

ECONOMIC POLICY AND THE RECORD OF  
ECONOMIC GROWTH IN CHILE IN THE 1970'S AND 1980'S\*

by

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## 1. Introduction

Between 1940 and 1970 Chile's growth record was modest: real GDP grew at an average rate of 3.7% per year, while real per capita GDP grew at 1.7% per annum. During these 30 years Chile basically followed an import substitution development strategy that greatly closed the economy from the rest of the world. In general, the empirical evidence available suggests that this inward-looking strategy had negative effects on Chile's economic growth, by reducing domestic savings, introducing serious distortions and inefficiencies, and by tending to increase capital-labor ratios. Also, this period was characterized by an increasing involvement of the government in the economy, which resulted in a confusing — and often contradictory — set of regulations, high government deficits and chronic inflation.<sup>1</sup>

The year 1973 marked an important turning point in Chile's economic and political history. In September of that year the military took over the government from President Salvador Allende, and a period of dramatic economic changes began. Between 1974 and 1981 Chile was transformed from an economy isolated from the rest of the world, with strong government controls, into a liberalized, world-integrated economy, where market forces were freely left to guide most of the economy's decisions. This period was characterized by important achievements: inflation was greatly reduced — in 1981 inflation was only 9% compared to almost 1000% in 1973; the government deficit was practically eliminated; import restrictions were reduced, with a uniform 10% tariff being implemented; and prices, including interest rates, were fully

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<sup>1</sup>For an analysis of the Chilean economy before 1970 see, for example, Behrman (1976,1977), French-Davis (1973), Trivelli and Trivelli (1979), Mamalakis (1978), and Corbo and Meller (1982).

liberalized.<sup>2</sup>

From an economic growth perspective, 1973-1981 was characterized by a highly variable record. During this period Chile experienced one of the highest rates of growth in her history (9.9% growth in real GDP in 1977), and also the highest decline in real GDP ever recorded (-12.9% in 1975). However, towards the latter part of the 1970s the Chilean economy achieved a consistently higher rate of economic growth: between 1977 and 1980 real GDP grew at an average annual rate of 8.5%. This performance, coupled with the liberal policies implemented during the military regime, led some observers to (prematurely) talk about the "Chilean liberal economic miracle."<sup>3</sup> Towards the end of 1981, however, the Chilean economy entered a deep recession, and the euphoria that had characterized the late 1970s came to a sudden end. During 1982 there was a dramatic decline in economic activity, the rate of unemployment increased sharply, and there was an important acceleration in the rate of inflation. The most optimistic estimates show a decline of real GDP in 1982, between 10% and 13%.<sup>4</sup>

The purpose of this paper is to examine with some detail the economic growth performance in Chile during the post military coup period, emphasizing the relationship between economic policies and growth.

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<sup>2</sup>For an analysis of the Chilean economy in the 1970s see Hachette (1978), and Harberger (1982); see also Foxley (1982), and Arellano et al. (1982).

<sup>3</sup>See, for example, Time magazine, January 14, 1980; the Wall Street Journal, October 5, 1979 and January 18, 1980; and The Economist, February 2, 1980.

<sup>4</sup>Towards the end of 1982 the international media began to acknowledge the serious economic problems in Chile. See, for example, New York Times, December 8, 1982.

The paper is organized in the following form: In Section 2 I briefly discuss the record of economic growth between 1974 and 1981. Section 3 analyzes the relationship between stabilization policy and growth. In Section 4 I discuss the commercial policy, exchange rate policy and sectoral growth. Section 5 focuses on financial policy, interest rates, savings and investment. It is argued in this section that the low level of investment and savings experienced during the late 1970s are partially responsible for the halt in growth opportunities in the early 1980s. In Section 6 I present a brief discussion on the sources of growth during this period. Section 7, on the other hand, deals with the recent events, trying to explain how the economy got into the present situation. In this section it is suggested that the present crisis is basically due to policy inconsistencies. Finally in Section 8 some concluding remarks are offered.

## 2. The Record of Growth: 1974-1981

Between 1974 and 1981 the Chilean economy went through a number of extraordinary changes: inflation was virtually stopped; the fiscal sector was greatly reformed -- with the fiscal deficit being eliminated in 1979 --; import tariffs were reduced, and uniformed; a dynamic financial sector was developed; and a strong overall free market orientation was given to the economy. However, this period was by no means homogeneous in terms of the economy's performance.

Table 1 presents data on real GDP and real per capita GDP between 1970 and 1981. As may be seen, the first two years of the military regime (1974-1975) were characterized by a decline in real per capita GDP. This reduction in economic activity was specially dramatic in 1975 -- GDP per capita declined in 14.4% -- partially as a consequence of the stabilization program (see

Table 1  
Real Gross Domestic Product  
and Real Gross Domestic Product Per Capita  
in Chile: 1970-1981

<u>Year</u>	(1) Real Gross Domestic Product (Billions 1977 US \$)	(2) Rate of Growth of Real GDP (%)	(3) Per Capita Real GDP (1977 US \$)	(4) Rate of Growth of Per Capita Real GDP (%)
1970	13.1	2.1	1403	0.2
1971	14.3	9.0	1502	7.1
1972	14.1	-1.2	1459	-2.9
1973	13.4	-5.6	1355	-7.1
1974	13.5	1.0	1345	-0.7
1975	11.7	-12.9	1152	-14.4
1976	12.2	3.5	1172	1.8
1977	13.4	9.9	1266	8.0
1978	14.5	8.2	1347	6.4
1979	15.7	8.3	1434	6.5
1980	16.8	7.5	1516	5.7
1981	17.7	5.3	1568	3.4

Source: Banco Central de Chile, Cuentas Nacionales 1960-1980.

Section 3 below). On the other hand, in the years 1977 through 1980 extraordinarily high rates of growth of GDP, which averaged 8.5% per year, were achieved. However, as may be seen from Table 1, real per capita GDP only reached its 1971 level in 1980. A crucial question, then, is to what extent these high growth rates were only due to a recovery process, starting from a very low initial level of GDP. As will be argued later (Sections 5 and 6), the increase in the degree of utilization of the capital stock after 1976 accounts for a high proportion of Chile's growth during the period.

Table 2 contains data on sectoral growth. As may be seen, during the initial years of the military government most sectors performed very poorly. Towards the late 1970s, however, there was a marked recuperation of the economy with the commerce and financial services sectors exhibiting the highest rates of growth.

In order to better understand the recent evolution of the Chilean economy it is important to keep in mind that at least four different subperiods can be identified within the military administration. The first subperiod runs from September 1973 to April 1975, where most of the main distortions introduced by the Allende regime were corrected. Inflation, however, maintained its rampant pace. The second period runs from April of 1975 until mid-1976, and corresponds to the main stabilization effort, during which the most important aspects of the fiscal reform -- that eventually eliminated the fiscal deficit -- were implemented.<sup>5</sup> The third period covers the second half of 1976 up to the first half of 1981, and is characterized by the consolidation of most of

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<sup>5</sup>In rigor the process of tax reform began in late 1974. However, only towards mid-1975 its impact was felt in the economy. For an exposition of the main aspects of the reform see Minister Cauas speech, reproduced in Mendez (1979, page 119).

Table 2  
Rate of Growth of Real GDP by Sectors

<u>Sector</u>	<u>1970</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Agriculture and Forestry	3.6%	4.8%	-2.9%	10.4%	-4.9%	5.6%	1.8%	2.2%
Fishery	-5.4	-6.7	33.9	15.4	17.9	14.3	7.5	13.6
Mining	-3.0	-11.3	12.2	2.7	1.6	5.4	5.9	3.6
Manufacturing	2.0	-25.5	6.0	8.5	9.3	7.9	6.2	2.6
Electricity, Gas and Water	5.3	-3.8	5.8	5.8	6.7	6.8	5.9	3.5
Construction	5.5	-26.0	-16.5	-0.9	8.1	23.9	25.7	16.2
Commerce	-1.5	-17.1	2.5	24.8	20.0	11.0	10.8	5.7
Transport and Communication	4.7	-7.7	4.7	10.8	8.4	9.0	11.1	5.4
Financial Services	15.4	-4.2	9.3	14.5	20.2	28.0	22.1	8.5
Services of Dwellings	3.7	1.8	0.7	0.6	0.9	0.5	1.0	1.7
Public Administration	1.5	1.9	5.9	1.8	-3.1	-1.2	-3.3	-1.6
Education	2.6	1.8	-2.3	2.4	2.2	1.9	-0.6	n.a.
Health	3.1	-1.7	4.2	2.7	3.2	5.7	3.1	n.a.
Other Services	1.4	-4.5	3.5	5.7	5.7	6.4	5.6	n.a.

Source: Banco Central de Chile.

the free-market oriented policies, economic recovery, the virtual elimination of inflation, and high rates of growth. Finally, the fourth period -- which will be discussed in Section 7 below -- begins in mid-1981, covering the period up to the time of this writing, and is characterized by a serious recession, higher rates of unemployment, an increase in the rate of inflation, and a reduction of real GDP, in 1982, of approximately 13%.

### 3. Stabilization Policy

Between September of 1973 and April of 1975 economic policy in Chile was mainly directed towards the reorganization of the economy, and the correction of some of the most obvious distortions introduced during the Allende administration. Also, the main economic objectives of the military regime were delineated and defined. During early 1975, most distortions had been corrected -- relative prices had been realigned, a unified exchange rate was established, the balance of payments crisis had been avoided, and government finances had been somewhat straightened. Inflation, however, was still out of control, with the rate of growth of prices reaching 370% in 1974.<sup>6</sup>

In April of 1975 the gradualist anti-inflationary approach followed up to that time was abandoned, and an abrupt stabilization program was implemented. This program -- which was announced by Minister Jorge Cauas the 24th of April, 1975 -- called for a drastic reduction in inflation in one year. The main characteristics of the program were: (a) an across-the-board reduction in government expenditure (between 15% and 25%); (b) a 10%

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<sup>6</sup>All the data on inflation for the 1973-1978 period used in this paper is taken from Cortazar and Marshall (1980), since it is by now generally recognized that the official CPI for this period underestimated price changes. See Harberger (1982).



temporary hike in income taxes; (c) an acceleration of the program of reducing the size of the public sector, which had begun in 1974; and (d) a tight monetary policy.<sup>7</sup>

Table 3 presents some information regarding inflation and stabilization during the 1970s and early 1980s. As may be seen from columns (B), (C) and (D), the main feature of the 1975 stabilization package was a major fiscal shock that resulted in 80% real reduction of the fiscal deficit and, thus, in the reduction of one of the major sources of inflation.<sup>8</sup> This decline in the level of the deficit in 1975 was mainly accomplished by the reduction in government sector expenditures, basically through the reduction of the number of civil servants. It has been estimated that the fiscal crunch resulted in a reduction in government employment by about 80,000 workers, or 2.4% of the labor force (see Edwards, 1980).

As reflected in Table 3 government revenues as a percentage of GDP were also substantially increased in 1975. This was accomplished through a comprehensive tax reform that introduced a flat value-added tax; a full indexation of the tax system; an elimination of most exemptions and subsidies; a unification of the corporation and non-corporation income taxes into a flat-rate business tax, and that integrated the personal and business income taxes. This tax reform not only resulted in higher government tax revenues, but also reduced inefficiencies. In particular the substitution of the old

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<sup>7</sup>In his speech of the 24th of April, 1975, Minister Cauas also stated that the tariff reduction program and the crawling exchange rate policy implemented until then would continue. This speech is reproduced in Mendez (1979).

<sup>8</sup>On the relationship between the fiscal deficit and inflation see Harberger (1978), Harberger and Edwards (1982), McKinnon (1982) and Edwards (1983).

Table 3  
Inflation and Stabilization

Year	(A) Inflation Rate (December/ December)	(B) Government Expenditure 1976		(C) Government Revenue 1976		(D) Fiscal Deficit 1976		(E) Rate of Growth of M1 (December/ December)	(F) Rate of Growth of M2 (December/ December)	(G) Rate of Growth of High- Powered Money	(H) Proportion of Total Credit Received by Government
		Millions of US \$	% GDP	Millions of US \$	% GDP	Millions of US \$	% GDP				
1970	34.9	2806	28.1	2514	25.2	292	2.9				.56
1971	22.1	3475	32.4	2275	21.2	1200	11.2	110	88	200	.69
1972	487.5	3476	32.2	2011	18.7	1447	13.5	157	163	186	.77
1973	605.9	4621	44.7	2076	20.1	2545	24.6	317	473	418	.88
1974	369.2	3536	32.4	2391	21.9	1146	10.5	272	338	223	.85
1975	343.2	2607	27.4	2360	24.8	247	2.6	258	257	256	.85
1976	197.9	2540	25.8	2313	23.5	227	2.3	194	166	287	.75
1977	84.2	2699	24.9	2499	23.1	200	1.9	108	130	114	.59
1978	37.2	2788	23.8	2688	23.0	99	.9	67	91	57	.40
1979	38.0	2928	23.1	3138	24.7	-210	-1.7	65	68	42	.29
1980	31.2	3372	25.0	3448	25.5	-76	-.6	57	57	39	.10
1981	8.9										.02

Sources: Column (A) is taken from INE for years 1970-1972 and 1979-1981, and from Cortazar and Marshall (1980) for 1973-1978. Columns (B) through (D) are taken from Exposicion de la Hacienda Publica, 1981; Columns (E) through (H) are taken from International Financial Statistics.

multiple-rates cascade type sales tax for the flat-rate value added tax, and the elimination of most exemptions, constituted major improvements in the efficiency of the tax system. As may be seen in Table 3 the combination of lower government expenditure and higher revenues, eventually resulted in the elimination of the fiscal deficit.

The stabilization effort of 1975 also relied on a tighter monetary policy. However, as Harberger (1982) has argued, we can hardly say that there was a monetary crunch. While the rate of growth of M1 hardly declined between 1974 and 1975, the rate of growth of high powered money increased between 1974 and 1975, and the annual rate of increase of M2 only declined from 338% in 1974 to 257% in 1975.<sup>9</sup>

The 1975 stabilization program had a quick initial response on inflation, with the rate of growth of prices declining from 69% in the second quarter of 1975 to 26% in the fourth quarter of 1975. However, by early 1976 it seemed that, in spite of the virtual elimination of the major sources of inflation, the rate of growth of prices was regaining its old pace. In the first quarter of 1976 the rate of change of prices was up to 47%. At this time, with the fiscal deficit under control, and a lower rate of growth of money, it was apparent that inflation expectations were the main driving force behind inflation. In June of 1976 the government revalued the Chilean peso in 10%, as a means to break inflationary expectations. From that point on the exchange rate was used as the major stabilization tool. In 1977 a new 10%

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<sup>9</sup>See also Harberger (1981b). Other experts — for example Alejandro Foxley — also agree that there wasn't a monetary crunch in Chile. See Cline and Weintraub (1981, page 233). The main reason why in 1975 we observed a reduction in the fiscal deficit, while credit creation by the Central Bank continued (see Table 3), rests on the fact that government enterprises — which are not part of the Fiscal sector — still ran huge deficits. See Harberger (1982) and Foxley (1981, discussion).

appreciation was implemented, and starting in January 1978 a policy of pre-announced changes of the exchange rate (the so-called "exchange-rate-table") was introduced.

With the trade reform having reduced most import barriers, this system of pre-announced devaluations tended to work in a way similar to a fixed-exchange rate regime, with inflation tending to be, on average, equal to the world rate of inflation plus the rate of devaluation. A crucial aspect of the scheme, then, was that the public would incorporate into their expectations formation process the notion that in an open economy, the domestic rate of inflation depends fundamentally on exchange rate movements and the world inflation. In that sense, the use of the exchange rate as a stabilization policy depended crucially on the credibility (and consistency) of the monetary, fiscal and exchange rate policies packages. Initially, however, the rate of inflation exceeded the sum of the devaluation and world inflation, resulting in a real appreciation of the Chilean peso.<sup>10</sup> In June of 1979, and as a form to further reduce the domestic rate of inflation, the pre-announced devaluation system was ended and a fixed exchange rate, with the peso pegged to the U.S. dollar, at a rate of 39 pesos per dollar, was adopted.

There are several ways in which the stabilization policy affected growth. Its immediate effect (in 1975) was to generate a large reduction in the level of economic activity. The fiscal shock plus the sharp decline in Chile's terms of trade resulted in a reduction of GDP in 1975 of 12.9%, and in

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<sup>10</sup>As Diaz-Alejandro (1981) has pointed out, this initial discrepancy between domestic inflation and the sum of world inflation and devaluation rate has been a common characteristic of the recent Southern Cone Stabilization Programs. For discussions on the pre-announced devaluations system, which was also adopted by Argentina, see Calvo (1981), Blejer and Mathieson (1981) and Djajic (1982).

a steep increase in the rate of unemployment to almost 20% in September of that year. An important question — that remains yet to be answered — is, to what extent this stabilization program was unnecessarily harsh in terms of output reduction? Even though a definitive answer to this question would require additional research, there are some indications that the costs of reducing inflation might have been unnecessarily high. For example, as Díaz Alejandro (1981) has argued, the reduction in public investment during this period added to the costs of the stabilization program. Additionally, the 1976 revaluation of the peso, by having a positive effect on the relative price of nontraded goods, made more difficult the adjustment in this sector. In effect, the revaluation of the peso tended to generate an excess supply in the nontraded goods sector at a time when it was required to reduce the excess supply already created by the decline in the rate of growth of domestic credit.

Even though after 1975 the economy rapidly began to recover, with real GDP reaching its 1974 level in 1977, unemployment remained at extraordinarily high rates. In 1975 the rate of open unemployment (excluding the so-called minimum employment program) was 16.2%; in 1976, 16.7%; in 1977, 13.2%; in 1978, 13.2%; in 1979, 13.2%; in 1980, 11.7%; and in 1981, 10.0%. The persistence of this high rate of unemployment in the presence of rising real wages constitutes one of the most puzzling (and difficult) aspects of the recent Chilean experience. Harberger (1982) has recently argued that this puzzle is partially due to the miscalculation of real wages. In fact he shows that if instead of using the flawed official CPI to compute real wages, the GDP deflator is used, the magnitude of the unemployment-real wages puzzle is

greatly reduced.<sup>11</sup>

While the stabilization effort negatively affected growth in the short-run, there is no doubt that it had an important role in the successful recovery of the economy in the late 1970s. On the one hand, the fiscal package greatly reduced the inefficiency costs of the old tax system. Also by eliminating a number of distortions, and implementing a system where no exemptions were granted, most of the non-productive profit-seeking efforts aimed at benefiting from government regulations, were stopped, with those resources being used in productive activities.<sup>12</sup>

Also, the reduction of inflation by itself resulted in important efficiency gains, over and above those calculated by traditional triangle-type welfare analysis. In fact in an inflationary environment these welfare triangle will only represent a small portion of the costs involved, with the bulk of them being related to the effort and time people invest trying to separate nominal from relative price changes.<sup>13</sup>

Also, as McKinnon (1982) has argued, the early elimination of the fiscal deficit allowed Chile to follow an appropriate order of liberalization of her economy. Only after the fiscal deficit was reduced it was possible to fully liberalize the financial system and to further reduce the existing trade

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<sup>11</sup>Calvo (1982) has suggested that the Chilean unemployment might be of an equilibrium quasi voluntary type. For an analysis of the recent unemployment problem in Chile see Edwards (1980).

<sup>12</sup>On directly unproductive lobbying activities and welfare see Bhagwati (1982).

<sup>13</sup>On this see, for example, Leijonhufvud (1981, Chapters 9 and 10).

Table 4  
Average and Maximum Nominal Import Tariffs  
In Chile: 1973-1981\*

	<u>Nominal Average Tariff Rates</u>	<u>Nominal Maximum Tariff Rates</u>
1973: 2nd Semester	94%	600%
1974: 1st Semester	80%	160%
1974: 2nd Semester	67%	140%
1975: 1st Semester	52%	120%
1975: 2nd Semester	44%	90%
1976: 1st Semester	38%	70%
1976: 2nd Semester	33%	60%
1977: 1st Semester	24%	50%
1977: 2nd Semester	20%	35%
1978: 1st Semester	15%	25%
1978: 2nd Semester	13%	20%
1979: 1st Semester	11%	14%
1979: 2nd Semester	10%	10%

Source: Ministerio de Hacienda.

\*Excluding automobiles.

restrictions.<sup>14</sup>

Finally, the use of the exchange rate as a major stabilization tool also affected growth. In particular, the adoption of a fixed exchange rate — where the peso was pegged to the U.S. dollar — in June of 1979 resulted in a large real revaluation of the peso, that strongly reduced the degree of competitiveness of tradable goods sectors, harming growth possibilities.<sup>15</sup> As it will be argued in Section 7 the combination of a fixed exchange rate, fixed, or increasing, real wages (by law), and a huge increase in foreign indebtedness in 1980–1981 can explain, to a large extent, the recession (depression) of 1982.

#### 4. Trade Policy and Sectoral Growth

One of the most dramatic policy measures undertaken in Chile during the recent military regime, that greatly affected the pattern of growth, was the opening of international trade. In a five-year period all quantitative impediments to trade were eliminated and import tariffs were reduced from an average of 100%, to a uniform 10% level (see Table 4).<sup>16</sup>

This tariff reduction process took place in two stages. The first part was carried out within the framework of the Andean Common Market (Pacto

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<sup>14</sup>According to McKinnon (1982, p. 169), "...this remarkable fiscal performance [in Chile] made possible the success of the financial policies -- the freeing of interest rates, the reduction of reserves requirements, and the eventual adoption of a fixed exchange rate -- that allowed Chile to achieve a strong real growth..."

<sup>15</sup>As argued above, the appreciation of the peso was the result of the liberalization of the capital account with a fixed nominal exchange rate. See Munoz (1982) for a similar argument.

<sup>16</sup>At the time of this writing, however, temporary hikes in import tariffs have been granted to over 20 products. It is not clear what long run effect this measure will have on Chile's commercial policy.



Table 5  
Average Nominal Tariffs  
in Some Manufacturing Sectors: 1975-1979

Sector	1975	1976	1977	1978	1979
Food, Beverages, Tobacco, Textiles and Leather Products	74%	42%	22%	14%	10%
Timber, Furniture and Paper Products	68%	40%	22%	14%	10%
Non-Metallic Mineral Products	62%	35%	22%	14%	10%
Basic Metallic Industries	38%	30%	22%	14%	10%
Chemicals and Derivatives of Oil, Coal and Rubber	58%	41%	22%	14%	10%
Metallic and Metallurgical Industries*	73%	48%	22%	14%	10%

Source: Computed from data presented in Pollack.

\*Excludes the automobile sector.

Andino), and tariffs were reduced to a range going from 10% to 55%. The second stage began with Chile's withdrawal from the Andean Pact. In early 1977 the Minister of Finance announced that the trade liberalization process was to be intensified, and that with a few exceptions -- the most notable being automobiles -- by the end of 1979 import tariffs on all goods were to be equal to 10%.<sup>17</sup>

Tables 5 and 6 contain information on the evolution of import tariffs by sectors between 1975 and 1979. Table 5 displays the path of nominal tariffs for a group of manufacturing sectors between 1975 and 1979, while in Table 6 some estimates of the effective rates of protection in 1975 and 1979 are presented. As may be seen, while in 1975 the dispersion of nominal sectoral tariffs was moderate -- with the exception of Basic Metallic Industries, the average tariffs ranged from 58% to 74% -- the dispersion of the effective rates of protection was extremely high.<sup>18</sup>

During its early part, the tariff reduction process was complemented with an exchange rate policy aimed at maintaining -- or even increasing -- the real exchange rate. The purpose of this policy was to compensate the loss of competitiveness in the import substitution sectors, resulting from the tariffs reductions. However, as discussed in Section 3, towards mid-1976 the rate of change of the exchange rate became one of the major stabilization tools, with the rate of devaluation being deliberately kept below the on-going domestic

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<sup>17</sup>Sjaastad (1982) has suggested that this second stage of the trade liberalization program -- the reduction of tariffs to a uniform 10% -- was the result of pressures by some groups in the private sector. For an analysis of the trade liberalization process see Sjaastad and Cortez (1982). See also French-Davis (1981) and Vergara (1981).

<sup>18</sup>The standard deviation of nominal tariffs was in 1975, 13.4%, while for effective tariffs it was 51%.

inflation. This policy generated an important decline in the real value of the peso. Between 1975 and 1976 the real exchange rate — computed using Chile's and the U.S. GDP deflators — declined 20%, and between 1976 and 1977 it further declined 14% (see Harberger 1981). This reduction of the real exchange rate was accentuated after June of 1979 — when a fixed nominal rate was adopted —, further reducing the degree of competitiveness of the tradeables goods sector. It is fair to say, then, that while the exchange rate policy had a direct positive impact on growth in the early period — basically by smoothing the transition from high to low tariffs — it did not help economic performance in the later years.<sup>19</sup> This subject is further discussed in Section 7 where the recent events that led to the 1982 recession, are analyzed.

The tariff reduction process, and the accompanying exchange rate policy, greatly affected the structure of production and growth in Chile. The major beneficiaries of this process were, at least initially, non-traditional (or non-copper) exports, which experienced a sharp increase, growing from 11% of total exports in 1970 to 34% in 1980.<sup>20</sup>

Surprisingly, the tariff reduction process did not have a very large impact on the manufacturing sector as a whole, whose share in GDP was only reduced from 24.3% in 1965-1970 to 21.5% in 1980 (see Table 7). However, the structure of production within the manufacturing sector was greatly affected. Those industries that had traditionally had a very high level of

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<sup>19</sup>This real appreciation effect has also been discussed by Diaz-Alejandro (1981) in the general context of Southern-Cone stabilization programs. See also Edwards (1982d) and Munoz (1982).

<sup>20</sup>The increase in non-traditional exports during the initial stages of a liberalization has been observed in a number of countries. See, for example, Krueger (1978).

Table 6  
Effective Rates of Protection  
in Some Sectors: 1975 and 1979

<u>Sector</u>	<u>Effective Tariff</u> <u>in 1975</u>	<u>Effective Tariff</u> <u>in 1979</u>
Agriculture, Forestry & Fishery	-35.9%	10.0%
Food, Beverages, Tobacco, Textiles and Leather	72.1%	10.0%
Timber, Furniture and Paper Products	11.0%	10.0%
Non-Metallic Mineral Products	-37.9%	10.0%
Basic Metallic Industries	38.0%	10.0%
Chemicals and Derivatives of Coal, Oil and Rubber	47.3%	10.0%
Metallic and Metallurgical Industries	95.2%	10.0%

Source: Edwards (1977).

Table 7  
Composition of Real Gross Domestic Product  
by Productive Sector: 1970-1981

<u>Sector</u>	<u>1970</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Agriculture & Forestry	6.5	6.3	8.1	9.3	7.0	6.7	6.9	7.3
Fishery	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.6
Mining	8.8	10.4	10.2	8.1	7.4	9.8	8.7	7.1
Manufacturing	25.4	20.3	23.3	21.7	22.4	21.2	21.5	21.0
Electricity, Gas & Water	2.0	2.1	2.3	2.3	2.0	2.0	2.1	2.1
Construction	5.1	5.4	4.3	4.1	4.2	4.3	5.3	6.0
Commerce	18.6	17.3	15.1	15.6	16.5	16.7	16.1	18.3
Transportation and Communications	5.2	5.7	4.9	5.3	5.5	5.2	4.8	5.6
Financial Services	5.2	6.2	6.1	6.3	7.0	8.1	9.8	9.7
Services of Dwellings	5.5	8.3	7.4	7.1	7.9	7.4	7.4	5.6
Public Administration	5.6	6.2	6.0	6.4	5.7	5.5	5.2	4.4
Education	4.1	4.2	4.0	4.6	4.5	4.1	4.1	4.4
Health	3.3	3.0	3.0	3.2	3.2	3.0	3.0	n.a.
Other Services	3.0	3.6	3.7	3.8	3.9	3.9	4.2	n.a.
Minus: Imputed Banking Costs	-1.9	-3.0	-2.6	-3.2	-2.9	-4.0	-5.2	n.a.
Plus: Imports Taxes	3.3	3.7	3.8	4.9	5.1	5.5	5.6	n.a.
GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Cuentas Nacionales de Chile, Banco Central de Chile (1981).

Table 8  
Index of Manufacturing Production  
1970, 1975 and 1980\*  
(1968 = 100)

<u>Sector</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>
20 Food	99.6	102.3	115.8
21 Beverages	91.1	87.2	152.9
22 Tobacco	97.7	120.8	155.8
23 Textiles	96.0	62.4	60.7
24 Shoes	104.8	86.8	84.4
25 Timber Products	108.1	54.4	99.7
26 Furniture	113.4	61.8	127.7
27 Paper Products	88.3	101.0	141.7
28 Publishing	109.5	55.6	65.9
29 Leather Products	103.9	70.6	45.8
30 Rubber Products	111.0	35.8	86.1
31 Chemicals	120.9	79.7	141.8
32 Derivatives of Oil and Rubber	105.4	110.9	136.7
33 Non-Metallic Minerals	102.9	76.1	122.2
34 Metallic Industries	108.7	119.8	160.5
35 Metallic Industries except Transport	98.6	59.7	99.9
36 Machinery	94.2	77.4	110.1
37 Electrical Products	99.5	75.8	131.6
38 Transportation Equipment	127.0	50.0	138.3
39 Rest of Manufacturing	81.0	63.6	73.7
General Index	104.0	81.2	115.0

Source: Instituto Nacional de Estadística.

\*Annual averages.

protection, experienced large output losses, with many firms closing as a consequence of bankruptcy. (See French-Davis, 1981; and Vergara, 1981.) As may be seen from Table 8, seven out of the 20 manufacturing sub-sectors had a lower level of production in 1980 than in 1970. Some of these sectors — especially textiles and leather goods — had only been able to survive up to the mid-1970s thanks to the high protective tariffs that had been granted to their products. On the other hand, the industries that experienced an increase in production during the 1970s achieved this by greatly increasing the level of efficiency, introducing new technologies and adopting modern management systems. Table 9 presents some data on employment and productivity, by sectors, in 1976 and 1980. As may be seen the manufacturing sector as a whole experienced an important increase in productivity. Other sectors where efficiency was substantially increased were commerce and financial services.

The trade liberalization process also had an important impact on agriculture production. The traditional negative effective protection that this sector had had was eliminated, and the fairly high real exchange rate that prevailed during 1975-1979 promoted a number of non-traditional agricultural exports.<sup>21</sup> While the share of the agricultural sector in GDP remained basically constant (it was 6.5% in 1965-1970 and 7.0% in 1978-1981), there were major changes in the composition of production, with resources tending to move away from the so-called "traditional products" towards export oriented crops. For example, between 1977 and 1980 total surface planted with fruit trees increased by 24%, with total fruit exports increased from 84

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<sup>21</sup>Notice, however, that theoretically (in a world with more than two goods) it is not possible to know if the increase of effective protection in a particular sector will result in an increase in production in that sector.

million dollars to 182 million dollars. On the other hand cereals production was substantially reduced during the period.<sup>22</sup>

In general, the change in the structure of production between 1970 and 1980 was largely due to the process of tariff reduction. However, other policy measures, like the creation of the domestic capital market, also affected the composition of GDP. As may be seen from Tables 2 and 7, the sectors that on average grew faster between 1976 and 1981 were Commerce and Financial services. The fast growth of the first was basically due to the change in orientation of the economy towards an open free-market system. As the number and variety of goods available for consumption increased, so did the number of shopping centers, department stores, and small shops. On the other hand, the financial services sector grew as a result of the financial reform that liberalized interest rates, reduced the regulations to the banking sector, and allowed the establishment of foreign banks.

A subject that has been extensively debated in Chile is the extent to which the process of tariff reductions "contributed" to the unemployment problem. Elsewhere, (Edwards, 1982a), I have developed a model, that assumes short-run factor specificity and sticky real wages, to analyze the short run unemployment effects of the tariff reform. The results from this study indicate that an upper bound for the unemployment effect of this reform is 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 sub-sectors (57,000 people). Even though this is not a negligible number, it does indicate that an explanation for the bulk of the unemployment

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<sup>22</sup>The lack of adequate data makes it particularly difficult to evaluate the overall performance of the agricultural sector during this period. See, for example, the discussion in Jarvis (1981).



Table 9

Employment and Productivity by Economic Sector:

	1976 and 1980					
	1976			1980		
	Employment (1,000 people)	<u>Employment</u> Total	Value Added/ Worker Millions US \$	Employment (1,000 people)	<u>Employment</u> Total	Value Added/ Worker Millions US \$
Agriculture	500.3	18.0%	2.4	499.9	15.8%	2.7
Mining	73.2	2.6%	14.3	66.6	2.1%	18.3
Manufacturing	467.7	16.8%	5.7	511.5	16.1%	7.1
Public Utilities	28.5	1.0%	10.0	24.0	0.8%	9.3
Construction	103.9	3.7%	5.3	142.6	4.5%	6.4
Commerce	439.9	15.8%	3.8	580.0	18.3%	5.3
Transport	172.2	6.2%	3.7	199.6	6.3%	4.7
Financial Services	63.6	2.3%	11.6	98.2	3.1%	16.1
Communal Services	921.2	33.1%	n.a.	1040.8	32.8%	n.a.
Other Sources	8.7	0.3%	n.a.	6.3	0.2%	n.a.
Total	2779.2	100.0%	n.a.	3169.5	100.0%	n.a.

Sources: Banco Central de Chile and Instituto Nacional de Estadísticas.

should be sought elsewhere.

Summarizing, it is possible to state that the trade reform had a major impact on growth and the structure of production in Chile. Resources were reallocated towards competitive sectors and the level of efficiency in the tradables goods sector was greatly improved. Even though this process raised unemployment in the short run, its medium to long-run effects tended to increase production and employment.<sup>23</sup>

##### 5. Financial Policy, Savings and Investments

A major ingredient of the military economic program was the liberalization of the domestic financial sector. Until 1973 the domestic capital market was highly repressed, with most banks being government owned, negative real interest rates, and quantitative restrictions on credit. The liberalization process began slowly in 1975, by freeing interest rates, and relaxing some restrictions on the banking sector.<sup>24</sup> International capital movements, however, were still strictly controlled. In April of 1980, some of the restrictions for long run capital movement were lifted. Short term capital inflows, however, were virtually forbidden throughout 1975-1982. (See French-Davis and Arellano, 1981).

One of the most puzzling characteristics of the behavior of the financial markets between 1977 and 1982 has been the extremely high real interest rates that prevailed throughout most of the period. These real rates, which

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<sup>23</sup>Using a simulation model Coeymans (1978) has estimated that in the medium run the tariff reduction process had a positive effect on employment and expenditure.

<sup>24</sup>However, according to international standards, the banking sector was still highly repressed. By the end of 1974, for example, the effective rate of required bank reserves was 66%!

Table 10  
Interest Rates, Inflation, Money and Exchange Rates  
In Chile: Quarterly Data 1977-1981

	(1) Nominal Borrowing Interest Annual Rate %	(2) Annualized Inflation Rate %	(3) Quantity of Money (M3) 1978-1=100	(4) Libor Interest Rate %	(5) Exchange Rate %
1977-1	124.6	100.1			18.5
1972-2	83.6	59.2			19.4
1977-3	70.8	54.3			22.3
1977-4	99.8	45.4			26.0
1978-1	70.7	32.7	100.00	7.7	29.1
1978-2	55.6	30.6	108.2	8.5	31.2
1978-3	55.5	38.2	113.2	9.3	32.7
1978-4	70.0	20.5	126.2	12.0	33.5
1979-1	47.3	30.2	147.0	10.7	34.7
1979-2	44.1	35.1	149.6	10.7	36.3
1979-3	42.7	62.0	152.8	12.0	39.0
1979-4	46.1	30.9	163.6	14.6	39.0
1980-1	52.0	31.4	187.6	17.0	39.0
1980-2	32.7	30.7	195.1	11.3	39.0
1980-3	31.8	28.6	208.4	12.2	39.0
1980-4	34.2	34.4	217.9	16.2	39.0
1981-1	45.0	11.5	249.4	16.5	39.0
1981-2	40.9	11.1	273.2	17.2	39.0
1981-3	38.8	11.6	297.9	18.5	39.0
1981-4	42.58	4.2	309.3	14.8	39.0

Source: Banco Central de Chile

Table 11

Short-Term Real Lending Interest Rates

In Chile: 1978-1981

Annualized)

%

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
January	87.76	40.76	30.30	20.41	48.67
February	44.25	34.80	30.61	51.28	71.74
March	19.14	12.68	11.09	38.64	41.09
April	2.55	13.49	8.99	27.57	46.61
May	53.93	20.84	7.96	25.48	57.54
June	34.02	22.42	13.62	56.63	53.38
July	4.66	5.91	12.42	48.16	34.49
August	21.27	-8.53	8.47	30.15	
September	18.58	-0.24	8.86	29.08	
October	59.55	17.74	-1.79	42.91	
November	67.07	24.31	1.94	46.27	
December	36.07	28.02	18.86	54.65	

Source: Banco Central de Chile

averaged above 30% per annum for long periods of time, remained high despite the major rise in total credit, and the increase in capital inflows in 1981. Tables 10 through 12 present some summary statistics of the behavior of the financial sector. As may be seen, with the exception of July-September 1979 and August-November 1980, real rates of interest were extremely high. Table 10 also shows is the large differential between the domestic nominal interest rates [column (1)] and international nominal rate [column (4)].<sup>25</sup>

What is most surprising, however, is that the liberalization of the domestic financial market, and the existence, for the first time in a long period of time, of positive real interest rates, did not result in an increase in domestic savings. In fact not only domestic savings did not increase but they were at one of the lowest historical levels.<sup>26</sup> On the other hand, gross domestic investment was also remarkably low during the period, with public sector investment being at one of its lowest levels. As may be seen in Table 13 only in 1980 did gross domestic investment surpass 20% of GDP.

Since domestic savings were very low, gross capital formation was increasingly financed by foreign savings. In 1980, for example, foreign savings were equal to 8.5% of GDP, while in 1981 they rose to 14.5% of GDP, representing 66% of total gross domestic investment (see Table 13). The current account deficits associated with these high levels of foreign saving

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<sup>25</sup>However, the existence of financial, exchange rate and country-risk premia can help explain these differentials. Sjaastad (1982) has recently argued that the existence of transaction costs constitute the main explanation to these interest rate differentials.

<sup>26</sup>Harberger (1982) suggests that this apparent paradox can be explained by recognizing that due to the asset revaluations households increased their wealth without actually saving from a national accounts point of view. Even though this is a plausible explanation, it seems to me that it is not fully capable of explaining the low levels of domestic savings.

Table 12  
Indexes of Real Liquidity in Chile:  
Quarterly Data 1978-1981  
(1977.4 = 100)

	<u>High-Powered Money</u>	<u>M1</u>	<u>M3</u>	<u>Total Credit</u>
1978.1	102.2	117.8	110.5	106.2
1978.2	101.2	108.8	116.7	113.4
1978.3	106.5	110.5	122.4	119.5
1978.4	115.2	120.7	139.2	128.6
1979.1	116.4	132.0	157.2	161.1
1979.2	112.9	128.6	157.8	171.9
1979.3	109.5	130.1	162.2	179.0
1979.4	120.2	138.0	190.9	200.7
1980.1	107.6	145.5	198.8	210.5
1980.2	121.4	155.5	208.8	233.7
1980.3	122.2	156.8	223.3	260.5
1980.4	126.0	174.4	237.6	290.1
1981.1	111.0	171.1	274.1	325.1
1981.2	109.7	166.0	294.7	363.3
1981.3	105.4	165.7	321.6	385.5
1981.4	99.3	173.0	319.0	

Source: Banco Central de Chile.

Table 13  
Investment and Savings in Chile

<u>Year</u>	<u>(Gross Domestic Investment/ GDP)</u> %	<u>(Gross Capital Formation on Fixed Capital/GDP)</u> %	<u>Depreciation/ GDP</u> %	<u>(Net Domestic Savings/ GDP)</u> %	<u>(Gross Domestic Savings/ GDP)</u> %	<u>Foreign Savings/ GDP)</u> %
1970	23.4	20.4	11.0	10.6	21.6	1.7
1971	20.8	18.3	11.9	6.0	17.8	2.9
1972	15.2	14.8	10.4	(0.1)	10.4	4.8
1973	14.3	14.7	19.2	(9.7)	9.5	4.8
1974	25.8	17.4	11.8	13.5	25.3	0.5
1975	14.0	15.4	15.7	(7.2)	8.5	5.6
1976	13.6	12.7	14.1	1.4	15.4	(1.9)
1977	14.4	13.3	11.7	(1.0)	10.7	3.7
1981	16.5	14.5	10.5	1.1	11.6	4.8
1979	19.6	15.6	11.0	2.7	13.7	5.9
1980	23.9	17.8	11.4	4.1	15.5	8.5
1981	22.0	18.5	n.a.	n.a.	7.5	14.5

Source: Banco Central de Chile.

were financed with massive medium-term loans (with an average maturity of 5.5 years) obtained in the Euro-currencies market. In 1980, this high inflow of capital began to generate a serious foreign indebtedness problem. In 1981 total foreign debt increased in almost 50% (from 10.987 million dollars to 15.546 million dollars) reaching 50% of GDP. Moreover, in that year the net foreign debt (which subtracts international reserves from the gross debt) increased by 51% (see Edwards, 1982b).

Even though the times when it was thought that capital was the only source of growth are long gone, the very modest level of capital accumulation in 1977-1980 makes one wonder how did Chile manage to grow so fast between 1977 and 1981 with such a modest level of investment.<sup>27</sup> The answer to this question rests primarily on the degree of capital utilization.<sup>28</sup> Computations made by Schmidt-Hebbel (1981) indicate that in 1975 there was an important decline in the degree of capital utilization (between 7% and 13%), while in the subsequent years the degree to which capital was used increased substantially (see Table 14).

In general, it is my impression that Chile's inability to increase domestic savings and gross domestic investment indicated, from the early years

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<sup>27</sup>As may be seen in column (1) of Table 14 in 1980 and 1981 gross domestic investment was fairly high compared to historical standards. In these two years, however, inventories accumulation was extremely high. If instead of total capital formation we look at investment in fixed capital [column (2)] we can see that the figures are significantly lower, and still below the historical average.

<sup>28</sup>It is important to note, however, that the concept "capital-utilization" is a very tricky one. For this reason it would be preferable to use the concept "normal capital utilization" instead of the common (and misleading) concept of "full capital utilization". The normal (or natural) level of capital utilization is defined as that achieved when there are no major frictions in the economy. As a consequence of this definition actual capital utilization can be either above normal capacity or below normal capacity.



of the military regime, that the rate of growth of the economy could not be consistently high for a long period of time (see Edwards, 1977b). The puzzle that remains, however, is why didn't savings increase in the presence of the incredibly high real rates of interest? With respect to this, Harberger (1982) has suggested that this apparent paradox can be explained by recognizing that due to assets revaluations, households increased their wealth, without having, from a national accounts point of view, high savings.

#### 6. A Note on the Sources of Growth in Chile: 1976-1980

A thorough study of the sources of growth in Chile during the military regime, would require information that is not readily available. For this reason, in this section I only present a brief discussion on the subject, presenting some rough preliminary estimates.<sup>29</sup>

Any accounting study of the sources of growth in Chile in the recent period faces two basic problems: First, it should incorporate the effects on growth of the efficiency gains associated with the resource reallocation process generated by the liberalization of the economy.<sup>30</sup> Second, it should take into account the changes in the degree of capital utilization observed throughout this period.

With respect to the resource reallocation effect, some studies have attempted to estimate the (static) welfare gains resulting from a reduction,

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<sup>29</sup>There are a number of studies on the sources of growth in Chile before 1970. See, for example, Harberger and Selowsky (1966), Elias (1978) and Schmidt-Hebbel (1981). Most of these studies suggest that improvement in the quality of labor made important contributions to growth. This evidence is also supported by research by Selowsky (1968) and Selowsky and Taylor (1973).

<sup>30</sup>Accounting studies of the sources of growth not always incorporate this resource reallocation effect. Some exceptions are Robinson (1971) and Denison and Chung (1976).

or total elimination, of distortions in Chile. More than twenty years ago, Harberger (1959) estimated that the elimination of all distortions would result in a static increase in Chile's national welfare of about 15% of national income. He also indicated that this static effect would result in a higher rate of growth of 1 to 2 percentage points per year, for a limited period of time.

Coeymans (1978), has recently estimated that the tariff liberalization process would result in a static improvement of Chile's welfare of around 3% of national income. Schmidt-Hebbel (1981), on the other hand, estimated that the recent liberalizations policies (both trade and others) would result in a static increase in welfare of 10% of income. He also suggests that this welfare improvement would be spread through 10 years, contributing a 1 percentage point per annum to the growth rate during this period.

In computing the welfare gains from the liberalization process, all of these studies assume that no resources are being used to obtain -- and maintain -- these distortions. However, to the extent that economic agents engage in directly unproductive profit-seeking activities in order to obtain the benefits from government imposed distortions, the welfare losses related to them will tend to exceed the traditional estimates (see Bhagwati, 1982). As Krueger (1974, p. 302) has indicated, "...[when]people compete for the rents...there is a deadweight loss associated with that competition over and above the traditional triangle." Then, to the extent that this competition for rents takes place -- as was certainly the case in Chile -- the static estimates of the welfare gains by Coeymans (1978) and Schmidt-Hebbel (1981), could be an underestimation of the real gains associated with the opening and

liberalization of the economy.<sup>31</sup>

The exact computation of total welfare gains resulting from the liberalization of Chile's economy is beyond the scope of the present paper. However, it is my judgment that the reallocation process had a non-trivial impact on growth between 1977 and 1980. Specifically, Schmidt-Hebbel's (1981) estimate can be considered as a conservative lower-bound for this static efficiency gain, with a figure around 12% to 14% of income probably being more correct.<sup>32</sup>

The second problem that has to be faced in the discussion of the recent sources of growth in Chile is the degree of capital utilization. Schmidt-Hebbel (1981) has estimated three alternative series of capital utilization for this period (see Table 14). All of them indicate a sharp decline in the rate of use of capital in 1975 — ranging from 6.7% to 13.4% — with a subsequent recuperation between 1976 and 1979. While two of his series indicate that in 1979 the degree of capital utilization was still below that of 1974, the third one suggests that already in 1977 the rate of use of the capital stock had reached its 1974 level. From the analysis of the evolution of total GDP and GDP by sectors during this period, it seems that the most appropriate of Schmidt-Hebbel's estimations is the third one (Index III in Table 14). It should be noted, however, that these estimates should only be considered as providing a first order of approximation, since they ignore the effect of obsolescence of the capital stock, resulting from the change in

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<sup>31</sup>It is important to note that from a theoretical point of view, in a second best world the reduction (or even elimination) of some distortions may result in welfare losses. See for example Bhagwati and Srinivasan (1980).

<sup>32</sup>The reason for this is, as already argued, that this estimate ignores the Krueger-type additional welfare costs of distortions.

Table 14  
Alternative Measures of Capital Utilization

	<u>S-H</u> <u>Index I</u>		<u>S-H</u> <u>Index II</u>		<u>S-H</u> <u>Index III</u>	
	<u>Index</u>	<u>Δ%</u>	<u>Index</u>	<u>Δ%</u>	<u>Index</u>	<u>Δ%</u>
1974	80.12	--	79.21	--	77.28	--
1975	71.07	-11.3	73.89	-6.7	66.90	-13.4
1976	72.54	2.1	69.57	-5.8	72.76	8.8
1977	75.03	3.4	71.49	2.8	77.26	6.2
1978	75.74	0.9	72.75	1.8	78.08	1.1
1979	76.82	1.4	74.25	2.1	78.89	1.0

Source: Schmidt-Hebbel (1981).

relative prices and productive structure.

These estimates, then, tend to indicate that changes in the rate of capital utilization played an important role during the recent (1977-1980) growth process. Furthermore, as has been argued above, this change in capacity utilization constitutes a crucial step, in the understanding of Chile's extraordinarily high rates of growth in the late 1970s.

In order to obtain some feeling on the importance of some of the sources of growth during this period, I computed the contributions to growth of changes in the stock of physical capital and changes in employment. If it is true that changes in the degree of capital utilization and efficiency improvements made important contributions to growth during the period, we would expect that the residuals obtained from this exercise would be very large — that is, larger than the residuals obtained in these type of computations for Chile before 1970. Table 15 shows estimates of the stock of capital between 1970 and 1981. These figures were computed using the infinite inventory technique suggested by Harberger (1978b) and data from the new National Accounts. Table 16, on the other hand, shows the contribution to growth, of changes in the quantities of capital and labor between 1975 and 1979. In these computations labor was assigned a share of 52% of GDP, while capital was assigned a 48% share.<sup>33</sup> The data on changes in the stock of capital were taken from Table 15, and the data on the evolution of employment was obtained from Edwards (1980).

Column (4) in Table 16 shows the "residual" obtained after having taken into account the contributions of the quantities of capital and labor to

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<sup>33</sup>Between 1970 and 1980 labor's share in GDP was 52.9% with capital having a 47.1% share.

Table 15

Stock of Reproducible Capital: 1970-1981  
(Millions of 1977 US \$)

<u>Year</u>	<u>Stock of Capital</u>			<u>Total</u>
	<u>Equipment and Machinery</u>	<u>Building and Construction</u>	<u>Inventories</u>	
1970	7551	25797	1733	35081
1971	7763	26957	2885	37608
1972	7769	27750	2141	37660
1973	7846	28325	2088	38259
1974	7863	29316	3220	40399
1975	7878	29749	3057	40684
1976	7830	29966	3165	40961
1977	7997	30203	3312	41512
1978	8327	30568	3601	42496
1979	8774	31133	4231	44138
1980	9422	31993	5268	46683

Table 16

Contribution of the Quantity of Capital  
and Labor to Growth in Chile 1975-1979

	(1)	(2)	(3)	(4)
	<u>Actual Rate of Growth of GDP</u>	<u>Contribution of Changes in the Quantity of Capital</u>	<u>Contribution of Changes in the Quantity of Labor</u>	<u>"Grand" Residual (1)-(2)-(3)</u>
1975	-12.90	-3.74	.34	-9.50
1976	3.50	1.30	.34	1.86
1977	9.90	3.80	.62	5.48
1978	8.20	1.40	1.15	5.65
1979	8.30	1.14	1.87	5.29
1980	7.50	3.17	2.78	1.55

growth. As expected, these residuals are very high -- indeed much higher than those obtained in earlier accounting studies on the sources of growth in Chile -- indicating that during the recent period factors other than changes in the quantities of capital and labor played an important role in growth. As I have argued, the most plausible variables are efficiency gains and change in the degree of capital utilization. Indeed, if we assume that between 1976 and 1979 the resource reallocation process contributed with 1.5 percentage points to annual growth, and we use Schmidt-Hebbel's estimates of the degree of capital utilization (Index III) these residuals are greatly reduced.

#### 7. Recent Developments

By mid-1981 it became apparent that the high rates of growth experienced during the previous years were coming to an end.

The second half of 1981 was characterized by extraordinarily high real interest rates -- which reached 40% towards the end of the year --; by a huge current account deficit, amounting to almost 15% of GDP; rising unemployment, and a dramatic reduction in the level of economic activity. On the positive side, inflation was only 9% that year. By mid-1982, on the other hand, unemployment was above 25%, and the most optimistic estimates predicted a decline of real GDP of 10 to 13 percent for the year. The question then, is: what went wrong?

Without attempting to provide a complete explanation of the recent (1981-1982) behavior of the Chilean economy, I will argue that the recent Chilean crisis was basically (but not exclusively) triggered by policy



inconsistencies.<sup>34</sup> In particular the exchange rate policy -- that in June of 1979 had fixed the peso to the dollar -- and the wage rate policy -- which precluded, by law, any adjustment in real wages -- became highly inconsistent by mid-1981. As has been suggested by Corbo and Edwards (1981), Sjaastad (1982), and Barandiaran et al. (1982), these policies amounted to imposing two numeraires, which by mid-1981 became highly incompatible, triggering the present crisis.

One of the main causes of the recent recession is the large real appreciation of the peso between 1979 and 1981, which negatively affected the degree of competitiveness of the tradables goods sector, and which was highly inconsistent with a rising (or even constant) real wage rate. As Table 17 shows between the third quarter of 1979 and the first quarter of 1982 the real value of the peso appreciated by 27% with respect to a basket of currencies.

Several explanations have been offered for the real appreciation of the peso, ranging from the behavior of the U.S. dollar, to the so-called Balassa effect.<sup>35</sup> The most plausible of these explanations, which clearly points out the inconsistency between the wage rate and exchange rate policies, is related to the effects of the large increase of capital inflows that took place in 1980 and 1981.<sup>36</sup> The argument here is the following: At some point (April 1980) important restrictions to capital movements were lifted, generating an

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<sup>34</sup>Of course the world recession had a negative impact on growth in Chile. However, the world situation can hardly explain the magnitude of the Chilean crisis.

<sup>35</sup>See, for example, Sjaastad (1982) and Edwards (1982c). The appreciation of the U.S. dollar accounts for 10 points of the appreciation of the peso.

<sup>36</sup>See, for example, Harberger (1982) and Edwards (1982d). See also Corbo (1982).

increase in the level of foreign borrowing and allowing the economy to substantially increase real expenditure above real income. The main mechanism through which this took place was the reduction of real interest rates, which went from 14% in the first quarter of 1980 to 2.5% in the third quarter of that year. Part of the increase in expenditure fell on tradable goods, with part falling on non-tradables, preassuring their relative prices upwards and, thus, generating a real appreciation of the peso.

At some point, however, the level of capital inflows, which had almost reached 15% of GNP in 1981, had to be reduced to a new post-liberalization level. Now, expenditures fell, and in order to maintain equilibrium in the non-tradables goods sector their relative price had to fall. Since the exchange rate, and thus the price of tradable goods were given, the adjustment in the relative price of non-tradable goods had to take place through a reduction of their nominal prices, and consequently, of real wages. The problem, however, was that in Chile, due to the wage rate policy, real wages couldn't go down (by law), making the adjustment of non-tradable goods prices almost impossible. Since prices didn't give up, quantities did, with the adjustment taking place through a reduction of the level of activity and employment.

A natural way to solve this problem would have been to devalue the Chilean peso. However, again due to the wage rate policy, it was not clear to what extent this measure would have succeeded (see the discussion in Harberger, 1982 and Edwards 1982d). In June of 1982, the government finally decided to follow an active policy, abandoning the so-called "automatic-adjustment" view, reforming the wage law and devaluing the peso in 18%. However, the amount of this devaluation was too little, and it came too late. Subsequent to the devaluation the peso was freed, being allowed to

float, and exchange-control measures were imposed. This (semi) floating exchange rate system, which was basically aimed at regaining the control of the nominal quantity of money as a policy tool by the economic authority, has been in effect until the time of this writing, but has been unable to stop, or even reduce, the speculative attacks against the peso. As a result of these attacks, substantial losses in the level of international reserves held by the Central Bank were observed during the second half of 1982.

Also, the very high real rates of interest that prevailed during the period had a devastating effect on the economy, particularly affecting the construction sector. As has been noted by a number of observers (Harberger, 1982, Sjaastad 1982, Calvo 1982) the behavior of interest rates constitute one of the major puzzles of the recent Chilean experience. At the present time I don't have a solution to the puzzle; however, I believe that any analysis that attempts to deal with this problem (interest rates behavior in 1981-1982) should at least recognize the following elements (see Edwards 1982a):

- (a) An important increase in the demand for credit, triggered during 1980 and the first half of 1981 by an increase in perceived wealth and permanent income. This higher demand for credit was directed both towards investment projects and to an increase in consumption. Towards the end of 1981 the demand for credit continued to grow. However, this time it was essentially a demand by firms that expected to avoid bankruptcy (see Barandiaran, et al., 1982).
- (b) A continuous increase in the expectations of devaluation, stemming from the decline in the real exchange rate during 1979-1981 (see Harberger 1981 for a discussion of the real exchange rate in Chile). The higher current account deficit of 1981, the low rate of domestic savings, and the increase of foreign indebtedness, also helped to increase these expectations.
- (c) An increase in the world interest rate, that affected the effective cost at which Chile could borrow abroad. Between the first quarter of 1979 and the third quarter of 1981 the nominal Libor rate increased from 10.7% to 18.5%.
- (d) The existence of transaction costs that posed obstacles to arbitrage (this point has been stressed by Sjaastad (1982)).

- (e) An increase in the country risk premium attached by the international financial community to Chile. This increase in the country risk premium was basically the result of the rapid growth of the foreign debt, and the extremely low level of investment. Also, the collapse of a major conglomerate (Grupo Crav) and some banks during 1981, forced foreign banks to reassess their risk perception of Chilean borrowers.

Finally, it should be mentioned that an important aspect of the recent crisis is the existence of a very large number of bad loans in the portfolios of the banking sector. The level of unpaid loans was so high in early 1982 that the government decided to "buy" them from the banking sector and thus, de facto avoiding a major banking collapse. It is clear that the lack of appropriate regulations in the capital market is to be held largely responsible for the present state of affairs in the financial sector.

#### 8. Final Comments

In this paper I have discussed the recent growth experience of Chile. I have argued that the liberalization of the economy made important contributions to the growth process between 1977 and 1980. In that respect, the fiscal reform — which greatly helped to reduce inflation --; the reform of foreign trade; and the liberalization of the capital, and other key markets, were of particular importance. I have also argued that between 1976 and 1979 the increase in the degree of capital utilization made important contributions to growth.

The recent Chilean experience, however, presents a number of interesting puzzles, like the coexistence of persistent high rates of unemployment and increasing real wages,<sup>37</sup> and the high real interest rates, in spite of massive capital inflows. Despite some partial explanations that have been offered to

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<sup>37</sup>On the recent behavior of employment, wages of income distribution in Chile see Cortazar (1982).

solve these puzzles, at the present time they largely remain unsolved issues, that would require further research efforts.

Finally, I discussed the recent events that have led to the worst recession in Chile's history. I have argued that this crisis was basically (but not exclusively) triggered by policy inconsistencies. Specifically the imposition of an inflexible real wage rate, in an open fixed exchange rate economy, was a major mistake. The long time the government took to resolve this problem -- especially in the presence of adverse external conditions -- helped to make things even worse.<sup>38</sup>

Even though these inconsistencies are largely responsible for the present crisis, it is clear that even in their absence the fast growth of 1977-1980 would have slowed considerably in the 1980s. The reason for this is that investment had been extremely low in the previous years. Also, the low level of domestic savings, and the already extremely high foreign debt, tends to point out that there was not much room, in the short run, for dramatically increasing investment through foreign savings. It is my judgment that once the present crisis is over, Chile will only be able to sustain a consistent high rate of growth if domestic savings increase substantially. This, in its turn, will require important policy measures on behalf of the government, including a substantially more active role of the government in the savings and investment process.

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<sup>38</sup>The delay to take measures to alleviate the crises responded to the so-called "automatic-adjustment" policy followed by the government. According to this view, in an open fixed-rate economy, macroeconomic adjustment will be automatic, with any policy measure being ineffective. For an exposition of this view see Exposicion de la Hacienda Publica, June 1981.

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