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Macroeconomic Performance and Collective Bargaining: An International Perspective

Robert J. Flanagan[1]

1. *Introduction*

The idea that labor unions, or, more accurately, collective bargaining systems, can influence macroeconomic outcomes has had a persistent but varied life over the past fifty years. Early in the postwar period, John Hicks (1955) noted the existence of a "Labour Standard," in which " . . . monetary policy adjusts to the equilibrium level of money wages so as to make it conform to the actual level," (p. 391) rather than the other way around. Belief in union influence on inflation also informed postwar applications of income policies in virtually all Western countries, but neither Hicks' argument nor the subsequent policy applications considered how the strikingly different collective bargaining systems around the world might produce different macroeconomic outcomes. Indeed, countries representing virtually the entire spectrum of collective bargaining systems were sufficiently concerned about the effects of labor market institutions on macroeconomic outcomes to experiment with some variety of incomes policy. Yet the subsequent failure of incomes policies to alter macroeconomic outcomes for any sustained period seemed independent of institutional structure (Flanagan, David Soskice, and Lloyd Ulman 1983).

The aftermath of the supply shocks of the 1970s brought increased interest in understanding the relationship between specific features of collective bargaining systems and macroeconomic adjustment. Countries varied in both their economic adjustments to the supply shocks and in the structure of their collective bargaining institutions. As conventional macroeconomic models of wage and price behavior failed to explain the international variations in post-oil-shock macroeconomic adjustments, social scientists began to examine the impact of alternative institutional structures on economic performance and initially concluded that so-called "corporatist" collective bargaining arrangements (further defined in section 3) produced superior macroeconomic outcomes.

This research has produced little closure on the subject, however. Indeed, most of the initial correlations have turned out to be remarkably fragile.

[1] Graduate School of Business, Stanford University. The author is grateful for the financial support of the Stanford Graduate School of Business, and the comments and suggestions of Miriam Golden, Morley Gunderson, Joop Hartog, Douglas Hibbs, Larry Kahn, John Pencavel, Melvin Reder, Lloyd Ulman, and three conscientious referees.

The objective of this essay is to examine findings and uncertainties about how collective bargaining systems influence macroeconomic outcomes, including inflation, unemployment, the aggregate real wage level, the adjustment of real wages in the face of unemployment, and pay dispersion, indicating both the successes and failures of the literature to date.[2] The essay will draw on the postwar evidence from advanced industrialized economies of Western Europe, North America, Japan, Australia and New Zealand.

Section 2 provides a brief introduction to the varieties of institutional structures that accompany collective bargaining in industrialized nations, while Section 3 compares the main theoretical ideas that guide research into the relationship between collective bargaining systems and economic performance with postwar experience in industrialized countries. Subsequent sections explore some apparent reasons for the fragile empirical results, and the paper concludes with a discussion of research and policy implications.

2. *Collective Bargaining Systems*

While labor unions and collective bargaining are among the institutional constants of economic life, the characteristics of collective bargaining systems vary substantially among countries. Table 1 provides data on the salient features of collective bargaining systems for a sample of industrialized countries around 1980—about the time of the second oil shock, whose aftermath stimulated the search for a connection between collective bargaining structure and macroeconomic performance—and the early 1990s, the latest data available. The discussion in this section addresses the nature of bargaining system characteristics. Section 5 addresses changes over time.

Columns 1 and 2 present data on the scope of union membership and collective bargaining. Most economists are familiar with the concept of union density—the percent of wage and salary workers who are union members—shown in column 1.[3] Even among industrialized countries, unionization varies widely, with the highest density rates (in Scandinavian countries) reaching several times the lowest density rates (in the United States and France).

Fewer economists realize that the percent of wage and salary workers *covered* by the terms of collective bargaining agreements typically exceeds union membership. This distinction is crucial in continental European countries. France, with the lowest density rate but the highest coverage rate among the countries in Table 1, is an extreme example, but North American countries, where membership and coverage are virtually synonymous, are at the other extreme. Some employers more or less automatically extend terms of a collective bargaining agreement to nonunion employees in a plant. (This practice accounts for the modest gap between coverage and membership in North America.) The much larger differences observed in continental European countries are rooted in statutes and practices providing for the extension of collective bargaining agreements to employees and employers who would be regarded as nonunion in other institutional settings. In some European countries, an official collective bargaining agreement must cover a certain percent of employees in a sector before legal extension can occur; in others, statutes permit

[2] For an evaluation of the relationship between labor market institutions and microeconomic outcomes, see Francine Blau and Kahn forthcoming.

[3] The data generally exclude self-employed, retired, and unemployed union members.

TABLE 1
CHARACTERISTICS OF INDUSTRIAL RELATIONS SYSTEMS, CIRCA 1980

	Union Density (percent)		Union Coverage (percent)		Bargaining Level (scale)	
	1980	1994	1980	1994	1980	1994
Australia	48	35	88	80	2+	1.5
Austria	56	42	98	98	2+	2+
Belgium	56	54	90	90	2+	2+
Canada	36	38	37	36	1	1
Denmark	76	76	69	69	2+	2
Finland	70	81	95	95	2.5	2+
France	18	9	85	95	2	2
Germany	36	29	91	92	2	2
Italy	49	39	85	82	2–	2
Japan	31	24	28	21	1	1
Netherlands	35	26	76	81	2	2
New Zealand	56	30	67	31	2	1
Norway	57	58	75	74	2	2+
Sweden	80	91	86	89	3	2
Switzerland	31	27	53	50	2	2
United Kingdom	50	34	70	47	2	1.5
United States	22	16	26	18	1	1

Sources: Union density, union coverage, bargaining level, bargaining coordination: OECD 1997, p. 71.
Federation involvement, government involvement: Golden, Lange, and Wallerstein 1997.
Works Councils: Slomp 1995, p. 294.
Notes: Union Density = Proportion of wage and salary workers who are union menbers.
Union Coverage = Proportion of wage and salary workers covered by terms of a collective bargaining agreement. Coverage data for 1980 were not available for Austria, Belgium, Denmark, New Zealand, Norway, Sweden and Switzerland. For these countries, coverage data for 1990 appear in the 1980 column.
Bargaining Level: (1) Plant-level bargaining; (2) Industry level bargaining; (3) Centralized bargaining.
Bargaining Coordination: Range is from uncoordinated bargaining (=1) to highly coordinated bargaining (=3).
Federation Involvement: Union and/or employer federations are: (1) Uninvolved in setting wages in any of the subsequent ways; (2) Participate in formulation of wage demands for all affiliates; (3) Negotiate non-wage benefits;

extension to economically similar workers who have no bargaining representative.[4] In addition, members of employer associations generally must honor wage agreements negotiated by the association irrespective of their union status. As is apparent in Table 1, these extension mechanisms greatly enlarge the influence of collective bargaining agreements. At the same time, they may lower official union membership by encouraging free-rider behavior by workers, and raise membership in employer associations as nonunion firms seek to influence the terms of wage agreements that they will have to accept.

Parallel measures for the employer side of the collective bargaining relationship are rare in most countries. Official statistical agencies generally do not survey employers about their participation in collective bargaining, their membership in employer associations,

[4] According to OECD 1994a, "pervasive" legal extension occurs in Australia, Austria, and France, and "limited" extension occurs in Finland, Germany, the Netherlands, and Switzerland. The inclusion of Australia refers to the extension of arbitration awards to workers who are not a direct party to a particular arbitration proceeding.

TABLE 1 (*Cont.*)

	Bargaining Coordination		Federation Involvement		Government Involvement		Works Council
	1980	1994	1977–80	1990–92	1977–80	1990–92	
Australia	2+	1.5	6	6	10	10	
Austria	3	3	2	2	6	6	
Belgium	2	2	2	3	4	4	
Canada	1	1	1	1	2	2	0
Denmark	2.5	2+	5	1	11	5	80
Finland	2+	2+	7	7	8	8	
France	2–	2	3	3	3, 5	3	75
Germany	3	3	1	1	3	3	60
Italy	1.5	2.5	4	1	3	3, 7	
Japan	3	3	2	2	4	4	0
Netherlands	2	2	2	2	6	6	45
New Zealand	1.5	1			10	10	
Norway	2.5	2.5	8	8	9	5	
Sweden	2.5	2	8	7	5	8	0
Switzerland	2+	2+	1	1	3	3	
United Kingdom	1.5	1	1	1	2, 11	2	0
United States	1	1	1	1	2	2	0

(4) Negotiate a part of the wage agreement (e.g., cost-of-living adjustment); (5) Represent affiliates in mediation with centralized ratification; (6) Represent affiliates in arbitration; (7) Negotiate national wage agreement without peace obligation; (8) Negotiate national wage agreement with peace obligation.

Government Involvement: Government: (1) Uninvolved in wage setting; (2) Establishes minimum wage(s); (3) Extends collective agreements; (4) Provides economic forecasts to bargaining partners; (5) Recommends wage guidelines or norms; (6) Negotiates wage guidelines with unions; (7) Imposes cost-of-living adjustment; (8) Formal tripartite agreement for national wage schedule without sanctions; (9) Same with sanctions; (10) Arbitrator imposes wage schedules without sanctions on unions; (11) Imposes national wage schedule with sanctions; (12) Imposes wage freeze and prohibits supplementary local bargaining.

Works Councils: Percent of firms with a works council.

or the extent to which pay and other employment practices are determined by collective bargaining negotiations in which they do not participate. For most countries, we therefore have no clear idea of the exact number or proportion of firms operating on a completely nonunion basis (although it seems reasonable to assume that most workers who are not covered by a collective bargaining agreement work in a nonunion firm).

The arrangements for the conduct of collective bargaining also vary widely among countries. Bargaining structure refers to the *level* at which collective bargaining occurs (column 3 in Table 1, in which the lowest numbers represent the most decentralized bargaining structures). In *decentralized* collective bargaining systems (typical of North America and Japan throughout the period), most negotiations occur between an employer and representatives of employees in a company or plant. (The importance of company-level, nonunion pay decisions in these countries provides further decentralization of wage determination.) *Intermediate* level bargaining, common in continental Europe, involves negotiations between an

industry-wide union and an industry employers' association to establish a floor under working conditions in a particular industry. *Centralized* bargaining (common at times in Scandinavian countries) involves negotiations between nationwide labor and employer *federations* to establish a national floor for wages and possibly other working conditions.[5] Labor federations may not be comprehensive. (In Scandinavia, unions of blue collar, white collar, and professional workers affiliate with separate federations, for example).

Australia and New Zealand present unusual cases in that wage determination was conducted through quasi-judicial arbitration procedures for much of this century. Under an arbitration system, unions and employers litigate wage claims before a labor court, which issues "awards" establishing minimum wages for an occupation. Awards typically apply beyond the immediate jurisdiction of a union and are frequently the basis for general revisions of the wage structure (through subsequent arbitration claims) to preserve occupational wage differentials—an objective of the labor courts. Negotiations between labor and management can occur to establish wage rates above the minimum set in the award (Pencavel 1999). Wage determination in these systems has both centralized (arbitration awards) and intermediate (industry bargaining) components. In 1991, New Zealand abandoned its arbitration system and shifted to a radically decentralized approach to pay determination, a change that is discussed further in sections 3 and 5. Australia revised but did not abandon its arbitration system during the 1990s.

Irrespective of their level of collective bargaining negotiations, countries also differ in the extent to which labor negotiations are coordinated. Even in decentralized bargaining systems, common contract expiration dates and federation or government influence on wage norms may achieve highly coordinated wage settlements. Column 4 provides an index of bargaining coordination (with 3 indicating high coordination), while columns 5 and 6 indicate the nature of federation and government involvement in wage bargaining.

Unions do not provide the only form of collective representation at the enterprise level. Since World War II, several European countries have passed statutes providing for the establishment of works councils in plants exceeding some employment threshold. Although the works councils have the potential to compete with union representation, they are generally limited to issues not covered in collective bargaining agreements. Unions may not be too confident of this distinction, as union members appear to capture a significant majority of the works council seats. Companies are generally required to provide works councils with information about the economic conditions at the enterprise and to consult or accept advice from works councils on dismissals and other human resource management issues. In some countries the councils may have joint decision-making rights on some personnel issues (Hans Slomp 1995). Column 7 of Table 1 provides data on the prevalence of works councils.

3. *Theoretical Links*

Students of labor markets agree more readily on the defining characteristics

[5] Sector-based unions and employer organizations generally affiliate with national federations, which coordinate legislative objectives and, in some countries, economic objectives. Outside of Scandinavia, national federations have rarely been directly involved in collective bargaining.

of collective bargaining systems reported in section 2 than on the relationship between these characteristics and the behavior of real wages, unemployment and inflation. This section reviews the main efforts by economists and political scientists to link elements of the collective bargaining system with macroeconomic performance. As will become apparent, these efforts betray considerable uncertainty about the relationship between many of these measures and the central concept of bargaining power.

During the early postwar period, national governments sought to minimize the inflation that accompanied periods of relatively low unemployment. The use of national incomes policies noted in the introduction rested on the assumption that union bargaining power could be an ongoing source of inflationary pressure. This view was quickly challenged on the grounds that a change in the degree of monopoly power in a market would produce a once-and-for-all increase in the relevant price, not ongoing inflationary pressure. Unions could therefore be a source of inflation only if union power continually increased. At the time, however, the policy challenge facing most industrialized countries was to prevent the outbreak of inflationary pressures in a regime of relatively stable union density and coverage. Without a clear indication of increasing bargaining power, the institutional basis for incomes policy seemed weak. The challenge was countered with the argument that unions could be guilty of at least contributory negligence to the extent that governments accommodated negotiated wage increases—the previously cited "Labour Standard" characterization of labor markets advanced by Hicks. An important contribution of this early debate was to signal the link between government actions and the impact of the collective bargaining system.

In the wake of the supply shocks of the 1970s, which increased *both* inflation and unemployment, the measure of macroeconomic performance stressed by economists shifted from these targets to the flexibility of aggregate real wage adjustments in the face of aggregate demand shifts. (Political scientists and others continued to stress inflation and unemployment as performance measures, rather than the intervening adjustment processes.)

3.1 *The Corporatist Hypothesis*

An early perspective on the links between institutions and macroeconomic outcomes came from political scientists who argued that "corporatist" institutional arrangements, which facilitate bargaining between labor, management, and the government, produce lower inflation and unemployment. Such institutional arrangements purportedly produce implicit or explicit "social contracts" in which unions restrain wage demands in exchange for policy concessions from the government.

Corporatism is an inherently multidimensional concept, for which precise definitions are elusive. Some proponents focus on process and stress the active participation of organized interest groups in the policy formation process through formal or informal bargaining with the government (Gerhard Lehmbruch 1984). Others stress the institutional prerequisites for such participation—notably the presence of centralized, monopolistic union federations and employer associations, as well as centralized collective bargaining arrangements (Schmitter 1981). The ability of the various interest organizations to deliver on their promises receives much less attention but is captured by Colin Crouch's observation that

"corporatism places enormous reliance on the capacity of organizations to regulate their members" (Crouch 1985, p. 138). Discussions of corporatism are rather brief about the micro-foundations of decision-making within interest organizations and the government, effectively assuming identical preferences among all members or an absence of democratic processes for resolving internal conflicts.[6] As a result, the corporatist literature lacks precision on the process and outcome of bargaining among interest groups.

If the links between some of the dimensions of corporatism and macroeconomic performance seem obscure, it is because political scientists initially developed the concept to explore an entirely different issue—the role of interest group intermediation in the political process—and the arguments were never developed formally. For this purpose, researchers would aggregate certain institutional features of labor markets and governments into overall indexes of corporatism, and rank sample countries by their index score. These indexes were later borrowed with little amendment by social scientists attempting to test the corporatist hypothesis.

Empirical testing. Early empirical testing of the corporatist hypothesis consists of little more than simple correlations between indexes of corporatism (or the elements of such indexes) and one or more measures of macroeconomic performance, such as inflation, unemployment, or the Okun misery index (the sum of the inflation and unemployment rates) across 14 to 17 (depending on the study) industrialized countries. Crouch (1985) compared the correlation between economic performance and union density for a group of corporatist countries with a group of noncorporatist countries, and found that while the relationship between performance and union density was weak, average economic performance was superior in the corporatist countries (as a group). The measures of economic performance were inflation in the mid-1970s, the misery index in the mid-1970s, and the increase in inflation from the mid-1960s to the mid-1970s. In a more extensive analysis of data for the 1960s, 1970s, and 1980s, overall union density was not significantly correlated with either the inflation rate, the unemployment rate or the misery index, but there were significant correlations between these measures of economic performance and an index of corporatism based on the authority of the dominant union federation in each country over its member unions (Crouch 1990).[7] Close inspection of the results reveal two patterns that appear in other studies. First, the strength of the correlations varies by decade, with the weakest results in the 1960s, the strongest in the 1970s, and intermediate in the 1980s. Second, the correlations are quite sensitive to the exact list of industrialized countries included in the study. The addition or subtraction of data for Spain and Switzerland had dramatic effects on the strength of the correlations.

Ezio Tarantelli (1986) regressed the misery index on a multidimensional index of corporatism that included the neocooption of trade unions (roughly, the degree of ideological and political consensus between unions and governments, the centralization of collective

[6] Alternatively, the institutions themselves might reflect some underlying social consensus that was the ultimate determinant of performance (see section 5).

[7] Note that this index of "centralization," which is due to Visser (1987), refers to centralization of authority within the union movement, not the centralized bargaining arrangements discussed in section 3.2.

bargaining, and the regulation of industrial conflict). In each of the three time periods studied, 1968–73, 1974–79, and 1980–83, here is a negative cross-country relationship between the corporatism and misery indexes. The relationship shifts over time to the disadvantage of the least corporatist countries. That is, by the early 1980s differences on the corporatism index were associated with larger differences in economic performance than in the 1960s. Michael Bruno and Jeffrey Sachs (1985) report similar results using an index of corporatism they attribute to Crouch.

Even when such correlations emerge, they are difficult to interpret, because it is not clear which dimensions of the corporatist indexes provide the statistical action. There have been a few efforts to study the influence of individual elements of the broad corporatism indexes separately, however. Miriam Golden (1993) correlated measures of union monopoly (the number of national labor organizations involved in the wage-setting process) and union centralization (the degree of internal authority exercised by labor federations over their member unions) with measures of both the average level of economic performance in 1974–85 and the change in the performance from a period one decade earlier. Two measures of each institutional variable are drawn from the earlier corporatism literature. While union monopoly appears to be more correlated with economic performance than union centralization, the more striking result is that the institutional measures drawn from one source produce some significant correlations, while the measures of the same concepts drawn from the other source do not! Differences in country rankings produced by nuances of definition appear to have a lethal effect on correlations between institutional structure and performance.

Clearly, the notion of corporatism suffers from uncertain theoretical foundations and a lack of attention to the micro-foundations of the economic and social processes that purportedly produce superior economic outcomes. Empirical support for the hypothesis is equally shaky. These significant deficiencies notwithstanding, reformulations of the hypothesis focusing on complementarities between specific government and labor market institutions may have promise, as discussed further in section 6.

3.2 *Bargaining Structure*

In contrast to the political science literature, research in economics on the relationship between institutional structure and economic performance did not rest on the outcome of unspecified bargaining processes between unions and governments. Indeed, governments largely disappear from the story. Instead, the economics literature focused almost exclusively on bargaining structure as the key institutional feature, and developed formal analyses of links between bargaining level and certain dimensions of macroeconomic performance based on the self-interest of unions and employers and the outcomes of union-employer bargaining processes.

Early analyses assumed fully-unionized, closed economies with employers who maximize profit and unions that maximize a utility function including the real wage and employment levels of union members. These analyses predict that relatively centralized collective bargaining arrangements will yield lower real wages and unemployment, on the grounds that central union federations will internalize externalities that would be ignored by negotiators in decentralized bargaining structures. In formulating wage demands under decentralized bargaining, for example,

each union tends to consider only the interests of its members and to ignore the effect of the resulting price increases (for the output of the union's members) on other worker groups. The real wage gains of each union's members are accompanied by real wage losses for workers who are represented by other unions. In contrast, centralized bargaining arrangements should create the incentives and means to internalize the externality by pursuing more moderate wage demands.[8] For a given degree of labor market pressure, this line of reasoning predicted a negative relationship between the real wage level and the degree of centralization of collective bargaining when different unions represent work groups that are complements in production.[9] More centralized collective bargaining arrangements produce lower unemployment rates, ceteris paribus.

[8] Price spillovers are only one externality that may be internalized under centralized bargaining. Others include input price externalities (when wage increases in one bargaining unit raise the price of inputs to other sectors, reducing output and employment there); fiscal externalities (when wage increases in one unit reduce employment and the tax base, requiring tax increases elsewhere); and unemployment externalities (when unemployment resulting from wage increases in one sector make it more difficult for all workers to find a job). For further detail see the important surveys by Calmfors (1993) and Moene, Wallerstein, and Michael Hoel (1993) and the references therein.

[9] In centralized bargaining, the labor federation then internalizes the fact that higher wages for one union will reduce the demand for the members of other unions. When different unions represent work groups that are substitutes, however, a wage increase for one union raises the demand for members of other unions. Employment is redistributed within the bargaining unit rather than lost, so wage pressure increases. In contrast, with decentralized bargaining, a wage increase by one union reduces the demand for its members, while increasing the demand for substitutes represented by other unions—a consideration that would tend to moderate wage pressure (Henrik Horn and Asher Wolinsky 1988). Union jurisdictions therefore influence the exact relationship between bargaining structure and macroeconomic outcomes.

Missing from the externality analyses, however, was a consideration of the relation between bargaining structure and bargaining power. The tradeoff between the real wage level and employment in the union utility function and in the labor demand curve provides a basis for discussing union bargaining power, with greater union power associated with less elastic demand for the services of union members. Combining both the externality and bargaining power arguments, some economists postulated a "hump-shaped" relationship between bargaining structure and the real wage level in closed economies, with industry-level bargaining arrangements (such as are found in many continental European countries) yielding the highest real wages and hence the highest unemployment rates, ceteris paribus (Lars Calmfors and John Driffill 1988).

The crux of the argument rests on the effect of a negotiated nominal wage increase on the real consumption wage (an element of the union's objective function) and the real product wage (which influences the firm's employment decisions). In a closed economy, the effect of negotiated wage increases on consumer prices varies directly with the scope of the bargaining unit. For a given nominal wage increase, the increase in the real consumption wage should be largest in decentralized bargaining units. But an employer's ability to pass on the wage increase by charging higher prices is greater under industry bargaining (where all close substitutes are subject to an industry-wide wage increase) than under company-level bargaining (where they are not). Employer resistance should therefore be greatest in decentralized bargaining arrangements. Under centralized bargaining, no relative price can change, and the profit and employment effects are the same as under decentralized bargaining.

Two lines of attack have been mounted against the hump-shaped hypothesis. One objection is that the predictions do not apply when the assumptions of a closed economy and complete bargaining coverage are dropped. Assuming an open economy changes the analysis in two ways. First, domestic firms now compete with foreign firms for sales in domestic markets. Second, consumer prices, but not producer prices, now include the prices of imports. To the extent that foreign goods are substitutes, it will become more difficult for domestic firms to pass on pay increases to consumers. Import competition increases the elasticity of demand facing employers in industry-wide bargaining units and circumscribes their ability to pass on wage increases into prices. The higher risk of employment loss in the face of international competition should also mitigate union wage demands.

At the same time, the incentives for wage restraint are weaker under centralized bargaining in an open than in a closed economy. Even if all employers attempt to pass on the wage increase, the weight of import prices will keep the increase in consumption prices below the increase in producer prices. Therefore, the real consumption wage will rise despite little or no increase in the real product wage and hence little or no employment reduction. The important conclusion from this analysis is that with economic integration, economic performance becomes more or less independent of bargaining structure (Jean-Pierre Danthine and Jennifer Hunt 1994).

This analysis also illuminates the question of how bargaining structure and economic performance are linked in countries with significant nonunion sectors. Although the presence of a nonunion sector is assumed away by the bargaining structure literature, which has emerged from countries with very high union membership or coverage rates, this issue is relevant for most non-European industrialized countries as well as the United Kingdom. The role of the nonunion sector in such economies is in effect the same as the role of other countries in the analysis of the effects of economic integration above. That is, the more important the nonunion sector, the weaker are the links between bargaining structure and the real wage and employment levels.

The second line of attack criticized analyses of the relationship between the *level* of collective bargaining and macroeconomic performance on the grounds that the key determinant of institutional influence is bargaining *coordination* among key players (Soskice 1990). Bargaining level may provide an imperfect guide to the degree of bargaining coordination in decentralized systems in which employers and unions are able to establish a pattern settlement that is accepted at most companies.[10] Moreover, all centralized bargaining systems included decentralized bargaining arrangements. (See section 4.2 for details.) In each case, bargaining level is then the form but not the substance of the bargaining system. The crux of this critique is that empirical work stemming from the bargaining level literature misclassifies (as decentralized) those countries with company-level negotiations in which bargaining outcomes are in fact highly coordinated across bargaining pairs. With proper reclassification, a negative relationship between coordination and the real wage level and unemployment is predicted.

In contrast to the corporatist literature, analyses of bargaining structure

[10] In Japan, for example, thousands of enterprise settlements are highly coordinated every spring, thereby permitting highly flexible wage responses.

and economic performance generally assign governments a passive role in the bargaining process. Certain Scandinavian models of union behavior provide an important exception to this rule, however, and reach conclusions that differ strikingly from corporatist arguments. One way in which (usually left-of-center) governments may appeal to labor constituencies is by increasing public employment to offset disturbances that drive employment below a target level. Such accommodation policies effectively lower the elasticity of labor demand facing a centralized union, inducing a higher real wage in equilibrium (Calmfors 1982; Calmfors and Horn 1985). The effect of bargaining structure on real wages is thus contingent on government policy, but in a way that is the *reverse* of the corporatist arguments advanced earlier. These models also rationalize the long-term growth of public employment in such countries and the resort to devaluations rather than politically costly nonaccommodation policies.

To summarize the theoretical literature, in a closed, fully-unionized economy, the level of bargaining influences the real wage level through (1) its effects on the externalities of the collective bargaining process and (2) its contribution to relative bargaining power. The hypothesis of a negative relationship between bargaining level and the equilibrium level of unemployment reflects emphasis on the former factor, while the hypothesis of a hump-shaped relationship reflects additional consideration of bargaining power. The key disagreement between the hypotheses is over the effects of decentralized bargaining: Under the "monotonic" hypothesis, decentralized bargaining yields the highest wage pressure, while under the hump-shaped hypothesis, decentralized bargaining may yield the best outcome. In sufficiently open or sufficiently nonunion economies, however, the theory predicts that real wage and equilibrium unemployment levels will be independent of bargaining structure.

Empirical testing. Broadly speaking, empirical analyses have tested for relationships between bargaining level and either (1) levels of unemployment and real wages[11] or (2) econometric coefficients describing the responsiveness of an economic system to a disequilibrium. Comparatively firm theoretical foundations notwithstanding, empirical work on bargaining structure and equilibrium unemployment often shares the informality of tests of the corporatist hypothesis, relying on simple correlations between real wage levels or unemployment rates and measures of bargaining centralization. An influential early study relied on such correlations to argue that highly unionized countries with centralized bargaining were likely to produce real wage moderation (Bruno and Sachs 1985). In a recent reexamination of the monotonic hypothesis, however, the OECD found no significant cross-country rank correlations in 1980, 1990, or 1994 between measures of bargaining centralization or coordination and national inflation, unemployment, employment and real earnings growth rates, except for a significant *negative* correlation between the institutional variables and the employment rate in 1994 (OECD 1997, chap. 3).

In their examination of the relationship between bargaining structure and economic performance, Calmfors and Driffill (C&D hereafter) (1988) claimed

[11] Empirical studies often include performance measures, such as inflation, that are not directly implied by the theory. Calmfors and Driffil (1988) included the Okun misery index as a performance measure on the grounds that it offered a "crude" control for national variations in demand management policy.

support for their "hump-shaped" hypothesis. Their empirical findings were subsequently challenged on at least two grounds. First, the findings did not appear robust to modest changes in the time periods covered by the data (OECD 1988). Second, Soskice (1991) argued that their categorization of bargaining structures was inaccurate for two (out of seventeen) countries, Japan and Switzerland, and that when these countries were treated properly, the data supported a linear rather than a nonlinear relationship between bargaining structure and performance. Even if one accepts the C&D ranking, however, empirical support for the hump-shaped hypothesis has also evaporated. After using "a wide variety of indicators of economic performance and new data on the centralization and coordination of collective bargaining," a recent OECD study concluded that there is no evidence to support the C&D hypothesis in the 1990s (OECD 1997, chap. 3).

A more ambitious approach to analyzing the impact of the collective bargaining system on macroeconomic outcomes is to estimate a structural model of the wage and price determination process using both time-series and cross-section data and to explain international differences in the parameters of the model by labor market institutions. Richard Layard, Stephen Nickell, and Richard Jackman (1991) adopt this approach in their study of medium-term unemployment differentials among nineteen industrialized countries during 1983–88. After estimating the structural model, they relate a variety of institutional variables suggested by the earlier literature (including the C&D index of the centralization of bargaining, the Tarantelli index of corporatism, indexes of union and employer coordination suggested by Soskice's critique of C&D, and measures of strike activity) to the parameter describing the responsiveness of wages to unemployment.

Although the sample size limits the number of potential institutional features that can be evaluated in a single regression equation, the results indicate that employer and union coordination are more consistently significant than the index of centralized bargaining and particularly the broader index of corporatism. International differences in union density were not significantly related to the parameter differences, a result that echoes earlier work by Crouch. This study was probably the most comprehensive effort to evaluate institutional impact. Yet, when this regression was run on 1993 data, the signs on the bargaining coordination variables reversed, and the statistical significance disappeared (Anders Forslund and Alan Krueger 1994). A later study by Nickell and Layard regresses measures of unemployment on the change in the inflation rate and a variety of institutional indexes for twenty industrialized countries using averages for 1983–88 and 1989–94, and a dummy variable to distinguish between the average unemployment rate in the two periods (Nickell and Layard 1999). Taken at face value, the results indicate that higher union density and coverage raise unemployment, while union and employer coordination lower it,[12] but the reduced-form approach obscures the exact mechanisms at work and fails to test for the possibility of changes in institutional impact over time suggested

[12] A similarly-structured OECD study for 1985–95 uses the GDP gap rather than the inflation rate as a control for demand policy and finds high bargaining centralization and coordination associated with lower unemployment (Jorgen Elmeskov, John Martin, and Stefano Scarpetta 1998). The collective bargaining variables in this study incorporate institutional changes over the period, but there is no test for changes in institutional influence over time.

by studies by Forslund and Krueger and others.

In summary, the theoretical work of the past decade predicts that any relationship between bargaining structure and macroeconomic outcomes is contingent on the particular economic or political environment of a country and the technical relationship between different groups of unionized employees. By implication, the results of studies of the effect of *individual* collective bargaining institutions on economic outcomes are unlikely to be robust to changes in the economic and political environment; even a stable set of institutions can produce different results under different conditions. Failures to account for such complementarities, as well as methodological issues addressed in sections 4 and 5 may explain the difficulty in finding durable empirical support for the main hypotheses.

3.3 *Bargaining Synchronization*

Virtually all collective bargaining agreements establish a path of nominal wages, leaving real wages to be determined by economic developments during the subsequent contract period. Longer contract periods economize on negotiating costs but leave workers vulnerable to the consequences of unforeseen economic developments. The actual duration of labor agreements varies within and between countries.

The intuition that long-term contracts will provide a more sluggish adjustment of nominal wages to a change in prices is weakened by the presence of indexation clauses. Actual indexation clauses limit the adjustment of wages to prices in two respects, however: (1) indexation rarely provides complete protection against price increases; and (2) indexation is often asymmetrical, accommodating only upward wage adjustments. Moreover, deferred pay increases often introduce considerable wage inertia into long-term agreements.

Whether short-duration contracts provide greater flexibility depends on the synchronization of collective bargaining. With staggered contract expiration dates, individual unions will be reluctant to adjust wages completely to lower prices, for their members will suffer a relative and real wage loss as workers in other unions continue to receive previously determined wages. The most individual unions can initiate is a slow partial adjustment of wages to a new equilibrium (John Taylor 1980; Jackman 1985). Until the equilibrium is reached, real wages and unemployment will be relatively high. The exact speed will depend on the relative importance of wages and employment to the union. Synchronization of collective bargaining would eliminate this potential source of unemployment. Staggered long-term contracts with incomplete indexation appear to provide the worst arrangement. Inertia from deferred pay increase produces long lags between decisions to negotiate more moderate wage packages and aggregate union wage moderation.[13]

Is the synchronization issue separable from bargaining structure? On its face, centralized bargaining might appear to provide automatic synchronization, while decentralized bargaining provided considerable opportunity for staggered collective bargaining. As noted in section 3.2, however, centralized bargaining systems include decentralized, nonsynchronized pay determination, and some countries with decentralized bargaining achieve highly synchronized pay determination through pattern bargaining. Clearly, the concepts of bargaining

[13] During the 1980s, cost-of-living adjustments in U.S. collective bargaining agreements accounted for about 21 percent of union wage changes in an average year, while deferred increases averaged 52 percent.

structure and bargaining synchronization are not perfectly correlated.[14]

The relationship between bargaining synchronization and macroeconomic performance has received less attention than other features of the collective bargaining system. This may be because the notable variability in the responsiveness of nominal wages to a given degree of unemployment from period to period within countries is hard to square with the synchronization story. An effort to explain international differences in nominal wage inertia during the 1980s with institutional features was not successful in general and bargaining structure in particular appeared to have no influence (Layard, Nickell, and Jackman 1991).

3.4 *Institutional Wage Compression and Growth*

The search for correlations between economic outcomes and industrial relations institutions has produced one durable relationship. Wage dispersion is negatively correlated with the centralization of collective bargaining across countries, although the relationship weakened somewhat by the 1990s (OECD 1997, Table 3.5). In contrast to the earlier focus on short-term macroeconomic adjustments, this correlation may reveal links between institutional structure and long-term growth. Two questions merit investigation: (1) Can the correlation be attributed to institutional influence? (2) If causality runs from institutional structure to wage dispersion, what are the consequences for long-term growth?

Many centralized bargaining systems appear to provide relatively high pay increases for the lowest-paid union members while restraining the potential wage gains of the most powerful unions of skilled workers,[15] but distinguishing the relative effects of market and institutional influences on wage inequality can be more art than science. During the 1980s, pay dispersions generally widened as the relative demand for skilled workers increased in countries with very different institutional structures. Yet, there was comparatively little growth of wage inequality in countries with centralized bargaining during the 1980s and 1990s (Peter Gottschalk and Timothy Smeeding 1997), and inequality grew more in countries in which bargaining decentralized (OECD 1997). Nonetheless, there is no way to parse out statistically the precise influence of market and institutional influences on the changing prices.[16]

Country-specific studies of changes in wage inequality over time periods in which institutional arrangements are changing can offer reasonably convincing, if statistically imprecise, evidence of the influence of industrial relations institutions on pay dispersion. Sweden, New Zealand, and Norway provide interesting histories in this regard. Sweden developed centralized bargaining by labor and employer federations in the mid-1950s, but moved to more decentralized arrangements in 1984. In a

[14] Nor do the two literatures offer identical predictions about the consequences of decentralized bargaining. While the hump-shaped hypothesis associates decentralized bargaining with favorable macroeconomic outcomes, the synchronization hypothesis predicts unfavorable unemployment experience.

[15] The move to centralized bargaining in Sweden in the mid-1950s occurred because both the employer federation and the union federation wished to restrain the bargaining power of the metalworkers union, albeit for different reasons. Formal efforts to expand union utility functions to include pay dispersion in addition to real wages and employment focus on workers' desire for income insurance (Jonas Agell and Kjell-Erik Lommerud 1992).

[16] The challenge of relating skill dispersion to pay dispersion is not helped by recent OECD findings that schooling is a poor proxy for literacy and perhaps other dimensions of skill (OECD 1995b).

striking correspondence, wage dispersions narrowed dramatically in the former period and widened following 1984. While there is evidence that changes in the relative demand and supply of schooling may account for much of the change in the distribution of white-collar wages during these periods (Per-Anders Edin and Bertil Holmlund 1995), the implementation and (post-1984) relaxation of a "solidarity wage policy" by the blue-collar labor federation appears to be an important influence on changing blue-collar wage dispersion. The decentralization of collective bargaining in New Zealand following legislative changes in 1991 (Tim Maloney and John Savage 1996) was also accompanied by increasing pay dispersion. Increasing inequality preceded the legal changes, however, and the exact contribution of changing labor market institutions to growing dispersion remains uncertain (Sylvia Dixon 1998).

In Norway, similar increases in the demand for skilled labor were accompanied by *increased centralization* of bargaining in the late 1980s (in contrast to institutional developments in Sweden). The Norwegian pay structure narrowed as the centralized bargaining structure was reestablished in Norway, and as pay dispersions widened in Sweden with the decentralization of bargaining (Kahn 1998).

Given that country-specific evidence indicates that bargaining level influences wage inequality, what is the re lationship between inequality and growth? To the extent that institutional influence narrows skill differentials, the consequent disincentives to invest in human capital should retard growth. To the extent that reduced pay dispersion reflects the implementation of "equal pay for equal work" policies (elimination of inter-plant and inter-industry wage differentials for a given skill), however, productivity growth may be enhanced. When plant-level productivity varies with the age of a plant's capital stock, a centralized bargaining system that implements a uniform job wage at all workplaces will raise productivity growth by accelerating job destruction in relatively inefficient plants and job creation in new, efficient plants. When wages vary with plant efficiency (e.g., under decentralized bargaining), this process is attenuated, leaving an older capital stock and slower productivity growth (Karl Moene and Michael Wallerstein 1997).

Recent evidence for Sweden supports both of these mechanisms. The original "solidarity wage policy" of Swedish unions sought equal pay for equal work by reducing pay differentials between industries and firms for workers doing the same job. Beginning in the late 1960s, however, the implementation of the policy evolved into a compression of differentials by gender, age, and skill. A recent study of Swedish productivity indicates that after controlling for other influences, the "equal pay for equal work" phase of the solidarity wage policy was associated with higher productivity, while the later "equal pay for unequal work" phase of the policy reduced productivity (Douglas Hibbs and Håken Locking 1995).

4. *Specification and Measurement Issues*

A singular feature of the empirical literature reviewed in section 3 is the *fragility* of empirical relationships between collective bargaining systems and economic performance (excepting wage inequality). If the empirical results can be taken at face value, whatever relationship may have existed between institutional structure and macroeconomic outcomes in the late 1970s and early 1980s disappeared by the 1990s. This section and the next discuss

methodological issues that influence the interpretation of the empirical analyses.

4.1 *Specification Issues*

Many of the efforts to find empirical links between institutional structure and macroeconomic outcomes omit key explanatory variables. There is a large literature on the determinants of inflation, unemployment and other measures of macroeconomic performance that fails to test for the influence of labor market institutions. The design of many empirical studies reviewed in section 3 implies the opposite extreme—that macroeconomic performance depends only on institutional structure. Convincing investigations of the effect of institutions on inflation and unemployment require controls for the aggregate demand and supply balance or measures of the government's policy stance. As the Scandinavian models of trade union behavior discussed earlier imply, the government policy stance may be correlated with institutional structure and behavior.

A second specification error is the confusion of bargaining structure with union span of control in product markets. The theory quite clearly predicts that institutional impact should vary with the scope of international trade and the nonunion sector. In contrast, the structure of empirical tests assumes a sample of closed and fully unionized economies, a dubious characterization of many countries even in the early 1980s. With the actual variability of openness and the scope of the nonunion sector across the sample countries, it is difficult to know what to make of the reported correlations. The failure of empirical studies to account for growth of trade and nonunion work in many countries since 1980 may account for the failure to identify properly-measured relationships that may exist.

4.2 *Measurement of Institutional Structure*

Union Membership. Union density, the ratio of union members to employed wage and salary workers, is probably the most commonly used measure of union strength in empirical work.[17] It is variously used as an indicator of (a) the scope of union influence and (b) union bargaining power, but it is an inadequate measure of either concept.

The distinction between union membership and union coverage drawn in section 2 indicates one reason why density is an unreliable measure of union scope. Even in countries where legal extension of collective bargaining coverage does not exist, however, union influence will less visibly exceed union membership to the extent that some nonunion employers adopt wages, benefits and perhaps other features of union contracts in an effort to convince their employees that unions have little to offer. Such "threat effects" of unions on nonunion employers who wish to avoid the transactions costs of dealing with unions are believed to be particularly important in North America (Pencavel 1991, pp. 172–80).

Even if union density measured the scope of union influence accurately, it would not be a reliable guide to union wage pressure. Micro studies show a wide dispersion of union relative wage effects by industry and occupation (H. Gregg Lewis 1986). There has been no significant research effort directed at explaining this dispersion, but it is surely related to variations in bargaining power attributable to such factors as

[17] Sources for union membership data include household surveys, establishment surveys, and the internal records of labor unions. For a thorough review of the many problems of enumerating the number of union members and a discussion of general conventions, see OECD 1991.

different elasticities of labor demand, different forms of employer organization, and different degrees of government protection in different industries and occupations.

As measures of the economic strength of labor organizations, union density and coverage rates share the interpretive problem confronting concentration ratios as measures of industry power—they do not capture the economic determinants of market power. For some countries (e.g., Canada, New Zealand, the United Kingdom, and the United States), union bargaining power may be constrained by a significant nonunion sector in which pay and benefits tend to be determined by market forces. In countries with a significant external sector, world prices tend to provide a similar constraint. The wage pressure associated with a given union density rate may depend on the distribution of membership between the exposed (export) and sheltered (domestic) sectors of the economy. Crouch (1990) offers the hypothesis that labor movements dominated by exposed-sector unions produce less wage pressure, for example. More generally, union wage effects depend on the number of competitors in the relevant product markets (Mark Stewart 1990).

In conclusion, the factors that determine the actual bargaining power associated with a given degree of union representation vary sufficiently across countries that union density rates (or related substitutes like coverage rates) provide an unreliable guide to institutional wage pressure.

Bargaining Structure and Coordination. Although the key theoretical arguments about the relationship between macroeconomic performance and bargaining structure or coordination pertain to the effects of centralized, intermediate, and decentralized bargaining, the usual empirical practice is to rank 15–18 industrialized countries by their degree of bargaining centralization and include the rank of a country as the independent variable representing institutional structure. This procedure not only raises the disputes about ranking noted in section 3, but also imposes the unwarranted assumption that equal differences in ranking denote equal differences in structure.[18]

On the other hand, countries cannot be neatly categorized into centralized, intermediate (industry-level), and decentralized bargaining arrangements, as implied by the theoretical arguments. In fact, as centralized bargaining is often more form than substance, the practical issue is: "At how many levels will collective bargaining occur?" In centralized bargaining systems, intermediate (industry) and/or local (company or plant) bargaining typically develops over the "implementation" of the central agreement. Local bargaining can also develop in industry-level bargaining arrangements. The lower bargaining tiers rarely restrict themselves to mechanically distributing centrally-determined increases. They also exercise their bargaining power to raise wages above centrally-determined levels.

The multiple tiers of bargaining, along with the ability of individual companies to pay more than is required by the central frame agreement[19] result in

[18] After observing that the widely used Calmfors and Driffil ranking assigns the same ranking distance between Canada and the United States (1 and 2) and France and New Zealand (7 and 8), one economist inquired "In what sense is this meaningful when the collective bargaining systems of France and New Zealand are so fundamentally dissimilar while those of the U.S. and Canada overlap so much?" (Pencavel 1999).

[19] To the extent that central agreements are set to permit the survival of less efficient enterprises, more efficient companies may be willing to pay higher wages to attract higher quality workers or to pursue efficiency wage policies.

a phenomenon that is virtually unknown in countries with decentralized wage determination—wage drift. Wage drift is the difference between actual earnings increases and the increases required by (central) collective bargaining agreements. Wage drift is far from trivial in centralized bargaining systems, ranging from 30 to 60 percent of total earnings increases in Scandinavian countries, for example (Flanagan 1990). For much of the postwar period, there has been a largely unresolved debate over whether wage drift predominantly reflects the influence of market forces or local bargaining. Empirically, drift is highly correlated with job vacancies, unemployment, and other measures of labor market pressure, and some employers pay more than contractual wages in response to market pressures. On the other hand, wage drift has also been analyzed successfully within the framework of bargaining models, although the independent variables frequently overlap those used in market-based analyses (Steiner Holden 1990).

Whatever the exact sources of wage drift, to the extent that lower levels of the union structure and/or employers are opposed to either the pay increases or pay structures established in central negotiations, wage drift provides a way to offset the objectives of central negotiators. On the other hand, if central negotiators accurately anticipate future wage drift, the "official" negotiations may dominate aggregate wage behavior. The extent to which central negotiators can anticipate future wage drift in official negotiations then becomes crucial for assessing the superiority of centralized bargaining for macroeconomic outcomes.

Analyses of Scandinavian data dominate the empirical work on interactions between wage drift and negotiated wages in centralized bargaining structures. An analysis of a very detailed micro data set for Sweden found that wage drift was accurately anticipated by central negotiators, so that wage inflation was driven by the central negotiating process (Hibbs and Locking 1996). This study also found that the growth of both negotiated wages and wage drift were influenced by the efforts of central negotiators to implement pay compression policies. The egalitarian objectives of central union federations were at war with their wage restraint objectives. A study of the Swedish wood industry found a somewhat weaker role for central negotiations in that wage drift compensated incompletely for contractual wage increases (Holmlund and Per Skedinger 1990) and an analysis of Norwegian data found drift relatively unresponsive to variations in centralized wage increases (Holden 1990). In short, the evidence to date indicates that (1) lower tiers of bargaining may weaken but do not completely offset the ability of central federations to influence overall wage growth, and (2) the pursuit of egalitarian objectives may undermine macroeconomic objectives.

A more subtle and frequently overlooked issue concerns the effect of bargaining level on the scope of collective bargaining agreements. Central agreements tend to be skimpy. When bargainers must negotiate a set of issues that are common to all covered places of employment, work rules, safety, technical change, and other issues that tend to be unique to individual workplaces are unlikely to receive much attention. This too explains the presence of multiple levels of bargaining in purportedly centralized systems. Lower levels of bargaining emerge not only to implement (and possibly add to) the wage provisions of a frame agreement, but also to address pressing issues on which the central agreement is mute. To the

extent that these issues involve flexibility of assignment and other factors influencing productivity, the overall effect on labor costs may not be superior under centralized bargaining. Works councils may also address plant-level issues ignored by union contracts.

In conclusion, the importance of multiple levels of bargaining that emerge in apparently centralized bargaining systems is that the lower levels of bargaining are unlikely to internalize the externalities of their actions—the key benefit claimed for centralized bargaining. While local unions or works councils often lack the right to support their demands with work stoppages, central federations of unions and employers nonetheless have no effective way of requiring such internalization. In practice, therefore, this argument for the superiority of centralized systems is significantly weakened, unless central negotiators accurately anticipate the amount of wage drift.

4.3 *Measures of Corporatism*

Early corporatist ideas were developed to explore interactions between interest groups and governments rather than to examine how interest groups might permanently alter the economic processes determining inflation and unemployment. Early corporatist "theory" therefore failed to provide any secure guide to the measurement of institutional influence on macroeconomic outcomes and was none too precise in the guidance offered political scientists: Arend Lijphart and Markus Crepaz (1991, p. 238) identify twelve corporatism indexes that emerged between 1976 and 1986 and which purport to summarize characteristics of collective bargaining and political institutions existing at various times between the 1950s and the 1970s.

The measures of corporatism have been constructed from a bewildering array of individual variables that are believed to bear some relationship to the general dimensions of corporatism reviewed in section 3. Corporatism indexes are constructed by aggregating information on bargaining structure, the centralization of authority within the labor movement, concentration of union and employer organizations, union membership, dispute settlement procedures, union density, etc. in varying combinations and with different weights.[20] In all of these efforts, the institutional features of unions generally receive more attention than the features of employers.

Differences in construction notwithstanding, the various corporatism indexes are highly correlated. Correlation coefficients between the most commonly adopted indexes range from .7 to .9 (Coen Teulings and Joop Hartog 1998, Table 1.1; OECD 1997, Table 3.3). As a practical matter, the various measures of corporatism generally agree on the identity of countries at the extremes of the measures. Austria and the Scandinavian countries rank high, while Canada, the United States, and the United Kingdom rank low on virtually all formulations of corporatism. The disagreement over rankings are for some countries in the middle range, notably Japan, Switzerland, and the Netherlands.

If differently constructed measures of corporatism are so highly correlated, what are the key institutional features producing the macroeconomic outcomes postulated by the corporatist hypothesis? The focus on a single aggregated measure may obscure the exact

[20] For a discussion of the nuances of different corporatism indexes, see Teulings and Hartog (1998, chap. 1). Following a different strategy Golden, Peter Lange, and Wallerstein (1997) have constructed a valuable international data base with time series of several characteristics of industrial relations systems.

effect of common institutional features producing the correlation and at the same time may suggest an influence on economic outcomes for some elements of the index that have no influence at all. In this view, correlations with an aggregate index are less informative than identifying how specific institutional features embedded in the index relate to macroeconomic performance. This is the approach taken in most economic research, which isolated one theoretically tractable element of corporatism indexes, bargaining structure, for systematic investigation.

Alternatively, the correlations between the various indexes may reflect underlying social norms. Where cooperative norms exist, they produce institutions that will support cooperation, although the exact list of institutions may vary from country to country. In this view, the various institutions that comprise corporatism indexes are merely symptoms of an underlying predisposition toward cooperation, a topic explored more fully in the next section.

5. *Endogeneity of Industrial Relations Institutions*

Most theoretical and empirical analyses of links between industrial relations institutions and macroeconomic performance assume that the institutions are exogenous and unchanged over time. These assumptions are implicit in a tendency to relate economic outcomes to institutional structures measured in earlier periods and an infrequent use of time series data to test hypotheses.

In fact, there have been significant changes in collective bargaining institutions in industrialized countries over the past 15–20 years (see Table 1). Union density rates have declined outside of Canada and the Scandinavian countries since 1980. For most other countries, the decline was between five and ten percentage points, but quite dramatic declines occurred in the United Kingdom, (where the density rate declined from 50 percent in 1980 to 34 percent in 1994) and in New Zealand (where unionization dropped from 56 to 30 percent over the same period). Union coverage rates changed much less.

Decentralization of many bargaining structures constitutes a second notable change (Katz 1993; Hartog and Theeuwes 1993; Iversen and Pontusson 1998). Decentralization occurred at both extremes of bargaining structures, as some Scandinavian countries abandoned official centralized bargaining arrangements, and some industry-wide and other multi-employer arrangements in the United States and elsewhere gave way to additional company- and plant-level bargaining. The longstanding arbitration arrangements in New Zealand gave way to a system of individual employment contracts in 1991. Even when official bargaining structures appeared to remain in place, as in Germany, employer participation in industry-wide bargaining arrangements declined (Thelen 1998). The decentralization of bargaining has been supplemented in countries such as New Zealand, the United Kingdom, and the United States by the growth in nonunion employment noted in the previous paragraph.

The fact that collective bargaining institutions are not frozen over time has several consequences for studies of the relationship between these institutions and macroeconomic performance. In fact, many cross-section studies adopt a rather casual approach to matching the time periods in which the dependent and independent variables are measured. Gaps of 10–20 years between the measurements of macroeconomic performance and collective bargaining institutions can introduce serious

measurement error, given the recent environment of institutional change.

Whether there are further consequences to the institutional change recorded in Table 1 depends on whether the changes can be viewed as exogenous or endogenous. Studies that take advantage of time-series variation in the data may take advantage of more degrees of freedom than are available to cross-country studies. If recent changes in collective bargaining institutions can be viewed as exogenous, time-series studies should confirm cross-section results unless the latter have been misspecified. If the institutional changes are endogenous, the results are subject to simultaneous equations bias.

The exact reasons for these institutional changes remain the subject of some professional debate, but the main forces are clear enough. To retain power, a union must be able to coordinate wage and employment policy over the relevant product market (Melvin Reder and Ulman 1993). Economic, political, and legal developments that limit their span of control over the product market effectively reduce their power. Some losses of union power have resulted from largely exogenous forces, such as the broadening of product markets via economic integration and other reductions in trade barriers. With increased competition from outside the domain of traditional collective bargaining agreements, broad bargaining structures no longer took labor costs out of competition, and companies sought unique plant-level solutions to new competitive threats.

Other changes may be interpreted as reactions against the adverse economic consequences of institutional frameworks for wage determination, however. Notable among these changes are the removal of either direct government protections of union power (by changing the legal framework of collective bargaining as in New Zealand and the United Kingdom) or indirect protections (by deregulating industries with competitive market structures). In Sweden and to some extent Germany, employers have instigated institutional changes as old arrangements delivered inefficient cost levels or structures. The key point is that the failure of some institutional arrangements to deliver acceptable economic performance contributed to a search for alternative structures. It is revealing that in the current economic environment, relatively centralized bargaining structures appear to be associated with relatively high transactions costs.[21] Since all studies treat institutions as exogenous, one cannot rule out simultaneous equations bias.

A far more provocative question is how country variations in institutional structure, like those reported in Table 1, arise in the first place. A tendency to view such variations as the outcomes of historical accidents has produced little research on this question. But if collective bargaining institutions simply mirror underlying social norms, there is no normative role for this line of research. Empirical relationships between institutions and outcomes are artifacts of underlying social norms, which are unlikely to be viable policy targets.

In a rare effort to link industrial relations institutions back to fundamental social norms, Coen Teulings and Joop Hartog (1998, chap. 3) relate two indexes of corporatism (those used by Bruno and Sachs and by Calmfors and Driffill) to indexes of social norms developed by Hofstede (1980). Hofstede identified four dimensions of cultural variation from survey responses from

[21] Developments in Norway constitute a rare exception (Kahn 1998).

individuals in fifty countries: masculinity, power distance, individualism, and uncertainty avoidance.[22] Looking across countries, Hartog and Teulings find evidence that the corporatism rankings tend to be inversely related to masculinity and power distance. That is, corporatist arrangements are more likely to be found in societies in which equality and quality of life are valued highly. This is consistent with the one robust empirical correlation in this literature—between centralized bargaining and pay equality. The links between these norms and macroeconomic performance measures are less obvious.

To date, the literature on changing collective bargaining institutions and on the influence of institutional structure on macroeconomic performance have proceeded on separate tracks. The fact that collective bargaining institutions have been changing can introduce sufficient measurement error into studies that assume that institutions are frozen to produce the appearance of fragile relationships between institutions and outcomes when in fact the relationships still exist. A more fundamental question is why the institutional features of collective bargaining are changing in the first place and in particular whether the changes reflect the accumulated transactions costs of prior institutions in a new economic environment or changes in underlying social norms.

6. *Research and Policy Implications*

This essay has reviewed the theoretical and empirical issues that arise in attempting to determine whether collective bargaining institutions influence macroeconomic performance. Taken at face value, evidence developed over the past fifteen years indicates that a relationship between structure and performance probably existed in the late 1970s and early 1980s, but that relationship had disappeared by the 1990s and may not have existed in the 1960s. It is instructive to consider how future research might clarify and explain any trends in institutional influence that may exist.

The corporatist tradition rests on the assertion that interactions between labor market and government institutions influence macroeconomic performance, but the literature contains too little theory to provide a reliable guide to measurement.[23] A rehabilitation of the corporatist approach requires specific hypotheses about the nature and outcomes of such interactions based on specific institutional objective functions. Some contrasts may illustrate the additional clarity this research direction might produce. A frequent corporatist theme holds that union wage restraint is more likely in economies with centralized bargaining and left-wing governments, because the latter are more likely to deliver policy outcomes preferred by labor (Crouch 1990; Garrett 1998; Paloheimo 1990). Yet, the explicit modeling of the interaction of centralized bargaining with an accommodative fiscal policy (reviewed in section 3) predicts higher, not lower, real wages. Clearly, the exact nature and consequences of government policy concessions must be modeled before the macroeconomic effects can be deduced, and the fiscal policy example cautions that governments may have few, if any, free lunches to trade for wage restraint.

[22] According to Hofstede, masculine societies put a relatively strong value on achievement over social relations and the quality of life; power distance measures tolerance for inequality in society; individualism measures a preference for individual over collective activity; and uncertainty avoidance measures tolerance for risk.

[23] As a result, the corporatist literature provides no guide to interpreting the changing relationship between institutional structure and economic outcomes.

Shifting to a different government institution, the corporatist literature has at times included assertions that the combined announcement of restrictive monetary policy by a central bank and moderate wage growth by a central labor federation lower inflationary expectations below those in decentralized collective bargaining systems (Tarantelli 1986). A more recent contribution reasons that an independent central bank will only achieve low inflation and unemployment in economies with centralized bargaining. Central negotiators know that their decisions can influence the price level and hence central bank action. In decentralized bargaining systems, central bank threats will be less likely to produce wage restraint, because individual unions are caught in a prisoner's dilemma (Hall and Franzese 1998).[24] More testable formulations of the corporatist hypothesis should postulate complementarities between collective bargaining institutions and both monetary and fiscal policy institutions.

In contrast to the corporatist literature, the bargaining structure literature provides an increasingly clear guide to measurement, but the guidance has not been followed. In particular, the theory stresses that the effects of bargaining structure depend on the importance of foreign trade or nonunion activity in an economy, and therefore points empirical research toward exploring the effect of complementarities between the economic environment and institutional structure on macroeconomic outcomes, rather than the past focus on the effect of individual institutions. Research that follows this guidance may also elucidate the apparent changing relationship between collective bargaining institutions and economic outcomes, given the growing importance of international trade and nonunion work in most industrial economies.

In short, this review finds that predictions about the relationship between institutional structure and macroeconomic outcomes are far more conditional than most studies acknowledge, and further progress requires a research approach with targeted hypotheses addressing specific complementarities. Greater exploitation of the institutional variation available from time-series variation in the data presented by distinctive changes in labor market institutions in several countries during the period under review also seems desirable.

Many indicators of institutional structure used in the empirical research do not measure the concepts stressed by theory. Union density captures neither the scope nor the intensity of union influence and union coverage does not capture bargaining power. Indexes of corporatism obscure more information than they reveal, and should be supplanted by explicit modeling of and tests for institutional interactions.[25] Finally, given the many ambiguities in measures of bargaining centralization (and the weight of the empirical evidence), measures of bargaining coordination seem preferable to measures of bargaining level.

Most research reviewed above has been cautious about drawing policy implications, given that some of the most durable and productive institutional arrangements seem to have emerged from rather special historical circumstances, and some of the most notable effects on economic performance appear to result from the interdependence of rather

[24] Although the authors stress centralization of bargaining, the hypothesis in fact requires coordinated bargaining. The discussion in section 4 is relevant.

[25] It is revealing that the more precise specifications of interactions between collective bargaining and government institutions use few if any of the elements used to construct indexes of corporatism.

distinctive national institutions. (Austria provides an example.) To the extent that national institutions reflect underlying norms of behavior, efforts to transplant institutions to countries with different underlying norms seem unpromising. Nonetheless, experience in New Zealand, the United Kingdom, and continental Europe indicates that changes in the legal environment can produce changes in bargaining arrangements. Viewing the literature as a whole, however, the stronger reasons for caution in the area of policy appear to be (1) the current uncertainty about the effects of most bargaining institutions on most outcomes other than pay dispersion, and (2) the prospect that particular combinations of institutions may be more important than individual arrangements.

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