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Export Performance in Chile: Lessons for Africa

Manuel Agosin

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Manuel Agosin
Department of Economics
Universidad de Chile

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ABSTRACT

Since the mid-1970s, Chile's exports have expanded at a fast rate, and the export basket has diversified considerably, away from copper towards other primary commodities and commodity-intensive manufactures. This paper explores the causal factors and the policy implications that can be drawn frorn Chile's experience for countries in Africa wishing to follow a growth strategy based on expanding non-traditional exports.

The major factors behind Chile's export successes seem to go well beyond trade liberalization, which is usually given pride of place in explaining the country's export performance. In the period since 1983, price signals were not only negative for producers of import substitutes. They were also quite positive for exporters: severe exchange rate overvaluation was corrected and pragmatic policies were maintained toward capital inflows that prevented excessive real exchange rate appreciation; and drawback schemes and subsidies for new exports were introduced. In addition, government policy assisted in improving supply responses by correcting key market failures: there was an energetic public effort to gather information on foreign markets; there were technological breakthroughs, fostered by specific policies, that resulted in the emergence of new export sectors; the public sector had a deliberate policy of fostering the emergence of a forestry and wood cluster oriented to export markets; and human resource and infrastructure policies in decades prior to the trade reforms paved the way for the success of the emerging sectors.

We estimate an export supply function for manufactures for the period 1960-95. The exports of manufactures turn out to be a stationary variable with deterministic trend. Deviations from trend are explained by changes in tariffs, in the real exchange rate, and in excess capacity. During the depression of 1975-77, above-average excess capacity explains 38 per cent of the increase in the exports of manufactures; during 1982-85, another period of sharp drops in aggregate demand, above-average excess capacity explains 12 per cent of the increase in these exports.

I INTRODUCTION

For good and bad reasons, Chile has come to be identified in academic and policy-making circles as one of the foremost examples of the successes that await countries that are bold enough to carry out and stick to policy reforms in favour of market forces. In the period 1974-79, the military government that overthrew President Allende in 1973 implemented a thorough trade liberalization, freed domestic financial markets, and opened up the capital account of the balance of payments (Meller, 1996, chapter 3; Ffrench-Davis, Leiva, and Madrid, 1991 and 1993; Agosin and Ffrench-Davis, 1993). These reforms had the objective of bringing down the curtain on the import substitution model of industrialization that had served as the main developmental paradigm since the 1940s and that had been upheld by governments of very different stripes. The reforms of the period 1974-79 were guided by the idea that, once market forces were given full reign, resources would be reallocated (costlessly) to export industries in which the country had a comparative advantage and that this would lead to rapid growth not only of exports but also of aggregate output.

Therefore, in any evaluation of Chilean policy reforms, special interest attaches to the behaviour of exports. It is certainly true that exports rose rapidly after 1974, and that they have continued to do so up to the present. Thus one of the key ingredients in the Chilean success story, it is claimed, has been outstanding export performance.

This paper looks at the performance of exports over a long period: 1960-95. It seeks to identify the main trends in the growth of exports and attempts to assign responsibility to various factors for export performance. We provide answers to the following questions: Was trade liberalization responsible for the evident export success that Chile has had since the mid-1970s and has been able to maintain up to the present? What weight can one assign to other government policies that are less known outside of Chile? Were there specific factors at work at a sectoral level? Last but not least, what should the governments of other countries that have not yet opened their economies do in order to jump-start a process of export-led growth?

The paper is organized in the following way. Section II develops (very briefly) an analytical framework for evaluating policies and their impact on export growth. Besides the need to change market incentives in favour of

export-led growth, which requires trade liberalization *cum* depreciation of the exchange rate, we emphasize that the strength of the supply response will depend on policies to overcome a number of constraints that are endemic to developing economies and that are related to market failures in key sectors – financial markets, human capital formation, and technology and market information acquisition.

Section III deals with export and GDP growth trends in the Chilean economy in the long term. It is certainly true that export growth has been impressive since the mid-1970s and that the Chilean economy has undergone a remarkable process of opening up to trade. However, one can speak of sustained export-led growth only since the mid-1980s, when policy-making became more pragmatic and real exchange rate depreciation gave a big boost to exports.

Section IV describes the trade liberalization of 1974-79 and other policies with a bearing on its results and argues that the restructuring of the economy was needlessly costly because an important share of installed capacity in manufacturing was destroyed rather than gradually redeployed toward the export sector. Although we do not have a counterfactual against which we can evaluate the degree of success of the reforms, it is argued that a different policy package that would have assisted the restructuring of the manufacturing sector would have been more successful. The lessons of the Chilean reforms are very relevant for policymakers elsewhere who are evaluating different routes to opening up the economy.

Section V looks at other policies that affected exports and at specific policies and factors at the sectoral level. We conclude that it is not possible to ignore other policies and initial conditions that increased the strength of the supply response and that were very important in explaining the export successes at the sectoral level.

In section VI a supply function for the exports of manufactures is estimated. It is shown that tariff reductions, real exchange rate depreciation, and excess capacity in manufacturing have all had a role to play in the growth of manufacturing exports. Excess capacity was particularly important during the depressed economic conditions of the 1970s in giving exports their initial push. But the permanent change in incentives associated with trade liberalization and steep real exchange rate depreciation became increasingly important in the 1980s. As excess

capacity wound down in the second half of the 1970s, investments for the export market and export-led growth took hold.

Section VII wraps up the policy discussion and derives policy implications for other developing countries. It is clear that trade liberalization is a necessary but not sufficient condition for export success. The manner in which the Chilean trade liberalization was undertaken, together with its supporting policies (i.e., exchange rate policies, policies toward domestic and international finance), imposed unnecessary costs and delayed the positive effects of the change in relative prices. In fact, a better designed trade liberalization package *cum* measures to strengthen the competitiveness of manufacturing would have led to even faster rates of growth of manufacturing exports and would have avoided significant decreases in output and losses in productive capacity in that key sector. In other sectors, in spite of its neoliberal leanings, the authorities instituted policies which gave strong signals to exporters and worked to correct the market failures that blunt supply responses. After the crisis of 1982, policies became more pragmatic and exporters were assisted by a combination of drawbacks, export subsidies, steep real exchange rate depreciation, and reasonable interest rates. These policies are also fundamental in explaining Chilean successes in promoting exports.

II THE ANALYTICAL FRAMEWORK

The central idea that underlies the analysis of the paper is that the launching of export-oriented growth requires not only a well-designed trade liberalization, as well as supporting policies with regard to key macroeconomic variables (e.g., the exchange rate and interest rates) but also overcoming barriers that inhibit a strong supply response to price signals. These constraints are not spontaneously removed by the operation of market forces and require more purposive policy action by governments or by other institutions that are able to internalize the externality or to correct the market failure involved.

The objective of trade liberalization is to change market signals from favouring import-competing and non-tradable sectors towards encouraging the production of exports and import substitutes that do not require high protection to be profitable. Usually, conventional trade policy advise (which always advocates liberalization, without bothering to look at a

country's institutional setup) relies on a simple two-sector trade model with one exportable and one importable *and no non-tradables*. In such a model, it is possible to ignore the exchange rate, since it disappears from relative prices. However, in the real world non-tradables loom large in the economy and, moreover, there are many tradables, with various levels of protection for importables. Likewise, there is a set of potential exportables, which can be ranked from lowest to highest according to their average costs.

Ceteris paribus, the real exchange rate must depreciate as a result of import liberalization; therefore, those sectors which initially had effective rates of protection below the percentage real depreciation induced by the reduction of import barriers would *benefit* from the package of trade liberalization *cum* depreciation. Thus, they cannot be considered to have been inefficient and, therefore, candidates for the block, just because prior to import liberalization they enjoyed higher effective protection than post-liberalization rates. In addition, the depreciation will generate (with a lag) new exports, as the economy moves further down the list of potential exports ranked according to costs. In fact, some of these new exports may come from sectors previously protected at higher rates than those prevailing after liberalization.

As a result of the trade liberalization, it can be shown that the compensating depreciation[1] must be as follows (see appendix for a formal derivation):

$$\hat{e} = \frac{\hat{t}}{\varepsilon_x / \varepsilon_m - 1}$$

where e is the exchange rate, t the average tariff, a hat over a variable is percentage change, and ε_x and ε_m are (average) export and import price elasticities, respectively. In the Chilean case, the average tariff went from 94 per cent in 1973 to 10 per cent in 1979, implying an induced decline in import prices of 43 per cent. Assuming a price elasticity of export supply of 0.5 and a price elasticity of import demand of (minus) unity, the

1 In this paper, we follow the Latin American convention of expressing the exchange rate as units of domestic currency per unit of foreign currency. Therefore, a depreciation represents an increase, and an appreciation a decline in the exchange rate.

compensating depreciation would have been 29 per cent. This means that any importable with initial tariff of up to 29 per cent was, indeed, internationally competitive and that, with a final tariff of 10 per cent it should have been able to compete with imports and/or become an exporter.

Even if price signals are favourable to exporting, there are, as already noted, important constraints to a swift and strong supply response. Some of them are of an informational nature. Domestic producers do not have adequate information about (1) technologies for producing goods or services that will sell in foreign markets or that will help them to compete with foreign producers at home; (2) marketing and distribution channels in overseas machetes; and (3) consumer tastes or producer needs in potential markets. Successful countries, such as those of East Asia, have been able to overcome these barriers (Lall, 1994). The peculiarity about information is that it is both costly and in the nature of a public good: on the one hand, it is a non-rival good, in the sense that its consumption by one agent does not reduce its value to another; on the other, it is non-excludable – i.e., individual agents find it difficult to keep others from using it.[2] This gives the policymaker an important role in the process of opening up the economy: subsidizing the gathering of information on technologies, foreign markets, and foreign tastes; subsidizing the establishment of reputation for domestic producers (what in recent years has been called 'creating a country image'); and assisting existing firms to retool, orienting their activities towards foreign markets and becoming better able to compete in domestic markets with foreign producers.

A less direct way of dealing with this evident form of externality, and one that makes use of the market, is to create institutions or firms to internalize it. For example, associations of exporters may find it profitable to gather information on markets or technologies on behalf of their members. Thus the role of government can be to assist in the formation of such associations.

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2 These characteristics of information tend to be ignored by standard trade theory and conventional trade policy advice, which assume that all relevant information is costlessly available to all agents. The consequence of relaxing this assumption will be that trade liberalization is rendered more costly, as agents are less able to reallocate resources towards export-oriented activities. Therefore, complementary policies become indispensable in order to ensure strong supply responses to changed price signals within a reasonable time period.

In most developing countries, capital markets are non-existent or very shallow. As emphasized by an abundant literature (e.g., Stiglitz and Weiss, 1981), there are important informational asymmetries that make capital markets imperfect in any part of the world. In developing countries, these imperfections are magnified (Stiglitz, 1994). Supply responses are blunted if potential entrepreneurs have inadequate access to long-term investment finance. Therefore, policies to deepen domestic financial markets and to improve their operation (by, e.g., better regulation or disclosure requirements) are complements to trade liberalization. Even these policies are unlikely to be enough: formal financial markets, no matter how developed, tend to discriminate against small producers and firms without reputation or collateral. Therefore, it will be necessary to supplement private financial markets with appropriate public action. For example, Díaz-Alejandro (1985) advocates the use of development banks to provide credit, at positive and market-related rates of interest, to projects with high social and private returns but which are rationed out of private markets.

Other supply-side bottlenecks are related to low levels of human capital formation and to lack of adequate infrastructure. In these areas, public policy is also indispensable. Education and training have strong externalities; therefore, private market solutions will under produce them. In addition, human capital formation is an investment for which capital markets are particularly unwilling to supply funds. The planning, design, and, despite current fashion, the construction of infrastructure continues to be a priority task of governments.

If one accepts this view, trade liberalization acquires a more limited, although still important, role in the process of launching export-oriented growth. Trade liberalization is a means for altering relative prices in the economy and making it more likely that producers will allocate resources to activities in which the country has a current comparative advantage. Since it does nothing to correct the market failures associated with the factors mentioned above, it is a rather blunt tool for encouraging producers to create new comparative advantages. In fact, some countries – e.g., Korea or Taiwan – launched very successful processes of export-oriented growth *without* trade liberalization (Wade, 1990; Amsden, 1993 and 1994; Rodrik, 1995). In spite of its free market rhetoric, there were a few instances of industrial policy in post-1974 Chile – notably in the forestry sector. In

addition, prior to 1974, history and policies had created the precondition for adequate supply responses.

III EXPORT AND GDP GROWTH, 1960-95

Chile is a small, middle-income, open economy with a population of 14 million inhabitants, at present exporting about a third of its GDP (Table 1).[3] The share of exports in GDP has risen about two and a half times since 1973, the year in which the import liberalization programme was launched. Although GDP growth has been strong since the mid-1980s, *per capita* GDP is still below US$ 5,000. The World Bank (1997:215) estimates that, in purchasing power parity terms, Chile's per capita GDP in 1995, at US$ 9,520 (current international dollars), put the country at the top of the middle income group and just below what it classifies as 'high-income economies', whose *per capita* GDPs began at US$ 11,450 (Korea).

TABLE 1
BASIC DATA ON THE CHILEAN ECONOMY, 1960-95

	GDP per capita (in 1995 US$)	Population (thousands)	Exports (% of current GDP)
1960	2,293	7,607.6	13.8
1973	2,758	10,006.5	13.9
1981	3,232	11,318.6	16.4
1989	3,590	12,882.8	35.1
1995	4,727	14,210.4	29.3

Source: Author's calculations, based on data of the Central Bank of Chile.

3 Obviously, the share of exports of goods and services in GDP depends on two key variables: the exchange rate and the terms of trade. The real exchange rate has fluctuated widely in Chile over the last few decades. In 1986 prices (a year in which the Chilean peso was severely undervalued), exports of goods and services represented 37 per cent of 1995 GDP. In 1995 prices (with an overvalued currency), exports represent 29 per cent of 1995 GDP.

The stylized facts of the growth process in Chile can best be understood by dividing the period since 1960 into five subperiods. The period from 1960 to 1970 was characterized by steady (albeit unremarkable) economic growth. While copper dominated the export basket, there was significant growth in non-traditional exports. In the second half of the decade, economic policies had already began to shift from unrestricted support for import substitution to greater emphasis on export promotion.

The period 1971-73 corresponds to the upheavals of the socialist experiment. In a radical break with the past, the Allende government nationalized large segments of the economy, including the copper mines (which at the time had 49 per cent foreign ownership), the banks, and most large and even medium-sized industrial firms. There were widespread price controls, high tariffs, various sorts of non-tariff barriers, and multiple exchange rates. Non-traditional exports declined steeply during this period.

After the military coup of September 1973, there ensued another attempt at radical departure from the past, this time in a neo-liberal direction. The military regime can be divided into two subperiods, 1974-81 and 1982-89. The first begins with the reorganization of the economy and ends with the boom of 1981; as a response of the banking and balance of payments crises of 1982, the second subperiod is marked by strict prudential regulation of the banking system, sharp exchange rate depreciation, and a greater pragmatism with respect to measures in support of non-traditional exports. In spite of the fact that positive growth resumed in 1984, *per capita* GDP in 1988 had not surpassed its 1981 level. The growth of GDP and exports, and export diversification, were very brisk beginning in 1984.

The final period, which begins in 1990, is associated with the return to democracy. During this period, the growth of GDP has been strong, the investment rate has risen steadily, and non-traditional exports have become the most dynamic sector of the economy. In contrast to what happened in the 1970s and 1980s, the growth of exports has pulled the rest of the economy in its train. Government policies have been supportive of such growth. In the face of large inflows of foreign capital, exchange rate policies have aimed at preventing a massive appreciation of the exchange rate. Finally, policies in support of technological innovation and marketing products abroad have been introduced or strengthened.

Since 1974, export growth has led GDP growth (Table 2). However, it is only since 1989 that the growth in non-traditional exports has been accompanied by strong and sustained GDP growth. During 1974-89, not only did GDP growth trail export growth, but growth and investment rates were substantially below those achieved during the 'golden age' of the 1960s.[4]

TABLE 2
GROWTH AND EXPORT PERFORMANCE, 1960-95
(percentage)

	GDP growth	Gross investment (a)	Total export growth (b)	Non-copper export growth
1960-70	4.2	25.1	5.6	4.6
1971-73	0.5	16.9	-4.4	-11.9
1974-81	3.7	22.2	12.0	20.9
1982-89	2.4	19.8	6.5	8.2
1990-95	6.7	28.5	9.0	9.8

Source: Central Bank of Chile and author's calculations.

(a) As a percentage of GDP in 1986 constant prices.
(b) Goods only.

Even so, as already shown, the degree of openness of the Chilean economy has increased dramatically since 1974. In a sense, one of the objectives of the trade liberalization policies can be said to have been achieved: the economy has gone from a situation in which producing either non-tradables or importables was its mainstay to another in which exports are its leading sector. In the process, large patches of the manufacturing sector

4 The 1960s can be rightfully called a 'golden age': steady growth was achieved in a context of political democracy and social change. The Frei government (1964-70) introduced a land reform without expropriation, bought for the Chilean state 51 per cent of the ownership of the large (and foreign-owned) copper companies, and initiated many innovative economic and social programmes (Ffrench-Davis, 1973). This period was succeeded by two dramatically contrasting economic and social experiments that disrupted the economy and destroyed long-established traditions of political and ideological pluralism.

(e.g., textiles, machine tools) disappeared. Others eventually emerged, mainly oriented towards external markets.

Since 1974, export growth has been very fast indeed, and the growth of non-mineral exports has been spectacular. We have divided goods exports into seven categories: copper, other minerals, agricultural products (which are mainly fresh fruit and vegetables), fishmeal and extractive fishing products, wood and wood products (including a growing but small item of furniture), pulp and paper (mostly pulp), and other manufactures. This last category consists of about 3,000 items of the most varied nature. It comprises, among others, confectionery, fruit juices, processed food, canned and frozen fish, cultivated salmon, wine, auto parts, sanitary equipment, and metal products. What these products have in common is that they are either natural-resource intensive or use standardized technologies. Their main markets are in other Latin American countries, but they are an increasing component of exports to developed countries.

Exports of non-factor services have also risen dramatically. It has not been possible to disaggregate services exports by category. Nonetheless, available qualitative information indicates that some new service industries have began to export successfully in recent years (software and engineering services, for example). These are sectors where the country has been able to acquire comparative advantage through long-term policies of human resource development, which, parenthetically, suffered serious setbacks during the military regime.

Thus exports have not only grown, but they have become increasingly diversified. In 1971-73, copper represented almost 80 per cent of total goods exports. If we add other minerals, the share of minerals was almost 90 per cent. By contrast, in the 1990s the share of copper has fallen to under 40 per cent and that of all minerals to under 50 per cent.[5] On the other hand, the share of 'other manufactures' has risen from 5 per cent in 1971-73 to almost 30 per cent in the 1990s. If we add pulp and paper, fishmeal, and wood products, total exports of manufactures and semi-manufactures comprise over 40 per cent of total exports, as compared to 10 per cent in 1971-73 (Figure 1).

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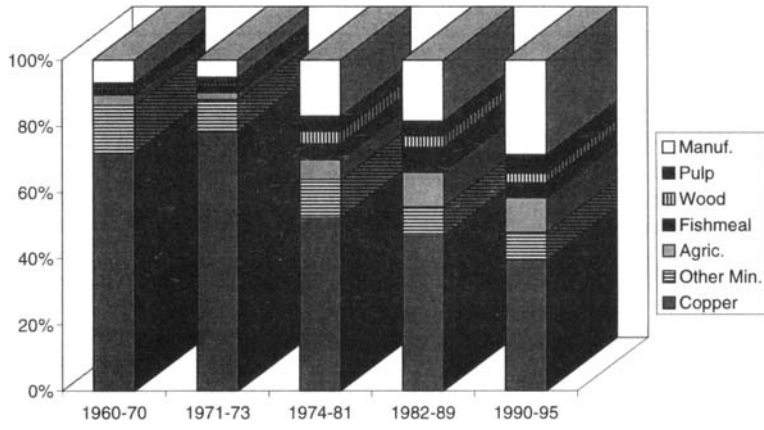
5 However, large investments by foreign copper companies over the last decade may reverse these trends in the coming years, when the output generated by these investments comes on stream.

FIGURE 1
SECTORAL DISTRIBUTION OF EXPORTS, 1960-95



For all of these seven categories of products, we calculated price indices with which we could derive export volume growth rates by category.[6] Non-mineral exports have grown rapidly in volume terms since 1974 (Table 3 and Figures 2 through 5). The rates of growth of export volumes during the first period under military rule (1974-81) are particularly impressive, but this is due mainly to their small (and depressed, in the case of manufactures) levels in 1973.

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6 There are no long time series on export volumes and prices available in Chilean official statistics. For the period from 1960 to 1989, as deflators of the value statistics we used the export price indices calculated by Sáez (1991). For the period 1990-95, Central Bank estimates for export prices and volumes are available. Unfortunately, there are no data for 1990 with which to splice together the two data sets. Therefore, price indices for 1990 were forecast with the Sáez (1991) data using an autoregressive scheme with 7 lags. Since both the Sáez and Central Bank price index for manufacturing prices include pulp and paper, fishmeal, and wood products, and we wished to estimate export prices and volumes for an aggregate excluding these items, we proceeded to calculate an export price index for manufactures of our own. A price index was constructed for these three items using moving yearly weights. In spite of the flimsiness of the price series, the volume series obtained with them behave reasonably.

TABLE 3
AVERAGE ANNUAL RATES OF GROWTH OF EXPORT VOLUME,
BY TYPE OF GOOD, 1960-95

	1960-70	1971-73	1974-81	1982-89	1990-95
Copper	6.2	-1.0	7.8	4.6	7.8
Other minerals	1.6	-2.6	6.7	6.5	3.4
Agricultural products	2.4	-27.5	32.6	11.8	7.0
Fishmeal and fish products	18.7	-31.1	45.8	11.1	3.0
Wood and wood products	15.9	-25.1	41.0	7.3	4.3
Pulp and paper	16.7	-7.6	18.5	0.8	22.7
Other manufacturerers	7.1	-28.0	38.6	9.2	12.7
Total non-copper	4.6	-11.9	20.9	8.2	9.8
Total goods	5.6	-4.4	12.0	6.5	9.0
Services	...	...	18.8 (a)	0.1	8.0

Source: Author's calculations and Central Bank of Chile.

(a) 1976-81.

FIGURE 2
TOTAL GOODS AND MANUFACTURES EXPORTS, 1960-95
(in million 1995 US$)

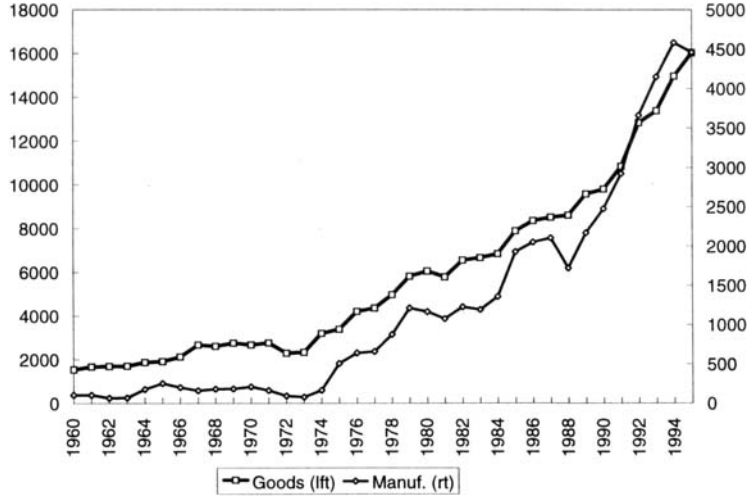


FIGURE 3
COPPER AND OTHER MINERAL EXPORTS, 1960-95
(*in million 1995 US$*)

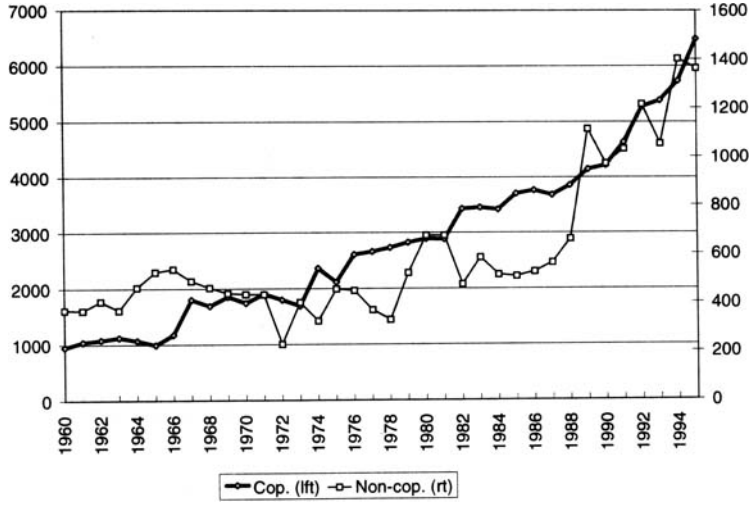


FIGURE 4
AGRICULTURE AND PULP AND PAPER EXPORTS, 1960-95
(*in million 1995 US$*)

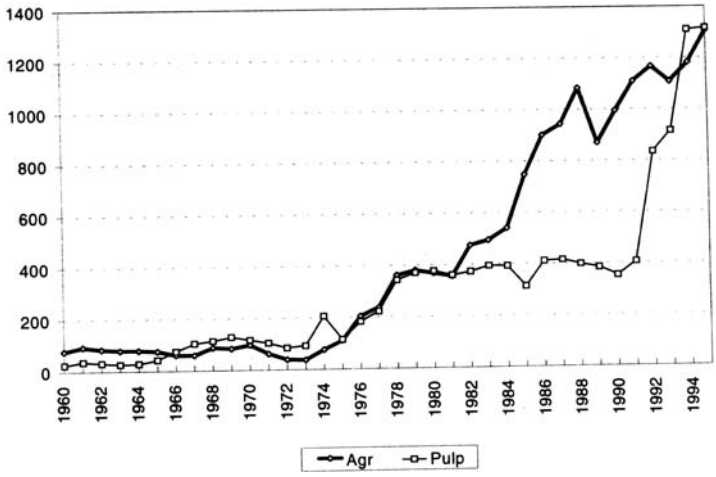
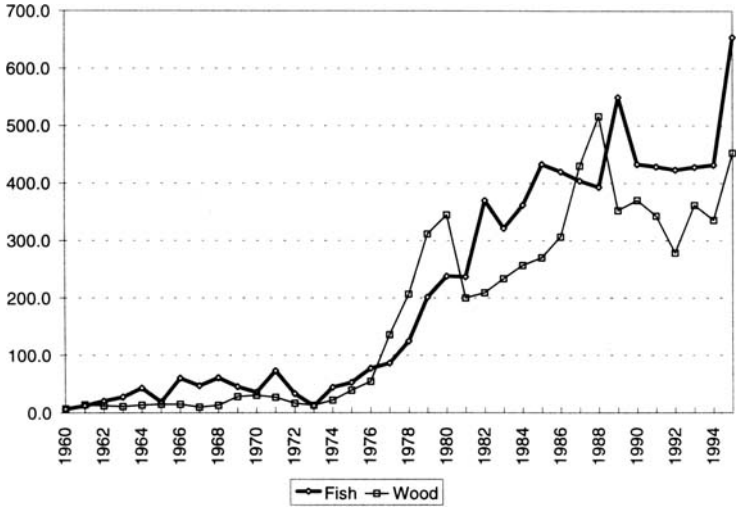


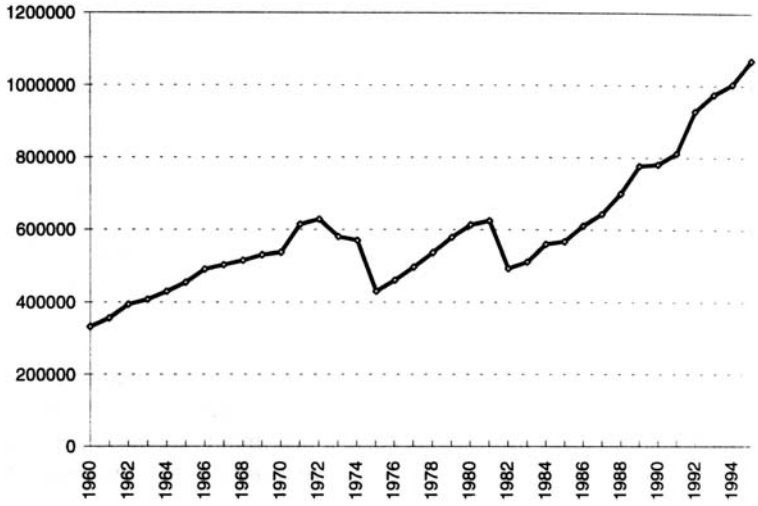
FIGURE 5
FISHMEAL AND WOOD PRODUCTS EXPORTS, 1960-95
(in million 1995 US$)



Moreover, to a large extent, the growth of exports of 'other manufactures', which include items that are produced both for export and for domestic markets, was induced during this period by the huge excess capacity created by the trade liberalization policies. Fiscal adjustment in order to reduce a fiscal deficit that had grown to almost 20 per cent of GDP, together with very high interest rates (resulting from financial liberalization without adequate regulation) also contributed to the depression in aggregate demand and to the contraction in GDP in 1975, which bordered on 13 per cent. One way in which domestic producers of manufactures defended themselves was to seek foreign markets for the goods they could not sell at home (Ffrench-Davis, 1979). The manufacturing sector shrunk in absolute terms, manufacturing output did not recover its 1972 levels until 1987 (Figure 6), and the share of manufacturing in GDP contracted from 26.6 per cent in 1972 to 20.8 per cent in 1987.[7]

7 Data drawn from Central Bank of Chile, *Indicadores Económicos y Sociales, 1960-88*, Santiago, 1989, p. 30. The ratios cited in the text are calculated with data in 1977 constant prices.

FIGURE 6
REAL MANUFACTURING OUTPUT, 1960-95
(in million of 1995 pesos)



Excess capacity also played a role in the expansion of manufacturing exports in the 1982-89 period. Once again, there was a severe economic contraction in 1982-83, with GDP falling about 15 per cent. It was not until after 1985 that one can speak of export-led growth with positive net investment in this sector. By contrast, during the period since 1989, output has been close to potential output, investment has grown sharply, and exports have led a rapid increase in overall manufacturing production.

Therefore, it is only since the mid-1980s that export-led growth has become firmly based. Non-traditional exports have become the most dynamic component of the economy, investment rates have been rising from Latin America toward East Asian standards, and overall growth has been high and steady. Since 1989, excess capacity in manufacturing (and in the economy as a whole) has been close to zero and, therefore, cannot explain the increase in manufacturing exports.

IV THE ROLE OF TRADE LIBERALIZATION

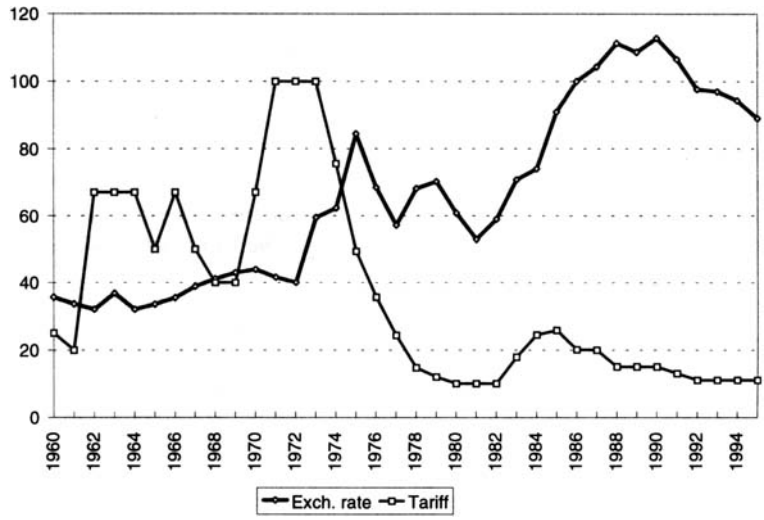
One of the first measures of the military government after the September 1973 coup was to announce a trade policy reform. Indeed, at that time trade policy can best be described as chaotic: the (unweighted) average tariff was 94 per cent; there were 57 different tariff rates, ranging from zero to 220 per cent (plus surcharges on a number of items); there were many non-tariff measures (prior import deposits, prohibitions, quotas, etc.) and a multiple exchange rate system with eight rates, where the highest price for the dollar was 10 times the lowest. This *ad hoc* system of protection served no development purpose at all. The disorganization of the Allende period had led to stagnation in manufacturing, the disappearance of economic growth, and a strong contraction of a fledgling non-traditional export sector (which included several manufactures).

The trade liberalization announced in late 1973 involved the elimination of all non-tariff barriers, the gradual reduction of tariff rates and their consolidation into three tariff levels (with a maximum rate of 60 per cent), the unification of the exchange rate, and *a devaluation to compensate the reduction in the average tariff.* In effect, the real exchange rate did depreciate in real terms during the two and a half years following the introduction of the reform. In the absence of capital flows, this was the outcome of market forces: the opening up of the economy led to an import surge which caused the exchange rate to depreciate sharply (Figure 7).

Several events induced a change in the course of the reform. As the trade liberalization programme progressed, it was radicalized. In 1975, the authorities announced a new tariff range of 10 to 35 per cent, to be reached in gradual steps by 1978. Toward the end of 1977, the objective of reaching a 10 per cent tariff by mid-1979 for all imports was set, with monthly tariff reductions. In addition, prospects for tapping international financial markets changed for the better by mid-decade. This made it possible for the authorities to assign exchange rate policy to the objective of slowing down inflation (essentially, by appreciating the real exchange rate). As a consequence, beginning in 1976, limitations to international capital movements were steadily lifted.[8] At the same time, a strict crawling

8 Ironically, the process ended in 1981, shortly before the onset of the debt crisis, with the complete freeing up of international capital flows.

FIGURE 7
REAL EXCHANGE RATE AND TARIFFS, 1960-95
(Exchange rate 1986=100; tariffs in %)

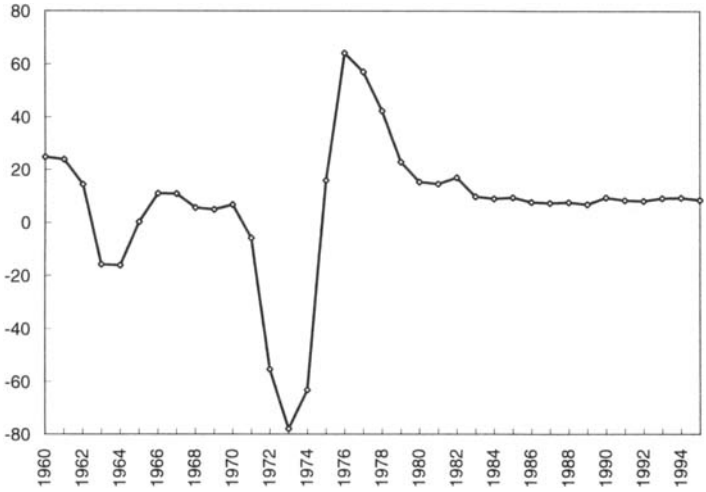


peg was abandoned, and nominal exchange rate changes began to lag past inflation. Finally, the nominal exchange rate was fixed in mid-1979. Since inflation wound down slowly, considerable real exchange rate appreciation accumulated in the period 1976-81. This was made possible, of course, by large capital inflows. Real exchange rate appreciation, together with the liberalization of imports, implied a negative shock to the entire tradable sector. Rather than reconversion and the orientation of tradables towards international markets, the tradable sectors of the economy shrunk and non-tradables expanded.

The way domestic financial markets were liberalized also had an important bearing on the poor initial results of the trade liberalization programme. The situation in domestic financial markets before the coup was one of extreme financial repression: the banks had been nationalized; ceilings on interest rates were set which bore no relationship to domestic inflation, resulting in extremely negative real rates and financial disintermediation; and the monetary authorities intervened heavily in the allocation of credit, with a proliferation of special credit lines which, *in toto*, did not amount to

anything close to an industrial policy. The reforms instituted in 1975 included the privatization of banks, the lifting of interest rate ceilings, the reduction of reserve requirements, and the elimination of any restrictions on credit. At the same time, with the aim of encouraging competition, entry barriers to the banking and finance industry were lowered significantly. There were no prudential regulations on the activities of banks or other financial institutions; no considerations of moral hazard in banking and finance deterred the reformers. As a consequence, the financial sector grew enormously, financial operations crowded out real investments, and interest rates went from very negative to extremely high in real terms (Figure 8).[9] The retooling of firms producing for the domestic market, or their transformation into exporters, was rendered well-nigh impossible.

FIGURE 8
REAL INTEREST RATE, 1960-95



In order to deal with the consequences of the drying up of foreign capital inflows and a rapidly worsening domestic crisis, in mid-1983 the flat tariff was raised to 20 per cent and in September 1984 to 35 per cent (the level

9 In his last published article, Carlos Díaz-Alejandro (1985) provides a masterly description and a devastating critique of the Chilean financial liberalization.

bound by Chile in 1979 at the end of the Tokyo Round of GATT multilateral trade negotiations). Surcharges on automobiles and consumer electronics were also introduced. As the crisis abated, the flat tariff was again reduced in gradual stages beginning in 1985. In 1989, at the end of the military regime, it stood at 15 per cent, from where it was lowered in 1991 to 11 per cent by the democratic government. During the 1980s, policies favourable to the expansion of exports were introduced: duty drawbacks for exporters, a subsidy for small exports, and foreign direct investment policies favouring non-mineral exports. More on all of these below. In addition, owing to stringent prudential regulation of financial institutions, interest rates settled down to more reasonable levels in real terms, which favoured investment and technology acquisition. Last but not least, a binding foreign exchange constraint produced steep real exchange rate devaluations in the period 1982-88.

Figure 7 shows data for the evolution of the real exchange rate and the average tariff rate.[10] Broadly speaking, the relationship between the real exchange rate and the average tariff (for the period before 1979, a crude but probably accurate indicator of trade policy) behaves as one would expect: the much lower tariffs since the mid-1970s have been accompanied by a higher real exchange rate. As theory would predict, this relationship holds in a long-run context. However, between 1976 and 1981, dramatic tariff reductions were associated with a sharp real exchange rate appreciation.

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10 The real exchange rate is estimated as the nominal price of the US dollar deflated by the CPI and multiplied by an index of external prices (IEP) relevant to the Chilean economy calculated by the Central Bank. For the period 1977 onward, the Central Bank series was used. For earlier periods, we constructed our own series using the IEP estimated by Ffrench-Davis (1984). Our numbers for 1974-76 correct for official underestimation of the rate of increase in the CPI. As regards average tariffs, for 1974 onward the series is an unweighted average. Since there were no non-tariff barriers after 1975, the average tariff rate is a fairly accurate representation of the restrictiveness of the trade régime. No data are available for the period before 1973, which was marked by high tariffs, considerable tariff dispersion, and many non-tariff restrictions. We used an index of trade liberalization developed by De la Cuadra and Hachette (1992:79) and applied the ratio of that index to its value in 1980 to the average tariff that year (10 per cent) in order to obtain a tariff equivalent of all trade restrictions for the period 1960-73. It is appropriate to use the 1980 tariff because that was the first full year of application of a unified tariff of 10 per cent.

The exchange rate trends noted above, together with very high real interest rates prevailing after the freeing of domestic financial markets in 1975, meant that the spurt of export growth after 1974 was not sustainable. In fact, the upward movement in exports was partially reversed in 1979-83.

V OTHER POLICIES

Other policies have been just as important as, or probably more important than, trade liberalization in explaining the sustained growth of non-copper exports. These policies can be categorized into two broad groups: general policies affecting all exports and sector-specific policies and factors. In this section, we also deal with preferential trade agreements, which in the 1990s superseded unilateral trade liberalization as the major tool in the strategy for international economic integration.

5.1 General policies

5.1.1 Exchange rate policy

In a world with many tradables (which have widely different initial levels of protection) and a large non-tradable sector, the real exchange rate and policies towards its determinants are crucial to the success of a trade liberalization, if success is gauged by (a) the speed with which the economy adjusts its production structure, and (b) the strength of the underlying growth process. As already noted, exchange rate policies were not conducive to self-sustained outward-oriented growth in the 1970s. After several experiments with exchange rate policy in 1982-83, the market exchange rate was allowed to fluctuate within a narrow band (initially set at 1 per cent around the central rate and later gradually widened). The central rate began to be devalued on a daily basis according to the difference between domestic and foreign inflation during the past month. In addition, beginning in 1982, the severe balance of payments situation forced several discreet devaluations. As a consequence, the real exchange rate more than doubled between 1981 and 1988 (Figure 7). These trends in the real exchange rate were undoubtedly one of the factors that accounts for the rapid and sustained growth of non-traditional exports after 1982.

During the 1990s, the Chilean economy has been faced once again with an abundance of foreign capital resources. This time, the management of the capital account has been more flexible than during the last episode of foreign capital abundance. Policymakers responded to the increased supply of foreign capital by discouraging the inflows of short-term capital while maintaining liberal access for FDI (Agosin and Ffrench-Davis, 1996). Essentially, this has been done by placing a 30 per cent unremunerated reserve requirement (which has to be maintained for one year, regardless of the maturity of the financial instrument) on foreign borrowing and on foreign financial investments (including investments in the Chilean stock market). The scheme is very onerous for short-term flows and has a low cost for flows that have a time horizon longer than one year. While effective in reducing short-term credits and portfolio inflows in the period 1993-95, in 1996 and 1997 medium- and long-term credits bulged, and portfolio inflows returned on a massive scale. Banks appear to have shifted their borrowing toward longer maturities, and portfolio investors may have tended to view the cost of the reserve requirement as akin to taking an option on possible future capital gains.

In addition, the exchange rate band within which the price of the US dollar is allowed to float was broadened (it now stands at 12.5 per cent around the benchmark price), with the Central Bank practicing within-band dirty floating. The reference exchange rate is no longer the US dollar only, but a basket of currencies made up of the dollar, the yen and the deutsche mark. These moves have had the purpose of creating greater uncertainty for short-term operators while giving the long-term participants in the market (most importantly, exporters) greater certainty as to where the Central Bank believes the price of the US dollar will be in the long run. However, even this more flexible exchange rate policy has tended to lose its efficacy over time. Since the market exchange rate has remained close to the bottom of the band for a couple of years now, the Central Bank has, in effect, been guaranteeing a fixed real exchange rate for foreign investors. Considering that the odds are more in favour of real appreciation (through a lowering of the floor of the band) than depreciation, the differential in interest rates in favour of the peso is hard to resist, particularly if one considers that the tax equivalent of the reserve requirement diminishes very rapidly with the time the funds remain in Chile.

Thus the authorities are now in a quandary as to how to prevent a greater real exchange rate appreciation, which would undoubtedly threaten the viability of the export-led model. Several solutions have been proposed, including taxing interest remittances abroad, hiking the reserve requirement rate or extending its duration (particularly for portfolio inflows), and imposing an additional tax on mining exports or profits thereon, which would discourage FDI and capture for the government a portion of natural resource rents. As regards the exchange rate mechanism, the effectiveness of managed floating with a band depends on the authorities' willingness to keep the market exchange rate well within the band through dirty floating and to prevent it from going to the extremes of the band, which only invites one-way speculation.

5.1.2 Drawbacks

Since the mid-1980s, two drawback schemes have been in use. One is a regular drawback, which has been in force since 1988, by which duties on imported inputs used by exports are recovered after the fact. This programme has some weaknesses. It requires paperwork and has a financial cost for the firm, since it has to first pay the duty, which it recovers with considerable delay. The other system is the so-called 'simplified drawback', introduced in 1985. For exports of less than US$ 20 million for a given tariff item, all exporters receive a cash subsidy of 3, 5, or 10 per cent (depending on the value of exports for the entire tariff line) on their export value in *lieu* of a regular drawback. Although the scheme has been sold domestically and internationally on the grounds that it simplifies life for small exporters for whom it is costly to do all the paperwork needed to apply for the regular drawback, it does in fact contain a subsidy element, with a maximum rate of around 6 per cent, corresponding to the 10 per cent drawback rate (which applies to exports below US$ 10 million for the entire tariff line).[11]

This scheme has become increasingly important as an export incentive. In 1994, the state paid a total of US$ 150 million on these subsidies, compared to just US$ 26 million on the regular drawback. Approximately 13 per cent of the value of exports (and 70 per cent of the number of

11 Given the current flat tariff of 11 per cent, the 10 per cent 'drawback' would not involve a subsidy if imported inputs constituted 90 per cent of the value of exports. The actual number is more likely to be in the 30 to 40 per cent range.

exported products) obtained the simplified drawback that year (Ffrench-Davis and Sáez, 1995:79 and 89).

What the Chilean experience shows in this regard is that modest incentives can have a powerful effect if they are well administered. Although there have been no careful econometric studies of the impact of the simplified drawback on the emergence of new exports, it may be no coincidence that after the introduction of the scheme the number of exported manufacturing products, and the values exported, grew rapidly. In fact, this kind of incentive is close to economic optimality: new exports are certain to have strong externalities related to information gathering; as the exports of an item grow, the externalities disappear. Thus, the automatic extinction of the subsidy is a particularly attractive feature of this scheme.

In addition, importers of capital goods pay duties on a deferred schedule of up to seven years, and exporters are exempted from those payments. This undoubtedly encourages investment for exports. Both this provision, as well as the simplified drawback, which are considered subsidies by the World Trade Organization (WTO), will have to be eliminated by the end of 2002.

5.1.3 Policies towards foreign direct investment (FDI)

Policies towards FDI have played a direct and indirect role in stimulating exports. The FDI regime was completely liberalized in 1974. The new Decree Law 600 of that year gave national treatment to foreign investors, opened most of the economy to FDI, made approval of FDI projects automatic once simple conditions were met, and guaranteed unrestricted remittance of profits at any time and repatriation of capital after three years (reduced to one year in 1992). All performance requirements (with the exception of one in the automobile sector, see below) were also abolished (Riveros, Vatter, and Agosin, 1996).

FDI did not increase until 1987, but since then, its growth has been uninterrupted. About 60 per cent of all new investments through DL 600 have gone to the mining sector. These investments were made for a combination of reasons. In the first place, the comparative advantage of Chile in copper, molybdenum, iron ore, and other minerals is well-known. Second, the liberalization of FDI rules and regulations allowed investment to take place. Third, a Mining Law passed in the 1970s authorized private

property in mining and made it very difficult for the state to expropriate mining concessions.

Other FDI policies have had the result of encouraging non-mining exports. In 1985, the authorities instituted a debt-equity swap programme whose objectives were to decrease the burden of external debt and to encourage FDI at the same time. But this channel for investing in Chile did not have the neutrality and automaticity of DL 600. As noted by Ffrench-Davis (1990), the debt-equity swap programme involved a heavy subsidy to FDI; however, projects had to be approved on a case-by-case basis. Mining projects were banned from using the instrument; and projects involving technology transfer and new exports received priority. Thus, the authorities made of necessity a virtue and practiced industrial policy by another name. During the years in which it was in operation (1985-91), about 60 per cent of the investments made under the programme went into manufacturing and agriculture, the largest component of which were forestry and pulp and paper operations. Roughly 40 per cent of all FDI during this period was made with swaps. As a consequence of a new interest in investing in Chile, investments through DL 600 continued to rise *pari passu* with investments through swaps. Therefore, the swap programme is unlikely to have substituted investments that would have been made anyway through DL 600. Because of the increase in the market value of Chilean debt, swaps stopped being used by foreign investors in 1992, and the programme was formally abolished in 1996.

Although quantitatively much less important than investments in mining, several foreign investments in the agroindustrial sector have been very important in the development of new exports. For example, United States fruitpacking firms have brought new storage and transport technology and opened new marketing channels for Chilean products; as will be discussed below, an investment by a Spanish winemaker was responsible for the introduction of new technology into the wine industry. Emulation by traditional Chilean producers made exports soar. Such investments would not have been made if FDI regulations had not been as liberal as they were and incentives had not been favourable to producing for export markets. At the same time, it is important to emphasize the information component that FDI brought, with regard to both technology and markets.

5.1.4 Market information

As already noted, information gathering on foreign markets is a costly activity in which social returns are far superior to private returns. Since 1974, the Chilean government has made a significant investment in the gathering of information on foreign markets. With the assistance of 32 commercial offices abroad, a trade promotion division of the Ministry of Foreign Affairs (ProChile) has been in the business of conducting market studies and gathering commercial information relevant to exporters. Recently, it has engaged in an aggressive campaign to create a positive country image. It is about to become an independent semi-public corporation with substantial private sector participation.

During the 1990s, publicly subsidized trade promotion activities have been intensified. Groups of firms have been encouraged to form associations and to promote their products and carry out market intelligence activities jointly. The financing of the foreign activities of these Export Committees is subsidized on a decreasing scale for a maximum period of six years. The Chilean Development Corporation (CORFO, a public agency established in the 1940s which played a key role in the country's industrialization during the import-substituting period) runs a similar programme with the assistance of trade associations and subsidizes for a limited time a share of the groups' management costs.

5.1.5 Technological development

The problem of under investment in technological development has been handled in an ingenious way. Fundación Chile, a profit-making but (until now) publicly subsidized institution whose capital is owned in equal shares by the Government of Chile and ITT,[12] has developed new technologies that are appropriate for export products and has set up new firms which it has later sold to the private sector. As any venture capital outfit, it has had many failures, but some notable successes, of which the development of the salmon export industry has been the most remarkable. The encouragement of R&D in the broadest sense (including the development of new products for export markets) is an important component of an

12 The genesis of Fundación Chile is interesting. When the military government set out to repay ITT for the nationalization of the Chilean Telephone Company, it was agreed to establish Fundación Chile, with the ITT share paid in by the government.

organic export promotion effort. In fact, it can be argued that sustained export growth and diversification in the future will require a much larger allocation of resources to R&D, and that the combined efforts of the private sector, the government, and institutions such as Fundación Chile are still quite insufficient.

5.1.6 Infrastructure and human resource development

Although Chile's inadequate infrastructure of roads, ports, airports, tunnels, etc. constitutes at present a serious bottleneck to the intensification of its export-led growth process, the existence in the mid-1970s of (for the time) adequate infrastructure was certainly an important facilitating element in the export take-off. In other words, without the infrastructure that existed at the time (e.g., several large ports, a new international airport inaugurated in 1967, a North-South highway finished in the 1960s, essentially with foreign aid), changes in price signals alone would have elicited a weaker supply response.

Likewise, human resources were adequate to the task of reorienting the economy toward export markets. By the early 1970s, Chile could count on a large pool of engineers and managers formed in good state universities over the previous decades. The import substitution period and active state entrepreneurship since the 1940s had also left a legacy of industrial and management skills that could be put to use in the export drive. As discussed below, state universities had begun to turn out forestry engineers in the 1950s. In the 1960s, there were important programmes for creating sector-specific human capital in agriculture which later turned out to be essential in the development of fruit and vegetable exports. In 1964, a semi-autonomous agricultural research institute (INIA) was created with public funds. In 1965, a ten year programme between the University of Chile (the country's main public university) and the University of California at Davis was established to train Chilean agricultural economists and agronomists. This relationship became an important mechanism for the transfer of technology between two regions with similar climate and soil conditions (Meller, 1994).

5.2 Sectoral policies

There have also been important sectoral policies and special factors that have had a direct bearing on the expansion of particular export products. Some of these are described below.

5.2.1 The forestry cluster

An important contributor to the increase in exports has been the forestry cluster (logs, chips, processed wood, pulp and paper, and, recently, furniture). In 1995 prices, from 1973 to 1995, the exports of this group of industries have increased seventeen-fold, from US$ 105 million to US$ 1.8 billion.

Public forestation and reforestation programmes date back to the 1960s. In 1974, a subsidy of 75 per cent of tree planting costs was instituted (Decree Law 701). At the same time, privately planted land was declared unexpropriable, a prohibition on cutting trees of under 18 years of age was repealed, and exports of raw wood in any form were authorized. These legal changes made vertically integrated operations possible and very profitable (Rossi, 1995). In addition, between 1975 and 1979, the Central Bank provided private commercial banks and the State Bank (a public commercial bank catering to the needs of small depositors and business firms) with a special line of credit for on lending to forest development projects, with particularly favourable conditions for natural persons and small firms.

It had long been known that Chile has a comparative advantage in forestry. Climate and soil conditions ensure the rapid growth of certain species of trees, particularly radiata pine. In view of this natural resource endowment, during the 1950s, two public universities began to offer degrees in forestry engineering, so that, when the sector began to develop, the industry had at its disposal a significant corps of specialists in the field. When conditions were favourable, a large number of these professionals became entrepreneurs in the forestry and wood sector. In more recent years, forestry engineering programmes at public universities have grown, and they have started to be offered at many private universities.

In spite of Chile's natural resource advantages in this sector, an industrial policy was necessary to give it the 'big push' to become a major industry. This is perhaps the only instance of industrial policy on a big scale – and a very successful one – since 1974. It included special incentives for the development of the sector, a legal framework favourable to private enterprise and exports, removing the liquidity constraint to investment, and the accumulation of human capital specific to the sector. Perhaps the most compelling trait of this policy package has been its transparency and

simplicity, something that can be emulated by countries at a lower stage of development.

5.2.2 The cultivated salmon industry

Cultivated salmon exports went from almost nothing in 1986 to US$ 520 million in 1996. At present Chile holds about 15 per cent of the world market for cultivated salmon and trout and is the second world exporter behind Norway. Thus the salmon industry constitutes a real success story and one in which technological adaptation and development played a key role.

Fundación Chile began experimenting with cultivated salmon technology in the second half of the 1970s. In the early 1980s it set up a firm to produce cultivated salmon in Lake Llanquihue using floating cages, a technology developed in Norway and Scotland and which, it was thought, could be adapted very successfully to the natural conditions of the Chilean lake district. The firm, Salmones Antártica, was later sold to Nippon Suisan, a Japanese company that is one of the largest fishing companies in the world. The example of Salmones Antártica attracted many other investments by domestic entrepreneurs and by foreign companies (Achurra, 1995).

This industry is very interesting for a number of reasons. One of them is that it combines technological change induced by a semi-public institution with the country's natural advantages. Second, salmon exports represent the exploitation of a niche export market. Their success shows that it is not necessary to follow the Asian model of penetrating mass markets for consumer goods in which the main comparative advantage of a developing country is its low wages. These sectors are very vulnerable to protectionism, and, at present, different approaches may have greater pay-off. Last but not least, the salmon industry has many positive backward linkages. It has spawned local industries for floating cages, nutrients, fishnets, packing materials, and transport services. Since it employs highly skilled professionals (engineers, technicians in aquaculture, biologists), it has also had a positive impact on the demand for construction, education, and retail trade in the region.

5.2.3 Wine

Chilean wine exports have risen meteorically over the last ten years, from US$ 10 million in 1985 to US$ 290 million in 1996. Winemaking is a traditional economic activity in Chile that goes back to colonial times. However, wine exports took off only in the mid-1980s. The kinds of wines produced by Chilean winemakers were not acceptable to consumers in developed countries, and technological change on a large scale was needed for Chilean wines to sell abroad. These included the introduction of stainless steel vats, the use of small and new wood vats (rather than large used ones) for ageing wine, and investments in new cooling equipment and machinery for pressing and mashing. Although it was known that Chilean wines could be very advantageously produced with the new technologies being used in Europe and the United States, a demonstration effect was needed. In 1981, the Spanish firm of Miguel Torres bought large tracts of land in the Central Valley (Curicó) and began to produce wines with the new technology. This firm's success led to the rapid introduction of the new methods by Chilean firms.

The openness of the economy aided the process of importing new machinery. In addition, many of the traditional wine producers are large firms by European standards and are also active in other export sectors (particularly fruit). Therefore, they do not face severe liquidity constraints on investment. In more recent years, there have been investments by other large European and United States firms (e.g., Rothschild, Larose Trintaudon, Grand Marnier, Robert Mondavi, and Christian Brothers). Also, several new 'boutique' wineries are producing new products for the export market and are trying to position their wines at a higher price and quality range than traditional vineyards. These producers, with less financial muscle than that of the large wineries and the foreign investors, rely on associations of new winemakers to market their exports (Bordeu, 1995).

5.2.4 The automotive industry

Automotive parts have been a small but significant component of manufacturing exports for over a decade. They have been stimulated by the only performance requirement that remains in Chilean investment policy. A special programme (called the Automotive Statute) allows assemblers duty free imports of CKD or SKD kits to the extent that imports are compensated with exports of nationally produced components of an equal

value. The statute also grants assemblers a tax credit on components that are domestically produced or exported. In order to qualify for the tax credit, a component must have a domestic value added of at least 70 per cent if it is for domestic use or of 50 per cent if it is for export. These incentives are incompatible with the WTO's TRIMS agreement and will have to be stricken off the books by the end of 1999. The tax credit expires at the end of 1998.

5.3 Preferential trade agreements and regional integration

With the return to democracy, there has taken place a significant change in the country's internationalization strategy. While in the 1970s and 1980s the favoured approach was one of unilateral trade liberalization, in the 1990s priority has been given to the signing of free trade agreements; thus, policymakers have come to give priority to reciprocal liberalization with specific partners over unilateral integration with the world economy without reciprocity. Perhaps the single most important reason for this change of emphasis has been that the Chilean tariff at the end of the 1980s (15 per cent, lowered to 11 per cent in 1991) was already low, so that large efficiency gains were unlikely to be reaped by further unilateral liberalization. At the same time, Chile's main trading partners maintained high tariffs or other trade barriers for products in which Chilean producers had attained (or could attain in the short or medium term) comparative advantage.

In Chile's case, the country's highly diversified foreign trade by region of origin and destination (Figures 9 and 10) appears to suggest that the optimal strategy is one of negotiating free trade agreements with all of its main trading partners. Success in doing so would also minimize the major cost of bilateral free trade agreements, which is trade diversion. This was, roughly, the strategy adopted. At the same time, the authorities sought admission for Chile into the North American Free Trade Agreement (NAFTA, made up of Canada, Mexico and the United States), negotiated a free trade agreement with Mercosur (a customs union between Argentina, Brazil, Paraguay, and Uruguay), took the first steps toward a free trade agreement with the European Union, and signed a host of other free trade agreements with less important trading partners (Mexico, Venezuela,

FIGURE 9
EXPORTS, BY DESTINATION, 1996

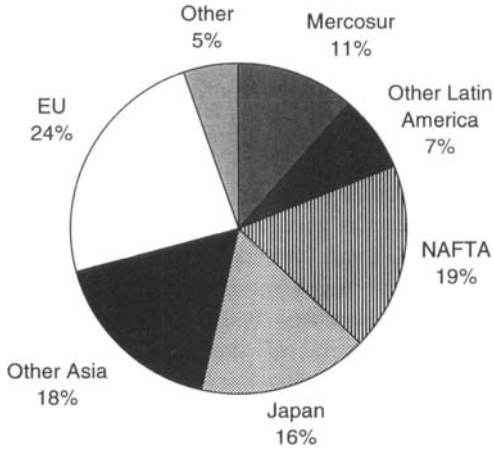
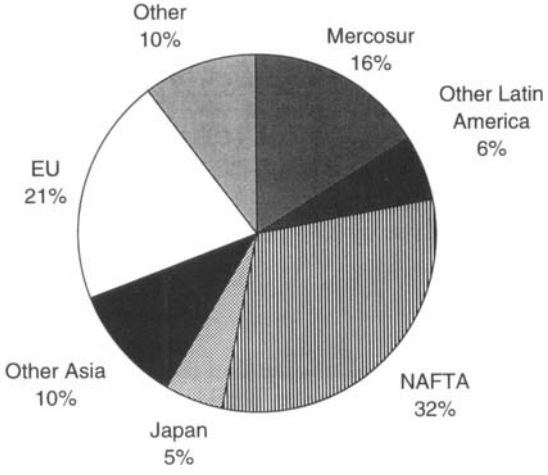


FIGURE 10
IMPORTS, BY REGION OF ORIGIN, 1996



Ecuador, Colombia, Canada, Bolivia).[13] Chile has been participating actively in APEC, but it is unclear what direction that grouping will take. So far, of the free trade agreements sought with major trading groups (NAFTA, European Union and Mercosur), only the association with Mercosur has met with success, the association agreement having gone into effect in October 1996.

While Chilean export successes of the past two decades owe nothing to free trade agreements, they are likely to play an important role in the continuation of outward-oriented growth and in the development of new and more sophisticated export products. In this respect, the association with Mercosur is crucial. Even without a free trade agreement, a large share of Chile's exports of manufactures go to other Latin American countries, with Mercosur countries being the main buyers (Table 4). Moreover, almost 60 per cent of the increase in the exports of manufactures since the mid-1980s has been absorbed by regional partners. Trade with Argentina has grown particularly rapidly, in spite of the Argentinian crisis of 1995 and the poor infrastructure hampering commercial relations between the two countries. Exports to Argentina rose by 172 per cent in the 1992-96 period. In 1991, exports to Argentina represented 3 per cent of total Chilean exports; in 1996, this share had risen to almost 5 per cent.

High tariffs are an effective impediment to exports to Mercosur countries. While the average trade-weighted tariff affecting Chilean exports to Mercosur before the entry into force of the association agreement was 8.2 per cent, some exports faced much higher tariffs. Tariffs for exports to Argentina of clothing, metalic products, and paper were 19.6, 14.4, and 14.2 per cent, respectively. Hachette (1994) has estimated that, as a consequence of import liberalization in Chile's favour, exports of clothing to Argentina ought to increase by 45.9 per cent, while the exports of metalic products should rise by 33.7 per cent.

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13 The economic rationale of these agreements is doubtful, given the small trade volumes involved. They would make considerably more sense within the framework of a South American Free Trade Association that multilateralizes the myriad agreements signed bilaterally or plurilaterally between individual countries of the region.

TABLE 4
COMPOSITION OF EXPORTS BY MARKET, 1986 AND 1993
(percentage)

Destination	Natural resources		Processed natural resources		Other industrial products	
	1986	1993	1986	1993	1986	1993
World	66.1	51.7	29.4	35.6	4.5	12.7
United States	68.0	50.1	27.1	37.1	4.9	12.8
EU	73.6	65.9	24.5	29.6	1.9	4.5
Japan	78.9	53.3	20.2	45.8	0.9	1.0
LAIA	51.6	26.7	40.6	38.3	7.8	34.7
Argentina	51.2	21.6	34.5	36.2	14.3	41.5
Bolivia	14.0	3.7	65.0	24.9	21.0	71.6
Brazil	81.7	55.4	17.1	27.6	1.3	17.0
Peru	14.1	13.3	74.6	46.2	11.3	40.5

Source: Ffrench-Davis and Sáez (1995), p. 89.

Immediately upon the entry into force of the association agreement, the average trade-weighted tariff faced by Chilean exports declined to 3.2 per cent. The agreement calls for the gradual liberalization of all trade between Chile and Mercosur on a reciprocal basis. Products have been classified into five categories. A general list includes all products that are to receive duty free treatment over a period ranging from two to eight years. The initial tariff cut from the MFN rate is 40 per cent. Products on this list account for about 50 per cent of all bilateral trade. The other four lists include products with increasing degrees of sensitivity for both parties. In the two most restrictive categories, Chile has placed some traditional agricultural products, (e.g., beef, sugar, wheat and wheat flour), which will reach duty free treatment only after 15 and 18 years, respectively.

The benefits for Chile of the agreement with Mercosur are twofold. On the one hand, Mercosur, as well as other regional trading partners, are the main markets for the exports of Chilean manufactures, and this will become even more so as trade barriers are reduced. Quality requirements in these markets are more in line with Chilean supply capabilities than those of developed countries, and distance to markets is also a factor in favour of exports from Chile. On the other hand, Mercosur is internationally competitive in agricultural staples, while Chile is not. In other words, Chile

and Mercosur countries (as well as other countries in the Latin American region) are potentially much more 'natural' trading partners than what their current reciprocal trade flows suggest. Trade barriers, poor transport links, and almost non-existent infrastructure have prevented the emergence of more significant trade flows among the countries in the region. But, as the example of Mercosur clearly indicates, once trade barriers begin to come down, trade flows can increase very rapidly indeed.

VI EXPLAINING THE INCREASE IN MANUFACTURING EXPORTS

Perhaps the single most important feature of the Chilean export success story is the emergence of a diversified group of manufactures for export comprising a great variety of products, most of which are light manufactures or are natural resource intensive. And it is this group of products – their further growth and continued diversification – that provides the greatest hope for future growth in exports and in the economy in general. Therefore, great interest attaches to explaining the factors that are behind the growth of these exports.

There have been two studies of the behaviour of Chilean exports in the past. Using a partial adjustment approach, De Gregorio (1984) estimates supply functions for Chilean non-copper exports and finds positive and statistically significant price elasticities of export supply. Within an error-correction framework, Moguillansky and Titelman (1993; MT henceforth) estimate supply functions for several categories of non-copper exports. They conclude that long-term price elasticities are consistently higher than short-term elasticities (and that both are statistically significant). In their supply functions for manufacturing exports, tariffs, which are entered as an additional explanatory variable, turn out to be negatively associated with the exports of manufactures.

MT apply a more advanced econometric technology than De Gregorio. However, for our purposes, their study has a number of shortcomings which justify yet another try at econometric estimation. In the first place, MT do not include an excess capacity variable, in a context where recession and idle capacity played a key role in the initial spurt of export growth in the mid-1970s. Second, their relative price of exports variable uses the CPI as *numeraire*, which mispecifies the model: importables

represent a large component of the CPI, so that tariffs appear as a separate variable *and* in the denominator of the relative price of exports. In our model, we avoid this problem by using nominal wages as the *numeraire* of export prices. Third, we have a longer time series: 1960-95, as compared with 1962-90 for MT.

Here we use a different technique than MT. With a single-equation vector autoregression analysis, we study the role of various factors – tariff reductions, real exchange rate depreciation, and excess capacity – in explaining the growth of manufacturing exports. The underlying model is also a supply function. The small country assumption being appropriate in the case of Chile, we can safely assume that Chilean manufacturing exports do not affect world prices of those goods, and this entitles us to ignore feedback effects from export volumes to relative export prices.

In this exercise, manufacturing exports (XM) are a function of the real price of manufactures for the export market (PM, defined as the price index for manufactures in dollars multiplied by the nominal exchange rate for the dollar and deflated by nominal wages in manufacturing), the unweighted average tariff (TR), and an index of excess capacity in manufacturing (EX, defined as the percentage by which potential manufacturing output, calculated by the peak-to-peak method, exceeds observed output). The basic idea of the model is that there are two groups of manufactures: products for the domestic market and which could be exported under certain circumstances, the relative price for which is the tariff rate; and goods produced largely for export markets because the domestic markets for them are small. The relative price of these goods is expressed in terms of non-tradables, here proxied by the nominal wage rate. All variables except excess capacity are expressed in logs.

According to MacKinnon tests, the log of manufacturing exports turned out to be a stationary variable with a deterministic trend. EX is also stationary (without trend). All other variables have unit roots.[14] This means that we cannot explain the level of manufacturing exports by recourse to our price variables or by excess capacity. We are left with the possibility of explaining the rate of growth of manufacturing exports, using as explanatory variables dln PM, dln TR, and EX. The general procedure employed was to start with a generalized structure with two lags and

14 Results are not shown, but are available on request.

reduce the model by eliminating variables that were not significant. The final equation obtained was:

$$dLXM = \underset{(2.0)}{0.083} - \underset{(-4.27)}{0.47*dLTR_{-1}} - \underset{(-2.17)}{0.28*dLPM} + \underset{(3.31)}{0.45*dLPM_{-1}} + \underset{(3.03)}{0.008*EX} - \underset{(-3.64)}{0.42*dLXM_{-2}} \quad (1)$$

$R^2 = 0.758$; AR (1) = 1.67 [0.208]; ARCH 1 = 0.0005 [0.981]; Normality χ^2 = 0.55 [0.761]; X_i^2 = 0.89 [0.560]; X_i*X_j = 0.69 [0.757]; RESET =2.07 [0.161]. Figures in parenthesis are t-ratios, and the figures in brackets are the probabilities of not rejecting the null hypothesis involved.

The results are good from an econometric point of view, and all variables are significant at standard statistical levels. Signs are as expected, except that contemporaneous changes in the rate of change of relative export prices are associated with declines in the rate of growth of manufacturing exports. However, the lagged effect of price changes is positive and higher in absolute value than the contemporaneous effect. Therefore, the long-run static equation shows the expected positive association. In the steady state, the rate of growth of manufacturing exports is the following:

$$dLXM = 0.058 - 0.33*dLTR + 0.12*dLPM + 0.006*EX \quad (2)$$

This equation tells us that the long-run trend rate of growth of manufacturing exports in the period 1960-95 was 5.8 per cent and that tariff and export price changes produced deviations of the expected signs from this trend rate of growth. Changes in excess capacity also were important contributors to the growth of exports: each percentage point increase in excess capacity was associated with an 0.6 percentage point increase in the rate of growth of exports.

We carried out an exercise to gauge the importance of excess capacity in generating exports over the periods 1975-77 and 1982-85, when the indicator of excess capacity averaged 36 and 25 per cent of potential output, respectively. We compared the levels of exports yielded with the rates of growth predicted with equation (1) with those that would have occurred had the levels of the excess capacity indicator remained at 10 per cent, which is about the average for the whole period 1960-95. The results

of this exercise are quite interesting. During 1975-77, above average excess capacity in manufacturing is estimated to have generated about 38 per cent of manufacturing exports; in the period 1982-85, a similar calculation yields 12 per cent.

VII WRAP-UP AND CONCLUSIONS

What are, then, the main causes of Chile's export successes? Undeniably, the trade liberalization of 1974-79 radically altered relative prices and increased the profitability of exporting *relative to producing tradables for the domestic market*. However, the liberalization was faulty in many respects. The concurrent liberalization of the capital account beginning in mid-1976, in a context of very liquid international financial markets, made real exchange rate appreciation inevitable. This meant that, until the exchange rate correction that took place after 1982, price signals encouraged non-tradables rather than exportables and efficient import-competing sectors. In addition, the sky-high interest rates of the second half of the 1970s made it all but impossible for manufacturers to adjust to the new set of relative prices. That is why it took until the second half of the 1980s, when interest and exchange rates were more favourable, for exports to become the engine of growth envisaged by the liberalizing paradigm.

Other policies were also important. Generic export promotion in the 1980s certainly contributed. So did the evolution of the exchange rate after 1982 and more pragmatic exchange rate policy in the 1990s. Sharp and premature real exchange rate appreciation in 1996-97 attests to the difficulties of maintaining an export-led strategy on course in the face of present-day capital mobility. Countries that are successful in achieving long-term export-led growth ought to experience exchange rate appreciation. In fact, the appreciation is but one manifestation of rising *per capita* incomes. In the case of Chile, however, the appreciation has come at a very early stage in the export-led growth process. And, anyway, the appreciation has had little to do with the current account and much with the huge inflows of foreign capital that the economy has been experiencing.

Sectoral industrial policy in favour of the forestry and wood cluster was instrumental in that sector's take-off. Policies toward FDI also aided in the

growth of non-traditional exports. The activities of information gathering and technology development by public or semi-public agents assisted in improving supply responses. Prior human resource development and prior investments in physical infrastructure enabled export sectors to grow rapidly.

What should African countries desiring to foster export-led growth do? In the design of a comprehensive policy package dealing with the structure of incentives as well as with improving the supply responses of economic agents, the Chilean experience has much to teach, both in a positive sense of what to do and in a negative sense of what to avoid or correct. We highlight seven lessons.

In the first place, countries should embrace trade liberalization *in conjunction with* policies that ensure that relative prices will be favourable to export industries (and not just to non-tradables) and that interest rates will support investment and economic restructuring. This implies *not liberalizing* the capital account of the balance of payments. The proper dosage of capital inflows is thus very important to the eventual success or failure of the trade liberalization exercise, and this is something to be seriously considered by African countries when designing policies of integration into the international economy. It is also important for countries to maintain some control (particularly of a prudential nature) over domestic finance in order to ensure that potential exporters obtain financial resources for investment at reasonable interest rates.[15]

Second, temporary subsidies can be a powerful tool for stimulating the growth of non-traditional exports. New exports have important informational externalities that amply justify subsidization. Chile's 'simplified drawback' should be of interest to African countries: it involves moderate and self-extinguishing subsidies for genuinely new exports. Some countries will come up against the WTO's prohibition on export subsidies. However, all least developed countries and other developing countries with per capita incomes of less than US$ 1,000 (listed in Annex VII of the Uruguay Round's Subsidies and Countervailing Duties

15 Stiglitz and Uy (1996) argue that in the East Asian countries mild financial repression, the main traits of which were the maintenance of positive but controlled real interest rates and credit allocations that favoured exporting sectors, was an important factor explaining export success.

Agreement) can still apply export subsidies if their exports of a particular good represent less than 3.25 per cent of world imports of such goods (Agosin, Tussie, and Crespi, 1995:10). This is a criterion that is not hard to meet for these countries. Other countries must rely on subsidies to information gathering for groups of producers, such as those used by Chile in recent years, or subsidies to R&D, both of which are still allowed, since they are either precompetitive or do not affect export prices.

Third, FDI policy can be used to attract desired investments. A liberal, and steady, policy framework is best for FDI. However, this does not mean that countries must renounce an active policy. Rather than prohibiting investments in sectors with low priority or following a project-by-project approval procedure, it is possible to design a system of incentives that favours investments that open up new export possibilities or introduce new technologies to the country.

Fourth, infrastructure and human resource development are important preconditions for the success of pro-export policies. For countries with deficits in these areas, foreign financial and technical assistance is essential.

Fifth, a strategy of growth spearheaded by a few niche exports can pay handsome dividends. In Chile, one of those sectors was the forestry-wood cluster of industries. The task of selecting the industries to be fostered is easier than the detractors of industrial policy would have us believe. Common sense about a particular country's comparative strengths in world markets will go a long way. Niche exports are also less likely to come under attack by protectionists in importing countries. Such choices are important in orienting technology and information gathering policies. Since human capital is particularly scarce in poor countries, it is important to exercise great selectivity with regard to human resource development and to ensure that policies in this area are harmonious with the development strategy adopted.

Sixth, the growth of these exports must be supported by the provision of financial resources at positive but reasonable real interest rates (perhaps through the active participation of development banks or similar agencies) and by public action to encourage the formation of producer associations to overcome the small scale problem, which makes meeting foreign orders a difficult task and information gathering too costly.

Finally, a policy of regional integration makes sense. It is easier to export manufactures to regional partners who have similar consumer tastes than to the developed countries. Learning to produce and to export products in demand in foreign markets is a precondition for expanding and diversifying exports. Regional integration, in the context of more open national economies than in the past, can play an important role in this respect.

APPENDIX
DERIVING THE COMPENSATORY DEPRECIATION

Assume that, to start out, the economy is in balance of payments equilibrium. Letting F* be equilibrium capital flows, the balance of payments equilibrium can be described as follows:

$$p_m^* * q_m(p_m) - p_x^* * q_x(p_x) = F^* \qquad \text{(A1)}$$

where asterisks denote international prices (assumed to be independent of the levels of trade of our country).

We can differentiate (A1) to obtain:

$$p_m^* * dq_m - p_x^* * dq_x = 0 \qquad \text{(A2)}$$

Under the small-country assumption, the price for the importable and exportable are, respectively:

$$\begin{aligned} p_m &= e * (1*t) * p_m^* \\ p_x &= e * p_x^* \end{aligned} \qquad \text{(A3)}$$

where t is the (ad valorem) tariff and e is the nominal exchange rate.

By the definition of elasticity, we obtain expressions for dq_m and dq_x:

$$\begin{aligned} dq_m &= q_m * \varepsilon_m * [\hat{e} + \hat{t}] \\ dq_x &= q_x * e_x * \hat{e} \end{aligned} \qquad \text{(A4)}$$

where a hat over a variable denotes percentage change.

Replacing (A4) and (A1) into (A2) and collecting terms, one obtains the value of the compensatory depreciation:

$$\hat{e} = \frac{\hat{t}}{\varepsilon_x/\varepsilon_m - 1} \qquad \text{(A5)}$$

ANNEX TABLE 1: EXPORTS OF GOODS AND SERVICES, 1960-95 (millions of current US dollars)

	Copper	Other mining	Agricultural	Fishmeal	Wood	Pulp and paper	Manufactures	Services	Total (a)
1960	341.8	85.1	23.5	1.8	2.0	3.6	32.2	...	490.0
1961	348.3	87.4	26.5	3.8	3.4	5.5	33.2	...	508.1
1962	362.3	105.8	26.0	7.3	3.2	4.2	23.3	...	532.1
1963	377.7	99.3	25.6	9.7	2.3	3.8	23.5	...	541.9
1964	396.9	118.6	25.9	16.7	3.1	4.5	59.9	...	625.6
1965	432.4	129.4	21.8	9.1	3.9	6.7	84.6	...	687.9
1966	612.8	130.2	19.7	26.5	4.6	11.3	75.6	...	880.7
1967	691.1	114.8	18.8	16.8	4.0	15.6	51.9	...	913.0
1968	714.2	110.2	24.0	19.0	4.7	16.2	52.5	...	940.8
1969	925.5	115.9	24.6	19.0	8.5	18.7	59.7	...	1171.9
1970	839.8	110.6	30.1	16.9	10.2	21.0	83.1	...	1111.7
1971	701.8	111.4	27.0	29.7	8.2	20.2	63.9	...	962.2
1972	657.6	76.9	16.3	19.3	6.6	15.8	43.7	...	836.2
1973	1025.6	107.0	22.0	15.2	6.0	20.9	50.8	...	1247.5
1974	1653.5	153.4	47.3	39.7	15.9	72.5	170.3	...	2152.5
1975	890.4	185.0	76.4	31.3	28.9	59.0	281.1	248.0	1800.1
1976	1246.5	197.1	111.0	70.3	30.4	85.6	341.7	297.0	2379.6
1977	1187.4	215.8	149.8	95.0	71.6	85.4	385.3	417.0	2607.3
1978	1271.4	220.8	185.5	124.0	96.8	115.6	463.6	481.0	2958.7
1979	1899.1	485.6	221.3	192.5	171.6	181.0	743.1	785.0	4679.2
1980	2152.5	619.4	281.2	290.8	294.1	230.6	802.1	1263.0	5933.7
1981	1714.9	591.6	297.1	268.2	165.5	203.7	710.5	1172.0	5123.5
1982	1731.4	424.4	311.6	317.1	124.5	171.8	628.7	936.0	4645.5
1983	1874.9	460.5	280.1	352.2	118.7	156.4	587.7	797.0	4627.5
1984	1603.9	357.8	369.2	327.3	117.6	196.0	701.9	664.0	4337.7
1985	1788.7	332.0	446.1	293.7	114.3	140.5	675.5	692.0	4482.8
1986	1757.1	339.0	594.9	326.3	138.4	192.6	806.1	1042.0	5196.4
1987	2234.7	368.6	659.3	375.2	222.5	264.9	1045.2	1045.0	6215.4
1988	3416.2	432.1	739.5	471.9	319.0	310.2	1293.7	1089.0	8071.6
1989	4021.4	797.6	696.6	521.5	214.1	321.1	1507.7	1495.3	9575.3
1990	3795.0	795.1	899.4	398.3	251.9	314.2	1869.4	1913.5	10236.8
1991	3617.3	794.7	1129.0	482.2	244.7	304.6	2369.0	2169.0	11110.5
1992	3886.0	837.5	1173.6	551.8	215.5	527.3	2815.7	2432.7	12440.1
1993	3247.8	728.2	1019.6	377.2	330.9	443.6	3051.4	2598.6	11797.3
1994	4242.0	949.5	1160.1	469.8	331.7	715.9	3735.1	2845.1	14449.2
1995	6487.1	1363.0	1306.0	654.0	452.8	1315.9	4459.8	3155.2	19193.8

Source: Central Bank of Chile.

(1) Until 1974, goods only.

ANNEX TABLE 2: EXPORTS OF GOODS AND SERVICES IN VOLUME, 1960-95 (millions of 1995 US dollars)

	Copper	Other mining	Agricultural	Fishmeal	Wood	Pulp and paper	Manufactures	Services	Total (a)
1960	951.9	370.4	77.5	6.4	7.0	25.1	106.7	...	1545.0
1961	1044.7	368.3	93.9	12.0	14.1	36.9	104.8	...	1674.6
1962	1080.1	405.8	84.6	20.3	12.3	31.1	67.1	...	1701.2
1963	1123.7	369.4	79.6	27.6	10.9	27.0	69.5	...	1707.7
1964	1071.2	462.1	79.8	42.7	13.2	28.9	177.0	...	1874.9
1965	991.7	525.2	76.1	18.6	14.9	42.8	251.9	...	1921.2
1966	1176.2	537.1	60.6	60.1	15.0	75.1	202.6	...	2126.7
1967	1804.0	488.7	59.6	46.9	9.6	105.5	160.3	...	2674.5
1968	1691.6	460.6	88.3	60.9	13.0	114.6	180.8	...	2609.6
1969	1852.9	437.5	84.1	45.5	28.2	129.1	184.5	...	2761.8
1970	1744.1	434.2	98.0	35.4	30.5	117.4	211.6	...	2671.3
1971	1904.5	433.7	62.5	72.9	26.9	104.5	163.1	...	2768.1
1972	1800.2	229.3	38.7	33.4	16.5	85.1	92.4	...	2295.5
1973	1692.7	401.2	37.3	11.6	12.8	92.7	78.9	...	2327.2
1974	2358.8	325.0	76.1	44.0	21.9	206.3	166.1	...	3198.2
1975	2111.0	455.7	111.6	52.7	39.1	115.3	504.3	699.6	4089.1
1976	2605.6	448.7	204.4	77.1	54.7	183.5	639.9	828.6	5042.4
1977	2658.2	370.4	237.8	86.4	136.1	222.9	656.2	1078.9	5446.9
1978	2730.1	329.5	361.5	124.8	206.7	343.1	875.1	1098.5	6069.4
1979	2822.3	520.8	380.4	201.1	311.4	370.2	1212.3	1536.9	7355.5
1980	2888.1	674.4	368.7	237.9	345.2	377.1	1164.2	2207.0	8262.5
1981	2885.1	674.3	356.0	236.7	200.2	360.3	1075.8	1963.9	7752.4
1982	3426.5	474.3	474.5	369.8	209.0	373.1	1228.3	1644.1	8199.6
1983	3452.2	584.6	494.0	321.2	233.8	394.5	1191.6	1442.4	8114.4
1984	3415.5	514.3	539.5	361.9	256.5	393.0	1360.3	1192.6	8033.6
1985	3700.2	507.1	747.1	432.7	269.9	313.6	1929.3	1267.4	9167.4
1986	3761.7	525.9	901.7	420.0	306.3	411.1	2049.5	1744.3	10120.6
1987	3679.1	563.1	943.9	403.8	430.1	414.5	2103.4	1591.7	10129.7
1988	3852.7	660.1	1083.5	393.1	516.0	398.4	1719.9	1515.4	10139.1
1989	4141.5	1113.1	870.2	549.1	352.4	385.1	2172.9	1983.5	11567.8
1990	4212.5	970.8	994.7	433.0	370.3	353.5	2477.9	2221.4	12034.0
1991	4625.8	1031.2	1108.9	428.3	343.2	406.0	2924.8	2512.0	13380.3
1992	5266.7	1214.5	1166.2	422.9	278.4	834.3	3661.3	2760.2	15604.5
1993	5380.7	1052.2	1106.7	427.9	361.7	915.7	4148.3	2936.4	16329.6
1994	5728.2	1401.9	1180.4	431.5	335.8	1309.6	4582.8	3079.9	18050.1
1995	6487.1	1363.0	1306.0	654.0	452.8	1315.9	4459.8	3155.2	19193.8

Source: Central Bank of Chile and author's calculations.

(a) Until 1974, goods only.

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