

# **Inflation, Central Bank Independence and Corporatism: An Empirical Test**

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### **Abstract**

In this paper, controlling for several macroeconomic factors, we test the hypothesis that central bank independence is closely correlated with the level of social consensus and cooperation on income distribution. Using data from a panel of OECD countries over period 1972-2002, we find evidence in favour of this hypothesis. When one allows for the degree of social consensus and cooperation on income distribution, as in Tarantelli's (1986) index of corporatism, the relationship between inflation and CBI weakens in the presence of indicators of corporatism. Interestingly, this relationship does not weaken if allowance is made for indicators of corporatism placing much greater weight on the centralisation of unions or of wage bargaining than on the degree of consensus.

## 1. Introduction

The independence of central banks has been an issue central to the debate on monetary policy for at least twenty years. It has also attracted considerable interest externally to academe as a result of numerous reforms made to those institutions,<sup>3</sup> and because of the repercussions of the reforms on the democratic life of the countries concerned. These reforms have sought to increase the degree of central bank independence from governmental authorities, the conviction being that greater independence means greater success in combating inflation. This paper contains an empirical analysis of the relationship between consensus among social partners on the distribution of income and central bank independence (henceforth CBI). This relationship is predicated on the idea that independent central banks guarantee the transparency of income distribution mechanisms (see Cama and Pittaluga, 1999). In order to measure the degree of social consensus we rely upon the indexes of corporatism gathered in Kenworthy (2001). Among them a prominent position is taken by indexes similar to Tarantelli's (1986) index of corporatism: not only do they estimate the extent to which wage bargaining is centralised, but they also capture social consensus on income distribution by measuring the degree of cooperation and integration between the social partners and government on key decisions relating this sphere.

We move from the consideration that in liberal-democratic systems central banks are assigned the mandate of performing monetary stability in order to prevent "surreptitious" redistribution of income and wealth. These surreptitious redistributions of benefits within society, resulting from monetary instability, are introduced in the economy without making it possible for the voter to recognise which political agent can be kept accountable for them.<sup>4</sup> This paper does not face the problem of coordination of monetary and fiscal policy, neither in a multicountry setting, like in Hamada (1976, 1977) and Canzoneri and Gray (1985), nor between institutions belonging to the same country (in a single-period context: Demertzis et al., 2004; or in a context of repeated games: Grier, 1989; Drazen, 2000; Pittaluga and Seghezza, 2004). On the other hand, we deal to some extent with the influence of the degree of wage-setting concentration (or coordination) on the rate of inflation. This relationship, recently highlighted in Guzzo and Velasco (1999, 2002), Cukierman and Lippi (1999), Berger et al. (2001), Aidt and Tzannatos (2002), is characterised by the interplay of inflation preferences of unions and central bank. However, our main interest is to verify, with cross-country data, the significance of the relation between inflation and degree of social preference for a politically transparent and socially participated mechanism of decisions on income distribution. This peculiar kind of social preferences is captured by a specific category of corporatism indexes.

The structure of the paper is the following. We first provide a very concise review of the empirical literature relative to developments in CBI on the one hand (Section 2), and corporatism on the other (Section 3; here we also describe in some detail Kenworthy's data-bank). We then present the fundamental empirical hypothesis to be tested (Section 4), the data used (Section 5) and set out the results of the empirical analysis (Section 6). In Section 7 we offer some concluding remarks.

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<sup>3</sup> Since 1989, twenty-five central banks had undertaken institutional reforms aimed at increasing their degree of formal independence. Although thirteen of them are monetary authorities newly created by former countries of the Soviet Union, the figure is still significant, especially in light of the almost total lack of institutional changes in the previous forty years. Figures are taken from Cukierman (1998).

<sup>4</sup> In this specific sense Cama and Pittaluga (1999) and Pittaluga and Cama (2004) consider central banks as political actors.

## 2. The empirical literature on central bank independence

The modern theory of CBI is connected with the problem of the inconsistency of optimal policies, which was first propounded by Kydland and Prescott's pioneering article (1977) and then specified further by Barro and Gordon (1983) with regard to monetary policy. More precisely, CBI as a solution to the dynamic inconsistency dilemma was put forward by Rogoff (1985), who proposed attribution of the mandate of price stability to a 'conservative' central banker whose preferences are more inflation-averse than those of society.

The literature has empirically tested the proposition that higher degrees of CBI are correlated with lower inflation rates, and the results broadly confirm the existence of this correlation. The evidence mainly consists of cross-country inflation regressions including among the regressors a CBI measure constructed on the basis of the legal content of central banks' statutes or on the turnover rate of their governors. Cukierman (1998) sums up this evidence by stating that the indexes of legal CBI are negatively correlated with inflation in the developed countries, while the evidence on a larger set of countries is more ambiguous. Also Berger et al. (2001) conclude that, even when allowing for a number of control variables, the relation between legal CBI and inflation in the OECD countries seems sufficiently solid.

Among the studies attempting to explain the correlation between CBI and inflation by introducing a third causal factor, those by Posen (1993, 1995) have aroused a lively debate. Posen, assumes that both CBI and inflation depend on the intensity of preference for monetary stability in society. Because it is typically the financial sector which is liable to losses when the value of the currency alters, he takes 'financial opposition to inflation' (henceforth FOI) as representative of this intensity. When FOI is included in the inflation regression the significance of CBI vanishes. The interpretation of this result, according to Posen, is that CBI merely reflects the presence of strong price stability preferences in society. Posen's arguments have prompted a number of criticisms. De Haan and Van't Hag (1995) have argued that Posen's conclusions are only confirmed if Cukierman's independence indicator is employed. If other indicators are used, the significance of FOI diminishes. Furthermore, the relation between legal CBI indicators and inflation is admittedly fragile for developing countries: De Haan and Kooi (1997) find that the significance of the relation between the rate of governor turnover and inflation remains high even when the FOI index is included. In any case, the lobbying power of the financial sector turns out to be an important influence on inflation. Franzese (1999), who proxies it with the share of employment in the financial sector (finance, insurance and real estate) instead of using the FOI index, finds a significant relationship between his proxy and inflation (although the significance of CBI does not disappear with its inclusion).

A further important factor affecting inflation is trade-openness. As argued in Romer (1993), discretionary inflation should decrease with trade-openness because the effectiveness of inflationary surprises is lower in more open economies. There has been some debate also on this argument (Temple, 2002). However, this debate relates more to the nature of the channel between trade-openness and inflation than to the existence of a relationship between these two variables.<sup>5</sup>

Finally, some contributions have highlighted the relevance of wage-setting institutions for the determination of inflation. Already Cukierman (1992, 39-42) points out that an inflationary bias exists to the extent that the NAIRU (Non-Accelerating Inflation Rate of Unemployment) is high. Cukierman also suggests (in accordance with the literature developing around the contribution of

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<sup>5</sup> Indeed, many studies, including those in Lindberg and Maier (1985) offer numerous arguments on why trade-openness should influence inflation.

Layard et al., 1991) that the NAIRU depends on the monopolistic power of the trade unions. Hence the creation of surprise inflation is posited to be an increasing function of union power. More recent papers (surveyed in Berger et al., 2001; Aidt and Tzannatos, 2002), focus on the centralisation of wage bargaining. Generally speaking, the latter produces real wage restraint, internalising the social cost of excessive wage settlements, and reduces the inflationary bias. Especially in Cukierman and Lippi (1999) there is also some allowance for interactions between CBI and this institutional feature.

### **3. Quantitative indicators of corporatism**

In accordance with Traxler's definition (1999, p. 56), we use the term of corporatism to denote a situation where the state shares its public-order functions with organised business and labour. This definition can be extended by having it include the various kinds of institutional agreement which regulate political and economic decisions, so that these arise from consultation and negotiation between government and interest groups – typically the representatives of workers and employers.

In the 1960s, economic policy in advanced countries attenuated its traditional liberalism and based itself on decisions reached through the concertation of social-class interests. This political change was matched by a shift of interest in the social sciences to the phenomenon of corporatism. When this trend was partially reversed, also the social sciences lost interest. But since the mid-1990s, following the economic miracles of the Netherlands and Ireland – countries in which corporatist pacts on employment and wage dynamics were signed – interest in corporatism has resumed.

Interest on the macroeconomic implication of corporatism has been borne out by numerous studies, most of which have contributed to increase the number of indicators of corporatism. A survey by Kenworthy (2001), indeed, has considered fully 42 of them. Following Kenworthy, it is possible to outline the central concerns of theoretical studies on corporatism which have also influenced the production of indexes of corporatism. The literature of the 1970s and the early 1980s examined corporatism per se; after the mid-1980s, the focus of interest shifted to its economic and political effects, with a consequent emphasis on incomes policy and wage setting. This gave rise to greater interest in certain aspects of wage bargaining, such as concentration and centralisation; since Soskice (1990), attention has moved to coordination.

To the extent that it measures the degree of social consensus about income distribution, corporatism can also make CBI epiphenomenal in the determination of inflation. Indeed, a high degree of social consensus on income distribution can bring about both low inflation and high CBI. This relationship is predicated on the idea that independent central banks guarantee the transparency of income distribution mechanisms, facilitating the enduring development of democracy and increase the degree of social cohesion (Cama and Pittaluga, 1999). This interpretation of the value of independence has arisen within the debate on the compatibility between democracy and the independence of monetary institutions, where it is paradoxically argued that breaching the principle of representativeness in this case safeguards a key principle of democracy: namely the unequivocal attribution of political responsibility for key decisions (in this case about income distribution). In our opinion, the degree of social and political consensus on income distribution could be measured by at least some indicators of corporatism, providing a satisfactory empirical test for the above proposition. Let us deal with this point in greater detail.

Kenworthy groups indicators of corporatism into five categories according to their main focus: (1) centralisation and concentration of labour and business; (2) wage setting arrangements; (3) participation of labour and business in policy making; (4) political-economic consensus; (5) composite measures. These measures are enumerated and described in some detail in the Appendix.

In the first category, Kenworthy collects indicators focusing on the organization of labour and business. Two dimensions of these organized interest groups are captured: centralisation and concentration. When referred to labour, concentration is also defined as the degree of associational monopoly and is able to be measured within or across confederations. Union centralisation is instead referred to the degree of authority that confederations maintain. The only existing indicator of business centralisation has been elaborated by Kenworthy and Hicks, and is intended as a quantitative measure of both the degree of concentration of business confederations and the degree of centralised authority of a confederation over its members.

The second category includes indicators that describe the wage-setting process, focusing on the degree either of centralisation or of coordination of the wage bargaining structure. Since wage bargaining arrangements is the privileged area in which interest groups participating in decision making process are involved, the literature on this topic and related quantitative measures has always been conspicuous. The interactions between some of these indicators (those related to wage-setting centralisation), inflation, and CBI, have been likewise already examined in some detail in the literature (see Berger et al., 2001; Aidt and Tzannatos, 2002). We stress that in principle wage-setting centralisation is not necessarily a measure of the degree of social consensus on the distribution of income, while at least some degree of consensus must be reflected in measures of wage-setting coordination.

The third category quantifies interest group participation in policy making. In spite of the broad interest that this particular kind of corporatism, also referred to as concertation, has received among theorists, only three are the indicators produced. These indicators aim at measuring the participation of unions in economic policy making. The oldest is Lehmbruch indicator, which includes wage setting agreements. By contrast, the other two exclude wage setting agreements, for the reason that these reflect more the influence of government in wage setting than that of unions in policy making.

The fourth category tries to measure political and economic consensus which, in some theoretical studies,<sup>6</sup> is considered to be a key component of corporatism but one difficult to operationalise. Actually, only few indexes of corporatism attempt to measure directly the degree of political-economic consensus. Kenworthy's extensive survey describes two of them: the one used by McCallum (1983, 1986) and the one used by Palheimo (1984). The former is a dichotomous measure in which zero denotes a low degree of consensus and unity a high one, and it is constructed on levels of strike action and the type of industrial relations. The latter is instead an indicator that ranges from one to three, these denoting three grades of increasing political consensus, and it is based on the number of working days lost through strikes.

There is also a fifth category, including all the composite quantitative measures of corporatism. While all these indexes concentrate on industrial relations, some of them focus more on the centralisation of unions and wage bargaining. On the other hand, composite indicators such as those proposed by Bruno and Sachs (1985) and by Tarantelli (1986) include elements which configure social and political integration and consensus in terms of decisions of importance to society. More precisely, Tarantelli (1986) refers to close integration and cooperation between

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<sup>6</sup> See Schmidt (1982), Keman (1984), Katzenstein (1985).

workers' and employers' representatives and the political and economic machinery of the government, and not merely to the level of ideological and political consensus.

The basic hypothesis tested in this paper is that the greater the participation in decisions on income distribution, the higher the protection granted to central banks against political interference (Cama and Pittaluga, 1999). A high correlation between CBI and the indexes of corporatism allowing, at least to some extent, for the degree of social consensus on the distribution of income, will be indicative of reluctance among the interest groups in society to accept an alteration of the democratic mechanism that regulates decisions on income distribution. To guarantee this mechanism, they require political representatives to ensure the neutrality of monetary policy for income distribution by formally recognising the independence of the central bank. The central bank's function is to act as a guarantee that income distribution takes place within the domain of political representation.

#### 4. The empirical strategy adopted

In what follows we basically present the results of a test of the correlation between inflation and CBI when a third explanatory variable (an indicator of corporatism) is introduced. Similarly to the test of Posen's hypothesis (1993, 1995) concerning the influence of the financial sector, we expect that the relationship between inflation and CBI should weaken when the indicator of corporatism allows for the degree of social consensus on the distribution of income. Naturally, we control for some further important factors affecting the inflationary bias of the economy.

In the absence of ad hoc counteractive policies, inflation abroad will tend to be imported, so that discretionary inflation should increase with inflation abroad. Also, discretionary inflation should decrease with trade-openness. Furthermore, we consider the contention by Posen (1993, 1995) according to which it is "effective financial opposition to inflation" that causes both low inflation and high CBI. Finally, discretionary inflation should increase with the NAIRU. Hence it should be positively correlated with factors increasing the NAIRU (such as union power) and negatively correlated with factors decreasing the NAIRU (some of these factors, such as wage-bargaining centralisation, may be features of corporatism not necessarily related with the degree of social consensus on the distribution of income).

To summarise, we write the baseline equation used in the empirical analysis as follows:

$$(1) \quad \pi = (\pi^f, \text{CBI}, \text{CORP}, \text{FOI}, \text{TO}, \text{UD})$$

where  $\pi$  denotes the rate of inflation,  $\pi^f$  the foreign rate of inflation, FOI the power of the financial sector, TO the degree of trade-openness, UD the monopoly power of the trade unions,<sup>7</sup> CORP the index of corporatism. The signs of the first derivatives of the variables CBI, CORP FOI and TO are negative, while those for the variables UD and  $\pi^f$  are positive. If CBI is epiphenomenal with respect to certain factors, such as the power of the financial sector or consensus on the distribution of income, we expect it not be significant in (1) if indicators of these factors are introduced.

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<sup>7</sup> Following common practice, we measure union power through union density, the share of employees who are union members. We also tried in (1) other factors widely believed to affect the NAIRU, such as the replacement rate for unemployment benefits or unemployment benefit duration, but they were significant with the expected sign. In any case their inclusion did not affect the nature of the results obtained.

The empirical analysis is based on the ordinary least squares method, correcting the variance-covariance matrix with the Beck-Katz procedure. Adoption of fixed-effect panel techniques is not feasible as the corporatism indicators and (virtually) CBI are time-invariant variables. All the variables potentially affected by simultaneity bias, like the foreign inflation rate, union density, trade-openness, and FOI were introduced with a one-year lag. All the equations, moreover, comprise one lagged value (at t-1) of the dependent variable and two lagged values (at t-1 and t-2) of  $\pi^f$ . The appropriateness of this dynamic specification was always supported by the lack of serial correlation in the residuals (in any case results with Newey-West corrected variance-covariance matrixes were very similar and are available upon request).

This dynamic set-up is akin to the specification adopted in Hall and Franzese (1998), Franzese (1999), and does not rely on five-year averaged data over like in Cukierman and Lippi (1999). We believe that working with annual data allows a better treatment of the problems of simultaneity bias and dynamic misspecification (on these issues see, for instance, Breitung and Swanson, 2002). We also assessed the robustness of our analysis in two different ways. First, (1) is estimated over three different periods. Beside the whole estimation period, 1972-2002, we analyse two sub-periods: 1972-1992 and 1982-2002. The first sub-period is chosen in order to compare results with the influential analyses in Hall and Franzese (1998) and Franzese (1999). The second sub-period assesses the robustness of the estimates over the last two decades. Furthermore, we allow for some non-linearities in the relationship among inflation, CBI and corporatism. A simpler specification follows the suggestion from Calmfors and Driffill (1988), and includes a quadratic form of the corporatism measure:

$$(2) \quad \pi = (\pi^f, \text{CBI}, \text{CORP}, \text{CORP}^2, \text{FOI}, \text{TO}, \text{UD})$$

Another, more complex, specification follows Cukierman and Lippi (1999) in allowing also for interactions between CBI and corporatism:

$$(3) \quad \pi = (\pi^f, \text{CBI}, \text{CORP}, \text{CORP}^2, \text{CBI} \times \text{CORP}, \text{CBI} \times \text{CORP}^2, \text{FOI}, \text{TO}, \text{UD})$$

## 5. The data

The countries selected to form the sample are 18 in number and belong to the OECD (as stated in Section 2, the empirical evidence relative to CBI is clearer as regards the developed countries): Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Ireland, Japan, the Netherlands, New Zealand, Norway, United Kingdom, United States, Sweden and Switzerland. The selection criteria adopted (see Franzese, 1999; Kenworthy, 2001) were: (a) a population of at least 3 million and a level of per capita GDP equal to at least half the GDP of the United States (which excluded Iceland and Luxembourg from the sample because they were too small); (b) uninterrupted democracy since the Second World War (this criterion excluded Greece, Portugal, Spain and Turkey). The data are annual and cover the period from 1972 to 2002.

The inflation rate,  $\pi$  is the GDP deflator, constructed from OECD (2003). The foreign inflation rate,  $\pi^f$ , was measured for each country as the average of the other 17 countries in the sample. The index of trade-openness, TO, resulted from the ratio between the sum of imports plus exports and GDP; again the source was OECD (2003). The index measuring the power of the financial sector, FOI, consisted of the employment in the financial, insurance and real estate sector on total employment. The source was OECD (2003, Volume II, Detailed Tables). Union density,

UD, is calculated as the ratio between total union membership and the total labour force. We update the data provided in Nickell and Nunziata (2001).

Two measures were used for CBI: the first is Cukierman's (1992) legal indicator (LVAU). The second (see Franzese, 1999), called CBI, is the average of the five most widely used CBI indexes: Cukierman's (1992) LVAU and QVAU, Grilli, Masciandaro and Tabellini's (1991) EC and POL, and Bade and Parkin's (1982) original index (Alesina's commonly-cited index - Alesina and Summers, 2000 - is based on this last source; see Franzese, 1999). Both indexes vary from 0 to 1. In this paper we will only present the results based on CBI. Use of LVAU does not imply any significant departure from the reported results.

As already said, measures of corporatism were taken from the very large data-bank gathered in Kenworthy (2001). We took only time-invariant indicators for which there exist a high enough number of country observations (in any case these indicators make up a substantial share of total). As can be seen from the Appendix, some indicators of corporatism lack values for some countries. Among the missing countries for other indicators one almost always invariably finds Ireland and New Zealand (plus a few other, mostly random, countries). As far as we could ascertain, this has no serious consequences on the analysis.

An index assuming special importance in the empirical analysis is Tarantelli's (1986, 12-13) composite measure. This index, which Tarantelli calls "degree of centralisation of the industrial relations system", has a range of variation from 3 to 15 and is the sum of the scores from 1 to 5 given to the three dimensions of which it is composed: the first is the degree of wage-bargaining centralisation; the second measures not only the degree of political and ideological consensus but also that of cooperation between the employer and worker representative organisations on the one hand, and the government on the other, when political and economic decisions are taken; the third dimension of the index takes account of how disputes are settled. Another important index accounting for the degree of social consensus on income distribution is Bruno and Sachs' composite measure of corporatism (1985, p. 227). This is calculated as the some of the scores 0, 0.5 and 1 given for the centralisation of trade unions, autonomy of the low shop-floor, coordination of employers, and the importance of works councils.

We can contrast these indicators with other composite indexes more narrowly centred on industrial relations systems and not accounting very much for social consensus. One such index is the Cameron composite measure (Cameron, 1984, pp. 165-66, defines it the "organisational power of labour"). It is simply equal to [union concentration + (union centralisation x union density)]. Another one is the Swank composite measure (Swank, 2001). It is the index of standardised scores for union density, union centralisation and wage centralisation, with the components weighted by a factor score loading.

## 6. The results

The results are summarised in Tables A.1 and A.2 of the Appendix. In Table A.1 we deal with the linear specification (1), and give, for all estimation periods, coefficients and t-ratios for the variables of interest as well as the  $R^2$ 's. In Table A.2 we provide some key results from non-linear specifications (2) and (3), namely the  $R^2$ 's, the coefficients and t-ratios for  $CORP^2$  and CBI, and some exclusion tests. In (2),  $\chi^2$  (2) relates to the exclusion of both CORP and  $CORP^2$ . In (3),  $\chi^2_{corp}$

(3) relates to the exclusion of all the non-linear CORP terms, while  $\chi^2_{\text{corp}}$  (4) and  $\chi^2_{\text{cbi}}$  (3) respectively test the exclusion of all CORP and CBI terms.

Generally speaking, the empirical evidence is in favour of the hypothesis according to which the relationship between inflation and CBI weakens when an indicator of corporatism allows for the degree of social consensus on the distribution of income. The indicators of corporatism which take some account of social consensus, like that of Bruno-Sachs and of Tarantelli, tend to drastically reduce the significance of the CBI measures. To see this better, consider Tables 1 and 2 below, where we give the mean values of some key statistics calculated across some groups of indicators of corporatism. By and large, these groups reflect the categories set out by Kenworthy (2001) – see the Appendix. Furthermore, we proceed to split the group of composite measures in the following manner. A first group (composite measures without consensus) includes measures that do not pay explicit attention to the extent to which there is not only ideological and political consensus but also integration and cooperation between workers' and employers' representatives and government. This group includes the Alvarez-Garrett-Lange, Cameron, Hicks-Swank, Schmitter, Swank measures. A second group (composite measures with consensus) includes measures paying explicit attention to the extent to which there is consensus, integration and cooperation. This group includes the Bruno-Sachs, Hicks-Kenworthy, Keman, Lehner, Tarantelli, Western measures. We leave the Lijphart-Crepaz and Schmidt measures out of either group. The first is simply an average of other measures and the second one is wholly subjective.

In Table 1 we provide the  $R^2$ 's and the CBI t-ratios from (1) for all estimation periods. In Table 2 we give for the whole estimation period, 1972-2002, the  $R^2$ 's from (2) and (3), plus the CBI t-ratio from (2) and  $\chi^2_{\text{cbi}}$  (3) from (3).

**Table 1 – Summing Up the Results from Estimation of (1)**

| Specifications                                   | 1972-2002 | 1972-2002 | 1972-1992 | 1982-2002 |
|--|-----------|-----------|-----------|-----------|
|  | $R^2$     | T-ratio   | T-ratio   | T-ratio   |
| Only CBI   | 0.7340    | -3.37     | -3.17     | -1.68     |
| CBI + FOI, TO, UD                                | 0.7376    | -2.43     | -2.57     | -1.41     |
| CBI + " + Union Centralisation                   | 0.7543    | -2.42     | -2.60     | -1.34     |
| CBI + " + Union Concentration                    | 0.7497    | -1.12     | -1.11     | -1.15     |
| CBI + " + Business Centralisation                | 0.7512    | -1.55     | -1.96     | -0.87     |
| CBI + " + Wage Centralisation                    | 0.7438    | -2.20     | -2.36     | -1.24     |
| CBI + " + Wage Centralisation #2 <sup>8</sup>    | 0.7492    | -1.69     | -1.88     | -0.83     |
| CBI + " + Wage Coordination                      | 0.7509    | -0.92     | -1.65     | -0.34     |
| CBI + " + Union Participation                    | 0.7438    | -2.26     | -2.39     | -1.46     |
| CBI + " + Political-Economic Consensus           | 0.7534    | -1.48     | -1.96     | -0.78     |
| CBI + " + Composite measures (without consensus) | 0.7505    | -2.33     | -2.58     | -0.79     |
| CBI + " + Composite measures (with consensus)    | 0.7502    | -1.32     | -1.74     | -0.74     |

<sup>8</sup> These are the Golden-Wallerstein-Lange wage centralisation measures, which we kept apart from other measures, as their definition arguably sets them between centralisation and coordination measures.

**Table 2 – Summing Up the Results from Estimation of (2) and (3), 1972-2002**

| Specifications                                   | (2)            |         | (3)            |                              |
|--|----------------|---------|----------------|------------------------------|
|  | R <sup>2</sup> | T-ratio | R <sup>2</sup> | $\chi^2_{\text{cbi}}$<br>(3) |
| CBI + " + Union Centralisation                   | 0.7550         | -2.28   | 0.7564         | 10.19                        |
| CBI + " + Union Concentration                    | 0.7524         | -1.72   | 0.7532         | 5.82                         |
| CBI + " + Business Centralisation                | 0.7516         | -1.62   | 0.7521         | 3.82                         |
| CBI + " + Wage Centralisation                    | 0.7480         | -2.18   | 0.7517         | 14.93                        |
| CBI + " + Wage Centralisation #2                 | 0.7495         | -1.78   | 0.7536         | 13.58                        |
| CBI + " + Wage Coordination                      | 0.7572         | -0.78   | 0.7572         | 4.81                         |
| CBI + " + Union Participation                    | 0.7474         | -1.99   | 0.7533         | 16.45                        |
| CBI + " + Political-Economic Consensus           | 0.7591         | -1.52   | 0.7599         | 4.94                         |
| CBI + " + Composite measures (without consensus) | 0.7506         | -3.04   | 0.7560         | 20.40                        |
| CBI + " + Composite measures (with consensus)    | 0.7502         | -1.61   | 0.7507         | 4.05                         |

NB: The critical value of  $\chi^2_{\text{cbi}}$  (3) at the 95% significance level is 7.82.

As shown in Table 1, including any indicator of corporatism has almost invariably favourable effects on the equations' goodness of fit. However, by and large only the indicators that allow for consensus and cooperation have a strong (negative) impact on the significance of CBI. For instance, indicators of wage centralisation have considerably less impact than indicators of wage coordination, that explicitly attempt measuring the degree to which wage setters harmonise their bargaining with some overall guidelines about income distribution. There are naturally exceptions to this rule. Measures of union participation do not have much impact on the significance of CBI, but this can be ascribed to their largely subjective nature. On the other hand, measures of business centralisation, and especially of union concentration, have a strong impact on the significance of CBI. It is easy to elaborate stories explaining why these conditions can facilitate consensus and cooperation (see for instance the analysis in Layard and Nickell, 1999). Perhaps most interestingly, there is a sharp divide among the impact of composite measures with and without consensus. Particularly the Bruno-Sachs, Tarantelli and Western measures achieve a strong reduction of the CBI significance, while the measures without consensus do not weaken at all the link between inflation and CBI.

From Table 2, it is clear that this picture is not much changed by non-linearities. To begin with, they do not appear to be very pervasive. Only in a few cases does the fit of the equation improve appreciably vis-à-vis the linear specification. Furthermore, and here more relevantly, the considerations made above about the significance of the CBI measure remain virtually unchanged. Although CBI becomes marginally more significant for most groups of corporatism indicators, the main conclusions are not affected by the specifications adopted in (2) and (3). It is perhaps more interesting to notice, from the last column of Table 1, that CBI loses significance altogether in the 1982-2002 sub-period. However, this does not affect our conclusions either, for at least two reasons. First, although CBI loses significance dramatically, most corporatism indicators allowing for consensus over income distribution remain significant (see the last column of Table A.1). Second, the comparisons that carry more weight about the inflation performance of the OECD economies are arguably those made in the 1970s, when two very severe oil shocks hit these economies.

## 7. Concluding remarks

One of the hallmarks of Ezio Tarantelli's work has certainly been its careful consideration of the distinctive features of industrial relations systems. In Tarantelli (1986) this taxonomy of industrial relations systems took concrete form in the computation of an index of corporatism. According to Tarantelli, one of the key features of a corporatist system is control over inflationary pressures: social pacts are seen as an alternative to restrictive monetary policy. In our view, this concern, which is highly topical because of the inception of the European Monetary Union, has close theoretical links with the issue of the independence of central banks.

For almost twenty years, CBI has been at the core of the monetary policy debate. Moreover, the idea that greater CBI brings about a lower rate of inflation has motivated numerous policy reforms. The possible tension between economic expediency and respect for the principle of democratic representation has been somewhat neglected in the literature. However, the idea has emerged (Cama and Pittaluga, 1999) that independent central banks should be seen as guaranteeing the transparent determination of income distribution against surreptitious income transfers brought about by high and volatile inflation. Paradoxically, breaching the principle of representation helps, in this case, to safeguard a key principle of democracy, namely that decision-makers should be clearly responsible for their choices and actions.

Berger et al. (2001) maintain that, even when allowing for a wide array of control variables, the relation between CBI and inflation in the OECD countries seems sufficiently solid. In this paper we tested the hypothesis that CBI is closely correlated with the level of social consensus on income distribution, a key feature of corporatism in Tarantelli's view. Our empirical strategy is centred on the relationship among inflation, CBI and corporatism. Controlling for various other factors, we test whether the relationship between inflation and CBI weakens once allowance is made for indicators of corporatism which (like Tarantelli's own index) account for the degree of social consensus on the distribution of income. Using data from a panel of OECD countries over period 1972-2002, we find evidence in favour of this hypothesis. Interestingly, the relationship between inflation and CBI does not weaken if allowance is made for other indexes of corporatism which place much greater weight on the centralisation of unions or of wage bargaining. Only when one allows for the degree of consensus and agreement between social partners and government, as in Tarantelli's index of corporatism, can one fully grasp the relationship between inflation and CBI.

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## Appendix

The quantitative indicators of corporatism from Kenworthy (2001).

We report only the indicators for which there are a high enough number of country observations. The indicators are enumerated below the categories proposed by Kenworthy, with some basic information and with the acronym given by Kenworthy (and used in Table A.1).

### CENTRALISATION AND CONCENTRATION OF LABOUR AND BUSINESS

Union Centralisation (these indicators relate to the following capacities by unions: power of appointment of affiliates, veto over wage agreements by affiliates, veto over strikes, possession of own strike funds).

Schmitter union centralisation. Missing countries: Australia, Japan, New Zealand. Source: Schmitter (1981, p. 294; "organisational centralisation"). SCHMUCEN

Cameron union centralisation. Missing countries: New Zealand. Source: Cameron (1984, p. 165; "confederation power in collective bargaining"). CAMUCEN

Kenworthy union centralisation. Missing countries: Ireland, New Zealand. Source: Kenworthy (2001, p. 33). KENWUCEN

Union Concentration (the extent to which union members belong to a single confederation rather than being divided among multiple confederations, or the extent to which the membership of the union confederation(s) is concentrated within a small number of affiliates rather than being spread out across a large number of affiliates).

Schmitter union concentration. Missing countries: Australia, Japan, New Zealand. Source: Schmitter (1981, p. 294; "associational monopoly"). SCHMUCON

Cameron union concentration. Missing countries: New Zealand. Source: Cameron (1984, p. 165; "organisational unity of labour"). CAMUCON

Golden-Lange-Wallerstein union concentration — across confederations. Herfindahl index of union concentration across union confederations. Missing countries: Ireland, New Zealand. Source: Golden, Lange, and Wallerstein (1997; HERF). GLWUCON1

Golden-Lange-Wallerstein union concentration — within confederations. Approximate Herfindahl index of union concentration for affiliates of the largest union confederation, using the membership of the three largest affiliates and the total number of affiliates. Missing countries: France, Ireland, New Zealand. Source: Golden, Lange, and Wallerstein (1997; APPHRF1). GLWUCON2

Employer Centralisation-Concentration (the degree of concentration among business confederations, the degree of centralised authority of confederations over their members).

Hicks-Kenworthy business centralisation/concentration. Subjective index. Missing countries: none. Source: Hicks and Kenworthy (1998, p. 1642). HKBUS

Kenworthy employer centralisation. Objective index. Missing countries: Ireland, New Zealand. Source: Kenworthy (2001, pp. 33-34). KENWECEN

## WAGE SETTING ARRANGEMENTS

Wage Centralisation (these indicators relate to the level at which wages are bargained. All of them are, at least partly, subjective).

Cameron wage bargaining centralisation. Missing countries: New Zealand. Source: Cameron (1984, pp. 164-65; "scope of collective bargaining"). CAMCEN

Calmfors-Driffill wage bargaining centralisation. Missing countries: Ireland. Source: Calmfors and Driffill (1988, pp. 18, 52-53). CDCEN

OECD wage bargaining centralisation. Missing countries: Ireland. Source: OECD (1997, p. 71). OECDCEN

Iversen wage bargaining centralisation. Missing countries: Ireland, New Zealand. Source: Iversen (1999, pp. 48-57, 83-85). IVERCEN

Traxler-Blaschke-Kittel wage bargaining centralisation. Missing countries: none. Source: Traxler, Blaschke, and Kittel (2001, pp. 114, 307; BCEN). TBKCEN

Golden-Lange-Wallerstein involvement by union and employer confederation(s) in wage setting. Missing countries: Ireland, New Zealand. Source: Golden, Lange, and Wallerstein (1997; CONINV). GLWCENC

Golden-Lange-Wallerstein government involvement in wage setting. Missing countries: Ireland, New Zealand. Source: Golden, Lange, and Wallerstein (1997; GOVIN). GLWCENG

Golden-Lange-Wallerstein overall wage setting centralisation. Missing countries: Ireland, New Zealand. Source: Golden, Lange, and Wallerstein (1997; BARGLEV). GLWCEN

Wage Coordination (the degree to which wage setters deliberately harmonise their bargaining; all these indicators are strongly subjective).

Crouch wage coordination. Dichotomous measure. Missing countries: none. Source: Crouch (1985, p. 117). CRCHCOOR

Layard-Nickell-Jackman wage coordination. Missing countries: none. Source: Layard and Nickell (1994, p. 277); Nickell (1997, p. 63). LNJCOOR

OECD wage coordination. Missing countries: Ireland. Source: OECD (1997, p. 71). OECDCOOR

Hall-Franzese wage coordination. Missing countries: none. Source: Hall and Franzese (1998; HCWB). HFCOOR

Kenworthy wage coordination. Missing countries: none. Source: Kenworthy (2001, p. 36). KENWCOOR

## PARTICIPATION OF LABOUR AND BUSINESS IN POLICY MAKING

These (mostly subjective) indicators measure participation by major interest groups, unions and/or employers, in economic policy

Lehmbruch union participation in economic policy making. Missing countries: France, Japan (these 2 countries are categorised as "concertation without labor"). Source: Lehmbruch (1984, p. 66, "nature of union participation in public policy formation"). LEHMUP

Traxler-Blaschke-Kittel union participation in economic policy making. Excludes wage setting. Missing countries: none. Source: Traxler, Blaschke, and Kittel (2001, pp. 312, 376; UAP). TBKUP

## POLITICAL-ECONOMIC CONSENSUS

Indicators focusing on consensus alone. They both heavily rely on working days lost due to strikes.

McCallum economic consensus. Dichotomous measure. Missing countries: none. Source: McCallum (1986, p. 954). MCCLCONS

Paloheimo economic consensus. Missing countries: New Zealand. Source: Paloheimo (1984, p. 173). PALOCONS

## COMPOSITE MEASURES

Alvarez-Garrett-Lange measure. Standardised score for (Cameron's union concentration x Cameron's union centralisation x Cameron's wage setting centralisation) + the standardised score for union density. Missing countries: Ireland, New Zealand, Switzerland. Source: Alvarez, Garrett, and Lange (1991, table A-1). AGLCORP

Bruno-Sachs measure. Sum of 0, .5, 1 scores for: union movement centralisation, low shop-floor autonomy, employer coordination, and works councils. Missing countries: Ireland. Source: Bruno and Sachs (1985, p. 227). BSCORP

Cameron measure. Equal to [union concentration + (union centralisation x union density)]. Missing countries: Ireland. Source: Cameron (1984, pp. 165-66; "organisational power of labour"). CAMCORP

Hicks-Kenworthy measure. Average of 0, .5, 1 scores for 7 types of economic cooperation: business centralisation, wage setting coordination, cooperation between government and interest groups, tripartite neocorporatism (measured with two indicators: the Lijphart-Crepaz corporatism measure and the Hicks-Swank corporatism measure), cooperation between investors and firms, and cooperation between labour and management. Missing countries: none. Source: Hicks and Kenworthy (1998, pp. 1642-43; "neocorporatism"). HKCORP

Hicks-Swank measure. Loadings from factor analysis of a variety of corporatist-type variables (union strength, union centralisation, class mobilisation, and left-party government). Missing countries: none. Source: Hicks and Swank (1992, p. 662; "left corporatism"). HSCORP

Keman measure. Index measuring the degree to which there exists an ideology of social partnership and to which the state plays an active part in shaping the system of industrial relations. Missing countries: none. Source: Keman (1984). KEMCORP

Lehner measure. Index ranging from pluralism (fragmented and segmented interest intermediation) to concordance (comprehensive coordination of the interactions of the private and the public sector). Missing countries: New Zealand. Source: Lehner (1988, p. 74). LEHNCORP

Lijphart-Crepaz measure. Average of standardised scores of 12 measures used in prior literature. Missing countries: none. Source: Lijphart and Crepaz (1991, p. 239). LCCORP

Schmidt measure. Subjective index with 3 categories. Missing countries: none. Source: Schmidt (1982, p. 245). SMDTCORP

Schmitter measure. Combines Schmitter's union centralisation and concentration measures. Missing countries: Australia, Japan, New Zealand. Source: Schmitter (1981, p. 294, "societal corporatism"). SCHMCORP

Swank measure. Index of standardised scores for union density, union centralisation and wage centralisation, with the components weighted by a factor score loading. Missing countries: Ireland, New Zealand. Source: Swank (2001). SWNKCORP

Tarantelli measure. Sum of 1-5 scores for 3 dimensions: (1) the degree to which there is not only a high ideological and political consensus but also a high integration and cooperation of trade unions and employers' representatives with the political and economic machinery of the government; (2) the degree of centralisation of wage setting; (3) the process of dispute settlement. Missing countries: Ireland, Switzerland. Source: Tarantelli (1986, pp. 12-13, "degree of centralisation of the industrial relations system"). TARACORP

Western measure. Revision of Bruno-Sachs composite corporatism measure (see above). Missing countries: none. Source: Western (1997, pp. 40-41, "labour market centralisation"). WESTCORP

**TABLE A.1 – Inflation, CBI and Corporatism. Results from the Linear Specification**

| Variables of interest | 1972-2002                |                | 1972-1992                 |                | 1982-2002                 |                |
|-----------------------|--------------------------|----------------|---------------------------|----------------|---------------------------|----------------|
|                       | <i>coeff.</i>            | <i>T-ratio</i> | <i>coeff.</i>             | <i>T-ratio</i> | <i>coeff.</i>             | <i>T-ratio</i> |
|                       | <i>R</i> <sup>2</sup>    |                | <i>R</i> <sup>2</sup>     |                | <i>R</i> <sup>2</sup>     |                |
| CBI <sup>9</sup>      | -1.98<br>0.7340          | -3.37          | -2.49<br>0.6771           | -3.17          | -0.93<br>0.6626           | -1.68          |
| CBI <sup>10</sup>     | -1.56<br>0.7376          | -2.43          | -2.09<br>0.6881           | -2.57          | -0.85<br>0.6636           | -1.41          |
| schmucon<br>CBI       | -0.16<br>-2.16<br>0.7661 | -4.15<br>-2.91 | -0.20<br>-2.92<br>0.7439  | -3.44<br>-3.10 | -0.08<br>-1.24<br>0.6536  | -2.27<br>-1.72 |
| camucon<br>CBI        | -1.72<br>-1.37<br>0.7453 | -3.12<br>-2.10 | -2.91<br>-1.83<br>0.7105  | -3.79<br>-2.24 | -0.28<br>-0.70<br>0.6644  | -0.44<br>-1.16 |
| kenwucon<br>CBI       | -0.22<br>-1.46<br>0.7514 | -2.06<br>-2.25 | -0.351<br>-2.06<br>0.7169 | -2.84<br>-2.45 | -0.14<br>-0.62<br>0.6647  | -0.12<br>-1.13 |
| schmucon<br>CBI       | -0.10<br>-1.86<br>0.7577 | -2.65<br>-2.39 | -0.16<br>-2.53<br>0.7368  | -3.42<br>-2.73 | -0.60<br>-1.04<br>0.6503  | -1.23<br>-1.23 |
| camucon<br>CBI        | -2.34<br>0.23<br>0.7475  | -3.05<br>0.27  | -3.87<br>0.69<br>0.7157   | -3.84<br>0.71  | -0.65<br>-0.23<br>0.6653  | -0.70<br>0.20  |
| glwucon1<br>CBI       | 0.46<br>-1.40<br>0.7495  | 1.13<br>-2.00  | 0.45<br>-1.80<br>0.7113   | 0.80<br>-2.16  | 0.11<br>-0.65<br>0.6647   | -0.68<br>-1.98 |
| glwucon2<br>CBI       | -9.71<br>-0.24<br>0.7442 | -3.88<br>-0.36 | -14.09<br>-0.21<br>0.7140 | -3.90<br>-0.26 | -2.88<br>-0.24<br>0.6484  | -6.42<br>-1.57 |
| camcen<br>CBI         | 0.06<br>-1.33<br>0.7416  | 0.10<br>-1.93  | -0.54<br>-1.59<br>0.7019  | -0.66<br>-1.93 | 0.74<br>-0.87<br>0.6655   | 1.03<br>-1.18  |
| cdcen<br>CBI          | -0.09<br>-1.63<br>0.7420 | -3.67<br>-2.53 | -0.14<br>-2.32<br>0.6989  | -4.47<br>-2.79 | -0.01<br>0.84<br>0.6638   | -0.53<br>-1.39 |
| tbkcon<br>CBI         | 0.06<br>-1.50<br>0.7387  | 1.69<br>-2.38  | 0.03<br>-2.07<br>0.6885   | 0.78<br>-2.56  | 0.06<br>-0.79<br>0.6662   | 1.71<br>-1.35  |
| ivercon<br>CBI        | -2.45<br>-1.22<br>0.7526 | -2.77<br>-1.87 | -4.25<br>-1.71<br>0.7205  | -3.52<br>-2.13 | -0.57<br>-0.60<br>0.6651  | -0.64<br>-0.95 |
| oecdcon<br>CBI        | 0.13<br>-1.52<br>0.7439  | 0.44<br>-2.31  | 0.03<br>-2.07<br>0.6946   | 0.07<br>-2.38  | 0.41<br>-0.8<br>0.6667    | 2.20<br>-1.33  |
| hkbus<br>CBI          | -1.71<br>-0.82<br>0.7509 | -3.64<br>-1.30 | 0.69<br>0.77<br>0.7131    | -3.44<br>-1.91 | -0.59<br>-0.50<br>0.6672  | -1.61<br>-0.75 |
| kenweccon<br>CBI      | -0.41<br>-1.18<br>0.7514 | -2.79<br>-1.80 | -0.70<br>-1.61<br>0.7178  | -3.37<br>-2.01 | -0.001<br>-0.61<br>0.6646 | -0.01<br>-0.99 |
| gwlcon<br>CBI         | -0.05<br>-1.60<br>0.7493 | -0.82<br>-1.89 | -0.10<br>-2.36<br>0.7122  | -1.14<br>-2.06 | 0.00<br>-0.60<br>0.6646   | 0.05<br>-1.05  |
| gwlcon<br>CBI         | 0.03<br>-1.11<br>0.7492  | 0.73<br>-1.63  | 0.03<br>-1.54<br>0.7111   | 0.44<br>-1.78  | 0.01<br>0.59<br>0.6647    | 0.15<br>-1.02  |
| gwlcon<br>CBI         | 0.10<br>-1.07<br>0.7491  | 0.58<br>-1.55  | 0.01<br>-1.63<br>0.7109   | 0.03<br>-1.80  | 0.25<br>-0.21<br>0.6664   | 1.58<br>-0.41  |

<sup>9</sup> Estimated equation:  $\pi = (\pi^f, \text{CBI})$ .

<sup>10</sup> Estimated equation:  $\pi = (\pi^f, \text{CBI}, \text{FOI}, \text{TO}, \text{UD})$ .

|          |        |       |         |       |        |       |
|----------|--------|-------|---------|-------|--------|-------|
| crchcoor | -0.76  | -2.96 | -1.07   | -3.32 | -0.19  | -0.66 |
| CBI      | -0.67  | 0.97  | -0.93   | -1.20 | -0.60  | -0.72 |
|          | 0.7414 |       | 0.6954  |       | 0.6641 |       |
| lnjcoor  | -0.42  | -3.89 | -0.56   | -3.61 | -0.13  | -1.35 |
| CBI      | -1.11  | -1.77 | -1.78   | -2.28 | 0.62   | 0.94  |
|          | 0.7448 |       | 0.7057  |       | 0.6658 |       |
| oecdcoor | -1.33  | -5.83 | -2.00   | -5.83 | -0.56  | -2.53 |
| CBI      | -0.32  | -0.49 | -0.70   | -0.18 | -0.18  | -0.26 |
|          | 0.7600 |       | 0.7280  |       | 0.6698 |       |
| kenwcoor | -0.77  | -5.24 | -1.06   | -4.65 | -0.31  | -2.50 |
| CBI      | -1.16  | -1.83 | -1.96   | -2.43 | -0.57  | -0.90 |
|          | 0.7557 |       | 0.7201  |       | 0.6701 |       |
| hfcoor   | -2.11  | -4.40 | -2.78   | -4.07 | -0.71  | -1.59 |
| CBI      | -0.94  | -1.48 | -1.68   | -2.15 | -0.52  | -0.76 |
|          | 0.7527 |       | -0.7138 |       | 0.6674 |       |
| lehmap   | -0.50  | -3.51 | -0.79   | -3.97 | -0.18  | -1.17 |
| CBI      | -1.77  | -2.24 | -2.47   | -2.39 | -1.11  | -1.46 |
|          | 0.7493 |       | 0.7190  |       | 0.6425 |       |
| tbkup    | -0.70  | -1.62 | -1.37   | -2.41 | 0.44   | 1.01  |
| CBI      | -1.48  | -2.28 | -1.92   | -2.39 | -0.91  | -1.45 |
|          | 0.7383 |       | 0.6903  |       | 0.6642 |       |
| mclcons  | -1.13  | -4.67 | -1.58   | -4.81 | -0.40  | -1.64 |
| CBI      | -0.94  | -1.48 | -1.52   | -1.98 | -0.56  | -0.84 |
|          | 0.7482 |       | 0.7079  |       | 0.6668 |       |
| palocons | -0.77  | -5.23 | -1.05   | -5.05 | -0.27  | -2.02 |
| CBI      | -0.96  | -1.47 | -1.56   | -1.93 | -0.47  | -0.72 |
|          | 0.7585 |       | 0.7304  |       | 0.6697 |       |
| aglcorp  | -0.17  | -0.72 | -0.54   | -1.73 | 0.16   | 0.72  |
| CBI      | -1.27  | -1.91 | -1.80   | -2.30 | -0.68  | 0.96  |
|          | 0.7484 |       | 0.7121  |       | 0.6657 |       |
| bscorp   | -0.25  | -3.26 | -0.41   | -3.96 | -0.08  | -1.05 |
| CBI      | -0.88  | -1.24 | -1.18   | -1.37 | -0.56  | -0.79 |
|          | 0.7484 |       | 0.7080  |       | 0.6653 |       |
| camcorp  | -0.01  | -2.20 | -1.03   | -3.29 | -0.001 | -0.25 |
| CBI      | -1.61  | -2.46 | -2.3    | -2.64 | -0.79  | -1.31 |
|          | 0.7468 |       | 0.7033  |       | 0.6642 |       |
| hkcorp   | -2.46  | -3.90 | -3.04   | -3.53 | -0.78  | -1.62 |
| CBI      | -1.01  | -1.62 | -1.77   | -2.25 | -0.55  | -0.86 |
|          | 0.7523 |       | 0.7140  |       | 0.6675 |       |
| hscorp   | -0.55  | -3.14 | -0.72   | -2.98 | 0.16   | -0.93 |
| CBI      | -2.20  | -3.01 | -3.07   | -2.99 | -0.99  | -1.75 |
|          | 0.7436 |       | 0.6980  |       | 0.6649 |       |
| kemncorp | -0.36  | -3.96 | -0.48   | -3.92 | -0.10  | -1.16 |
| CBI      | -1.52  | -2.36 | -2.27   | -2.72 | -0.78  | -1.24 |
|          | 0.7460 |       | 0.7025  |       | 0.6652 |       |
| lccorp   | -0.72  | -4.31 | -1.06   | -4.43 | -0.24  | -1.37 |
| CBI      | -0.92  | -1.48 | -1.48   | -1.96 | -0.55  | -0.83 |
|          | 0.7497 |       | 0.7119  |       | 0.6668 |       |
| lehncorp | -0.45  | -5.43 | -0.58   | -4.77 | -0.18  | -2.31 |
| CBI      | -1.07  | -1.63 | -1.55   | -1.91 | -0.55  | -0.88 |
|          | 0.7524 |       | 0.7191  |       | 0.6682 |       |
| smdtcorp | -0.83  | -4.82 | -1.05   | -4.32 | -0.30  | -1.93 |
| CBI      | -1.54  | -2.35 | -2.4    | -2.80 | -0.73  | -1.18 |
|          | 0.7515 |       | 0.7100  |       | 0.6681 |       |
| schmcorp | -0.16  | -3.60 | -0.21   | -3.68 | -0.08  | -1.69 |
| CBI      | -1.62  | -2.16 | -2.32   | -2.59 | -0.91  | -1.08 |
|          | 0.7644 |       | 0.7450  |       | 0.6539 |       |
| swncorp  | -0.30  | -0.88 | -0.85   | -1.64 | 0.28   | 0.92  |
| CBI      | -1.51  | -2.10 | -2.45   | -2.40 | -0.38  | -0.78 |
|          | 0.7494 |       | 0.7133  |       | 0.6654 |       |
| taracorp | -0.27  | -4.63 | -0.37   | -4.50 | -0.12  | -2.19 |
| CBI      | 0.12   | 0.16  | -0.44   | -0.51 | 0.80   | 0.09  |
|          | 0.7585 |       | 0.7212  |       | 0.6716 |       |
| westcorp | -0.45  | -4.27 | -0.65   | -4.19 | -0.13  | -1.35 |
| CBI      | -0.76  | -1.20 | -1.25   | -1.65 | -0.54  | -0.76 |
|          | 0.7495 |       | 0.7116  |       | 0.6660 |       |

**TABLE A.2 – Inflation, CBI and Corporatism. Results from Non Linear Specifications<sup>11</sup>**

| Variables of interest | Equation (2), 1972-2002 |                |              |                       | Equation (3), 1972-2002 |                     |                    |                       |
|-----------------------|-------------------------|----------------|--------------|-----------------------|-------------------------|---------------------|--------------------|-----------------------|
|                       | <i>coeff.</i>           | <i>T-ratio</i> | $\chi^2$ (2) | <i>R</i> <sup>2</sup> | $\chi^2_{corp}$ (3)     | $\chi^2_{corp}$ (4) | $\chi^2_{cbi}$ (3) | <i>R</i> <sup>2</sup> |
| schmucen <sup>2</sup> | 0.01                    | 1.97           | 17.20        | 0.7667                | 4.77                    | 18.78               | 8.39               | 0.7668                |
| CBI                   | -2.08                   | -2.81          |              |                       |                         |                     |                    |                       |
| camucen <sup>2</sup>  | -2.94                   | -2.62          | 12.68        | 0.7465                | 16.92                   | 20.13               | 18.58              | 0.7504                |
| CBI                   | -1.56                   | -2.36          |              |                       |                         |                     |                    |                       |
| kenwucen <sup>2</sup> | -0.08                   | -1.24          | 8.05         | 0.7518                | 1.78                    | 11.18               | 3.59               | 0.7520                |
| CBI                   | -1.22                   | -1.67          |              |                       |                         |                     |                    |                       |
| schmucon <sup>2</sup> | -0.01                   | -1.92          | 7.11         | 0.7592                | 7.35                    | 14.14               | 9.04               | 0.7598                |
| CBI                   | -2.21                   | -2.92          |              |                       |                         |                     |                    |                       |
| camucon <sup>2</sup>  | -5.05                   | -1.83          | 15.98        | 0.7494                | 3.96                    | 20.85               | 3.43               | 0.7501                |
| CBI                   | -0.20                   | -0.22          |              |                       |                         |                     |                    |                       |
| glwucon1 <sup>2</sup> | 2.26                    | 0.73           | 2.76         | 0.7498                | 3.20                    | 3.37                | 5.69               | 0.7508                |
| CBI                   | -1.22                   | -1.49          |              |                       |                         |                     |                    |                       |
| glwucon2 <sup>2</sup> | 2.20                    | 3.69           | 22.90        | 0.7511                | 16.62                   | 24.44               | 5.11               | 0.7519                |
| CBI                   | -1.42                   | -2.23          |              |                       |                         |                     |                    |                       |
| camcen <sup>2</sup>   | -11.00                  | -4.42          | 19.68        | 0.7539                | 39.07                   | 39.39               | 33.96              | 0.7580                |
| CBI                   | -2.24                   | -3.09          |              |                       |                         |                     |                    |                       |
| cdcen <sup>2</sup>    | 0.01                    | -1.51          | 14.06        | 0.7429                | 4.30                    | 18.16               | 6.16               | 0.7436                |
| CBI                   | -1.42                   | -2.15          |              |                       |                         |                     |                    |                       |
| tbkcen <sup>2</sup>   | 0.01                    | 1.09           | 3.07         | 0.7395                | 20.34                   | 20.45               | 13.18              | 0.7450                |
| CBI                   | -1.38                   | -2.16          |              |                       |                         |                     |                    |                       |
| ivercen <sup>2</sup>  | 0.01                    | 3.04           | 18.58        | 0.7588                | 15.28                   | 22.06               | 2.13               | 0.7592                |
| CBI                   | -0.69                   | -1.17          |              |                       |                         |                     |                    |                       |
| oecdcon <sup>2</sup>  | -0.51                   | -1.88          | 3.44         | 0.7450                | 18.52                   | 19.01               | 19.20              | 0.7525                |
| CBI                   | -1.58                   | -2.32          |              |                       |                         |                     |                    |                       |
| hkbus <sup>2</sup>    | -0.22                   | -0.33          | 16.59        | 0.7509                | 1.11                    | 26.06               | 2.84               | 0.7514                |
| CBI                   | -0.84                   | -1.34          |              |                       |                         |                     |                    |                       |
| kenwecen <sup>2</sup> | 0.33                    | 1.18           | 8.23         | 0.7523                | 4.21                    | 10.23               | 4.80               | 0.7528                |
| CBI                   | -1.29                   | -1.90          |              |                       |                         |                     |                    |                       |
| gwlenc <sup>2</sup>   | 0.02                    | 0.83           | 1.05         | 0.7496                | 8.82                    | 9.34                | 9.46               | 0.7541                |
| CBI                   | -1.77                   | -1.91          |              |                       |                         |                     |                    |                       |
| gwleng <sup>2</sup>   | 0.02                    | 0.83           | 1.19         | 0.7494                | 7.31                    | 10.27               | 11.43              | 0.7510                |
| CBI                   | -1.34                   | -2.18          |              |                       |                         |                     |                    |                       |
| gwlcn <sup>2</sup>    | 0.35                    | 1.54           | 2.38         | 0.7503                | 22.29                   | 24.18               | 19.86              | 0.7558                |
| CBI                   | -0.85                   | -1.24          |              |                       |                         |                     |                    |                       |
| crchcoor <sup>2</sup> | <sup>-12</sup>          | --             | --           | --                    | --                      | --                  | --                 | --                    |
| CBI                   | --                      | --             | --           | --                    | --                      | --                  | --                 | --                    |
| lnjcoor <sup>2</sup>  | 0.08                    | 1.36           | 16.28        | 0.7483                | 2.12                    | 22.89               | 3.39               | 0.7487                |
| CBI                   | -1.23                   | -1.83          |              |                       |                         |                     |                    |                       |
| oecdcoor <sup>2</sup> | -0.88                   | -3.76          | 35.15        | 0.7636                | 15.19                   | 36.20               | 4.36               | 0.7650                |
| CBI                   | 0.35                    | 0.49           |              |                       |                         |                     |                    |                       |
| kenwcoor <sup>2</sup> | -0.27                   | -3.58          | 27.68        | 0.7596                | 19.48                   | 36.52               | 6.97               | 0.7612                |
| CBI                   | -1.03                   | -1.63          |              |                       |                         |                     |                    |                       |
| hfcoor <sup>2</sup>   | -0.16                   | -0.16          | 19.42        | 0.7527                | 8.15                    | 26.32               | 4.51               | 0.7537                |
| CBI                   | -0.93                   | -1.45          |              |                       |                         |                     |                    |                       |
| lehmu <sup>2</sup>    | -0.20                   | -1.82          | 15.43        | 0.7505                | 6.04                    | 29.30               | 10.69              | 0.7529                |
| CBI                   | -2.33                   | -2.58          |              |                       |                         |                     |                    |                       |
| tbkup <sup>2</sup>    | 9.76                    | 3.05           | 10.12        | 0.7442                | 25.53                   | 29.62               | 22.20              | 0.7536                |
| CBI                   | 0.89                    | -1.40          |              |                       |                         |                     |                    |                       |
| mcclcons <sup>2</sup> | <sup>-13</sup>          | --             | --           | --                    | --                      | --                  | --                 | --                    |
| CBI                   | --                      | --             | --           | --                    | --                      | --                  | --                 | --                    |

<sup>11</sup> Details about the statistics provided are given in the text, Section 6. Critical values at the 95% significance level are 5.99 for 2 d.o.f.'s, 7.82 for 3 d.o.f.'s and 9.49 for 4 d.o.f.'s.

<sup>12</sup> Non-linear estimates are not available because crchcoor is a binary variable.

<sup>13</sup> Non-linear estimates are not available because mcclcons is a binary variable.

|                       |       |       |       |        |  |       |       |       |        |
|-----------------------|-------|-------|-------|--------|--|-------|-------|-------|--------|
| palocons <sup>2</sup> | 0.28  | 1.59  | 28.04 | 0.7591 |  | 6.33  | 28.28 | 4.94  | 0.7599 |
| CBI                   | -1.07 | -1.56 |       |        |  |       |       |       |        |
| aglcorp <sup>2</sup>  | -0.70 | -4.91 | 24.39 | 0.7601 |  | 37.80 | 38.07 | 33.93 | 0.7716 |
| CBI                   | -2.91 | -3.55 |       |        |  |       |       |       |        |
| bscorp <sup>2</sup>   | 0.16  | 2.69  | 18.38 | 0.7518 |  | 7.60  | 19.40 | 2.60  | 0.7527 |
| CBI                   | -0.59 | -0.84 |       |        |  |       |       |       |        |
| camcorp <sup>2</sup>  | -0.00 | -1.65 | 8.99  | 0.7481 |  | 14.06 | 22.15 | 17.18 | 0.7520 |
| CBI                   | -1.94 | -2.53 |       |        |  |       |       |       |        |
| hkcorp <sup>2</sup>   | -1.15 | -1.15 | 16.81 | 0.7526 |  | 4.78  | 27.68 | 3.88  | 0.7530 |
| CBI                   | -1.02 | -1.64 |       |        |  |       |       |       |        |
| hscorp <sup>2</sup>   | -0.01 | -0.09 | 10.41 | 0.7436 |  | 2.31  | 12.46 | 10.10 | 0.7445 |
| CBI                   | -2.20 | -3.03 |       |        |  |       |       |       |        |
| kemncorp <sup>2</sup> | 0.05  | 0.74  | 16.96 | 0.7462 |  | 1.28  | 21.01 | 5.66  | 0.7463 |
| CBI                   | -1.52 | -2.36 |       |        |  |       |       |       |        |
| lccorp <sup>2</sup>   | 0.29  | 2.52  | 25.32 | 0.7515 |  | 7.00  | 33.14 | 4.56  | 0.7537 |
| CBI                   | -0.57 | -0.98 |       |        |  |       |       |       |        |
| lehncorp <sup>2</sup> | -0.10 | -1.95 | 29.37 | 0.7531 |  | 30.23 | 40.21 | 31.08 | 0.7630 |
| CBI                   | -1.18 | -1.76 |       |        |  |       |       |       |        |
| smdtcorp <sup>2</sup> | -0.25 | -0.15 | 23.26 | 0.7515 |  | 5.78  | 26.09 | 8.42  | 0.7532 |
| CBI                   | -1.54 | -2.36 |       |        |  |       |       |       |        |
| schmcorp <sup>2</sup> | -0.00 | -0.25 | 13.14 | 0.7644 |  | 2.83  | 21.56 | 8.45  | 0.7652 |
| CBI                   | -1.70 | -2.39 |       |        |  |       |       |       |        |
| swncorp <sup>2</sup>  | -0.33 | 0.24  | 2.01  | 0.7500 |  | 10.43 | 11.38 | 11.99 | 0.7529 |
| CBI                   | -1.56 | 0.73  |       |        |  |       |       |       |        |
| taracorp <sup>2</sup> | -0.21 | -1.86 | 26.04 | 0.7600 |  | 3.97  | 27.18 | 1.62  | 0.7605 |
| CBI                   | 0.61  | 0.71  |       |        |  |       |       |       |        |
| westcorp <sup>2</sup> | 0.13  | 1.86  | 18.55 | 0.7511 |  | 5.85  | 24.04 | 1.66  | 0.7512 |
| CBI                   | -0.81 | -1.26 |       |        |  |       |       |       |        |