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Summary

This paper studies corporatism as the outcome of bargaining between the government and a representative labor union. When negotiations between these two parties only relate to macroeconomic stabilization, we show that corporatism can never be beneficial to both parties. As corporatist policies are nevertheless commonly observed in this context, we also discuss in an informal way possible explanations that reconcile the theory with actual observations. The policy implications of these explanations are also discussed.

Keywords: Social pacts, Axiomatic bargaining, Unions, Issue linkage

JEL Classification: E00, E58, E61, J50

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1. Introduction

When studying how actual decisions of economic policy are made, bilateral or trilateral agreements between unions, employers' associations and the government are often found to be rather common. Policies derived from such agreements are generally defined as corporatist (See OECD, 1997; Visser, 1998; Traxler and Kittel, 2000; Rhodes, 2001). These agreements often involve many issues rather than a specific one. Corporatist policies are claimed to result from the public nature of economic stabilization (see the references in Cubitt, 1995). However, the underlying reasons and dynamics of such agreements are less clear, and the theoretical literature has only made a few steps to investigate these questions. On the contrary, many economists, as e.g. Burda (1997), underline a "formal reticence" of researchers to develop models of corporatism.¹

Observed corporatist policies are the result of negotiations among social partners and the government. Any analysis of such negotiations requires an understanding of the rules that guide the interaction among the participants (Olson, 1965; Keohane, 1984; North, 1990; Shepsle and Weingast, 1995). The rules that set the agenda and define the procedures of negotiations influence the scope of issues and the process for choosing among available alternatives. A powerful tool to formalize the negotiation mechanisms is provided by game theory. In particular, cooperative solutions can be interpreted as the result of a negotiation process, and the properties of cooperative solution concepts summarize the rules that guide the interaction among participants.

In 1953 John Nash formally defined cooperation as

“... situations involving two individuals whose interests are neither completely opposed nor completely coincident. The word ‘cooperation’ is used because

¹ In particular, the “formal reticence” is related by Burda to the remarkable imprecision with which the concept is defined. The reticence is even more pronounced with reference to the kind of corporatism we are interested in this paper. Some exceptions to this reticence are Cubitt (1995), Acocella and Di Bartolomeo (2003), and Acocella *et al.* (2004).

the two individuals are supposed to be able to discuss the situation and agree on a rational joint plan of action, an agreement that should be assumed to be enforceable...” (Nash, 1953: 128).

The above definition implies that, for cooperation to be implementable, mutual benefits for all the cooperating agents are essential. In this paper we apply this idea to the negotiations between a government and a trade union with the purpose to stabilize prices and employment. Our main result is negative. When starting from any noncooperative outcome, the trade union will never gain from cooperating. The government may lose from cooperating, or it could simply stay at the initial noncooperative outcome. In some cases, it may gain. Hence, efforts that attempt to promote corporatism with a view of achieving price and output stability are useless. These kinds of round tables are bound to fail.

At the same time, however, casual observations show that such cooperative agreements are often quite common in practice. We will then also discuss possible explanations that may reconcile the theory with empirical observations.

The paper is organized as follows. The next section describes the model. Section 3 derives various noncooperative solutions. Section 4 concerns cooperative solutions, and derives our main result against cooperation related to economic stabilization. We also check the robustness of our results for different noncooperative and cooperative solutions. Section 5 discusses alternative explanations of the observed cooperative behavior, and gives some hints for correct and successful policy recommendations. A final section concludes.

2. The model

We consider a simple unionized economy in which a competitive firm uses labor to produce one final good. A monopoly trade union sets the nominal wage level, and a public policy maker (the government) controls aggregate demand. Formally, the simple economic setup is

described by an aggregate production function, an aggregate demand function, and the preferences of the two policymakers.

The production function is $y = f(n)$ with $f_n(n) > 0$ and $f_{nn}(n) < 0$ (subscripts indicate derivatives), where y is real output and n is employment. Employment n is bounded between zero and \bar{n} , the exogenously given labor supply. \bar{n} is the full employment level of n . Competitive profit maximization requires $f_n(n) = \omega$, where ω is the real wage level. Labor demand is given by $n = f_n^{-1}(\omega)$. Aggregate supply of output is obtained as $y^s = q(\omega) = f(f_n^{-1}(\omega))$. Clearly, $q_\omega(\omega) < 0$.

Aggregate demand is given by a function $y^d = d(p, m)$, where p is the absolute price level,² and m represents a policy variable (e.g. money supply), controlled by the government. We assume that $d_p(p, m) < 0$. The sign of $d_m(p, m)$ depends on the exact interpretation of m which we will leave open.³

Let w be the nominal wage level. Equilibrium on the output market requires that $q(w/p) = d(p, m)$. The wage level w is assumed to be controlled by the trade union, while the government controls m . We assume that, for any combination (w, m) , the price level p instantaneously adjusts to realize equilibrium on the output market.

The preferences of the two policy makers are represented by the following payoff functions. The trade union's payoff function is denoted by $\pi^T(n, \omega)$, with $\pi_n^T(n, \omega) > 0$ and $\pi_\omega^T(n, \omega) > 0$ (for a microeconomic foundation, see Oswald (1985)). The government's payoff function is denoted by $\pi^G(y, p)$, with $\pi_y^G(y, p) > 0$ and $\pi_p^G(y, p) < 0$. Both payoff functions are assumed to be strictly concave.

² We assume the parametrically initial price is equal to zero. We can then talk of inflation and current prices interchangeably (Cubitt, 1995: 247).

³ A similar game is described by Cubitt (1995). Our assumption that the trade union does not affect aggregate demand is not essential. It is introduced only to simplify the exposition.

In all the games we will analyze, we assume that the firm, given a real wage ω , instantaneously adjusts its employment and its supply of output according to its demand function for labor $n = f_n^{-1}(\omega)$ and its supply function of output $q(\omega)$. We will not treat the firm as a separate player.⁴

3. Noncooperative solutions.

In this section we will analyze three different noncooperative games, based on the model of section 2. Before doing that, we will first analyze how the price level p depends on the actions taken by the trade union and the government.

For any combination (w, m) , we can determine the corresponding price level p that realizes equilibrium on the output market. This involves solving the equation $q(w/p) = d(p, m)$ for p . This equilibrating price level p can be written as a function $p = \phi(w, m)$. Differentiating both sides of the identity

$$q\left(\frac{w}{\phi(w, m)}\right) = d(\phi(w, m), m) \quad (1)$$

with respect to w , one obtains

$$q_\omega(\omega) \left[\frac{p - w\phi_w(w, m)}{p^2} \right] = d_p(p, m)\phi_w(w, m) \quad (2)$$

so that

$$\phi_w(w, m) = \frac{q_\omega(\omega) p}{p^2 d_p(p, m) + w q_\omega(\omega)}$$

⁴ Alternatively, firms can be considered as a player (follower) that, given the real wage, sets employment and output as a strategic variable. See, e.g., Coricelli *et al.* (2000). However, the issue is a purely terminological one.

It follows that $\phi_w(w, m) > 0$. An increase in the wage level w requires an increase in the price level p to restore equilibrium on the output market. As in (2) the sign of the LHS must equal the sign of the RHS, it follows that

$$\frac{w}{p} \phi_w(w, m) < 1 \quad (3)$$

This implies that a one percent increase in w requires a less than one percent increase in p to restore equilibrium. If the derivative $d_p(p, m)$ would be zero, then equation (3) would hold with equality. This follows from (2). In this case the trade union would not be able to control the real wage level: a one percent change in w would always lead to a one percent change in p , leaving the real wage unchanged. If inequality (3) holds, then by changing w the trade union does affect the real wage level.

Differentiating the two sides of (1) with respect to m shows that the sign of $\phi_m(w, m)$ must be the same as the sign of $d_m(p, m)$.

We will now derive the reaction functions of the two players. We start with the *reaction function of the trade union*. For any given value of m , we want to determine the corresponding optimal value of w for the trade union. Using (3) we know that, for any given value of m , the trade union can control the real wage level $\frac{w}{\phi(w, m)}$ by manipulating w .

Through the demand for labor, this control over the real wage level also allows control over employment and output. The trade union is then, in fact, in a position to choose n and ω so as to maximize its payoff $\pi^T(n, \omega)$, subject to $n = f_n^{-1}(\omega)$. This problem is illustrated in the third quadrant of Figure 1. Given the strict concavity of the function $\pi^T(n, \omega)$, one expects this problem to have a unique interior solution (n^*, ω^*) . For any value of m , the trade union will then choose that value of w such that the resulting real wage equals ω^* . Employment and output are then given by $n^* = f_n^{-1}(\omega^*)$ and $y^* = f(n^*)$. On Figure 1 the production function

(fourth quadrant) transforms employment n into output y . More formally, the reaction function of the trade union is given by

$$\varphi_T(m) = \left\{ w \mid \frac{w}{\phi(w, m)} = \omega^* \right\}$$

We now turn to the *reaction function of the government*. This player takes the value of w as given. Suppose $w = w_1$. Aggregate supply $q(\omega)$ is then given by $q(w_1 / p)$. This supply function can be drawn as a function of p in the first quadrant of Figure 1. This quadrant describes the output market. If the government decides on a value of m , it determines the price level $p = \phi(w_1, m)$, and aggregate output $q(w_1 / \phi(w_1, m))$. The government is then in a position to maximize $\pi^G(y, p)$ with respect to y and p , subject to $y = q(w_1 / p)$. The solution of this problem for $w = w_1$ is illustrated in the first quadrant of Figure 1. If w would decrease from w_1 to w_2 , the constraint in quadrant 1 would shift to $q(w_2 / p)$, and a new optimal combination of y and p can be determined. The set of all such solutions for all values of w then traces out the locus BN on Figure 1. More formally, the reaction function of the government is given by

$$\varphi_G(w) = \arg \max_m \pi^G [\phi(w, m), q(w / \phi(w, m))]$$

We now consider three noncooperative games. The first game is a *static game* in which the trade union and the government move simultaneously. The Nash equilibrium of this game is given by the strategy combination (w^*, m^*) , leading to the points H and N on Figure 1, where $p^* = \phi(m^*, w^*)$ and $\omega^* = w^* / \phi(w^*, m^*)$. The solution of the trade union's problem in the third quadrant leads to a unique real wage level ω^* and employment level $n^* = f_n^{-1}(\omega^*)$. Given the action m^* by the government, the trade union will determine w such that $\omega^* = w / \phi(w, m^*)$. This occurs when $w = w^*$. The government takes w^* as given, and then manipulates m so as to find the best point on the curve $q(w^* / \phi(w^*, m))$. This is obtained for

the value m^* for which $p^* = \phi(m^*, w^*)$ and $y^* = q(w^* / \phi(w^*, m^*))$. This Nash equilibrium reveals the traditional results of the inflation bias (p^*) and demand policy neutrality.

Consider now the sequential game in which *the trade union moves first*. For every value of w , there is a corresponding supply function in the first quadrant on which the government will choose its best point. The trade union will then choose that value of w for which the government chooses $y = y^*$. This will be the case if $w = w^*$, so that the government chooses the value $m = m^*$ for which $p^* = \phi(w^*, m^*)$ and $y^* = q(w^* / \phi(w^*, m^*))$. On Figure 1 this again leads to the points H and N.

Finally, consider the sequential game in which *the government moves first*. For any value of m , the trade union will choose the value of w such that the real wages equals ω^* . Real output is then always y^* . The government will then choose that value of m for which the price level is minimal. On Figure 1 this results in the outcomes H and S. As compared to outcome N, the government realizes a first mover advantage. As is well-known, the inflation bias in S vanishes as a result of the credible commitment of the government not to tolerate any inflation.

Summarizing, all noncooperative games imply the same unemployment $\bar{n} - n^*$. The trade union enjoys a corresponding real wage premium equal to $\omega^* - \omega^C$. (ω^C is the real wage at which $\bar{n} = f_n^{-1}(\omega^C)$.) The inflation bias is zero or positive (p^*) depending on the credibility of the government to support a demand policy that will not attempt to inflate the economy in order to raise employment.

4. Cooperative solutions.

In this section we discuss various cooperative solutions of the same game. All these solution concepts make use of the set of feasible payoff combinations, and of the utility possibility frontier. We first specify these notions in the context of our game.

The utility possibility frontier can be constructed as follows. On Figure 1 we start from the government's bliss point B, where there is full employment and no inflation. The government's payoff π^G is then β_4 , while the trade union's payoff is α_1 . This payoff combination is indicated in Figure 2. For π^G equal to β_3 , there are an infinite number of combinations (y, p) realizing this payoff for the government. From the point of view of the trade union, the best among these is $(\bar{y}, 0)$. This gives the trade union a payoff of α_2 . The resulting payoff combination (β_3, α_2) is also indicated on Figure 2. Decreasing π^G further to β_2 , the best combination of (y, p) from the point of view of the trade union is point $(y^*, 0)$, where π^T equals α_3 . If one further decreases the value of π^G , the maximal values for π^T are obtained by points of the form (y^*, p) along the line segment SN. Moving up to the North of this segment decreases π^G , while the value of π^T remains constant at α_3 . On Figure 2 we then obtain the payoff combinations from (β_2, α_3) to (β_1, α_3) . The utility possibility frontier is then given by the heavily drawn curve on Figure 2. The shaded area is the set Ω of all feasible payoff combinations. If the payoff functions π^G and π^T are strictly concave, this set must be convex.

We now consider various possible cooperative solutions. We start with the *utilitarian solution*. This solution concept is used, e.g., by Gylfason and Lindbeck (1994) and Cubitt (1995) in a similar context. This solution is obtained as

$$(\beta_c, \alpha_c) = \arg \max \left\{ \delta \pi^G + (1 - \delta) \pi^T \mid (\pi^G, \pi^T) \in \Omega \right\}$$

where $\delta \in (0,1)$ measures the bargaining power of the players. In Figure 3 this solution is given by the point C where inflation is zero, and where employment is between n^* and \bar{n} . Comparing this outcome with any of the noncooperative outcomes, we observe that cooperation always implies higher employment and lower (or equal) inflation. The government is always better off. However, the trade union is always worse off: the real wage ω will always be lower than ω^* , while employment will be higher than n^* . We can conclude, therefore, that there is no scope for corporatist policies, in the sense of the utilitarian solution, whatever the noncooperative starting point. Such policies can never be beneficial to the trade union.

We can generalize the utilitarian solution by reducing the set Ω to a subset Ω_F , defined as

$$\Omega_F = \{(\pi^G, \pi^T) \in \Omega \mid \pi^G \geq \bar{\alpha}, \pi^T \geq \bar{\beta}\}$$

Here $(\bar{\alpha}, \bar{\beta}) \in \Omega$ is the disagreement point, i.e., the payoff combination that obtains in the case of a breakdown of the negotiations. We could then specify $(\bar{\alpha}, \bar{\beta})$ as the noncooperative outcomes (β_1, α_3) or (β_2, α_3) , i.e., as points A or B on Figure 3. If we take (β_1, α_3) as the disagreement point, the *constrained utilitarian solution* is given by point B in Figure 3 which increases the payoff π^G of the government, and leaves the payoff of the trade union π^T unaffected. If (β_2, α_3) is taken as the disagreement point, point B on Figure 3 is again the constrained utilitarian solution, and no player gains from cooperation.

The effects of introducing a point of disagreement are clear now. In case the government can credibly precommit, the constrained utilitarian solution coincides with the noncooperative one. In the case of the other two noncooperative games the constrained utilitarian solution only succeeds in reducing inflation, while the unemployment rate is unaffected. The government then gains. The trade union is unaffected.

Another cooperative solution is the *Nash bargaining solution* (1953) in which the product $(\pi^G - \bar{\beta})^\alpha (\pi^T - \bar{\alpha})^{1-\alpha}$ is maximized over Ω_F for some $\alpha \in (0,1)$. If we then specify $(\bar{\alpha}, \bar{\beta})$ as (β_1, α_3) or as (β_2, α_3) , the Nash bargaining solutions coincide with the noncooperative solutions.

Finally, if we use the *Kalai-Smorodinsky solution* (1975) as a cooperative solution concept, the solution is again point B on Figure 3, independent of whether we specify $(\bar{\alpha}, \bar{\beta})$ as (β_1, α_3) or as (β_2, α_3) .

The above results can be summarized as follows. Starting from any noncooperative solution, none of the cooperative solutions improves the payoff of both players. The trade union never gains from cooperating. If in the noncooperative stage the government moves first, cooperation does not benefit the government either. If the government cannot precommit, the government only gains in the utilitarian solution and in the Kalai-Smorodinsky solution.

5. Implementation of corporatist policies: A general discussion

We have shown that, in the context of macroeconomic stabilization policies, the scope for successful corporatist policies is very limited⁵. However, as noted in the introduction, casual observation tells us a different story. Corporatist policies have been rather common, at least in European economies after the Second World War. Hence, there is the problem of explaining why these policies are indeed so common. We will now elaborate on the following possible explanations:

1. Threats.
2. Side payments.
3. Issue linkage.

⁵ Recall that, in the above model, unions care about output stabilization only. Similar conclusion can be drawn if unions are assumed also to take account of inflation (see Acocella and Di Bartolomeo, 2003).

4. Political exchange.

5. Delegation of public functions to unions.

Some of these explanations – in particular, the first and the second, the second and the third – may overlap. There are, however, also differences which justify their separate presentation.

All explanations share common problems. Agreements usually result from a long process of negotiations, which also involves strategic behavior by the partners. In the course of these negotiations each partner can resort to a number of actions which increase their bargaining power. First, a partner may try to hide his “true” preferences, or the constraints he faces. In particular, the unions may exaggerate the costs associated with wage moderation, whereas employers’ associations and the government will overestimate the negative consequences of wage increases on employment. In addition, strategies may involve threats in order to extract high compensatory payments from the opponent.

In addition, in many cases (in particular, for threats and side payments, but also issue linkages) problems of time consistency can arise. As a consequence, corporatism can prove to be unstable if one of the partners in a corporatist agreement has a high time preference or does not want to build reputation for other reasons. In what follows we should make specific reference to solutions guaranteeing the acceptability of corporatism by unions. However, in some cases acceptance by employers’ associations of some conditions which favor unions can be ensured if these associations – not unions – are granted some compensation by the government. Then we will often consider conditions for the feasibility of corporatism in a rather loose way, referring to both employers’ associations and unions.

1. *Threats* are rather uncommon in social pacts. Sometimes they come from the government, and are addressed to social partners (mostly unions) in order to induce them to cooperate. The threats refer to the possibility for the government to introduce measures harmful for the social partners (taxation, wage restraint, etc.) in case there is no agreement on some kind of wage setting, particularly in order to preserve price stability. In some other cases threats come from

one of the social partners and are addressed to the other social partner or to the government. However, the success of a threat strategy depends upon the credibility of the threats. Threats must be credible to be relevant. This drastically restricts the cases in which threats support social pacts. Probably, threats become credible only in situations of acute governmental crisis.

The Wassenaar agreement of 1982 in the Netherlands, with the government ostensibly present behind the scene, threatening wage controls and other norms (Boeri et al., 2001: 76), is a perfect example of government threats, tending to facilitate social pacts. The pact was signed in a particularly deep economic crisis of the Dutch system (see Ebbinghaus and Visser, 1997). By contrast, in Belgium the threat strategy of the early 90s was noncredible. This explains why bipartite agreements between labor and enterprise organizations failed, and the government finally introduced a wage setting regulation in 1993 and 1996, as well as a reduction in social expenditures (Boeri et al., 2001: 76-77; Schmitter and Grote, 1997: 193).

2. *Side payments*, in the form of reduced taxes (usually for lower incomes), higher social spending, or a relatively contained reduction in social spending can obviously render corporatist policies beneficial as long as the gains from cooperation for the government exceed the compensations required by the unions. Increases in public expenditures (in the form of welfare expenditures, housing programs, etc.) were rather common in the pacts of the 1970s (Pizzorno, 1978) and 1980s, but were also granted by the government in Finland after 1992. Their controlled reduction was more common in the pacts of the 1990s. This was the case, e.g., in Belgium (Visser, 2002: 10; Schmitter and Grote, 1997: 193). Tax reductions, especially for lower incomes, were agreed in Ireland after 1987, and in Finland after 1992 (Boeri et al., 2001: 76).

3. A different explanation of corporatist agreements is the phenomenon of *issue linkage*. The idea of issue linkage was originally formulated with reference to J/TTbar multinationals and their host countries (see, e.g., Vaitos, 1974: p. 124). It became popular for environmental problems (see Folmer et al., 1993; and Cesar and De Zeeuw, 1996). The intuition is that by adopting cooperative behavior some agents on a given issue, whereas

other agents gain on another one. By linking the two issues, the agreement in which the agents decide to cooperate on both issues may become profitable to all of them.⁶ Hence, the basic idea behind issue linkage is to design an agreement in which participants do not negotiate on one issue only (e.g., economic stabilization, of interest mainly to the government), but on two or more issues (e.g., taxation policy or pension reform, of interest to the social partners).⁷

The difference between issue linkages and side payments has to do with the content of the *quid pro quo* offered by one partner (namely the government) to the other partner (namely the unions, but possibly also employers' associations). In the case of a side payment this consists of a sum of money accruing to the latter, which increases its disposable income through reduced taxation or higher transfer payments. For the partner receiving it, it is a compensation for the loss that partner may suffer. The compensation and the loss are given in the same terms. By contrast, in the case of issue linkages, the counterpart of the loss suffered by one partner is in terms of a different object. For example, in the case of unions suffering a loss from wage restraint, a compensation could derive from an issue linkage of wage restraint and employment preservation (in general, or with specific reference to some industries or regions) or of wage restraint and price stability.

Issue linkage (in addition to side payments) was at the basis of corporatist pacts in Italy in the 1970s, where unions sought price stability and employment in the *Mezzogiorno*. It was also used in Finland in the early 1990s, where the Government promised to abstain from laying off civil servants (Schmitter and Grote, 1997: 190).

⁶ Technically the issue linkage enlarges the payoff space and often increases the benefits of cooperation for all players.

⁷ Recently the idea of issue linkage has been introduced also as a way to increase cooperation on issues where the incentives to free ride are particularly strong. The purpose of issue linkages has been then to determine under which conditions players actually prefer to link the negotiations on two different issues rather than negotiating on the two issues separately. This has been investigated in the context of endogenous coalition formation (see Carraro and Marchiori, 2003).

4. A relationship between unions, employers' associations and governments based on *political exchange* is a specific case of issue linkages, in which the *quid pro quo* for one of the cooperating partners has a truly political nature.⁸ Quite often, all partners have an interest in granting or receiving some kind of legitimacy,⁹ and in avoiding exclusion (Streeck, 1998). Or they want to guarantee social cohesion or to ensure some common political goal, such as controlling the effects of political shocks (liberation from Nazism and Fascism, transition to a democratic regime), or the effects of a shift in economic regime (oil shocks, choice of the option of a non-accommodating monetary regime within the ERM, participation in EMU, entry to the EU).¹⁰

The relevance of "political exchange" derives from the fact that considerations other than performance may guide the partners of a social pact (Traxler, 2003: 6). "Political exchange" is often more of a 'foundational' than a "managerial" pact (Karl, 1985), and often has a loose (even rhetorical) content (Crouch, 2000a: 216).

"Political exchange" is an intrinsically unstable solution, for at least three reasons. First, as we have just said, it often assumes a rhetorical form (rather than having a precise technical content). Secondly, it is an exchange unequal from the point of view of the time dimension of

⁸ The meaning we attribute to the term "political exchange" is rather limited, as we refer to situations where the *quid pro quo* for wage moderation lays in the realm of politics, more than in that of economics. Other authors speak of political exchange in a more comprehensive way, as they include in the counterpart to unions increased public sector expenditure, compensating social policies (which we have referred to as cases of side payments), or employment protection (which in our case is the result of an issue linkage) (see Visser, 2002: 10).

⁹ This is often demanded by unions, particularly in times when the degree of unionization tends to decrease. But there are cases in which governments ask for legitimacy, as it happened not only occasionally in the cases of France and Italy cited before, but also on a regular basis in Austria, where, as declared by the first president of the OGB, Bohm, no government could be formed without the support of the unions (Tarantelli, 1986: 183). There are also cases where some kind of legitimacy (i.e., controlling the labour force, or preventing unions from deploying 'whipsawing tactics' against isolated employers) is sought by employers' associations through social pacts (Traxler, 2003: 3).

¹⁰ In a different context, the importance of the political relationship between the governments and labor unions has been stressed also by Alvarez *et al.* (1991), Detken and Gärtner (1994), and Franzese (1999).

the costs and benefits to each partner. And finally, each partner can only partially control the implementation of decisions agreed upon (Regini, 2000: 161).

One of the first examples of political exchange was given by the post-Nazism and post-Fascism social compromises in France and Italy. Another example was the *Pacto de Moncloa* of 1977 in Spain, after the death of Franco. The pact signed in January 1984 in Italy tried to cope with the (lagged) effects of the second oil shock. The unions mainly gained in terms of social cohesion, stemming from reduced inflation and from the protection of employment in the *Mezzogiorno*. Numerous pacts were subscribed in European countries after the Maastricht Treaty in the early 1990s. Here the gains for the unions were mainly political, i.e., easing the road for the construction of the European Monetary Union. In some way these types of social pacts were a substitute for centralized wage bargaining (Boeri et al , 2001: 75).

5. *Delegation of public functions to social partners* is another explanation of corporatist agreements. Organized interests (in particular, in our context, employers' associations and unions) are given the authority to perform functions typical of the state (managing the welfare system, defining and implementing labour standards, legal enforcement of collective agreements between employers' associations and unions).

This solution can be more stable than the previous one, since at least in some cases costs and benefits to each partner are synchronous, and each partner can control the implementation of the agreements.

The management of the welfare system by trade unions is rather common in many countries. This is the case, since the late nineteenth century, in Germany and Belgium.¹¹ This was also the case in Britain in the late nineteenth and early twentieth centuries. It also occurred in France, Italy, Scandinavian and other Continental Europe countries, Japan and the U.S. (at the enterprise level) after World War II (Crouch, 2000b: 77). *Erga omnes* clauses are entailed by French and Italian systems.

¹¹ For instance in Belgium refunding of medical expenditures as well as unemployment benefits are directly managed by labor unions.

6. Conclusions

In this paper we have analyzed macroeconomic stabilization policies as a game between the government and the trade union. We compared various cooperative and noncooperative solutions. We showed how a simple cooperative utilitarian solution can improve the economic performance by decreasing unemployment and reducing inflation. However, we have shown that this solution, notwithstanding its wide use in the literature, may be unacceptable for the trade union. This union will have no incentive to cooperate, even if output stabilization is a public good, i.e., a target of both the private and public sector. Cooperation will hurt the trade union. This result remains valid if we move to different cooperative solution concepts such as the Nash bargaining solution and the Kalai-Smorodinsky solution.

The difficulty to devise a cooperative solution which is beneficial to all partners involved has important implications for income policies and corporatism. Cooperation is possible only in more complex contexts where other strategic, economic and political considerations are relevant. This observation is confirmed by many practical cases of negotiations between governments and trade unions, which often involve threats, side payments, issue linkages, political exchange, and delegation of public functions to unions. In a second best fashion, incentives to cooperate might also result from the existence of multiple distortions as, e.g., in the case of externalities between more unions in a monopolistic goods market or taxation and public expenditures (see e.g. Acocella et al. 2004).

Finally it is worth noting that we have not considered the case of an inflation-averse union, i.e., the case where inflation directly enters in the union's preferences as a negative argument (see e.g. Cukierman and Lippi, 1999). When inflation is low, however, this case is rather unrealistic and can be hardly justified. It acquires relevance in cases of galloping inflation or hyperinflation, which, apart from efficiency considerations, usually are situations of social

unrest and clashes. In this paper we have restricted our analysis to the traditional simple case of a monetary economics with a competitive good market.

We have not considered active behavior of employers' associations in our model. This would increase the possibility of side payments and issue linkages. However, it does not change our basic results in a substantive way. A more promising prospect could emerge in considering the cooperation between the firm and the union (with an efficiency wage solution), together with the cooperation between the union and the government.

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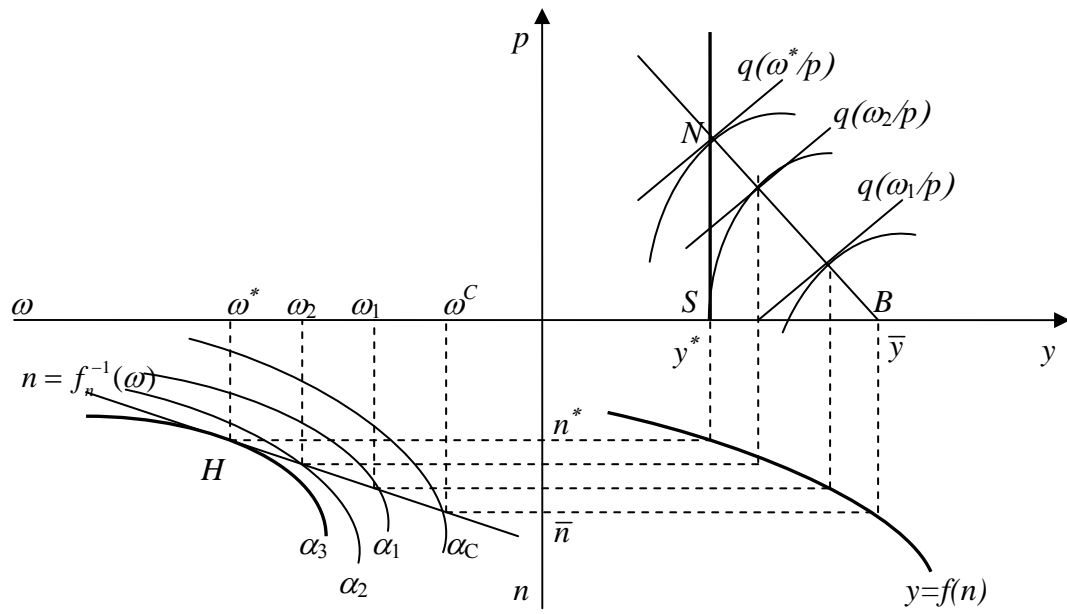


Figure 1

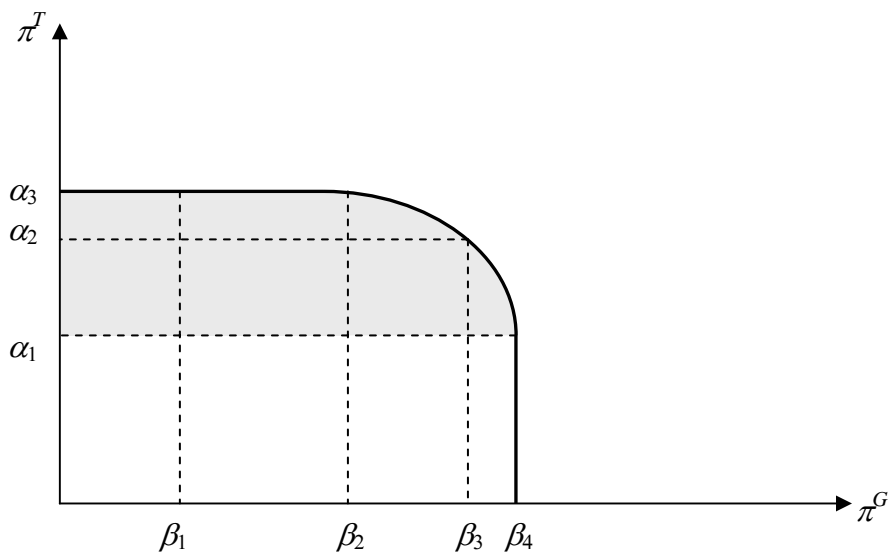


Figure 2

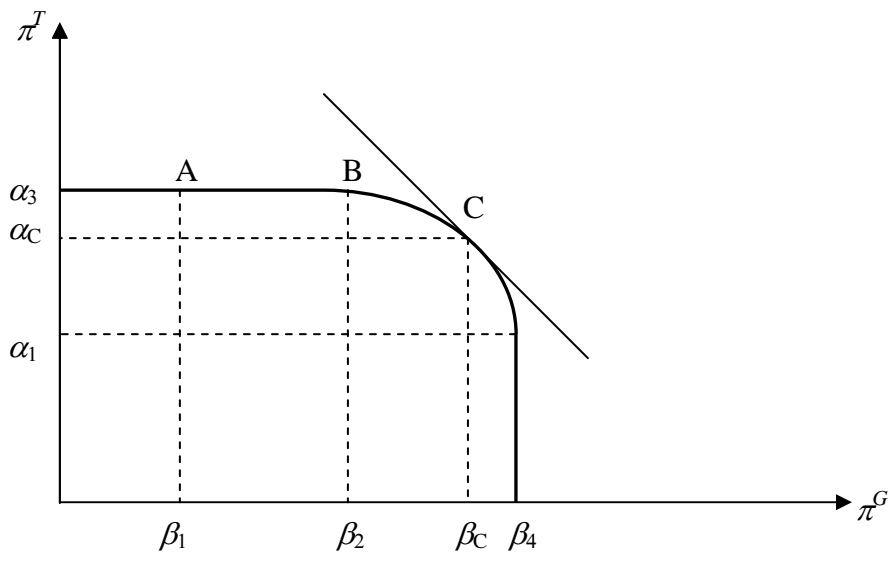


Figure 3

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