

**IMF WORKING PAPER**

©1990 International Monetary Fund

This is a working paper and the author would welcome any comments on the present text. Citations should refer to an unpublished manuscript, mentioning the author and the date of issuance by the International Monetary Fund. The views expressed are those of the author and do not necessarily represent those of the Fund.

WP/90/93

INTERNATIONAL MONETARY FUND

European Department

Industrial Relations and Macroeconomic Performance:  
An Application to Spain

Prepared by Fabrizio Coricelli\*

Authorized for Distribution by Erich Spitaller

October 1990

Abstract

The paper analyzes the macroeconomic implications of different systems of industrial relations. After reviewing the relevant literature, and analyzing cross-country evidence, the paper focuses on the experience of centralized bargaining characterizing Spain in the period 1979-86. The paper argues, in accordance with the literature and the cross-country evidence, that the centralization of bargaining yielded positive macroeconomic effects in Spain, and thus that the shift toward a more decentralized setting after 1987 carries several risks. This conclusion is based on an empirical analysis of the wage setting process and of the evolution of labor shares in income.

JEL Classification Numbers:

122, 134, 832

---

The author is an economist at the World Bank; the paper was written while he was an economist in the European Department of the International Monetary Fund. The author greatly benefited from suggestions and comments from Erich Spitaller. Comments by David Coe, Lorenzo Figliuoli, Michel Galy, Cesar Molinas and Gonzalo Pastor are gratefully acknowledged. Juan Dolado, of the Central Bank of Spain, kindly provided most of the data used in the regressions. The author is solely responsible for any remaining errors.

|      | <u>Contents</u>   | <u>Page</u> |
|------|---|-------------|
| I.   | Introduction  | 1           |
| II.  | Bargaining Structure and Macroeconomic Performance: A<br>Brief Review of the Theories and of Cross-Country Evidence | 2           |
| III. | A Brief History of Social Agreements in Spain in the 1980s  | 7           |
| IV   | Trends in Wages, Labor Costs and Income Distribution in<br>Spain in the 1980s                                       | 11          |
|      | 1. Evidence from estimation of wage and price equations   | 13          |
|      | 2. Evidence from the evolution of labor shares  | 18          |
|      | 3. Households income distribution   | 19          |

Tables

|     |   |    |
|-----|---|----|
| 1.  | Neocorporatism and Centralization of Bargaining Indices | 4  |
| 2.  | Cross-Country Variation in "Okun Misery" Indices        | 6  |
| 3.  | Changes in Total Factor Productivity                    | 8  |
| 4.  | Social Agreements in Spain in the Period 1977-88        | 10 |
| 5.  | Intra-Industry Wage Variability                         | 12 |
| 5b. | Wages and Salaries by Skills: Survey on Large Companies | 12 |
| 6.  | Wage Equations--Single Equation Estimations             | 14 |
| 7.  | Wage and Price Equations, 1966-87                       | 15 |
| 8.  | NAIRU and Actual Unemployment Rate                      | 18 |
| 9.  | Evolution of the Labor Share in Total Income, 1965-87   | 20 |
| 10. | The Degree of Neocorporatism                            | 22 |
| 11. | Construction of the Index of Centralization             | 24 |

Appendices

|     |   |    |
|-----|---|----|
| I.  | Neocorporatism Index  | 21 |
| II. | Methodology for the Index of Centralization of<br>Wage Bargaining | 23 |

Charts

|    |   |     |
|----|---|-----|
| 1. | Phillips Curve, 1970-88                     | 6a  |
| 2. | Labor Costs and Labor Share in GDP, 1965-87 | 12a |
| 3. | Labor Conflicts, 1977-88                    | 12b |
| 4. | Total Factor Productivity, 1965-87          | 14a |
| 5. | Lorenz Curve                                | 20a |

Figures

|    |   |     |
|----|---|-----|
| 1. | Supply Shocks, Union Pressure and the NAIRU | 14b |
|----|---|-----|

Summary

This paper examines whether the actual macroeconomic performance of Spain during the past decade is consistent with the theoretical findings of the industrial relations literature. It assesses, with the help of wage setting equations and labor share dynamics, among other considerations, whether the shift to "concertación social" (a broad consensus and centralized decision making among social and political forces) exerted an independent role in shaping macroeconomic performance during 1979-86.

The paper concludes that concertación social did produce beneficial macroeconomic effects, without introducing structural rigidities at significant microeconomic cost. This favorable macroeconomic assessment is qualified by taking equity considerations into account. Specifically, the period of concertación social witnessed both a redistribution of income from labor to profits, important though this may have been to the revival and strength of investment, and a sharp increase in the inequality of the distribution of income across households. The latter, by creating widespread perception of inequality, may have contributed to the "crisis" of the concertación social. Cooperative behavior can be maintained only if all parties agree on its benefits. Without such a consensus, a centralized bargaining system does not guarantee desirable macroeconomic effects as it cannot enforce cooperative behavior.



## I. Introduction

After a decade of broad consensus and centralized decision-making among social and political forces, the so-called "concertación social", Spain is experiencing a deterioration in industrial relations. The end of "concertación social" in 1987 introduced a new tendency pointing to a more decentralized process. If borne out, this tendency can be considered an important structural change which will likely affect the medium-term trends of industrial relations, including wage setting and employment. After two years in which the Government seemed to favor the shift to a more decentralized setting--apparently concerned about the risks of wage-price spirals which could undermine the competitiveness of the Spanish economy--the Government is currently attempting to reinstate a centralized, tripartite system of bargaining involving trade unions, industrial federations and the Government. However, this proposal has been, for the moment, rejected by the unions.

A growing body of literature has stressed the links between the functioning of industrial relations and macroeconomic performance. The main proposition of that literature is that centralized wage bargaining tends to be associated with better macroeconomic performance than decentralized bargaining; and that the relatively least favorable performance arises from "intermediate" bargaining structures. In particular, while a reduction in inflation in the course of the 1980s has been common to all countries under review, the increase in the rate of unemployment has been markedly more pronounced in the noncentralized countries, with the "intermediate" economies exhibiting the worst record. Accordingly, it is in the apparent drawbacks of the intermediate stage of industrial relations that one could find the main "lesson" for Spain. Since, as Spain moves from "concertación social" to more decentralized settings, it will inhabit for a while the intermediate stage of bargaining with its peculiar risks.

In Section 2 we briefly review the recent literature on the relation between bargaining processes and macroeconomic performance and analyze cross-country evidence; in section 3 we describe the centralized agreements achieved in Spain in the last decade. In Section 4, we analyze the impact of "concertación social" on wage setting, and its implications for the behavior of inflation, unemployment and income distribution. The analysis of this section is based on an econometric estimation of a bargaining model of the Phillips curve, and is extended to the estimation of the evolution of labor shares on income. Finally, we present some information on the change in income distribution from a standard "Lorenz curve" perspective.

## II. Bargaining Structure and Macroeconomic Performance: A Brief Review of the Theories and of Cross-Country Evidence

---

Interest in the interconnections of the labor market, industrial relations and macroeconomic performance has grown rapidly in recent years, stimulated by sharply different unemployment records across countries during the 1980s. The importance given to institutional settings has been associated with the so-called "neocorporatist" approach, which points to the benefits from a cooperative solution to the bargaining process conducted in a centralized setting (see Tarantelli (1986), Bruno and Sachs (1985), Bean, Layard and Nickell (1986), Modigliani and Tarantelli (1977)). This approach is based on the idea that advanced societies, in which interests are organized in oligopolistic structures, face a "prisoner dilemma" type of situation. If the social parties were to maximize their own particular interest, the outcome at the macroeconomic level would likely be worse than the outcome that could be achieved through a cooperative approach. Indeed, without centralized coordination the parties would not recognize the overall implications of their actions. This view has received some support in recent theories--associated with the so-called New Keynesian approach--which point to the presence of externalities in the decentralized process of wage and price setting. The market mechanism, in the presence of even marginal deviations from the perfectly competitive world, does not guarantee individual behavior consistent with the best macroeconomic outcome. In the context of wage setting, uncoordinated behavior will be affected by "free rider" problems, as individuals will try to improve their relative positions assuming that their choices will not affect the aggregate outcomes. Small local unions will impose high wages on the assumption that there would be no effect on aggregate inflation, and thus in so doing they will improve their real wage, together with their relative wage. As all local unions will do the same, there will be a macroeconomic impact, resulting in higher inflation (Tarantelli, 1986). Neocorporatist systems will avoid this "free rider" problem, setting wages at the central level consistent with macroeconomic constraints. The wage stability coming from these arrangements is seen by Tarantelli as a "public good". Unions, however, will tend to trade this public good in exchange for "political" goods that the government can provide, mainly social expenditures. Neocorporatist systems, therefore, imply the provision of large quantities of these political goods. Moreover, unions will consider wage stability as a public good only if they accept the structure of income distribution as equitable.

Recently, however, the neocorporatist approach has come under criticism, especially in connection with good performance in the field of unemployment in countries with highly decentralized bargaining systems, like the United States (see Calmfors and Driffill (1988)). Without denying some of the findings of the neocorporatist approach, critics stress that decentralized systems can be conducive to outcomes as good as those of highly centralized systems. This suggests a nonlinear relation, specifically an "hump-shaped" relation, between the degree of

centralization of the bargaining process and macroeconomic outcomes, identifying intermediate bargaining arrangements as the worst of institutional settings. The main idea here is that organized interests are most harmful when they are sufficiently large to impose monopolistic behavior, but insufficiently large to acknowledge the macroeconomic implications of individual, or group, behavior (see Olson (1982)). 1/

The assessment of the relative performance of centralized versus decentralized systems remains largely unresolved, the main conclusion pointing simply to the drawbacks of intermediate systems, characterized by so-called "fragmented" bargaining structures. As we will show next, however, data over the last two decades actually support more the neocorporatist view than that of Calmfors and Driffill, suggesting that those elements characterizing a neocorporatist system, besides the degree of centralization, play a fundamental role. 2/

In the empirical analysis of the literature, countries are grouped according to two alternative criteria, one is the degree of neocorporatism (Tarantelli (1986)), the other the degree of centralization of the bargaining structure (Calmfors and Driffill (1988)); the corresponding classification methods are hence reported in Appendices I and II. The macroeconomic performance index is based on the so-called "Okun misery index", given by the sum of the inflation and unemployment rates. Table 1 confronts the degrees of neocorporatism and centralization with the Okun index over the last 20 years for a group of 16 industrial

---

1/ In a model with several industries producing imperfectly substitutable goods, and with a large number of firms in each industry, Calmfors and Driffill show that wage setting will depend crucially on the degree of centralization of the bargaining process. If unions bargain at the firm level they realize that firms cannot accommodate, by raising output prices, demands for higher wages. Firms are indeed price takers within the industry. On the other side, if unions bargain at the national level they realize that wage increases can be fully accommodated (in a closed economy) by an increase in the general price index, and thus changes in nominal wages will not translate in changes in real wages. Bargaining at an intermediate level, e.g. at the industry level, produces the worst outcome because the industry has some monopoly power in setting its price (as goods are imperfect substitutes across industries), and thus they can accommodate wage changes. As the number of firms in the economy is large, the increase in the price of one industry will not affect significantly the general price level. Consequently, unions perceive that increases in nominal wages will result in an increase in real wages. If all industry unions behave in the same way, the outcome will be higher prices and higher unemployment.

2/ Interestingly, we found that Tarantelli's index of neocorporatism is highly correlated with the index of political stability used to explain macroeconomic performances across countries in the recent political economy literature (Alesina 1989). The integration of the two approaches may be a fruitful area of research.

Table 1. Neocorporatism and Centralization of Bargaining Indices

|                          | Bargaining Structure |          | Unemployment |         |        | Inflation |         |        | Okun Index |         |        |
|--------------------------|----------------------|----------|--------------|---------|--------|-----------|---------|--------|------------|---------|--------|
|                          | NEOC 1/              | CENTR 2/ | 1970-79      | 1980-88 | Change | 1970-79   | 1980-88 | Change | 1970-79    | 1980-88 | Change |
| Sweden                   | 12.0                 | 5.0      | 2.1          | 2.6     | 0.5    | 8.6       | 8.1     | -0.5   | 10.6       | 10.7    | 0.1    |
| Finland                  | 10.0                 | 4.8      | 3.5          | 5.0     | 1.5    | 10.4      | 7.4     | -3.0   | 14.0       | 12.4    | -1.6   |
| Norway                   | 12.0                 | 5.0      | 1.6          | 2.5     | 0.9    | 8.4       | 8.8     | 0.4    | 9.9        | 11.2    | 1.3    |
| Germany                  | 14.0                 | 4.3      | 2.2          | 6.2     | 4.0    | 4.9       | 2.9     | -2.0   | 7.1        | 9.1     | 2.0    |
| Austria                  | 15.0                 | 6.0      | 1.3          | 3.1     | 1.8    | 6.1       | 4.0     | -2.1   | 7.4        | 7.1     | -0.3   |
| Japan                    | 13.0                 | 3.0      | 1.7          | 2.5     | 0.8    | 9.1       | 2.6     | -6.5   | 10.8       | 5.1     | -5.7   |
| Denmark                  | 12.0                 | 3.8      | 3.8          | 9.0     | 5.2    | 9.2       | 7.1     | -2.1   | 13.0       | 16.1    | 3.1    |
| Australia                | 10.0                 | 4.0      | 3.9          | 7.7     | 3.8    | 9.8       | 8.3     | -1.5   | 13.7       | 16.0    | 2.3    |
| New Zealand              | 8.0                  | 4.0      | 0.6          | 4.7     | 4.1    | 11.5      | 12.6    | 1.1    | 12.1       | 17.3    | 5.2    |
| Belgium                  | 9.0                  | 4.0      | 4.8          | 11.2    | 6.4    | 7.1       | 5.1     | -2.0   | 11.9       | 16.3    | 4.4    |
| Netherlands              | 10.0                 | 4.5      | 3.6          | 9.9     | 6.3    | 7.0       | 3.1     | -3.9   | 10.6       | 13.0    | 2.4    |
| Canada                   | 9.0                  | 2.0      | 6.7          | 9.5     | 2.8    | 7.4       | 6.7     | -0.7   | 14.1       | 16.2    | 2.1    |
| United Kingdom           | 5.0                  | 3.5      | 4.4          | 10.3    | 5.9    | 12.6      | 7.4     | -5.2   | 17.0       | 17.7    | 0.7    |
| United States            | 9.0                  | 2.0      | 6.1          | 7.4     | 1.3    | 7.1       | 5.6     | -1.5   | 13.2       | 13.0    | -0.2   |
| France                   | 7.0                  | 3.5      | 3.8          | 9.1     | 5.3    | 8.9       | 7.8     | -1.1   | 12.7       | 16.9    | 4.2    |
| Italy                    | 4.0                  | 3.5      | 6.3          | 10.1    | 3.8    | 12.5      | 11.8    | -0.7   | 18.8       | 21.8    | 3.0    |
| Average                  | ...                  | ...      | 3.5          | 6.9     | 3.4    | 8.8       | 6.8     | -2.0   | 12.31      | 13.74   | 1.44   |
| Standard deviation       | ...                  | ...      | 1.8          | 3.0     | 1.2    | 2.1       | 2.8     | 0.7    | 2.95       | 4.22    | 1.28   |
| Coefficient of variation | ...                  | ...      | 0.5          | 0.4     | -0.1   | 0.2       | 0.4     | 0.2    | 0.24       | 0.31    | 0.07   |

1/ Tarantelli's index of neocorporatism, see Appendix I.

2/ Index of centralization of Calmfors and Driffill, see Appendix II.

countries. 1/ Table 2 reports on the results of simple regressions of the Okun index on those degrees of neocorporatism and centralization. It can be seen that Tarantelli's index explains fairly well the differences in the Okun index across countries in both the 1970s and the 1980s. Alternatively, the "hump-shaped" theory of Calmfors and Driffill seems to have some empirical support, but its capability to explain variations in the Okun index appears much weaker than that of Tarantelli's index. As the countries at the bottom of the neocorporatist scale are actually most of those in the middle of the Calmfors and Driffill scale, both approaches indicate the poor performance of intermediate economies. According to the Calmfors and Driffill index, over the last two decades the economies with a centralized structure outperformed the other groups; the gap in performance widens during the 1980s; the notion of a "hump-shaped" relation is only partially confirmed, as decentralized economies performed significantly better than intermediate economies only in the 1980s. The 1980s, however, offer a better point of reference as there is more variation of behavior across groups. In the 1970s, despite significant differences in unemployment, the performance of the three groups appear broadly similar. During the 1980s, differences in the levels of the indices are more marked. Again, this is largely due to an asymmetric behavior of the unemployment rate, accompanied by a roughly convergent behavior of inflation rates. While the process of disinflation coincides with an increase in unemployment in all groups, the magnitude of the phenomenon is strikingly different across groups. The unemployment rate rises to extremely high levels especially in the intermediate group, which shows an unemployment rate more than five percentage points above that of the centralized economies. Three percentage points divide also the decentralized group from the centralized. We can thus conclude that the cost in terms of unemployment of "bringing down inflation" has been correspondingly severe for the intermediate and the decentralized economies (Chart 1). 2/

---

1/ In the literature there are several tests of the role of these institutional aspects in macroeconomic performance: Bruno and Sachs (1985), Heitger (1987), Bean, et al. (1986), and Newell and Symons (1987) to name a few.

2/ The analysis can be extended by considering elements that may qualify the information on the overall rate of unemployment, which represents the main source of asymmetric behavior among the three groups. Among the elements that can help establish the severity of a given level of unemployment, the share of long-term unemployed and the rate of youth unemployment appear to be particularly relevant. In this connection, information on the 1980s suggest that centralized economies are in a much more favorable position as regards the "quality" of unemployment. Both the share of long-term unemployed and the rate of youth unemployment are by far lower than in the two other groups. As to the relative position of intermediate and decentralized economies the two indicators point to conflicting results. While long-term unemployment appears a more serious problem for the intermediate economies, youth unemployment is considerably higher for the decentralized economies.

Table 2. Cross-Country Variation in "Okun Misery" Indices  
(Dependent variable in the regression: Okun misery index) 1/

|                                   | 1970-79         | 1980-88        | Change<br>(1980-88)-<br>(1970-79) |
|-----------------------------------|-----------------|----------------|-----------------------------------|
| <u>Independent variables</u>      |                 |                |                                   |
| <u>Tarantelli's approach</u>      |                 |                |                                   |
| Constant                          | 21.0<br>(16.0)  | 26.1<br>(13.3) | 5.1<br>(2.3)                      |
| NEOC <u>2/</u>                    | -0.9<br>(-6.9)  | -1.3<br>(-6.6) | -0.4<br>(-1.7)                    |
| R <sup>2</sup>                    | 0.77            | 0.76           | 0.18                              |
| D.W.                              | 1.7             | 2.1            | 1.96                              |
| <u>Calmfors-Driffill approach</u> |                 |                |                                   |
| Constant                          | 12.6<br>(4.5)   | 18.9<br>(5.7)  | 6.3<br>(3.1)                      |
| CENTR <u>3/</u>                   | -0.07<br>(-0.1) | -1.2<br>(-1.4) | -1.1<br>(-2.5)                    |
| R <sup>2</sup>                    | --              | 0.13           | 0.31                              |
| D.W.                              | 0.90            | 0.90           | 2.10                              |
| <u>Role of the EMS</u>            |                 |                |                                   |
| Constant                          | 21.6<br>(15.3)  | 25.0<br>(12.5) | 3.5<br>(1.7)                      |
| NEOC                              | -0.9<br>(-7.0)  | -1.2<br>(-6.6) | -0.3<br>(-1.6)                    |
| EMSD <u>4/</u>                    | -0.8<br>(-1.0)  | 1.7<br>(1.5)   | 2.5<br>(2.1)                      |
| R <sup>2</sup>                    | 0.80            | 0.80           | 0.40                              |
| D.W.                              | 1.70            | 2.10           | 1.90                              |

1/ T-statistics in brackets.

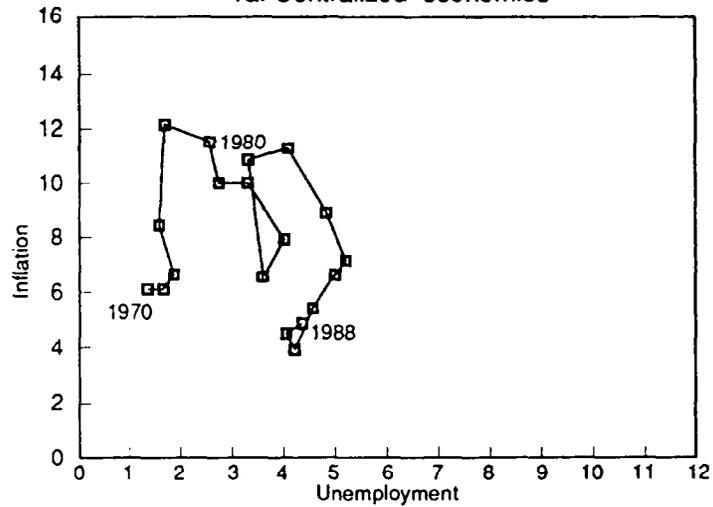
2/ NEOC = Index of neocorporatism (see Annex I).

3/ CENTR = Index of centralization of wage bargaining (see Annex II).

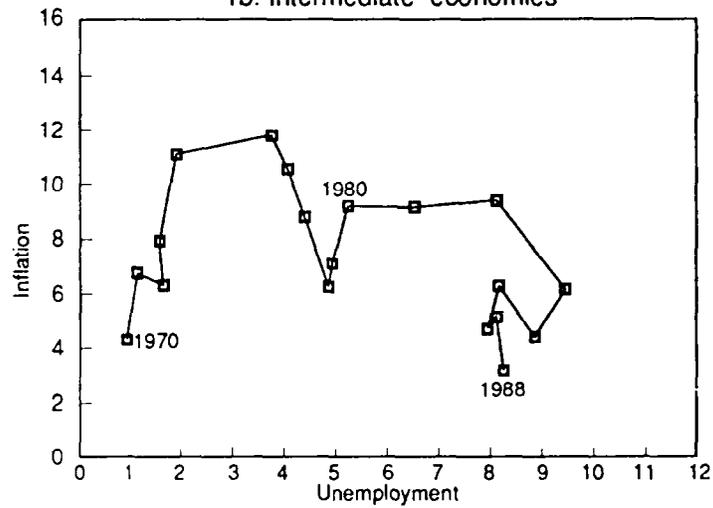
4/ EMSD = Dummy for EMS membership.

CHART 1  
PHILLIPS CURVE, 1970-88

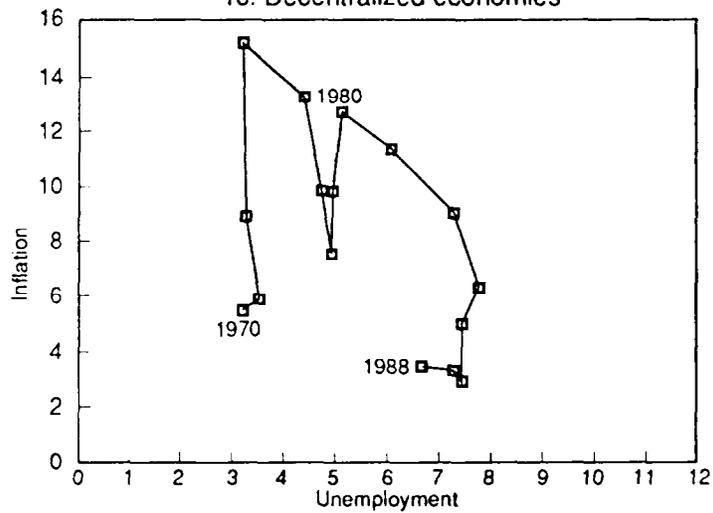
1a. Centralized economies



1b. Intermediate economies



1c. Decentralized economies





We also checked whether the participation in the EMS by 6 of the 16 countries in the sample could have affected the correlation between bargaining structures and Okun indices during the 1980s. Results of the third regression in Table 2 suggest, however, that the bargaining structure still remains a significant variable in explaining cross-country variation of the Okun index.

Despite this evidence one could object that neocorporatism imparts substantial microeconomic costs, which often more than compensate the positive macroeconomic effects. These microeconomic costs are believed to arise from a reduction of wage differentials across sectors in neocorporatist, and highly centralized, countries and from a negative impact on productivity growth. Table 3 gives very little support to those views. Accordingly, there does not seem to be any significant relation between neocorporatism and slow growth of productivity, measured here by total factor productivity (Englander and Mittelstädt (1988)). There is some evidence (Freeman (1988)) that high centralization of wage bargaining flattens the distribution of wages across sectors, although the correlation is very weak. One could argue that the microeconomic effects of such reduction in wage differentials are not large enough to eliminate the macroeconomic benefits of neocorporatism.

Summing up, the information gathered from a cross-country analysis, while suggestive, is far from conclusive. For one reason, cross country studies remain sensitive to small variations in country classification. In Calmfors and Driffill (Appendix II), classification appears arbitrary in some instances. For example, classifying France as "decentralized" is debatable, given the large share of the labor force employed in the public sector and the significance of officially set minimum wages; in the case of Germany a score of five could place it with the "centralized" economies, which would be consistent with Tarantelli's index in Appendix I. Further, no clear cut evidence exists for the hump-shaped relation between degree of centralization of the bargaining process and macroeconomic performance. However, the more traditional "neocorporatist" view holds up relatively better. Accordingly, the evidence presented here suggests caution in advocating decentralization of the bargaining process. Even if the theory of the hump-shaped relation were to be borne out, there would still be the problem of transition from a centralized to a decentralized system.

### III. A Brief History of Social Agreements in Spain in the 1980s

Spain is characterized by a relatively high degree of centralization of the organizations representing labor and employers. There are two main trade unions with approximately the same membership, the Socialist U.G.T. and the Communist C.C.O.O.. Union membership, at around 15 percent, is low compared with other European countries. Yet, through the system of worker delegates, elected by all workers, unions end up representing the large majority of workers, as about 80-85 percent of delegates belong to the two main unions. In addition, contracts signed

Table 3. Changes in Total Factor Productivity

|                         | 1960-73 | 1973-79 | 1979-86 |
|-------------------------|---------|---------|---------|
| Centralized economies   |         |         |         |
| Austria                 | 2.8     | 1.8     | 0.7     |
| Norway                  | 2.0     | 2.9     | 1.5     |
| Sweden                  | 1.4     | 0.8     | 0.1     |
| Denmark                 | 1.7     | 0.1     | 0.8     |
| Finland                 | 3.4     | 1.5     | 1.6     |
| Average                 | 2.3     | 1.4     | 0.9     |
| Intermediate economies  |         |         |         |
| Germany                 | 2.8     | 1.8     | 0.8     |
| Netherlands             | 3.1     | 1.1     | 0.4     |
| Belgium                 | 3.7     | 1.4     | 1.3     |
| New Zealand             | 0.6     | -2.5    | 0.6     |
| Australia               | 2.1     | 0.6     | 0.5     |
| Average                 | 2.5     | 0.5     | 0.7     |
| Decentralized economies |         |         |         |
| France                  | 4.3     | 2.1     | 1.3     |
| United Kingdom          | 2.0     | 0.2     | 1.1     |
| Italy                   | 4.7     | 1.6     | 0.7     |
| Japan                   | 6.1     | 1.8     | 1.7     |
| Switzerland             | 1.7     | -0.8    | 0.7     |
| United States           | 1.5     | -0.1    | --      |
| Canada                  | 2.2     | 1.1     | -0.3    |
| Average                 | 3.2     | 0.8     | 0.7     |

Source: OECD, Economic Studies, 1988.

at the national and the industry level apply to more than 80 percent of the work force, irrespective of union membership. Finally, the system of national agreements has given the unions a certain role in overall policy making. On the side of employers, the C.E.O.E. represents the majority of enterprises.

It is important to note that, abstracting from national agreements, the system of bargaining in Spain is characterized by a dominance of industry-level over firm-level bargaining. Indeed, about 85 percent of contracts are signed at the industry-level. Therefore, in the absence of centralized bargaining, the Spanish system of industrial relations would be characterized by an intermediate system, dominated by a bargaining process fragmented at the industry-level. This has important implications for industrial relations in the event of a definitive ending of the system of centralized agreements.

Table 4 summarizes the various agreements concluded in Spain since 1977. While heterogeneous in terms of the social and political parties involved, and in terms of scope, all agreements entail ceilings on wage increases. The 1977 "Moncloa's agreements", involving participation of the government and the opposition political parties, paved the way for the later agreements concluded in the main between trade unions and the employers' confederation. The government also participated in the agreement of 1981, committing itself to substantial job creation.

The "Social and Economic Agreement" signed in October 1984 represents perhaps the most important agreement arrived at by the government, unions and employers. It referred not only to wage guidelines and indexation clauses, but also to labor market flexibility, social security and the coverage of unemployment compensation. Two of its features are of particular importance. First, as a tripartite agreement focusing not only on labor costs but also on general macroeconomic, mainly fiscal, issues, it unions and employers in shaping macroeconomic policies. Second, the inclusion of important institutional changes conducive to higher labor market flexibility and other main structural adjustment measures, established a connection between centralized bargaining, social agreement, and structural flexibility measures, usually associated with more market oriented settings. The Government obtained not only important wage concessions but, more importantly, it obtained support for major structural changes with implications extending much beyond the 1985-86 period, to which the agreement applied.

Overall, one of the main changes brought by the concertacin social has been the shift to a "forward-looking" indexation of wages to inflation. Wage changes were indeed established on the basis of targeted inflations rates (in some occasions, corrections for the deviations of actual from targeted inflation were included in contracts, reintroducing a backward looking indexation, which nevertheless implied a very long lag of response of wages to past inflation).

Table 4. Spain: Social Agreements in Spain in the Period 1977-88

| Name   | Signed by                             | Nature   | Period of application | Wage band   | Other Features  |
|--|---------------------------------------|--|-----------------------|---|---|
| Moncloa's Agreements (Oct. 1977)             | Government and political parties      | Socio-political agreement of broad nature. Trade unions and employers did not participate directly | Until end of 1978     | Ceiling of 20 percent increase in total wage bill | Included a wide range of economic and political measures                                |
| Interconfederal Agreement (Jan. 1980)        | Employer confederation (CEDE) and UGT | Narrow scope, with focus on wages, working hours   | 1980-81               | Wage rate increase of 13-16 percent, per annum    | No direct participation of the government   |
| National Agreement on Employment (June 1981) | Government, CEDE, CCOO, and UGT       | Narrow scope, with focus on wages, working hours   | 1981-82               | Wage rate increase of 9-11 percent, per annum     | The government commits itself to create 350,000 jobs                                    |
| Interconfederal Agreement (Feb. 1983)        | CEDE, CCOO, and UGT                   | Narrow scope, with focus on wages, working hours   | 1983                  | Wage rate increase of 9.5-12.5 percent per annum  | Emphasis on wages and working schedule  |
| Social and Economic Agreement (Oct. 1984)    | CEDE, UGT and government              | Broad agreement on incomes, social expenditures and labor market policies                          | 1985-86               | Wage rate increase of 5.5-7.5 percent in 1985     | Includes measures on employment, social security, coverage of unemployment compensation |

#### IV. Trends in Wages, Labor Costs and Income Distribution in Spain in the 1980s

---

Developments in certain subperiods cannot be separated from earlier developments, as the initial condition in the period under review are unlikely to be "equilibrium" conditions. This is particularly relevant for the analysis of the 1980s in Spain. Indeed, strong wage pressure was in evidence during the 1970s, when real wages did not adjust to the severe external shocks to the economy. As a result, the 1980s began with an unbalanced situation, characterized by relatively high wages, high levels of unemployment and declining investment ratios. Given this starting point, it can reasonably be argued that appropriate wage developments should have implied in the course of the 1980s a redistribution of income towards profits, and not merely distributionally neutral changes in wages.

Chart 2 shows the presence of strong wage pressures during most of the 1970s. In that period, wage increases accelerated, both in nominal and in real terms, despite worsening unemployment. A sharp change is apparent after the 1977 Moncloa's Agreement. Since then, wage dynamics have been more consistent with macroeconomic constraints, as suggested by the standard shape of the Phillips curve. An indication of a change in industrial relations comes also from the sharp decline of labor conflicts during the 1980s (Chart 3). Wage moderation is well documented by the behavior of contractual wages, which increased below the inflation rate throughout the period 1979-86. Because of wage drift, actual wages were generally higher than contracted wages; nevertheless, wage dynamics remained moderate, and more important, changes in real wages fell short of productivity growth throughout the 1980s (with the only exception of 1986). As a result, real unit labor costs (the inverse of the price mark-up over unit labor costs) declined markedly at least through 1986. Chart 2 displays the developments in real labor costs for the whole economy. Overall, in the 1980s, the consumer real wage increased at a pace well below the rate warranted by productivity growth.

The evidence of wage moderation during the 1980s is reinforced by evidence that throughout the period the "tax wedge," that is the difference between labor cost and net labor income accruing to workers, increased significantly. Indeed, the share of direct taxes and social security contributions in total labor costs increased more than six percentage points between 1980 and 1988. A change of direction occurred only after 1985, interrupting the growth of the effective rate of social security contributions. This explains the convergence of real labor costs to real wages after 1985 shown in Chart 2.

As to microeconomic effects, Table 5 shows that the period of centralized bargaining was associated neither with a decline of intra-industry wage dispersion, nor with a flattening of intra-skill wage differentials. Quite the contrary, intra-industry wage dispersion increased sharply in the 1980s, counteracting the decline of the second

Table 5. Spain: Intra-Industry Wage Variability  
(Coefficient of variation)

|                | Average level for<br>the period: |         | 1982-86 <u>1/</u> |
|----------------|----------------------------------|---------|-------------------|
|                | 1971-76                          | 1977-81 |                   |
| Spain          | 30.7                             | 21.4    | 27                |
| Germany        | 13.8                             | 13.9    | 19                |
| Canada         | 19.8                             | 18.0    | 26                |
| United States  | 20.9                             | 24.4    | 28                |
| France         | 14.4                             | 13.8    | 14                |
| Italy          | 17.1                             | 11.9    | 13                |
| Japan          | 25.3                             | 17.3    | 29                |
| United Kingdom | 15.5                             | 14.6    | 19                |
| Sweden         | 9.4                              | 8.7     | 10                |

Sources: Bank of Spain, 1971-76 and 1977-81. Freeman (1988) for 1986; and our calculations for Spain 1982-86.

1/ Average for the whole period for Spain; 1986 only, for the other countries.

Table 5b. Spain: Wages and Salaries by Skills:  
Survey on Large Companies 1/

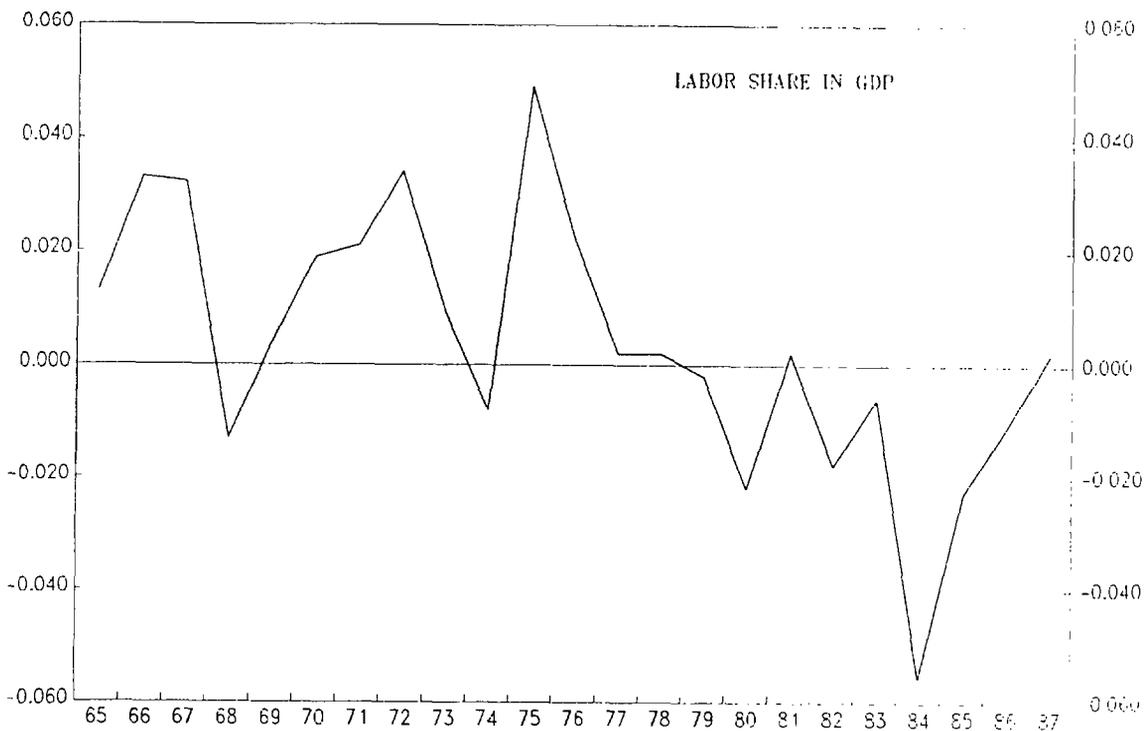
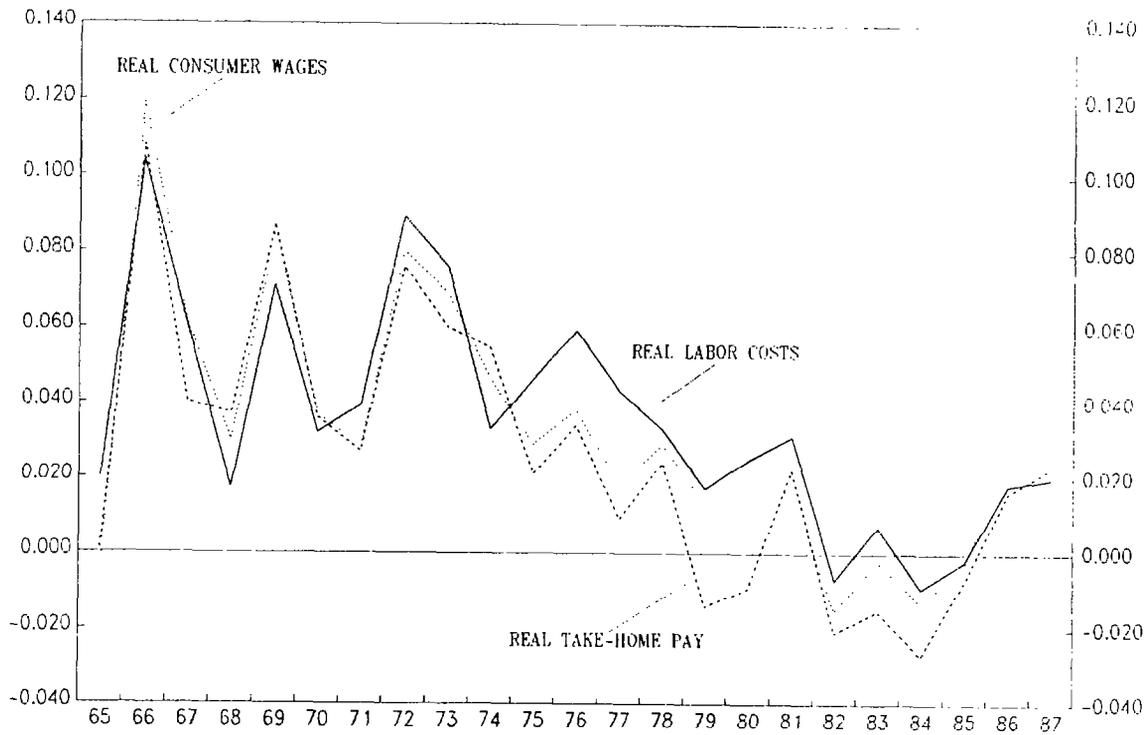
(In relation to wages of lowest skill category)

|          | Weight | 1982 | 1983 | 1985 | 1987 |
|----------|--------|------|------|------|------|
| Category |        |      |      |      |      |
| 01       | 5.0    | 4.94 | 4.92 | 5.00 | 5.54 |
| 02       | 3.9    | 3.37 | 3.39 | 3.43 | 3.77 |
| 03       | 6.5    | 3.17 | 3.20 | 3.19 | 3.65 |
| 04       | 7.3    | 2.67 | 2.69 | 2.75 | 3,04 |
| 05       | 17.2   | 2.31 | 2.32 | 2.46 | 2.72 |
| 06       | 6.1    | 2.33 | 2.35 | 2.25 | 2.40 |
| 07       | 4.6    | 1.91 | 1.92 | 1.89 | 1.95 |
| 08       | 23.7   | 2.08 | 2.11 | 2.03 | 2.33 |
| 09       | 22.1   | 1.84 | 1.85 | 1.80 | 2.02 |
| 10       | 3.4    | 1.47 | 1.47 | 1.39 | 1.64 |
| 11/12    | 0.1    | 1.00 | 1.00 | 1.00 | 1.00 |

Source: Spain, Ministry of Labor.

1/ Categories are ranked in a descending order. At the top of the scale, 01, are engineers, while at the bottom, 11/12, young (16-17 years of age) unskilled workers.

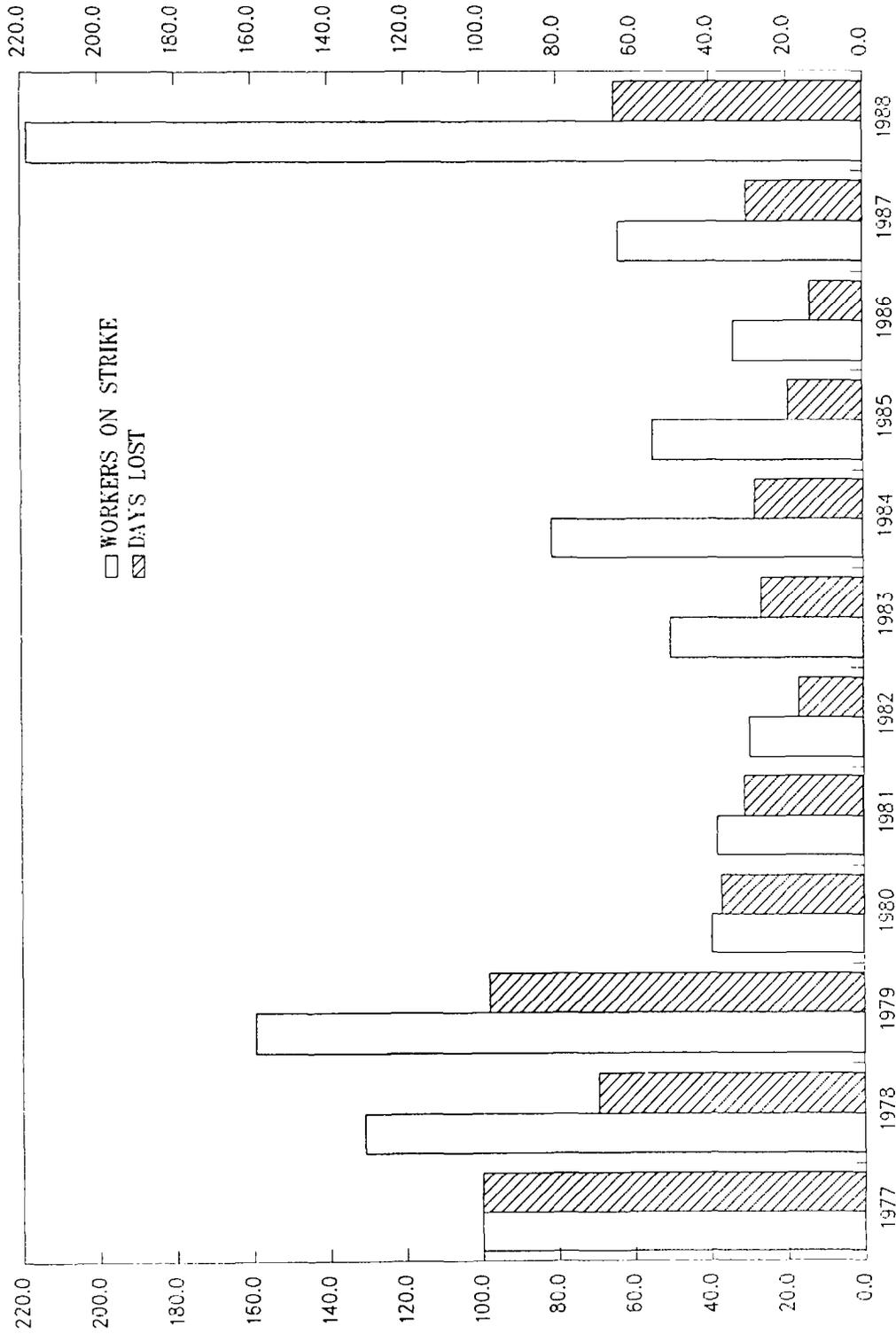
CHART 2  
SPAIN  
LABOR COSTS AND LABOR SHARE IN GDP, 1965-87  
(Percentage changes)



Source: Spain, Ministry of Finance.



CHART 3  
SPAIN  
LABOR CONFLICTS, 1977-88.  
(Indices 1977=100)



Source: Bank of Spain



half of the 1970s, while intra-skill differentials remained practically unchanged during the 1980s. As to the effects on productivity growth, Chart 4 indicates that total factor productivity grew on average in the period 1979-86 at a rate similar to that prevailing in the period 1972-79.

1. Evidence from estimation of wage and price equations.

Previous econometric work on the Phillips curve in Spain concluded that real wages were relatively insensitive to unemployment, showing no important changes in the period of "concertación social" (Table 6, Equation 1). Estimating an analogous equation we found that a variable indicating the change in union pressure, which was concentrated in the period 1973-77, appears significant and raises the moderating effect of unemployment on wage behavior (Table 6, Equation 2). <sup>1/</sup> The relevance of union pressure is confirmed in a simultaneous estimation of wage and price setting, which allows us to differentiate between short-run and long-run relations between wages, prices and unemployment (Table 7). Figure 1 describes the long run equilibrium of the system, resulting from the intersection of the "target real wage" and the "feasible real

---

<sup>1/</sup> In Equation 1, the impact of the change in the unemployment rate on the rate of growth of wages (approximated by the first difference of logs) is a decreasing function of the rate of unemployment. For instance, at a rate of unemployment of 18 percent, which has been the average unemployment rate in the 1980s, 1 percentage point increase in the rate of unemployment yields a decline in wage growth of 0.4 percent. In contrast, in Equation 2, the effect of the unemployment rate on wage growth is independent of the level of the unemployment rate.

Table 6. Spain: Wage Equations--Single Equation Estimations  
(Method: Instrumental Variables)

---

Equation 1 (OECD): 1966-83 1/2/

---

$$\Delta \ln W = 0.69 \Delta \ln P - 0.08 \ln UR - 0.31 \ln (W/P)_{-1} + 0.55 \ln K_{-1}$$

(0.16)            (0.02)            (0.11)            (0.20)

S.E.E. = 0.017  $\bar{R}^2 = 0.87$       D.W. = 2.17

---

Equation 2: 1965-87 2/

---

$$\Delta \ln W = 0.49 \Delta \ln P - 0.66 UR - 0.32 (\ln W - \ln P)_{-1} + 0.43 \ln(K/L)_{-1} + 0.05 UP$$

(0.12)            (0.23)    (0.14)            (0.21)            (0.009)

S.E.E. = 0.014       $\bar{R}^2 = 0.91$       D.W. = 2.0

---

All variables are in log except UR and UP in equation 2.

W = Nominal wage rate.

P = Consumer price index

UR = Unemployment rate

K = Capital stock

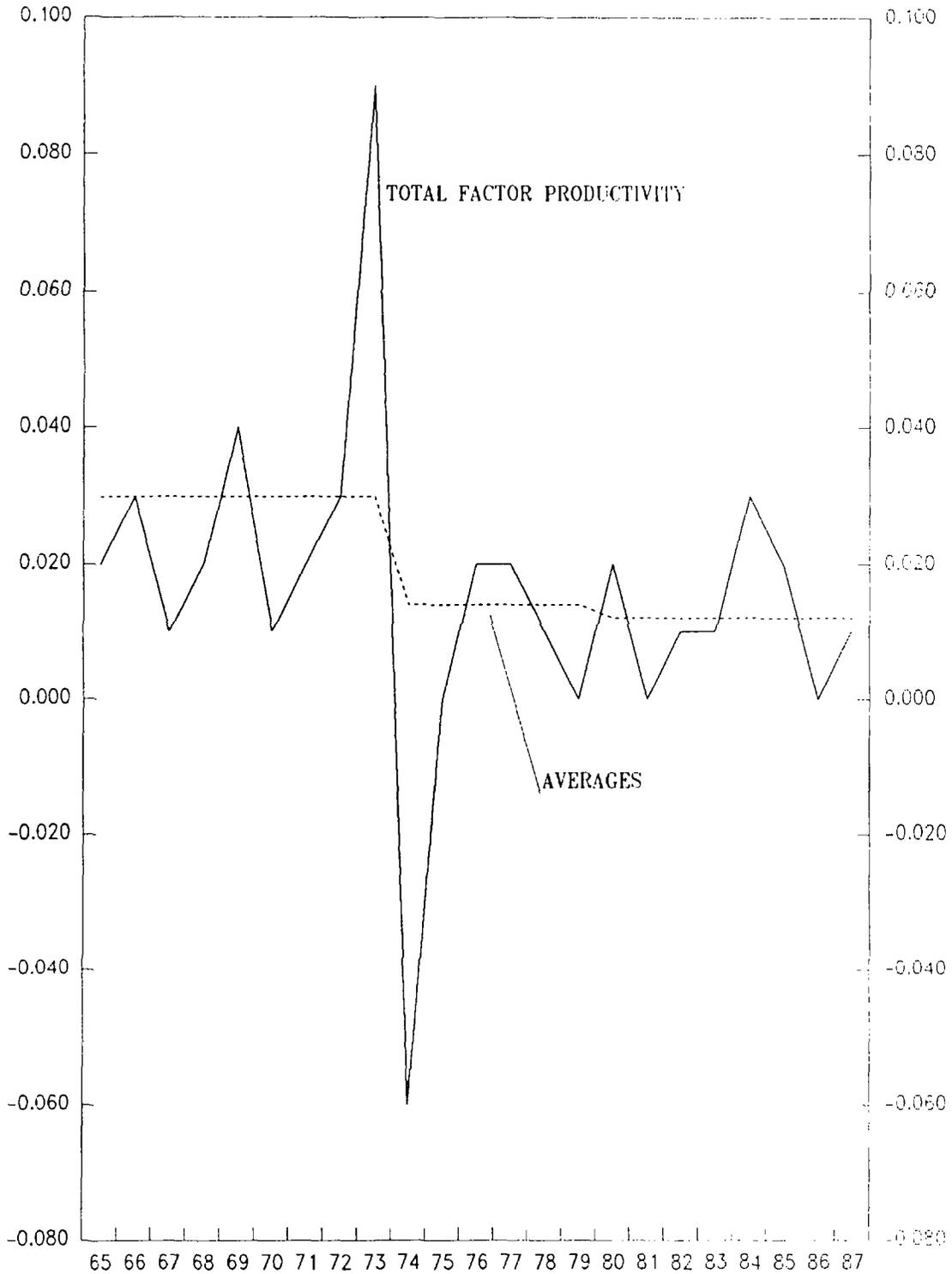
K/L = Capital labor ratio.

UP = Dummy for union pressure, taking value 1 in 1973-77 and 0 elsewhere.

1/ OECD, Economic Surveys, Spain 1985/86, April 1986.

2/ Standard error in brackets.

CHART 4  
SPAIN  
TOTAL FACTOR PRODUCTIVITY, 1965-1987 1/  
(Percentage changes)



Source: Staff calculations.

1/ Derived from a Cobb-Douglas production function, with factor shares computed as averages over the whole period.



Figure 1  
SPAIN  
SUPPLY SHOCKS, UNION PRESSURE AND THE NAIRU

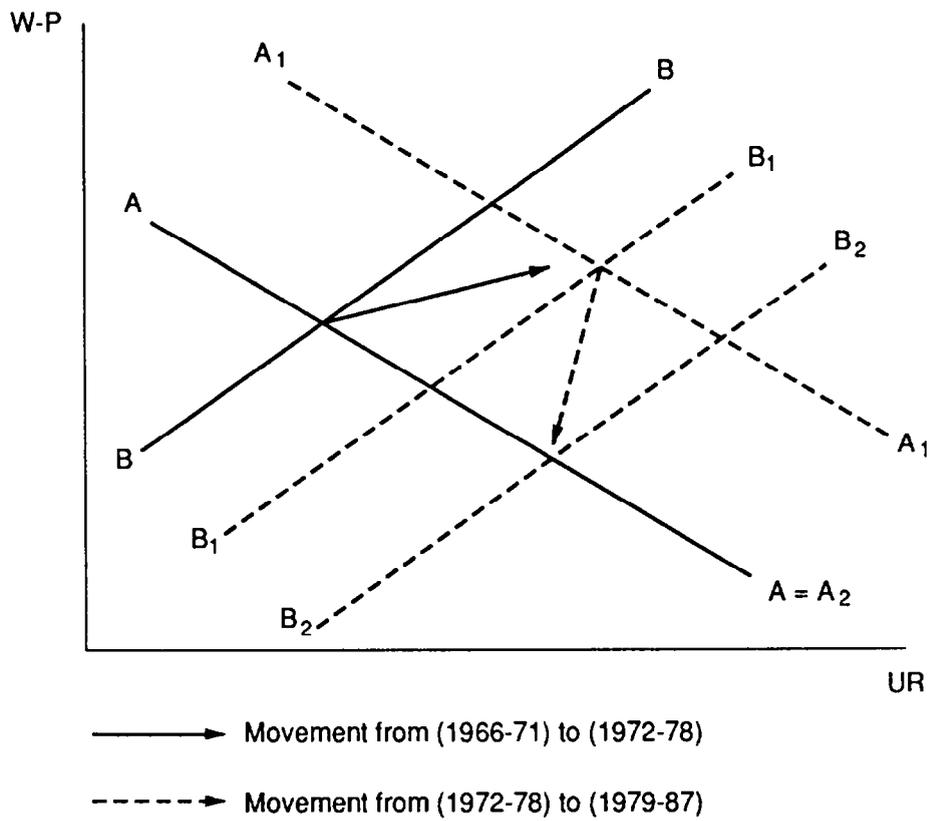




Table 7. Spain: Wage and Price Equations, 1966-87 1/

(Estimation method: three stage least squares)

---

Equation 1:  $DLWN = C(1)*DLIPC(-1) + C(2)*RW(-1) + C(3)*UP + C(4)*UR + C(7)*KLRATIO(-1)$

---

|                    | <u>Coefficient</u> | <u>T-Statistics</u> |
|--------------------|--------------------|---------------------|
| C(1)               | 0.644              | 9.917               |
| C(2)               | -0.107             | -6.706              |
| C(3)               | 0.044              | 5.455               |
| C(4)               | -0.326             | -6.300              |
| C(7) <u>2/</u>     | 0.106              | 4.462               |
| Adjusted R-squared | 0.890              |                     |
| S.E. of regression | 0.016              |                     |
| Durbin-Watson stat | 2.100              |                     |

---

Equation 2:  $DLIPC = C(5) + C(6)*DULCPIM + C(7) *RULCPIM(-1) + C(8)*UR$

---

|                    | <u>Coefficient</u> | <u>T-Statistics</u> |
|--------------------|--------------------|---------------------|
| C(5)               | -0.390             | -4.543              |
| C(6)               | 0.606              | 5.548               |
| C(7)               | 0.106              | 4.462               |
| C(8)               | -0.858             | -3.593              |
| Adjusted R-squared | 0.880              |                     |
| S.E. of regression | 0.017              |                     |
| Durbin-Watson stat | 2.300              |                     |

---

DLWN = Change in wages; first differences of logs.  
 DLIPC = Change in CPI; first differences of logs.  
 RW = Real consumer wages, in logs.  
 UP = Union pressure; dummy variable, taking value 1 in 1973-77 and 0 elsewhere.  
 UR = Unemployment rate (in percent of labor force).  
 KLRATIO = capital/labor ratio; in logs.  
 DULCPIM = Change in total costs (unit labor costs plus cost of imported inputs);  
 first differences of logs.  
 RULCPIM = Total costs minus CPI; in logs.

1/ Two outliers given by the drop of the rate of growth of wages in 1968 and the effect of the introduction of VAT on CPI in 1986, were smoothed out, using dummy variables.

2/ Indicates constrained coefficients.

wage" schedules. 1/ The slope of the line AA depends on the degree of real wage rigidity (the elasticity of unions' wages in terms of unemployment rate), while its position is determined by union pressure. The slope of the BB line depends on the sensitivity of the price mark-up to economic activity, while its position depends on the value of the rate of social security contributions, the price of imported inputs and the constant. The equilibrium unemployment rate is the noninflationary rate of unemployment (NAIRU).

Let us now briefly review the main results of the estimation. Wages and prices adjust sluggishly to each other, at similar speeds. 2/ Considering the inflation variable in the wage equation as a proxy for inflationary expectations, we can deduce that there is room in the short run for substantial effects of price surprises on real wages, and that the degree of wage indexation, while complete in the long run, is quite limited in the short run. The coefficient on the rate of unemployment is fairly small, suggesting a high degree of rigidity in target real wage of unions in the wage equation. 3/ Another interesting aspect (found also in Andres et al (1988)) is that unions' wage setting suffers from a sort of "fiscal-illusion," as wage changes are insensitive to

---

1/ The long-run solution to Equation 1 indicates the so-called "target real wages" of the unions, while the long-run solution to Equation 2 indicates the "feasible real wage" that firms can afford, given the state of the economy. The dynamic adjustments of wages and prices is based on an "error-correction mechanism" which ensures long-run homogeneity between wages and prices (no money illusion, and thus vertical Phillips curve in the long run). In the short run, there is room for effects of surprise inflation, but the error-correction term implies a full adjustment of wages to prices in the long-run. In addition to the inflation variables, wage setting is affected by long-term productivity, proxied by the capital-labor ratio; by the unemployment rate and by the union pressure variable. We also tried structural variables such as mismatch and replacement costs, but found their effect statistically insignificant. The price equation assumes long-run homogeneity of prices with respect to total costs (unit labor costs plus cost of imported inputs). In the long run the "feasible real wage," which equals the inverse of the price mark-up over wages, depends on the rate of social security contributions, long-term productivity, the price of imported intermediate goods and on the unemployment rate. In the system equation, however, while productivity will affect real wages in the long-run, it will be neutral in terms of unemployment rate, as trend-productivity affects also the price setting. The data confirmed the equality restriction on the productivity parameter in the two equations, which ensures long-run independence of the unemployment rate with respect to productivity (see Layard and Nickell (1986) and Andres et al (1988) for analogous results).

2/ The mean lag of adjustment of both variables is quite long, about three years.

3/ Although much lower than that found in previous estimates; OECD (1986), Andres, et al (1988).

changes in income taxes (direct taxes were indeed statistically insignificant). This implies a flexibility of "take-home pay," which is sometimes considered as an indication of a cooperative attitude of unions (see Bean, Layard and Nickell (1986)).

As to the behavior of the NAIRU (nonaccelerating-inflation rate of unemployment, obtained as the long-run solution of the system), Table 8 summarizes the changes in two subperiods of the sample: the average for 1979-87 with respect to the average of 1972-78, and the average of 1972-78 with respect to the average of 1966-71. <sup>1/</sup> Comparing changes in the NAIRU with changes in the actual unemployment rate, we can infer the changes in inflationary pressures taking place in the two subperiods. <sup>2/</sup> During the 1970s, union pressure added to the impact of the increase in the price of imported inputs and the increase in social security contributions, to yield a sharp increase in the NAIRU, more than 6 percentage points above the actual unemployment rate. This points to the presence of mounting inflationary pressures in that period. The experience of the 1980s is quite different. The NAIRU increased well below the actual rate, mainly because of the change in union behavior. The decline in union pressure, indeed, explains a reduction of 3.4 percentage points in the NAIRU, while social security contributions and import prices continued to exert an upward pressure on the NAIRU. We can thus conclude that the two oil shocks played a predominant role in raising the NAIRU, and that the increase in social security contributions exacerbated that increase, especially in the 1980s, acting as an additional negative supply shock. By contrast, the change in union behavior, as a result of "concertación social," attenuated the impact of those negative supply shocks on the NAIRU. Figure 1 gives a geometric representation of all this. The implication of our specification is that one can separate graphically the effects of supply shocks, which shift the line BB, from the effects of union behavior, which shift the line AA. The movement from line AA and BB to AA' and BB' indicates the shocks that occurred in the period 1972-79. The line AA shifted in the northeast direction as a result of union pressure; the negative impact on the NAIRU was reinforced by the negative impact of the oil shocks and of the increase in social security contributions on the BB line. The lines AA<sup>2</sup> and BB<sup>2</sup> indicate the shocks in the period 1979-1987. The line AA goes back to

---

<sup>1/</sup> We do not analyze the behavior of the level of the NAIRU, as it shows a peculiar pattern, given the presence of dummy variables which induces jumps at the points in which the dummy variables change values; see also Andres et al for similar conclusions from a different model.

<sup>2/</sup> We recall that in our specification the NAIRU is affected by the constant, the union pressure variable, the price of imported inputs and the rate of social security contributions, in addition to the slope of the short-run Phillips curve. Given that the latter is constant throughout the period, shifts in the NAIRU are determined by shifts in the three structural variables indicated above.

its pre-1972 level as a result of concertación social. The NAIRU increases, however, as a further increase in prices of imported inputs and in social security contributions shifted line BB.

Table 8. NAIRU and Actual Unemployment Rate

(Changes in percentage points)

|                       | NAIRU <u>1/</u><br>(1) | UR<br>(2) | (2) - (1) |
|-----------------------|------------------------|-----------|-----------|
| (1966-71) - (1972-78) | 9.2                    | 3.0       | -6.2      |
| (1972-78) - (1979-87) | 8.6                    | 13.0      | 4.4       |

1/ Calculated from system estimation reported in Table 7.

The main result of our estimation is that the change in the structure of industrial relations through "concertación social" acted as a fundamental constraint on union behavior and curbed real wage aspirations. Indications of such a shift in real wage aspirations can also be detected from the behavior of the labor share in total income, which mirrors the behavior of real unit labor costs (Chart 2). An estimation of labor shares helps also interpret the observed behavior of "wage gaps," allowing to distinguish the role of technological and cyclical factors and of union behavior in affecting the evolution of labor shares.

## 2. Evidence from the evolution of labor shares

According to neoclassical production theory the evolution of factor shares is determined by the evolution of the capital-labor ratio. If the elasticity of substitution is small (specifically smaller than unity) the share of labor in income will be positively related to changes in the capital-labor ratio (with a Cobb-Douglas production function factor shares would be constant). 1/ Moreover, this dynamic relation may be affected by cyclical fluctuations. We checked, by estimating an equation linking the change in the labor share to the

1/ Indeed, from neoclassical production theory we can derive the following relation:  $Ds/s = (1-e) (1-s)Dk/k$ , where  $s$  is the labor share,  $k$  is the capital/labor ratio and  $e$  is the elasticity of substitution between labor and capital.  $D$  stands for time derivative. Clearly, if the capital-labor ratio is growing over time, labor shares will grow as well if the elasticity of substitution between labor and capital is smaller than one. With a Cobb-Douglas production function  $e = 1$  and thus labor shares are constant.

change in the capital-labor ratio, a cyclical variable, a variable proxying price surprises and the union pressure variable, whether union behavior affected significantly the evolution of the labor share. Table 9 displays the results of the regression, showing the significant role of the union pressure variable. This indicates that a bargaining framework may complement a purely "technological" explanation of the evolution of labor shares (see Beenstock 1989). The coefficient of the capital/labor ratio variable suggests the presence of a value smaller than one of the elasticity of substitution between labor and capital in Spain (analogous values are found by Schultze for other European countries, Schultze (1988)).

### 3. Households income distribution

Studies on income distribution in Spain have noted the presence of a fairly skewed distribution of income. They also noted a significant improvement during the 1970s, with an inward shift of the Lorenz curve from 1973 to 1981. Chart 5 clearly indicates that the 1980s witnessed a reversal of that trend, with a sharp shift of the Lorenz curve away from the equality line, between 1981 and 1986. This shift suggests some of the reasons for the problems encountered recently in industrial relations and helps explain the apparently strange phenomenon of worsening industrial relations in a period of economic boom.

Table 9. Spain: Evolution of the Labor Share  
in Total Income (1965-87)

---

Regression: OLS

Dependent variable: Change in labor share

---

$$\Delta \ln Lshare = 0.34 * \Delta \ln(K/L) - 0.002 * CYCLE - 0.14 * (\Delta \ln P - \Delta \ln P^e) + 0.46 * UP$$

(4.4)                      (1.72)                      (2.1)                      (5.3)

---

$R^2 = 0.82$       S.E.E. = 0.01      D.W. = 1.81

---

t- statistics in brackets.

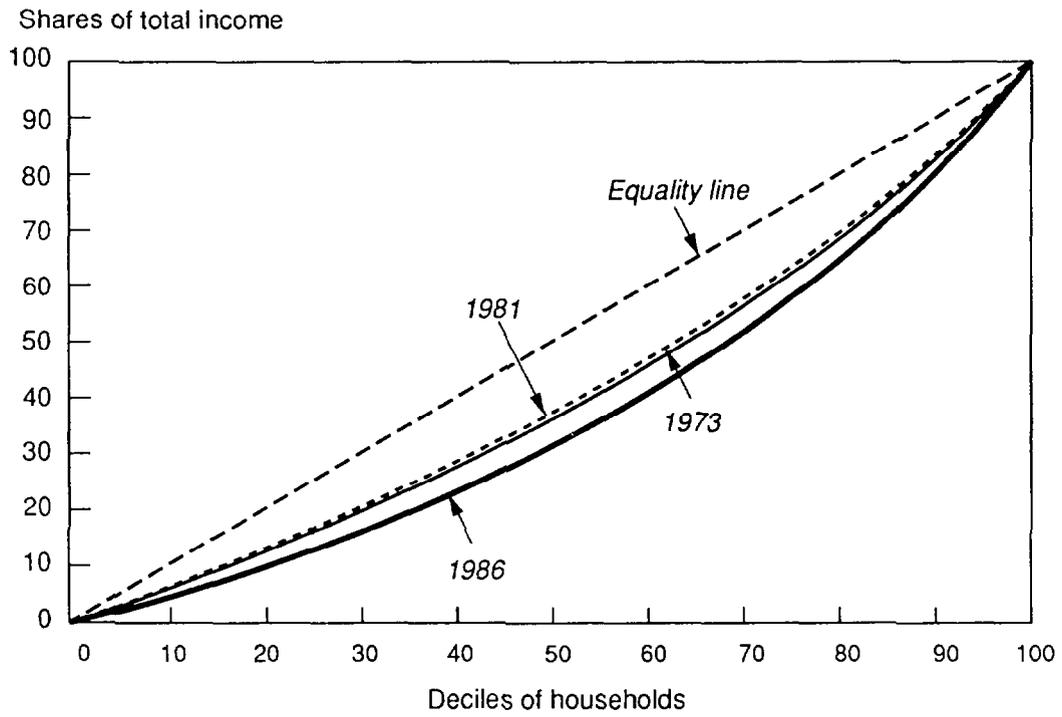
Lshare = Share of dependent labor income in GDP.

K/L = Capital/labor ratio.

CYCLE = Deviation of real GDP from trend.

$\Delta \ln P - \Delta \ln P^e$  = "price surprise." Measured by the residuals of an univariate estimation of the inflation process:  $\Delta \ln P = a \Delta \ln P_{-1} + b \Delta \ln P_{-2}$

CHART 5  
SPAIN  
LORENZ CURVE



Source: Spain, *Encuesta de Presupuesto Familiares*, Several issues.



Neocorporatism Index

Tarantelli's index of neocorporatism is based on three main elements: (a) the degree of centralization of wage bargaining; (b) the degree of co-optation of unions, and (c) the "taming" of the rank and file. The co-optation defines the degree of independence of trade unions from the governments, and thus their tendency to be cooperative with governments. "Taming" defines the credibility of the contractual arrangements, and thus the degree of enforceability of collective agreements at the micro level.

The introduction of the other two elements in addition to the degree of centralization of wage bargaining, creates differences in Tarantelli's and Calmfors and Driffill indices. However, it can be noted that there is a significant overlap, especially as concerns the highly neocorporatist group, which includes most of the highly centralized systems. Japan represents the main exception.

Table 10. The Degree of Neocorporatism

|                | Centrali-<br>zation | Co-option | Taming | Total<br>(Neo-cs.index) |
|----------------|---------------------|-----------|--------|-------------------------|
| Austria        | 5                   | 5         | 5      | 15                      |
| Germany        | 4                   | 5         | 5      | 14                      |
| Japan          | 4                   | 5         | 4      | 13                      |
| Denmark        | 4                   | 4         | 4      | 12                      |
| Norway         | 4                   | 4         | 4      | 12                      |
| Sweden         | 4                   | 4         | 4      | 12                      |
| Netherlands    | 3                   | 3         | 4      | 10                      |
| Finland        | 4                   | 3         | 3      | 10                      |
| Australia      | 3                   | 3         | 4      | 10                      |
| United States  | 1                   | 5         | 3      | 9                       |
| Canada         | 1                   | 5         | 3      | 9                       |
| Belgium        | 3                   | 3         | 3      | 9                       |
| New Zealand    | 2                   | 3         | 3      | 8                       |
| France         | 3                   | 2         | 2      | 7                       |
| United Kingdom | 1                   | 2         | 2      | 5                       |
| Italy          | 2                   | 1         | 1      | 4                       |

Source: Tarantelli (1986).

Methodology for the Index of Centralization  
of Wage Bargaining

Here we reproduce the methodology used by Calmfors and Driffill (1988, pp. 52-53).

1. Basic structure

The first column of the table below indicates the levels of coordination within national union confederations and within national employer organizations. (3) indicates national level, (2) industry level, (1) enterprise level and (0) occupational level within enterprises (in the case of labor). For Australia and New Zealand, (1) represents a compromise between the large element of wage setting on the occupational level and the centralization imposed by the arbitration tribunals and government income policies.

The second column reflects the number of existing central union confederations and the extent of their cooperation, and the number of existing central employer federations and their cooperations: (3) indicates one dominating union confederation and one dominating private sector employer organization, (2) the existence of 2-5 union confederations and/or 2-5 central employer organizations, and (1) the absence of a central organization on one or both sides of the labor market. Plus and minus signs indicate minor differences between countries.

2. More specific judgements

Norway is ranked above Sweden because of (slightly) less fragmentation at the union confederation level and (significantly) less apparent inter-union conflicts on distribution. The minus signs in the first column for Denmark and Finland reflect a larger element of decision-making power on the local levels. Denmark is ranked above Finland because of less fragmentation at the union confederation level. The plus sign in the second column for the Netherlands is due to the existence of coordination between unions that belong to independent confederations at the central level. The mixture of centralized and decentralized elements make the ranking of New Zealand and Australia compared to Belgium difficult; differences with respect to the first column are judged to be larger than with respect to the second column. New Zealand is ranked above Australia in conformity with Bruno and Sachs (1985). The plus signs for France and Italy reflect a certain element of industry bargaining. The same applies to a lesser extent to the United Kingdom where government incomes policies before 1979 imposed some centralization.

Table 11. Construction of the Index of Centralization

|                                 | Coordination level<br>within central<br>organizations | Existence of parallel<br>central organizations<br>and cooperation | Total<br>score |
|---------------------------------|---|---|----------------|
| <b>Centralized economies:</b>   |   |   |                |
| Austria                         | 3   | 3   | 6              |
| Norway                          | 3   | 2   | 5              |
| Sweden                          | 3   | 2   | 5              |
| Denmark                         | 3-  | 2   | 5-             |
| Finland                         | 3-  | 2   | 5-             |
| <b>Intermediate economies:</b>  |   |   |                |
| Germany                         | 2-  | 3-  | 5-             |
| Netherlands                     | 2   | 2+  | 4+             |
| Belgium                         | 2   | 2   | 4              |
| New Zealand                     | 1   | 3   | 4              |
| Australia                       | 1   | 3   | 4              |
| <b>Decentralized economies:</b> |   |   |                |
| France                          | 1+  | 2   | 3+             |
| United Kingdom                  | 0+  | 3   | 3+             |
| Italy                           | 1+  | 2   | 3+             |
| Japan                           | 1   | 2   | 3              |
| Switzerland                     | 1   | 2   | 3              |
| United States                   | 1   | 1   | 2              |
| Canada                          | 1   | 1   | 2              |

Source: Calmfors and Driffill (1988).

References

- Alesina, A. (1989), "Politics and Business Cycles in Industrial Democracies", Economic Policy.
- Andres, J., J.J. Dolado, C. Molinas, M. Sebastian and A. Zabalza (1988), "The Influence of Demand and Capital Constraints on Spanish Unemployment", Ministry of Economy and Finance.
- Bean, C., P. Layard, and S. Nickell (1986), "The Rise in Unemployment: A Multi-country Study", Economica, Supplement vol. 53.
- Beenstock, M. (1989), "The Factorial Distribution of Income in the Union Bargaining Model", CEPR Discussion Paper n. 288.
- Bruno, M. and J. Sachs (1985), Economics of Worldwide Stagflation, Harvard University Press.
- Calmfors, L. and J. Driffill (1988), "Centralization of Wage Bargaining", Economic Policy, April.
- Cuadrado Roura, J.R. (1986), "Politica de Renta y Concertación Social", in Gamir, L. (ed.), Politica Economica de España, Madrid.
- Dornbusch, R. (1989), "Credibility, debt and unemployment: Ireland's Failed Stabilization", Economic Policy.
- Englander, A.S. and A. Mittelstadt (1988), "Total Factor Productivity: Macroeconomic and Structural Aspects of the Slowdown", OECD Economic Studies.
- Freeman, R.B. (1988), "Labour Market Institutions and Economic Performance", Economic Policy.
- Heitger, B. (1987), "Corporatism, Technological Gaps and Growth in OECD Countries", Weltwirtschaftliches Archiv.
- Kremers, J. (1989), "Gaining Policy Credibility in the EMS: The Case of Ireland", IMF Working Paper, WP/89/136.
- Layard, R. and S. Nickell (1986), "Unemployment in Britain", Economica.
- Modigliani, F. and E. Tarantelli (1977), "Market Forces, Trade Union Action and the Phillips Curve in Italy", Banca Nazionale del Lavoro Quarterly Review, vol. XXX.

- Newell, A. and J. Symons (1987), "Corporatism, Laissez Faire and the Rise in Unemployment", European Economic Review.
- OECD (1988), Economic Outlook, June, Paris.
- OECD (1987), Structural Adjustment and Economic Performance, Paris
- Olson, M. (1982), The Rise and Decline of Nations, Yale University Press
- Schultze, C.L. (1987), "Real Wages, Real Wage Aspirations and Unemployment in Europe," in Larwence and Schultze (eds.) Barriers to European Growth, The Brookings Institution.
- Tarantelli, E. (1986), Economia del Lavoro, UTET, Torino.