflation*, Oxford: Basil Blackwell.

Buckley, P. and Artisien, P., (1988), 'Policy Issues of Intra-EC Direct Investment: British, French and German Multinationals in Greece, Portugal and Spain' in Dunning, J. and Robson, P., (eds.), *Multinationals and the European.*

Calmfors, L. and Driffil, J., 'Bargaining Structure, Corporatism and Macroeconomic Performance,' Economic Policy, Vol. 6, 1988, pp.13-61.

Card, D., "Using Regional Variation in Wages to Measure the Effects of the Federal Minimum Wage", Industrial and Labor Relations Review, Vol. 46, 1992a, pp.22-37.

Card, D., 'Do Minimum Wages Reduce Employment? A Case Study of California, 1987-89', Industrial and Labor Relations Review, Vol. 46, 1992b, pp.38-54.

Coricelli, F., 'Industrial Relations and Macroeconomic Performance: An Application to Spain', IMF Working Paper No. 93, October 1990.

Crouch, C., (1985) 'Conditions for Trade Union Wage Restraint', in Lindberg, N. and Maier, C., (eds.), *The Politics of Inflation and Economic Stagnation*, The Brookings Institution, Washington.

Dickens, R., Gregg, P., Machin S., Manning A. and Wadsworth, J., 'Wages Councils: Was there a Case for Abolition?' British Journal of Industrial Relations, Vol. 31(4), December 1993.

Dolado, J. and Bentolila, S., 'Who Are the Insiders? Wage Setting in Spanish Manufacturing Firms', paper given at European Unemployment Programme, Chelwood Gate, September 1992.

Draper, M., 'Indiciacion Salarial y Empleo: Un Analisis Desagregado Para el Caso Espanol", CEMFI, mimeo, 1992.

Dunn, S., 'From Donovan to ... Wherever', British Journal of Industrial Relations, Vol. 31(2), 1993, pp.169-188.

Escobar, M., 'Works or Union Councils?' Centro de Estudios Avanzados en Ciencias Sociales, Working Paper No. 43, February 1993.

Estivill, J. and de la Hoz, J., (1991), 'Transition and Crisis: the Complexity of Spanish Industrial Relations', in Baglioni, G. and Crouch, C., (eds.), *European Industrial Relations*, London: Sage.

Filella, J., 'Is There a Latin Model in the Management of Human Resources?', Personnel Review, Vol. 20(6), 1991.

Freeman, R., 'Labour Market Institutions and Economic Performance', Economic Policy, Vol. 6, 1988, pp.63-80.

Hegewisch, A., 'The Decentralisation of Pay Bargaining: European Comparisons', Personnel Review, Vol. 20(6), 1991.

Heylen, F., 'Labour Market Structures, Labour Market Policy and Wage Formation in the OECD', Labour, 1992.

ILO Mission (1985), The Trade Union Situation and Industrial Relations in Spain, ILO: Geneva.

Jimeno, J. and Toharia, L., (1991), 'Spanish Labour Markets: Institutions and Outcomes', in Hartog, J. and Theeuwes, J., (eds.), (1993) *Labour Market Contracts and Institutions: A Cross-National Comparison*, North-Holland: Amsterdam.

Jimeno, J. and Toharia, L., (1992), *Unemployment and labour Market Flexibility: The Case of Spain*, FEDEA/Universidad de Alcala.

Katz, L. and Krueger, A., 'The Effect of the Minimum Wage on the Fast-Food Industry', Industrial and Labor Relations Review, Vol. 46, 1992, pp.6-21.

Lawler, T. and Rigby, M., 'Contemporary Spanish Trade Unions', Industrial Relations Journal, Vol. 17(3), 1986.

Layard, R., 'Wage Bargaining and Incomes Policy: Possible Lessons for Eastern Europe', Centre for Economic Performance, London School of Economics, Discussion Paper No. 2, May 1990.

Layard, R., Nickell, S. and Jackman, R., (1991), *Unemployment, Macroeconomic Performance and the Labour Market*, Oxford University Press: Oxford.

Lucio, M., (1992), 'Spain: Constructing Institutions and Actors in a Context of Change', in Ferner, A. and Hyman, R., (eds.), *Industrial Relations in the New Europe*, Blackwell: Oxford.

Machin, S. and Manning. A., 'Minimum Wage Dispersion and Employment: Evidence from the UK Wages Councils", Centre for Economic Performance, London School of Economics, Working Paper No. 377, April 1992.

Machin, S., Stewart, M. and Van Reenen, J., (199), 'Multiple Unionism, Fragmented Bargaining and Economic Outcomes in Unionised UK Establishments', in Metcalf, D. and Milner, S., (eds.), *New Perspectives on Industrial Disputes*, Routledge: London.

Marginson, P., Edwards, P., Martin, P., Purcell, J. and Sisson, K. (1988), *Beyond the Workplace*, Blackwell: Oxford.

McCallum, J., 'Unemployment in OECD Countries in the 1980s', Economic Journal, Vol. 96, 1986, pp.942-960.

McElrath, R., 'Trade Unions and the Industrial Relations Climate in Spain', Industrial Research Unit, University of Pennsylvania, European Studies Research Paper No. 10, 1989.

Metcalf, D., 'Unions, Incomes Policy and Relative Wages in Britain", British Journal of Industrial Relations, Vol. 15(2), July 1977, pp.157-174.

Metcalf, D., Wadsworth, J. and Ingram, P., 'Multi-Unionism, Size of Bargaining Group and Strike Incidence: Evidence from British Manufacturing in the 1980s', Industrial Relations Journal, Vol. 24(1), 1993, pp.1-12.

Miguelez, F., 'Industrial Relations in Small and Medium-Sized Enterprises in Spain', in Auer, P. and Fehr-Duda, H., (eds.), *Industrial Relations in Small and Medium-sized enterprises*, EC Commission Final Report, October 1988.

Miguelez, F. and Prieto, C., (1991), *Las Relaciones Laborales en España*, Siglo Ventiuno de España Editores: Madrid.

Milner, S. and Metcalf, D., (1993), 'A Century of UK Strike Activity', in Metcalf, D. and Milner, S., (eds.), *New Perspectives on Industrial Relations*, Routledge: London.

Neumark, D. and Wascher, W., 'Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws", Industrial and Labor Relations Review, Vol. 46, 1992, pp.55-81.

Newell, A. and Symons, J., 'Corporatism, Laissez-Faire and the Rise in Unemployment', European Economic Review, Vol. 31(3), 1987, pp.567-614.

OECD (1985a). Employment Outlook, Paris.

OECD (1985b). Employment Outlook, Paris.

Pekkarinen, J., Pohjola, M. and Rowthorn, B., eds., (1992), *Social Corporatism: A Superior Economic System?* Clarendon Press: Oxford, Oxford University Press: New York

Pissarides, C. and McMaster, I., 'Sector Specific and Economy Wide Influences on Industrial Wages in Britain', Centre for Labour Economics, London School of Economics, Working Paper No. 571, 1984.

Pohjola, M., 'Corporatism and Wage Bargaining', in Pekkarinen, J., et al., 1992.

Reddaway, B., 'Wage flexibility and the Distribution of Labour', Lloyds Bank Review, 1959.

Rowthorn, B., 'Corporatism and Labour Market Performance', in Pekkarinen, J., et al., 1992.

Sisson, K., (1987), *The Management of Collective Bargaining*, Blackwell: Oxford.

Sisson, K., Waddington, J. and Whitson, C., 'Company Size in the European Community', Human Resource Management Journal, Vol. 2(1), 1991, pp.94-109.

Soskice, D., 'Wage Determination: The Changing Role of Institutions in Advanced Industrialized Countries', Oxford Review of Economic Policy, Vol. 6(4), 1990, pp.36-61.

Tarantelli, E., 'The Regulation of Inflation and Unemployment', Industrial Relations, Vol. 25(1), 1986, pp.1-15.

Toharia, L., (1988), 'Partial Fordism: Spain between Political Transition and Economic Crisis', in Boyer, R., (ed.), *The Search for Labour Market Flexibility*, Clarendon Press: Oxford.

Wachter, M., "Phase II, Cost Push Inflation and Relative Wages", American Economic Review, Vol. 64(3), June 1974.

Windmuller, J. and Gladstone, A., (eds.), (1984), *Employers Associations and Industrial Relations*, Part Two, Clarendon Press: Oxford.

WORKING PAPERS (1)

9311 **Fernando Restoy and G. Michael Rockinger:** On stock market returns and returns on investment.

9312 **Jesús Saurina Salas:** Indicadores de solvencia bancaria y contabilidad a valor de mercado.

9313 **Isabel Argimón, José Manuel González-Páramo, María Jesús Martín y José María Roldán:** Productivity and infrastructure in the Spanish economy. (The Spanish original of this publication has the same number.)

9314 **Fernando Ballabriga, Miguel Sebastián and Javier Vallés:** Interdependence of EC economies: A VAR approach.

9315 **Isabel Argimón y M.ª Jesús Martín:** Series de «stock» de infraestructuras del Estado y de las Administraciones Públicas en España.

9316 **Pedro Martínez Méndez:** Fiscalidad, tipos de interés y tipo de cambio.

9317 **Pedro Martínez Méndez:** Efectos sobre la política económica española de una fiscalidad distorsionada por la inflación.

9318 **Pablo Antolín and Olympia Bover:** Regional Migration in Spain: The effect of Personal Characteristics and of Unemployment, Wage and House Price Differentials Using Pooled Cross-Sections.

9319 **Samuel Bentolila y Juan J. Dolado:** La contratación temporal y sus efectos sobre la competitividad.

9320 **Luis Julián Álvarez, Javier Jareño y Miguel Sebastián:** Salarios públicos, salarios privados e inflación dual.

9321 **Ana Revenga:** Credibility and inflation persistence in the European Monetary System. (The Spanish original of this publication has the same number.)

9322 **María Pérez Jurado and Juan Luis Vega:** Purchasing power parity: An empirical analysis. (The Spanish original of this publication has the same number.)

9323 **Ignacio Hernando y Javier Vallés:** Productividad sectorial: comportamiento cíclico en la economía española.

9324 **Juan J. Dolado, Miguel Sebastián and Javier Vallés:** Cyclical patterns of the Spanish economy.

9325 **Juan Ayuso y José Luis Escrivá:** La evolución del control monetario en España.

9326 **Alberto Cabrero Bravo e Isabel Sánchez García:** Métodos de predicción de los agregados monetarios.

9327 **Cristina Mazón:** Is profitability related to market share? An intra-industry study in Spanish manufacturing.

9328 **Esther Gordo y Pilar L'Hotellerie:** La competitividad de la industria española en una perspectiva macroeconómica.

9329 **Ana Buisán y Esther Gordo:** El saldo comercial no energético español: determinantes y análisis de simulación (1964-1992).

9330 **Miguel Pellicer:** Functions of the Banco de España: An historical perspective.

9401 **Carlos Ocaña, Vicente Salas y Javier Vallés:** Un análisis empírico de la financiación de la pequeña y mediana empresa manufacturera española: 1983-1989.

9402 **P. G. Fisher and J. L. Vega:** An empirical analysis of M4 in the United Kingdom.

9403 **J. Ayuso, A. G. Haldane and F. Restoy:** Volatility transmission along the money market yield curve.

9404 **Gabriel Quirós:** El mercado británico de deuda pública.

9405 **Luis J. Álvarez and Fernando C. Ballabriga:** BVAR models in the context of cointegration: A Monte Carlo experiment.

9406 **Juan José Dolado, José Manuel González-Páramo y José M.ª Roldán:** Convergencia económica entre las provincias españolas: evidencia empírica (1955-1989).

9407 **Ángel Estrada e Ignacio Hernando:** La inversión en España: un análisis desde el lado de la oferta.

9408 **Ángel Estrada García, M.ª Teresa Sastre de Miguel y Juan Luis Vega Croissier:** El mecanismo de transmisión de los tipos de interés: el caso español.

9409 **Pilar García Perea y Ramón Gómez:** Elaboración de series históricas de empleo a partir de la Encuesta de Población Activa (1964-1992).

9410 **F. J. Sáez Pérez de la Torre, J. M.ª Sánchez Sáez y M.ª T. Sastre de Miguel:** Los mercados de operaciones bancarias en España: especialización productiva y competencia.

9411 **Olympia Bover and Ángel Estrada:** Durable consumption and house purchases: Evidence from Spanish panel data.

9412 **José Viñals:** Building a Monetary Union in Europe: is it worthwhile, where do we stand, and where are we going? (The Spanish original of this publication has the same number.)

9413 **Carlos Chuliá:** Los sistemas financieros nacionales y el espacio financiero europeo.

9414 **José Luis Escrivá and Andrew G. Haldane:** The interest rate transmission mechanism: Sectoral estimates for Spain. (The Spanish original of this publication has the same number.)

9415 **Mª de los Llanos Matea y Ana Valentina Regil:** Métodos para la extracción de señales y para la trimestralización. Una aplicación: Trimestralización del deflactor del consumo privado nacional.

9416 **José Antonio Cuenca:** Variables para el estudio del sector monetario: Agregados monetarios y crediticios y tipos de interés sintéticos.

9417 **Ángel Estrada y David López-Salido:** La relación entre el consumo y la renta en España: un modelo empírico con datos agregados.

9418 **José M. González Mínguez:** Una aplicación de los indicadores de discrecionalidad de la política fiscal a los países de la UE.

9419 **Juan Ayuso, María Pérez Jurado y Fernando Restoy:** Is exchange rate risk higher in the ERM after the widening of fluctuation bands? (The Spanish original of this publication has the same number.)

9420 **Simon Milner and David Metcalf:** Spanish pay setting institutions and performance outcomes.

(1) Previously published Working Papers are listed in the Banco de España publications catalogue.

Queries should be addressed to: Banco de España
Sección de Publicaciones. Negociado de Distribución y Gestión
Teléfono: 338 51 80
Alcalá, 50. 28014 Madrid