The Cost of Social Pacts

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Abstract. Social pacts, while improving macroeconomic performance, usually impose costs on unions. To facilitate the formation of such pacts, various substitutes can operate, such as the payment of transfers or, to some extent, the conservativeness of the government, union's inflation aversion or political partisanship

1. Introduction

This paper examines the benefits of social pacts from the point of view of the economic system as a whole and their costs for the trade unions, and the various possibilities open to facilitate their formation.

The economic literature, from Barro and Gordon (1983b) to Lawler (2000a, 2000b; 2001) or Berger *et al.* (2004), has put the strategic opposition of interests between unions and the government at the forefront of analysis.[1] In such a context, economists have discussed three main, often interrelated, solutions to improve macroeconomic

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[1] See Cubitt (1992, 1995), Gylfason and Lindbeck (1994), Guzzo and Velasco (1999), Cukierman and Lippi (1999, 2001), Jerger (2002), Lippi (2003) and Coricelli *et al.* (2004, 2006). See also Gärtner (2000) and Cukierman (2004). The former surveys the traditional approach; the latter summarizes the recent development that combines the monopolistic labor- and goods-market distortions.

performance: the conservative central banker, union coordination (centralization), and corporatism (the cooperative solution between the government and the union).

The delegation of monetary policy to a conservative central banker has characterized the discussion from the very beginning, from Barro and Gordon (1983b) to Soskice and Iversen (1998, 2000) and Coricelli *et al.* (2004, 2006), but with some opposition (see Cubitt, 1992; Skott, 1997; Cukierman and Lippi, 1999; Guzzo and Velasco, 1999; Lawler, 2000a, 2001). The central idea of advocates of central bank conservativeness is to create a credible commitment to a non-inflationary policy, thus eliminating the inflation bias. However, a full commitment proves to be sub-optimal if short-run fluctuations are considered, since in this case output variability is not reduced. A conservative central banker would guarantee better performance in the case of supply shocks (Rogoff, 1985). More recently, Coricelli *et al.* (2004, 2006) have shown that a conservative central banker can also be beneficial because it eliminates negative wage externalities in decentralized wage-setting systems.[2] However, in this case the conservative central banker is just an imperfect substitute for the lack of union coordination (Guzzo and Velasco, 1999), and wage centralization may be a Pareto superior solution (Acocella and Di Bartolomeo, 2004).[3]

A parallel strand of analysis, also begun with Barro and Gordon (1983b), has focused on the possibility of reaching Pareto superior equilibria by implementing some kind of cooperative solution. This is the strand we are mainly interested in, but – as we will see – this solution interacts with that of the conservative central banker. By considering repeated games, Barro and Gordon (1983b) and followers have shown that Pareto superior equilibria may emerge as an effect of the creation of a reputation. This line of research has two main shortcomings: first, the conditions required to support cooperative Pareto-superior solutions are rather restrictive; second, the cooperative solution that can emerge in this strand of analysis improves macroeconomic performance only insofar as inflation is concerned, which is not the central point of many social pacts.

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[2] In fact, multi-union wage setting produces well-known negative externalities. The most relevant from an empirical point of view is the wage externality: an increase in one union's nominal (real) wage results in a price increase and thus in a reduction of the real wage of the other unions.
[3] Assuming the existence of only one union – as we do in this paper – avoids confusing the issue of the absence of union coordination with that of a strategic conflict between the union(s) and the government. The existence of many competing unions could also affect negotiations with the government. However, we feel that this aspect has been of minor importance in the experience of social pacts (see, Visser, 2006).

More interesting from our perspective are the attempts to describe cooperative solutions in one-shot games as the result of explicit social pacts. Gylfason and Lindbeck (1994), Cubitt (1995), Burda (1997), Acocella, Di Bartolomeo and Tirelli (2007) show that corporatism is a possible solution to the conflict between the union(s) and the government, capable of guaranteeing better macroeconomic performance in terms of both inflation and employment.

However, a problem of discovering the conditions favoring the acceptance of social pacts may arise with respect to both this and the previous solution, as the parties involved tend to pursue their own interests (Avdagic *et al.*, 2005).[4] In fact, the union preference function may fail to include inflation and certainly includes the real wage rate, which tends to be inversely related to employment: the higher level of employment guaranteed in many cases by corporatism raises the union utility level; however, since it implies a lower real wage rate, it can ultimately reduce union satisfaction (Acocella and Di Bartolomeo, 2007).

In this paper we explicitly consider compensation to the union as a condition which may be needed to some extent in the formation of social pacts, under different preferences of the parties involved (in particular, the union's inflation aversion and partisanship, and the government's degree of conservatism). More specifically, we make use of a model that captures three different institutional setups already used in the analysis of the conflict between unions and the government in one-shot games (i.e. Barro and Gordon, 1983a; Detken and Gartner, 1992; Gylfason and Lindbeck, 1994).

The various solutions to the problem of feasibility of social pacts that we consider from a theoretical point of view have a factual counterpart. However, a comparative empirical

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[4] In the text we have indicated a problem of choosing between different analytical routes to explain how a social pact can emerge even if one of the parties involved does not gain from superior macroeconomic performance. These different routes might not be alternative to one another, as in real life we find different types of cooperative agreements (see Rhodes 1998, 2001; Avdagic *et al.*, 2005). There are cases of long-term, well-institutionalized and comprehensive *concertation* as well as cases of short-medium term, episodic social pacts with narrow wage targets. In principle we could model them differently. More specifically, the former could be modelled as repeated games, whereas the latter could be the outcome of one shot games. For the sake of simplicity we prefer not to make this distinction, which might be carried out with more complicated models. In any case, a problem of feasibility would also arise if one tried to model social pacts as the result of repeated games, insofar as the macroeconomic model postulated an inverse relation between wages and employment and the preference function of the union conforms to the features that we present in the text.

analysis of the extent to which different conditions in various countries have facilitated the formation of social pacts lies beyond the scope of this paper.[5]

The rest of the paper is organized as follows. Section 2 lays out the economic setup for the analysis. Section 3 discusses the different solutions to the problem of acceptance of social pacts by unions. Section 4 concludes.

2. The economic benchmark

We consider a simple economic benchmark where the employment gap is endogenously determined by a strategic private sector organized in an all-encompassing union. The model harbors three different institutional scenarios: the standard case of long-run[6] monetary policy neutrality *à la* Barro and Gordon (1983a); the union inflation aversion case introduced by Gylfason and Lindbeck (1994) and Cubitt (1995);[7] a partisan case, as in Detken and Gartner (1992).

The model formally consists of four equations. The first two describe the supply and demand sides of the economy.

(1) $n = \pi - w$

(2) $n = m - \pi$

where n is the employment gap with respect to the potential (competitive) level, m is the nominal money growth rate, w is the wage growth rate, π is the inflation rate, $w - \pi$ is the real wage premium with respect to the competitive real wage. Equation (1) is a profit maximization condition and equation (2) a quantitative equation. The model is not stochastic; the introduction of additive stochastic disturbances or observed shocks does not affect our results, unless private information is introduced.[8]

The model is closed by specifying the government's and union's preferences, which depend on the variables representing the macroeconomic performance of the system, formally:

(3) $V = -\dfrac{\beta}{2}\pi^2 - \dfrac{\kappa_V}{2}n^2$

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[5] See Rhodes (1998, 2001), Traxler and Kittel (2000) or Visser (2002).

[6] As usual in this literature, long-run is defined here in Friedman's sense, i.e. the time needed for expectations to be adjusted.

[7] Criticism of this assumption has been levelled by Berger *et al.* (2004), among others.

[8] Results are also not neutral with respect to more complex stochastic structures such as Bayesian or Knightian uncertainty. However, the study of the problem in such structures is beyond the scope of the present paper.

$$(4) \qquad U = \alpha\left(w - \pi\right) - \frac{\kappa_U}{2}n^2 - \frac{\eta}{2}\pi^2 + \Omega V$$

Equation (3) defines the preference function[9] for the government, which aims to achieve the potential output and stabilize inflation by setting the money growth rate. Parameters β and κ_V measure the government's marginal rate of substitution between the targets; in particular, as usual, we refer to β as the conservatism degree.

Equation (4) is the union's loss function, which increases linearly in the wage premium, by a parameter α. The union controls w. Parameters η and κ_U have an interpretation similar to those of the government. The union's loss function may also depend on the government utility, if $\Omega \neq 0$. In other words, Ω indicates how much the union supports (dislikes) the current government.

We assume $\beta > \eta \geq 0$ and $\Omega \in \left(-\kappa_U/2\kappa_V, 1\right)$. The meaning of these technical assumptions is as follows. The former simply states that, even if the union is inflation averse, it is less so than the government; the latter implies that, even if the union is partisan, it cares less about the result of the election than the supported party. If these assumptions are removed, a number of rather implausible results from an economic point of view could be obtained, e.g. the union would like to pay a transfer to the government in order to increase the unemployment rate.

Players' preferences are expressed in rather general terms, which allow us to compare our results to those of the cited literature in accordance with different assumptions about the preference parameters. As claimed, the model harbors three different common setups:[10] 1) the Barro-Gordon model, when $\eta = 0$, $\Omega = 0$. We refer to this case as "the standard scenario"; 2) the Gylfason-Lindbeck model,[11] when $\eta > 0$, $\Omega = 0$. We refer to this case as "the inflation-averse union scenario"; 3) the Detken-Gartner model, when $\eta = 0$, $\Omega \neq 0$. We refer to this case as "the partisan scenario".

The interpretation of the preference functions can therefore be different in the different scenarios. For instance, if we consider the case of a partisan union, equation (3) should be interpreted as a vote function and the preference of the union (4) will also depend on

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[9] According to one possible interpretation, as we discuss later, equation (3) could also be interpreted as a vote function.
[10] See Di Bartolomeo (2006) for further details.
[11] This is the version of the Gylfason-Lindbeck model used and explained in Acocella and Ciccarone (1997).

the probability of the government's re-election. Moreover, note that a preference function of the type (3) is a general representation of social welfare as in the standard policy games between the private sector and the central bank. Different specifications are possible (see e.g. Acocella *et al.*, 2007). However, a complete discussion of the nature of the players' preferences is beyond the scope of the present paper.[12]

The Nash non-cooperative solution implies:

$$(5) \qquad n^N = -\frac{\beta\alpha}{\left(\kappa_U + \Omega\kappa_V\right)\beta + \left(\eta + \Omega\beta\right)\kappa_V}$$

$$(6) \qquad \pi^N = \frac{\kappa_V\alpha}{\left(\kappa_U + \Omega\kappa_V\right)\beta + \left(\eta + \Omega\beta\right)\kappa_V}$$

The non-cooperative values for the government's and union's utilities are:

$$(7) \qquad V^N = -\frac{(\kappa_V + \beta)\kappa_V\beta\alpha^2}{2\left[\beta\kappa_U + (\eta + \Omega\beta)\kappa_V\right]^2}$$

$$(8) \qquad U^N = -\frac{\left(\kappa_V^2\eta + \Omega\beta\kappa_V^2 - 2\beta\eta\kappa_V - 3\Omega\beta^2\kappa_V - \kappa_U\beta^2\right)(\kappa_V + \beta)\kappa_V\beta\alpha^2}{2\left[\beta\kappa_U + (\eta + \Omega\beta)\kappa_V\right]^2}$$

Equation (5) displays the general result of non-neutrality since employment depends on the government's preferences. This result vanishes in the standard scenario when neutrality holds. An inflation-averse union implies a trade-off for the government: setting a lower level of inflation because of a higher preference for price stability produces a lower level of employment. However, in this scenario macroeconomic performance is better than in the standard one. Performance also depends on the attitude of the union with respect to the government. Union partisanship introduces the possibility of a political business cycle. In fact, it improves (does not improve) macroeconomic performance if the union supports (dislikes) the current government as it follows a more moderate (aggressive) wage policy. An inflation bias always arises, as indicated by equation (6). The "race" between wages and money in the determination of employment generates a social cost in terms of inflation, i.e. the non-cooperative outcome in terms of employment can be achieved with non-zero inflation.

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[12] See in particular, among others, Gylfason and Lindbeck (1994), Acocella and Ciccarone (1997), and Cukierman (2004) for a general discussion and the difference between the welfare function and the union's loss as preferences of a specific group; Oswald (1985), Cubitt (1995) for a detailed taxonomy of the union's preference functions; Detken and Gartner (1992) for the partisan union and the vote function of the government; Berger *et al.* (2004) for criticism of the introduction of inflation aversion in the union's preference; Burda (1997), Mares (2004, 2006), and Acocella *et al.* (2007) for the inclusion of additional arguments in the preference function of the government and the union.

3. Compensation and other institutions favoring social pacts.

3.1. The cooperative solution.

As shown in a number of papers, the macroeconomic performance offered by non-cooperative solutions can be improved by resorting to corporatism, i.e. cooperative social pacts between the union and the government.[13] However, an improvement in macroeconomic performance might not be in the interest of the union, and problems of the feasibility of corporatism might arise, e.g. in the case of low union inflation aversion and a low degree of partisanship, as the union loses from a reduction in the employment gap, which is associated with a reduction in the real wage (see Acocella and Di Bartolomeo, 2007).

To reconcile formal models with reality – where social pacts have been rather common, in Europe at least – some kind of compensation[14] must be given by the government to the union to induce it to sign a social pact. Our model already incorporates features that can be interpreted as a sort of compensation – the union's inflation aversion and the partisanship – or could make social pacts more attractive, by improving non-cooperative solutions, and thus acting as a substitute for compensation.

By adding explicit compensation to the model we can examine the interplay of different institutional features for the acceptance of social pacts by unions. If a transfer $t \geq 0$ is paid by the government to the union, equations (3) and (4) change as follows:

(9) $\tilde{V} = V - t$

(10) $\tilde{U} = U + t$

The inclusion of a linear transfer does not affect the Nash non-cooperative equilibrium since, by considering equations (9) and (10), the Nash equilibrium is still given by equations (5)-(6) and $t = 0$. We can then calculate the cooperative solution by maximizing the Nash product:

(11) $\Pi^N = \left(\tilde{U} - U^B\right)^\delta \left(\tilde{V} - V^N\right)^{1-\delta}$

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[13] See, e.g., Cubitt (1995), Burda (1997), Caeyers and Pauwels (2006), Mares (2004, 2006), Acocella and Di Bartolomeo (2007), Acocella, Di Bartolomeo and Tirelli (2007).

[14] In this term we include "issue linkages," "political exchange," delegation of public functions to unions, in addition to side payments, which are the most evident case of compensation. We deal with these more extensively in Acocella, Di Bartolomeo and Pauwels (2006).

with respect to $\{w, m, t\}$ subject to equations (1) and (2). For the sake of simplicity, we assume that the two agents have equal bargaining power, i.e. $\delta = 2^{-1}$.

The cooperative solution implies:

$$(12) \quad n^C = -\frac{\alpha}{\kappa_U + (1+\Omega)\kappa_V}$$

$$(13) \quad \pi^C = 0$$

$$(14) \quad t^C = \frac{(V^C - t^C) - V^N + (U^C + t^C) - U^N}{2}$$

In the cooperative solution employment is a function of a multiplicity of parameters, but is always higher than in the non-cooperative solution (see equation (5)). Inflation is always zero, thus lower than the non cooperative value (see equation (6)).

The transfer indicated by equation (14) is expressed in implicit form and reflects the division of the surplus between the two players. Equation (14) simply stresses that the transfer is the payment that equates the gains in the utilities of the two players deriving from cooperation. In fact, it is an average of the government's gains from cooperation, net of the transfer itself, and the union's gains, including the transfer.[15]

Two different issues arise from this cooperative solution:

1. Why does corporatism improve macroeconomic performance and what are the different mechanisms at work in this case with respect to the non-cooperative solution?

2. What determines the amount of the transfer required to support social pacts?

These issues will be dealt with in the next two sub-sections.

3.2. Corporatism and the macroeconomic performance.

In comparing the cooperative levels of employment and inflation (equations (12) and (13)) with those in the non-cooperative cases (equations (5) and (6)), we notice that cooperation always induces better performance in terms of both.

In the cooperative solution inflation is always zero, independently of any parameter. The rationale for this result lies in the fact that inflation proves to be a Pareto inferior outcome of non-cooperative bargaining, induced by the wage-money race, and can be thus disposed of by cooperatively setting money growth and the wage rate. More

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[15] As we assume equal bargaining power for the players, in (19) the average is actually the mean of the gains of the two players.

specifically, zero inflation is achieved since the players share the same inflation target, which can be reached independently of the employment level; thus no conflict arises between them.[16]

Once the government and the union have ruled inflation out through cooperation, they can concentrate on choosing the level of the employment gap. The desired (first-best) value of the employment gap is zero for the government and positive for the union, whose first best is equal to $-\alpha \left(\kappa_U + \kappa_V \Omega \right)^{-1}$.[17] Cooperative employment lies between these two first-best outcomes.

Cooperation thus tends to increase government's utility, because of better macroeconomic performance, and causes disutility for the union, calling for some compensation. Indeed the union can be compensated by the reduction in inflation, if it is inflation averse, or by the mere acceptance of higher government satisfaction, if it is partisan. Such cases are possible, but are ruled out by our assumptions.[18]

By comparing the non-cooperative outcomes to the cooperative ones in the different scenarios, it is easy to check that the gains in terms of inflation and employment are higher in the standard case than in the inflation-averse or partisan-union scenarios when the union supports the current government. Conversely, they are lower if the union dislikes the government.

However, in all cases the cooperative level of employment is independent of the players' preferences for inflation as well as the non-cooperative levels of employment and inflation (i.e. the players' outside options), since, as noted, the cooperative values of the macroeconomic outcomes only depend on their first-best values. By contrast, different institutional settings influence the amount of the transfer that supports the cooperative solution by affecting the marginal cost/benefit of the union and government.

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[16] The elimination of the inflation bias is always a Pareto improvement. More specifically, it represents a weak (strong) Pareto improvement if the union dislikes (does not dislike) inflation. Recall that the union dislikes inflation in the cases of both a partisan and an inflation-averse union, as the union pays compensation to sign a pact with the government.

[17] First-best outcomes are easily obtained by differentiating players' utilities with respect to π and n after taking account of (1) and (2).

[18] These cases would require that the union care about inflation more than the government does or that the union care about the government's utility more than its own. They are not emphasized because they are not empirically relevant. In addition, they may support some perverse mechanisms that contrast with the stylized economic facts regarding social pacts, e.g. a transfer paid by the union to increase unemployment.

3.3. The determinants of transfers.

3.3.1. General determinants.

As claimed, cooperative inflation and output are only determined by the first-best values of these variables. Once the optimal values of inflation and employment are determined, the transfer is simply a residual indicating the payment that supports the cooperative solution, i.e. the transfer that implies an equal division of the surplus arising from cooperation. More specifically, after cumbersome algebra, the expression for the transfer can be rewritten as:

$$(15) \quad t^C = \frac{1}{2}\left(U^N - V^N\right) - \frac{1}{2}\left(\kappa_V + \frac{\kappa_U + (1+\Omega)\kappa_V}{2}\right)n_C^2$$

Although not intuitive, as we will also show later, the transfer is always positive, at least in the economically relevant cases reflected by our assumptions.

This depends on a multiplicity of factors, but some of them should be underscored. First, understandably, it is larger the higher the level of the union's utility in the non-cooperative case, which gives the reserve option for this player (who tends to lose from cooperation), and smaller the higher the level of the government's non-cooperative utility, as the government gains from cooperating. In addition, the transfer is inversely related to the cooperative employment gap: higher employment rates call for higher transfers, as both the loss to the union and the government's gain from cooperating increase. By contrast, there is no relation between the transfer and the level of cooperative inflation, since both players always reach their first-best inflation rates, i.e. zero. To put these remarks in another useful perspective, we can say that the transfer is higher the greater the increase in performance in terms of employment (i.e. the rise in employment deriving from cooperation). The non-cooperative level of inflation affects the transfer in a similar manner. However, its effect depends on the union's attitude with respect to it; e.g. if the union is indifferent to inflation, a lower rate of non-cooperative inflation reduces the government's gain from cooperation and does not affects that of the union, thus implying a smaller transfer, as we will see in detail when analyzing the effects of conservativeness in the different scenarios.

Looking at the factors that lie behind the net cost of cooperating for the union, anything that increases the union's outside option (by lowering inflation or increasing employment in the non-cooperative case) or the cost of an increase in employment

requires a larger transfer, while the opposite is true if we consider the outside option of the government and the benefit associated with the increase in employment.

An increase in the preference for the wage premium α thus implies a larger transfer by reducing the union's first-best employment. For the same reason, an increase in κ_U reduces it, but the impact on the amount of the transfer can be ambiguous since this also reduces the cost of the increase in employment deriving from cooperation. Nevertheless, as we will show, in all scenarios considered here the effect favoring a transfer reduction dominates.

As regards the government's preferences, the effects of κ_V can be more complex: it affects not only the government's preferences but also that of the partisan union. However, in all the scenarios considered the effect favoring an increase in transfers dominates. Conservatism plays a role in transfers only to the extent to which it affects the non-cooperative solution, as will be made clearer below with reference to the different scenarios. Similarly, the union's preference for inflation has no impact on inflation or employment because it does not affect first-best outcomes, and inflation costs are completely internalized in the cooperative solution. By contrast, its role in determining the transfer is ambiguous.

The many determinants of transfers make it extremely difficult to add other insights in the general case. They can be better analyzed with reference to the specific scenarios, where we focus in particular on the degree of conservatism.

3.3.2. The standard scenario.

As we can derive from (5) and (6), in the standard scenario (i.e. assuming $\eta = 0$ and $\Omega = 0$), in the non-cooperative solution there is a high inflation bias and employment equals the union's first best. In addition, non-neutrality of monetary policy holds and an increase in β only reduces the inflation bias.

The transfer is given by the following expression:

$$(16) \quad t^C = \left[\frac{1}{\beta} + \frac{3\kappa_U + \kappa_V}{(\kappa_U + \kappa_V)^2} \right] \frac{\kappa_V^2 \alpha^2}{4\kappa_U^2}$$

The transfer is positive and increasing in α and κ_V and decreasing in κ_U. As the union has no interest in avoiding inflation, the amount of the transfer, ceteris paribus, is larger in this case than in the other scenarios.

Our general claims can easily be verified by inspecting equation (16). By differentiation it is simple to derive that, in the standard scenario, transfers are an inverse function of the degree of conservatism. Conservativeness has no effect on the gain in non-cooperative employment, but influences the reduction in non-cooperative inflation in accordance with Rogoff's well-known prediction. The reduction in inflation in the non-cooperative case lowers the government's benefit from cooperating and then – so to speak – its ability to pay and, thus, the amount of the transfer. This effect is all the greater the larger the weight put on inflation by the government. Conservatism acts as a substitute for side payments in the sense that an increase in conservatism reduces the amount of compensation to be paid. In other words, it reduces the Government's gains (in terms of a better macroeconomic performance) of an agreement, thus making the agreement less desirable, *ceteris paribus*.

3.3.3. The inflation-averse union scenario.

As we can derive from (5) and (6), in the inflation-averse scenario (i.e. $\eta > 0$, $\Omega = 0$), in the non-cooperative solution an inflation bias still exists, but it is smaller than in the standard case, whereas the employment gap is larger (smaller) than the union's (government's) first-best outcome.

The transfer is given by:

$$(17) \quad t^C = (\beta - \eta) \frac{\beta \kappa_V + \eta \kappa_U + 3(\beta \kappa_U + \eta \kappa_V) + (\kappa_U + \kappa_V)^2}{4(\kappa_U + \kappa_V)^2 (\beta \kappa_U + \eta \kappa_V)^2} \kappa_V^2 \alpha^2$$

The transfer is always positive and tends to zero as the players tend to have the same preference for inflation.

Now money is non-neutral, and an increase in β still implies a smaller inflation bias (and, thus, a lower benefit from cooperating for both the government and the union), but it also reduces the non-cooperative employment gap and, thus, the benefit (cost) of cooperation for the government (the union). Thus, an increase in β reduces the benefit of cooperation for the government and has a mixed effect on the union, which has a lower cost from the lower increase in employment and a lower benefit from the smaller inflation bias in the non-cooperative solution. The net effect of an increase in conservatism on the amount of the transfer thus depends on the relative degree of the conservatism itself as well as the union's weights for inflation and employment.

Formally, for high values of the union's inflation aversion relative to its preference for the output gap (more specifically, for $\eta > \kappa_U/2$), $\partial t^C/\partial \beta > 0$; for lower values of the union's inflation aversion ($\eta < \kappa_U/2$), $\partial t^C/\partial \beta > 0$ holds only for small values of β.[19]

In this scenario conservatism may act as substitute for side payments for relatively low values of the union's inflation aversion, for high values of the union's preference for employment and for rather high degrees of conservatism itself.

3.3.4. The partisan union scenario.

As we can derive from (5) and (6), in the partisanship scenario (i.e. $\Omega \neq 0, \eta = 0$), the inflation bias and unemployment are lower (higher) than in the standard case when the union supports (dislikes) the current government, since in this case -- as in Detken and Gärtner (1992) -- the union will set a lower (higher) wage to favor (disfavor) the Government.

The transfer is given by the following expression:

$$(18) \quad t^C = \left[\frac{1}{\beta} + \frac{\kappa_V \Omega^2 + (\kappa_U + 6\kappa_V)\Omega + 3\kappa_U + \kappa_V}{(\kappa_U + \kappa_V(1+\Omega))^2} \right] \frac{(1-\Omega)\kappa_V^2}{4(\kappa_U + 2\kappa_V\Omega)^2} \alpha^2$$

In the case of union partisanship, in principle, the transfer can be either positive or negative, depending on the value of Ω. However, in our framework, as the values of Ω are within the limits imposed, it is always positive.

It is a direct function of the preference of the union for the real wage, an inverse function of the degree of conservatism and the weight assigned to employment by the union. Thus conservatism acts as a substitute for side payments.

The derivative of t with respect to Ω is difficult to calculate in analytical terms. Numerical simulations show that it is negative: the more partisan is the union, the smaller is the transfer it needs in order to sign a social pact.

4. Concluding remarks

Corporatism guarantees better macroeconomic performance, but might give rise to a net cost to the union. Considering the usual models where the union's loss function is a

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[19] The results can be easily derived by differentiation.

function of the real wage rate and employment only, the union could suffer from a higher level of employment if it values this less than the corresponding wage restraint.

The widespread existence of social pacts can be explained by introducing additional variables into the usual models, such as side payments or more complex union preference functions than the usual ones. Side payments are often made to unions in various forms, such as transfers proper, issue linkages, political exchange or delegation of public functions. In particular, in the social pacts of the 1970s, the so-called first-generation pacts, increases in public expenditure played an important role in supporting cooperative solutions (see Visser, 2002).

The union's inflation aversion can also help reduce or eliminate the cost of social pacts. If the union dislikes inflation, it gains directly from the inflation reduction resulting from the cooperative solution. Unions' inflation aversion seems to have been of the utmost importance in some countries (e.g. Germany) for the entire post-war period for historical reasons. Unions' inflation aversion or partisanship seem to have played some role at times (e.g., in the 1970s, the 1980s and the early 1990s) in other countries as well (in the last decade, in conjunction with the need for disinflation related to meeting the Maastricht criteria).[20]

Partisanship can reduce inflation and increase employment even with little or no side payment. This helps explain wage moderation and bipartite social pacts in the absence of explicit compensation in countries where the other substitutes for compensation do not operate.

The government's conservatism has no impact on cooperative solutions, but always affects the transfer that supports the cooperative solution. By decreasing non-cooperative inflation, it tends to reduce the gains from cooperation for the government. Accordingly, in the standard case it acts as a substitute for side payments. However, in the case of monetary non-neutrality, by decreasing the non-cooperative employment gap, it also tends to increase the gain (cost) of cooperating for the government (the union), and its effects may therefore be ambiguous. Therefore, in the inflation-averse union case, higher conservatism only increases the amount of the transfer under certain circumstances, mainly when the employment effect dominates the inflation effect.

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[20] See Visser (2002), Acocella, Di Bartolomeo and Tirelli (2007).

Partisanship makes this happen always, and thus conservatism is always a substitute for side payments in the partisan case.

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