

C.E.M.A.

Av. Córdoba 637 -Piso 1°-

1054 Capital Federal

TE. 314-1757/1304/2269/2508

FAX 314-1654

\* ISBN N° 987-99363-7-X

Queda hecho el depósito que marca la Ley 11.723

Copyright -Centro de Estudios Macroeconómicos de Argentina (C.E.M.A.)

THE POLITICS OF WAGE DECISIONS. UNION  
COOPERATION OR HARASSMENT

Jorge Streb

Mayo 1995

N° 103

The politics of wage decisions.

Union cooperation or harassment

Jorge M. Streb\*

CEMA

JEL classification code: employment, unemployment, wages (E24); incomes policy, price policy (E64).

Key words: inflationary games, political trade union.

Abstract This paper asks why trade unions' attitudes to stabilization policy can be colored by political considerations, as suggested for example by Argentina's history of bitter divisions over Peronism. Wage decisions are considered as part of a game between the government and trade unions, where income distribution can be altered by political parties and a successful stabilization program increases the chances the incumbent will be reelected. The main result is that trade unions may cooperate with a friendly government, and harass a non-friendly government, in a polarized political climate.

---

\*Jorge M. Streb/Av. Córdoba 637/1054 Buenos Aires/Argentina; tel. 54-1-314-2508, fax 54-1-314-1654; e-mail streb@cema.edu.ar

The politics of wage decisions. Union cooperation or harassment\*\*

## 1. Introduction

Inflationary games have stressed credibility problems. When there is a real wage conflict between the government and organized labor, a promise of price stability, in exchange for wage restraint, is not credible. In equilibrium, the government's temptation to create an inflationary surprise leads trade unions to preventively hike wages, leading to an inflationary bias. This paper shows political problems can alter this outcome, when trade unions are influential in wage setting.

Unions might cooperate with incomes policy attempts, restraining their nominal wage demands, to support a friendly government. The March 14, 1992 issue of The Economist, for instance, refers to Fidel Velazquez, general secretary of the CTM (Mexican Workers Confederation): "In recent years, in the name of social peace, he has presided over wage cuts. Since 1987 the CTM has supported a social pact of wage and (some) price controls that has cut the official inflation rate from 159% to 19% last year.". The ties between trade unions and the PRI, the ruling party, are

---

\*\*This draws on my work at U.C. Berkeley and at the Central Bank of Argentina. I thank George Akerlof and Alessandra Casella for their insights and suggestions. I also thank Hildegart Ahumada, Barry Eichengreen, Albert Fishlow, Roberto Frenkel, Gustavo Gonzaga, Mauricio Naranjo, Torsten Persson, Robert Powell, Matt Rabin, and Lloyd Ulman. Emilia Ghelfi encouraged me throughout.

I appreciate the comments received at the 1992 Meeting of the Banco Central del Uruguay, the 1993 Latin American Meeting of the Econometric Society, and the seminars organized in 1993 and 1994 by the Universidad de San Andrés, the Instituto Di Tella, and the Centro de Estudios Macroeconómicos de la Argentina.

very close. Unions are guaranteed a fixed quota of elected offices, the control of the workers' housing fund, etc. These ties help explain the moderation of wage demands before the 1988 elections.

Unions might, on the other hand, obstruct stabilization plans. Shortly before the October 1994 presidential elections in Brazil, the CUT, the labor federation, threatened to stage a general strike to back the metalworkers, which were demanding a 12% readjustment of wages to compensate for the inflation accumulated since the outset of the Real plan. Cardoso, the official candidate, charged his opponent from the PT, the labor party, was behind these attempts to sabotage the stabilization plan (Clarín, September 14 and 15, 1994).

The evidence that partisan motives affect wage decisions is reviewed in Section Two. These facts suggest more generally a political trade union model, where unions act both in the market and in the political sphere. This idea comes up in the political science literature (Cf. Lange et al. (1982), chap. 3).

I attempt to formalize the political dimension of trade union wage decisions revealed by these episodes. After reviewing in Section Three the conflict over the real wage, which is at the root of the wage-price spiral in the literature on credibility problems, in Section Four two key premises are added to show how wage decisions can be affected by political polarization: two parties which differ in the favors they can bestow on unions compete for office, and the incumbent government has a higher probability of reelection when inflation and unemployment are low. The incumbent

will obviously want a stabilization plan to succeed. The trade unions might not: this could assure a non-friendly party stays in office. Section Five sums up the issue of stabilization programs and trade union reactions.

## 2. Wage decisions and stabilization policy

In this section, I basically try to establish two stylized facts about the reactions of trade unions to stabilization policy, which I refer to as "cooperation" and "harassment". Loosely speaking, trade unions cooperate when they accept wage restraint, and they harass the government when they deliberately push inflation up through their wage demands.

I first go over the European experiences, before looking more specifically at the effect of political incentives on wage decisions in a factional society, Argentina.

### i. Incomes policy experiences in Europe

The main reference on the influence of political factors on wage decisions is Ulman and Flanagan (1971). They focus on the use of incomes policy as a means to improve the trade-off between full employment and price stability in the context of free collective bargaining, by restraining the behavior of organized labor and large-scale enterprise.

Ulman and Flanagan find the tendency was to emphasize wage restraint as an indirect approach to price stability, except for France, where direct price controls were used since the right-of-center governments could not count on trade union cooperation. This

leads them to consider the proposition that unions cooperate with incomes policy only if political parties closely allied to the dominant labor groups are in power, which in the seven countries in Western Europe they review meant the Social Democrats.

In Great Britain, Ulman and Flanagan indeed find unions refused to exercise wage restraint with Conservative governments in 1956 and 1961, while they accepted it with Labor governments in 1948 and 1965. Econometric studies confirm that incomes policy induced wage restraint during periods of Labor - but not Conservative - governments. The pattern that unions refused to exercise wage restraint with Conservative governments and accepted it with Labor governments was also observed in Netherlands, Denmark and Germany.

This pattern was already encountered by Edelman and Fleming (1965), who study the politics of wage-price decisions in four countries in the 1948-1963 period. Governmental intervention in union and management decisions was more significant in Great Britain and the Netherlands, that suffered recurrent balance of payment deficits, than in Germany and Italy. In Great Britain the Labor government persuaded the trade unions to observe a wage pause between 1948 and 1950, while in 1963, shortly before the elections, a Conservative government could not get their cooperation. Since trade unions formed the backbone of the Labor party's support, Edelman and Fleming do not find this surprising. In the Netherlands, in 1951 and again in 1957 the trade unions accepted cuts in real wages in the face of balance of payments difficulties,

mainly as a result of the dominant Socialist trade union federation, which only reversed its support for centralized wage guidance after the Labor party went into opposition in 1959.

There are plenty of other references. A historical precedent, mentioned by Fishbein (1984), is the LO, the main Swedish central trade union federation, which in the early 1930s forsaked its traditional industrial strategy in favor of a political strategy. The Swedish unions had sought to defend the interests of their members through militant collective bargaining, but with the accession of the Social Democratic party in 1932 the LO recognized they could accomplish more by supporting and lobbying the government than through strikes. The outgrowth of this political strategy was a wage restraint program. More recently, in Spain's disinflation in the 1980s observers stress the neo-corporatist industrial relations structure, and the explicit agreements for a sharp disindexation of wages (see Dornbusch and Fischer, 1991). The cooperation of organized labor was facilitated by the support of the Socialist trade unions to a Socialist government.

Ulman and Flanagan (1971) mention two episodes that followed a different pattern, the waves of strikes and wage explosions in France in 1968 and Italy in 1969. They call them "negative incomes policy", where politically oriented labor movements used wage hikes to destabilize conservative governments. This, more than a lack of cooperation, fits under what I call "harassment".

The experience of the Heath administration in Great Britain, addressed by Flanagan, Soskice and Ulman (1983), can also be

interpreted as harassment in a highly polarized political climate. In 1970 the Conservatives broke the policy of tacit cooperation followed between 1951 and 1964, enacting restrictive labor legislation and applying deflationary policies. They made a U-turn in 1972, recurring to incomes policy, but the miners defied it. Though Heath charged the strike was politically motivated, the 1974 elections, held as a referendum on who ruled Great Britain, ended with the loss of the Conservatives. The other unions supported the miners, unlike 1958 when they had left the militant bus strikers to their own luck: back then the Trade Union Congress had supported reasonableness in the formulation of wage claims and had urged the government, in private, not to concede.

In brief, trade unions can restrain wages to cooperate with labor parties. On the other hand, unions not only do not cooperate with non-labor parties, they might even harass them. This is not the whole story, however. This behavior is critically conditional on the perception of the incumbent as either pro-labor or not. The actual policies of the incumbent parties affect the government's initial reputation, and subsequent union reactions.

Ulman and Flanagan (1971) remark that the British experience shows that a Socialist government is not sufficient for continued union support. Flanagan, Soskice and Ulman (1983) point out that the incomes policies of the 1960s often ended up failing even when trade unions had close political ties to the incumbent political party because they did not provide significant rewards for sustained wage restraint. The response to the fall in real wages



was the erosion of the authority of the national union officials over the rank and file, grass-roots revolt, wildcat strikes and wage explosions.

The breakdown of union cooperation can be modelled once reputation is endogenous. In relation to this, Flanagan, Soskice and Ulman (1983) contrast the *Sócial* Democrats in Germany with the Labor party in Great Britain. The Social Democrats, who entered the ruling coalition in 1966 and led the government between 1969 and 1983, had a moderating influence on unions. Despite the supply shocks of the 1970s, wage restraint contributed to the continuation of a strong economic performance.<sup>1</sup> In exchange, a great increase in social security transfer payments occurred in the 1970s and representation of workers and unions on supervisory boards was increased under the Codetermination Act of 1976. The Labor party in Great Britain struck a social contract with unions before the 1974 elections, to mend the relations deteriorated by attempts at restrictive labor legislation during the 1964-70 Wilson government. After the failure of voluntary wage restraint, the Wilson-Callaghan government proposed an incomes policy in 1975. The trade unions cooperated because they saw wage restraint as necessary to keep Labor in office, fearing an electoral victory by a Conservative party that was moving to the right. From mid-1975 to mid-1978

---

<sup>1</sup>Flanagan, Soskice and Ulman (1983) underline that monetary discipline received the highest priority from the central bank, but they stress that the limitations of the central bank to secure price stability under fixed rates of exchange (because money supply is endogenous due to capital flows) and high-level employment under floating rates of exchange (when money supply can be controlled by central bank) lend an important role to trade unions.

incomes policy was effective, but it collapsed in late 1978 with a wave of strikes by public sector employees whose relative pay had fallen behind, swamping Labor's electoral chances. Furthermore, though legislation was mildly pro-union during this period, by 1976 Labor lost a small majority in Commons and was not able to enact laws on industrial democracy.

ii. Peronist trade unions and stabilization policy in Argentina

Personally, the troubled relations between the Peronist trade unions and the 1983-89 Radical government lead me to consider stabilization policy and wage decisions from the angle of a political trade union model. After Perón's overthrow in 1955, the Peronist party was initially excluded from elections on the grounds that it was authoritarian. The Peronist character of organized labor transformed the Confederación General del Trabajo (CGT) into an opposition group for non-Peronist governments, leading to military repression and to repeated attempts to reform its internal organization. Against this background, stabilization policy became the stage for political struggle. Trade unions automatically tended to identify stabilization plans of non-Peronist governments as contrary to the interests of the working classes.

Nominal wage behavior during the major post-1970 stabilization programs is shown in Figure 1. The growth rate of nominal wages slowed down substantially in all these episodes. Whereas the 1973 and 1991 plans applied by Peronist governments counted on the cooperation of trade unions, in the 1976 and 1985 plans non-Peronist governments mandatorily suspended collective bargaining,

at best a temporary solution.

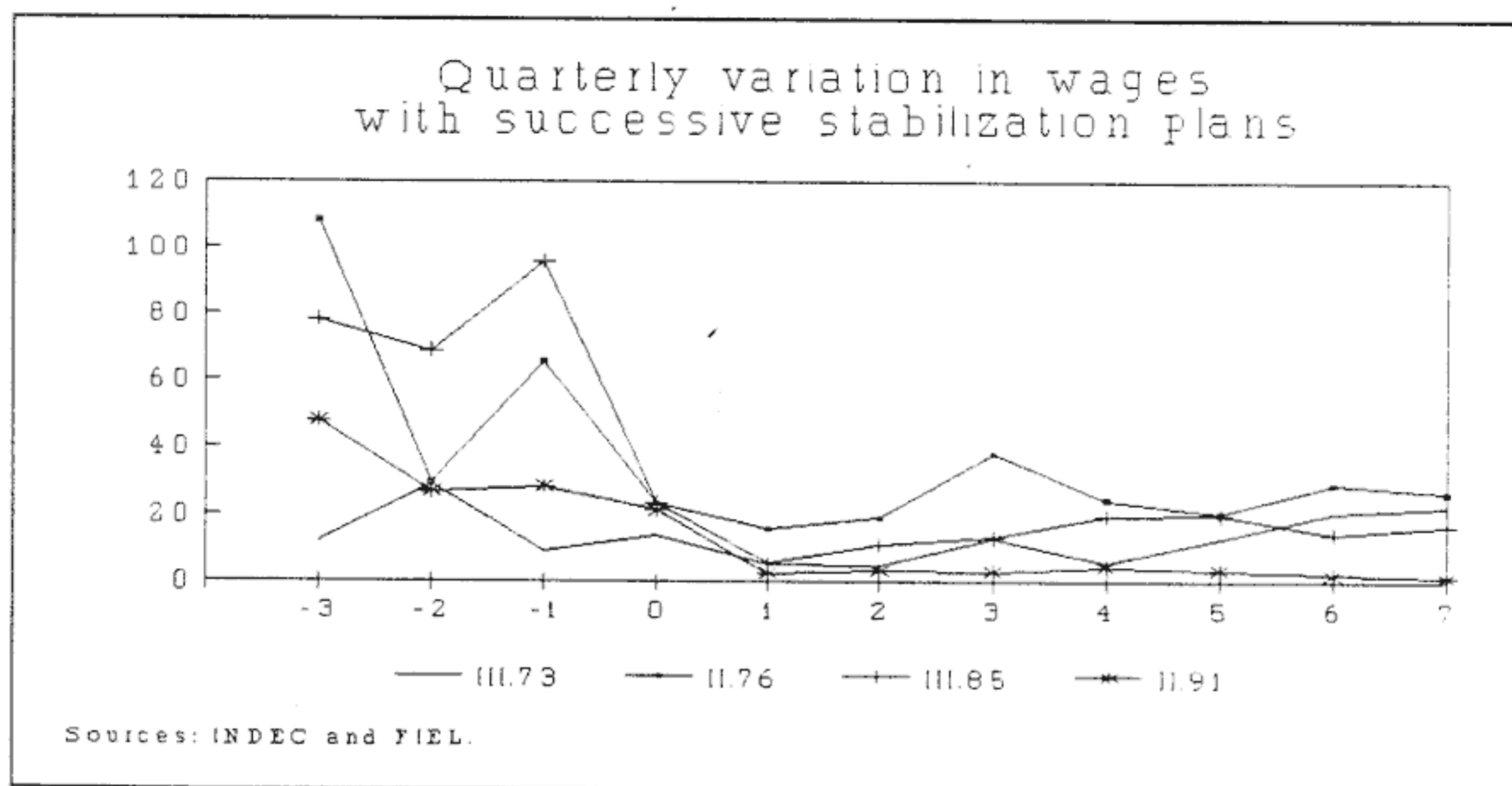


Figure 1

The moderation of nominal wages during Peronist governments fits the pattern of union cooperation with labor governments.<sup>2</sup> The 1973 Social Pact was based on a voluntary suspension of wage bargaining, within a comprehensive incomes policy. The 1991 Convertibility Plan did not rely on a formal suspension of collective bargaining, though there was a prohibition of indexation and a limitation of wage hikes to productivity gains.

Despite its initial success, the 1973 Social Pact ended in a

---

<sup>2</sup>Mallon and Sourrouille (1975) refer to an earlier episode, the 1952 stabilization plan, implemented after a 37% rise in the CPI the previous year: "Perón encountered no major obstacle in obtaining cooperation from his labor constituency, which had been the main intended beneficiary of his original policies and formed the backbone of his political party. A National Commission for Prices and Wages was set up, a system of two-year wage contracts was introduced, and further wage increases were substantially scaled down, with the result that the annual rate of inflation was reduced to about 4% by 1954" (p. 12).

wage explosion. The breakdown of cooperation can be traced to the internal divisions within the Peronist party after Perón's death in mid-1974, such as the attempt by the government to take the health care organizations away from the labor unions. The main incident occurred when free collective bargaining was reinstated in 1975: once agreements were reached for an average pay raise of 40%, the government unexpectedly devalued the peso by 100%. This sparked off a reopening of negotiations. When the government annulled the new labor contracts, the CGT staged its first general strike against a Peronist government, forcing it to cave in. The government did not survive the collapse of the stabilization plan (Cf. Torre, 1983).

The second pattern found before, that unions can undermine stabilizations efforts, is even more apparent. The 1976 stabilization plan of the military government relied on the suspension of collective bargaining to secure sensible wage behavior.<sup>3</sup> Despite a large fall in real wages, the stabilization plan was not successful in returning to the inflation levels that were normal before the 1975 wage explosion. And, after the 1982

---

<sup>3</sup>The 1955-58 military government did not suspend wage bargaining at first. In 1956, the military government suggested an average wage hike of 10%. Businessmen complained that labor demands were much less moderate than in 1954 wage rounds, where labor had been receptive to suggestions from a Peronist government: unions demanded a hike of 50%, and finally settled for a 40% raise. This led the government to freeze wages when one-year contracts expired in 1957 (Cavarozzi, 1984).

The 1966-73 military government decided to freeze union activity from the start. In 1969, a grass root movement exploded, creating a division in the military about repressing the mobilizations or not, and forcing the resignation of the Economy Minister. The inflation rate mounted amid widespread labor conflicts (Torre, 1983).

military defeat in the South Atlantic, renewed union activity brought an outburst of wage demands that pushed inflation up.

In the 1985 Austral Plan, the Radical government imposed a wage freeze as part of its incomes policy to stop inflation.<sup>4</sup> The CGT reacted with a general strike against a plan that "condemned workers to unemployment and hunger". When the government attempted a transition to limited negotiations in 1986, the UOM (Metalworkers Union) staged an escalation of strikes until a 48% wage increase was granted, way outside the government defined bands. The government pressed the employers to solve the strike because the UOM was a reference point for other negotiations, which were stuck awaiting that settlement. With the intention of overcoming the confrontations, a member of the CGT was named Minister of Labor in 1987, but inflation accelerated since the wage guidelines set by the Ministry of Economy were not followed by the Ministry of Labor, now in the hands of trade unions. The Minister of Economy definitely lost control of wage determination in early 1988, when free collective bargaining returned (Cf. Thompson, 1988, and Acuña and Golbert, 1990).<sup>5</sup>

Thus, Peronist governments have been the only ones to count on

---

<sup>4</sup>This had been preceded in 1983 by a proposal of the Radical government to ensure "fair" elections in trade unions, leading to a confrontation with the CGT, which considered it an intrusion into their internal affairs. The 1963-66 Radical government had also tried to assure "democratic elections" within trade unions, causing harassment by trade union leaders (Mallon and Sourrouille, 1975).

<sup>5</sup>The Radical government launched a last antiinflationary program in August 1988. The CGT, however, put a stop to the systematic obstruction it had been following, feeling it would hurt Peronism's chances in the upcoming presidential elections (Acuña, 1993).

the voluntary moderation of organized labor. In exchange, the 1973 Peronist government bestowed trade unions institutional protection against an ongoing anti-bureaucratic assault, through a law on labor associations that enabled higher level entities to intervene affiliates and terminate factory delegates. The 1989 Peronist government has made trade unions unhappy because of the reforms that reduced their power, but the formation of a united opposition block has been avoided by government concessions, such as giving unions a share in the privatization process, and taking over the debts of the health care organizations.

### 3. The wage-price spiral

I address the conflict between trade union and government objectives that has been stressed in the literature, before incorporating the political incentives in Section Four. As Flanagan, Soskice and Ulman (1983) put it, trade unions can prefer a combination of higher real wages and higher unemployment than the authorities find acceptable, as long as the adverse effects do not fall on its members but rather on new entrants to the work force and other marginal groups.<sup>6</sup>

The essence of this story can be captured by a game between a central trade union and the government, where the union controls

---

<sup>6</sup>This need not be so. They remark that the British Conservatives under Thatcher used restrictive demand management in 1979 to deliberately increase the rate of unemployment and thus discipline the labor force. For the first time increasing unemployment seriously put the jobs of well organized workers at risk, moderating wage increases by the second half of 1980.

wages and the government chooses the exchange rate, as in Horn and Persson (1988).<sup>7</sup> In the model, trade unions want a higher real wage than the government, which is embodied as a difference in the target levels of employment. This real wage conflict can lead to a wage-devaluation spiral. After introducing the players, the consequences of two alternative timings of wage and exchange rate adjustment are reviewed.

#### i. The players

The setting is a small open economy that is a price-taker in the international market and produces only one tradeable good. Normalizing foreign prices  $p^*$  to one, home prices  $p$  equal the exchange rate  $e$ .

Firms do not influence inflationary outcomes directly, taking both prices  $p$  and wages  $w$  as given. Labor  $l$  is the only input, and the production technology is Cobb-Douglas. Each firm chooses employment to maximize the log of profits  $b$ . Since the objective function is concave, an interior solution exists. The first-order condition implies a labor-demand curve that is decreasing in the real wage  $w/e$ . The supply curve for goods is consequently an increasing function of the real exchange rate  $e/w$ .

$$\underset{l}{\text{Max}} \ln b(l) = \ln(y - \frac{w}{e}l), \quad \text{where } y = l^\alpha, \quad 0 < \alpha < 1 \quad (1)$$

The government wants to maximize the log of output, given the

---

<sup>7</sup>Tabellini (1988) also considers the problem of economic policy as a game between the government and a central trade union, instead of an atomistic private sector, but the setting is a closed economy.

constraint that labor supply is inelastic beyond full employment level  $\bar{l}$ . Since aggregate income is a function of the real exchange rate, it must control the nominal exchange rate.

A central trade union sets wages, where its utility depends on the log of the income of its members, subject to the restriction that all its members be employed. According to the insider-outsider model, labor turnover costs give the incumbent workers, the "insiders", precedence over entrants and outsiders when it comes to hiring decisions (Cf. Lindbeck and Snower, 1988). Insiders can collude through their formal organization into a labor union, which is precisely what happens here: the insiders are the union members. The number of insiders  $m$  is exogenously given.

This setting leads to a real wage conflict between the trade union and the government, because while the government aims at full employment, the union looks after the interests of its members.

#### ii. Leapfrogging and the wage-devaluation spiral

Suppose there is staggering, i.e. unions change nominal wages in odd periods and the government changes exchange rates in even periods, as in Akerlof (1969). A wage-devaluation spiral arises very naturally.<sup>8</sup>

First consider a stage game with two periods. In the second period the government takes wages as given when it sets the exchange rate, so a corner solution with full-employment is

---

<sup>8</sup>There it is a game between two rival trade unions involved in leapfrogging, here it is a game between the government and a centralized trade union. Also see Blanchard (1986), who focuses on staggering between wage and price decisions.



attained. In the first period the central trade union takes exchange rates as given; since it aims at the highest real wage consistent with all union members being employed, the result is also a corner solution.

$$e_{t+2}^* = \frac{\bar{l}^{1-\alpha}}{\alpha} w_{t+1}^*, \quad w_{t+1}^* = \frac{\alpha}{m^{1-\alpha}} e_t \quad (2)$$

Trade unions achieve their desired real wage in odd periods, the government in even ones. The conflict over the real wage implies a wage-devaluation spiral in the stage game: inflation over a two-period span is an increasing function of the gap between the union's and the government's desired real wage.

$$\pi_{t,t+2} = \frac{(w_{t+1}/e_t) - (w_{t+1}/e_{t+2})}{w_{t+1}/e_{t+2}} = \left(\frac{\bar{l}}{m}\right)^{1-\alpha} - 1 \geq 0 \quad (3)$$

As long as a finite multi-stage game is considered, this spiral unravels by backwards induction: unions raise nominal wages in odd periods, increasing real wages, and the government devalues in even periods, making the exchange rate more competitive. This implies an alternation between periods of low and high employment.

### iii. Exchange rates set discretionarily

In the present setup, an alternative timing where wages are signed into contracts, while exchange rates can be changed at discretion, does not lead to a wage-devaluation spiral. If trade unions realize the government is committed to a high real exchange rate, nominal wage hikes are useless because the government can always achieve the full-employment exchange rate.

This result differs from Horn and Persson (1988), an open

economy version of the credibility problem, where trade unions are able to achieve their real wage objective despite the fact there is no stagflation. The reason is that there the government cares directly both about inflation and unemployment, as in the Barro-Gordon model. Electoral constraints can reintroduce the spiral, as Section Four will show, because they force the government to care about inflation as a means to be reelected.

#### 4. A political trade union model of wage decisions

The evidence in Section Two suggests that political factors influence wage decisions. To model this, the real wage conflict is imbedded in a political setting.

Flanagan, Soskice and Ulman (1983) emphasize that incomes policy seeks to thwart worker militancy, reduce real wages and unemployment, increase competitiveness and profitability, all of which run counter to the traditional union objectives reviewed in Section Three. To stabilize with incomes policy, the government has to offer a quid pro quo in other areas, either compensation for union members or institutional protection to unions.

To model this quid-pro-quo, two key assumptions are introduced. First, the labor party tends to favor a higher share of income for workers. Second, voters reelect with lower probability a government with high inflation and/or unemployment.

In this setup, trade unions can affect the government's reelection chances through their wage decisions. Union cooperation and harassment are characterized in a two-period model. The model

is then extended to three periods, to analyze the breakdown of union cooperation.

i. A partisan political system and voting behavior

Political parties can be depicted as purely opportunistic, or as ideologically driven. Divergent ideologies give political parties a reason to be reelected: they must be in power to carry out their preferred policies (Alesina, 1989, and Nordhaus, 1989).

I follow the partisan approach, because diverging ideological views are necessary to provide the unions a reason to prefer one party over the other. Since the disposable income of workers determined by the market is affected by the taxes and transfers decided at the political level, I assume there is a redistribution of income in favor of workers under labor governments.<sup>9</sup>

Thus, there are two parties  $i \in \{L, NL\}$ , a labor party L and a non-labor party NL, and two types of incumbents  $j \in \{T, NT\}$ , a pro-worker incumbent T and a pro-business incumbent NT. Let the government's per-period utility be a weighted average of the log of the after-tax income  $y_w$  of wage-earners and  $y_b$  of profit-earners (each group has log utility), where the weights  $\beta^{i,j}$  depend on what type  $j$  the incumbent from party  $i$  has.

$$\begin{aligned} \text{Max}_{y_w, y_b} v^{i,j}(y_w, y_b) &\equiv \beta^{i,j} \ln(y_w) + (1 - \beta^{i,j}) \ln(y_b) \quad \text{s.t. } y_w + y_b \leq y \quad (4) \end{aligned}$$

The market outcome in Section Three implied that workers got

---

<sup>9</sup>Though union members receive a larger share of income with a friendly government in the model of this paper, sometimes it is more appropriate to talk instead of the benefits the union bureaucracy derives from cooperation with the government.

a share  $\alpha$  of income, while entrepreneurs got  $1-\alpha$ . Now, the weights  $\beta^{i,j}$  will determine each group's share in income.<sup>10</sup>

Table 1. Share of disposable income

|                  | Workers       | Entrepreneurs   |
|------------------|---------------|-----------------|
| Market shares    | $\alpha$      | $1-\alpha$      |
| Political system | $\beta^{i,j}$ | $1-\beta^{i,j}$ |

For a given level of output, the income share for workers is  $\beta$  when the incumbent from party  $i$  has type  $T$ , and  $1-\beta$  when it has type  $NT$ , where  $\frac{1}{2} < \beta < 1$ . Since both parties allot a fixed share of income to each interest group, namely  $y_w = \beta y$  with type  $T$  and  $y_w = (1-\beta)y$  with type  $NT$ , the remaining problem is to pick the optimal exchange rate, as in Section Three, to determine optimal output.

$$\begin{aligned} \text{Max}_e v^{i,j}(e|w) &= c(\beta) + \eta \ln\left(\alpha \frac{e}{w}\right) \quad \text{s.t.} \quad 0 \leq \left(\alpha \frac{e}{w}\right)^\eta \leq \bar{I}^\alpha, \\ \text{where } \eta &= \frac{\alpha}{1-\alpha}, \quad c(x) = \beta \ln(x) + (1-\beta) \ln(1-x) \end{aligned} \quad (5)$$

Despite campaign promises, a politician's type is not known for sure until actual policies are applied. Let the labor party have a reputation of being more pro-worker: the priors are that

<sup>10</sup>Income redistribution can be achieved through proportional taxes and transfers. The transfers to workers,  $t^{i,j}$ , equal the taxes on entrepreneurs. As long as  $\alpha \neq \beta^{i,j}$ , one group subsidizes the other.

If there is a flat tax rate on profits  $\tau$ , it will not affect the optimal amount of output. Given transfers  $t^{i,j} = (\beta^{i,j} - \alpha)y$  to workers, the implicit tax rate on profits is

$$\tau = \frac{t^{i,j}}{y - l(w/p)} = \frac{\beta^{i,j} - \alpha}{1 - \alpha}$$

If the transfers are negative, entrepreneurs receive an ad-valorem subsidy and workers are subject to payroll taxes.

with probability  $\frac{1}{2} < \Pr(L=T) \leq 1$  the incumbent from party L is pro-worker, while  $\Pr(NL=T) = 1 - \Pr(L=T)$ , so the odds a candidate from each party will favor its constituency are symmetrical. For a given  $\beta$ , the average degree of political polarization, which can be measured by  $\Pr(L=T) - \Pr(NL=T) = 2\Pr(L=T) - 1$ , is highest when  $\Pr(L=T)$  equals one, and it is lowest when  $\Pr(L=T)$  tends to  $\frac{1}{2}$ .

Workers' income derives both from wages  $w$  and government transfers  $t^{i,j}$  to employed workers, so the central trade union's utility is conditional on the identity of the political incumbent  $i \in \{L, NL\}$ .

$$\begin{aligned} \text{Max}_w \text{Eu}(w | \Pr(i=T)) &\equiv \sum_{j \in \{T, NT\}} \Pr(i=j) \ln \left( m \frac{w}{e^{i,j}(w)} + \frac{m}{1} t^{i,j} \right) \\ &= \Pr(i=T) \ln \left( m \frac{\beta}{\alpha} \frac{w}{e^{i,T}(w)} \right) + (1 - \Pr(i=T)) \ln \left( m \frac{1-\beta}{\alpha} \frac{w}{e^{i,NT}(w)} \right) \quad (6) \\ \text{s.t. } m &\leq \left( \alpha \frac{e^{i,j}(w)}{w} \right)^{\frac{1}{1-\alpha}} \leq \bar{1} \end{aligned}$$

The main simplification in the model is that electoral outcomes do not depend on the distribution of income, only on inflation  $\pi_t$  and unemployment  $u_t$  during the incumbent's term in office. This is in line with the findings of Fair (1988), who shows low inflation and low unemployment increase an incumbent's chances of winning U.S. presidential elections.

I assume inflation  $\pi$  and unemployment  $u$  impose a fixed electoral cost, according to the table that follows below. If there is any inflation or unemployment the government's chances of reelection diminish. This implies the government will face a discrete choice, whether to devalue or not.

Table 2. Probability of reelection

|       | $\pi=0$ | $\pi>0$ |
|-------|---------|---------|
| $u=0$ | 1       | r       |
| $u>0$ | s       | sr      |

Inflation equals devaluation, and unemployment depends on the real wage, so the probability of reelection is a function  $F(e_t, w_t)$ . For a given nominal wage both types of government face the same decision problem, so their chances of reelection are in principle equal. Unions, however, can tilt the balance and force one government to devalue more by not restraining their initial nominal wage demands.

ii. Union cooperation and harassment

Trade union reactions to stabilization policy are formalized in a two-period model. The timing is that wages are set before the exchange rate, and elections come at the end of the first period.

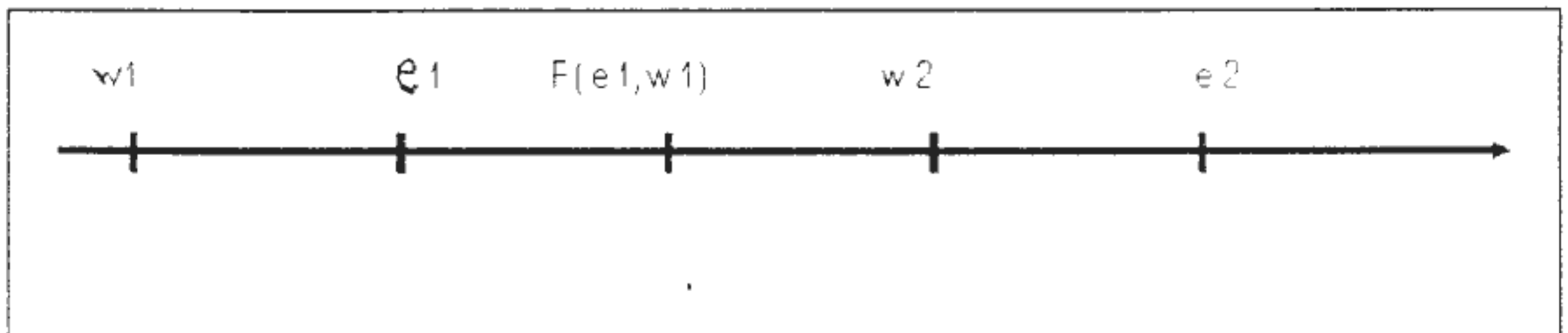


Figure 2

With incomplete information about the incumbents type, the solution concept is perfect Bayesian equilibrium (See e.g. Gibbons, 1992). In the end period the government has no political constraints, so whatever party is in office devalues to attain

full-employment. Trade unions cannot affect real wages, so I assume they leave wages fixed,  $w_2^* = w_1$ , the outcome in Section Three when exchange rates were discretionally set.

In the first period, these solutions can be plugged in to derive the government's expected utility, which is an additive function of the per-period functions, with a rate of time discount  $0 \leq \delta \leq 1$ . The incumbent's utility depends on its type  $j \in \{T, NT\}$  and the party  $i \in \{L, NL\}$  it belongs to.  $Q^{i,j}$ , which stands for the probability that a member of the opposition to party  $i$  has same type  $j$  as incumbent, is determined by the beliefs that determine the relative reputation of both political parties.

$$\begin{aligned} \text{Max}_{e_1} EV^{i,j}(e_1|w_1) &= c(\beta) + \eta \ln\left(\alpha \frac{e_1}{w_1}\right) + \delta (c(1-\beta) + \alpha \ln \bar{I}) \\ &\quad + \delta (F(e_1, w_1) + (1-F(e_1, w_1)) Q^{i,j}) \lambda, \end{aligned} \tag{7}$$

$$\text{where } \lambda \equiv c(\beta) - c(1-\beta) = (2\beta - 1) \ln \frac{\beta}{1-\beta}$$

As initial condition,  $w_0/e_0$  is taken to be the full employment real wage. Since the government incurs a fixed political cost with a devaluation, once it devalues it aims at full employment; the temptation to devalue  $D^{i,j}(w_1)$  can thus be defined as the difference between the government's expected utility at the full-employment exchange rate and at the initial exchange rate. If  $w_1 = w_0$ ,  $D^{i,j}(w_1) = 0$  because of the initial condition, so  $e_1$  is kept fixed at  $e_0$ . If  $w_1 > w_0$ ,  $D^{i,j}(w_1)$  can be expressed as the benefit of a more competitive exchange rate, minus the net political cost of a devaluation.

$$D^{i,j}(w_1) \equiv EV^{i,j}(e_0 \frac{w_1}{w_0} | w_1) - EV^{i,j}(e_0 | w_1) = \eta \ln\left(\frac{\bar{I}^{1-\alpha}/\alpha}{e_0/w_1}\right) - \delta(s-r)(1-Q^{i,j})\lambda \quad (8)$$

There is a limit wage  $w_1^{i,j}$  which is the highest nominal wage type  $j$  from party  $i$  will tolerate without devaluing. When the net political cost of a devaluation is negative ( $s-r < 0$ ),  $D^{i,j}(w_1)$  is always positive, so the limit wage is simply  $w_1^{i,j} = w_0$ . When the net political cost is positive ( $s-r > 0$ ),  $D^{i,j}(w_1)$  is initially negative but increasing in  $w_1$ , so the government will devalue once the following limit wage  $w_1^{i,j}$  is surpassed.

$$\ln\left(\frac{w_1^{i,j}}{e_0}\right) = \ln\left(\frac{\alpha}{\bar{I}^{1-\alpha}}\right) + \delta(s-r)(1-Q^{i,j})\frac{\lambda}{\eta} \quad (9)$$

Note that there are two limit wages for each party. With party  $L$ , type  $T$  tolerates higher real wages because a reversal of policies is likely with the opposition,  $Q^{L,T} \equiv \Pr(NL=T) < \frac{1}{2}$ ; with party  $NL$ , type  $NT$  tolerates higher real wages, again by the assumptions about beliefs,  $Q^{NL,NT} \equiv \Pr(L=NT) < \frac{1}{2}$ . Consequently, government reactions to  $w_1$  are not uniquely defined. There is rather a correspondence conditional on the incumbent's type, where the possible exchange rate is given by the pair  $\{e_1^{i,T}(w_1), e_1^{i,NT}(w_1)\}$ .

The union moves first, acting as a Stackelberg leader who must try to foresee the exchange rate reactions to its nominal wages. It also must take into account the expected distribution of income with the incumbent and the opposition parties,  $i, o \in \{L, NL\}$ , which depends on the probability that each is pro-worker. By the symmetry assumption above,  $\Pr(o=T) = 1 - \Pr(i=T)$ .



$$\begin{aligned}
\text{Max}_{w_1} EU(w_1 | Pr(i=T)) &= (1+\delta) \ln\left(m \frac{1-\beta}{\alpha}\right) + Pr(i=T) \ln\left(\frac{\beta}{1-\beta}\right) + \delta \ln\left(\frac{\alpha}{I^{1-\alpha}}\right) \\
&+ Pr(i=T) \ln\left(\frac{w_1}{e_1^{i,T}(w_1)}\right) + (1-Pr(i=T)) \ln\left(\frac{w_1}{e_1^{i,NT}(w_1)}\right) \\
&+ \delta \ln \frac{\beta}{1-\beta} [F(e_1^{i,T}(w_1), w_1) Pr(i=T) + \\
&((1-F(e_1^{i,T}(w_1), w_1)) Pr(i=T) + (1-F(e_1^{i,NT}(w_1), w_1)) (1-Pr(i=T))) Pr(o=T)]
\end{aligned} \tag{10}$$

Wage hikes above the initial wage first cause unemployment, and, once the limit wages are surpassed and the government decides to devalue, inflation. The central trade union thus needs to evaluate expected utility at only four points: the initial wage  $w_0$ , the low target wage ( $\hat{w}^{L,NT}$  when party L is in office,  $\hat{w}^{NL,T}$  otherwise), the high target wage ( $\hat{w}^{L,T}$  when party L is in office,  $\hat{w}^{NL,NT}$  otherwise), and any arbitrary nominal wage  $w_1^+$  above the high limit wage. The low and high target wages are the low and high limit wages introduced above, unless they exceed the wage  $w_1^*$  that assures the full employment of union members, in which case the union will prefer this latter wage.<sup>11</sup>

$$w_1 \in \{w_0, \hat{w}_1^{i,NT}, \hat{w}_1^{i,T}, w_1^*\}; \hat{w}_1^{i,NT} = \min(w_1^{i,NT}, w_1^*); \hat{w}_1^{i,T} = \min(w_1^{i,T}, w_1^*) \tag{11}$$

Let the difference in expected utility at two alternative first period wages  $w_1^a$  and  $w_1^b$  be denoted  $R^i(w_1^a, w_1^b)$ , for  $i \in \{L, NL\}$ . The expression  $R^i(w_1^a, w_1^b) > 0$  indicates  $w_1^a$  is preferred to  $w_1^b$  when  $i$  is incumbent.

<sup>11</sup>The target wages are equal only if  $w_1^*$  is binding (if  $Pr(L=T)$  were equal to  $Pr(NL=T)$ , both limit wages would also be equal).

$$\begin{aligned}
R^i(w_1^a, w_1^b) &\equiv EU(w_1^a | Pr(i=T)) - EU(w_1^b | Pr(i=T)) \\
&= Pr(i=T) \ln \frac{w_1^a / e_1^{i,T}(w_1^a)}{w_1^b / e_1^{i,T}(w_1^b)} + (1 - Pr(i=T)) \ln \frac{w_1^a / e_1^{i,NT}(w_1^a)}{w_1^b / e_1^{i,NT}(w_1^b)} \\
&\quad + \delta Pr(i=T)^2 [F(e_1^{i,T}(w_1^a), w_1^a) - F(e_1^{i,T}(w_1^b), w_1^b)] \ln \frac{\beta}{1-\beta} \\
&\quad - \delta (1 - Pr(i=T))^2 [F(e_1^{i,NT}(w_1^a), w_1^a) - F(e_1^{i,NT}(w_1^b), w_1^b)] \ln \frac{\beta}{1-\beta}
\end{aligned} \tag{12}$$

The union's actions can be characterized by the following propositions, where cooperation refers to acceptance of a wage freeze ( $w_1 = w_0$ ) and harassment to pushing wages beyond the high limit wage ( $w_1^+ > w_1^{L,T}$  if party L is in office,  $w_1^+ > w_1^{NL,NT}$  if party NL is in office). Figure 3 shows the game tree without payoffs. In these Propositions, there is an interaction between the trade union and the government at two levels. Because of the distributive conflict, the trade union prefers a labor government. If this were the only source of conflict, the union would always cooperate with labor, and harass non-labor, governments. This is tempered by the influence of the real wage conflict, however, which might lead the union to prefer one of the target wages. In this case, the government might delay the devaluation until the second period because of electoral constraints, reproducing the wage-price spiral of Section Three that arose from staggering.

Proposition 1 *The trade union never cooperates with a non-labor government, but it is more likely to cooperate with a labor government when there is a high degree of political polarization. Pf. When the net political costs of a devaluation are negative ( $s-r < 0$ ), the central trade union cannot affect the real wage. Only*

Two-period game with incomplete information  
 between trade union (TU) and political incumbent (I)

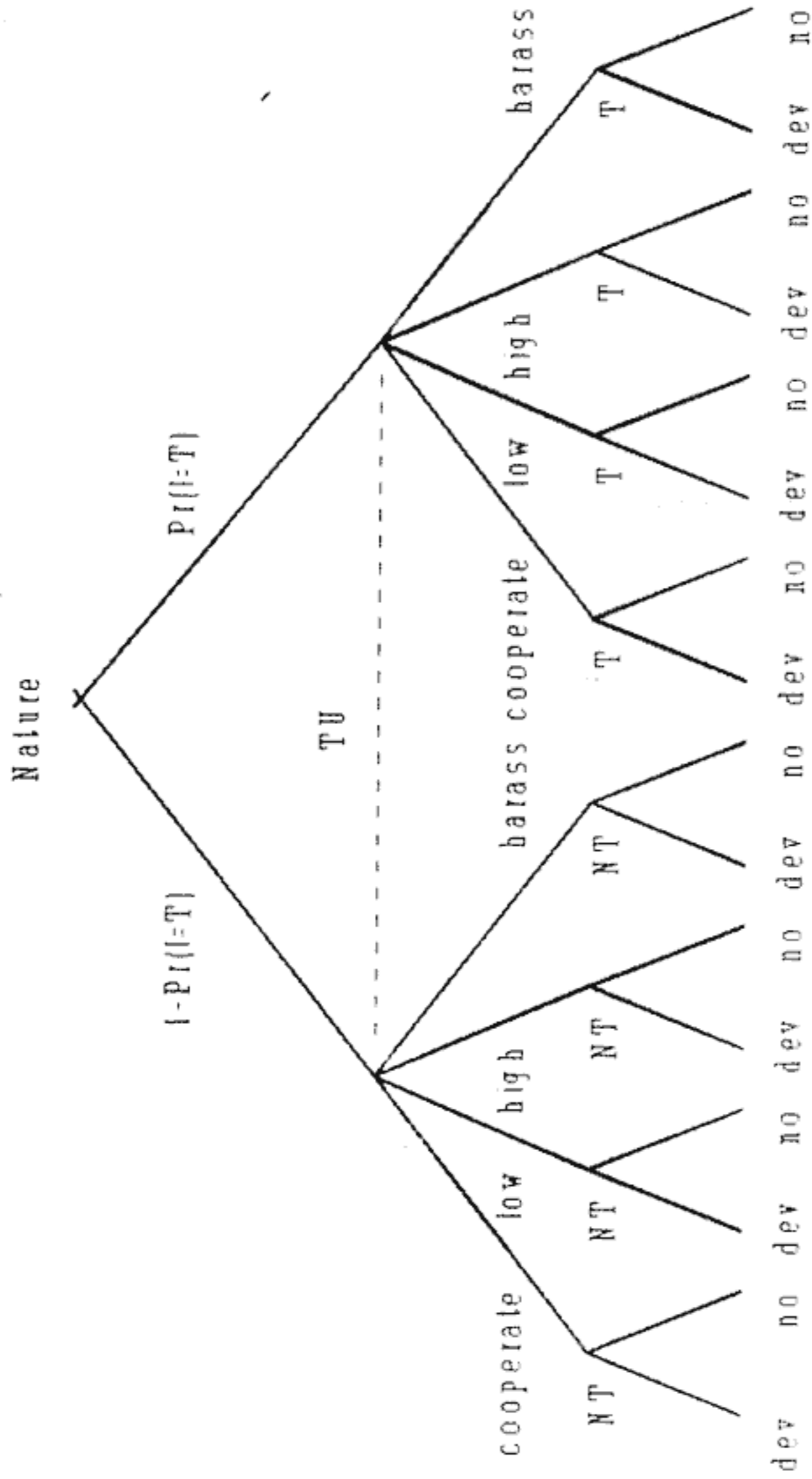


Figure 3

the political incentive of having a pro-worker incumbent in the second period is left.

$$R^L(w_0, w_1^+) = -R^{NL}(w_0, w_1^+) = \delta(1-r)(2Pr(L=T)-1)\ln\left(\frac{\beta}{1-\beta}\right) > 0 \quad (13)$$

When a devaluation has positive political costs ( $s-r > 0$ ), the trade union faces a trade-off between achieving higher real wages and boosting the incumbent's electoral chances through cooperation. With party L, the union freezes wages when the current income losses do not exceed the expected gains from a larger share of income in the future, so the union must prefer  $w_0$  to both target wages (besides, of course,  $w_1^+$ ). These conditions, when  $2Pr(L=T)-1$  tends to 0, become impossible to satisfy.

$$\text{cooperation} \Rightarrow R^L(w_0, \hat{w}_1^{L,NT}) = -\ln\frac{\hat{w}_1^{L,NT}/e_0}{w_0/e_0} + \delta(2Pr(L=T)-1)(1-s)\ln\frac{\beta}{1-\beta} \geq 0,$$

$$\text{where } \ln\frac{\hat{w}_1^{L,NT}/e_0}{w_0/e_0} = \min\left(\frac{\delta(s-r)(1-Pr(L=T))\lambda}{\eta}, \ln\left(\frac{\bar{l}}{m}\right)^{1-\alpha}\right),$$

$$\wedge, \text{ if } \hat{w}_1^{L,NT} < \hat{w}_1^{L,T}, R^L(w_0, \hat{w}_1^{L,T}) = -Pr(L=T)\ln\frac{\hat{w}_1^{L,T}/e_0}{w_0/e_0} + \delta[Pr(L=T)^2(1-s) - (1-Pr(L=T))^2(1-r)]\ln\frac{\beta}{1-\beta} \geq 0,$$

$$\text{where } \ln\frac{\hat{w}_1^{L,T}/e_0}{w_0/e_0} = \min\left(\frac{\delta(s-r)Pr(L=T)\lambda}{\eta}, \ln\left(\frac{\bar{l}}{m}\right)^{1-\alpha}\right)$$

(14)

The union will never do this for party NL, since it would rather harass it first.

$$R^{NL}(w_0, w_1^+) = -\delta(1-r)(2Pr(L=T)-1)\ln\left(\frac{\beta}{1-\beta}\right) < 0 \quad (15)$$

Proposition 2 The trade union never harasses a labor government, but it is more likely to harass a non-labor government

when there is a high degree of political polarization.

Pf. When the political costs of a devaluation are negative ( $s-r < 0$ ), same proof as in Proposition One. When positive ( $s-r > 0$ ), the trade union faces a trade-off between achieving higher wages and hurting the incumbent's electoral chances by harassment. With party NL,  $w_1^+$  must be preferred to both target wages (besides, of course,  $w_0$ ). These conditions, when  $2Pr(L=T)-1$  tends to 0, cannot be satisfied.

$$\text{harassment} \Leftrightarrow R^{NL}(\hat{w}_1^{NL,T}, w_1^+) = \ln \frac{\hat{w}_1^{NL,T}/e_0}{\alpha/\bar{l}^{1-\alpha}} - \delta (2Pr(L=T) - 1) (s-r) \ln \frac{\beta}{1-\beta} < 0,$$

$$\text{where } \ln \frac{\hat{w}_1^{NL,T}/e_0}{\alpha/\bar{l}^{1-\alpha}} = \min \left( \frac{(1-Pr(L=T)) \delta (s-r) \lambda}{\eta}, \ln \left( \frac{\bar{l}}{m} \right)^{1-\alpha} \right),$$

$\wedge$ , if  $\hat{w}_1^{NL,T} < \hat{w}_1^{NL,NT}$ ,

$$R^{NL}(\hat{w}_1^{NL,NT}, w_1^+) = Pr(L=T) \ln \frac{\hat{w}_1^{NL,NT}/e_0}{\alpha/\bar{l}^{1-\alpha}} - \delta Pr(L=T)^2 (s-r) \ln \frac{\beta}{1-\beta} < 0,$$

$$\text{where } \ln \frac{\hat{w}_1^{NL,NT}/e_0}{\alpha/\bar{l}^{1-\alpha}} = \min \left( \frac{Pr(L=T) \delta (s-r) \lambda}{\eta}, \ln \left( \frac{\bar{l}}{m} \right)^{1-\alpha} \right)$$

(16)

The union will never exceed  $\hat{w}_1$  with party L, since it would rather pick  $w_0$  first.

$$R^L(w_0, w_1^+) = \delta (1-r) (2Pr(L=T) - 1) \ln \left( \frac{\beta}{1-\beta} \right) > 0 \quad (17)$$

Proposition 3 If the union does not harass or cooperate with the government, there can be staggering: unions raise wages in the first period, while the government devalues in the second period. Pf. From the propositions above, if the trade union does not harass party NL, it will aim at one of the target wages since it never cooperates with it. And if union does not cooperate with party L, it will aim at one of the target wages since it never harasses it.

If it picks the low target wage, the union can avoid a devaluation for sure since all incumbent types postpone the devaluation until the second period. At the high target wage, there is a risk equal to  $1 - \text{Pr}(L=T)$  that the government will devalue already in the first period, but otherwise the devaluation will also be postponed.<sup>12</sup>

$$\begin{aligned}
 R^L(\hat{w}_1^{L,NT}, \hat{w}_1^{L,T}) &= \ln \frac{\hat{w}_1^{L,NT}/e_0}{\alpha/\bar{l}^{1-\alpha}} - \text{Pr}(L=T) \ln \frac{\hat{w}_1^{L,T}/e_0}{\alpha/\bar{l}^{1-\alpha}} \\
 &\quad - \delta (1 - \text{Pr}(L=T))^2 (s-r) \ln \frac{\beta}{1-\beta} < 0 \\
 R^{NL}(\hat{w}_1^{NL,T}, \hat{w}_1^{NL,NT}) &= \ln \frac{\hat{w}_1^{NL,T}/e_0}{\alpha/\bar{l}^{1-\alpha}} - \text{Pr}(L=T) \ln \frac{\hat{w}_1^{NL,NT}/e_0}{\alpha/\bar{l}^{1-\alpha}} \\
 &\quad + \delta (1 - \text{Pr}(L=T))^2 (s-r) \ln \left( \frac{\beta}{1-\beta} \right)
 \end{aligned} \tag{18}$$

The phenomena of cooperation and harassment depend on the specific parameter values. Figure 4 illustrates Proposition One when the degree of polarization is highest,  $\text{Pr}(L=T)=1$ , for the non-trivial case where the political costs of a devaluation are positive ( $s-r>0$ ). When there is no real wage conflict ( $l \text{ bar}/m=1$ ), unions will cooperate with labor governments for all  $\beta > \frac{1}{2}$ ; when the degree of real wage conflict increases, the incentive to cooperate at each  $\beta$  may eventually disappear, as the area without cooperation

---

<sup>12</sup>The union always prefers the high target wage with party L. With party NL, the low target wage is preferred when there is a low degree of political polarization: if  $\text{Pr}(L=T)$  is close to  $\frac{1}{2}$ , both target wages are similar so the first two terms practically cancel out, while the third term is clearly positive because the political cost of a devaluation is borne by pro-worker type.

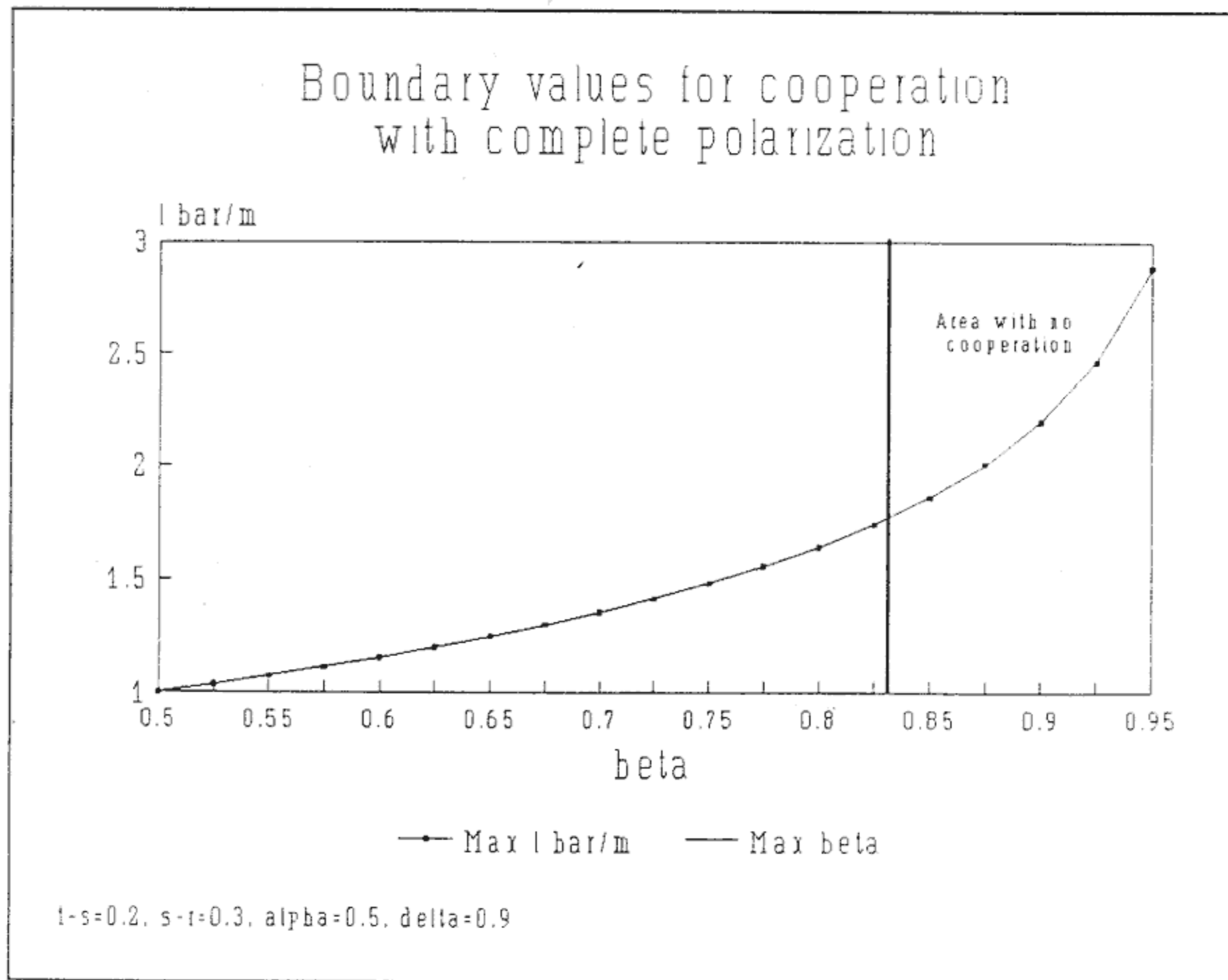


Figure 4

Figure 5 takes a point within one of the regions where there was cooperation in Figure 4 ( $\beta=0.6, l \text{ bar/m}=1.5$ ), to see what happens for  $\frac{1}{2} < \text{Pr}(L=T) < 1$ : as  $\text{Pr}(L=T)$  tends to  $\frac{1}{2}$ , cooperation becomes impossible ( $w_0$  must be preferred to both target wages). The case of

<sup>13</sup>The relationship between cooperation and  $\beta$ , however, is not so straightforward: political incentives are dominant for values of  $\beta$  close to  $\frac{1}{2}$ , and, as one would expect, they are dominant once  $\beta$  tends to one. If there is a high degree of wage conflict, over a certain range an increase in  $\beta$  may destroy the incentive to cooperate, because it leads to an increase in the limit wage, making it possible for unions to secure higher real wages.

harassment is similar.

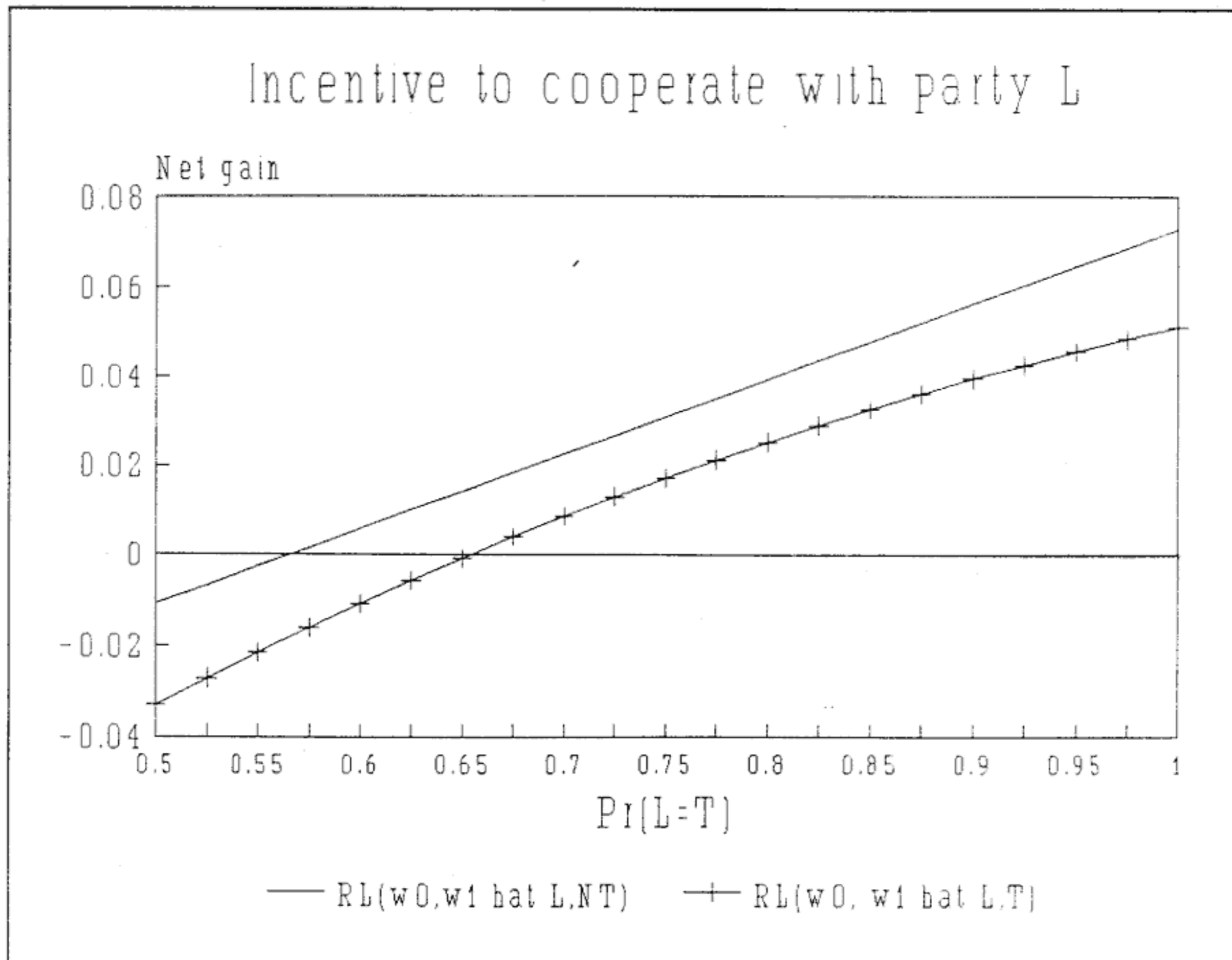


Figure 5

The degree of political polarization represented by  $2Pr(L=T)-1$  is a measure of how far apart the parties stand, on average, on the issue of the distribution of income. Hence, cooperation, and harassment, can be interpreted as the product of a highly polarized political system, where the policies of each party clearly favor certain interest groups. In other words, union cooperation requires a government that enjoys the confidence of trade unions.

These Propositions can be used to make sense of the experiences described in Section Two. A first stylized fact, trade



unions can moderate wage demands to help a socialist government, though not a conservative one, corresponds to Proposition One on cooperation: unions can take real wage cuts to decrease unemployment and thus increase a labor government's electoral chances, but they will never do this for a non-labor government.

The second pattern encountered by Ulman and Flanagan (1971) is captured by Proposition Two on harassment: unions can push inflation up, taking a cut in real wages, to hurt a non-labor government's electoral chances, but they will not do it to a labor government.

### iii. The breakdown of union cooperation

A three-period model with endogenous reputation is considered now, with a timing pattern similar to the two period model. Initially, the labor party has a reputation of being more pro-worker than the non-labor party. The first period can reveal information about the government's true type that can be used in the second period. This now becomes a signalling game. Beliefs are not updated only if there is a pooling equilibrium, where both first-period incumbents pick the same income share for workers.

Lemma One in the Appendix establishes that this game only has a separating equilibrium, where each type follows its preferred policy in the first period, choosing an income share of either  $\beta$  or  $1-\beta$ . I only address the consequences of the separating equilibrium on the trade union's inclination to cooperate with, or harass, the incumbent party in the following period.

Proposition 4 *When reputation is endogenous, the trade union*

can cooperate with a non-labor government in the second period if the incumbent is pro-worker, while it will not cooperate with a labor government if incumbent is not pro-worker.

Pf. The government's distributive policy in the first period affects the trade union's priors. The equilibrium is separating, so if  $\beta$  is observed in the first period the trade union knows incumbent is type T, while if  $1-\beta$  is observed incumbent is type NT. When  $s-r < 0$ , trivial, when  $s-r > 0$  have following conditions.

$$R^{NL=T}(w_1, w_2^{NL,T}) \geq 0 \Leftrightarrow \ln \frac{w_2^{NL,T}/e_1}{\alpha/\bar{I}^{1-\alpha}} \leq \delta(1-s)(1-Pr(L=T)) \ln \frac{\beta}{1-\beta} \quad (19)$$

$$R^{L=NT}(w_1, w_2^*) = -\delta(1-r)Pr(NL=T) \ln \frac{\beta}{1-\beta} < 0$$

Proposition 5 When reputation is endogenous, the trade union can harass a labor government in the second period if the incumbent is not pro-worker, while it will not harass a non-labor government if incumbent is pro-worker.

Pf. Similar to the previous one.

$$R^{L=NT}(w_2^{L,NT}, w_2^*) < 0 \Leftrightarrow \ln \frac{w_2^{L,NT}/e_1}{\alpha/\bar{I}^{1-\alpha}} < \delta(s-r)Pr(NL=T) \ln \frac{\beta}{1-\beta} \quad (20)$$

$$R^{NL=T}(w_1, w_2^*) = \delta(1-r)(1-Pr(L=T)) \ln \frac{\beta}{1-\beta} > 0$$

These results rationalize the change of attitude of trade unions toward governing incumbents. This argument is in line with the emphasis of Flanagan, Soskice and Ulman (1983) on the importance of a quid-pro-quo between government and trade unions for a process of sustained cooperation.

## 5. Concluding remarks

This paper tries to understand why labor parties can sometimes be more successful with stabilization programs than non-labor parties. I build on the fact, stressed in the European context by Ulman and Flanagan (1971), that it is easier for labor parties to enjoy the trust of trade unions.

The key premises to set up the political trade union model are that the labor party has a reputation of being more pro-worker than the non-labor party, and that the outcome of elections depends on inflation and unemployment. Thus, unions can secure benefits through political channels, and wage decisions have a political impact.

The main result is that, when there is a high degree of political polarization, a labor government might count on union cooperation to moderate inflation, while trade unions might on the contrary push inflation up through their wage demands under non-labor governments. This line of argument contrasts to the commonplace characterization of labor parties as more inflationary than non-labor parties, due to their populist policies. In the present model neither political party has a larger inflationary bias, so this issue is ruled out by construction.

The fact that harassment appears in a polarized setting is a reason why stabilization policy has been a political battleground in societies such as Argentina. The price-wage spiral can be fueled by political polarization precisely because society sees inflation as undesirable.

Lemma 1 In the three-period model with endogenous reputation, the incumbent government favors its preferred constituency in the first period: the income shares for workers are  $\beta$  when incumbent has type T, and  $1-\beta$  when incumbent has type NT.

Pf. Have to establish that the signalling game only has a separating equilibrium. This entails showing, first, that type NT is not willing to deviate and mimic type T (cf. discussion on mimicking in Persson and Tabellini, 1990). Second, a pooling equilibrium must be ruled out.

Working by backwards induction, in the third period there are no political constraints, so the government picks the full-employment exchange rate and unions leave wages untouched. In the second period, the exchange rate reacts according to the temptation to devalue function seen in the text. The wages set by unions will in turn depend on the government's reputation, which is affected by what happens in the first period. Now I turn to the incumbent's decision problem in period one, when it must pick both the exchange rate and the distributive shares.

As to the proposed separating equilibrium, when  $s-r < 0$  the political costs of a devaluation are negative so no incumbent will allow the real wage to deviate from full employment level. The only possible difference between incumbents is the share  $\beta^{i,j}$  allotted to workers. Type NT must compare expected utility when it mimics type T, picking  $\beta$ , to expected utility when it does not mimic it.

$$EV^{L,NT} \left( e_0 \frac{w_1^L}{w_0}, \beta | w_1^L \right) - EV^{L,NT} \left( e_0 \frac{w_1^L}{w_0}, 1-\beta | w_1^L \right) =$$

$$\left( -1 + \delta^2 F \left( e_0 \frac{w_1^L}{w_0}, w_1^L \right) (1-r) (1-Q^{L,NT}) \right) \lambda < 0 \quad (21)$$

$$EV^{NL,NT} \left( e_0 \frac{w_1^{NL}}{w_0}, \beta | w_1^{NL} \right) - EV^{NL,NT} \left( e_0 \frac{w_1^{NL}}{w_0}, 1-\beta | w_1^{NL} \right) =$$

$$\left( -1 + \delta^2 F \left( e_0 \frac{w_1^{NL}}{w_0}, w_1^{NL} \right) (1-r) (1-Q^{NL,NT}) \right) \lambda < 0$$

Type NT has no incentives to mimic type T in order to not lose the reputation of being pro-worker. This outcome does not depend on the wages  $w_1^L$ ,  $w_1^{NL}$  trade unions set at the beginning of period one.

When  $s-r > 0$ , the net political costs of a devaluation are positive, so the government's choice of exchange rate will depend on the initial wage. When type NT belongs to party L, the temptation to mimic for type NT can be broken down into two terms, the change in expected utility from setting the same exchange rate as type T (which, in itself, does not suffice to mimic signal of type T), plus the change in expected utility from also setting the same distributive shares as type T (which does suffice to signal as type T). The former term is non-positive because, for  $i \in \{L, NL\}$ ,  $e_1^{i,NT}(w_1^i)$  is the exchange rate that maximizes utility of type NT in separating equilibrium, thus it suffices to show the latter is negative.

$$EV^{L,NT} \left( e_1^{L,T}(w_1^L), \beta | w_1^L \right) - EV^{L,NT} \left( e_1^{L,NT}(w_1^L), 1-\beta | w_1^L \right)$$

$$= EV^{L,NT} \left( e_1^{L,T}(w_1^L), \beta | w_1^L \right) - EV^{L,NT} \left( e_1^{L,T}(w_1^L), 1-\beta | w_1^L \right)$$

$$+ EV^{L,NT} \left( e_1^{L,T}(w_1^L), 1-\beta | w_1^L \right) - EV^{L,NT} \left( e_1^{L,NT}(w_1^L), 1-\beta | w_1^L \right)$$

$$\leq EV^{L,NT} \left( e_1^{L,T}(w_1^L), \beta | w_1^L \right) - EV^{L,NT} \left( e_1^{L,T}(w_1^L), 1-\beta | w_1^L \right) \quad (22)$$

To show that this remaining term is negative, the key step is

that when incumbent NT does not mimic pro-worker type, in the second period either (i) there is harassment, so the loss in the probability of reelection can reach  $1-r$ , but the real wage cannot be larger than with mimicking, or (ii) there is no harassment, so while wages can reach the high limit wage, the loss in the probability of reelection is at most  $1-s$ . Note that  $w_2(\beta^i)$  denotes wage set in period two after unions observe separating signal  $\beta^i$  in period one.

$$\begin{aligned}
& EV^{L,NT}(e_1^{L,T}(w_1^L), \beta/w_1^L) - EV^{L,NT}(e_1^{L,T}(w_1^L), 1-\beta/w_1^L) \\
& = \lambda [-1 + \delta^2 F(e_1^{L,T}(w_1^L), w_1^L) (1-Q^{L,NT}) \\
& \quad [F(e_2^{L,NT}(w_2(\beta)), w_2(\beta)) - F(e_2^{L,NT}(w_2(1-\beta)), w_2(1-\beta))]] \quad (23) \\
& \quad + \delta F(e_1^{L,T}(w_1^L), w_1^L) \eta \ln \frac{w_2(1-\beta)/e_2^{L,NT}(w_2(1-\beta))}{w_2(\beta)/e_2^{L,NT}(w_2(\beta))} \\
& \leq [-1 + \delta^2 F(e_1^{L,T}(w_1^L), w_1^L) (1-Q^{L,NT}) (1-r)] \lambda < 0
\end{aligned}$$

When type NT belongs to party NL, the proof is similar.

$$\begin{aligned}
& EV^{NL,NT}(e_1^{NL,T}(w_1^{NL}), \beta/w_1^{NL}) - EV^{NL,NT}(e_1^{NL,NT}(w_1^{NL}), 1-\beta/w_1^{NL}) \\
& \leq [-1 + \delta^2 F(e_1^{NL,T}(w_1^{NL}), w_1^{NL}) (1-Q^{NL,NT}) (1-r)] \lambda < 0 \quad (24)
\end{aligned}$$

These results establish that a separating equilibrium exists, since an incumbent that is not pro-worker will not have an incentive to deviate and mimic a pro-worker incumbent. A pro-worker incumbent can have its desired income distribution, which at the same time signals its type effectively.

A pooling equilibrium can be immediately ruled out. There would be no updating of reputation, hence gains to type NT when  $\beta$  is posited as a pooling signal are smaller than in deviation considered above, while costs are the same.

## References

- Acuña, Carlos H., 1993, Politics and economics in the Argentina of the nineties (CEDES, Buenos Aires).
- Acuña, Carlos H. and Laura Golbert, 1990, Empresarios y política. Los empresarios y sus organizaciones: ¿Qué pasó con el Plan Austral?, Boletín Informativo Techint 263, 33-52.
- Akerlof, George, 1969, Relative wages and the rate of inflation, Quarterly Journal of Economics 83, 353-74.
- Alesina, Alberto, 1989, Politics and business cycles in industrial democracies, Economic Policy 8, 57-98.
- Blanchard, Olivier J., 1986, The wage price spiral, Quarterly Journal of Economics 101, 543-565.
- Cavarozzi, Marcelo, 1984, Sindicatos y política en Argentina (CEDES, Buenos Aires).
- Dornbusch, Rudiger and Stanley Fischer, 1991, Moderate inflation, NBER Working Paper 3896.
- Edelman, Murray and R. W. Fleming, 1965, The politics of wage-price decisions. A four-country analysis (University of Illinois Press, Urbana).
- Fair, Ray C., 1988, The effect of economic events on votes for president: 1984 update, Political Behavior 10, 168-179.
- Fishbein, Warren H., 1984, Wage restraint by consensus. Britain's search for an incomes policy agreement, 1965-79 (Routledge &

- Kegan Paul, Boston).
- Flanagan, Robert J., David W. Soskice and Lloyd Ulman, 1983, Unionism, economic stabilization, and incomes policies: European experience (Brookings Institution, Washington, DC).
- Gibbons, Robert S., 1992, Game theory for applied economists (Princeton University Press, Princeton).
- Horn, Henrik and Torsten Persson, 1988, Exchange rate policy, wage formation and credibility, *European Economic Review* 32, 1621-1636.
- Lange, Peter, George Ross and Maurizio Vannicelli, 1982, Unions, change and crisis: French and Italian union strategy and the political economy, 1945-1980 (George Allen & Unwin, London).
- Lindbeck, Assar and Dennis J. Snower, 1988, The insider-outsider theory of employment and unemployment (MIT Press, Cambridge).
- Mallon, Richard D. and Juan V. Sourrouille, 1975, Economic policymaking in a conflict society: the Argentine case (Harvard University Press, Cambridge).
- Nordhaus, William D., 1989, Alternative approaches to the political business cycle, *Brookings Papers on Economic Activity* 2, 1-49.
- Persson, Torsten and Guido Tabellini, 1990, Macroeconomic policy, credibility and politics (Harwood Academic Publishers, Chur).
- Streb, Jorge M., 1993, On the political economy of inflation (Ph.D. Dissertation, U.C. Berkeley).
- Tabellini, Guido, 1988, Centralized wage setting and monetary



policy in a reputational equilibrium, *Journal of Money, Credit and Banking* 20, 102-118.

Thompson, Andrés, 1988, *Sindicatos y estado en la Argentina: el fracaso de la concertación social desde 1983*, *Boletín Informativo Techint* 251, 17-36.

Torre, Juan Carlos 1983, *Los sindicatos en el gobierno. 1973-1976* (Centro Editor de América Latina, Buenos Aires).

Ulman, Lloyd and Robert J. Flanagan, 1971, *Wage restraint. A study of incomes policies in Western Europe* (University of California Press, Berkeley).