STABILIZATION WITH LIBERALIZATION:

AN EVALUATION OF TEN YEARS OF CHILE'S EXPERIMENT

WITH FREE MARKET POLICIES, 1973-1983*

by

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UCLA Working Paper #309

October 1983

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*A previous version of this paper was presented at the conference Economic Liberalization: Adjustments During the Transition, organized by the World Bank, October 1983.

## Abstract

This paper analyzes the recent economic experiment with free-market policies in Chile. The analysis covers ten years (1973-1983) of the military regime, and critically discusses the liberalization and stabilization policies pursued during this period. The analysis emphasizes the use of the exchange rate as a major anti-inflationary tool, and points out the problems faced by the Chilean economy when, as a consequence of this policy, the real exchange rate appreciated significantly. The paper also discusses other salient aspects of the Chilean experiment including the unemployment problem, high interest rates, low levels of savings and increasing foreign debt. Regarding the recent (1982-83) recession faced by Chile, it is argued that it is primarily the consequence of serious policy inconsistencies and mistakes at the macroeconomic level.

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## 1. Introduction

The recent (post-1973) economic experience in Chile has attracted considerable attention, both from professional economists and from the media.[1] Most observers have been particularly impressed by the sharp contrasts observed in Chile in such a short period of time. For example, while in 1973 Chile had one of the highest rates of inflation in the world (over 600%), in 1981 it experienced one of the lowest rates of inflation (9.5%). Also, while in 1975 real GNP declined by 12.9%, during 1977-1980 real GNP grew at an average rate of 8.5% per annum. In 1982, however, the country faced a new recession, with real GNP dropping by 14.5%, and in 1983 a further reduction of real GNP of around 3% is expected. The fact that these episodes developed while the military government was actively pursuing free market oriented policies, that greatly liberalized the economy, adds considerable interest to the Chilean case.[2]

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, with Chile being transformed from an economy isolated from the

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[1] For an analysis of the Chilean economy before 1973 see, for example, Behrman (1976, 1977), Corbo (1974), Ffrench-Davis (1973), Trivelli and Trivelli (1979), Mamalakis (1978), and Corbo and Meller (1982). For an analysis of the 1970s see Hachette (1978), World Bank (1980), Harberger (1982, 1983), Foxley (1982), Arellano et al. (1982), Parkin (1983), Hanson (1983), Balassa (1984), Edwards (1984a), and Walton (1984). Regarding media coverage, 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. See also New York Times, December 8, 1982.

[2] The Chilean experience is particularly interesting since for many years economists have argued that developing countries should follow liberalization processes similar to the one that took place in Chile in the mid- and late 1970s. See, for example, McKinnon (1973), Little, Scitovsky and Scott (1970), Krueger (1978, 1983) and Balassa (1982).

rest of the world, with strong government intervention, into a liberalized, world-integrated economy, where market forces were freely left to guide most of the economy's decisions. The 1973-1981 period was characterized by important achievements: inflation was greatly reduced; the government deficit was virtually eliminated; the economy went through a dramatic liberalization of its foreign sector, with tariffs being reduced to a 10% uniform level; and prices, including interest rates, were fully liberalized. Probably one of the most interesting aspects of the Chilean economy during this period is that major stabilization and liberalization attempts were undertaken simultaneously. Moreover, during this period the Chilean economic authorities introduced a novel stabilization program based on the fact that the economy's links with the rest of the world had greatly increased due to the liberalization of trade. In this stabilization strategy the manipulation of the nominal exchange rate replaced monetary control as the central tool of the anti-inflationary effort.[3]

The free market policies implemented by the military regime since 1973 can be viewed as a reaction to a long tradition of government intervention and controls that had characterized the Chilean economy since the 1940s.[4] 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

[3]For analytical discussion sof the characteristics of this approach to stabilization see the recent articles by Blejer and Mathieson (1981), Djacij (1982) and Dornbusch (1982). This type of anti-inflationary policy was also used in Argentina.

[4]These free-market policies were proposed and implemented by a group of economists popularly known as the "Chicago boys".

world. In general, the empirical evidence available suggests that this inward-looking strategy had some negative effects on Chile's economic growth, by reducing domestic savings, introducing distortions and inefficiencies, and by tending to increase capital-labor ratios. Also, this period was characterized by high government deficits and chronic inflation.[5]

From an economic growth perspective, 1973-1983 has been characterized by a highly variable record. During this period Chile experienced one of the highest rates of growth in her history -- 9.5% growth in 1977 -- and also some of the highest declines in real GDP were recorded: -12.9% in 1975 and -14.5% in 1982. Table 1 presents data on real GDP and real per capital GDP between 1970 and 1983. As may be seen, the first two years of the military regime (1974-1975) were characterized by a decline in real per capital GDP. This reduction in economic activity was specially dramatic in 1975 -- GDP per capita declined in 14.4% -- as a consequence of the stabilization program and of the decline in the terms of trade (the fall of the price of copper was specially severe). 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, which will be addressed below, is to what extent these high growth rates were only due to a recovery process, starting from a very low initial level of GDP. Finally, starting in late 1981 Chile entered into a deep recession, with real GDP declining dramatically during 1982 and 1983. This crisis has led, in 1983, to a highly unstable and explosive political situation.

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[5] See the references in footnote 1.

## Table 1

## Real Gross Domestic Product

## and Real Gross Domestic Product Per Capita

## in Chile: 1970-1983

| Year | (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 |
| 1982[a] | 15.1 | -14.5 | 1312 | -16.3 |
| 1983[b] | 14.7 | -2.6 | 1257 | -4.2 |

Source: Banco Central de Chile.

[a]: Preliminary

[b]: Estimated by Universidad de Chile.

The purpose of this paper is to examine with some detail Chile's economic performance during the post-military coup period. The analysis provides an evaluation of ten years of military regime, placing emphasis in the stabilization and liberalization policies. Special attention is given to the recent (1982-1983) events that have led to one of the worst recessions in the country's history. The paper is organized in the following form: in Section 2 the stabilization program and the employment problem are discussed. In this section the crucial role played by the exchange rate policy in the anti-inflationary program is emphasized. In Section 3 the liberalization of international trade is discussed. Section 4, on the other hand, presents an analysis of the liberalization of the domestic financial markets and of the capital account of the balance of payments. In this section it is noted that the Chilean economy was characterized during this period by extremely high interest rates and low domestic saving ratios. Section 5 presents a brief discussion on the sources of growth between 1975 and 1980. Section 6 focuses on the 1982-1983 recession, including the January 1983 agreement with the IMF. It is argued in this section that this recession was (partially) the result of policies inconsistencies and mistakes. Finally, in Section 7 some concluding remarks are offered. The paper also includes a fairly comprehensive bibliography on work related to Chile's economic development during the recent period.

## 2. The Stabilization Program and the Employment Problem

In October of 1973 the military government announced that the reduction of inflation — which had exceeded 600% in the previous 12 months — was one of its main economic goals.[6] Other important short-run objectives were the reduction of government controls, the reduction of the fiscal deficit, the reorganization of the productive sector, and the avoidance of a major balance of payments crisis. While during the first 18 months of the regime some of these objectives were (partially) achieved — relative prices were realigned, a unified exchange rate was established, the balance of payments crisis was avoided, and government finances were somewhat straightened — inflation was still out of control, with the rate of growth of consumer prices reaching 370% in 1974.

Until April of 1975 a gradualist anti-inflationary approach had been followed. At this time, however, this gradualist policy was abandoned, and an abrupt stabilization program was implemented. This program was based on traditional views regarding economic stabilization in a closed economy, and 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% 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. [See Mendez, 1979.]

Table 2 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. This decline in the level of the deficit in 1975 was mainly accomplished by the reduction in

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[6] See speech by Minister Gotuzzo, reproduced in Mendez (1979).

Table 2

Inflation and Stabilization: 1973-1982

| Year | (A) Inflation Rate % (December/ December) | (B) Government Expenditure 1977 Millions of US $ | (B) % GDP | (C) Government Revenue 1977 Millions of US $ | (C) % GDP | (D) Fiscal Deficit 1977 Millions of US $ | (D) % GDP | (E) Rate of Growth of M1 % (December/ December) | (F) Proportion of Total Credit Received by Government | (G) Rate of Devaluation of Peso % (December/ December) | (H) Balance of Payments (Millions US $) a/ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | 34.9 | 3681 | 28.1 | 3301 | 25.2 | 380 | 2.9 | -- | .56 | 20.0 | -- |
| 1971 | 22.1 | 4633 | 32.4 | 2989 | 21.2 | 1644 | 11.2 | 110 | .69 | 33.3 | -- |
| 1972 | 487.5 | 4540 | 32.2 | 2637 | 18.7 | 1903 | 13.5 | 157 | .77 | 56.3 | -- |
| 1973 | 605.9 | 5990 | 44.7 | 2693 | 20.1 | 3297 | 24.6 | 317 | .88 | 1340.0 | -21 |
| 1974 | 369.2 | 4374 | 32.4 | 2957 | 21.9 | 1417 | 10.5 | 272 | .85 | 419.4 | -55 |
| 1975 | 343.2 | 3206 | 27.4 | 2902 | 24.8 | 304 | 2.6 | 258 | .85 | 354.5 | -344 |
| 1976 | 197.9 | 3148 | 25.8 | 2867 | 23.5 | 281 | 2.3 | 194 | .75 | 104.9 | 414 |
| 1977 | 84.2 | 3337 | 24.9 | 3095 | 23.1 | 242 | 1.9 | 108 | .59 | 60.5 | 113 |
| 1978 | 37.2 | 3451 | 23.8 | 3335 | 23.0 | 116 | .9 | 67 | .40 | 21.4 | 712 |
| 1979 | 38.0 | 3627 | 23.1 | 3878 | 24.7 | -251 | -1.7 | 65 | .29 | 14.9 | 1,047 |
| 1980 | 31.2 | 4200 | 25.0 | 4284 | 25.5 | -84 | -.6 | 57 | .10 | 0.0 | 1,244 |
| 1981 | 9.5 | 4195 | 23.7 | 4726 | 26.7 | -531 | -3.0 | -60 | .02 | 0.0 | 70 |
| 1982 | 20.7 | 4379 | 29.0 | 4032 | 26.7 | 347 | -2.3 | 9 | .07 | 88.3 | -1,165 |

Sources: Column (A) is taken from INE for years 1970-1972 and 1979-1982, and from Cortazar and Marshall (1980) for 1973-1978. Columns (B) through (D) are taken from Exposicion de la Hacienda Publica, 1981; Columns (E) and (F) are taken from International Financial Statistics. Columns (G) and (H) are taken from Indicadores Economicos y Sociales 1960-1982.

a/ A minus sign means deficit. Data for 1970-1972 is not available because in 1980 the Central Bank changed the way balance of payment statistics are recorded.

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 100,000 workers, or 2.4% of the labor force [Edwards, 1980].

As reflected in this table, 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 at a 20% rate; a full indexation of the tax system; an elimination of most tax 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.[7]

The stabilization effort of 1975 also relied on a tighter monetary policy. Even though Harberger [1982] has argued that it can hardly be said that there was a monetary crunch, during the initial phase of the stabilization program the control of monetary aggregates was a central aspect of the overall policy.[8]

The 1975 stabilization program promptly impacted 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

[7] In rigor the process of tax reform began in late 1974. However, only towards mid-1975 was its impact felt in the economy. For an exposition of the main aspects of the reform see Minister Cauas speech, reproduced in Mendez (1979, p. 119).

[8] 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 2), 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).

spite of the virtual elimination of the major source of money creation — the fiscal deficit -- the rate of growth of prices was regaining its old pace, with the rate of inflation climbing, in the first quarter of 1976, to 47%. At this time a major change in the stabilization strategy took place, with the emphasis moving away from the control of the quantity of money as the major anti-inflationary tool. At this point the manipulation of the nominal exchange rate became the basic stabilization instrument. It was argued that as a result of the opening of the economy to the rest of the world — tariffs had already been reduced from an average of 94% in 1973 to an average of 33% -- a stabilization program designed for a closed economy was largely ineffective. It was further argued that since in an open economy there is a close link between the domestic rate of price changes, and the rate of devaluation (plus the rate of world inflation), the domestic rate of inflation basically depended on the behavior of the exchange rate.[9] In June of 1976 the government revalued the Chilean peso in 10% as a means to break inflationary expectations. In 1977 a new 10% appreciation was implemented, and starting in January 1978 a novel policy of preannouncing changes in the exchange rate (the so-called "exchange-rate-table") was introduced as a means to further reduce the domestic rate of inflation.

With the trade reform having reduced most import barriers, it was expected that this system of preannounced devaluations would tend 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.

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[9]To a certain extent this policy was based on the analytical structure provided by the simple version of the monetary approach to the balance of payments. See the extensive discussion in Blejer and Landau (eds., forthcoming in 1984). See also McKinnon (1982).

Initially, however, the rate of inflation exceeded the sum of the devaluation and world inflation, resulting in a real appreciation of the Chilean peso.[10] 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. During the next months the rate of inflation declined substantially, but still exceeded the world inflation, generating a further real appreciation of the Chilean peso. Finally, in 1981 the domestic rate of inflation converged to the world level, with the annual change of consumer prices being only 9.5% in that year.

On the production side, the immediate short-run effect of the stabilization program was to generate a large reduction in the level of economic activity in 1975. 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 a steep increase in the rate of unemployment to almost 20% in September of that year. Even though the economy rapidly began to recover after 1975, with real GDP reaching its 1974 level in 1977, unemployment remained at extraordinary high levels throughout the period. Table 3 presents data on the labor force (Column A), unemployment, (Columns B and C) the so-called Minimum Employment Program — which consists of a low-wage public works program designed to cope with the unemployment problem — and real wages. As may be seen from this table, open unemployment (which excludes the Minimum Employment Program) never

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[10] As Diaz-Alejandro (1981) has pointed out, this initial discrepancy between domestic inflation and the sum of world inflation and devaluation rate was 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).

Table 3

Unemployment and Wages in Chile: 1970-1982[a]

| Year | (A) Total Labor Force | (B) Total Unemployment | (C) Open Unemployment Rate | (D) Minimum Employment Program | (E) Minimum Employment Program As % of Labor Force | (F) Index of Real Wages[b] |
|---|---|---|---|---|---|---|
| | (Thousands) | (Thousands) | (%) | (Thousands) | | (1970=100) |
| 1970 | 2,909.4 | 100.5 | 3.5% | - | - | 100.0 |
| 1971 | 2,967.4 | 96.6 | 3.3% | - | - | 129.0 |
| 1972 | 2,979.9 | 97.6 | 3.3% | - | - | 114.5 |
| 1973 | n.a. | n.a. | n.a. | - | - | 64.4 |
| 1974 | n.a. | n.a. | n.a. | - | - | 60.0 |
| 1975 | 3,114.7 | 464.6 | 14.9% | 118.7 | 3.8% | 63.9 |
| 1976 | 3,182.3 | 405.0 | 12.7% | 209.3 | 6.6% | 76.5 |
| 1977 | 3,199.0 | 378.5 | 11.8% | 179.6 | 5.6% | 81.3 |
| 1978 | 3,476.6 | 495.3 | 14.1% | 124.2 | 3.6% | 82.9 |
| 1979 | 3,477.5 | 474.2 | 13.6% | 152.2 | 4.4% | 83.7 |
| 1980 | 3,635.5 | 378.4 | 10.4% | 207.2 | 5.7% | 96.2 |
| 1981 | 3,688.0 | 417.0 | 11.3% | 171.3 | 4.6% | 109.5 |
| 1982 | 3,503.6 | 679.1 | 19.4% | 322.7 | 9.2% | 107.9 |

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

[a]The labor force and unemployment figures (Columns A,B, and C) refer to periods Sept.-Dec. for 1970; and Oct.-Dec. for the rest of the years. These are, however, the best data available at a national level. Quarterly data is available for the Greater Santiago Area. The data on the minimum employment program (Column D) refers to the Oct.-Dec. average of each year.

[b]To construct the real wages index the GDP deflator was used. The reason for this is that the official price index has been manipulated, and understates inflation [see Cortazar and Marshall 1980].

droped below 10%, and experienced a dramatic jump in 1982. The high rate of unemployment during the late 1970s was due to a number of reasons including the negative effect of the stabilization program on the demand for labor, the reduction of the public sector — which resulted in the elimination of approximately 100,000 jobs — and the liberalization of foreign trade, which generated a major readjustment in the manufacturing sector. [See Edwards, 1980 and Cortazar, 1984.] In spite of the persistance of a high rate of unemployment, real wages and salaries slowly increased between 1976 and 1980, and in 1981 they finally surpassed their 1970 level.[11]

There are two important characteristics of the behavior of the labor market during this period that deserve special attention. First, a minimum wage was in effect throughout the period. Between 1975 and 1979 the minimum wage increased in real terms in 20%. There is no doubt that the presence of this minimum wage law should be added to he list of explanations for the persistence of high rates of unemployment during the recovery process [Edwards 1980, Castaneda 1983a]. Second, during this period a backward indexation system, where nominal wages were automatically adjusted by the inflation rate in previous months, was in effect. This indexation procedure was first implicitly established during the first year of the regime, and was later formally incorporated into the 1979 labor law. Of course, one of the main

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[11] 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), Castaneda (1983b) and Cortazar (1984). It is important to notice that the increase in real wages reported in Table 3 is lower than the official rate of growth of wages as reported, for example, in Banco Central de Chile (1983, page 151). The reason is that in Table 3 the real wage index has been computed by using the GDP deflator as the relevant price index, instead of the CPI. It is generally accepted that the official CPI underestimates inflation. See Cortazar and Marshall (1980), Harberger (1982).

features of a backward indexation system is that in a situation characterized by decreasing inflation, real wages will automatically increase as a result of the indexation mechanism. This was indeed the case in Chile, especially in 1980 and 1982, as is illustrated in Table 3 [see Harberger 1982, 1983, Balassa 1984].

Regarding the evolution of income distribution during the period, the available evidence is quite scarce. However, a study performed by Heskio (1980), using data for the great Santiago area, suggests that there was no major change in the distribution of personal income — as measured by the Gini and Theil coefficients — between 1970 and 1979. If, however, family earnings are used in the analysis, a small deterioration in the distribution of income is detected between 1970 and 1979. On the other hand there is little doubt that the distribution of wealth worsened during the period. The reason for this was that the process of privatization of the banking sector and public enterprises resulted in the creation of a small number of conglomerates that controlled a large number of assets. [See Balassa 1983 and Cortazar 1984.]

There is no doubt that the stabilization policy was largely successful in the sense that it practically eliminated inflation in a fairly short period of time. However, an important question — one 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 Diaz 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 tending to raise 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. Also, the subsequent use of the exchange rate as the major stabilization tool resulted in an important real appreciation of the peso and a significant loss in the degree of competitiveness of the domestic industries. As will be argued in Section 6 below, the adoption of a fixed exchange rate in June of 1979 — as the final step of the stabilization process — with an inflexible real wages (by law), was a serious policy mistake, which precipitated the 1982-1983 recession.

## 3. The Liberalization of International Trade

The major objective of the military economic program was to transform Chile into a free market oriented economy. This was to be achieved through a number of measures, including the privatization of state-owned enterprises, the reduction of the size of the public sector, the liberalization of the foreign sector (both the current and capital accounts of the balance of payments), the liberalization of the domestic financial sector, and the freeing of other key markets. In this section the liberalization of foreign trade is discussed, while the next section is devoted to the analysis of the liberalization of the domestic financial market and of the current account of the balance of payments.

One of the most dramatic policy measures undertaken by the military regime 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. This tariff reduction process took place in two stages. The first part was carried out within the framework of the Andean Common Market (Pacto Andino), and tariffs were reduced to a range between 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%.[12] Table 4 contains information on the evolution of nominal tariffs and effective rates of protection by sectors between 1975 and 1979. 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. In fact, the standard deviation of nominal tariffs was in 1975, 13.4% while for effective tariffs it was 51%.

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.[13] However, as discussed in the previous section, towards mid-1976 the rate of change of the exchange rate became the major stabilization tool, with the rate of devaluation being deliberately kept below the on-going domestic inflation. During 1976 the real exchange rate declined in 20% and

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[12]Sjaastad (1983) 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 Ffrench-Davis (1981) and Vergara (1981). However, in 1983 and as a measure to fight the effects of the recession tariffs were (temporarily) raised to 20%. There are, however, some exceptions, with higher tariffs applied to milk and other products.

[13]On the relation between exchange rates and a tariff reform see Balassa (1982).

## Table 4

## Effective and Nominal Rates of Protection

## in Some Sectors: 1975 and 1979

| Sector | Effective Tariff in 1975 | Nominal Tariff in 1975 | Effective Tariff in 1979 | Nominal Tariff in 1979 |
|---|---|---|---|---|
| Agriculture, Forestry & Fishery | -36% | n.a. | 10% | 10% |
| Food, Beverages, Tobacco, Textiles and Leather | 72% | 74% | 10% | 10% |
| Timber, Furniture and Paper Products | 11% | 68% | 10% | 10% |
| Non-Metallic Mineral Products | -38% | 62% | 10% | 10% |
| Basic Metallic Industries | 38% | 38% | 10% | 10% |
| Chemicals & Derivatives of Coal, Oil and Rubber | 47% | 58% | 10% | 10% |
| Metallic and Metallurgical Industries* | 95% | 73% | 10% | 10% |

Source: Columns (a) from Edwards [1977], Columns (b), (c) and (d) from data presented in Pollack [1981].

*Excludes the automobile sector.

during 1977 it declined 14% further. This reduction of the real exchange rate was accentuated after June of 1979, when the nominal exchange rate was fixed to the U.S. dollar [see Harberger 1981].

The tariff reduction process, and the accompanying exchange rate policy, greatly affected the structure of production and growth in Chile. Initially, the major beneficiaries of this process were non-traditional (or non-copper) exports, which experienced a sharp increase, growing from 11% of total exports in 1970 to 34% in 1980.[14]

In Table 5 the rates of growth of GDP at the sectoral level is presented. 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. However, the structure of production within the manufacturing sector was greatly affected. Those industries that had traditionally had a very high level of protection, experienced large output losses, with many firms closing as a consequence of bankruptcy [see Ffrench-Davis, 1981; and Vergara, 1981]. Seven out of 20 manufacturing subsectors had a lower level of production in 1980 than in 1970 [see Edwards 1984a for a more detailed discussion]. Some of these sectors, especially textiles and leather goods, had traditionally had a high degree of protection. On the other hand, the industries that experienced an increase in production during the 1970s — beverages, paper products and tobacco, among others — achieved this by greatly increasing the level of efficiency, introducing new technologies and adopting modern management systems. Table 6 presents some data on employment and productivity, by sectors, in 1976 and

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[14]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 5

Rate of Growth of Real GDP by Sectors
(Percent)

| Sector | 1970 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 [a] |
|---|---|---|---|---|---|---|---|---|---|
| Agriculture and Forestry | 3.6% | 4.8% | -2.9% | 10.4% | -4.9% | 5.6% | 1.8% | 2.2% | -3.3% |
| Fishery | -5.4 | -6.7 | 33.9 | 15.4 | 17.9 | 14.3 | 7.5 | 13.6 | 8.8 |
| Mining | -3.0 | -11.3 | 12.2 | 2.7 | 1.6 | 5.4 | 5.9 | 3.6 | 5.7 |
| Manufacturing | 2.0 | -25.5 | 6.0 | 8.5 | 9.3 | 7.9 | 6.2 | 2.6 | -21.6 |
| Electricity, Gas and Water | 5.3 | -3.8 | 5.8 | 5.8 | 6.7 | 6.8 | 5.9 | 3.5 | -29.0 |
| Construction | 5.5 | -26.0 | -16.5 | -0.9 | 8.1 | 23.9 | 25.7 | 16.2 | -0.2 |
| Commerce | -1.5 | -17.1 | 2.5 | 24.8 | 20.0 | 11.0 | 10.8 | 5.7 | -17.8 |
| Transport and Communication | 4.7 | -7.7 | 4.7 | 10.8 | 8.4 | 9.0 | 11.1 | 5.4 | -9.9 |
| Financial Services | 15.4 | -4.2 | 9.3 | 14.5 | 20.2 | 28.0 | 22.1 | 8.5 | n.a. |
| Services of Dwellings | 3.7 | 1.8 | 0.7 | 0.6 | 0.9 | 0.5 | 1.0 | 1.7 | n.a. |
| Public Administration | 1.5 | 1.9 | 5.9 | 1.8 | -3.1 | -1.2 | -3.3 | -1.6 | n.a. |
| Education | 2.6 | 1.8 | -2.3 | 2.4 | 2.2 | 1.9 | -0.6 | n.a. | n.a. |
| Health | 3.1 | -1.7 | 4.2 | 2.7 | 3.2 | 5.7 | 3.1 | n.a. | n.a. |
| Other Services | 1.4 | -4.5 | 3.5 | 5.7 | 5.7 | 6.4 | 5.6 | n.a. | n.a. |
| GDP | 2.1 | -12.9 | 3.5 | 9.9 | 8.2 | 8.3 | 7.5 | 5.3 | -14.3 |

Source: Banco Central de Chile.

[a] Preliminary

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 was eliminated, and the fairly high real exchange rate that prevailed during the first years of the experiment helped the promotion of a number of non-traditional agricultural exports. 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. However, 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].

In general, the change in the structure of production between 1970 and 1980 was largely due to the process of tariff reduction.[15] However, other policy measures, like the creation of the domestic capital market, also affected the composition of GDP. As revealed in Table 5, 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. 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

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[15]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.

## Table 6

## Employment and Productivity by Economic Sector: 1976 and 1980

| | 1976 | | | 1980 | | |
|---|---|---|---|---|---|---|
| | Employment (1,000 people) | Employment Total | Value Added/ Thousands Workers (Millions 1977 US $) | Employment (1,000 people) | Employment Total | Value Added/ Thousands Workers (Millions 1977 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 Estadisticas.

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 subsectors (57,000 people). Even though this is not a negligible number, it does indicate that an explanation for the bulk of the unemployment should be sought elsewhere.

In summary, 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 tradeable goods sector improved [see Coeymans 1978 and Schmidt-Hebbel 1981]. Even though this process raised unemployment in the short-run, in the medium-run there was a tendency for employment to increase in the expanding sectors [see Coeymans, 1978]. In early 1983, however, as a form to combat the recession, most tariffs were increased to a uniform level of 20%. Even though this represents a partial reversal of the libralization policy, after ten years of the military coup the Chilean foreign sector is still significantly freer than in most developing countries, and fairly close to what economists have generally advocated [see Little, Scitovsky and Scott, 1970; Krueger, 1978, 1983; McKinnon 1973, 1982; Balassa, 1982].

4. <u>The Liberalization of the Domestic Financial Sector and of the Capital Account of the Balance of Payments</u>

A major policy objective of the military regime was the liberalization and modernization of the financial sector. Until 1973 the domestic capital market had been highly repressed, with most banks being government owned. Real interest rates were negative, and there were quantitative restrictions on credit. The liberalization process began slowly in early 1974, by selling banks back to the private sector, freeing interst rates, relaxing some restrictions on the banking sector, and allowing the creation of new financial institutions.[16] International capital movements, however, were strictly controlled until mid-1979. In June of that year, the government decided to begin a process of liberalization of the capital account of the balance of payments, and some restrictions on medium- and long-run capital movements were lifted. The final steps in this process were taken in April of 1980 when regulations regarding the maximum monthly inflow of foreign capital were lifted.[17] Short-term capital movements, however, were forbidden throughout most of the experiment. In spite of the fact that only medium- and long-term capital movements were allowed, the opening of the capital account resulted in a massive inflow of foreign capital. In 1980 capital inflows more than doubled with respect to 1979 — U.S.$ 2,499 million vs. U.S.$ 1,242 million — and in 1981 the level of capital inflows doubled again to U.S.$ 4,507

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

[17]For a detailed analysis of the institutional itinerary of the capital account liberalization see Arellano and Ffrench-Davis (1980).

millions.[18]

One of the most important consequences of the opening of the capital account was that the resulting massive capital inflows generated a further real appreciation of the peso. To the extent that non-tradeables are normal, goods in demand, lifting existing restrictions on foreign borrowing will result in higher expenditures on these goods (as well as on tradeables), and on a real appreciation of the domestic currency. In the particular case of Chile, a high proportion of the funds obtained from abroad were used to finance non-tradeables — and especially the construction sector (see Table 5). The effect of capital inflows on the real exchange rate in Chile has been extensively discussed by a number of authors, including McKinnon [1973, 1976, 1982], Diaz-Alejandro [1981], Munoz [1982] Corbo and Edwards [1981], and Edwards [1984]. Harberger, [1982], for example, has estimated that the opening of the capital account can explain up to 25 points of the appreciation of the peso between mid-1979 and early 1982.

One of the most puzzling characteristics of the behavior of the financial sector between 1977 and 1982 has been the extremely high <u>real</u> interest rates that prevailed throughout most of the period [see Mathieson, 1983]. These real rates, which average above 30% per annum for long periods of time, remained high despite a major rise in total credit, and the massive inflow of foreign capital in late 1980 and 1981. Table 7 presents 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

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[18]These figures refer to funds allowed in accordance to Article 14 of the Exchange Law. Most private funds were imported this way. The surplus of the capital account of the balance of payments, on the other hand, increased from US $3.2 billion n 1980 to US $4.8 billion in 1981.

Table 7

Interest Rates, Inflation, Money and Exchange Rates

In Chile: Quarterly Data 1977-1981

| | (1) Nominal Borrowing Interest Annual Rate % | (2) Annualized Inflation Rate % | (3) Libor Interest Rate % | (4) High Powered Money (1978-I=100 | (5) Quantity of Money (M3) 1978-1=100 |
|---|---|---|---|---|---|
| 1977-1 | 124.6 | 100.0 | 5.6 | 46.9 | 47.5 |
| 1972-2 | 83.6 | 59.2 | 6.1 | 56.0 | 57.3 |
| 1977-3 | 70.8 | 54.3 | 7.2 | 71.2 | 66.7 |
| 1977-4 | 99.8 | 45.4 | 7.6 | 88.4 | 80.7 |
| 1978-1 | 70.7 | 32.7 | 7.7 | 100.0 | 100.0 |
| 1978-2 | 55.6 | 30.6 | 8.5 | 102.2 | 108.2 |
| 1978-3 | 55.5 | 38.2 | 9.3 | 106.5 | 113.2 |
| 1978-4 | 70.0 | 20.5 | 12.0 | 115.2 | 126.2 |
| 1979-1 | 47.3 | 30.2 | 10.7 | 116.4 | 147.0 |
| 1979-2 | 44.1 | 35.1 | 10.7 | 112.9 | 149.6 |
| 1979-3 | 42.7 | 62.0 | 12.0 | 109.5 | 152.8 |
| 1979-4 | 46.1 | 30.9 | 14.6 | 120.2 | 163.6 |
| 1980-1 | 52.0 | 31.4 | 17.0 | 107.6 | 187.6 |
| 1980-2 | 32.7 | 30.7 | 11.3 | 121.4 | 195.1 |
| 1980-3 | 31.8 | 28.6 | 12.2 | 122.2 | 208.4 |
| 1980-4 | 34.2 | 34.4 | 16.2 | 126.0 | 217.9 |
| 1981-1 | 45.0 | 11.5 | 16.5 | 111.0 | 249.4 |
| 1981-2 | 40.9 | 11.1 | 17.2 | 109.7 | 273.2 |
| 1981-3 | 38.8 | 11.6 | 18.5 | 105.4 | 297.9 |
| 1981-4 | 42.5 | 4.2 | 14.8 | 99.3 | 309.3 |
| 1982-1 | 48.2 | 7.0 | 15.6 | 117.8 | 367.7 |
| 1982-2 | 49.9 | 4.2 | 16.2 | 133.0 | 353.3 |
| 1982-3 | 66.5 | 11.3 | 12.1 | 140.8 | 360.4 |
| 1982-4 | 89.5 | 20.7 | 9.5 | 167.5 | 379.1 |

Source: Banco Central de Chile and IFS.

interest were extremely high. This table also shows the large differential between the domestic nominal interest rates (column (1)) and international nominal rate (column (4)). These differentials, however, can be partially explained by the existence of financial exchange rate and country risk premiums [see Edwards 1982c].

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, as it was widely expected by the economic authorities and other experts.[19] In fact not only domestic savings did not increase but they were at one of the lowest historical levels. Also, gross domestic investment was remarkably low during the period, with public sector investment being at one of its lowest levels. As may be seen in Table 8, only in 1980 did gross domestic investment surpass 20%. Harberger [1982] has suggested that the low level of domestic savings can be explained by the behavior of asset prices during the period [see also Barandiaran et al. 1982]. Starting in 1976, asset prices increased dramatically, with the real index of stock prices, for example, increasing by 323% between 1977 and 1980! To the extent that savings decisions depend, in a Metzlerian fashion, on the differential between actual and desired wealth, this dramatic increase in asset-prices, and consequently of perceived wealth, could indeed provide an explanation to the poor savings effort during the period.

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[19] These expectations were based on the analysis of financially repressed economies by McKinnon (1973) and Shaw (1973) among others. For a recent critical discussion on the relationship between savings and the interest rate in developing countries see Giovaninni (1983).

## Table 8

## Investment and Savings In Chile: 1970-1982

| Year | (Gross Domestic Investment/ GDP) % | Gross Capital Formation on Fixed Capital/GDP % | Depreciation/ GDP % | (Net Domestic Savings/ GDP) % | (Gross Domestic Savings/ GDP) % | Foreign Savings/ GDP) % |
|---|---|---|---|---|---|---|
| 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 |
| 1982[a] | 9.6 | 13.8 | n.a. | n.a. | n.a. | n.a. |

Source: Banco Central de Chile.

[a]Preliminary.

An alternative explanation for the low level of domestic savings is related to the privatization policy pursued by the government. In 1974, and as a form to reduce the importance of the public sector, a process of privatization of government-owned firms was implemented, with firms being auctioned to private (domestic and foreign) bidders. In general, the government used the proceeds from these sales to finance current expenditure. Then, from a practical point of view, the private savings used to acquire these firms were matched by negative government savings.[20]

Since domestic savings were very low, gross capital formation was increasingly financed by foreign savings. In 1980, foreign savings reached 8.5% of GDP, while in 1981 they rose to 14.5% of GDP, representing 66% of total gross domestic investment. The current account deficits associated with these high levels of foreign savings began to generate a serious foreign indebtedness problem in 1981. In that year total foreign debt increased almost 50% — from 10,987 million U.S. dollars to 15,546 million U.S. dollars -- reaching 50% of GDP [see Edwards 1982b]. It was thought at the time by the economic authorities and other observers, that since most of the new debt had been contracted by the private sector (without any government guarantee), this increase in foreign indebtedness did not represent a threat for the country as a whole: if a domestic private borrower couldn't pay its foreign obligations, that was a private problem between him and the foreign creditor, which would be solved through a regular bankruptcy procedure.[21] As the facts showed later, this distinction between private and public debt was highly artificial,

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[20]See several issues of Exposicion de la Hacienda Publica for the way in which the fiscal budget was financed.

[21]Seem for example, Exposicion de la Hacienda Publica 1981, and Robichek (1981).

and the Chilean government ended up taking over all of the private sector foreign debt, independently of the fact that the original borrowers went bankrupt, and there were no previous government guarantees on those loans [see Diaz-Alejandro 1983].

As has been noted by a number of observers [Harberger 1982, Sjaastad 1983, Calvo 1982, Dornbusch 1982] the behavior of interest rates constitute one of the major puzzles of the recent Chilean experience. At the present time there does not appear to be an acceptable solution to this puzzle; however, any analysis that attempts to deal with the interest rate behavior during the Chilean experiment should at least recognize the following elements:

(a) There was an important increase in the demand for credit, triggered 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) There was a continuous increase in the expectations of devaluation, stemming from the decline in the real exchange rate after June of 1976. The higher current account deficits of 1980 and 1981, the low rate of domestic savings, and the dramatic 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 1983].

(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.

In general, it appears that Chile's inability to increase domestic savings and gross domestic investment indicated, from the early years 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, for an early discussion on this subject.]

## 5. Savings, Investment and the Sources of Growth

Although capital accumulation is hardly the only source of growth, the extremely modest level of investment in 1977-1980 makes one wonder how Chile managed to grow so fast during this period. In this section this problem is investigated by presenting an analysis on the sources of growth in Chile during 1976-1980.[22] Since a thorough study of the sources of growth in Chile during the military regime, would require information that is not readily available, the results presented in this section should only be considered as preliminary estimates.

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.[23] Second, it should take into account the changes in the degree of capital utilization observed throughout this period.

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[22]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 Selowsky (1968) and Selowsky and Taylor (1973). On the relationship between capital accumulation and other sources of growth in accounting type of models see Edwards (1984b).

[23]Accounting studies of the sources of growth do not always incorporate this resource reallocation effect. Some exceptions are Robinson (1971) and Denison and Chung (1976). 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 only, may result in welfare losses.

With respect to the resource reallocation effect, some studies have attempted to estimate the (static) welfare gains resulting from a reduction, 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 libralizations policies (both trade and others) would result in a static increase in welfare of 10% income. He also suggests that this welfare improvement would be spread through 10 years, contributing 1 percentage point per annum to the growth rate during this period. Although an exact computation of total welfare gains resulting from the liberalization of Chile's economy is beyond the scope of the present paper, it appears that Schmidt-Hebbel's [1981] estimates can be considered as an approximate measure for this static efficiency gains from the liberalization reforms.

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. [See Edwards 1984 and Condon and de Melo 1983.] Schmidt-Hebbel [1981] has estimated three alternative series of capital utilization for this period. 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. 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 will be argued below, 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 orders of magnitude 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 9 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 10, on the other hand, shows the contribution to growth, of changes in the quantities of capital and labor between 1975 and 1979; and of imputed contributions to growth of changes in capacity utilization and gains in efficiency generated by the liberalization program. In these computations labor was assigned a share of 52% of GDP, while capital was assigned a 48% share.[24] The data on changes in the stock of capital were taken from Table 9, and the data on the evolution of employment was obtained from Edwards [1980].

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[24]Between 1970 and 1980 labor's share in GDP was 52.9% with capital having a 47.1% share.

## Table 9

## Stock of Reproducible Capital: 1970-1981

(Millions of 1977 US $)

| Year | Equipment and Machinery | Building and Construction | Inventories | Total |
|---|---|---|---|---|
| 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 |

Sources Constructed from National Accounts Data obtained from Banco Central de Chile.

Table 10

The Sources of Growth in Chile: 1975-1980

| | (1) Actual Rate of Growth of GDP | (2) Contributions of Changes in Physical Capital | (3) Contributions of Changes in the Quantity of Labor | (4) "GRAND" Residual [(1)-(2)-(3)] | (5) Contribution of Efficiency Gains | (6) Contribution of Change in Capacity Utilization | (7) Residual [(1)-(2)-(3)-(5)-(6)] |
|---|---|---|---|---|---|---|---|
| 1975 | -12.9 | -3.7 | 0.3 | -9.5 | -- | -5.4 | -4.1 |
| 1976 | 3.5 | 1.3 | 0.3 | 1.9 | -- | 1.0 | 0.9 |
| 1977 | 9.9 | 3.8 | 0.6 | 5.5 | 1.5 | 1.6 | 2.4 |
| 1978 | 8.2 | 1.4 | 1.2 | 5.6 | 1.5 | 0.4 | 3.7 |
| 1979 | 8.3 | 1.1 | 1.9 | 5.3 | 1.5 | 0.7 | 3.1 |
| 1980 | 7.5 | 3.2 | 2.8 | 1.5 | 1.5 | -- | 0.0 |

Sources: Column (1), Banco Central de Chile; Column (2) taken from table 9; Column (3) computed from Edwards (1980); Column (5) estimated from Schmidt-Hebbel (1980); Column (6) computed from data presented in Schmidt-Hebbel (1980).

Column (4) in Table 10 shows the "grand residual" obtained after having taken into account the contributions of the quantities of capital and labor to 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. The most plausible variables that would explain this "grand" residual are efficiency gains and change in the degree of capital utilization. Indeed, if we assume that between 1977 and 1980 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 these residuals are significantly reduced.[25] This is shown in columns (5), (6) and (7) of Table 10. However, these residuals are still fairly large — in fact larger thant what can be attributed to higher "quality" of labor and capital, and "technical progress" — suggesting that there are still some measurement problems, and that the full understanding of the growth process in Chile between 1977 and 1982 will require additional research. [See Condon and de Melo 1983.]

## 6. The 1982-1983 Recession

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 — which exceeded 40%; by a huge current account deficit, amounting to almost 15% of GDP; rising unemployment; and a reduction of real GDP of 3.3% with respect to

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[25]This annual gain in efficiency is somewhat higher than what Schmidt-Hebbel (1981) computed.

the fourth quarter of 1980. On the positive side, inflation was only 9% that year.

In 1982 the economic situation became almost chaotic. GDP declined by 14.3%; open unemployment (excluding the minimum employment program) reached 23.7% in September of that year; the exchange rate was devalued by almost 100%; a major financial crisis developed; and there were serious problems to service the foreign debt. Table 11 presents the behavior of some of the most important macroeconomic variables between the first quarter of 1980 and the second quarter of 1983. As may be seen the recession showed up, quite abruptly, during the fourth quarter of 1981. In this section the causes of this extraordinary turn of events in late 1981 will be analyzed. Also, some important developments that took place during 1982-1983 — like the agreement with the IMF — will be discussed. The main thesis of this section is that the 1982-83 recession was, to a large extent, triggered by policy inconsistencies and mistakes. However, it is also recognized that the world economic situation had a negative impact on the Chilean economy. In that respect the decline in the terms of trade by almost 23% between 1980 and 1982, and the higher world interest rates were particularly harmful. [See Hanson, 1983.] With respect to policy mistakes, the exchange rate policy, which in June of 1979 had fixed the peso to the dollar, and the wage rate policy -- which precluded by law any downward adjustment in real wages -- became highly inconsistent in mid-1981.[26] Besides the fact of fixing the peso, the choice of the dollar as the currency of reference was unfortunate. During most of

[26]For discussions on the 1982-1983 recession in Chile see, for example, Ffrench-Davis (1983), Fontaine (1983), Corbo (1983), Wisecarver (1983), Sjaastad (1983), de la Cuadra (1983), Edwards (1984), Balassa (1984), Hanson (1983), Corbo (1983), and Harberger (1984).

Table 11

Behavior of Some Key Macroeconomic Variables in Chile: 1980-1983

| | (A) Real GDP (Millions 1977 pesos) | (B) Δ% Real GDP With Respect to Same Qtr. Prev. Yr. | (C) Open Rate of Unemployment | (D) Minimum Employment Program as % Labor Force | (E) Rate of Inflation (Yearly) % | (F) Exchange Rate (Pesos/ Dollar) | (G) Real Borrowing Interest Rate (Annualized) % | (H) Foreign Savings (Millions of 1977 Dollars) |
|---|---|---|---|---|---|---|---|---|
| 1980 | | | | | | | | |
| I | 86,936 | n.a. | 12.0% | 4.7% | | 39.0 | | 259 |
| II | 89,750 | n.a. | -- | -- | 38.7% | 39.0 | | 253 |
| III | 89,122 | n.a. | 12.3% | 5.6% | 32.9% | 39.0 | | 297 |
| IV | 97,638 | n.a. | -- | -- | 31.3% | 39.0 | 5.6% | 507 |
| 1981 | | | | | | | | |
| I | 94,274 | 8.4% | 11.0% | 4.7% | 28.4% | 39.0 | 36.5% | 602 |
| II | 96,233 | 7.2% | -- | -- | 22.8% | 39.0 | 35.6% | 593 |
| III | 99,317 | 11.4% | 12.4% | 4.6% | 18.0% | 39.0 | 35.2% | 973 |
| IV | 94,408 | -3.3% | -- | -- | 11.4% | 39.0 | 47.8% | 780 |
| 1982 | | | | | | | | |
| I | 85,714 | -9.1% | 18.4% | 4.2% | 7.6% | 39.0 | 53.1% | 565 |
| II | 84,230 | -12.5% | -- | -- | 4.5% | 46.5 | 47.3% | 300 |
| III | 81,015 | -18.4% | 23.7% | 7.0% | 8.3% | 67.4 | 13.0% | 341 |
| IV | 78,196 | -17.2% | -- | -- | 19.0% | 73.4 | 30.7% | 266 |
| 1983 | | | | | | | | |
| I | 77,611 | -9.5% | 22.0% | 9.6% | 23.0% | 73.4 | 29.5% | 82 |
| II | 80,489 | -4.4% | -- | -- | 30.8% | 77.7 | 13.5% | 81 |

Sources: Columns (C) and (D) from Universidad de Chile
Columns (A), (B) (G) and (H) from Banco Central de Chile
Columns (E) and (F) from IFS

the 1980-83 period the dollar appreciated against other major currencies. The appreciation of the dollar explains approximately ten percentage points of the appreciation of the Chilean peso. Another serious problem that developed during this period, and which greatly affected the outcome of the crisis, was the collapse of the banking and financial sector in late 1982. This collapse was the consequence of a very large proportion of bad loans held by banks. [See, for example, Harberger 1984, and the discussion presented below.]

As has been discussed in Section 4 above, between the second quarter of 1980 — when the last steps towards opening the capital account to medium- and long-term flows were taken — and the third quarter of 1981 Chile was flooded by foreign capital. In 1980 capital inflows (i.e., the surplus of the capital account) amounted to US $3.2 billions, representing 8.5% of GDP. In 1981 this figure climbed to an extraordinary level of US $4.8 billions, or 14.4% of GDP. This increase in the level of capital inflows had a number of consequences, including a major real appreciation of the peso (27% between the third quarter of 1979 and the first quarter of 1982), which significantly reduced the degree of competitiveness of Chile's exportable and import-competing industries. Also, as a result of this capital inflow the level of the foreign debt (especially private debt) increased dramatically, exceeding 50% of GDP in late 1981.

This level of capital inflows was clearly not sustainable in the long-run, and in the second half of 1981 it began to decline. In the fourth quarter of 1981 the capital account surplus dropped to 800 million dollars, from an average of over 1.2 billion dollars during the three previous quarters. In the first quarter of 1982 the capital account surplus was US $500 million; in the second quarter it was US $295 million; and in the third quarter a capital account deficit of US $170 million was observed. In order for the economy to adjust to this lower inflow of foreign capital, and consequently of expenditure, a real devaluation of the peso was now required. Since the nominal exchange rate was fixed (at 39 pesos per dollar), this adjustment had to take place through a decline in the nominal price of non-tradeable goods, and of real wages.[27] The problem, however, was that according to the indexation mechanism incorporated into the labor law of 1979, real wages were virtually inflexible downward. At this point it became apparent to most observers that a fixed exchange rate and the real wages policy were highly inconsistent, and that their co-existence represented a policy mistake. As Corbo and Edwards [1981], Sjaastad [1983], and Barandiaran et al. [1982] have indicated, these policies amounted to imposing two numeraires in the economy. As a result of this inflexibility in real wages relative prices didn't adjust. Quantities, however did, with the resulting reduction in production and employment.

A possible way — and a traditional one — to have solved the crisis, was to abandon the fixed parity and to devalue the peso. The purpose of this measure, of course, would have been to generate a real devaluation, and an improvement in the degree of competitiveness of the economy. However, and again due to the wage rate policy, it is not clear to what extent the nominal devaluation would have succeeded. If wages are 100% indexed, a devaluation will tend to be fully translated into higher wages and prices, being to a large extent self-defeating.[28]

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[27]Rigorously a world inflation higher than the domestic inflation would also do it. However, this solution would take a considerable period of time.

[28]On wage indexation policies in open economies see, for example, paper by Aizenman and Frenkel (1983).

In spite of the crisis, between the second half of 1981 and the first half of 1982 the government followed a passive policy, arguing that the economy would automatically adjust to the new circumstances. [See Exposicion de la Hacienda Publica, 1981.] In particular the economic authorities strongly rejected the idea of intervening in the labor and exchange rate markets, and even stated that to devalue would be equivalent to committing economic suicide. Throughout the priod the government followed a passive monetary policy — the so-called "neutral" monetary policy — where all increase in high-powered money were supposed to be the result of increase in the Central Banks holdings of international reserves.

Towards mid-1981, and as a result of the real appreciation of the peso and of the adverse world economic environment, a number of industries in the tradeable goods sector run into serious financial trouble. Most of these firms responded to these hard-times by borrowing heavily from the capital market. This situation, however, was complicated by the fact that there were close ownership relations between borrowers — the troubled firms — and lenders — the domestic banks. In fact, during this period domestic banks made a number of large loans to related firms, generating what was later called the "related portfolio" (cartera relacionada). The problem was that most of these were bad loans, which eventually couldn't be repaid.[29] This generated a serious financial crisis, where firms couldn't pay their debts to local banks and local banks couldn't pay their debt to international banks. In January of 1973 the government decided to act, intervening in four banks and ordering the liquidation of four additional banks. As a result of this,

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[29]The financial situation became more difficult after June of 1982 when the peso was devalued. Agents who had borrowed heavily in a foreign exchange suddenly saw their debt doubled.

ten years after the military coup, the Chilean government controls 70% of the domestic banking sector [see Universidad de Chile 1983].

As the economic and financial situation became more serious towards late 1981, the public rapidly began to lose confidence in the government policies. The sustainability of the exchange rate was questioned, and in spite of several official statements, a strong speculation against the peso developed, with economic agents readjusting their portfolios towards a higher proportion of assets denominated in foreign exchange. Of course, the higher expectations of devaluation were translated into higher domestic interest rates, further hurting the overall picture. In June of 1982 the government finally decided to abandon the "automatic adjustment" approach, and to pursue a more active policy. The peso was devalued by 18%, and the indexation clause of the labor law was amended. However, this was too little, and too late. At this point the loss of credibility in the government policies was almost complete, and the devaluation accelerated the speculation against the peso, with the resulting large loss of international reserves in the following weeks. Also the international financial community reacted negatively to these measures, and the flow of foreign funds towards Chile was further reduced. The June devaluation was followed by a brief experiment with flexible rates, and by a dual rates system. In early 1983 the new minister of Finance declared the inconvertibility of the peso, imposed severe exchange controls and implemented a (temporary) hike in import tariffs to a uniform 20% level. In twelve months — between June of 1982 and June 1983 — the Chilean peso had been devalued by 99%. Since inflation during this period was only 32.7%, a real devaluation had taken place, helping the exportable sectors to regain some of the competitiveness lost during the previous years. There are some observers, however, that believe that the adjustment of the price level had

Table 12

Real Exchange Rate In Chile: Quarterly Data

1979-1983

(1979 - III = 100)

| | (1) Index of Basket of Nominal Exchange Rates | (2) Chile's CPI | (3) Index of Consumer Prices for Group of Industrial Countries | (4) Index of Basket Real Exchange Rate (1)x(3)/(2) |
|---|---|---|---|---|
| 1979 | | | | |
| I | 95.1 | 83.7 | 99.1 | 112.7 |
| II | 99.4 | 90.2 | 105.2 | 116.0 |
| III | 100.0 | 100.0 | 100.0 | 100.0 |
| IV | 98.8 | 109.1 | 110.5 | 100.0 |
| 1980 | | | | |
| I | 95.4 | 116.4 | 114.2 | 93.6 |
| II | 100.2 | 125.1 | 118.0 | 94.6 |
| III | 100.3 | 133.1 | 120.0 | 90.4 |
| IV | 99.4 | 143.3 | 122.7 | 85.1 |
| 1981 | | | | |
| I | 95.0 | 149.4 | 125.3 | 79.7 |
| II | 92.9 | 153.7 | 128.2 | 77.5 |
| III | 92.7 | 157.0 | 130.9 | 77.3 |
| IV | 93.9 | 159.6 | 133.1 | 78.3 |
| 1982 | | | | |
| I | 90.3 | 160.8 | 134.4 | 75.5 |
| II | 96.8 | 160.5 | 136.5 | 82.4 |
| III | 127.6 | 170.1 | 138.7 | 104.0 |
| IV | 139.5 | 190.0 | 139.8 | 102.6 |
| 1983 | | | | |
| I | 138.3 | 198.3 | 140.3 | 97.8 |
| II | 143.8 | 209.8 | n.a. | n.a. |

*The industrialized countries considered (shares in parentheses) are: US (55%), Germany (12%), Italy (5%), France (7%) and Japan (21%).

not been completed in June of 1983, and that a tight monetary policy was required to assure the success of the devaluation policy.[30]

In late 1982 the government approached the IMF in order to obtain financial assistance to service the foreign debt. Private banks were also approached, and a rescheduling of the foreign debt was proposed. A standby agreement with the IMF was signed the 10 of January, according to which Chile would receive US $875 millions. Private creditors also agreed to renegotiate the debt subject to the fulfillment of the conditions imposed by the Fund. This stabilization program had the traditional IMF conditionality characteristics, and called for a limited increase in domestic credit during 1983 [50,000 million of pesos], a fiscal deficit below 2.3% of GDP, and a loss of reserves not exceeding US $606 millions for the year. In early 1983, and as a complement to the IMF agreement, the government implemented the so-called Emergency Program, whose main points included providing relief to domestic debtors (especially for debts in foreign currency), the promotion of the construction sector and the development of some public works to reduce unemployment. [The so-called POJH program was created. See Universidad de Chile, 1983.] By the end of the first quarter of 1983, however, the limit on credit experience imposed by IMF had been exceeded, and the Emergency Plan was replaced by the so-called Operative Program. The objective of this program was to bring the economy back into line with IMF conditions. This had been achieved by the 11th of September of 1983, for the tenth anniversary of the Military Coup.

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[30]See Universidad de Chile (1983), and Harberger (1983).

## 7. Concluding Remarks

This paper has critically analyzed ten years (1973-1983) of liberal economic policies in Chile. The analysis has emphasized the relationship between liberalization and stabilization policies during this period, and the use of the exchange rate as a major stabilization tool was extensively discussed. The effects of some of the major reforms, like the tax reform, the liberalization of foreign trade, the opening of the capital account and the freeing of the domestic financial markets were discussed in detail. It was also pointed out that the recent Chilean experience presents a number of interesting puzzles — like the low level of savings in the presence of very high interest rates — which at the present time remain largely unsolved, and require further research efforts to be fully solved.

The final part of the paper centered on the analysis of the recent (1982-1983) recession in Chile. It was argued in this section that this crisis was largely the result of an adverse external environment and of policy mistakes. In particular, the combination of a fixed exchange rate with inflexible real wages was a major policy mistake. Also, the liberalization of the domestic financial market, without establishing a clear set of operating rules and regulations was a problem that resulted in a major financial crisis. Finally, it was argued that the passive attitude followed by the government, in spite of some evident signs of a major economic crisis since mid 1980 (i.e., extraordinarily high real interest rates, large increases of the foreign debt, massive losses in competitiveness), constituted a major mistake.

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