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THE COST OF SOCIAL PACTS

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1. Introduction

This paper deals with the benefits of social pacts from the point of view of the economic system as a whole and their costs to the trade unions and the various possibilities to facilitate their stipulation.

The economic literature, from Barro and Gordon (1983b) to Lawler (2000a, 2000b; 2001) or Efthimiadis (2007), has put the strategic opposition of interests between unions and the government to the forefront of the analysis. In such a context economists have discussed three main often interrelated solutions to improve the macroeconomic

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performance: the conservative central banker, union coordination (centralization), and corporatism (the cooperative solution between the government and the union).[1]

The *conservative central banker* has characterized the discussion since its 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 results to be sub-optimal if short-run fluctuations are considered, since in this case output variability is not stabilized; a conservative central banker would guarantee a 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 result beneficial also because it eliminates negative wage externalities in decentralized wage-setting systems[2]. However, in such a 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 a 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 *creating a reputation*. However, 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 the macroeconomic

[1] See *inter alia* Cubitt (1992, 1995), Gylfason and Lindbeck (1994), Guzzo and Velasco (1999), Cukierman and Lippi (1999, 2001), Jerger (2002), Lippi (2003), Coricelli *et al* (2004, 2006), Efthimiadis (2007), Acocella *et al*. (2008). See also Gärtner (2000) and Cukierman (2004). The former surveys the traditional approach; the latter summarizes recent developments combining the labor and goods market monopolistic distortions.

[2] In fact, multi-union wage setting implies well-known negative externalities. The one which is most relevant from an empirical point of view is the wage externality: An increase in one union 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 will 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.

performance only in so far as inflation is concerned, which is not the central point of many social pacts.

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 *et al*. (2007, 2009b) show that corporatism is a possible solution to the conflict between the union(s) and the government, capable of guaranteeing a better macroeconomic performance in terms of both inflation and employment. However, a problem of discovering the conditions favoring acceptance of social pacts may arise with respect to both this and the previous solution (i.e., that of the central bank reputation), 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 while certainly including 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 could finally reduce the union satisfaction (Acocella and Di Bartolomeo, 2007). If this is the case, on the one side, lower inflation would not be attractive for the union; on the other, it would be damaged by a higher employment level.

In this paper we explicitly consider *compensation* to the union as a condition which may be more or less needed for the conclusion of social pacts, under different preferences of the parties involved. More specifically, we make use of a model able to capture three different institutional setups in order to try to explain different circumstances favoring the stipulation of social pacts. This model encompasses as particular cases previous models analyzing 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; Efthimiadis, 2007).

[4] We have indicated the existence of a problem of choosing between different analytic routes for explaining how a social pact can emerge even if one of the parties involved does not gain from the superior macroeconomic performance. These different routes might not be alternative one another as in the 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 and with narrow wage targets, social pacts. In principle we could model them differently. More specifically, the former could be modelled as the outcome of a repeated game, 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 arise in both cases.

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

Social pacts have been experienced mainly, but not only, in Europe after WWII in a large number of countries and situations (see, among others, Summers *et al*., 1993; Rhodes, 1998, 2001; Visser, 2002, 2007). The abundance of cases of social pacts first means that some of the conditions favoring their conclusions must be met in practice.

The circumstances in which social pacts are stipulated can throw light on other aspects of the issue. In most cases, at least for the first-generation pacts, [5] compensation can take a number of forms, such as issue linkages, political exchange or delegation of public functions to the unions. In other cases no compensation is apparently granted by the government to unions, which could even be charged with some loss of previously gained transfers. This is the case of some explicit or implicit pacts drawn in the 1970s and early 1980s in the presence of high inflation in Italy and other countries as well as of the second-generation social pacts, reached in peripheral Europe in the 1990s for the purpose of facilitating the satisfaction of the Maastricht criteria for accession to the EMU (e.g. Regini, 1997; Hanckè, 2006). In this case the union's inflation aversion or a sort of partisanship could be a substitute for the compensation.

Not in all cases are social pacts subscribed by the government, as for Sweden and Austria. At a first glance this fact could be interpreted as an absence of compensation to unions. On the contrary, it could simply mean that substitutes for compensation - like partisanship - that are more explicit in other cases (Alvarez *et al*., 1993) are operating to favor the social pact. Partisanship may be interpreted in various ways; in any case, it is a form of 'generalized compensation': in supporting a government a union expects some kind of benefit accruing to it from the government re-election. Finally, in many cases the conservatism of the government (intended in a loose way, to include monetary authorities) could act as a kind of substitute for compensation or reduce the amount of it needed (e.g. Skott, 1997; Bleaney, 1996; Oateley, 1999; Acocella and Di Bartolomeo, 2004).

[5] In the 1960s and 1970s first-generation social pacts tended to exchange wage moderation for increases in public expenditures, whereas the second-generation social pacts of the 1990s apparently exchanged wage moderation for public expenditure cuts (Summers *et al*., 1993; Visser, 2002).

The rest of the paper is organized as follows. Section 2 lays the economic set up 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. It can describe the standard case of the long-run[6] monetary policy neutrality *à la* Barro and Gordon (1983a). By considering the union inflation aversion,[7] it can also introduce the case of non-neutrality, since the government is able to affect employment as in Gylfason and Lindbeck (1994) or Cubitt (1995). Finally, by considering a partisan union we introduce the possibility of a business cycle as in Detken and Gärtner (1992): if the union supports (dislikes) the current government, it will follow a more moderate (aggressive) wage policy.

The model formally consists of four equations:

(1) $n = \pi - w$

(2) $n = m - \pi$.

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

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

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) and (2) describe the supply and demand sides of the economy. Equation (1) is a profit maximization condition and equation (2) a quantitative equation. Equation (4) defines a standard preference function for the government that aims to achieve the potential output and stabilize inflation. Equation (3) is the private sector's loss function, which linearly increases in the wage premium.

Eliminato: (1)
Eliminato: (2)
Eliminato: (1)
Eliminato: (2)
Eliminato: (4)
Eliminato: (3)

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

[7] Gylfason and Lindbeck (1994) or Cubitt (1995), Efthimiadis (2007). Criticism against this assumption has been levelled, among others, by Berger *et al*. (2004). See Cukierman (2004) for a different point of view.

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 about the result of the election less than the supported party. As claimed, the model harbors three different common setups, according to the values of these parameters:[8]

1) The Barro-Gordon model, when $\eta = 0$, $\Omega = 0$. We refer to this case as 'the standard scenario.'
2) The Gylfason-Lindbeck model,[9] when $\eta > 0$, $\Omega = 0$. We refer to this case as 'the inflation-averse union scenario.'
3) The Detken-Gärtner model, when $\eta = 0, \Omega \neq 0$. We refer to this case as 'the partisan scenario.'

In the standard scenario the non cooperative Nash equilibrium is easily found as:

$$n^* = -\frac{\alpha}{\kappa_U} \tag{5}$$

$$\pi^* = \frac{\alpha}{\beta}\frac{\kappa_V}{\kappa_U} \tag{6}$$

As is well known, an inflation bias – as indicated by (6) – arises and Barro and Gordon (1983b) suggest it to be removed by the government (or central bank) commitment.

In the inflation-averse union case the Nash equilibrium is:

$$n^* = -\frac{\beta}{\beta\kappa_U + \eta\kappa_V}\alpha \tag{7}$$

$$\pi^* = \frac{\kappa_V}{\beta\kappa_U + \eta\kappa_V}\alpha \tag{8}$$

In this scenario the macroeconomic performance is better than in the previous one, but an inflationary bias still exists.

Finally, by considering the partisan scenario, we have:

$$n^* = -\frac{\alpha}{\kappa_U + 2\Omega\kappa_V} \tag{9}$$

[8] See Di Bartolomeo (2007) for further details.
[9] This is the version of the Gylfason-Lindbeck model used and explained in Acocella and Ciccarone (1997).

(10) $$\pi^* = \frac{\alpha}{\beta}\frac{\kappa_V}{\kappa_U + 2\Omega\kappa_V}$$

The performance ensured by this scenario depends on the attitude of the union with respect to the government. It will result better (worse) in both inflation and employment than in the Barro-Gordon case if the union supports (dislikes) the current government.

3. Compensation and other institutions favoring social pacts.

3.1 Augmenting the basic model by transfers

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, as shown in a number of papers (e.g., see Acocella and Di Bartolomeo, 2007 and references therein). Corporatism is, however, apparently not in the interest of one of the two institutions, i.e. the union, which implies that it is hardly feasible.

To reconcile our models with reality – where social pacts have been rather common in Europe at least – some kind of compensation[10] 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 then act as a substitute for compensation. .

By adding an explicit compensation to the model we can thus 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:

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

(12) $$\tilde{U} = U + t\,.$$

The inclusion of a linear transfer does not affect the non-cooperative Nash equilibrium since, by considering equations (11) and (12), the Nash equilibrium is still given by (5)-(10), according to the scenario, and in (11) and (12) t = 0. We can now calculate the cooperative solution.

Eliminato: (11)
Eliminato: (12)
Eliminato: (5)
Eliminato: (10)

[10] 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 in Acocella *et al*. (2009a) more extensively.

3.2 The cooperative solution

Formally, the cooperative solution is obtained by maximizing the Nash product:

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

with respect to $\{w, m, t\}$ subject to equations (1) and (2), $V^* = -\frac{(\kappa_V + \beta)\kappa_V \beta \alpha^2}{2\left[\beta\kappa_U + (\eta + \Omega\beta)\kappa_V\right]^2}$ and $U^* = -\frac{\left(\kappa_V^2\eta + \Omega\beta\kappa_V^2 - 2\beta\eta\kappa_V - 3\Omega\beta^2\kappa_V - \kappa_U\beta^2\right)(\kappa_V + \beta)\kappa_V\beta\alpha^2}{2\left[\beta\kappa_U + (\eta + \Omega\beta)\kappa_V\right]^2}$ are the utility levels corresponding to the non-cooperative solution described by the previous section. For the sake of simplicity, we assume an equal bargaining power for the two agents, i.e. $\delta = 2^{-1}$.

The cooperative solution is:

(14) $m^C = -\frac{\alpha}{\kappa_U + (1+\Omega)\kappa_V}$

(15) $w^C = \frac{\alpha}{\kappa_U + (1+\Omega)\kappa_V}$

(16) $t^C = \frac{\alpha}{2} n_C + \frac{1}{4}\left(\kappa_U n_C^2 - (1+\Omega)\kappa_V n_C^2\right) + \frac{1}{2}\left(U^* - V^*\right)$

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

(18') $\pi^C = 0$

In the cooperative solution inflation is always zero, independently of any parameter, since both players share the same inflation target, which can be reached independently of the employment level, whereas employment, which is independent of the degree of conservatism, is a function of a multiplicity of parameters: it is higher the lower the weight put by the union on the real wage and the higher the weights put by both players on employment and the degree of partisanship.

3.3 The standard case

In the standard case (i.e. $\eta = 0$ and $\Omega = 0$), equations (14)-(16) imply:

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

(18) $n^C = -\frac{\alpha}{\kappa_U + \kappa_V}$

Eliminato: (1)
Eliminato: (2)
Eliminato: (14)
Eliminato: (16)

(19) $\pi^C = 0$

As said above, economic outcomes (18) and (19) do not depend on the degree of conservativeness, but the compensation (17) does. The compensation paid by the government is always positive and is a direct function of the preference of the union for the real wage and the government preference for employment, whereas it is an inverse function of the degree of conservatism and the union's preference for employment ($\partial t^C/\partial \kappa_U < 0$, $\partial t^C/\partial \kappa_V > 0$ and $\partial t^C/\partial \beta < 0$). Conservatism has no effect on the gain in employment and influences the non cooperative inflation rate only. As the degree of conservatism rises, the reduction in inflation negatively influences the government's ability to pay and, thus, the amount of the transfer. From this point of view we can say that conservatism is no substitute for transfers.

Eliminato: (18)
Eliminato: (19)
Eliminato: (17)

3.4 The inflation-averse union

In the case of an inflation-averse union (i.e. $\eta > 0$, $\Omega = 0$), equations (14)-(16) yield:

Eliminato: (14)
Eliminato: (16)

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

(21) $$n^C = -\frac{\alpha}{\kappa_U + \kappa_V}$$

(22) $\pi^C = 0$

Now, an increase in the government's inflation aversion tends to decrease the amount of the compensation to be paid to the union, while decreasing also the benefit of cooperating for the government. The net effect of conservatism on the amount of transfer is thus ambiguous (i.e. the sign of $\partial t^C/\partial \beta$ is ambiguous). For high values of the union's inflation aversion ($\eta > \kappa_U/2$) it is always $\partial t^C/\partial \beta > 0$. For low values of the union's inflation aversion (i.e., $\eta < \kappa_U/2$), $\partial t^C/\partial \beta$ is positive only for small values of β.[11]

There are thus cases in which conservatism can act as a substitute for transfers, which are more likely for high values of the union's inflation aversion or, for lower values of this parameter, when also the degree of conservatism is low.

3.5 The partisan union case

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

In the case of a political partisan and inflation neutral union (i.e. $\Omega \neq 0, \eta = 0$) equations (14)-(16) imply:

Eliminato: (14)

Eliminato: (16)

$$(23) \qquad t^C = \left[\frac{1}{\beta} + \frac{\kappa_V \Omega^2 + (\kappa_U + 6\kappa_V)\Omega + 3\kappa_U + \kappa_V}{(\kappa_U + \kappa_V (1+\Omega))^2} \right] \frac{(1-\Omega)\kappa_V^2}{4(\kappa_U + 2\kappa_V \Omega)^2} \alpha^2$$

$$(24) \qquad n^C = -\frac{\alpha}{\kappa_U + (1+\Omega)\kappa_V}$$

$$(25) \qquad \pi^C = 0$$

The transfer can be either positive or negative, according to the value of Ω. For values of Ω 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.

The derivative of t with respect to Ω is difficult to calculate in analytic terms. Numerical simulations show that it is negative: the more partisan is the union, the lower is the transfer it needs in order to stipulate a social pact. Employment is always higher (lower) than in the previous two cases if the union has (not) a partisan attitude towards the current government.

Regarding the effects of conservativeness on transfer, an increase in β always reduces the amount of it (it is easy to verify that $\partial t^C / \partial \beta < 0$).

4. Concluding remarks

Corporatism guarantees a better macroeconomic performance, but might imply a net cost to the union. In fact, considering the usual models where the union's loss function is a 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 usual models, such as side payments or union's preference functions more complex 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.

The union's inflation aversion can also help to reduce (or eliminate) the cost of social pacts. In fact, if union dislikes inflation, it gains directly from the better macroeconomic

performance as it now gives a positive value to reduction in inflation. Union's inflation aversion has been of the utmost importance in some countries (this is the case of Germany) for the whole period after WW II for historical reasons and 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 the Maastricht criteria).[12]

Partisanship can reduce inflation and increase employment even with little or no side payment and this can help explaining wage moderation and bipartite social pacts in the absence of explicit compensation, in countries where the other substitutes for compensation did not operate.

The government's degree of conservatism has no impact on cooperative solutions but always decreases non-cooperative inflation, thus reducing the gains from cooperation in terms of this variable, while decreasing (directly[13]) non cooperative employment only in the case of an inflation-averse union. It is a substitute for side payments in the standard and the partisan case (i.e., increases in the degree of conservatism reduce the amount of compensation to be paid), but it is not always so in the inflation-averse union case, where more conservatism can add to the amount of side payments to the unions under some circumstances.

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[12] See Acocella *et al*. (2009b).

[13] Obviously, in the case of partisanship, conservatism can indirectly influence employment or, more generally, the economic performance.

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