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ECONOMIC REFORM, EXTERNAL SHOCKS AND THE LABOR MARKET:
CHILE 1974-1983

by

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ABSTRACT

The Chilean economy has experienced, since 1973, external shocks as well as a change in policies oriented towards freer markets. Foreign trade was liberalized, the public sector's size was reduced, and there was disinflation. At the same time unemployment became a serious and persistent problem, and the paper analyses its connection with the foregoing policies and with specific changes occurring during this period in labor legislation. The framework of analysis is a model of segmented labor market which emphasizes various employment and wage rigidities.

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1. Introduction

During the 1960s the average rate of unemployment in Chile was 6.4%. After a short period, between 1971 and 1973, when unemployment rates were very low (ranging from 3.1% in 1972 to 4.8% in 1973), the decade 1974-83 was characterized by high unemployment rates, which averaged 14.5% per annum.¹ These fluctuations in unemployment are connected with changes in economic regimes as well as external shocks.¹

The most recent change in economic policy orientation began in 1973, after the military overthrew President Salvador Allende. In the ten years following the coup, the military implemented deep reforms directed towards transforming Chile from an economy semi isolated from the rest of the world, with strong government intervention, into a liberalized world-integrated economy where market forces were freely left to guide most economic decisions. These liberalization reforms were carried out at the same time as a major stabilization program, aimed at reducing a rate of inflation of approximately 600 percent, was being implemented. Many of the liberalization policies undertaken roughly correspond to what a vast number of economists have been advocating for developing countries -- international trade was liberalized; the capital account was opened; prices, including interest rates, were freed; an active domestic capital market was developed; the fiscal system was reformed with a value added tax being implemented; the social security system was reformed; and the private sector began to play a more active role in the growth process.

The period 1973-83 was characterized by big contrasts. For example, while in 1973 Chile had the highest rate of inflation in the world (600%), in 1981 it had one of the lowest (9%). On the other hand, the rate of growth of real GDP fluctuated drastically: it was -13% in 1975; it then averaged almost 7% per annum during 1977-81; and became -15% in 1982.

In terms of economic policy as well, the first decade of the military regime was by no means homogeneous. In fact, it is possible to distinguish four different phases. The first covers September 1973 through April 1975, and was characterized by an attempt to correct the most serious economic distortions introduced during the Allende regime. During this phase a gradual anti-inflationary policy was implemented, and inflation declined only slightly. Output experienced a very mild recovery, and the first steps of some of the liberalization reforms were delineated. Perhaps the most important characteristic of this period is that the process of privatization of banks and public enterprises -- some of them previously nationalized during the Allende regime -- began. Partially as a result of this privatization process some very big conglomerates (the so-called "grupos") emerged, which played an important role in the main events that took place during the first ten years of the military regime.

The second phase runs from April 1975 until early 1978, and corresponds to the first serious effort to curb inflation. This was attempted by following an orthodox closed economy stabilization program based on tight monetary policy, and on the elimination of the fiscal deficit. During this time the free-market character of the military program was accentuated, and important steps towards reforming and liberalizing the domestic financial sector and international trade were implemented. It was during this phase that the group of economists popularly known as the "Chicago boys" began to gain great influence, and, in fact, to fully run the economic policy. Many of these economists had been trained at the University of Chicago, and other U.S. universities, and had a strong ideological stance against any kind of government intervention in the development process.

The early part of this phase saw a dramatic reduction of output -- 12.9% decline in GDP in 1975 -- and a steep increase in unemployment. This phase was also characterized by a marked deterioration in the international environment. In 1975 real copper prices fell to their lowest level in two decades, inducing a resource loss to the economy equivalent to about 10 percent of GDP. Additional resources, equivalent to 2.5 percent of GDP were used to service the debt. Over and above this, oil prices increased, introducing further constraints on the already weak economic structure.

The third phase goes from early 1978 through the first half of 1981, and is characterized by a marked change in emphasis in the stabilization program. During the initial phases of the reform the anti-inflation program was based on orthodox monetary principles. The emphasis was placed almost exclusively on controlling the rate of growth of money and the fiscal deficit. In early 1978, with the rate of inflation still standing at 80% per annum, a drastic change in the monetarist approach took place. At this time the policymakers began to emphasize the fact that Chile had become an open economy, and the manipulation of the exchange rate replaced the control of the quantity of money as the main stabilization tool. In January 1978 Chile introduced the preannouncement of the rate of devaluation (the so-called "tablita") as the main anti-inflation measure. This novel approach to stabilization was later adopted by Argentina and Uruguay. In 1979 the policy of preannouncing the rate of devaluation was replaced by a fixed exchange rate. It was expected that this move would help to finally eliminate inflation.

This phase corresponds to the days of the "miracle" -- or the "boom" as the Chileans referred to these few years. Output grew at fast rates, the availability of imported goods increased drastically and inflation -- Chile's almost eternal malaise -- finally subsided, reaching 9 percent in 1981.

Unemployment, however, stubbornly remained at high levels, constituting one of the unresolved puzzles of the military regime.

A number of important reforms were implemented during this phase, including the enactment of the labor law, which among other things legally established a mechanism of 100% wage indexation with respect to past inflation. Also, the financial reform was pushed further, by relaxing a series of controls on capital inflows.

Another important, and puzzling aspect of this phase relates to the behavior of two key prices -- the real interest rate and the real exchange rate. Whereas the first remained at extraordinarily high levels during most of the period, the real exchange rate experienced a steady real appreciation, greatly harming the degree of competitiveness of the domestic sector, including non-traditional exports.

Finally, the fourth phase begins in late 1981 and is characterized by the collapse of the "miracle". By late 1981 it became apparent that the high rates of growth experienced during the previous years were coming to an end. The fourth quarter of 1981 was characterized by extraordinarily high real interest rates; by a huge current account deficit; rising unemployment; and a reduction of real GDP of 3.3% with respect to the fourth quarter of 1980. On the positive side, inflation was only 9% that year. In 1982 the economic situation worsened and became almost chaotic. GDP declined by 14.3%; in September of that year open unemployment (excluding the emergency employment programs) reached 23.7%; the exchange rate was devalued by almost 100%; a major financial crisis developed; and there were serious problems to service the foreign debt.

Table 1 summarizes the major accomplishments in terms of policy goals; the elimination of the fiscal deficit and control of inflation and reduction of tariffs. The same table shows the unfavorable evolution of the terms of

trade that had a large drop in 1975, with no signs of recovery, and a second fall in 1981. Column (6) shows the evolution of the real exchange rate, which indicates the degree of competitiveness of Chilean exports in the world markets. The evolution of GDP, shown in column (5), and the low overall rate of growth of the economy for the entire period, have to be looked at in the context of the interrelation between policy changes, external shocks and macroeconomic management (see S. Edwards and A. Cox Edwards (1986)).

The markets liberalization process induced significant price changes to which sectoral allocation of productive resources had to respond. This would induce at least a short run increase in the rate of unemployment, mainly because frictional unemployment would rise. Moreover, if labor is considered a quasi-fixed factor in the short run (Ol, 1962), the firm or industry specific attributes of human capital would experience price changes, resulting in incipient changes in relative wages. The reallocation of productive capital required investment, in fact, the increase in demand for funds contributed to a high real interest rate in the Chilean capital market during the 1974-79 period. Thus, during major economic reforms like the one experienced in Chile, both a large degree of wage flexibility and access to additional sources of investment funds (for physical or human capital accumulation) would facilitate the reallocation of productive resources. The challenge here is to carefully balance the needs of foreign funds for investment in the new export oriented sectors, and at the same time avoid a real exchange rate appreciation above long run sustainable levels, that would induce an incorrect allocation of the same funds (see S. Edwards (1984)).

This paper analyzes the relationships between these overall changes and the labor market performance. In the Chilean case, we will see, unemployment became a serious and persistent problem from the early years of the reform.

TABLE 1
The Chilean Economy: 1973-1983
(Selected Indicators)

Year (1)	Inflation Rate (Dec.-Dec.) (2)	Fiscal Deficit (% GDP) (3)	Average Tariff (%) (June) (4)	External Terms of Trade (1973=100) (5)	Real Exchange Rate (1975=100) (6)	Rate of Growth (% GDP) (7)
1973	605.9	24.6	94.0	100.0	42.1	-5.6
1974	639.2	10.5	67.0	105.7	74.4	1.0
1975	343.2	2.6	52.0	70.3	100.0	-12.9
1976	197.9	2.3	33.0	75.7	93.2	3.5
1977	84.2	1.9	22.4	67.8	85.2	9.9
1978	37.2	.9	13.9	67.7	107.2	8.2
1979	38.0	-1.7	10.0	72.2	111.7	8.3
1980	31.2	-3.1	10.0	69.2	99.8	7.5
1981	9.5	-1.7	10.0	55.9	80.4	5.3
1982	20.7	2.3	10.0	50.4	83.6	-14.1
1983	23.1	3.8	20.0	53.1	102.9	-0.7

Source: Column (2) Cortazar and Marshall (1980) and Banco Central de Chile, Columns (3), (4) and (7) Banco Central de Chile. Column (6) Edwards and Ng (1975). Column (5) is defined as ratio of exports to imports prices and was obtained from the U.N. Economic Commission for Latin America.

Already in late 1974 the rate of unemployment began to experience a steep increase and in September of that year it reached 9.4% in the greater Santiago area, significantly higher than the 5.9% average of the 1960s. But it was at the same time understood that the stabilization effort -- with the introduction of fiscal discipline and the enhanced degree of competition across the economy -- would result in a change in hiring and personal management practices, with a once-and-for-all number of layoffs associated to "redundant" labor. This was particularly true after the Allende period, because public sector hiring policies at the central government level and in the publicly controlled enterprises had been very loose.

At this time the government basically saw the increase in unemployment as a temporary problem, and consequently decided to tackle it with temporary measures. But time passed and unemployment did not decline to historical levels (see Table 2).

This paper analyzes in detail the behavior of employment, unemployment and wages during the 1974-83 period. Not surprisingly, the high and persistent rates of unemployment cannot be attributed to a sole cause. Our analysis indicates that unemployment was basically the result of four interrelated factors. First, the slow average rate of growth of economic activity between 1974 and 1981 resulted in a sluggish rate of increase of employment creation. Second, the reduction in government employment had a direct negative impact on employment growth. Third, during this period there was an important increase in the labor force or total supply of labor. And fourth -- and more important for explaining the persistence of unemployment, the existence of a number of rigidities precluded a smoother adjustment of the labor market to a number of shocks, including the structural reforms. In fact, in the absence of these rigidities the first three factors -- slowdown in rate of jobs creation,

TABLE 2

Unemployment and Wages in Chile: 1970-1983

<u>Year</u>	<u>Total Labor Force</u>	<u>Total Unemployment</u>	<u>Open Unemployment rate</u>	<u>Minimum Employment Program as % of Labor Force</u>	<u>Index of Real Wages</u>	<u>Index of Real GDP Per Capita</u>
	(Thousands)	(Thousands)	(%)	(%)	(1970=100)	(1970=100)
	(1)	(2)	(3)	(4)	(5)	(6)
1970	2,923.2	167.1	5.7		100	100
1971	2,968.8	112.8	3.8		125.4	107.3
1972	3,000.8	93.0	3.1		124.0	104.0
1973	3,037.0	145.8	4.8		86.0	96.7
1974	3,066.8	282.1	9.2		90.2	99.3
1975	3,152.9	425.6	13.5	1.3	88.7	82.1
1976	3,216.4	511.4	15.9	5.2	86.3	83.8
1977	3,259.7	462.9	14.2	5.7	96.6	90.5
1978	3,370.1	478.6	14.2	4.4	97.5	96.0
1979	3,480.7	480.3	13.8	3.7	98.7	102.3
1980	3,539.8	417.7	11.9	5.3	108.3	108.3
1981	3,669.3	400.0	10.9	4.7	115.7	112.6
1982	3,729.7	760.9	20.4	5.1	112.2	95.0
1983	3,797.5	706.3	18.6	10.3	n.a.	92.7

Notes: The Minimum Employment Program was a temporary palliative system created by the government in 1975 to alleviate the unemployment problem. See Section 6.1 for more details on this program.

Sources: The labor force and unemployment figures (Columns (1), (2) and (3)) refer to June of each year and were estimated by Castaneda (1983). Column (4) is based on Banco Central (1983) pp. 212-13. Column (5) was constructed using National Accounts data. (See Edwards 1984, p. 85 for further details.) Column (6) is based on Banco Central.

reduction in government jobs, and faster growth in the labor force -- could not explain the persistence in the rate of unemployment; in a perfectly flexible textbook type labor market, higher supply and lower demand of labor would reduce wages but not generate unemployment.

The paper is organized in the following form: in Section 2 we discuss the traditional role that government had in Chile's labor market, and we briefly describe the segmented structure of the Chilean labor market. In Section 3 we deal with some aspects related to the supply of labor, and the rate of participation of the labor force. In Section 4 we analyze the behavior of employment, focusing on the relation between economic activity and aggregate employment creation. In this section we also look in detail at sectoral employment, emphasizing the decline of the public sector as a source of jobs creation. Section 5 is devoted to the analysis of wages and indexation. Here we further discuss two important pieces of legislation: the Labor Law of 1979 and the Social Security Law of 1980. In Section 6 we provide an analytical interpretation for the persistence of unemployment. Our analysis here is based on a model of segmented labor markets and emphasizes the role of rigidities.

2. Government Intervention and Labor Market Structure

Government Intervention

The Chilean labor market has been characterized by an old tradition of government intervention in labor relations. Even during the military rule, and in spite of the major institutional market-oriented reforms, government involvement in the labor market was to some extent maintained.

Historically, the influence of the government has been present at different levels. First, public sector wages have had an important impact on all wages and salaries across the economy. Second, through labor legislation,

the government has imposed generalized minimum wages, across-the-board wage adjustments, and mandatory fringe benefits and bonuses that have to be paid by the private sector. Third, high social security taxes have increased the relative cost of labor in the economy. And fourth, the government also intervened in the labor market directly through its hiring policies and indirectly through the sectoral biases induced by the economic policies. Throughout the years, for example, the import substitution policies induced massive transfers of workers to the cities, some of which were absorbed by the new industries or by the public sector; the less fortunate, however, engrossed the ranks of the urban unemployed.

Traditionally the government also played an important role in settling labor disputes. Until 1973, unions were allowed to organize across firms in a given industry, and to negotiate wages at the industry level, thus exercising considerable monopolistic power. Consequently, in order to protect the "public interest", government intervention was most of the times called for in cases of collective bargaining settlements.

As a result of this system of government intervention serious distortions emerged towards the late 1960s and early 1970s. For example, some industries, which were highly protected from competition through import tariffs, export drawbacks, subsidies or tax exemptions, were able to accede to workers' demands by increasing wages considerably above productivity gains. Also, unions were able to keep employment below competitive levels, inducing a bias towards the use of capital intensive techniques.² In short, the unionized sector worked under noncompetitive conditions, most of them supported by the existing labor legislation. Government intervention in the labor market reached unprecedented proportions during the Unidad Popular period. Between 1970 and 1972, public sector employment grew at an average rate of 11.4% per

year.³ This, in fact, is one of the reasons why, during the Unidad Popular government, in spite of the massive distortions prevailing in the labor market, the rate of unemployment dropped significantly.⁴

After the military coup, from 1974 to mid-1979, union power was greatly reduced, with strikes being prohibited and with all activities related to unionism being greatly curtailed. Some important steps towards reforming the labor market were taken, like the reduction of social security taxes, the removal of the ley de inamovilidad which had made termination of labor contracts very expensive for employers, and the reform of the legislation regulating collective bargaining. Unfortunately, however, the backward wage indexation mechanism applied by the government since 1974, and a minimum wage that increased in real terms between 1974 and 1978, became increasingly more distortive.⁵

In 1975, and as a way to provide a temporary solution to the unemployment problem the government created the so-called Minimum Employment Program (PEM), where unemployed performed, for a reduced number of hours a week and for a very low salary, some menial public works, like raking leaves in public parks. At first the government imposed severe restrictions to entry into the program. Slowly through time most of these restrictions were lifted,⁶ permitting a larger number of unemployed to participate in it. In Table 2 we present data on the number of people enrolled in this program. As may be seen, in spite of the recovery and "boom" between 1976 and 1981 and of the reduction through time in the real compensation offered relative to real wages in the rest of the economy, the proportion of the labor force covered by the program remained virtually constant. This was because, as mentioned, with time more and more people became eligible. Additional measures to deal with unemployment include: a total reform of the unemployment insurance program increasing

protection to manual workers against losses of income due to unemployment; a wage subsidy program adopted in 1975 which was a stimulus to unskilled employment; and a special training program implemented in early 1977 under which private employers were eligible for income tax credits for the cost of providing special training to their workers.

In 1979 a new labor law was enacted which gave unions a greatly reduced role in the process of wage determination. This law, which established a complex bargaining mechanism, departed significantly from the traditional legislation; union affiliation within a firm became voluntary and all negotiations now would have to be conducted at the firm level; with multifirm bargaining being eliminated. The new law contemplated that in the event of a strike, a firm could impose a lockout and temporarily lay off workers.⁷ Possibly, however, the most significant innovation, in terms of its immediate impact, was the introduction of a backward indexation clause into collective bargaining. (In Section 5 we discuss some of the more interesting aspects of this law.)

Labor Market Structure and Segmentation

Historically the pervasive government intervention in the labor market plus the existence of powerful unions resulted in the emergence of a segmented structure of the Chilean labor market, which maintained its relative importance during the military rule. Traditionally, as in many developing countries, it has been possible to distinguish at least two segments in Chile's labor market. The first is the protected sector where due to a number of institutional reasons, including the existence of labor unions and large multinational firms, wages are set exogenously above their market clearing level. The second sector is the unprotected or free segment where wages are set competitively.⁸ As we show in Section 5 below, the existence of empirical

evidence supports the hypothesis of labor market segmentation in Chile even for the years of the military rule. In fact, our explanation of Chile's unemployment "puzzle" provided below relies quite heavily on the existence of such a segmented structure for the labor market. In applying this model to Chile it is useful to think that the segmented structure of differentiated wages was first (prior to 1973) imposed by unions and large firms, and was later perpetuated by the mechanism of across-the-board backward indexation.

3. Population and Labor Force Participation

In Table 3 we present some data related to the behavior of the supply of labor during the period. The table includes information on population, the rate of participation, and the labor force. As can be seen, during 1973-83 the labor force grew at 3% per annum, a pace significantly faster than in the 1960s (1.6% per year). This faster growth in the labor force was the result of both demographic factors -- a fairly high rate of growth of the population of 12 years and older -- and of a failure of the rate of participation to continue to decline at the pace it had during the 1960s (see column (C)).

This higher rate of growth of the labor force, combined with a lower rate of growth in the level of economic activity and therefore in aggregate labor demand, for the 1973-83 period, contributed to the creation of a situation of excess labor supply. For example, the difference in the average rate of growth of the labor force between 1960-70 and 1973-83 explains an annual average increase in the unemployment rate of one half of a point, while the difference in the rate of growth in employment between the two decades explains an annual average increase in the unemployment rate of almost one point.⁹

TABLE 3

Population, Rate of Participation, and Labor Force: 1970-1983

Year	(A)	(B)	(C)	(D)	
	Population (Thousands)	Population 12 Yrs. and More (Thousands)	Rate of Participation (%)	Labor Force (Thousands)	Rate of Growth (%)
1970	9,368	6,456	45.4	2,932	-
1971	9,534	6,623	44.8	2,968	1.2
1972	9,697	6,799	44.1	3,001	1.1
1973	9,861	6,980	43.5	3,037	1.2
1974	10,026	7,161	42.8	3,067	1.0
1975	10,196	7,339	43.0	3,153	2.8
1976	10,372	7,515	42.8	3,216	2.0
1977	10,551	7,692	42.4	3,260	1.4
1978	10,733	7,867	42.8	3,370	3.4
1979	10,918	8,057	43.2	3,481	3.3
1980	10,104	8,207	43.1	3,540	1.7
1981	11,294	8,370	43.8	3,669	3.6
1982	11,487	8,527	43.7	3,730	1.7
1983	11,682	8,682	43.7	3,798	1.8
1960-70	n.a.	n.a.	n.a.	n.a.	1.6

Source: Due to the rounding approximations, the labor force figures are not exactly equal to the population of 12 years and more, times the rate of participation. This corresponds to the Instituto Nacional de Estadísticas definition of labor force. Castaneda (1983).

4. The Behavior of Employment

During the first ten years of the military rule employment grew on average at a rate significantly lower than the average of the 1960s. In fact, for 1973-83 the average rate of growth of employment was only 0.7 percent per year, less than half of the 1960-70 average of 1.8%. However, the evolution of employment during the different phases of the military regime was not homogeneous, nor was the distribution of employment changes across sectors.

Economic Growth and Employment

In order to fully understand the evolution of employment it is useful to first investigate the interaction between the levels of economic activity and employment. An interesting pattern is obtained from the estimates of the ratios between the rates of growth in employment and the rates of growth in output. These ex-post average elasticities reflect the actual change in employment associated to a one percent increase in aggregate output over a given time period. Table 4 presents data on these elasticities and on the average annual rates of growth of the labor force, employment, and aggregate output. As can be seen the ex-post elasticities for the 1960s and for 1973-83 are somewhat similar (0.43 and 0.54), suggesting that the bulk of the explanation for the reduction in the pace of increase in labor demand lays on the slowdown of the level of economic activity for the overall period.

But as we discussed earlier, the 1970-83 period was marked by big contrasts. From 1970 to 1973, the economy experienced a slow average growth while employment kept growing at almost the same pace of the preceding decade (see Table 4). The estimated employment-output elasticity is 3.0 for this period, reflecting an extraordinary creation of jobs within the public sector and in the economy as a whole. Between 1973 and 1976, on the other hand, the economy showed a severe contraction and so did the employment level. From

TABLE 4

Chile: Labor Market Indicators

(Average Rates of Growth For Each Period)

<u>Period</u> (1)	<u>Labor Force</u> (2)	<u>Employment</u> (3)	<u>GDP</u> (4)	<u>Elasticity</u> <u>(3)/(4)</u> (5)
1960-1970	1.6	1.8	4.2	.43
1970-1973	1.2	1.5	0.5	3.00
1973-1976	1.9	-2.2	-3.1	.71
1976-1981	2.7	3.9	7.9	.49
1981-1983	1.7	-2.8	-7.6	.36
1973-1983	2.3	0.7	1.3	.54

Source: (2),(3), calculated from Castaneda (1983).
(4), Banco Central (1984).

1976 to 1981 the level of economic activity recovered at a fast pace and finally between 1981 and 1983 there was another, even more severe recession.

It is interesting to note the difference in the relation between output decline and employment reduction between these two recessions. A 1% decline in output between 1973 and 1976 was associated with a 0.71% decline in employment, while the same change in output between 1981 and 1983 was only associated with a 0.36% decline in employment. This difference reflects the presence of "redundant" employment by 1973, which was the result of the hiring practices used throughout the 1970-73 period. Starting in 1974, and as a consequence of the different reforms implemented by the military, competition forced employers to reduce costs and to change their hiring practices. During the 1981-83 recession employment reduction was mainly a response to the reduction in the level of production without the "redundant" labor force element playing any role.

The relatively faster rate of growth of labor supply coupled with the slowdown of the rate of increase in labor demand created a situation of excess supply for labor. A crucial question at this point, however, is why didn't real wages decline sufficiently to their new lower long run equilibrium as to reduce (or even eliminate) the excess supply of labor? In fact, Table 2 indicates that average wages did experience an important reduction in 1973, partly because aggregate wages had increased significantly, and above productivity gains between 1970 and 1972. As we note in Section 6.4 the explanation on why wages did not fall sufficiently lays in part on the role played by across-the-board indexation.

Sectoral Employment

Table 5 contains data on changes in sectoral employment for 1960 through 1982. As can be seen, between 1960 and 1970 there were about 45,000 jobs

TABLE 5

Employment By Sectors: 1960-1982
Annual Average Rate of Growth^a and
Number of Jobs Created Per Period (Thousands)

	<u>1960-1970</u>	<u>1970-1973</u>	<u>1973-1976</u>	<u>1976-1981</u>	<u>1981-1982</u>
Agriculture	-1.3% (-87.5)	-7.6% (-127.7)	1.3% (19.5)	0.5% (11.6)	-11.7% (-59.6)
Fishing	3.8% (5.5)	3.8% (2.1)	7.1% (-17.5)	2.5% (3.2)	n.a. (n.a.)
Mining	-0.5% (-4.3)	5.8% (16.4)	-1.5% (-4.6)	-2.4% (-11.5)	-1.3% (-9.7)
Manufacturing	2.9% (122.1)	3.5% (52.8)	-2.8% (-45.5)	2.6% (67.4)	-32.2% (-166.1)
Utilities	3.8% (11.6)	9.9% (7.3)	-1.8% (-1.6)	5.8% (9.1)	-15.6% (-4.1)
Construction	7.6% (59.5)	-4.8% (-26.1)	-14.8% (-62.4)	7.7% (45.4)	-52.9% (-90.0)
Commerce	4.2% (53.2)	3.0% (36.6)	-1.5% (-16.7)	7.7% (158.6)	-23.1% (-143.7)
Transportation and Communications	1.7% (61.6)	3.5% (17.1)	-2.9% (-17.0)	4.7% (47.4)	-20.6% (-45.1)
Financial Services	3.5% (15.3)	2.1% (3.4)	3.1% (5.4)	2.6% (8.3)	-13.3% (-15.6)
Other Services	3.2% (212.1)	5.8% (143.2)	0.4% (10.5)	2.5% (122.1)	19.2% (168.7)
Total	1.8% (449.1)	1.5% (125.1)	-1.3% (-107.9)	3.1% (461.6)	-11.6% (-365.2)

Source: Banco Central (1983).

^aFigures for rates of growth correspond to annual averages.

created per year on average. About half of those jobs were created in services and one fourth in the industrial sector, while the agricultural sector showed a reduction of about 9,000 jobs per year (or 1.3% per annum). As a result of this trend, the economy was concentrating employment in the nontradables sector, with construction growing at the fastest rate (7.6% per year) and transportation growing very slowly relative to the other nontradables (1.7% per year). Within the tradables sector employment was declining in agriculture and growing in the manufacturing sector; however, the overall tradables sector share in employment was falling.

During the Unidad Popular government (1970-73) there were again about 45,000 new jobs per year, but this time the growth in employment in services accelerated to 5.8% per year from 3.2% per year between 1960 and 1970. This higher employment in services corresponded, almost exclusively, to higher government employment. Moreover, the number of jobs created in services was larger than the absolute change in employment for the economy. This occurred because the reduction in the number of jobs in the agricultural sector more than offset the employment creation in the other sectors. Throughout this period employment in agriculture declined at 7.6% per year. This not only affected the sectoral allocation of labor, but also the geographical allocation of the labor force.

During 1973-76, and in part due to the shock stabilization program, employment experienced a major dip. The government's major effort to reduce the size of the public sector was translated in a reduction of around 100,000 central government employees. In fact, the government's commitment to reduce the public sector's size continued steadily through the military regime and in 1982 there were only 130,000 government employees compared to 196,000 in 1960 and 308,000 in 1973.

During the late 1970s there was an important change in the pattern of employment growth. Employment in agriculture stopped declining, mainly as a result of the improvement in the relative prices of agricultural products, until at least mid-1979. Migration flows out of the agricultural sector, which had been around 11,000 per year between 1965 and 1970 were reduced in half to 5,500 per year between 1975 and 1981.¹⁰ In the tradables sector, employment grew relatively fast, in spite of the slowdown of employment growth in manufacturing. While in the 1960s, 7.7% of the new jobs were created in the tradables sector, between 1976 and 1981 that percentage was 12.8. The relatively slow rate of growth of employment in manufacturing was partially the result of the international trade reform, because most firms adjusted to the increased degree of foreign competition generated by the opening up of the economy by reducing their wage bills and by greatly increasing the level of productivity. Also, about half of the jobs created during this period were concentrated in "commerce" and the "transportation and communications" sector. The construction sector, on the other hand, showed a significant recovery towards the end of this period, but in terms of employment, the rate of growth was just comparable to the historical rates of the 1960s, and the number of jobs created between 1976 and 1981 did not offset the employment reduction of the 1970-73 period. However, productivity in construction, as in most other sectors, increased quite dramatically.

Tariff Reform and Employment

There is little doubt that as a result of the tariff reform a number of contracting, and even disappearing manufacturing firms laid off large numbers of workers. On the other hand, expanding firms from the exporting sectors increased employment, partially offsetting the negative effect.

There were three main ways in which the tariff liberalization generated short-run unemployment. First, there was a natural adjustment period where laid off workers took time to start searching for work in a different, expanding, sector. Second, the fact that in reality — contrary to the simplest textbook case — physical capital is fixed in its sector of origin made the expansion of production in a number of the exporting sectors somewhat sluggish at first. Only as additional investment took place through time was it possible to fully increase production and employment in these expanding sectors. And third, the existence of a minimum wage in real terms made the absorption of labor by the expanding industries more difficult. The reason for this is that, in an economy where imports are capital intensive as in Chile, to the extent that capital is sector specific in the short run, a tariff reduction will require a short run reduction in the real wage of low skill labor in order to maintain the level of employment. If this reduction is precluded by a minimum wage, unemployment will result.

The proportion of total unemployment that can be attributed to the tariff reform is, however, relatively small when compared to the magnitude of the overall unemployment problem. Edwards (1982), for example, calculated that an upper bound for the unemployment effects of the trade reform was 3.5 percentage points of the labor force, or 129,000 people, with the bulk of this unemployment located in the food, beverages, tobacco, textiles and leather products subsectors (57,000 people). More recently, de la Cuadra and Hachette (1986) have calculated that the trade reform generated a reduction of employment in the manufacturing sector of approximately 50,000 workers. Even though these are not negligible numbers, they clearly indicate that an explanation for the bulk of the unemployment should be sought elsewhere.

5 Wages and Indexation

Aggregate real wages declined significantly during the initial years of the military rule, from 1976 onward average real wages increased steadily until in 1981 they stood 16% above their 1970 level (see Table 2). In this section we analyze the behavior of wages, placing particular emphasis on the roles of indexation and legally established minimum wages.

Wage Indexation

Starting in October of 1974, and until 1982, the military government mandated periodic across-the-board nominal wage increases of magnitudes somewhat related to past inflation. These adjustments represented the minimum increase in wages that every employer had to pay to their employees. Initially, this wage indexation mechanism was quite flexible, as the magnitudes of the required nominal wage adjustments were not exactly linked to the level of past inflation. In fact, as shown in Table 6, in many instances the mandated wage adjustment differed markedly from the accumulated past inflation. In the later years, however, the indexation rule came close to a 100% indexation rule, as the legally required increases in wages were almost exactly equal to past inflation. This downward rigidity in real wages was in some sense institutionalized with the implementation of the Labor Law of 1979.¹¹

In October 1974 it was established that for the rest of 1974 and for 1975 there would be quarterly adjustment of nominal wages by (at least) the full amount of the change in the CPI during the second, third and fourth months prior to the adjustment. By late 1975 and as part of the renewed efforts to reduce inflation, a new wage adjustment formula was enacted. Beginning with September 1975 the nominal wage increase was based in the sum of the inflation rates of the three months ending in the month of adjustment. Since at the time the wage rate adjustment was decreed, the last month's inflation was not

TABLE 6

Wage Indexation: 1974-1980

(1)	(2)	(3)
Period	Accumulated Inflation* (Percent)	End of Period Mandated Nominal Wage Increase (Percent)
10/1/73 - 1/1/74	107.7	50.0 ^{a,c}
1/1/74 - 5/1/74	87.1	61.1 ^a
5/1/75 - 7/1/74	31.3	34.5
7/1/75 - 10/1/74	39.5	24.1
10/1/75 - 12/1/74	30.4	35.2
12/1/75 - 3/1/75	41.4	33.1
3/1/75 - 7/1/75	103.2	71.0
7/1/75 - 9/1/75	19.0	24.0
9/1/75 - 12/1/75	28.1	28.0
12/1/75 - 3/1/76	30.2	32.0
3/1/76 - 7/1/76	56.8	39.0
7/1/76 - 9/1/76	14.8	26.0
9/1/76 - 12/1/76	19.2	18.0
12/1/76 - 3/1/77	17.8	19.0
3/1/77 - 7/1/77	19.2	18.0
7/1/77 - 12/1/77	18.7	18.0
12/1/77 - 3/1/78	7.5	8.0
3/1/78 - 7/1/78	10.0	10.0
7/1/78 - 12/1/78	11.9	12.0
12/1/78 - 3/1/79	5.5	6.0
3/1/79 - 7/1/79	10.8	11.0
7/1/79 - 12/1/79	18.0	18.0
12/1/79 - 4/1/80	9.4	8.0
4/1/80 - 10/1/80	13.9	14.0 ^b
10/1/80 - 8/1/81	14.3	14.0 ^b
8/1/81 - 7/1/83	37.1	5.0 ^{b,d}
7/1/83 - 1/1/84	11.8	15.0 ^b

Table 6 (continued)

^aCorresponds to increase in minimum wage.

^bNot binding for workers subject to collective bargaining.

^cBetween October of 1973 and January of 1974 two bonuses were paid. Their nominal value was equal to the April 1973 taxable salary.

^dThe 23.4% loss in real income was partially offset by four bonuses of 30%, 15%, 15% and 15% of current wages paid in September, October, November and December of 1983.

(*) Corresponds to the official CPI

Source: Banco Central (1985) and A. Edwards (1985).

known, it was estimated at one-half the preceding month rate, with any shortfall being made up at the time of the next quarterly adjustment. The new formula shortened the lag of wage adjustments, offering greater protection against subsequent price increases, but its immediate impact was a substantial reduction of the real increment being mandated.

Wage policy in 1976 remained essentially unchanged from that of the previous year. But, as a consequence of the deceleration of the rate of inflation, real wage and salaries started to increase. In view of the declining inflation rate, the government decided to lengthen gradually the intervals between wage adjustments. Between March of 1978 and late 1979 wages were adjusted only three times each year; in March, July and December. During 1980 there were only two official wage increases; in April and October. In August of 1981, when annualized domestic inflation had reached one digit rates, a nominal wage adjustment of 14% was mandated. However, this wage increase, as well as those decreed in 1980, excluded those workers subject to collective bargaining, since their wages' 100% backward indexation was explicitly specified in the new Labor Law governing unions behavior.

In principle the 100% indexation formula applied by the government could result in increasing or declining real wages, depending on the dynamics of the inflation rate. Under declining inflation (increasing) a 100% indexation formula results in increasing (declining) average real wages. This has been called the sawtooth effect and is described in Figure 1, where it is assumed that there are three inflationary periods with nominal wages constant at 100 and two wage readjustments per period. These wage readjustments reestablish the real wage to its initial level, but the average real wage for the period depends on the real wage deterioration due to inflation throughout the period.

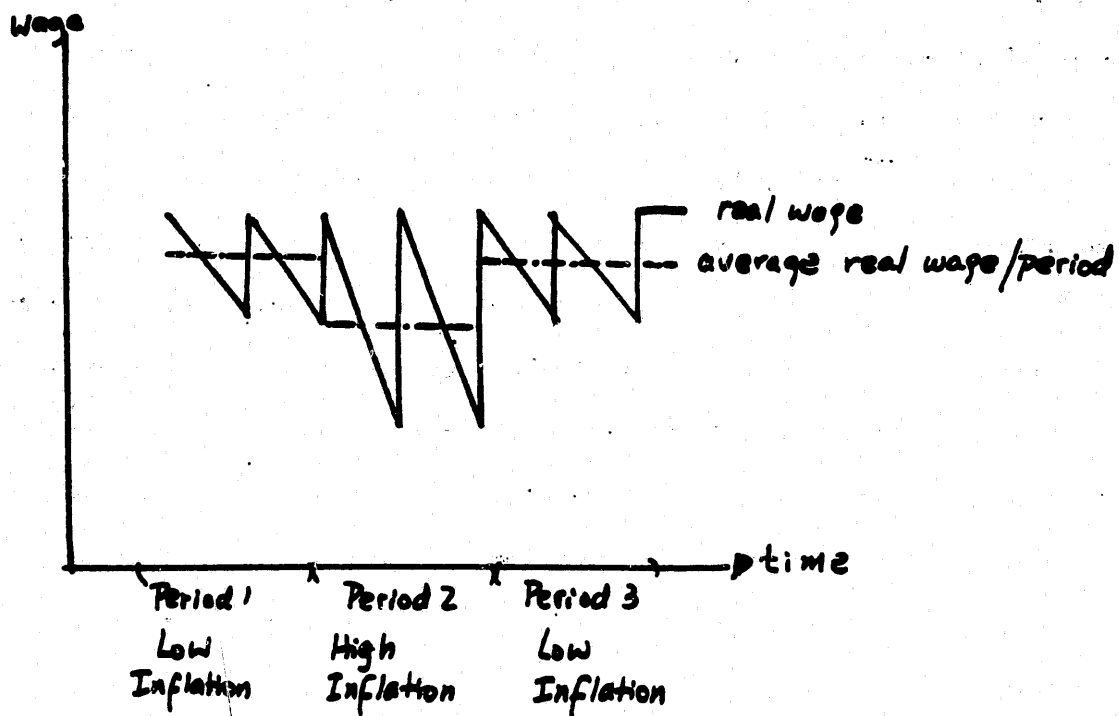


Figure 1

Wage Indexation
and Real Wages:
The sawtooth effect

In Table 6 we present some data related to the indexation mechanism process between 1973 and 1983. In column (1) we have the dates that bracketed each official wage adjustment. Column (2) gives the official accumulated rate of inflation between these two dates. Column (3) contains data on the nominal wage adjustment decreed at the end of each period in Column (1). This wage adjustment was effective for the next period. As can be seen from this table until mid-1976 there were important divergences between accumulated past inflation and the mandated wage adjustment. For example, in July of 1975 a nominal wage adjustment of (at least) 71% was decreed. However inflation accumulated since the last adjustment had been more than 103%. In September 1976, on the other hand, a 26% adjustment was decreed, while the accumulated rate of inflation was only 14%. As can be seen, starting in December of 1976 and until 1981 there is a very close link between mandated wage adjustments and accumulated past inflation. Naturally, since inflation was decreasing this backward indexation mechanism exercised considerable upward pressure on real wages. For example, due to the indexation effect only, a worker's end of period real wage would have increased by 30.9% between June of 1976 and August of 1981.

The 1979 Labor Law established the mechanisms that would govern union behavior and collective bargaining. Among other things this law established a floor in real terms for union workers and expressly dictated that the wages would be subject to a 100% backward indexation mechanism. There were some important, indeed crucial, differences between the indexation mechanism applied until 1979 and the Pinera Labor Law. As noted, the former mechanism was flexible and was based on periodic decrees that were valid for short periods of time. This flexibility allowed the government to actually change the indexation rule several times, as the economic conditions changed. The Labor

Law of 1979, on the contrary, was very rigid. Its Article 26 established that independently of the economic conditions, unionized workers nominal wages should be adjusted by at least past inflation. Article 26 established: "The employer's response [to the union requests] could not contain a proposal for remunerations...lower, in currency of the same purchasing power, as those established in the previous work contract" [emphasis added]. This Article then proceeded to establish that in order to compute the salary of the same purchasing power, past inflation as computed by the National Institute of Statistics should be used. Most other provisions of the law -- including those on salaries for firms where unions could not strike -- established that the mechanism of Article 26 was applicable to all workers.¹²

Minimum Wages

In January of 1974 the existing minimum wages for blue and white collar workers were unified into a single rate, whose level was increased 50% above the minimum pay established in the previous quarter. From that period until 1978 the minimum wage was periodically adjusted, increasing in real terms. During 1974-79 the minimum wage was relatively higher than during the previous years, representing, on average, 54% of the wage rate for blue collar workers in manufacturing. In March 1978 the minimum wage was incorporated into the Public Sector Wage scale and since then it followed the same path as general wage adjustments.

Although there is little doubt that the minimum wage added somewhat to the rigidities existing in the labor market, it is difficult to distinguish its effects from the effects of the overall indexation mechanism on the generation and persistence of unemployment. One of the ways in which the minimum wage played a role was by making the adjustment following the trade reform more difficult. A study by Edwards (1980b) calculates that the

elimination of the minimum wage would have resulted in an increase in aggregate employment over the longer run of approximately 80,000 jobs. Of course, the minimum wage directly affects labor demand at the lower skills levels. But to the extent that the minimum wages affect the determination of other wages, the effects can escalate.¹³

Taxes on Labor

In 1980 the social security system was reformed. This meant moving from a traditional -- and basically bankrupt -- pay-as-you-go system to a capitalization system, where workers had their own individual retirement accounts which were administered by privately owned companies. Traditionally social security taxes had been very high, introducing important distortions in the labor market. In 1974, for example, total taxes on blue collar workers, as a proportion of net wages, amounted to 56.9%.¹⁴

An important goal of the government, and a measure directed towards reducing unemployment, was to reduce these taxes on labor. This was done slowly through time. In 1977 the social security tax had been reduced to the still extraordinary figure of 48.3%, and by 1979 it was 36.3%. The 1980 social security reform further reduced the tax on labor. Under the new capitalization system, in 1981 the average tax had been reduced to 24.4%, and in 1983 it was 20.8% on average.

6 The Unemployment "Puzzle": A Suggested Interpretation

In the preceding sections we described the behavior of employment, unemployment and wages during the first ten years of the military rule. We haven't yet, however, attempted to provide an explanation for the persistent and high rates of unemployment.

In this section we argue that the persistence of unemployment can be explained once it is recognized that Chile's labor market is characterized by segmentation, which greatly reduced flexibility and inhibited the economy to adjust efficiently to various shocks. Furthermore we show that this segmented markets representation is able to explain the evolution of both employment, unemployment and wages.

Segmented Labor Markets

A number of studies on labor markets in developing countries have taken the segmented labor market demand structure as a working hypothesis. Harris and Todaro (1970) and Harberger (1971) explain the persistence of unemployment by wage differentials institutionally imposed in a protected segment of the market.¹⁵ Employed workers in the protected segment acquire rents, therefore protected sector jobs are preferred to other jobs in the economy and this generates an excess supply of labor to the protected segment. Under general assumptions, some labor force participants will stay unemployed rather than taking a non-protected segment job.

In the Chilean case there is little doubt that until 1974 unions were the main force behind labor segmentation. Those firms that had strong unions traditionally paid wages way above the market wage. Although after the military took over, unions' power was greatly reduced, the "unionized" sector continued to pay real wages that exceeded the market level. The hypothesis offered here is that the across-the-board indexation mechanism introduced important rigidities in the relative wage structures, allowing the persistence of the wage differentials. In addition, at that time the newly emerging grupos became another important element behind segmentation. In fact during the period grupos acted in a way similar to that suggested by Harberger (1971, p. 162):

[P]rotected sector wages...can be held above the market clearing level by minimum wage laws, by collective bargaining agreements, or (as is often the case with large...concerns operating in less-developed countries) by the policy of the hiring company itself. [emphasis added.]

In a 1980 survey that covered 12 large grupo related firms, Edwards (1980a) found that these corporations indeed paid salaries that significantly exceeded the wages they could have paid for labor of equivalent skills.¹⁶ For example, in 1977 when the open rate of unemployment was 12% and the PEM program covered 6% of the labor force, these firms paid on average to their lowest skilled workers, 2.6 times above the minimum wage. This ratio was, on average, 2.1 in 1978 and it was 2.2 times in 1979. Additional support for the labor market segmentation hypothesis is provided by A. Edwards (1984) who used a 15,000 observation data set to estimate earning functions for different sectors for 1974-80. After dividing the data set into three segments -- protected, covered by the minimum wage and uncovered -- she found that the Mincer-type earning functions across these segments were statistically different, providing important support to the hypothesis of labor market segmentation.

Labor Market Segmentation in Chile: Evidence for the Greater Santiago Area (GSA) Labor Market 1974-1980

These results are taken from A. Cox Edwards (1984) where the hypothesis being analyzed was that segmentation is present due to institutional factors. Therefore, the criterion to define the segments is based on factors like unionization or minimum wage legislation.

A. Three Segments: A Selection Rule

The GSA labor market can be characterized by three institutional segments. First, the "protected" segments includes the traditionally strongly unionized sectors and the ones requiring relatively high amounts of specific training. The hypothesis is that individual differences in firm-specific human

capital behavior lead, via wage effects, to heterogeneity in mobility behavior, and to "tenure effects" on attachment to the firm (see Mincer and Jovanovic (1981), Stiglitz (1982) and Oi (1986)). The study of earning equations for the protected segment compared to the rest of the labor market should show us higher wage levels or rents in the former segment for homogeneous workers. These higher wages are not necessarily responding to higher returns to education only or experience only. Returns to firm-specific human capital are positively correlated with general human capital. Second, the segment covered by the minimum wage law (MW) includes the nonprotected segment that is within the purview of the minimum wage and all the legal restrictions applicable like social security taxes, minimum legal wage readjustments, etc. Third, the uncovered segment is a free sector. According to Chilean law, throughout the period in question, the wages of domestic service employees and trainees were outside the purview of the MW law. Another exception is the group of farm workers that can be paid up to 35% of their salary in nonmonetary form.

The UCEUS (University of Chile, Employment and Unemployment Survey) provides a two-digit classification of workers according to Economic Activity with 39 subsectors. It also classifies workers into 8 alternative occupational strata (employer, white collar worker, blue collar worker, unpaid family worker, self-employed, domestic service worker, armed forces, other). There is also a classification according to occupation.

Using the occupational stratification, the following groups were left out: employers, self-employed, unpaid family workers and armed forces. The reason for not considering the first three groups is the low significance of their reported wage as a measure of their true compensation. The armed forces, on the other hand, have their own system of wage determination unrelated to short-run labor market situations. The study will also concentrate on male workers.

Organized and strong unions are common for big firms in typically specific areas (banking and finance, copper mining, public utilities, steel). The classification of industries according to the protected, covered by MW, and uncovered by MW segments is given in Table 7.

B. Preliminary Evidence on Market Segmentation

Mincer-type earning profiles were estimated for a sample that includes between 1930 and 1940 males each year. Coefficients for education (Ed), experience (Ex) and experience squared (Ex^2) were estimated, and the equality of these coefficients across market segments was tested. One set of equations was estimated for each year, and each set contained five equations. These equations included dummies for each segment (DP for protected, DC for covered and DU for uncovered) interacting with the constant and the coefficients for education, experience and experience squared.

Full time male workers (working more than 35 hours a week) were distributed approximately in the following way: 27% in protected, 65% in covered and 8% in uncovered segments. Table 8 presents general information on the means of the independent variables for the sample and for each segment each year from 1974 to 1980.

Table 9 indicates that there are statistically significant differences in earning functions between the protected and covered segment that persist over time, and that there are statistically significant differences between the uncovered or free segment and the rest of the labor market in 1975 and 1978. But this is just preliminary evidence, because "wage differentials" associated to different sectors of employment might be "equalizing" differences and might also be short run wage variations. In fact the evidence on fluctuations on these wage differentials throughout the period indicated that was necessary to incorporate additional variables into the analysis.

TABLE 7

Classification of Jobs

Protected Sector [P]

- 1.1 Crude Oil and Natural Gas Production
- 1.2 Metal Mineral Extraction
- 2.0 Food, Beverages and Tobacco
- 2.3 Paper, Paper products, Printing and Publishing
- 2.4 Chemicals
- 2.6 Basic Metals
- 2.7 Machinery, equipment
- 5.1 Financial System establishments
- 5.2 Insurance
- 8.2 Electricity, gas, water, power

Covered Sector [C]

- 1.0 Coal mining
- 2.1 Textile, clothing, leather industries
- 2.2 Wood and wood products
- 2.5 Non-metallic minerals (except oil and coal derivatives)
- 2.8 Other manufacturing industries
- 3.0 Construction
- 4.0 Wholesale trade
- 4.1 Retail trade
- 4.2 Restaurants and hotels
- 5.0 Public Administration and Defense
- 5.3 Real Estate
- 6.1 Laundries and cleaning establishments
- 7.0 Sanitation Services
- 7.1 Educational Services
- 7.2 Health Care Services
- 7.3 Social Services
- 7.4 Entertainment
- 7.5 Other Social Services
- 8.0 Transportation and Storage
- 8.1 Communications
- 8.3 Water and Irrigation

Uncovered Sector [U]

- 0.0 Agriculture
- 0.1 Forestry
- 0.2 Fishing
- 1.3 Other Minerals Extraction
- 6.0 Repair Services
- 6.2 Domestic Services
- 6.3 Personal Services
- 9.0 Other Activities

TABLE 8
Sample Means
(Male Full Time Workers)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Wage (Current pesos)							
Protected Segment	82.0	353.4	1428.6	3527.9	6234.3	9473.5	12432.2
Covered Segment	69.9	304.5	1234.6	333.8	5693.7	8395.7	11728.4
Uncovered Segment	53.7	216.4	817.8	2898.7	4133.6	6251.6	7800.8
Education (Years)							
Protected	8.5	9.0	9.1	9.2	9.3	9.9	9.4
Covered	8.3	8.9	8.9	9.1	9.5	9.4	9.7
Uncovered	7.2	7.2	7.1	7.6	8.1	8.0	8.4
Age (Years)							
Protected	35.5	35.6	35.4	35.5	35.1	34.3	34.6
Covered	34.7	37.0	36.9	35.8	35.6	35.4	35.1
Uncovered	33.7	36.3	34.0	34.9	32.9	34.2	33.9
Experience (Age-Education-6)							
Protected	19.5	19.4	19.1	19.2	18.7	17.5	18.2
Covered	18.9	20.8	20.7	19.4	19.1	18.9	18.5
Uncovered	18.5	21.3	18.9	19.4	17.3	18.6	18.3

TABLE 9
Degree of Significance of F-Statistics

<u>Year</u>	<u>Null Hypothesis</u>						
	<u>Hpcu</u>	<u>Hpc</u>	<u>Hpu</u>	<u>Hcu</u>	<u>Hp np</u>	<u>Hc nc</u>	<u>Hi nu</u>
1974	.0772	.0392	.1369	.5967	.022	.126	.390
1975	.0001	.0002	.0003	.0570	.0001	.0117	.016
1976	.0042	.0005	.1761	.8452	.0003	.0029	.6717
1977	.0861	.0207	.7457	.5328	.0302	.0181	.6925
1978	.0001	.0012	.0009	.0018	.0011	.0006	.0009
1979	.0016	.0009	.0350	.1988	.0008	.0058	.1872
1980	.0001	.0001	.0009	.3078	.0001	.0090	.0911

Note: $H_{i,j}$ corresponds to the hypothesis that sector i and sector j have the same earnings function.
 p: protected sector, c: covered sector, u: uncovered sector,
 np: non-protected, nc: non-covered, nu: non-uncovered

Source: A. Cox Edwards (1984).

A set of variables correcting for sectoral characteristics that generate compensating wage differentials was incorporated, and also a set of variables controlling for short run wage variations was included. Unfortunately, a big price was paid for improving the measurement of the "wage differential" and this is the fact that the uncovered segment had to be left out of the analysis. The reason for this was that the variations in employment within the uncovered segment, for the GSA correspond statistically mainly to Domestic Services employment, but since our sample includes only males, this employment series was certainly not a proxy for labor demand in the free segment. Agricultural sector employment for the greater Santiago area was not a good proxy either.

After including these set of variables, the wage differences by segments are still significant (see Table 10) indicating that in spite of the lack of power of unions, during the 1974-1980 period, the traditionally organized labor maintained their relative position wage-wise (here we are just looking at wages and not at employment). The reader should be reminded that short-run wage variations associated to cyclical changes in labor demand were estimated or controlled for in this study. In fact, these estimated effects were relatively important (statistically significant) among uneducated workers in the protected segment, but were not statistically significant for other labor categories indicating either wage rigidity or a high degree of labor mobility. Given the unemployment evidence we opt for the wage rigidity interpretation.

The interpretation of these results is that wages tend to follow the general indexation rule maintaining the wage differentials across segments that prevailed in the early 1970s. Only among uneducated workers within the protected segment, negative (positive) labor demand fluctuation had short run negative (positive) effects on wages. It should be clear that these results

TABLE 10

Wage Differential Between Protected and Nonprotected Segment (%)

<u>Years of Experience</u>	<u>Years of Education</u>			
	0	8	12	16
5	-2.75 (-.54)	8.45 (1.65)	14.05 (2.74)	19.65 (3.83)
12	0.96 (.19)	12.16 (2.37)	17.76 (3.45)	23.36 (4.55)
20	4.00 (.78)	15.20 (2.96)	20.80 (4.05)	26.40 (5.14)
28	5.76 (1.12)	16.96 (3.15)	22.56 (4.39)	28.16 (5.48)
35	6.25 (1.22)	17.45 (3.40)	23.05 (4.49)	28.65 (5.58)

Note: t-statistics in parentheses.

Source: Estimated from Equation 4 of Table 24 in A. Cox Edwards (1984).
Wage Differential = $[-0.06 + .014YE + .007EX - .0001EX^2] \times 100$.

do not rule out some relative wage variations within or among segments, but they indicate that the structure of differentials tends to persist in spite of the large changes in demand. This evidence is the one that allows us to use a model of "protected" vs. "free" segments during a period where unions did not have the power to make or maintain wage gains.

The Structure of Chile's Labor Market and Unemployment

One way to reconcile the evolution of the unemployment rate and real wages during 1973-83 is to think about the Chilean labor market as a two-segment market. One segment, which we have called "protected", comprises all workers in those sectors where wages have been protected from changing market conditions by virtue of the indexation mechanism and the minimum wage laws. These include mining, manufacturing, construction, utilities, commerce, transportation and communications, financial services and government. The "free" segment, on the other hand, comprises employment in those sectors where wages are set freely, either because they are not covered by the minimum wage or indexation legislation or because employment is of temporary nature. We have included here, agriculture, fishing, social, personal and domestic services.¹⁷ The main feature of this labor structure is that all those workers whose reservation wage is between the free segment wage and the protected segment wage who are not employed in the protected segment are in fact unemployed. Although these workers would not take a job in the free market segment -- because its wage is below their reservation wage -- they would like to be employed in the protected sector. In a way they are quasi-voluntarily unemployed. Figure 2 summarizes the changes in the distribution of the labor force across these two segments. As can be seen employment in the protected sector became significantly less important, in relative terms, after 1973.

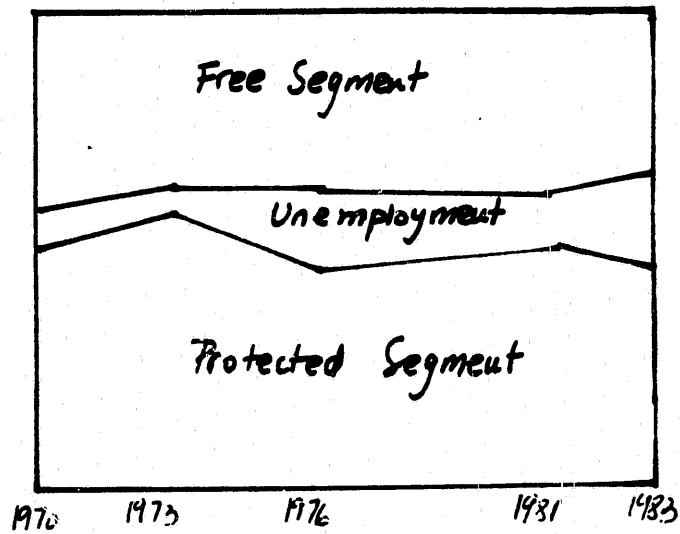
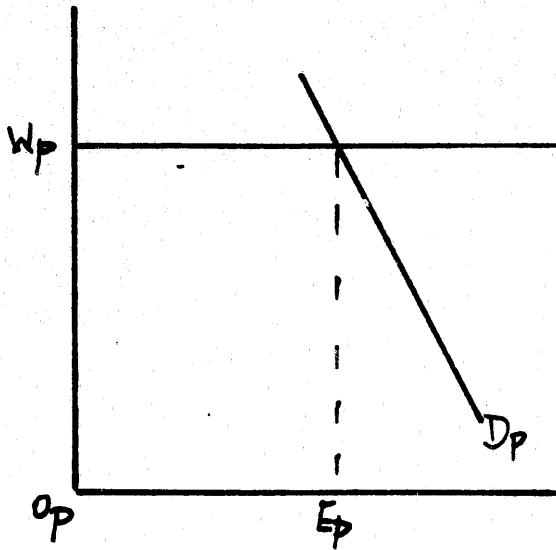


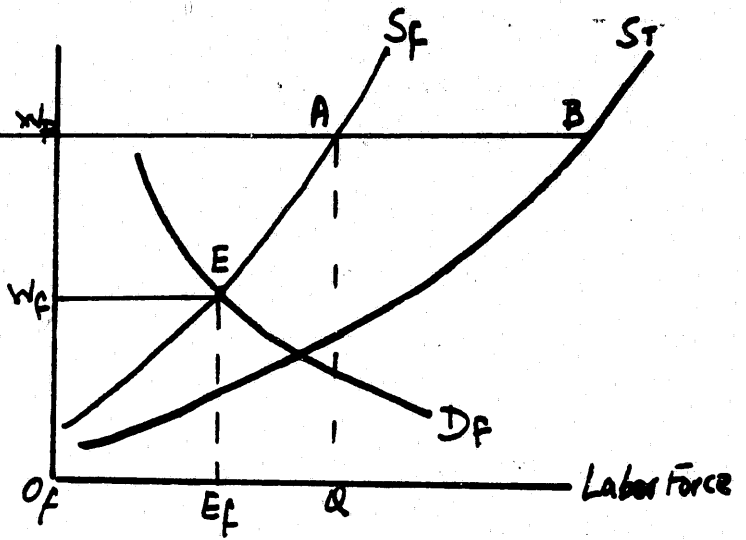
Figure 2
Chile: Labor Force Distribution
(Percentages)

The Model

We assume that one individual -- with certain skills and knowledge -- would get a wage W , if employed in the free segment of the labor market, and a wage W' ($W' > W$) if employed in the protected segment of the labor market. This wage differential ($W' - W$) is not a compensating wage differential, originates on the institutional constraints under which the protected segment operates, and can prevail in the long run if the protected segment has market power. The wage differential between the protected and free segments creates quasi-voluntary unemployment among workers willing to take a protected segment job, but not willing to become part of the free sector labor supply at the free sector wage. Figure 3 illustrates the working of this model. In panel (a) we have the protected segment demand for labor (D_p) and an exogenously determined (real) wage rate (W_p). Employment in this segment is equal to the distance $O_p E_p$. Panel (b) depicts the equilibrium in the free segment. The supply to this segment is a fraction of the total labor supply at each wage. Possibly the simplest way to analyze this case is by assuming that employers in the protected segment hire workers using a criterion unrelated to supply prices. That is to say, if employment in the protected segment is a fraction β of the labor supply, we expect the labor supply to the free segment to be a fraction $(1 - \beta)$ of the original labor supply at each wage. Using the above assumption, supply of labor to the free segment is given by S_f in panel (a.2). Distance AB , of course, is equal to protected employment $O_p E_p$ in panel (a.1) given the demand for labor in the free segment. D_f , the wage rate in this segment is W_f and employment is distance $O_f E_f$. The most interesting feature of this model is that distance $E_f Q$ in panel (a.2) captures the amount of unemployment. These workers are unemployed in the sense that, although their reservation wage is above the free market wage,

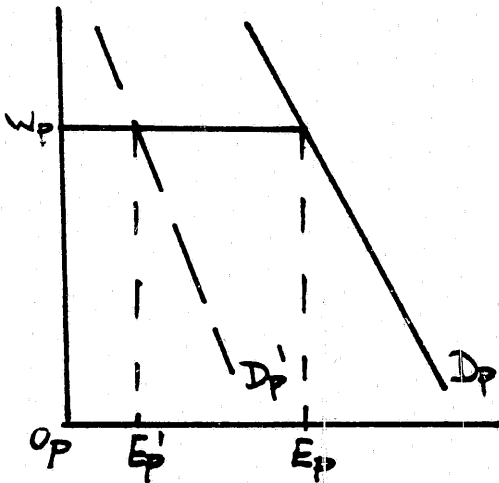


a.1 Protected Segment

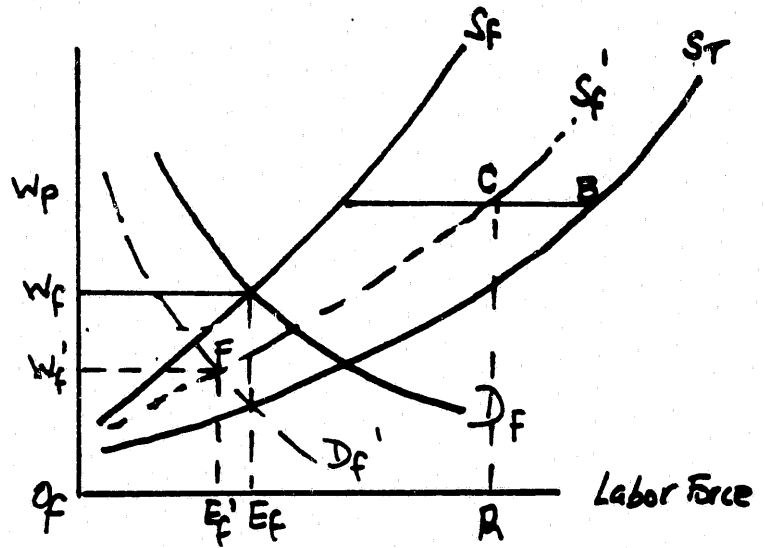


(a.2) Free Segment

PANEL a



(b.1) Protected Segment



(b.2) Free Segment

Panel b

Figure 3

Segmented Labor Market

they are still willing to work at the protected market wage W_p . In a sense, then, these workers are quasi-voluntary unemployed.

Panel (b) in Figure 3 captures the effects of a recession on wages, employment and unemployment. This type of aggregate shock is similar to the effect of the 1975 recession in Chile, and is reflected by a leftward shift of the demand for labor in both sectors. Since the wage rate in the protected segment is exogenously determined, it does not change. Employment in that segment, however, drops to distance $O_p E'_p$. Consequently, we now have to redraw the supply of labor to the free segment (which is equal to a fraction $\beta' < \beta$ of total labor supply). The new labor supply to the free segment is S'_f , where now distance CB is equal to employment in the protected segment. As a result of the recession, demand for labor in the free segment falls to D'_f , and a new equilibrium is determined in this segment by the interaction of the new supply curve S'_f and the new demand curve D'_f . The new free segment wage rate is W'_f and the new level of employment is $O_f E'_f$.

As can be seen from panel (b) in Figure 3 this model predicts that as a result of the recession the following things will happen:

- (a) Total employment will fall from $(O_p E_p + O_f E_f)$ to $(O_p E'_p + O_f E'_f)$.
- (b) Free segment's wages will decline to W'_f .
- (c) Measured averages wages will generally decline because free segment wages decline. The change in the distribution of employment across segments would ultimately determine the change in measured average wages.
- (d) More important, however, the model clearly indicates that the number of unemployed and the rate of unemployment will go up. In Figure 3, unemployment goes up from $E_f Q$ to $E'_f R$.

Segmentation in Chile

In order to make this simple model operational in our interpretation, it is necessary to define in a more precise way what do we mean by the protected and free segments in the context of the Chilean case. This is done in Table 11 where we have distributed the labor force in two segments according to sector of employment. Given the availability of data, this distribution is, of course, an approximation. It is now consistent, but not entirely equivalent to the classification used in A. Cox Edwards (1984) for the greater Santiago area labor market, where a two digit industrial classification was used.

The allocation of the labor force to the two segments was approximated with employment classified in ten sectors of economic activity. Unfortunately, the data available on wages cannot be matched directly with employment by sectors. In particular, we do not have reliable estimates for wages in agriculture. For this reason, we used a wage series for each segment that was representative of a particular type of skill within the segment -- reducing the effect of changes in the skills composition of employment. Wages of domestic service employees were used to study wage variations within the free segment, and wages of blue collar workers in manufacturing were used to study wage variations within the protected segment. These series are presented in Table 12.

From the blue-collar workers wages series it can be seen that monthly wages (estimates for May of each year) throughout the period showed a cyclical behavior with no significant trend. This is not too surprising given the evolution of real income for the Chilean economy. Wages in 1973, 1979, 1980 and 1983 were very close to the average of 3,558 pesos for the 14 years period. The years 1971-72 and 1981-82 are characterized by substantial real wage increases of between 25 and 30% above the average. During the 1974-77 period, on the contrary, wages are about 30% below the trend.

TABLE 11

Chile's Labor Market Indicators: 1970-1983

	<u>1970</u>	<u>1973</u>	<u>1976</u>	<u>1981</u>	<u>1983</u>
<u>Labor Force</u> (thousands) ^a	2,932.2	3,037.0	3,216.4	3,669.3	3,797.5
<u>Employment</u> (thousands) ^a					
Total	2,776.1	2,891.2	2,705.0	3,269.0	3,091.2
Protected	1,558.8	1,766.3	1,489.8	1,826.2	1,726.7
Free	1,207.3	1,124.9	1,215.2	1,443.0	1,364.5
<u>Output</u> (GDP)					
Mill - 1977 pesos)					
Total	283.1	287.8	261.9	383.6	327.2
Protected	220.4	228.4	202.2	304.2	257.1
Free	52.9	51.1	57.9	68.8	64.9
<u>Productivity</u> (pesos/worker)					
Total	102.3	99.5	96.8	117.3	105.8
Protected	141.4	129.3	135.7	166.6	148.9
Free	43.8	45.5	47.7	49.4	47.6

<u>Annual Average Rates of Growth</u>	<u>1970-1973</u>	<u>1973-1976</u>	<u>1976-1981</u>	<u>1981-1983</u>
Labor Force	1.2	1.9	2.6	1.7
Employment	1.4	-2.2	3.8	-2.8
Protected	4.2	-5.7	4.1	-2.8
Free	-2.4	2.7	3.4	-2.8

^aFigures correspond to June of each year.

Note: The protected segment includes the traditionally unionized sectors of economic activity and the government. The free segment includes agriculture, fishing, social, personal and domestic services. See Appendix A.

Source: Labor force and Total Employment, Castaneda (1983); Production, Banco Central de Chile (1984) Cuentas Nacionales de Chile 1960-1983.

TABLE 12
 Real Wages (May Each Year)
 (In December 1978 pesos)

<u>Year</u>	<u>Blue Collar</u>	<u>Minimum Wage</u>	<u>Domestic Service</u>	<u>(3)/(1)</u>	<u>(2)/(3)</u>
	(1)	(2)	(3)	(4)	(5)
1970	3,920.2	1,978.0	1,853.0	.47	1.07
1971	4,385.0	2,553.2	2,017.9	.46	1.27
1972	4,238.3	2,380.9	2,114.1	.50	1.13
1973	3,486.1	1,909.1	1,859.4	.53	1.03
1974	3,277.1	2,334.9	1,567.0	.48	1.49
1975	2,466.7	1,586.6	1,231.9	.50	1.29
1976	2,693.4	1,858.5	1,262.6	.47	1.47
1977	2,834.6	2,173.9	1,588.8	.56	1.37
1978	3,178.2	2,584.4	1,985.6	.62	1.38
1979	3,642.7	2,510.9	2,265.0	.62	1.11
1980	3,476.9	2,557.8	2,333.1	.67	1.10
1981	4,371.3	2,367.7	2,489.3	.57	.95
1982	4,300.0	2,603.9	2,800.1	.65	.92
1983	3,540.4	1,987.7	2,202.9	.62	.90

Source: Constructed from raw data obtained from Banco Central and World Bank.

The path of the minimum wage relative to domestic service wages (column 5 in Table 12) is, to a large extent, a result of the effort of the authorities to maintain the real purchasing power of wages through the indexation mechanism. This effort, nevertheless, had negative implications for the unemployment problem.

The ratio of domestic service wages to blue-collar wages (column (4)) highlights in the context of our model, how the two segments of the labor market adjusted to these changes. For example, between 1973 and 1976 labor demand declined in the protected segment, but we see wages in the free segment declining relative to the protected segment. This is consistent with what our model would predict. If wages are higher and relatively inflexible in the protected segment, and demand is reduced there, we will expect an increase in unemployment and also an increase in labor supply to the free segment that will tend to depress the free segment real wage.

Although this model has the advantage of being very schematic and appropriate to analyze some of the important questions regarding the Chilean experience, it is too aggregated to be of much help in understanding the more intricate effects of the trade liberalization on the labor market. In each segment, we have added up all employment, without making any attempt to decompose it in different labor categories. Some additional analysis will be necessary in some of the subperiods studied below.

1973-1976

We first concentrate on 1973-76, a period where unemployment grew very drastically. As a result of the government's effort to reduce its size, labor demand within the protected segment -- which includes government -- declined by 276,500 (5.6% per year), where 100,000 of this reduced job vacancies can be identified with the employment reduction within the public sector. The rest of

the demand decline (176,000) was the result of the effects of the world recession and especially of the drastic stabilization policy implemented by the government in 1973. At the same time, labor supply continued to increase, adding 179,400 workers throughout the period. As a result labor supply to the free segment increased, inducing a reduction in the wage rate there. According to available figures, the agricultural sector was the one that absorbed most of the additional employment within the free segment. Table 11 summarizes the changes in the key variables for the labor market situation in 1973, 1976, 1981 and 1983.

In our view the employment policies of the public sector play an important role in understanding the high unemployment rates observed in Chile since 1974. Previously, some papers have provided a somewhat casual discussion of this problem. Tockman (1984), for example, estimated the public sector employment level for the period 1970-82 if the trend observed in the 1960s for public employment would have been maintained. Using these estimates he concluded that the reduction in public sector employment between 1973 and 1976 explains less than 10% of the increase in the unemployment rate for the same period. Meller (1984) has pointed out the cyclical pattern of the public sector employment and has argued that if 1973 is used as the base of comparison for the later evolution of public sector employment, the reduction in the employment level within the public sector between 1973 and 1976 explains about 30% of the increment of the unemployment rate for the same period (about 3% of the labor force). This is exactly what the model used in this section emphasizes. The change in the employment policy between 1973 and 1976 operates on a labor market that had already been adjusted to the structure of labor demand of the 1970-73 years; that is, to a higher level of protected segment demand for labor.

Figure 4 illustrates, within the context of our segmented labor market model, the changes in the labor market situation between 1973 and 1976. Labor supply to the economy and therefore to the protected segment, increased by about 200,000 individuals while demand in the protected segment declined by 276,500. The excess supply of labor to the protected segment does not entirely become part of the free segment labor supply, since only a fraction of the unemployed would be willing to take a job at the free segment wage. In the free segment, employment actually increased and the wage rate, measured by the evolution of domestic service wages, declined relative to other wages. These changes could be consistent with a growing free segment labor demand, but it is assumed that demand in the free segment declined at the original wage, and that the level of employment in the same sector increased due to the effect of the growing labor supply on the free segment real wage. As a result, unemployment increased from about 150,000 in 1973 to over 500,000 in 1976. According to Table 8, wages did experience a substantial decline, but, as our model suggests, this decline was more pronounced within the free segment while it was in the protected segment that the policy of employment reduction had a direct impact. Clearly, a larger reduction in real wages within the protected segment would have diminished the decline in employment there and reduced the resulting unemployment rate.

1976-1981

During the recovery and "boom" years of 1976-81, employment grew at an annual average rate of 3.8% (see Table 11), and the labor force showed record growth rates of 2.6% per year on average. All of this is consistent with a recovery period and declining unemployment. The fact that wages recovered quickly, while unemployment was still well above the past normal rates has been puzzling. A possible explanation will be attempted here. In our view,

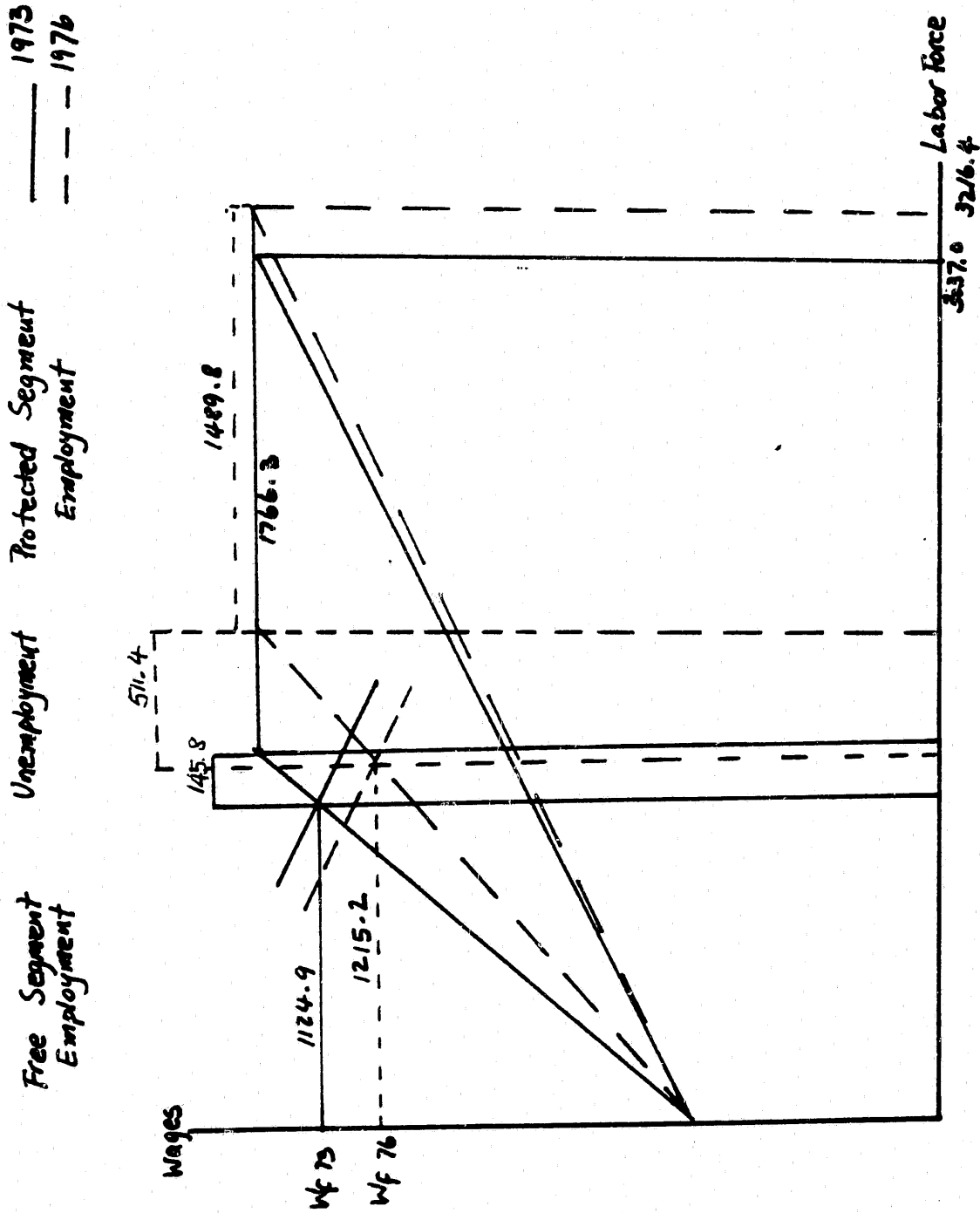


Figure Labor Market Adjustment to Changes between 1973 and 1976

wages increased due to two forces. Within the free segment, labor demand grew faster than labor supply generating a relative scarcity of labor for those jobs. Within the protected segment, there were two typical scenarios. There was excess supply of certain labor categories, like specific skills associated to all those activities that were negatively affected by the trade liberalization and by the high interest rates. Indexation, however, did not allow wages to fall according to market conditions. On the other hand, other labor categories were in excess demand at the initial wages. This was the case for all sector-specific skills associated to those sectors which were expanding as a result of the market liberalization policies. Thus, we observed growing average wages in both the protected and free segments of the labor market and also a persistent unemployment rate of around 14% between 1977 and 1979.

From 1976-81 labor supply increased by 453,000 people while demand in the protected segment increased by 336,400 workers. Using our model we can say that labor supply to the free segment (at the original wage (W_f)), increased by a fraction of 116.6 thousand people ($453-336.4$). Since employment in the free segment increased by 228,000, then labor demand in the same segment must have increased by substantially more than 116,600 (at the original wage (W_f)). This explains the wage increase within the free segment. The fact that employment increased more within the protected segment where wages are higher and also that free segment wages increased in relative terms, can explain the overall wage recovery in spite of the sustained unemployment. The level of unemployment declined by approximately 100,000. Figure 5 represents this case, the broken lines correspond to the 1981 situation.

The trade liberalization program that reduced tariffs from an average of 94% (with a maximum above 500%) in December of 1973, to a 10% across-the-board by June of 1979, had its major impact on the allocation of employment and

— 1976
 --- 1981

Free Segment
 Employment

Unemployment

Protected Segment
 Employment

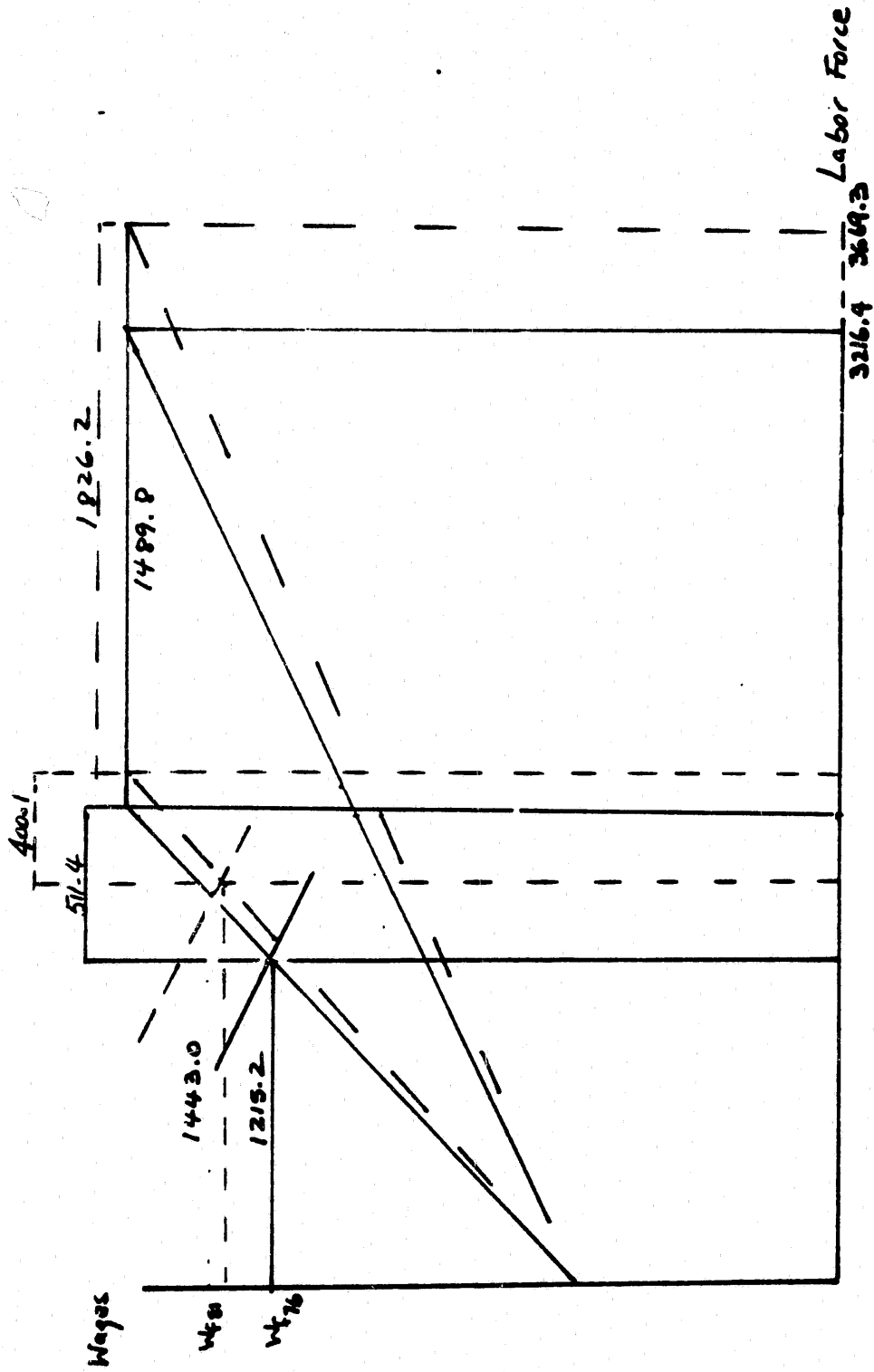


Figure . Labor Market Adjustment to Changes between 1976 and 1981

investment throughout this period. The effect of the trade liberalization on the labor market represents a vast and critical area of research. In principle, changes in relative prices of goods would translate in a reallocation of resources, and apart from short run adjustment lags, we should expect no long-run effect on the rate of unemployment. Most likely, the amount of frictional unemployment will increase in the presence of large and sudden changes in relative prices of commodities, because individuals have to learn about the new employment opportunities. On the other hand, if there is wage rigidity of the type introduced by minimum wages, and if capital is immobile in the short run, the liberalization process can result in short run involuntary unemployment. Along these lines, Edwards (1982) reports that the upper bound for the unemployment effect of the trade liberalization between 1975 and 1978 would be 3.5% of the labor force (or about 129,000 jobs).

Labor reallocation takes place by workers leaving one job to take another, but capital mobility requires investment. Therefore, the reallocation of resources induced by the liberalization policies, generated an increase in demand for investment funds. In fact, the scarcity of capital in Chile during this period was reflected by the unprecedentedly high interest rates. The recovery of the economy, and therefore the growth in labor demand, was limited by the degree of capital mobility or in other words, by the amount of funds available for investment. It was only with the opening of the capital account that this process could be speeded up and the level of unemployment due to the reallocation effect could disappear.

Since the liberalization of the capital account started in June of 1979, the 1976-79 period can in a way be characterized by immobile capital, while in the 1980-81 period capital was more easily moved. By mid-1979 the Construction sector, which until then had still been quite depressed, showed a frantic

recovery and unemployment declined. Nevertheless at the end of this recovery period (mid-1981), unemployment was still around 11% of the labor force. If we take Edwards' estimate of 3.5% unemployment associated to the trade liberalization, we are left with an unexplained unemployment rate of around 11% (14.5% - 3.5%) for the 1976-79 period and a slightly higher rate of 11.4% on average for the 1980-81 period. Certainly, the level of real wages in the economy was above the level consistent with a historical rate of unemployment of 5 or 6%.

These rates of unemployment, two times the historical rates for the Chilean economy, can be explained by the process of wages determination and by a resulting inconsistency between workers' expectations about wages and actual market wages. As is described in Figure 5, the recovery of labor demand during this period induced wage increases, in spite of the unemployment level. Therefore, the actual recovery of employment was relatively moderate.

Moreover, towards the end of this recovery period wages show a significant real increase. In 1979 the new Labor Law and the fixed exchange rate policy favored the growth of real wages in the economy and particularly within the "protected" segment. Real wages increased dramatically in 1980. To give just an indication, the proportion of labor income out of GDP went from 36.1 in 1979 to 38.2 in 1980 to 40.5 in 1981 and 41.2 in 1982.

1981-1983

The strong recovery of the preceding period came to an abrupt end by mid-1981. This period has been extensively analyzed in relation to the macroeconomic management of the economy.¹⁸

The financial market situation was giving signs of a turning point in 1981, as interest rates climbed.¹⁹ During the second semester of 1981, industrial production started to decline. Nevertheless, nominal wages were

officially granted a 14% increase in August of 1981 -- to reestablish the real wage as of October 1980 -- and collective bargaining agreements were setting nominal wage readjustments that greatly exceeded the legally required minimum of accumulated past inflation. Firms, especially in the tradables sectors, could only afford this wage increase by borrowing from the financial system. When in 1982 foreign banks decided that Chile was not a good risk any more, bankruptcies mounted. Between 1981 and 1983 the level of production measured by GDP fell by 15%. Unemployment in 1982 reached 20.4% of the labor force.

The labor market adjustment between 1981 and 1983 is represented in Figure 6. The 1983 case is represented by the broken lines. In Figure 6 we have omitted any change in the protected segment wage. The idea is that between 1981 and 1982 real wages increased above equilibrium and then declined in 1983. But due to the initial downward inflexibility of wages, the reduction in demand that took place was considerable. As an indicator of the disequilibrium that resulted, the unemployment level rose to 700,000 in 1983.

Summarizing, the higher rate of unemployment for the 1974-83 period is explained by the low average rate of growth of the economy for the period coupled with a lack of downward flexibility of wages in the "protected" segment of the labor market. The recovery of the level of economic activity between 1976 and 1981 was not sustained for a long enough period to succeed in reducing unemployment to historical levels.

7 Summary

In this paper we have analyzed several aspects related to employment, wages and unemployment during the period of economic reforms in Chile, 1974-83. We have shown that the high level of unemployment observed throughout the period responded to a number of interrelated factors. First, the slow average rate of growth of economic activity during the period resulted in a slow rate

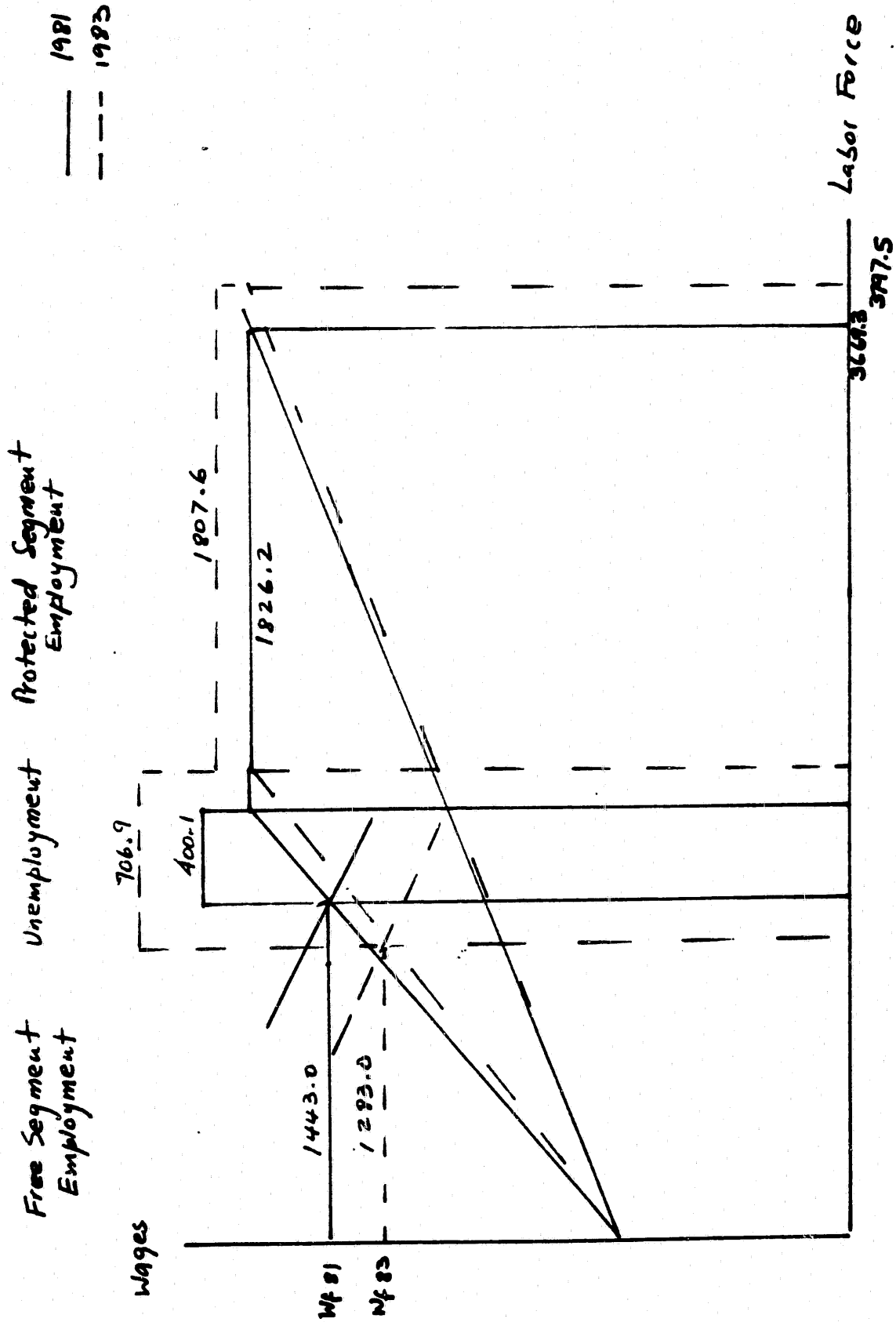


Figure 6. Labor Market Adjustment to Changes between 1981 and 1983

of employment creation. Second, the labor force grew at rates substantially higher than the historical average. Third, the reduction in the government size generated a major reduction in the number of jobs, contributing to the overall unemployment problem and fourth, the persistence of unemployment responded to a number of rigidities that precluded a smooth adjustment to various shocks, including the liberalization reforms. In particular, the across-the-board wage indexation mechanism did not allow relative wages to change sufficiently. In fact, in Section 5 we developed a simple model of a segmented labor market, which highlights the role of these rigidities, and which is very useful to explain the evolution of employment, unemployment and wages during the period.

We divided the period into three subperiods according to the type of reform or external shock affecting the labor market. The years 1973-76 are a period of stabilization effort complicated with a negative external shock. The 1976-81 period experienced the trade liberalization reforms, and finally in 1981-83 another major negative external shock took place.

Unemployment growth in Chile during the period analyzed is associated with two types of episodes: employment reduction within the public sector, and negative external shocks. The explanation we provide is the following. The replacement of government jobs by new jobs (at the same wage) would require enough time so that the economy builds up the complementary factors to use this labor productively. On the other hand, negative external shocks induce a reduction in aggregate demand for tradables, through a reduction in real income. The reduced demand for tradables generates a reduction in labor demand that would generate unemployment, unless real wages decline. Therefore, the lack of downward flexibility of real wages is a fundamental explanatory factor behind the unemployment generated in the two types of

episodes. We argue that the mechanism of backward wage indexation, in particular since inflation was declining, was a key factor behind the real wages inertia and that it contributed in a significant portion to the persistence of unemployment. We argue that for an important segment of the labor market wages were too high given the market conditions throughout most of the period analyzed.

Footnotes

¹For a description of the Chilean economy during the 1970s see Harberger (1982), S. Edwards (1985a), Corbo (1985), Bardon et al. (1985), S. Edwards and A. Cox Edwards (1986). On the market oriented reforms and their effect on unemployment see, for example, Cortes and Sjaastad (1981), S. Edwards (1982), Cortez (1983), Meller (1984), Arellano (1984), Riveros (1984).

²Corbo and Meller (1981) document how the import substitution trade policy resulted in highly capital intensive productive techniques.

³See J. Marshall and Romaguera, "La Evolucion del Empleo Publico en Chile: 1970-1978," Notas Tecnicas, No. 26, CIEPLAN, Santiago (February 1981).

⁴During the decade of the 1960s, the rate of unemployment was at approximately the average level for Latin America. For example, during the second half of that decade the annual rates of open unemployment (country-wide) were: 1977, 6.8%; 1967, 5.5%; 1968, 5.0%; 1969, 4.1%; 1970, 3.5%.

⁵The existing empirical evidence shows that, although real wages across the economy significantly fluctuated during this period, relative wages between any two sectors for comparable workers (given education and experience), were quite inflexible. This was, to an important degree, a consequence of the indexation mechanism. What the evidence shows is that there were no significant wage responses to sectoral variations in labor demand throughout the 1974-80 period. (See the econometric cross-sector analysis in A. Edwards (1985). See also Cortazar (1983)). At this point, it is convenient to consider labor as a quasi-fixed factor in the short run (Oi, 1962). In response to changes in relative prices of goods, or to changes in the employment policy of the public sector, firm or industry specific attributes of human capital should experience price changes. Consequently we should observe changes in

relative wages across industries or sectors of economic activity. Alternatively, we would observe unemployment in all those labor categories that have experienced demand reductions. It is also reasonable to expect that an economy going through a serious stabilization and liberalization program would present a higher rate of frictional unemployment for a short period of time.

⁶The existence of this emergency program introduces some difficulties into the analysis of the employment problem. Since some, but not all, of the participants in the PEM program consider themselves as being employed full time, it is not easy to compute the actual rate of unemployment. On this problem see Meller (1984). On the PEM emergency program see Schmidt-Hebbel (1981).

⁷If after 60 days of negotiations there wasn't a new agreement, workers could resume their jobs under the same conditions established by the previous contract, with the exception of nominal wages, which were increased by the rate of inflation incurred since the last contract. According to the law, it was understood that if a worker did not resume his job 60 days after the strike had begun he "would have implicitly resigned" his post.

⁸This structure can be altered to consider the presence of a binding minimum wage. In this case in the unprotected segment it is necessary to distinguish between the covered sector, which is subject to the legal minimum wage, and the uncovered sector where wage rates are fully set according to market forces. Since workers in the protected or covered sectors get rents, labor mobility from these sectors to the free segment is slow, and major shocks to the economy are usually translated into large and persistent unemployment.

⁹If E is the level of employment and F is the labor force, then $u = 1 - E/F$ is the rate of unemployment. Consequently $du = E/F(dF/F - dE/E)$.

Assuming an initial level of unemployment of 6% ($E/F = .94$), and the same rate of growth in employment of the 1960s, the higher rate of growth of the labor force in the 1973-83 period explains an annual average increase in the unemployment rate of half of a point, or an accumulated increase of 5 points in ten years [$du = .94x (.023-.018) = .0047$]. If we assume the same growth in the labor force of the 1960s, the reduction in employment growth explains an annual increase in the unemployment rate of 9/10th of a point, or an accumulated increase of 9 points in ten years [$du = .84x (.016-.007) = 0.0085$].

¹⁰Estimates based on World Bank data.

¹¹The 1979 law established 100% backward indexation for workers subject to collective bargaining only, but it added to the overall rigidity of the indexation mechanism in two ways. First, although it legally focused on wages in a particular sector, other wages were also affected via labor mobility and turnover. Second, and more important, by mandating 100% wage indexation for unionized workers, the government was in a way forced -- to the extent it didn't want to be discriminatory -- to decree 100% indexation for nonunion workers.

¹²Recall that in 1979 General Pinochet said that the law "assures workers an increase of remunerations of at least 100% of the increase of the cost of life..." (Boletín Banco Central, September 1979, p. 1489). Of course, was not strictly correct. Whether real wages would decline or increase due to Article 26 depended on whether inflation was increasing or decreasing. How can we explain that, in an otherwise sophisticated piece of legislation, an aberration such as the institutionalization of backward indexation was included? The answer to this probably lies in the realm of politics. The wage floor and indexation clauses were included in the law as a way to show that this piece

of legislation was not "anti-labor" as some generals had argued. In fact, it was pointed out that this law was, if anything, "pro-labor" since it assured that real wages would "never" decline again.

¹³See for example Paldam, M., and Riveros, L. (1986).

¹⁴Of this 56.9% the employer's contribution amounted to 45.4% and the employers contribution was 7.5%.

¹⁵On the economics of wage differentials see Stiglitz (1974), Oi (1986). An alternative approach to the existence of segmentation is implicit in the "dual" labor market theory (see Doeringer and Piore 1971). According to the "duality" approach, segmentation is a structural failure in the way labor markets function in developing countries and the evidence of its existence is in the widespread poverty observed in these countries. Empirical analyses of the dual labor market hypothesis have encountered two problems. First, the nonoperational character of the theory that limits the testable hypothesis to the alleged inadequacy of human capital investment in the secondary market. Second, and most important, the theory does not contain a clearly defined criterion to distinguish the two segments.

¹⁶There are a number of reasons why large firms, including grupo firms, paid as a matter of policy wages above market levels. For example, firms might be interested in minimizing hiring/training costs. In a context of imperfect information where the firm cannot identify quitters, a wage above equilibrium will reduce quits. Also, since supervision is costly, wage premiums will induce workers to perform better and to be loyal to the firm. The informational gaps tend to be more important in large firms. Finally, if a firm has some kind of market power, it could pay wages above narrowly defined market wages and still survive.

¹⁷According to Chilean law throughout period 1973-81, wages of domestic service employees and trainees were not subject to the minimum wage.

¹⁸See for example, Harberger (1984), S. Edwards (1985b), Corbo (1985) and S. Edwards and A. Cox Edwards (1986).

¹⁹The deplorable situation of the financial system had developed earlier (1979-80), when bad loans were rolled over in order to maintain the apparent credit worthiness of some banks and keep going some "nonviable" economic ventures of their affiliates. Remember, as was pointed out in the introduction, the economy was subject to a severe negative external shock in 1981. Aggregate demand fell. Then, the already existing financial problem grew, and as interest rates climbed, it compromised economic activities that were "viable" in the long run.

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