

# Trade unions, collective bargaining and macroeconomic performance: a review

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## ABSTRACT

Coordination through collective bargaining is recognised as an influential determinant of labour market outcomes and macroeconomic performance. This article provides a systematic review of the empirical literature on the subject. What emerges from the review is that it is different types and coverage of bargaining coordination, rather than cross-country variation in trade union density, that matter for economic performance. High levels of bargaining coverage tend to be associated with relatively poor economic performance, but this adverse relationship can be at least mitigated by high levels of bargaining coordination. In the absence of formal bargaining arrangements, economies often develop informal bargaining mechanisms whose effects are similar to those arising from formal bargaining provided they both operate at similar levels of coordination. The consequences of labour market coordination or absence thereof depend on the monetary policy regime as non-accommodating monetary policy can eliminate some of the adverse unemployment consequences otherwise associated with industry-level collective bargaining. Finally, bargaining coordination seems to matter most in times of rapid economic change rather than under more stable conditions. Overall, we conclude that it is the total ‘package’ of (formal and informal) labour market institutions that matters for the performance of the economy rather than unionisation as such or individual aspects of unionism.

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## 1 INTRODUCTION

Though the economic effects of trade unions can vary depending on institutional and organisational arrangements that apply to different countries at different points in time and for different economic episodes, one activity that unions almost always engage in is collective bargaining. The macroeconomic effects of collective bargaining depend on the degree of bargaining coordination, that is, the extent to which the parties in the labour market take into account the effect collective wage settlements might have on aggregate prices. Bargaining coordination may range from informal coordination of wage settlements among large firms (as in Japan) to centralisation of wage bargaining to the national level through peak organisations, as in the

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heavily unionised labour markets in Scandinavia. Other institutions tend to hinder coordination. An example of this is industry-level collective bargaining, as it took place in the UK in the 1970s. As stressed by Traxler *et al.* (2001: Chapter 10) and others, it is important to note that coordination of wage bargaining is different from bargaining centralisation. While centralisation of wage bargaining among a few peak organisations can encourage macroeconomic coordination, economy-wide synchronisation of wages can and does take place in labour markets with decentralised bargaining and can break down in centralised bargaining systems if intra-associational coordination fails. What matters is whether or not the parties are willing and able to internalise the broader implications of wage settlements.

Differences in the degree and type of bargaining coordination combined with the observed differences in macroeconomic performance among many countries over the last 40 years have spurred a large literature that tries to explain cross-country variation in economic performance by cross-country differences in labour market institutions. This article attempts to provide a systematic review of the vast and increasing literature on the issue. A central theme is whether and to what extent coordination of collective bargaining affects economic performance, both in a *static* sense by internalising externalities and in a *dynamic* sense by helping the economy to absorb shocks more effectively. The general literature has previously been reviewed by Flanagan (1999) and Boeri *et al.* (2001: Chapter 5). Calmfors (1993) offers an in-depth discussion of the underlying theory, and Franzese (2002) reviews the literature on monetary policy regimes and bargaining coordination. What we offer in addition to this is a review of more recent developments related to interactions between bargaining coordination and key aspects of the economic and political environment as well as a more systematic evaluation of the older literature and an attempt to bridge parallel literatures within economics, political science and industrial relations.

The rest of the survey is organised as follows. Section 2 provides a short survey of the relevant theoretical literature and identifies a number of channels through which collective bargaining can affect economic outcomes. Section 3 reviews the empirical evidence related to the so-called corporatist and hump hypotheses and discusses the evidence on possible interactions between bargaining coordination on the one hand and the political orientation of government, monetary policy regimes and governance capacities on the other. Section 4 summarises the findings and concludes.

## 2 THE THEORY OF COLLECTIVE BARGAINING

Unions and employers' organisations arise from the asymmetry in contracting between individual workers and employers regarding both access to information and bargaining power (Marshall, 1890), the concern for basic labour rights, and different perceptions about the merits of employment relations governed by individual contracts compared to collective agreements. The consequences of collective bargaining depend on many factors, including the share of the labour market covered by collective agreements as opposed to individual contracts and the degree of bargaining coordination. In this section, we provide a brief review of two of the leading ideas in the literature on the macroeconomic effects of collective bargaining, often referred to as the corporatist and the hump hypothesis, respectively. We postpone till Section 3 the discussion of three more recent alternative hypotheses that in different ways argue

that the effect of collective bargaining is conditional on 'circumstances' such as the political orientation of the government, the monetary policy regime or state provision of governance capacity.

Centralisation of collective bargaining is, along with informal coordination and corporatism, one of the institutional aspects of the labour market that determines the degree of bargaining coordination. Collective bargaining is centralised when the national union confederation and the national employers' organisation can influence and control wage levels and patterns across the economy. The capacity to do so depends on many factors, including the level at which bargaining primarily takes place (e.g. at firm or industry level, or locally, regionally or nationally) and whether and to what degree the national organisation(s) can control the behaviour of their constituent organisations and avoid wage drift. Table 1 summarises eight important aspects of bargaining centralisation and evaluates the associated (static) costs and benefits.

The idea that centralisation of collective bargaining can facilitate internalisation of externalities has received particular attention in the literature and warrants some discussion. To fix ideas, imagine a society in which all workers are organised in unions. Suppose that each firm negotiates with a company union. In this case, wage setters bear only a (small) fraction of the total economic costs that are associated with a given increase in their real wage and are imposed on others. Table 2 defines, in more detail, six such externalities. Due to these externalities, the negotiated wage is 'too' high and the result is, *ceteris paribus*, 'too' little total employment. By centralising the bargaining process to the industry or national level, wage setters are forced to bear a larger share of the cost of their actions, as more (and ultimately all) workers become included in the bargaining coalition. This creates incentives in favour of wage restraint, which, *ceteris paribus*, leads to more total employment. This in essence is the *corporatist* hypothesis: centralisation and coordination of bargaining improves economic outcomes.

As pointed out by Calmfors and Driffill (1988), this argument ignores the fact that the competitive pressure from product and labour markets as well as the moderating effect it has on wage demands change systematically with the level of centralisation. To see this, consider what happens when a union demands (and gets) a high nominal wage. To avoid an increase in the product real wage, firms pass (to the extent they can) the cost on to consumers in the form of higher prices. From the point of view of the union, this has an unpleasant side effect in addition to the reduction in the consumption real wage: it reduces the demand for the goods produced by the host firm, thereby endangering the jobs of the union members. Anticipating this, the union moderates its wage demand. At the firm level, the competitive pressure from other firms in the same industry (producing close substitutes) provides strong incentives to moderate wage demands. At the national level, on the other hand, competitive pressure is relatively weak, but this is compensated for by, first, the federation of unions bear the full cost of its actions and, second, social partnerships become possible and unions and employers' organisations are sufficiently encompassing to make rent-seeking unprofitable (Heitger, 1987; Olson, 1982). At the industry level, neither of these factors produces much wage moderation. On the contrary, firms in an industry can pass on a substantial portion of the wage demands to consumers at a relatively low employment cost. In addition, industry-based unions often form effective lobby groups that seek distributive favours from the government at the expense of society at large (Rama, 1997; Rama and Tabellini, 1998).

Table 1: The economic costs and benefits of centralisation of collective bargaining

Issue	Argued benefit	Argued cost
<p>1. <i>Internalisation of externalities</i>: Unions and firms acting independently of the rest of the market (decentralisation) can have unintended negative effects (externalities) upon the rest of the economy (e.g. higher wages can be passed on to consumers in the form of higher prices; higher inflation; an increase in unemployment).</p>	<p>Centralisation increases the size of the bargaining coalition, thereby internalising negative externalities. This effect is larger, the more workers are unionised.</p>	<p>As bargaining becomes more centralised, competitive pressure is reduced because firms acting in unison are less likely to lose their market share (product demand is more inelastic at the industry level than at the firm level). This increases wage pressure and leads to higher unemployment. This effect is less important in an open economy.</p>
<p>2. <i>Competitive pressure</i>: Competition in product markets disciplines unions and firms, and this effect is strongest at the decentralised level (more competition reduces the ability to pass wage increases on to consumers as higher prices).</p>	<p>When wage setting is centralised to the national level rather than related to the circumstances of individual industries, wages are compressed. This tends to bolster expanding, progressive industries and hamper declining ones. The net effect is often to increase output and promote growth. In addition, centralised wage setting can act as social insurance.</p>	<p>A reduction in wage dispersion leads to an economic misallocation of resources and lower output because wages become detached from local productivity conditions.</p>
<p>3. <i>Wage compression</i>: Under centralised collective bargaining, egalitarian wage goals are easier to achieve, and firm-specific conditions are less likely to enter the wage contracts. This tends to reduce wage dispersion.</p>	<p>Wage compression, moreover, reduces the incentive of workers to invest in skills, to exert effort and to choose jobs in high-productivity industries.</p>	<p>Efficient bargaining (over employment and wages) is only feasible under decentralised bargaining.</p>
<p>4. <i>Areas of bargaining</i>: Some issues can only be subject to collective bargaining at certain levels of centralisation or above (e.g. training, health and safety and so on).</p>	<p>For example, general training of workers is more likely to be part of centralised collective bargaining because it has the characteristics of a public good. Subsequently, training can lead to higher economy-wide labour productivity and overall economic growth.</p>	<p>Workplace cooperation and other participatory activities between unions and firms decrease under centralised bargaining.</p>

Table 1: Continued

Issue	Argued benefit	Argued cost
<p>5. <i>Hold-up problems</i>: Firms undertake investment decisions today that affect future profits. If workers, via collective bargaining, can get a share of these profits without contributing to the costs, firms would under-invest.</p>	<p>The hold-up problem is reduced under centralised bargaining because an individual firm cannot affect the outcome of collective bargaining by its pre-bargaining investment decisions. This encourages firms to invest more.</p>	
<p>6. <i>Insider-induced hysteresis</i>: Only the group of insiders (e.g. union members and employed workers) counts in wage bargaining. When the insiders are reduced in number (e.g. after lay-offs in a recession), they can push for higher wages in the next bargaining round and cause unemployment to remain persistently high.</p>	<p>Under centralised bargaining, more workers can be perceived to be insiders (including the unemployed) to the extent that unions are concerned about aggregate unemployment.</p>	
<p>7. <i>Strikes</i>: Imperfect information can lead to more strikes.</p>	<p>Centralisation increases the level of information about demand conditions, thereby reducing the likelihood of strikes, especially wildcat strikes.</p>	<p>Centralisation increases the risk of a general strike.</p>
<p>8. <i>Bargaining power</i>: The relative bargaining power of workers and employers depends on the 'fallback' option of the two parties (what they will get if an agreement is not reached).</p>	<p>Centralisation can reduce wage pressure by increasing employers' bargaining power because workers' alternative job options in case of an industrial conflict are substantially reduced if all firms 'lock-out' workers.</p>	<p>Centralisation can increase wage pressure if unions derive their bargaining power from the monopoly command over labour supply. It is easier for a single firm than it is for an entire industry or nation to replace workers in the event of a strike.</p>

Sources: General: Calmfors (1993), Moene and Wallerstein (1993), Layard *et al.* (1991, Chapter 2), Sapsford and Tzannatos (1993) and Booth (1995), Specific: (1)–(2) Calmfors and Driffill (1988); (3) Agell and Lommerud (1993), Moene and Wallerstein (1997), Agell (1999) and Harcourt (1997); (4) Soskice (1990); (5) Grou (1984); (6) Blanchard and Summers (1986).

Table 2: Six possible externalities associated with decentralised wage setting

The input price externality	Decentralised wage gains are passed on as higher product prices, thus increasing the real cost of inputs for other firms.
The fiscal externality	Decentralised wage gains lead to unemployment. The cost in terms of unemployment benefits is borne by all tax-payers, not only those involved in wage setting.
The unemployment externality	Decentralised wage gains increase overall unemployment, making it more difficult for all unemployed workers to find a new job.
The envy externality	Decentralised wage gains create envy among other workers.
The consumer price externality	Decentralised wage gains are passed on as higher product prices, thus lowering the real wage of all workers.
The efficiency wage externality	At the decentralised level, firms have an incentive to try to increase the relative wage of their workers to increase their motivation.

Note: See Calmfors (1993: 5–6).

It follows from this discussion that the relationship between economic performance and centralisation of collective bargaining can be non-monotonic (U- or hump-shaped): relatively good performance for decentralised and centralised systems, but relatively poor performance for systems based on industry-level bargaining (Calmfors and Driffill, 1988). It should be noted, however, that this hypothesis—referred to as the hump hypothesis in what follows—is sensitive to many of the underlying assumptions. For example, Danthine and Hunt (1994) and Rama (1994) show the non-monotonic relationship tends to disappear in an open economy as competitive pressure becomes more intense at all levels of centralisation. It is also clear that centralisation will not help to internalise external costs unless most workers are union members or have their pay and work conditions determined by collective agreements. More critical, perhaps, is the fact that the analysis takes a static view on the economy. Arguably, one of the key advantages of a centralised bargaining system is that it enables a coordinated and fast response to *changing* economic conditions.

To see this important point more clearly, consider the following (simplistic) New Keynesian model of the labour market (see e.g. Carlin and Soskice, 1990: Chapter 16; 2006; or Rowthorn, 1977, for more details). Assume that both product and labour markets are imperfectly competitive. In the labour market, workers are organised in (firm-specific) unions that determine the nominal wage ( $W$ ), while firms determine the price ( $P$ ) of the (differentiated) goods that they produce as a mark-up on wages. To achieve a particular real wage target, workers set the nominal wage based on expectations about the price level.

This model is illustrated in Figure 1 by the bargained real wage ( $BRW$ ) line. It is upward sloping in the employment ( $E$ )/real wage ( $W/P$ ) space because unions hold more bargaining power in a tight labour market and thus adjust their aspirations

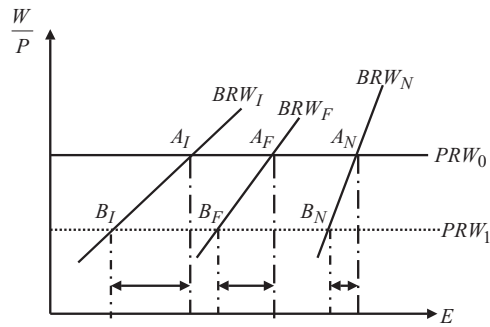


Figure 1: The response to shocks under different bargaining regimes

Note:  $BRW_I$  refers to industry-level bargaining,  $BRW_F$  refers to firm-level bargaining and  $BRW_N$  refers to national-level bargaining.

accordingly. Firms, on the other hand, set prices to achieve a real profit target. This is shown in Figure 1 as the  $PRW$  (price real wage) line. For simplicity, we also assume that the real profit target is constant over the cycle.

A macroeconomic equilibrium arises when the aspirations of the two parties are consistent and defines the equilibrium level of employment and, as a residual, the equilibrium level of unemployment. In Figure 1, we have drawn three different  $BRW$  curves, reflecting the three levels of centralisation of bargaining (the firm, the industry and the national level). The location of the three curves and so of the equilibrium level of employment captures the static gains of centralisation and decentralisation.

The subtle thing to notice is that wage setters are *more* responsive to *changes* in employment under decentralised and centralised bargaining (there is more real wage flexibility) than under industry-based bargaining. This makes the  $BRW$  curve steeper in the two former cases than in the latter. Real wage flexibility tends to be high when bargaining is centralised because unions internalise the economy-wide effects of their actions. The source of flexibility when bargaining is conducted at the firm level is that wages can, in principle, reflect local productivity conditions.

This has an important implication for the response of the labour market to negative shocks. Suppose, for example, that the economy is hit by a negative (productivity) shock that shifts the  $PRW$  curve down. We see from Figure 1 that the employment loss is modest under centralised (and decentralised) bargaining compared to industry-level bargaining. In short, a centralised labour market insulates the economy from the impact of negative shocks. In addition, by facilitating coordination of expectations and by taking a broader view on whose interest should be represented in the bargaining (being more encompassing in the sense of Olson, 1982), centralisation can achieve a faster adjustment to the new equilibrium position and reduce hysteresis effects. This is particularly helpful when the shock reverses and the economy begins its journey back to the initial equilibrium position.

In the argument above, it is implicitly assumed that aggregate demand is the same under the three bargaining regimes. However, Cornwall (1997) points out this assumption is not valid if the government adopts new policies when the institutions of the labour market change. In particular, the fact that wage pressure is relatively high under decentralised bargaining suggests that that system may not be consistent with

full employment *and* a politically acceptable level of inflation. As a consequence, the government may be tempted to intervene and introduce restrictive demand policies. On the other hand, when bargaining is centralised and conducted by national workers' and employers' organisations that have an understanding of the economy-wide implications of the wage bargain, wage pressure is reduced, and it is more likely that full employment is consistent with a politically acceptable level of inflation. If so, aggregate demand will not be depressed by a restrictive government intervention leading to better employment outcomes.

### **3 COLLECTIVE BARGAINING AND ECONOMIC PERFORMANCE: THE EMPIRICAL EVIDENCE**

We now turn to the review of the empirical evidence from comparative studies on the macroeconomic impact of collective bargaining.

#### **3.1 Macroeconomic performance indicators**

Ideally, one would like to measure the impact of collective bargaining on social welfare. Short of any good measure of social welfare, some economists have used various macroeconomic indicators as relevant proxies such as the unemployment rate, the employment rate, inflation, wage dispersion, GDP, wage growth and productivity growth. Others have used some *performance index*, such as *Okun's index* (the sum of the unemployment rate and inflation) or the *open economy index* (the sum of the unemployment rate and current account deficit as a percentage of GDP). And some have made use of labour market flexibility (such as real wage flexibility and search effectiveness).

#### **3.2 Indicators of collective bargaining**

The empirical literature focuses on three measurable aspects of collective bargaining: union density, bargaining coverage and bargaining coordination. Union density expresses the number of workers who are members of a union as a percentage of all workers, unionised and non-unionised. Bargaining coverage expresses the number of workers, unionised or not, who have their pay and employment conditions determined by a collective agreement, as a percentage of all workers, unionised and non-unionised. Thus, bargaining coverage goes some way in measuring the 'importance' of collective agreements as opposed to individual contracts.

Table 3 shows union density and bargaining coverage for 19 OECD countries in 1970, 1980, 1994 and 2000. Average union density increased from 43 per cent to 47 per cent during the 1970s but subsequently declined to 35 per cent. However, the average hides a lot of variation. Some countries, such as the USA, the UK, Japan and the Netherlands, have experienced a significant reduction in union density. Other countries, such as Finland and Sweden, have experienced a significant increase over the three decades. Also, the cross-country variation is significant. Countries such as France, the USA and Spain have very low union density rates (less than 30 per cent). On the other hand, the Scandinavian countries have very high rates (all above 50 per cent, some around 80 per cent).

Bargaining coverage is on average much higher than union density and was relatively constant around 70 per cent during the period. While high union density leads

Table 3: Union density and bargaining coverage in selected OECD countries

Country	Union density				Bargaining coverage			
	1970	1980	1994	2000	1980	1990	1994	2000
Australia	50	48	41	25	88	80	80	83
Austria	62	56	42	37	98	98	98	98
Belgium	46	56	54	56	90	90	90	93
Canada	31	36	38	28	37	38	38	32
Denmark	60	76	76	74	69	69	69	83
Finland	51	70	81	76	95	95	95	93
France	22	18	9	10	85	92	95	93
Germany	33	36	29	25	91	90	92	68
Italy	36	49	39	35	85	83	82	83
Japan	35	31	24	22	28	23	21	18
The Netherlands	38	35	26	23	76	71	81	83
New Zealand	n.a.	56	30	23	67	67	31	28
Norway	51	57	58	54	75	75	74	73
Portugal	61	61	32	24	70	79	71	83
Spain	27	19	19	15	76	76	78	83
Sweden	68	80	91	81	86	86	89	93
Switzerland	30	31	27	18	53	53	50	43
UK	45	50	34	31	70	47	47	33
USA	23	22	16	13	26	18	18	14
Average	43	47	40	35	72	70	68	67

Sources: Adapted from Aidt and Tzannatos, (2002, Table 5.2) and based on Freeman (1988) and OECD (1997, Table 3.3; 2004).

to high coverage of collective bargaining, Table 3 shows that the converse is not true. Countries such as Spain and France have very low union density, yet the coverage of collective agreements is very high. The difference between union density and bargaining coverage is largely attributed to mandatory extensions of collective agreements to non-unionised sectors and to the share of employers belonging to employer associations that negotiate collective contracts (OECD, 1994; 2004).

*Bargaining coordination* is much harder to measure than union density and bargaining coverage. To obtain empirical measures, the literature has focused on six (related) aspects of bargaining coordination, which are summarised in Table 4. Based on one or more of these aspects, the degree of bargaining coordination in individual countries is assessed and a ranking or classification is derived.

Table 5 characterises the 36 indicators of bargaining coordination used in the studies surveyed here. Each row provides information on how a particular indicator has been constructed. The first column indicates the source of the study that constructed the indicator. The second column indicates which aspects of bargaining coordination the study emphasised. Each of the indicators is then given a code name for mnemonic purposes (column three). The subsequent columns are labelled A–G. They refer to the aspects of coordination, presented in Table 4, that were used to

*Table 4: Aspects of bargaining coordination*


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A. Union centralisation	The capacity of the national union confederation to influence wage levels/patterns across the economy.
B. Union concentration	Union concentration is high if 'few' unions at the relevant level of bargaining are representing workers.
C. Employer centralisation	The capacity of the national employers' confederation to influence wage levels/patterns across the economy.
D. Level of bargaining	Collective bargaining takes place at different levels: the firm level, the industry level and the regional/national level.
E. Informal coordination	<ol style="list-style-type: none"> <li>1. Informal consultations at the industry, regional or national level among unions and firms.</li> <li>2. Pattern bargaining (an agreement in a dominant sector is mimicked by other sectors).</li> </ol>
F. Corporatism	<p>A combination of</p> <ol style="list-style-type: none"> <li>1. High union density and bargaining coverage and a high degree of union and employer centralisation/concentration and</li> <li>2. Social partnership between national workers' and employers' organisations and the government.</li> </ol>
G. Other aspects	This includes different types of dispute resolution procedures, the proportion of unionised workers employed in sectors that are subject to international competition, and union density.

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construct the indicators in each individual study. The last two columns refer respectively to the period for which the indicator applies (the reference period) and to whether the study developed its own indicator of bargaining coordination or utilised/updated an existing one (index used).

We notice two things from Table 5. First, most of the indicators combine different aspects of bargaining coordination and are, therefore, highly correlated (see Table 14). This makes it difficult to isolate empirically the contribution of individual aspects of bargaining coordination to macroeconomic performance. Second, although researchers in the area are familiar with the details of bargaining systems in many different countries, the resulting rankings of countries involve a large element of subjectivity. Not surprisingly, researchers often strongly disagree on the ranking of particular countries (see e.g. Soskice, 1990). Some researchers, such as Iversen (1999), use a Herfindahl index to construct an objective measure of the effective number of bargaining units. There is also a question as to whether a parametric index is preferable to categorical measures. Traxler (2003a), for example, argues that categorical measures based on a few broad classifications are better at capturing non-linear relationships because these often show up as discrete bifurcations rather than as smooth curves.

Table 6 presents five indicators of bargaining coordination that are representative of those found in the literature. A comparison of the indicators reveals a number of

Table 5: Characterisation of 36 indicators of bargaining coordination

Source/study	Indicator gives emphasis on:	Indicator code	A	B	C	D	E	F	G	Reference period	Index used
Dowrick (1993)	Coordination	D1993-2	X	(X)	(X)	X	X	X		1960s, 1970s and 1980s	C1990-1, CD1988, S1990
Layard <i>et al.</i> (1991)	Employee coordination	LNJ1991-1	X	X		X	X			1980s	Own
Layard <i>et al.</i> (1991)	Employer coordination	LNJ1991-2			X	X	X			1980s	Own
Layard <i>et al.</i> (1991)	Employer and employee coordination	LNJ1991-1/2	X	X	X	X	X			1980s	LNJ1991-1 LNJ1991-2
OECD (1997)	Coordination	OECD1997-2	X		X		X	X		1980, 1990 and 1994	Own
OECD (1997)	Centralisation and informal coordination	OECD1991-3	X		X	X	X	X		1980, 1990 and 1994	OECD1997-1 and OECD1997-2
Soskice (1990)	Economy-wide coordination	S1990	X		X	X	X	X		1985-90	Own
Blau and Kahn (1996)	Centralisation	BK1996	X	X	X	X	X		Union density	1970s and 1980s	BS1985 CD1988 C1984-1 Others BS1985 CD1988 BS1985 Crouch (1985)
Bleaney (1996)	Corporatism and centralisation	B1996	X	X	X					1970s and 1980s	Own
Heitger (1987)	Corporatism	H1987	X	X	X					1970s	Own
Bruno and Sachs (1985)	Corporatism	BS1985	X	X	X					1970s	Own
Calmfors and Driffill (1988)	Centralisation	CD1988	X	X	X	X	X			1980s	Own
Cameron (1984)	Organisational power of labour	C1984-1	X	X					Union density	1965-80	Own
Cameron (1984)	Union centralisation	C1984-2	X							1965-80	Own
Cameron (1984)	Union concentration	C1984-3	X	X						1965-80	Own
Crouch (1985)	Neo-corporatism	C1985	X							1970s	Own
Crouch (1990)	Labour movement centralisation	C1990	X				X			1960s, 1970s and 1980s	Own
Dowrick (1993)	Centralisation	D1993-1	X	(X)	(X)	X	X			1960s, 1970s and 1980s	CD1988, C1990-1
Lange and Garrett (1985)	Organisational power of labour	GL1985	X	X	X					1965-80	C1984
McCallum (1986)	Corporatism	MC1986	X	X	X					1970s	Crouch (1985)

Author(s)	Indicator	Year(s)	Source	Notes	
Newell and Symons (1987)	Corporatism	NS1987	X	1955-83	Own
OECD (1997)	Bargaining centralisation	OECD1997-1	X	1980, 1990 and 1994	OECD (1994)
Schmitter (1981)	Corporatism	S1981-1	X	1960s and 1970s	Own
Schmitter (1981)	Union centralisation	S1981-2	X	1960s and 1970s	Own
Schmitter (1981)	Union concentration	S1981-3	X	1960s and 1970s	Own
Soskice (1990)	Wage drift	S1990-2	X	1985-90	Own
Tarantelli (1986)	Neo-corporatism	T1986	X	1970s	Own
Crouch (1990)	Power of unions in trade-exposed sectors	C1990-2	X	Dispute settlement	
Ebbinghaus and Visser (2000)	Distribution of bargaining authority	V2000	X	Foreign competition	
Iversen (1999)	Degree of centralisation	I1999	X	1960s, 1970s and 1980s	Own
Traxler <i>et al.</i> (2001)	Union centralisation	T2001-1	X	1973-93	Own
Traxler <i>et al.</i> (2001)	Union concentration	T2001-2	X	1970-96	Own
Traxler <i>et al.</i> (2001)	Employer centralisation	T2001-3	X	1970-96	Own
Traxler <i>et al.</i> (2001)	Bargaining level	T2001-4	X	1970-96	Own
Traxler <i>et al.</i> (2001)	Bargaining coordination	T2001-5	X	1970-96	Own
Golden <i>et al.</i> (2006)	Confederal involvement in wage setting	GW2006-1	X	1950-2000	Own
Golden <i>et al.</i> (2006)	Government involvement in wage setting	GW2006-2	X	1950-2000	Own
Golden <i>et al.</i> (2006)	Bargaining level	GW2006-3	X	1950-2000	Own
Golden <i>et al.</i> (2006)	Union concentration	GW2006-4	X	1950-2000 (some years missing)	Own

Notes: A = union centralisation, B = union concentration, C = employer centralisation, D = the level of bargaining, E = informal coordination among employees and employers, F = corporatism/social partnership, G = other aspects. An 'X' in columns 4-9 indicates that the relevant aspect (A-F) is considered by the indicator in question.

Table 6: Country rankings based on alternative indicators of bargaining coordination

Country	S1990-1*	I1999§	CD1988†	OECD1997-1‡			OECD1997-2‡		
	1980s	1973–96	Mid-1980s	1980	1990	1994	1980	1990	1994
Australia	—	—	10	3	1	14	7	5	15
Austria	2	5	1	3	1	1	1	1	1
Belgium	—	8	8	3	1	1	10	10	9
Canada	—	14	17	17	17	16	18	17	16
Denmark	—	3	4	3	8	5	4	5	6
Finland	—	4	5	2	4	4	7	5	6
France	9	13	11	8	8	5	13	10	9
Germany	6	7	6	8	8	5	1	1	1
Italy	8	11	13	15	14	5	15	15	4
Japan	1	9	14	17	17	16	1	1	1
The Netherlands	7	6	7	8	8	5	10	10	9
New Zealand	—	—	9	8	16	16	15	17	16
Norway	4	1	2	8	1	1	4	4	4
Portugal	—	—	—	15	1	5	13	10	9
Spain	—	—	—	3	8	5	10	10	9
Sweden	5	2	3	1	1	5	4	5	9
Switzerland	3	10	15	8	8	5	7	5	6
UK	10	12	12	8	14	14	15	16	16
US	11	15	16	17	17	16	18	17	16

Notes: The codes refer to Table 5. A *low* rank is an indication of a *high* degree of bargaining coordination.

\*See Soskice (1990).

†See Calmfors and Driffill (1988).

‡See OECD (1997).

§See Iversen (1999, Table 31). His index is scaled from 0 to 1 but we have, to make comparison easier, transformed it into a ranking.

interesting similarities and differences. In particular, we notice that it makes a considerable difference whether *informal* coordination is accounted for or not. Comparing the two indicators (S1990-1 and OECD1997-2) that do take informal coordination into account with the two (CD1988 and OECD1997-1) that do not, we see that Japan switches from being among the *most* coordinated countries in the sample to being among the *least* coordinated ones. Other countries, such as Belgium, move in the opposite direction. It is also evident that the bargaining institutions in a few countries have changed significantly from 1980 to 1994. For instance, the UK, Australia and New Zealand have become less coordinated and less centralised, while the opposite is true for Italy and Portugal. However, for most other countries, bargaining institutions have been fairly constant.

### 3.3 Methodology

Armed with indicators of collective bargaining and macroeconomic performance, the relationship between the two can be represented by the following set of equations:

$$y_{i,t} = g_{i,t}(\mathbf{z}_{i,t}, \mathbf{x}_{i,t}, \varepsilon_{i,t}), \quad (1)$$

where subscript  $i$  refers to a particular country and subscript  $t$  refers to a particular point in time.  $y_{i,t}$  is a vector of (observed) performance indicators (such as the unemployment rate or inflation),  $\mathbf{z}_{i,t}$  is a vector of institutional indicators (such as union density, bargaining coverage or bargaining coordination),  $\mathbf{x}_{i,t}$  is a vector of economic, political and socio-economic control variables and  $\varepsilon_{i,t}$  is a disturbance term. The function  $g_{i,t}$  is in principle unrestricted, that is, it may be non-linear and non-monotonic and allow for interactions between different labour market institutions or between labour market institutions and politics. Economic theory is used to guide the choice of functional form and to deduce hypotheses about how labour market variables affect outcomes and about other factors that need to be controlled for. For example, the discussion in Section 2 of bargaining centralisation suggests that the relationship between measures of centralisation of wage bargaining and economic outcomes may be hump-shaped. Theory also suggests that it is important to control for the level of bargaining coverage when assessing the effect of centralisation on outcomes.

Broadly speaking, equation (1) has been estimated in three different ways in the literature. The simplest approach is the *correlation approach* that shows the relationship between two particular indicators as a simple correlation using cross-country data (see e.g. Bruno and Sachs, 1985; Calmfors and Driffill, 1988). This is obviously a very crude approach that makes no attempt at all to construct a counterfactual. Alternatively, the *regression approach* uses multiple regression analysis thereby attempting to isolate the impact of a particular institutional indicator from that of other determinants (see e.g. Dowrick, 1993; Nickell and Layard, 1999). Insofar as the assumption of conditional independence is satisfied, the impact of the institutional indicators can be given a causal interpretation. However, in most cases, this assumption fails and such an interpretation is unwarranted. Finally, the *two-step regression approach* is a more sophisticated version of the regression approach. In the first step, an economic model (such as a system of wage and price equations) is econometrically estimated for each country using time-series data (see e.g. Layard *et al.*, 1991; Scarpetta, 1996). The results are used to obtain *estimated indicators* of labour market flexibility (such as real wage flexibility and search effectiveness). In the second step, the relationship (if any) between the estimated indicators and bargaining coordination, union density and bargaining coverage is analysed. Although this approach does not solve the endogeneity problem, it is often an effective way to combine time-series information on economic variables with cross-sectional information on labour market institutions.

Irrespectively of the estimation approach, drawing inference about the relationship between collective bargaining and macroeconomic performance is a challenge. First, the data are often limited and a few outliers can significantly bias the results. Most studies are based on a sample of 10–20 observations from OECD countries at a given point in time. Only a few (Dowrick, 1993; Heitger, 1987; OECD, 1997; Traxler *et al.*, 2001; Traxler and Kittel, 2000) use panel data. This increases the number of observations to about 60 and makes it, in principle, possible to take unobserved country and time fixed effects into account. Second, industrial relations *do* change over time (albeit slowly) in response to political and economic conditions. This raises the question of simultaneity bias as, in the long run, the pressure from economic conditions can call for a reconsideration of the institutional framework. The literature, on

the whole, ignores this feedback and assumes that it is institutional factors that affect economic indicators and not vice versa.

It is, therefore, clear that one should be careful not to read too much into the empirical results and avoid causal interpretations: without proper instrumentation, cross-country analysis can tell us little about the underlying causal relationship. With this in mind, we now turn to the evidence.

### 3.4 Union density and bargaining coverage

Tables 7 and 8 summarise the findings of studies that have investigated the relationship between union density and bargaining coverage and a variety of economic performance indicators. For each study, the tables contain information about the time period for which the study is relevant (column one); the economic performance indicator(s) under investigation (column two); the control variables, if any (column three); the estimation approach (column four). Column five summarises the main results of the study.

Union density appears to have little or no impact on comparative labour market performance, once bargaining coverage and bargaining coordination have been controlled for with one significant exception: union density *is* associated with a compression of the wage distribution and a reduction in earnings inequality. A similar result emerges from microeconomic studies (see e.g. Blanchflower, 1996; Freeman, 1980b; Gosling and Machin, 1994).

It is evident from Table 8 that the picture looks different for bargaining coverage. After controlling for union density and bargaining coordination, countries with high bargaining coverage (such as Austria, France and Finland), *ceteris paribus*, experience higher unemployment rates, lower employment rates and more inflation than countries with low bargaining coverage (such as the USA, Japan and Canada). These effects can be understood as consequences of the fact that unions in countries with high bargaining coverage can secure substantial growth in wages and thereby in labour costs (Traxler, 2003a; Traxler *et al.*, 2001). Moreover, high bargaining coverage seems to increase the supply of labour but has no effect on productivity (Nickell and Layard, 1999). Finally, as for union density, high bargaining coverage is associated with a reduction in earnings inequality.

One intriguing interpretation of the finding that bargaining coverage, but not union density, is negatively correlated with (some measures) of economic performance is that extension of collective agreements to non-unionised sectors does not bring with it worker–management cooperation and other productivity-enhancing ‘voice’ factors (Aidt and Sena, 2005; Freeman, 1980a; Freeman and Medoff, 1979; 1984) that to some extent compensate for the economic costs associated with the wage mark-up and other distorting aspects of collectively agreed contracts in unionised sectors. If so, the negative correlation between coverage and performance should not be taken as evidence of harmful and distorting union activities *per se*; rather, combined with the lack of a strong (negative) correlation between union density and performance, the correlation is consistent with the view that unions can serve a useful and productive purpose where they are allowed to develop.

### 3.5 Bargaining coordination and comparative economic performance: the big picture

We have identified 28 comparative, cross-country studies that, by studying the relationship between bargaining coordination and economic performance, have tested the

Table 7: *Union density and economic performance in the OECD countries: a summary of relevant studies*

Study and years	Performance indicator	Control variables	Estimation approach	Result
OECD (1997) 1980–94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Bargaining coverage OECD1997-3	Regression approach with pooled cross-country data set	Union density increases the employment rate but has no effect on the unemployment rate, inflation and real earnings growth. Union density reduces earnings inequality.
OECD (1997) 1980–94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	None	Correlation approach; three points in time: 1980, 1990 and 1994	Union density reduces earnings inequality in 1990 and 1994. Weak indication of a positive relationship between union density and the employment rate and a negative relationship between union density and real earnings growth in 1980 but not in other years.
Freeman (1988) 1979–85	Unemployment rate Employment rate Compensation	C1985 Wage dispersion Others	Regression approach with cross-country data	Union density has no effect on the unemployment rate, the employment rate and compensation.
Scarpetta (1996) 1983–93	Unemployment rate	CD1988 LNJ1991-1 LNJ1991-2	Regression approach with cross-country data	Union density increases unemployment, in particular youth and long-term unemployment, but no control for bargaining coverage is made.
Nickell and Lavard (1999) and Nickell (1997), 1983–88, 1989–94	Unemployment Labour supply Productivity growth	LNJ1991-1 LNJ1991-2 Bargaining coverage Others	Regression approach with (pooled) cross-country data	Union density increases total unemployment but has no separate effect on short- and long-term unemployment. Union density has no effect on labour supply and productivity growth.
Bean <i>et al.</i> (1986) 1956–85	Adjustment speed Real wage flexibility	BS1985	Two-step regression approach	Union density has no effect on adjustment speed (to wage shocks) and real wage flexibility.
Lavard <i>et al.</i> (1991) 1980–94	Real wage flexibility	CD1988 LNJ1991-1 LNJ1991-2 T1986 Others	Two-step regression approach	Union density has no effect on real wage flexibility.
Scarpetta (1996) 1970–93	Hysteresis in unemployment	CD1988 LNJ1991-1 LNJ1991-2	Two-step regression approach	Union density increases unemployment persistence but no control for bargaining coverage is made.

Notes: Union density = the number of workers who are members of a union, as a percentage of all workers, unionised and non-unionised. For more information on the indicators of bargaining coordination in column three, see Table 5. Adjustment speed is the mean adjustment speed of employment to a real wage shock.

Table 8: Bargaining coverage and economic performance: a summary of relevant studies

Study and years	Performance indicator	Control variables	Estimation approach	Result
OECD (1997) 1980–94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	Union density OECD1997-3	Regression approach with pooled cross-country data set	Bargaining coverage increases unemployment, inflation and real earnings growth, and reduces the employment rate and earnings inequality.
OECD (1997) 1980–94	Unemployment rate Inflation Employment rate Real earnings growth Earnings inequality	None	Correlation approach at three points in time: 1980, 1990 and 1994	Bargaining coverage increases unemployment only in 1994, reduces the employment rate only in 1990 and 1994, and earnings inequality in 1994. Otherwise, it has no impact on economic performance.
Jackman (1993) 1983–88	Unemployment rate	LNJ1991-1 LNJ1991-2 Others	Regression approach with cross-country data	Bargaining coverage increases unemployment.
Nickell and Layard (1999), Nickell (1997) 1989–94	Unemployment rate Labour supply Productivity growth	LNJ1991-1 LNJ1991-2 Union density Others	Regression approach with cross-country data	Bargaining coverage increases both short- and long-term unemployment and labour supply but has no effect on productivity growth.
Traxler <i>et al.</i> (2001) 1980s and 1990s	Growth in nominal wages and in unit labour costs	None	Correlation approach	Positive correlation between average bargaining coverage or private-sector bargaining coverage and the two measures of wage growth in the 1990s, but not in the late 1980s.
Traxler (2003a) 1986–96	Growth in nominal wages and in unit labour costs	GDP Openness Index of monetary policy Index of bargaining governability	Regression approach with cross-country data	Positive effect of private-sector bargaining coverage on growth in nominal wages, but not on growth in unit labour costs.
Traxler and Kittel (2000) 1986–90	Growth in nominal wages and in unit labour costs	Unemployment GDP growth Trade dependency Change in money supply	Regression approach with cross-country data	Positive, but insignificant, effect of private-sector bargaining coverage.

Note: Bargaining coverage = the number of workers, unionised or not, which have their pay and employment conditions determined by a collective agreement, as a percentage of all workers, unionised and non-unionised.

corporatist and/or the hump hypothesis using data from subsets of OECD countries during the past 40 years.<sup>1</sup> To synthesise the evidence, we have decomposed the 28 studies into 174 *sub-studies*. The unit of analysis (a sub-study) is a relationship between a specific indicator of bargaining coordination (defined in Table 5) *vis-à-vis* a specific economic performance indicator.<sup>2</sup> In summarising this evidence, we rely on ‘vote counting’ (how large a fraction of the sub-studies reports a significant relationship) supplemented with some sensitivity analysis that attaches different ‘weights’ to studies of different quality. Given the relatively large number of studies that have looked at the two hypotheses, we believe that is the more reasonable and effective way to gain an overview of the available evidence and evaluate it. A number of alternative hypotheses about the interaction between bargaining coordination and other aspects of the political or institutional environment (such as central bank independence, governability and social coherence) are discussed separately below and not included in the discussion in this sub-section which focuses exclusively on the evidence related to the corporatist and hump hypothesis.

### 3.5.1 Does bargaining coordination matter for economic outcomes?

The indicators of bargaining coordination focus on multiple aspects of collective bargaining (see Section 3.2). It is, therefore, a reasonable starting point to ask what we learn from the 28 studies about the *combined* impact of centralisation, concentration, informal coordination and corporatism on different dimensions of economic performance. We summarise the findings of the 174 sub-studies in Table 9 as a ‘vote count’. Column one lists the relevant macroeconomic performance indicators. Column two lists the hypothesised relationship between the relevant performance indicator and bargaining coordination: positive (+), negative (–), U-shaped (U) and hump-shaped (H). The columns headed ‘Rate 1’, ‘Rate 2’ and ‘evaluation of evidence’ summarise the empirical findings. ‘Rate 1’ is the proportion of all sub-studies that find evidence in support of the hypothesised relationship, and ‘Rate 2’ is the proportion of sub-studies that test for and find evidence of a hump- or U-shaped relationship.

In the aggregate, about 45 per cent of the sub-studies support the view that bargaining coordination affects economic outcomes in the predicted way. However, as is evident from Table 9, there is significant variation in the level of confidence that we can place upon the relationship between individual macroeconomic performance indicators and bargaining coordination. The most robust result is that countries with a high level of bargaining coordination tend to have a more compressed wage distribution. This finding can be attributed to a number of causes, including egalitarian bargaining; the fact that centralised bargaining reduces the scope for firm- and/or industry-specific factors to enter wage contracts (Harcourt, 1997); or to insurance

<sup>1</sup> The studies are Cameron (1984), OECD (1988; 1997), Rowthorn (1992a; 1992b), Freeman (1988), Tarantelli (1986), Bruno and Sachs (1985), Crouch (1985; 1990), Bleaney (1996), Heitger (1987), Jackman (1993), Golden (1993), McCallum (1983; 1986), Dowrick (1993), Calmfors and Driffill (1988), Soskice (1990), Scarpetta (1996), Bean (1994), Blau and Kahn (1996), Zweimuller and Barth (1994), Nickell and Layard (1999), Nickell (1997), Iversen (1999), Traxler and Kittel (2000) and Traxler *et al.* (2001).

<sup>2</sup> Each sub-study is characterised in terms of the econometric methodology (estimation approach) and the type of data set (cross-country or pooled cross-country data set) used to estimate it, the time period considered, the type of test, if any, used to test the hump hypothesis, and the type of control variables used. Doing this makes it possible to analyse if the underlying attributes of the studies (such as the econometric methodology, the data material and the time period) have any systematic influence on the pattern of results. In counting the sub-studies, we have included all regressions and/or correlations reported in the 28 underlying studies.

Table 9: Bargaining coordination and economic outcomes: a summary and evaluation of results

Performance indicator*	Hypothesis§	Rate 1 †		Rate 2 ‡		Evaluation of evidence
		%	$n_1$	%	$n_2$	
The unemployment rate	-/H	70	41	41	17	Evidence of a negative relationship. Little evidence of a hump-shaped relationship.
Inflation	-/H	30	20	9	11	Little evidence of any relationship.
The employment rate	+/U	42	12	36	11	Weak evidence of a U-shaped relationship.
Okun's index	-/H	75	12	100	2	Some evidence of a hump-shaped relationship but most of the evidence suggests that the relationship is negative.
Real compensation growth	-/H	56	9	20	5	Evidence of a negative relationship. Almost no evidence of a hump-shaped relationship.
Nominal wage growth	-/H	12	24	15	20	No evidence of a hump-shaped relationship, except perhaps for the early 1970s and the 1990s.
Productivity growth	+/U	38	9	50	6	Weak evidence of a U-shaped relationship.
Growth in unit labour costs	-/H	4	24	5	20	No evidence of a hump-shaped relationship, except perhaps for the early 1970s.
Open economy index	-/H	50	8	100	2	Some evidence of a hump-shaped relationship but most of the evidence suggests that the relationship is negative.
Wage dispersion	-	100	7	n.a.	n.a.	Strong evidence of a negative relationship.
Earnings inequality	-	80	5	20	5	Strong evidence of a negative relationship.
Index of job quality¶	+	100	2	n.a.	n.a.	Some evidence of a positive relationship.
Labour supply	+	100	1	n.a.	n.a.	Some evidence of a positive relationship.

Notes: All relationships are reported with reference to an *increase* in bargaining coordination. For example, a positive relationship means that the economic indicator increases as bargaining coordination increases, and a U-shaped relationship means that the economic indicator decreases at first and then starts rising at higher levels of coordination.

\*The performance indicators are either in levels (typically decade averages) or in first differences.

†Rate 1 = the proportion of sub-studies that find evidence of the expected relationship, and  $n_1$  is the total number of sub-studies that investigate the relevant relationship.

‡Rate 2 = the proportion of sub-studies that test for and find evidence of a hump- or U-shaped relationship, and  $n_2$  is total number of sub-studies that perform a test for a hump- or U-shaped relationship.

§In column two, we indicate for each of the 13 economic outcomes what economic theory predicts about the relationship between the particular economic performance indicator and bargaining coordination.

¶Index of job quality is the difference between the employment rate and wage dispersion (coefficient of variation) (see Rowthorn, 1992a; 1992b).

Source: Authors.

*Table 10: Percentage of sub-studies that find a relationship between bargaining coordination and economic outcomes, disaggregated according to the estimation approach and data material used, number of countries and the length of the time period covered*

Estimation approach	Correlation approach	Regression approach with cross-country data	Regression approach with pooled cross-country data
Relationship	73%	52%	26%
No relationship	27%	48%	74%
Number of countries	Less than 15 countries	Between 15 and 19 countries	More than 20 countries
Relationship	70%	62%	69%
No relationship	30%	38%	31%
Length of time period covered	Less than 10 years	Between 10 and 20 years	More than 20 years
Relationship	61%	58%	70%
No relationship	39%	42%	30%

Note: We construct the table by pooling the results for the economic indicators and calculate the percentage of sub-studies that finds a relationship (or no relationship) for each of the various groups.

motives (Agell and Lommerud, 1992). Furthermore, Rowthorn (1992a; 1992b) argues that wage dispersion is a proxy for job quality. He provides evidence that both the quantity of jobs (a high employment rate) and the quality of jobs (low wage dispersion) are higher in countries with coordinated collective bargaining. In addition to this, it appears that bargaining coordination is negatively correlated with unemployment, but for other performance measures, including the employment rate, inflation and productivity growth, the association is much weaker and the majority of sub-studies fail to find statistically significant relationships. Moreover, the interpretation of the effect on unemployment (whether linear or hump-shaped) is hard to interpret in the absence of any strong effects on labour costs (measured either as nominal wage growth, growth in unit labour costs or productivity). The underlying theories all suggest that bargaining coordination improves unemployment performance *through* its moderating effect on wage demands. But as is clear from Table 9, the evidence in favour of this transmission channel is very weak indeed.

In Table 9, we attribute equal weight to all sub-studies irrespectively of the estimation approach and data material used. To judge the robustness of the results reported in the table, we pool all sub-studies irrespectively of macroeconomic indicator and divide them into three groups. In the first group, we include studies that use the correlation approach. In the second group, we include those studies that use the regression approach to analyse cross-country data. The third group contains those studies that apply the regression approach to analyse panel data. Table 10 summarises the results for each group as percentages of the sub-studies that do (and do not) find evidence of the predicted relationship between economic performance (in general) and bargaining coordination.

It is clear from Table 10 that the studies based on the correlation approach find statistically significant relationships more often than those that use more advanced statistical techniques. Unsurprisingly, this suggests that the more and better one controls for cross-country differences in economic policy, the institutional environment and economic conditions, the harder it is to detect a relationship between bargaining coordination and economic performance. This tendency, however, to reject the corporatist and/or the hump hypothesis is even stronger among studies that explore pooled cross-country data (and in some cases control for unobserved fixed country effects). The number of countries included in the analysis has relatively little influence on the results, but the time period covered plays a role. In particular, the tendency to reject the corporatist and/or the hump hypothesis is stronger in studies with a relatively short time horizon. In studies that time average over longer periods of time (more than 20 years), the evidence in favour of a relationship is somewhat stronger. Overall, we believe that the simple 'vote count' of Table 9 *exaggerates* the importance of bargaining coordination. When more sophisticated (and satisfactory) statistical techniques are enlisted to look for evidence that bargaining coordination affects macroeconomic performance, it becomes harder and in some cases impossible to find any trace of such effects.

### 3.5.2 Testing the hump hypothesis

The hump hypothesis, discussed in Section 1.1, has been explicitly tested in a number of studies (Calmfors and Driffill, 1988; Dowrick, 1993; Freeman, 1988; Iversen, 1999; OECD, 1988; 1997; Traxler and Kittel, 2000; Traxler *et al.*, 2001). It accounts for 99 of the 174 sub-studies but only 25 sub-studies report evidence consistent with it. The evidence for individual performance indicators was already summarised in Table 9 by 'Rate 2'. The view that semi-coordinated bargaining systems are associated with a relatively high unemployment rate is supported by fewer than half the relevant sub-studies, while the evidence of a U-shaped relationship between bargaining coordination and the employment rate is even weaker. Half of sub-studies concerned with productivity growth find evidence of a U-shaped relationship between bargaining coordination and productivity growth. However, this is based on an uncomfortably small number of sub-studies, and similar effects can neither be found for growth in unit labour costs nor in nominal wage growth.

To investigate the robustness of the results, we pool the 99 relevant sub-studies and divide them into three groups according to the test procedure used to test for the hump. A similar decomposition is done with respect to estimation approach. The results are reported in Table 11 and we see that the main conclusion remains; irrespective of which test procedure is used, the evidence in favour of the hump hypothesis is weak and what evidence is there mainly comes from the first generation of studies that relied on simple correlation tests and thus failed to control for other determinants of economic performance.

Flanagan (1999) noticed an interesting pattern that emerges when studies that focus on the 1970s and 1980s are compared with more recent studies that focus mainly on the 1990s. Whereas the studies that analyse performance differences as they arose in the 1970s and 1980s (Calmfors and Driffill, 1988; Cameron, 1984; Tarantelli, 1986) tend to support the view that bargaining coordination is associated with relatively good macroeconomic conditions, the evidence for the 1990s reported in OECD (1997) is much weaker. Although a recent study by Nicoletti *et al.* (2001),

*Table 11: Percentage of sub-studies testing the hump hypothesis that find a relationship between bargaining coordination and economic outcomes, disaggregated according to test procedure and estimation approach used*

	Different test specification*			Different estimation approaches†	
	Dummy variable test‡	Quadratic test§	Ranking test¶	Correlation	Regression
Hump-/U-shaped relationship	11%	26%	41%	35%	22%
No relationship	44%	74%	45%	46%	69%
Monotonic relationship	45%	0%	14%	19%	9%
Number of sub-studies	9	61	29	26	73

Notes: \*For each of the tests, the null hypothesis is that there is no hump-/U-shaped relationship. The alternative hypothesis is that the relationship is hump-/U-shaped.

†We construct the frequency distribution by pooling the results for the macroeconomic indicators and calculate the percentage of hump-/U-shaped relationships, no relationships and monotonic relationships, respectively, for each of the groups of sub-studies.

‡The dummy variable test is performed by dividing the countries into three groups (coordinated, semi-coordinated and uncoordinated countries) and including a dummy variable for two of the groups in the relevant regression model.

§The quadratic test includes the institutional indicator (of interest) and its square in a regression model.

¶The ranking test ranks the countries such that those that have coordinated bargaining systems and those that have uncoordinated systems are ranked above those with semi-coordinated bargaining systems (Calmfors and Driffill, 1988: 22–23). This (new) ranking is then examined against the relevant macroeconomic performance indicator.

which estimates employment regressions for a panel of OECD countries covering the period 1985–95, does report evidence of a U-shaped relationship between bargaining coordination and the employment rate, it appears that the relationship between bargaining coordination and macroeconomic performance has become less pronounced in the 1990s than in previous decades. This is not entirely surprising. In fact, the observed differences between labour market systems in the 1970s and 1980s may simply reflect differences in their capacities to adapt to the supply shocks of the 1970s and the disinflationary policies of the 1980s. In the more stable environment of the 1990s, bargaining coordination has become less important relative to other determinants of macroeconomic performance. This suggests that it is the *dynamic* benefits of bargaining coordination—the capacity of highly coordinated labour markets to absorb shocks more effectively—that matter most. This observation is supported by the fact that, in the relatively stable environment of the 1960s, countries with widely different bargaining systems were performing equally well. Another possible reason why bargaining coordination appears to have had a smaller impact on economic performance in the 1990s than in previous decades is

that the internationalisation of markets that happened during the period simply reduced the impact of institutional differences.

### 3.6 Bargaining coordination and the flexibility of the labour market

The evidence discussed so far focuses on the link between cross-country differences in economic *outcomes* and bargaining coordination. The studies reviewed in this section ask a different question: how is bargaining coordination related to labour market flexibility? Labour market flexibility is measured by indicators such as real wage flexibility, adjustment speed to wage shocks, unemployment persistence and search effectiveness of unemployed workers. Seven studies have used the two-step regression approach to estimate these indicators and have investigated their relationship with bargaining coordination. Table 12 summarises the results.

The two most interesting results relate to unemployment persistency (hysteresis) and (real) wage flexibility. First, hysteresis can arise because of membership effects (Blanchard and Summers, 1986), loss of skills and discouraged-worker effects, and depreciation of capital during recession that does not fully recover subsequently or takes a long time to do so (Rowthorn, 1995). Layard *et al.* (1991) find that *employer* coordination reduces persistence while *employee* coordination increases it. Subsequent research by Scarpetta (1996) suggests that the employer effect is, on average, greater and that unemployment in countries with semi-coordinated bargaining systems shows a relatively high degree of persistence. In addition, Jackman *et al.* (1990) provide evidence that the search effectiveness of unemployed workers is higher in countries with highly coordinated collective bargaining, suggesting that high bargaining coordination is associated with smaller discouraged-worker effects. Second,

*Table 12: Labour market flexibility: four measures and their relationship to bargaining coordination*

Measure	Predicted relationship	Summary of evidence
Real wage flexibility	+	Most evidence indicates that real wages are more flexible (i.e. respond more to changes in employment) where bargaining coordination is high.
Hysteresis	H	The evidence suggests that hysteresis is associated with employee coordination in semi-coordinated wage bargaining systems.
Adjustment speed	+	The adjustment speed of employment to a wage shock is higher where bargaining coordination is high.
Search effectiveness	+	The level of unemployment consistent with a given vacancy level is lower (search effectiveness is higher) where bargaining coordination is high.

Note: See Layard *et al.* (1991); McCallum (1986); Newell and Symons (1987); Bean *et al.* (1986); Scarpetta (1996); Alogoskoufis and Manning (1988); and Jackman *et al.* (1990).

the evidence suggests that the (bargained) real wage is more responsive to employment conditions where bargaining coordination is high (Bean *et al.*, 1986; Layard *et al.*, 1991). This, combined with the faster adjustment to shocks, bring support to the notion that bargaining coordination helps the labour market absorb shocks fast and at a low employment cost.

This conclusion is further supported by a recent study by Blanchard and Wolfers (2000) who show that it is the interaction between shocks and institutions that is crucial for the observed cross-country and time-series variation in unemployment in the OECD over the last 40 years. They argue that neither shocks (such as the relative price shocks of the 1970s, the slowdown in total factor productivity or various shifts in labour demand) nor labour market institutions (as captured by strong unions, bargaining coordination, minimum wages and a generous unemployment benefit system) can on their own explain the unemployment experience of Europe over the last 40 years. The shocks can explain fairly well the time-series pattern (the general rise in unemployment), but fail to explain cross-country differences. Labour market institutions can, on the other hand, explain cross-country variation, but not the time-series pattern, partly because most labour market institutions are stable over time and partly because those institutions (e.g. the unemployment benefit system) that have been changing have done so, at least since 1980, in an 'employment friendly' direction. Blanchard (1999) and Blanchard and Wolfers (2000) combine the two explanations in a regression analysis that allows for interactions between shocks—measured either as a common time trend or as country-specific disturbances—and institutions. They show that institutions that promote bargaining coordination reduce the impact of shocks by a substantial margin. Unionisation (as measured by union density), on the other hand, has the opposite effect. Their estimates suggest that an adverse shock that increases unemployment by 1 percentage point in the country with 'average' bargaining coordination will only increase unemployment by 0.4 percentage point in the country with the highest degree of bargaining coordination. One problem with the analysis, however, is that the measures of institutions used essentially refer to a given point in time. In reality, institutions have changed during the last 40 years in many OECD countries and taking that into account would be desirable. One can also question the method used to quantify the shocks. Nevertheless, it seems clear that the interaction between shocks and labour market institutions is of great importance.

### 3.7 Dissecting bargaining coordination

Disentangling the macroeconomic impact of different aspects of bargaining coordination is statistically hard and, in the presence of strong complementarities, it may even be misleading to attempt to do so. With this in mind, we now review what can be learned from the literature about individual aspects of bargaining coordination.

#### 3.7.1 *Formal and informal bargaining coordination*

Informal mechanisms sometimes develop to sustain cooperation among labour market parties. One form of informal coordination is coordination among employers and/or employees that arises from repeated interaction and reputation effects. At the employer side this involves coordination between industry-based employers' organisations or individual firms. This plays an important role in Japan, Austria and Switzerland (OECD, 1994; Soskice, 1990). At the employee side, internal coordination, typically, involves coordination between company- and industry-based unions.

*Table 13: Percentage of sub-studies testing the hump hypothesis that find a relationship between bargaining coordination and economic outcomes, disaggregated according to formal and informal bargaining coordination*

	Formal bargaining coordination only	Formal and informal bargaining coordination
Hump-/U-shaped relationship	31%	11%
No relationship	68%	63%
Monotonic relationship	1%	26%
Number of sub-studies	72	27

Note: See note to Table 10.

Another form of informal coordination is pattern bargaining. Here, a dominant industry or company enters a collective agreement that is followed by other firms and industries. This has been important in, for example, Germany, where the metal industry, traditionally, has acted as a pacesetter.

Arguably informal coordination may reduce some of the disadvantages of industry-level collective bargaining envisaged by the hump hypothesis. To investigate this, we divide the sub-studies into two groups. In the first group, we include those sub-studies that use an indicator of bargaining coordination that focuses exclusively on *formal* aspects of bargaining coordination. By formal bargaining coordination we refer to centralisation of bargaining by unions and employers and to a high degree of union concentration as well as to any formally established tri-party arrangements. In the second group, we include those that use an indicator that also takes into account informal coordination (see Table 5).

We see from Table 13 that the ‘hump’ is more discernible when the focus is on formal coordination only. When informal aspects of bargaining coordination are taken into account, fewer sub-studies find statistically significant hump-shaped relationships. This, on the one hand, implies that, unless one controls for the degree of informal coordination, the *observed* difference in performance between countries with different *formal* bargaining systems looks larger than it really is (see also Soskice, 1990). On the other hand, it is reasonable to conclude that part of the reason why some studies, in particular those published in the 1980s and early 1990s, reported evidence in favour of the hump hypothesis might precisely have to do with the fact that differences in informal coordination were unaccounted for.

These findings suggest that informal coordination can help remove the disadvantage associated with industry-level collective bargaining. However, informal coordination has a tendency to break down during times of rapid economic and social change. Although it is useful to think of informal coordination as a *substitute* for formal coordination, the two aspects of bargaining coordination are certainly not perfect substitutes.

### 3.7.2 Employer versus employee coordination

Jackman (1993), Bean (1994) and Scarpetta (1996) analyse the relative importance of employee and employer coordination. Using different control variables and time periods, all three studies strongly indicate that *employer* coordination is more

important than employee coordination in accounting for comparative unemployment performance. In other words, while more employer coordination always leads to lower unemployment, more employee coordination has a much smaller effect (Jackman, 1993), no effect (Scarpetta, 1996), or can even lead to higher unemployment (Bean, 1994). One interpretation of this finding is that employers' organisations, at successively higher bargaining levels, are more effective than unions in controlling wage drift, thereby reducing wage competition among firms as well as the pressure on individual firms to give in to unions' wage demands. However, Traxler *et al.* (2001: Table IV.3), using carefully constructed separate indicators of union and employer centralisation, find no evidence that employer centralisation reduces growth in unit labour costs, while it appears that union centralisation does have such an effect. Seen in that light, it is unclear how the unemployment effects reported by Jackman, Bean and Scarpetta should be understood.

### 3.8 The interaction between union density, bargaining coverage and coordination

The interaction between bargaining coordination, density and coverage is also of importance for the relationship between collective bargaining and economic performance, as pointed out by Ebbinghaus and Visser (2000) and Golden *et al.* (1999). That these aspects of collective bargaining are highly correlated is clear from Table 14.

Countries with highly coordinated collective bargaining tend (with some notable exceptions, such as France) to have high union density and high bargaining coverage. This pattern is particularly clear for the group of indicators that focuses on bargaining centralisation and employee and employer coordination. Those indicators that focus on *informal* coordination are, with one exception, not strongly correlated with union density and bargaining coverage. This shows that *centralisation* of collective bargaining requires high union density or, at least, high bargaining coverage. *Informal* coordination (e.g. between employers as in Japan), on the other hand, can develop and play an important role in an environment where a small proportion of the workforce is unionised and where formal collective agreements only cover a minority of workers.

Jackman (1993), Nickell (1997) and Nickell and Layard (1999) analyse the interaction between the three aspects of collective bargaining and economic performance in a regression analysis. They confirm the finding that bargaining coverage (and, to a lesser extent, union density) has a *negative* effect on unemployment at a given level of bargaining coordination and that bargaining coordination has a *positive* impact on unemployment for given bargaining coverage. More interestingly, as bargaining coverage and bargaining coordination (tend to) increase together (Table 14), the increase in coordination counteracts the adverse impact on economic performance of increasing bargaining coverage (and union density). Moreover, Layard *et al.* (1991: 137) argue that it is the failure of studies such as Calmfors and Driffill (1988) to take into account the impact of bargaining coverage on economic performance that gives the impression that semi-coordinated collective bargaining is 'bad'. More generally, these results underscore the danger of focusing on individual aspects of labour market institutions when it is the interaction between many different aspects that determines outcomes. Labour market institutions *complement* each other and a comparison between different 'packages of institutions' may be the most sensible way to assess the macroeconomic performance of labour market institutions (see Tzannatos, 1995, for a discussion of economic complementarities). Coe and Snower (1997) and Orszag and

*Table 14: The rank correlation between selected indicators of bargaining coordination, union density and bargaining coverage*

	Bargaining centralisation			Corporatism		Employee or employer coordination		Informal and formal coordination		
	CD1988	OECD1997-1	C1984-1	S1981-1	BS1985	T1986	LNJ1991-1	LNJ1991-2	OECD1997-2	S1990-1
Union density	0.71***	0.44***	0.88***	0.65**	0.34	0.25	0.65***	0.43**	0.23	0.32
Bargaining coverage	0.70***	0.75***	0.57**	0.46*	0.46*	0.24	0.56**	0.43**	0.42**	0.17

Note: See Table 5, for a more precise definition of the 10 indicators of bargaining coordination.

Significance levels: \*\*\* = 1%; \*\* = 5%; and \* = 10%.

Sources: OECD (1997: Table 3.4; Table 3.3) and own calculations.

Snower (1998) take the argument one step further pointing out that political complementarities that arise when the ability to gain political consent for one policy depends on the implementation of other policies.

### 3.9 Corporatism, social coherence and economic performance

In a corporatist society, the political activities of unions and employers' organisations take place within a well-defined framework of social partnership between workers, capitalists and the government (see e.g. Bruno and Sachs, 1985; Cameron, 1984; Henley and Tsakalotos, 1993; Lehmbbruch, 1984; Tarantelli, 1986). Social partnership reduces the level of conflict in the labour market and facilitates income policies, economy-wide agreements on wages and weekly hours, health and safety standards and so on. All of these aspects help to bring about 'good' economic outcomes. The successful implementation of income policies during the 1960s and 1970s based on tri-party negotiations in Scandinavia and Austria are among the best known examples of corporatism. Since then corporatism has disappeared in countries where it used to play a role, partly because of increased dissatisfaction with modest pay increases and limited employment effects (see e.g. Ebbinghaus, 2004), but there has been a renewal of corporatism in the Netherlands that has contributed significantly to what has become known as the 'Dutch employment miracle' (Visser, 1998).

In a social partnership, unions expect the government to deliver welfare goods and other policies that benefit unions in exchange for wage moderation and peace in the labour market. Lange and Garrett (1985) and others have argued that these expectations are important for economic performance and distinguish among four scenarios. In scenario (1), unions are powerful, in the sense that the majority of workers are unionised and bargaining is controlled by national organisations, and the government is left wing. Under these circumstances, it is predicted that economic performance will be 'good'. This is because the pursuit of welfare policies by left-wing parties is likely to lead to voluntary wage moderation. Moreover, as pointed out by Olson (1982), if unions organise the majority of workers, they are less likely to engage in wasteful rent-seeking. This is because unionised workers are going to bear most of the costs associated with these activities themselves. In scenario (2), unions are politically weak, in the sense that union density is low and bargaining is decentralised, and the government is right wing. Under these circumstances, it is also predicted that economic performance will be 'good'. This is because unions are restricted in their wage demands by competitive pressure from product markets, which are left unprotected by the right-wing government. In scenarios (3) and (4), economic performance is expected to be 'bad', because there is a mismatch between the power of the labour movement and the political orientation of the government. If, for instance, a right-wing government coexists with powerful unions, unions are unlikely to restrict their wage demands voluntarily, as they cannot expect the government to deliver any welfare goods in return. Likewise, a left-wing government coexisting with weak unions cannot count on any voluntary wage moderation because individual unions are likely to pursue their own interests (wage pressure) without taking into account the economy-wide consequences of their actions.

Using economic growth as the economic performance indicator, these ideas find some support in a sample of OECD countries (Alvarez *et al.*, 1991; Garrett and Lange, 1986; Lange and Garrett, 1985), although Traxler *et al.* (2001: Chapter 16) find that the positive performance effect of 'consistent' combinations of labour power and

government partisanship is unstable over time. One recent study by Iversen (1998) fails to find any partisan effects and argues that partisan governments matter for outcomes mainly because of their impact on the choice of institutions. For example, left-wing governments might be more favourable to centralised bargaining and more likely to pursue an accommodating monetary policy than a right-wing government. As we shall see next, there is some evidence that the interaction between the choice of monetary policy regime and the degree of bargaining coordination is important for economic outcomes.

### 3.10 Monetary policy and wage-setting regimes

#### 3.10.1 Theory

The organisation of collective bargaining can affect economic outcomes in ways other than through the direct impact on wages and employment. An important indirect link is the interaction between the bargaining structure and economic policy, in particular monetary policy. The establishment of the European Monetary Union and the move towards central bank independence in many OECD countries in the last 10 years have spurred an interest in this link.

Under a regime of decentralised collective bargaining, unions are unlikely to take into account how wage settlements might affect monetary policy. However, when collective bargaining is coordinated, unions can act strategically and take into account how the central bank might react to different wage settlements. This can affect economic outcomes through a number of complementary channels.

One approach takes as its starting point the inflation bias in monetary policy that arises because the central bank is tempted to print money to expand aggregate demand once the private sector has locked itself into nominal wage contracts. Unions anticipate this and, as a consequence, attempts to reduce unemployment below the equilibrium level will fail, and inflation will be sub-optimally high. Importantly, the inflation bias is larger, the higher the equilibrium level of unemployment because this increases the temptation to create higher surprise inflation. Now, unions may—under a regime of coordinated bargaining—realise that their wage strategy affects the level of equilibrium unemployment and thus the size of the inflation bias. If, therefore, unions care about inflation *per se* (independently of their concern for real wages and employment, i.e. are inflation averse), they have an incentive to moderate their wage demands in order to reduce the equilibrium level of unemployment *and* the inflation bias (Skott, 1997). Thus, coordinated bargaining may lead to low unemployment and inflation. The extent to which unions can ‘buy’ low employment (and high real wages) by exploiting the central bank’s adversity to inflation, however, depends on how much weight the central bank puts on inflation relative to unemployment as well as on the unions’ own view on the tradeoff. In the extreme, if the central bank cares a lot about inflation, the union can, by demanding high nominal wage increases, reduce employment substantially because the central bank is unwilling to accommodate the wage hike, while it would be too expensive to pursue such a strategy if the central bank cares solely about unemployment.

Another approach pursued by Soskice and Iversen (2000) also focuses on the interaction between the degree of bargaining coordination and the monetary policy regime. It is argued that equilibrium unemployment is lower the smaller the number of unions and the more non-accommodating the monetary regime is. The logic is that unions might realise that their wage settlements will lead to a larger reduction in real

demand when the central bank is committed to a fixed nominal money supply than when it is anticipated that the central bank will accommodate whatever wage settlement is reached by increasing the money supply. Consequently, unions have an incentive to lower their wage demands when monetary policy is non-accommodating and this leads to low levels of (equilibrium) unemployment. It is important to notice, however, that this mechanism is not operating if collective bargaining is completely uncoordinated because in that case the price effect is too small to be internalised by the unions. Nor does the monetary regime matter if bargaining is completely centralised or fully coordinated. This is so because the unions in this case can coordinate their wage policies perfectly and choose full employment irrespectively of the monetary regime. Thus, the argument is that semi-coordinated collective bargaining combined with non-accommodating monetary policy is likely to lead to higher levels of employment than semi-coordinated bargaining with accommodating monetary policy. If true, this suggests that semi-coordinated collective bargaining is not necessarily associated with poorer economic outcomes, as otherwise suggested by the reasoning behind the hump hypothesis advocated by Calmfors and Driffill (1988). However, at least when unions are sufficiently inflation averse, the hump-shaped relationship reappears when the competitive effect highlighted by Calmfors and Driffill is allowed to operate alongside the strategic wage-setting effect and is least pronounced where the central bank is committed to low inflation (Cukierman and Lippi, 1999).

A third approach, taken by, for example, Franzese (2001) and Iversen (1998; 1999: Chapter 2), highlights different conflicts of interest among wage bargainers. Iversen (1998) stresses that unions may dislike wage disparity. Under centralised wage bargaining wage differentials between different types of workers are minimised, but the incentive for *ex post* wage drift (among high skill workers) is maximised. How important the latter effect is can, however, be questioned as unions may anticipate subsequent wage drift and build it into the settlement. At intermediate levels of centralisation, wage differentials reflecting productivity differences are incorporated in the wage bargaining reducing the risk of wage drift. Whether bargaining at this level leads to worse unemployment outcomes (as suggested by the hump hypothesis) depends critically on how accommodating monetary policy is. If the central bank is committed to a low inflation target (or is very inflation averse), then intermediate levels of centralisation lead to better unemployment outcomes than fully centralised bargaining. The reason is that the central bank is unwilling to accommodate the wage drift. Conversely, if the central bank is running an accommodating monetary policy, the standard hump-shaped relationship re-emerges. Franzese (2001) focuses on a different conflict of interest, namely between unions in the private (traded) and public sector. The point is that monetary contractions tend to affect unions in the private sector more than unions in the public sector which are to some extent sheltered from real-demand contractions. Centralisation of bargaining therefore only improves unemployment outcomes in situations where the private sector leads in wage bargaining and can be detrimental where public-sector unions dominate. Nevertheless, the real cost of monetary conservatism tends to fall with the degree of bargaining coordination.

### 3.10.2 Empirical evidence

The hump hypothesis claims that economies with either uncoordinated or completely coordinated wage setting should have lower unemployment than economies with semi-coordinated wage setting, but, as discussed above, the evidence in support of this

Table 15: Long-run average unemployment rates for 17 OECD countries depending on the monetary rule and the centralisation of wage bargaining, 1973–93

	Centralisation		
	Very high	Semi-centralised	Very low
Monetary rule			
Accommodating	3.9	7.6	7.1
Non-accommodating	5.6	3.6	7.4
Difference	-1.7	4.0	-0.3

Notes: Monetary rule refers to the independence of the central bank except in the case of Japan where a dependent bank follows a non-accommodating policy. An independent central bank is taken to follow a non-accommodating monetary policy rule.

Source: Soskice and Iversen (2000: Table 1).

hypothesis is weak. In fact, some (but not all) of the OECD economies with semi-coordinated wage-setting systems have been very successful in sustaining low levels of unemployment for most of the postwar period. Examples include Germany, the Netherlands and Switzerland. The theoretical literature reviewed above strongly suggests interactions between bargaining arrangements and monetary policy regimes. Table 15 contains a cross-tabulation of average unemployment rates for the period 1973–92 for 17 OECD countries that support this view. The countries are divided into six groups according to their monetary regime (accommodating or non-accommodating) and the degree of collective bargaining centralisation (very high, intermediate and very low). While the data confirm that unemployment is comparably low in countries with highly centralised bargaining systems *if* monetary policy is accommodating, we see that the countries with an intermediate level of centralisation and a non-accommodating monetary policy regime have the lowest rate of unemployment.

The data in the table are highly suggestive, but not conclusive nor do they allow to distinguish between different hypotheses regarding the interaction between monetary policy regime and wage-setting institutions. For this we need to consult the fast-expanding empirical literature exploring panel data from subsets of OECD countries. Iversen (1998) interacts an index of central bank independence with an index of bargaining centralisation (V2000, see Table 5) in a study of unemployment in 15 OECD countries during the period 1972–93. His main finding is that centralisation has a dampening effect on unemployment under a regime of accommodating monetary policy, but that the relationship under a regime of non-accommodating policy is *U-shaped*; that is, both decentralised and centralised bargaining are associated with higher unemployment than semi-centralised bargaining. Thus, these results give some support to the notion that there is a monotonic relationship (rather than a hump-shaped one) between bargaining coordination and unemployment, but only under accommodating monetary policy. In countries with independent and rule-bound central banks, the relationship seems to be U-shaped. However, Cukierman and Lippi (1999) find more or less the opposite: the relationship is monotonic also under non-accommodating monetary policy (conducted by an independent central bank)

and hump-shaped under accommodating monetary policy, although this is not materially different from what is found in countries with high centralisation and accommodating monetary policy.

Hall and Franzese (1998) study the interaction between coordinated wage bargaining and central bank independence in 18 OECD countries during the period 1950–90. The key rationale for having an independent central bank that is committed to a target of low inflation is to bring down long-run equilibrium inflation. They argue that the unemployment cost of achieving this outcome depends on the nature of wage-setting institutions. They find evidence that the unemployment cost of central bank independence is lower under coordinated bargaining than under uncoordinated bargaining. If their estimates are taken at face value, then a shift from a completely dependent central bank to a completely independent one would increase unemployment by almost 10 percentage point under uncoordinated wage bargaining. Under semi-coordinated wage bargaining, the cost would be about 4 percentage points, but under a regime of completely coordinated wage bargaining, unemployment will actually fall by about 1 percentage point. Franzese (2001) explores the role of union concentration in the public sector in a sample of 15 OECD countries during the period 1973–93. Interestingly, he demonstrates that bargaining coordination is most beneficial when traded sectors dominate the public sector in wage bargaining, and that the real cost of central bank conservatism falls with private-sector-led bargaining centralisation.

In conclusion, the evidence points to the importance of interactions between different monetary policy regimes and bargaining coordination. Although the literature has not yet settled down, there is some support for the notion that central bank independence (or non-accommodating monetary policy) works relatively well in conjunction with systems of semi-coordinated collective bargaining. Franzese (2002) in his review of the literature stresses that consensus so far has emerged only on a few points, including that the real cost of conservative (non-accommodating) monetary policy tends to be lower where bargaining coordination is in the intermediate range.

### 3.11 Bargaining centralisation and the contingency hypothesis

There is another reason, suggested by Traxler and Kittel (2000), Traxler *et al.* (2001) and further developed in Traxler (2003a; 2003b), why the corporatist view that central-level bargaining is associated with desirable macroeconomic outcomes may not be true in all cases. The reason is that successful wage moderation requires two things: a wage policy with macroeconomic priorities must be formulated *and* the policy must be implemented. Central-level bargaining makes it easier to formulate such a policy, but, at the same time, the fact that bargaining is centralised may make it hard to ensure implementation. This is because centralisation removes decision making from the members of unions and employers organisations, a fact that may foster free-riding and cause wage drift, thus making it hard to implement any given agreement. This apparent tradeoff, however, depends on the governance capacity of the bargaining parties, that is, the formal powers of the peak organisations relative to its affiliates (Traxler, 1999: Table 1). The governance capacity is typically enhanced by the legal framework supported by the state. This line of reasoning leads to the *contingency* hypothesis: ‘the performance of bargaining centralisation . . . [depends] on the presence or absence of state provisions for ensuring the governance capacity of the bargaining parties in relation to their constituencies’ (Traxler, 2003a: 5). In other

words, macroeconomic performance is 'good' in situations where centralised and coordinated wage bargaining is combined with a high degree of bargaining governability, while it is poor when centralisation is combined with low bargaining governability.

To test this hypothesis, Traxler *et al.* (2001) and Traxler (2003a) construct an index of bargaining governability. It measures the statutory provisions for legal enforceability of collective agreements and the peace obligations that apply after central negotiations have been concluded. They then go on to study the interaction between this variable and an index of bargaining centralisation (T2001-4, see Table 5). The hypothesis receives support in a sample of 20 OECD countries over the period 1970–96, suggesting that bargaining centralisation encourages wage moderation and improves economic outcomes (low unemployment and inflation) only in societies where the governance capacity is sufficiently high and, in fact, leads to worse outcomes in societies without this capacity. These results are encouraging and plausible, but more research would be required to settle what the precise intermitting factor between centralisation and economic outcomes is: is it governance capacity, the monetary policy regime (or perhaps even the fiscal policy regime) or compatibility (or not) between the ideology of the ruling party and the dominant labour market party? An overall test of these competing theories would be desirable but difficult to construct given the limited data material.

#### 4 CONCLUSIONS

What emerges from the current review is, first, cross-country variation in union density has little impact on economic performance but high bargaining coverage tends to be associated with relatively poor economic performance. Countries with coordinated bargaining systems, on average, achieve better economic outcomes and have more flexible labour markets than countries with less coordinated systems receives some support, but mostly from the 1970s and 1980s. Overall, the hump hypothesis receives little support.

Second, interactions between different aspects of collective bargaining are important for the macroeconomic impact. One example is that high levels of bargaining coordination reduce the negative impact of high bargaining coverage on unemployment. Another is that informal coordination of wage bargaining often develops in labour markets where formal coordination of bargaining is absent. Similarly, the consequences of labour market coordination or absence thereof depend on the monetary policy regime. The introduction of a regime of non-accommodating monetary policy can eliminate some of the adverse unemployment consequences otherwise associated with industry-level collective bargaining. Moreover, centralised bargaining on its own is not sufficient; it needs to be supported by an appropriate structure for ensuring that agreements are, in fact, implemented. This implies that it is the total 'package' of (formal and informal) institutions that matters for economic performance and that labour market coordination cannot and should not be thought of in isolation from the broader institutional environment.

Third, bargaining coordination matters most in times of rapid economic and social change, while the differences appear to contribute less to comparative economic performance under more stable economic conditions. This means that bargaining coordination, not only through formal centralisation of collective bargaining and

social partnerships but also through more informal mechanisms, enables the labour market to coordinate its responses to shocks and to eliminate their adverse effects more effectively.

Finally, a relatively unexplored area is the interaction between monetary policy and bargaining coordination. This is also a relatively new phenomenon in the sense that it is only recently that monetary policy has assumed a significant, if not dominant, role in central government policies, for example, in the USA under the revamped role of the Federal Reserve System or the European Union following the introduction of the euro. Nevertheless, the literature reviewed in this article suggests that the interaction between monetary policy and bargaining coordination can affect economic outcomes, and this may in turn explain, at least in part, why some countries with intermediate levels of centralisation and non-accommodating monetary policy avoid high levels of unemployment. However, this is an area that would benefit from additional research once more historical information becomes available. Another promising avenue for further research is the study of the interaction between different dimensions of the macroeconomic policy environment and labour market institutions.

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