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WAGES AND EMPLOYMENT AFTER REUNIONIZATION IN URUGUAY*

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ABSTRACT

Collective bargaining was banned in Uruguay after the military takeover in 1973. This paper examines how the labor market was affected by the return of unions in 1985. Data on union density are linked with quarterly data on wages and employment by industry for 1983-1991. Upon the return of unions, wages and hours worked by production workers increased in all industries. Wages increased more in union than in nonunion industries, but employment grew more in the nonunion sector. At the macro level, wage differentials became more compressed and wage levels became less responsive to macroeconomic conditions, which are likely consequences of a resumption of collective bargaining.

I. INTRODUCTION

Collective bargaining was proscribed in Uruguay after the military took over the government in 1973. Upon the return to democracy in 1985, unions quickly re-organized most workplaces that had been unionized before the takeover. The political and social dimensions of these events have been exhaustively examined (Gillespie, 1991 and Weinstein, 1988), but there has been surprisingly little analysis of their economic impact. The purpose of this paper is to launch such an assessment.

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By studying a labor market during and after a ban on collective bargaining, this paper provides evidence on the economic impact of unionism in a setting where unionism has been subjected to a sizable and exogenous shock. This study first focuses on the classic questions of how unions affect wages and employment. The impact of unions on employment depends on whether bargaining takes place on the demand curve or on the contract curve. The direction of the union impact on wages is clear, but the interpretation of the available evidence is not so clear. Lewis (1986, ch. 1) noted that virtually the entire literature on the impact of unions on wages consists of *wage gaps* -comparisons of wage differences that are observed at a given point in time, holding the institutional structure of collective bargaining constant. In many cases, he argued, economists would prefer to estimate *wage gains*- how wages would differ for all workers in the presence versus the absence of monopoly unionism. This would take into account changes in wage scales within establishments, corresponding changes in the quantity of labor demanded, and the corresponding adjustments in mobility and the quantity of labor supplied.

The Uruguayan case provides a unique opportunity to examine these issues. Collective bargaining was suspended for a long enough period (1973 through 1984) that firms should have been able to make extensive adjustments to employment. Real wages fell by almost 50 percent between 1973 and 1985, an adjustment that is undoubtedly greater (in absolute value) than it would have been in the presence of an active union movement.

Ideally this study would have gone back to the 1960s so that it could examine what happened after unions were banned and then what happened when collective bargaining was restored. However, there are no data available for such a task. Consistent time series on wages and employment by industry are not obtainable until the 1980s, so most of the results reported here deal with what happened to wages and employment upon the return of bargaining in 1985 rather than what happened after the ban in 1973. Nonetheless, this study provides evidence of a sort that has not been previously available in the economic literature on trade unions.

This study also sheds new insights into the determinants of labor market flexibility. Recently it has been argued (e.g., Edwards (1995), pp. 277-286) that the inflexibility of labor markets remains an important drag upon economic growth within the region. Most Uruguayan markets were liberalized during the military regime and no major changes in these policies were made after the return of the civilian government. Thus, if collective bargaining reduces labor market flexibility, this should be apparent in an examination of the Uruguayan labor market before and after 1985.

We begin in Section II with a brief summary of the institutional setting in Uruguay during and after the ban on collective bargaining, along with a brief overview of the theory of how unions affect wages and employment. Naturally, wages should rise, but the change in employment depends on the nature of bargaining. The analysis in Section III uses repeat cross sections of industry data to show how employment and wages respond to changes in union density. We find that reunification is associated with an increase in wages across all industries, along with an increase in relative wages in unionized industries. Employment also increased with re-unionization but increased less in union than nonunion industries. Section IV reports some indirect evidence on how unions have affected labor market adjustment. We show that after the reappearance of collective bargaining, wage differentials by education fell for most workers. At the macro level wages responded less to unemployment in periods where collective bargaining was permitted. The implications of these results are assessed in Section V.

II. INSTITUTIONAL AND THEORETICAL BACKGROUND

When the Uruguayan parliament was closed by the military in June 1973, the union confederation (CNT) launched a general strike. The government reacted by banning union activity and giving employers the right to dismiss anyone who did not return to work. Many union leaders were jailed; the others went into hiding or exile. The union movement began a political comeback in the early 1980s, with a series of demonstrations and general strikes, but there was no bargaining until the return of democracy in 1985. By then, the economy was recovering from a major recession that started in 1982 with the debt crisis and exchange rate devaluation. As shown in Table 1, unemployment peaked in 1983 at 15 percent, accompanied by 48 percent inflation. GDP dropped 15 percent between 1982 and 1984.

TABLE 1
AGGREGATE CONDITIONS IN URUGUAY, 1983-91

Year	GDP growth rate	Unemployment rate	Inflation rate	Real wage growth rate
1983	-5.9	15.2	48.0	-20.7
1984	-1.1	13.8	56.8	-9.1
1985	1.5	13.0	72.4	14.1
1986	8.9	10.7	76.0	6.7
1987	7.9	9.3	64.2	4.7
1988	0.0	9.1	61.9	1.5
1989	1.3	8.6	80.3	-0.4
1990	0.9	9.3	112.6	-7.3
1991	2.9	8.9	102.0	3.8

Source: Interamerican Development Bank.

In the absence of unions, employers were relatively free to adjust wages and employment. Wage adjustments were limited from above by the government's wage controls (which attempted to limit wages to lagged inflation) and from below by the minimum wage (which was adjusted for inflation with a lag). Because these policies were accompanied by unemployment rates that averaged over 10 percent, real wages dropped by 49 percent from 1973 through 1984. Employment adjustment also became more flexible. Interview evidence compiled by Handelman (1981) indicates that after the ban on unions, many employers used the opportunity to get rid of trade union officials and excess employees. Dismissals of public sector workers also were permitted by law between 1977 and 1984 (Gillespie 1991). On the supply side, there was a surge in emigration precipitated by political repression, high unemployment and the relative attractiveness of the region (Sapelli and Labadie, 1989). Taking into account all of these factors, it is clear that the Uruguayan labor market was exposed to strong competitive forces during the ban on unions.

Starting in 1985, Uruguay's unique system of wage councils was reinstated. Collective bargaining in the private sector in Uruguay has traditionally operated mainly through a system of trilateral wage councils that set minimum wages by industry and labor

category¹. Wage levels were adjusted three times a year through 1990. Since then, wages were only adjusted when accumulated inflation reached a specific threshold. Often the wage councils agreed to a formula that would be in effect for 16 to 24 months, allowing adjustment to take place without a formal meeting. If the government delegates gave their consent to the wage agreement, it applied to the entire sector, not just to the firms and unions involved in the bargaining. Government approval usually required keeping wage increases in line with official inflation targets. Direct negotiation between the union and the firm was also a widespread practice, especially in manufacturing.

As unions and firms resumed bargaining, labor market conditions for workers improved. After the return of collective bargaining, unemployment gradually declined to 9 percent by 1991. GDP growth varied during this time period, with spurts in 1986-7 and 1991 accompanied by slow growth in 1988-90. Real wages grew 14 percent in 1985 and an additional 8.7 percent over the next six years combined. Inflation accelerated to slightly over 100 percent in 1990-91, but this was no doubt a reflection of hyperinflation in Brazil and Argentina rather than union pressure.

Impact on wages and employment. With the restoration of democracy in 1985, one would expect wages to increase in those sectors where collective bargaining resumed. The magnitude of the wage increase and the change in employment would depend on the nature of bargaining, the relative bargaining strength of unions and employers, and the constraints imposed by government wage policy.

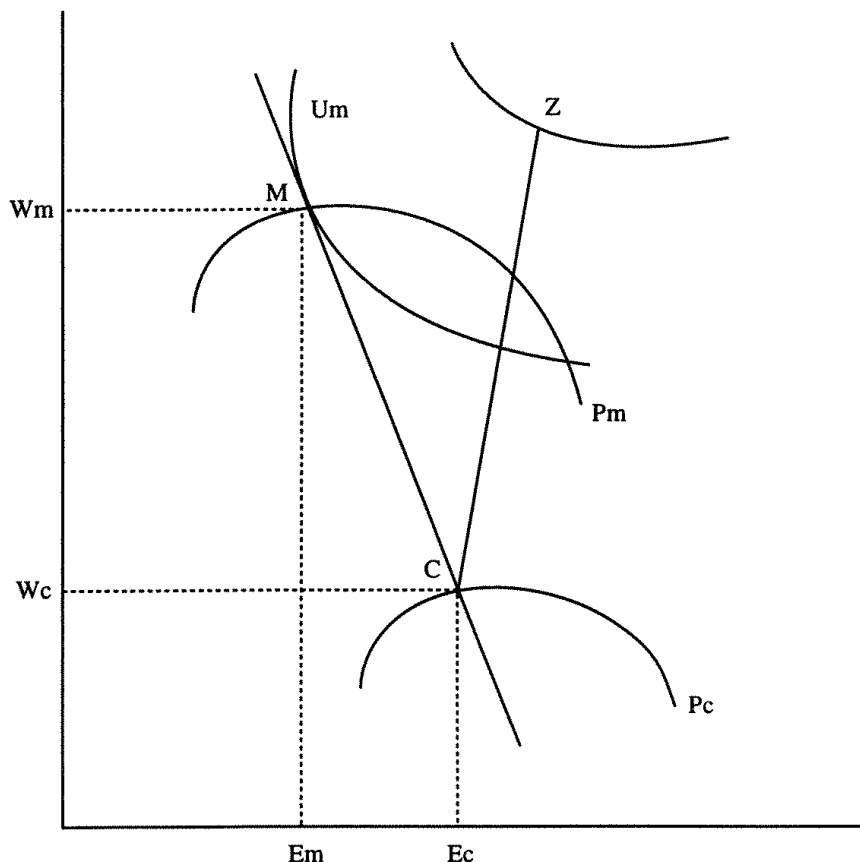
Possible outcomes are illustrated in Figure 1². Point C indicates the labor market equilibrium before the resumption of bargaining, with wage w_c and employment level E_c . This outcome maximizes the firm's profits, as indicated by isoprofit curve P_c . Point M indicates the equilibrium if bargaining focuses only on wages and the union has the power to dictate the terms of the contract. Union utility is maximized at the point on the demand curve that is tangent to union indifference curve U_M . In this case, collective bargaining leads to an increase in wages and a decrease in employment.

By bargaining over both wages and employment, both sides can achieve more desirable outcomes. Pareto-efficient bargains are indicated by the contract curve CZ, the locus of tangencies between the firm isoprofit and union indifference curves. The curve cannot go below point C because of the availability of nonunion jobs at w_c . At this point the firm collects all rents. Point Z illustrates the situation where the union collects all rents. Union utility will be higher at Z than at M as long as the firm is receiving some rents at M. The evidence on whether firms are on or off the contract curve is mixed. For instance Brown and Ashenfelter (1986) and MaCurdy and Pencavel (1986) used data on the same union and reached opposite conclusions on this issue.

1 This system was dominant until 1991. For a fuller description of that system and how it has since evolved, see Cassoni, Labadie, and Allen (1994) and Rama (1994).

2 For a thorough discussion of the theory of bargaining and contracts in a union setting see Mac Donald and Solow (1981); Farber (1986); or Pencavel (1991).

FIGURE 1
POSSIBLE OUTCOMES AFTER REUNIONIZATION



Economic theory does not dictate the slope of the contract curve; it merely requires that the contract curve be positioned to the right of the labor demand curve. One possibility -if workers are risk neutral- is that the contract curve could be vertical (Mac Donald and Solow, 1981). In this situation unionization has no impact on employment; bargaining is entirely about the distribution of rents. Because employment is at competitive levels, this is referred to as a strongly efficient contract. Card (1986) and Abowd (1989) have examined this issue empirically and reached conflicting conclusions as well.

To summarize, the direction of the change in employment after the resumption of collective bargaining cannot be predicted *ex ante*. If the scope of bargaining is restricted to wages, then employment will fall as the firm moves up the demand curve. Otherwise, the change in employment will reflect the slope of the contract curve. If the contract curve is upward (downward) sloping, employment will increase (decrease); if contracts are strongly efficient, there will be no change in employment.

The government anti-inflation program posed additional constraints on possible bargaining outcomes. Under the wage councils system, wage bargains would not be enforceable unless they were in line with government inflation targets. In situation where both employers and unions saw such an extension to be highly desirable, there would effectively be a cap on the magnitude of the wage settlement that would restrict outcomes to a limited range of either the contract curve or the labor demand curve. In addition, there were

initially limits on how much of a wage increase could be passed on to customers. The formulas for government wage guidelines changed frequently after 1985, but given the quality of the available data it is difficult to determine how much of a constraint these guidelines had on settlements.

Other effects of reunification. In addition to raising wages, Freeman and Medoff (1984) point out that another key objective of unions is the reduction of wage inequality within the organization. One reason this happens is to increase worker solidarity, a goal that would become increasingly difficult if there were pronounced wage differences. Unions also have traditionally resisted pay-for-performance schemes that give management discretion about pay. By spreading this component of the reward system out more evenly, pay variation is reduced. Unions also favor uniform pay scales across establishments so that employers and customers have no incentive to shift their business around.

Finally, we expect that the return of unions in Uruguay would lead to more sluggish wage and employment adjustment. When unemployment increases, it is most unusual to see contracts reopened. Layoffs are generally based on reverse seniority, thus insulating the politically dominant members of the union from economic downturns (Medoff (1979)). The union will only be concerned with the welfare of those remaining on the job; so that those displaced by downwardly rigid wages will not be represented in decentralized bargaining.

Employment adjustments are made more difficult by laws dictating severance pay. These laws did not change after the resumption of collective bargaining in 1985, but the ability of workers to press their claims more energetically no doubt increased.

Accordingly, one would expect not only fewer layoffs when output falls, but also, since labor becomes more like a sunk cost, fewer new hires when output expands³.

III. DIRECT EVIDENCE: WAGES AND EMPLOYMENT

There has never been a government survey of households or establishments to measure union density in Uruguay. In Cassoni, Labadie and Allen (1994), we compiled estimates of union affiliation, based upon union reports of membership and government reports of employment by industry. These estimates are much less precise than what one would obtain from a household or establishment survey not just because of measurement error, but also because the definitions of industry boundaries vary somewhat between the union and government reports.

Once the right to collectively bargain had been restored, there was a flurry of organizing activity. In 1987, roughly one-fourth of all employees had become union members. Union affiliation was much higher in the public (42.0 percent) than the private sector (16.7 percent). After this initial surge, union density has since been declining from 22.6 percent overall in 1987 to 20.4 percent in 1990 and 17.3 percent in 1993. In manufacturing, the focus of this study, union density went from 27.3 percent in 1987 to 23.0 percent in 1990 and 17.6 percent in 1993. Within the manufacturing industries examined in this study, there is considerable variation around this pattern. For instance,

³ Lazear (1990) pointed out that if the costs of severance pay could be shifted to workers by lowering the wage, then there would be no impact on flexibility. However, with unions and government pushing for higher wages, such adjustments are unlikely to have taken place in Uruguay.

percentage union in textiles has remained near 50 percent throughout the sample period, whereas percentage union in food dropped from 51.5 percent in 1987 to 32.1 percent in 1990.

Thus, there are two important sources of variation in percentage union within each industry in our sample. First, there is the initial organization phase, when union density went from zero to almost 25 percent in two years. Second, there is considerable fluctuation between 1987 and 1991.

To estimate the union-nonunion wage differential over industry data, we use the standard approach (Lewis (1986); Booth (1995)) of regressing the mean log wage (w_i) on percentage union (UD_i) and a set of industry and worker characteristics (X_i) that influence wages:

$$(1) \quad w_i = UD_i w^u + (1 - UD_i)w^{NU} = \mu_0 UD_i + \mu_1 X_i$$

Theoretically, Booth (1995, p. 182) demonstrates that the differential should increase with union power and decline with product market competitiveness and labor intensity, but we focus here on the average effect of unions across all manufacturing industries.

The impact of unions on employment is estimated in a similar fashion, following the approach in Pencavel and Hartsog (1984, equation 8). Real wages are included as a control variable so that the impact of bargaining on employment can be identified separately from the impact of higher wages.

Given that the biggest change in union density in most industries takes place between 1984 and 1986, one might question whether other events in that period that are not included in the model might actually be responsible for the observed changes in wages and employment. To control for that possibility, one could include a binary variable to pick up time-specific effects on these variables across all industries. However, there is some risk that this would be an overadjustment of union impact. The return of the union movement could have affected nonunion wages and employment through such mechanisms as changes in the government's wage policy or shifts in employer strategy to make union membership less desirable. Thus a simple comparison of relative wages helps answer questions about wage gaps, but not about wage gains.

In summary, the model is designed to pick up both industry-specific and economy-wide wage and employment adjustments associated with the return of collective bargaining in Uruguay. The union coefficient shows how much wages/employment changed in union relative to nonunion industries, whereas the 1985-91 indicator picks up economy-wide adjustments at a time of rapid organizing (although it also picks up the influence of other time-specific influences that are not included in the model).

Wage results. The model was estimated using quarterly data from 1983 to 1991. It includes industry fixed-effects and seasonal dummies. Other variables are the unemployment rate, lagged values of the dependent variable, the difference in the growth of consumer and producer prices (an indicator of wage pressure used by Layard, Nickell and Jackman), and percentage blue collar workers in the industry. The estimation method used was OLS. Although there might be some simultaneity bias in the estimated coefficients arising from the fact that membership -and hence union density- might depend on real wages, empirical attempts to model wages and unions simultaneously have yielded an array of unstable and unbelievable results (Lewis (1986), ch. 4).

The return of unions in Uruguay had a sizable effect on wages, as shown in Table 2. The specification in column 1, which omits the binary indicator, indicates that workers in

unionized industries earn 13.4 ($=\exp(.126)-1$) percent more than workers in nonunion industries. The specification in column 2 adds a binary indicator for 1985-91. In this model, real wages in all manufacturing industries increased by 3.8 percent upon the simultaneous return of democracy and collective bargaining. This impact is observed across all manufacturing sector, even those that did not become organized. Wages rose by an additional 8.4 percent in manufacturing industries that became fully unionized relative to industries that stayed union-free. These results indicate that unions redistributed income both from capital to labor and from nonunion to union labor.

TABLE 2
REAL WAGE EQUATION ESTIMATES, 1983:1 - 1991:4,
EIGHT MANUFACTURING INDUSTRIES

Dependent variable	Hourly wage	Hourly wage
Constant	2.379 (0.254)	2.340 (0.251)
1985-1991 = 1; = 0 otherwise		0.037 (0.012)
Unemployment rate	-0.908 (0.292)	-1.407 (0.333)
Real wage lagged 2 quarters	0.595 (0.038)	0.604 (0.038)
Fraction union	0.126 (0.018)	0.081 (0.023)
Wedge between consumer and producer inflation	0.522 (0.052)	0.546 (0.052)
Fraction blue collar	-0.588 (0.161)	-0.496 (0.161)
R ²	0.963	0.964
Standard error	0.044	0.044

The specification includes seasonal dummies and fixed effects by industry. Variables are I(O) and or CI(1,1), according to Augmented Dickey-Fuller tests. Estimation was carried out by OLS and standard misspecification tests were performed.

Complete regression outputs are available upon request.

Data sources: Cinve; Quarterly Industrial Survey of National Bureau of Statistics; Department of Economics at the Social Sciences Faculty, University of Uruguay.

Employment results. Given that reunification is associated with higher wage levels throughout the manufacturing sector and with higher relative wages in unionized industries, the next logical question is to determine whether there were any adverse employment effects. We examine this issue by examining union density and the 1985-91

indicator in cross section-time series models of employment and total hours worked by production workers. Other variables in these models include real hourly wage, output, lagged output, a time trend, lagged employment, and percentage blue collar, as well as binary indicators of industry and quarter.

The results in Table 3 are very sensitive to the 1985-91 indicator. In models where this indicator is omitted, the results imply employment rose by 5.2 percent more in union than nonunion industries and that hours rose by 7.2 percent more. However, the null hypothesis for the 1985-91 indicator is rejected by the data which, along with the time pattern of union organizing, gives us very little confidence in this finding.

TABLE 3
PRODUCTION EMPLOYMENT AND HOURS EQUATIONS,
1983:1 - 1991:4, eight manufacturing industries

Dependent variable	Employment	Employment	Hours	Hours
Constant	1.089 (0.212)	0.752 (0.208)	1.086 (0.233)	0.788 (0.235)
1985-1991 = 1; 0 otherwise		0.114 (0.019)		0.103 (0.023)
Trend	-0.003 (0.000)	-0.005 (0.001)	-0.004 (0.001)	-0.006 (0.001)
One year lag of dependent variable	0.399 (0.033)	0.393 (0.031)	0.316 (0.033)	0.307 (0.032)
Fraction union	0.051 (0.017)	-0.120 (0.033)	0.070 (0.020)	-0.085 (0.040)
Fraction blue collar	0.308 (0.177)	0.562 (0.173)	0.539 (0.210)	0.775 (0.210)
Log real output	0.383 (0.024)	0.393 (0.022)	0.442 (0.028)	0.452 (0.027)
Log change in real output	-0.169 (0.027)	-0.166 (0.026)	-0.044 (0.032)	-0.042 (0.031)
Real wage	-0.086 (0.022)	-0.058 (0.022)	-0.089 (0.026)	-0.063 (0.026)
R ²	0.928	0.936	0.916	0.922
Standard error	0.047	0.045	0.056	0.054

The specification includes seasonal dummies and fixed effects by industry.

Variables are I(O), according to Augmented Dickey-Fuller tests. Estimation was carried out by OLS and standard misspecification tests were performed.

Complete regression outputs are available upon request.

Data sources: Cinve; Quarterly Industrial Survey of National Bureau of Statistics; Dept. of Economics at the Social Sciences Faculty, University of Uruguay.

The results with the 1985-91 indicator show that reunification is associated with increased employment from 1985 onwards but with a lower employment level in unionized relative to non-unionized industries. The re-organization of the union movement is associated with a 12.1 percent increase in employment and a 10.8 percent rise in total hours worked in a nonunion industry. In a unionized industry, hours increased by only 1.8 ($=\exp(.103-.085)-1$) percent and employment actually drops by less than one percent. The hypothesis of no change in hours or employment cannot be rejected. These results include controls for wages. Unions also influence employment through their impact on wages, but this effect is very modest because the estimated elasticity of labor demand is so low.

How can these results for real wages and employment levels be interpreted? Upon the return to the bargaining table, unions were able to move off the labor demand curve and to appropriate rents. With high unemployment in the aftermath of the 1982 crisis and many union leaders returning to the labor market from incarceration or exile in 1985, firms no doubt faced plenty of pressure at the bargaining table and the workplace to create more positions. However, the evidence does not indicate massive featherbedding; instead it is consistent with strongly efficient contracting.

IV. INDIRECT EVIDENCE: WAGE DIFFERENTIALS AND LABOR FLEXIBILITY

Returns to human capital. To test for union-induced changes in the wage structure, we estimated Mincer-style wage equations over household data. There has been a monthly household survey in Uruguay since 1976. For this project, we obtained copies of all surveys for Montevideo between 1981.2 (second semester of 1981) and 1991.2, along with data for urban areas (population more than 10,000) in the interior for selected years. The estimates are by gender for persons aged 14 and over each year.

The earnings measure used here is the log of monthly income from the respondent's primary job. This includes wage and salary income and a self-reported value of in-kind payments. The monthly survey reports the highest level of schooling that the respondent attended, whether that level was completed, and, if it was completed, the number of years attended in that level. This information was used to construct a continuous measure of years of schooling. Years of work experience is defined as age minus years of schooling minus six. The log of hours worked per week is also included as a control variable.

Returns to schooling for men have declined, as shown in Table 4. In 1981 and 1982, returns to schooling averaged 9.6 percent for men in Montevideo. Although there is some noise in the year-by-year estimates, the trend is unmistakably downward. By 1991, returns to schooling had fallen to 8.8 percent. A more striking pattern prevails for men in the interior; returns to schooling fell from 9.9 percent in 1981 to 7.9 percent in 1990. Since the standard error of the estimates is 0.002, these are significant changes from both an economic and statistical standpoint.

TABLE 4
RETURNS TO SCHOOLING AND EXPERIENCE, MEN, BY YEAR AND LOCATION

Year	Returns to schooling, Montevideo	Returns to experience, Montevideo	Returns to schooling, interior	Returns to experience, interior
1981	0.096	1.044	0.099	1.052
1982	0.095	1.051		
1983	0.093	1.019		
1984	0.091	1.030	0.084	1.057
1985	0.096	1.086		
1986	0.091	1.085	0.083	1.193
1987	0.087	1.049	0.074	1.016
1988	0.087	1.042	0.067	0.982
1989	0.086	1.017	0.070	0.936
1990	0.084	1.057	0.079	1.037
1991	0.088	1.104		

Notes: Returns to schooling is the coefficient of years of schooling in a Mincer earnings equation. Returns to experience is the difference in predicted earnings between a worker with 30 and one with zero years of experience.

Data source: National Household Survey, National Bureau of Statistics, Uruguay.

The gap in earnings between experienced and inexperienced men changed very little in the 1980s in either Montevideo or the interior. In 1981, the log earnings gap between men with zero and 30 years of experience was 1.044. This increased to 1.104 by 1991.

The trend in returns to schooling for women is reported in Table 5. In the interior the pattern was very similar to that for men; returns to schooling fell from 11.9 percent in 1981 to 9.0 percent in 1990. In Montevideo they fell from 8.0 percent in 1981 to 7.4 percent in 1989, but then increased to 8.3 percent by 1991. With standard errors of 0.003 to 0.004, the conclusion to draw for women is that returns to schooling fell in the interior, but not in Montevideo.

TABLE 5
 RETURNS TO SCHOOLING AND EXPERIENCE, WOMEN, BY YEAR
 AND LOCATION

Year	Returns to schooling, Montevideo	Returns to experience, Montevideo	Returns to schooling, interior	Returns to experience, interior
1981	0.080	0.551	0.119	0.721
1982	0.070	0.430		
1983	0.072	0.513		
1984	0.077	0.525	0.110	0.685
1985	0.077	0.573		
1986	0.077	0.520	0.111	0.791
1987	0.076	0.630	0.101	0.763
1988	0.074	0.550	0.093	0.688
1989	0.074	0.575	0.096	0.754
1990	0.077	0.576	0.090	0.715
1991	0.083	0.604		

Notes: Returns to schooling is the coefficient of years of schooling in a Mincer earnings equation. Returns to experience is the difference in predicted earnings between a worker with 30 and one with zero years of experience.

Data source: National Household Survey, National Bureau of Statistics, Uruguay.

All of these results are consistent with the greater role played by collective bargaining in Uruguay after 1985. Generally one associates unionism with wage compression across and within groups. This certainly has happened to earnings differentials by schooling. The timing of the drop in returns to schooling matches that of the return of collective bargaining. Returns to schooling fell from 9.6 percent for men in Montevideo in 1985 to 8.7 percent in 1987. A sharp drop in the interior takes place between 1984 and 1987 (8.4 to 7.4 percent). No such pattern prevails for women, who are less likely to be union members. Returns to experience did not narrow, perhaps a reflection of the desires of the most senior members.

Wage flexibility. From a macroeconomic perspective, greater bargaining power for workers should translate into more downward rigidity in wages, while at the same time bargaining lags and the government presence at the councils should introduce some upward rigidity as well. This leads us to expect that the coefficient for unemployment in a nominal wage growth equation should be smaller when bargaining is permitted.

The standard approach for measuring the degree of wage rigidity from a macroeconomic perspective is to estimate the tradeoff between wages and unemployment. The Phillips curve shows how much the growth rate of nominal wages falls when unemployment rises, holding inflationary expectations constant. We regress nominal wage growth in the private sector over annual data for 1970 through 1991 on unemployment, inflation, lagged inflation, and the lagged real product wage. The specification is similar to that used by Layard, Nickell, and Jackman (1991). The coefficient for unemployment was

allowed to shift upward for the years when collective bargaining was permitted. The results are summarized in Table 6.

TABLE 6
PHILLIPS CURVE ESTIMATES

Sector	Private sector	Private sector	Manufacturing	Manufacturing	Manufacturing
Sample	1970-1991	1970-1991	1970-1991	1983:2 - 1991:4	1983:2 - 1991:4
Occupations	All	All	All	All	Blue collar
Unemployment	-1.032 (0.454)	-1.556 (0.516)	-1.204 (0.497)	-0.893 (0.285)	-1.117 (0.406)
Unemployment before 1974 and after 1985		0.792 (0.233)	0.590 (0.306)	0.242 (0.127)	0.884 (0.178)
Inflation	0.652 (0.088)	0.658 (0.101)	0.757 (0.130)	0.649 (0.134)	0.664 (0.136)
Inflation lagged 1 year	0.326 (0.101)	0.325 (0.106)	0.197 (0.141)	0.230 (0.111)	0.298 (0.105)
Real product wage lagged 1	-0.425 (0.106)	-0.318 (0.104)	-0.265 (0.110)	-0.176 (0.053)	-0.381 (0.094)
R ²	0.951	0.936	0.884	0.825	0.895

Variables are I(O), according to Augmented Dickey-Fuller tests.

Estimation was carried out by OLS and standard misspecification tests were performed.

Complete regression outputs are available upon request.

Data source: National Bureau of Statistics.

The baseline estimate for 1970 to 1991 shows a decrease of 1.0 percent in nominal wage growth in the private sector occurs when unemployment increases by one point. The tradeoff was greater (1.6 percent) when unions were banned than in the years when collective bargaining was allowed (0.8 percent). The same general results hold for the manufacturing sector in both annual and quarterly data. The results are particularly strong for blue collar workers in manufacturing, for whom wages fall by 1.1 percentage points with a one point increase in unemployment in the period without unions, but by only 0.2 points in the years when unions were active.

Conceivably other changes took place that could have affected the responsiveness of wages to unemployment. To more stringently test the theory that unionization alone is responsible, we estimate a separate model for all manufacturing workers and for production workers in manufacturing. One would expect that if unionization were the true cause of

increased rigidity of nominal wages, the decrease in the unemployment coefficient would be much larger for production workers than for the entire workforce. This turns out to be the case; the decrease in the unemployment coefficient in periods where collective bargaining was permitted was 0.242 (0.127) for all manufacturing workers and 0.884 (0.178) for production workers.

Employment adjustment. In Uruguay, many claim that there was a sizable shift in the impact of severance pay laws on employment adjustment after the return of collective bargaining in 1985. Even though the provisions of the law were the same before and after reunification, unions could have had an important impact on the odds that a worker would make a claim and on the odds that a claim would be successful, thus increasing the lags in employment adjustment.

The only previous study related to this issue is Rama (1994). Because union density is strongest in industries that are highly concentrated and that enjoy high effective rates of protection, the owners of firms in these industries could very well have been able to keep a much larger share of these rents before 1985 than afterwards. To examine the impact of reunification on labor market adjustment to trade shocks, Rama estimated a cross-section/time-series model of industry employment. He found that the elasticity of employment to the implicit protection rate went from 0.4 when Uruguay had a competitive labor market to zero after reunification. He concludes that "labor market imperfections may reduce the short-run effectiveness of trade policy as an instrument to achieve a better manpower allocation".

We estimate a more general model that allows the output elasticity of labor demand and the degree of autocorrelation in employment to vary before and after reunification. The specification is the standard partial-adjustment model (for a derivation see Hamermesh (1993), ch. 7):

$$(2) \quad L_t = a_0 (1-\lambda) + a_1(1-\lambda) Y_t + a_2(1-\lambda)Y_{t-1} + a_3 (1-\lambda)(w/p)_t + \lambda L_{t-1}$$

The key parameters are a_1 and λ . Values of a_1 near one indicate a quick response of employment to output; values of λ near one indicate high autocorrelation in employment and, thus, sluggish adjustment. The results reported here allow a_1 and λ to vary starting in 1985. If unions reduced employment flexibility, a_1 should be smaller after 1985 and λ should be larger.

The results indicate that employment flexibility has actually increased, as can be seen in the last column of Table 7. The estimated value of λ fell from 0.778 to 0.207 after 1985 and the employment-output elasticity rose from 0.252 to 0.934, both indicating greater flexibility for employers.

TABLE 7
EMPLOYMENT ADJUSTMENT MODELS, URUGUAY, 1976-1990

	(1)	(2)
Constant	-0.008 (1.065)	1.092 (1.465)
Ln(Y _t)	0.320 (0.277)	0.056 (0.193)
Ln(Y _{t-1})	-0.054 (0.295)	
Ln(L _{t-1})	0.780 (0.204)	0.778 (0.253)
Ln(Y _t) * Dummy for 1985-1991		0.685 (0.341)
Ln(Y _{t-1}) * Dummy for 1985-1991		-0.571 (0.288)
R ²	0.780	0.864

Data source: International Labor Organization, various issues.

Cassoni (1993) examines a broader range of specifications. Using quarterly data for manufacturing, her estimates of λ are 0.92 for production employment and 0.82 for production hours. These estimates are in the same ballpark as those in Table 6. Using annual data, her estimate of a_1 fell from 0.47 to 0.22 after 1985; using quarterly data, the estimate fell from 0.23 to 0.07. These models do not allow λ to vary before and after reunification.

V. CONCLUSIONS

This study has examined how the return of collective bargaining in Uruguay affected labor market outcomes. The major findings are as follows:

1. Wages increased in all industries upon the resumption of unions.
2. Wages increased more in union than in nonunion industries.
3. Employment and hours worked increased in nonunion industries, but did not change (controlling for output and wages) in union industries.
4. Wages became more compressed, as indicated by a drop in returns to schooling.
5. Wages became less responsive to macroeconomic conditions.
6. The evidence on changes in the sensitivity of employment to output is mixed.

What is notable about these results is the context in which they were derived, that of a society that underwent a quick transformation from being union-free to one where unions play an important role in wage determination and workplace governance. For instance, this is not the first study to have concluded that unions raise wages for their members. This is the first study, however, to examine this question in the context of within-country changes in the industrial relations system. More research is needed in order to quantify accurately these effects. As the institutional setting changed so much in a short period of time, in which economic conditions were also changing, it would be desirable to develop a data set covering a longer period. Further, the bargaining framework changed again after 1991, giving rise to a new period of interest.

The results on wages indicate that unions redistribute income from capital to all workers (wage gains) as well as from nonunion labor to union labor. The results on employment indicate that the contracting process is strongly efficient.

The reunification process has been far from smooth; Uruguay continues to be plagued with an extremely high strike rate. Our estimates of the economic effects of reunification after the military regime indicate that the ratio of acrimony to economic inefficiency could very well be higher in Uruguay than in other countries.

It is equally clear that Uruguay has enjoyed considerably more economic growth than its neighbors. Although this suggests that collective bargaining has not hindered growth in Uruguay, this may very well be because liberalization policies, especially in the area of trade, have imposed constraints on bargaining outcomes. Further, one should keep in mind the experience in Chile, which is the only country in Latin America that has had better economic performance than Uruguay. Chile has seen relatively little reunification.

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