ISBN 978-92-64-04223-0
OECD Review of Agricultural Policies: Chile

Chapter 2

Policy Evaluation

2.1. Introduction

Since the restoration of democracy in 1990, successive governments have kept faith with the broad commitment to open markets, notwithstanding some significant exceptions in import-competing agricultural sectors. At the same time, the Chilean government has been increasingly active in adopting policies to boost competitiveness, help poorer and less competitive farmers, and protect the country's environment and natural resource base. Thus while Chile's agricultural trade policy is essentially liberal, the overall approach to policy making is by no means *laissez-faire*.

This chapter seeks to gauge how effective Chile's agricultural policies are in attaining their objectives. A general principle of policy design, and one agreed to by OECD countries, is that the most effective policies are those that target their objectives directly (OECD, 2002; OECD, 2007c). Policies that distort production and trade are typically less effective because they are not targeted to specific objectives, and their effects on target variables, such as farm household incomes or the environment, are indirect and comparatively small. Chile's position as a competitive exporter of agricultural products, and the low level of tariff protection it provides to most import competing commodities, immediately suggests a low degree of trade-distorting protection. At the same time, a range of policies have been introduced that do not require accompanying border measures and are linked to the articulated objectives of policy. The next question therefore pertains to whether Chile's targeted policies have been successfully designed and implemented.

In order to evaluate Chile's agricultural policies, we first classify and measure them according to the OECD's standard methodology for measuring support to producers and the agricultural sector in general (this includes the computation of PSEs and TSEs). This methodology is employed for OECD countries and an increasing range of economies outside the OECD area.[1] The analysis should confirm more precisely the extent to which Chile has moved away from distorting policies. At the same time, the classification of policy instruments according to the way in which they are implemented forms the basis for a more qualitative assessment of agricultural policy performance, and motivates Chapter 3's more specific consideration of policies that can address the development needs of small farmers and other agriculture-dependent households.

The structure of this chapter is accordingly as follows. Section 2.2 describes the main objectives that have guided agricultural policy design since 1990, the instruments that have been used to address these objectives, and the government agencies with responsibilities for their implementation. Section 2.3 describes the operation of agricultural trade policies in more detail, while Section 2.4 focuses on domestic policies. Section 2.5 presents the measurement and evaluation of support to agriculture, and provides some observations on policy performance. Section 2.6 presents the conclusions and policy implications of the analysis.

2.2. The agricultural policy framework

Agricultural policy objectives

For the first ten years of the military government, there was little active state intervention in the agricultural sector. From the mid-1980s onwards, however, there was a growing perception that there were active measures that the government could undertake to improve competitiveness and thereby stimulate production and exports, principally by providing public goods that had hitherto been neglected, and by remedying market failures. On the other hand, there was little practical concern about the development needs of poorer farmers, and a neglect of environmental and resource use issues.

Since the restoration of democracy in 1990, agricultural policy has centred around three main groups of objectives: first, the inherited goal of increasing competitiveness; second, achieving more balanced agricultural development by better integrating poorer less competitive farmers into commercial supply chains; and finally reconciling these objectives with goals related to conservation of the environment and the sustainable use of resources. While the specific articulation of objectives has changed from one government to the next, these broad areas have provided a common focus of policy concerns. There has been some overlap, in that programmes targeted towards poorer farmers have focused mainly on improving their competitiveness, while smallholders are seen to have an important role to play in the pursuit of environmental objectives (such as reforestation). There has also been a subtle evolution in the emphasis given to these concerns.

There have been four governments since the return to democracy, each formed under the Concertación coalition of political parties. The first government of Patricio Aylwin (1990-94) had to manage the transition from military rule. During this period, policy objectives fell into two categories. The first articulated aim was that of supporting the country's competitive agriculture, through the transformation, modernisation, and diversification of agricultural production. The second was one of reconciling agricultural development with equality, through the incorporation of small and medium-scale farmers into the country's more competitive agriculture, and through the development of poor rural areas. The main policy instruments applied during these years involved the transfer of technology and the provision of credit.

The second government, under Eduardo Frei Ruiz-Tagle (1994-2000), continued with these broad objectives, with an added emphasis on integrating the agricultural sector more effectively into value chains. The Frei government started scaling up a range of programmes brought in under the previous government and introduced new programmes in the areas of irrigation, soil recovery, plant and animal health improvement, market development and promotion, innovation and technology improvement, the development of managerial skills, and forestry development. These policies continue to be important.

The Frei presidency was succeeded by that of Ricardo Lagos (2000-06). The Lagos government similarly specified an objective of generating the conditions for a profitable and competitive agriculture, which would extend to small and medium-scale agriculture. This period was marked by a new focus on achieving such objectives within a framework of environmental, economic and social sustainability. There was also a considerable emphasis on the promotion of agricultural exports, through programmes such as the Agricultural Export Promotion Fund and the Export Promotion Programme for Small-Scale Agriculture.

In 2006, Michelle Bachelet was elected president. Her government further rearticulated the country's agricultural policy objectives, with stated aims of (1) transforming Chile into an international agro-food and forestry superpower; (2) promote a more inclusive development for the support small-scale family agriculture (AFC); (3) modernising public agricultural institutions; (4) generating new sources of energy; and (5) ensuring a sustainable use of natural resources and protecting biodiversity. These objectives are broadly similar and compatible with those that were inherited, although the specific emphasis on generating new sources of energy is new. The policies used to pursue these objectives, which include new and inherited instruments, are discussed in Sections 2.3 and 2.4.

Institutional arrangements

There are three different institutional arrangements through which agricultural policies are implemented. First, there are policies that are financed and implemented by the Ministry of Agriculture (MINAGRI) and subsidiary agencies. Second, there are policies that are financed by MINAGRI but implemented by non-MINAGRI agencies. Third, there are policies that are financed and implemented by ministries other than MINAGRI. Box 2.1 provides a summary of the various institutions with responsibility for agricultural policies, within this framework, while Chart 2.1. shows the organisational structure and the allocation of all MINAGRI expenditures in 2006.

Box 2.1. **Institutional arrangements for agricultural policies in Chile**

1) Policies financed and implemented by the Ministry of Agriculture (MINAGRI)

The Ministry of Agriculture (MINAGRI) is responsible for the design, implementation, administration and regulation of national policies related to agriculture, livestock, forestry, food, and rural development. MINAGRI is organised into an under-secretariat and ten agencies. Five agencies (INIA, FIA, INFOR, FUCOA, and CIREN) are managed through the under-secretariat (SUBSE). The other five – INDAP, SAG, CONAF, CNR, and ODEPA – are decentralised institutions with individual budgets.

Under-Secretariat of Agriculture (Subsecretaría de Agricultura, SUBSE)

SUBSE's mission is to contribute to improving the competitiveness, sustainability and fairness of the agriculture and forestry sectors, by means of an efficient organisation of the Ministry of Agriculture in terms of articulating, monitoring and co-ordinating the policies, programmes and projects that are executed directly by the ministerial agencies or implemented by agreements with other institutions.

National Institute for Agricultural Development (Instituto Nacional de Desarrollo Agropecuario, INDAP)

INDAP is the main agency providing support to small-scale agriculture. Its aim is to improve the competitiveness and market orientation of Family Agriculture (Agricultura Familiar Campesina, AFC). In order to carry out this mandate the institute contributes to financing the investments and operational capital of small-scale producers. It also co-finances technical assistance and management programmes for smallholders, and implements general assistance programmes for poor farmers.

Box 2.1. **Institutional arrangements for agricultural policies in Chile** *(cont.)*

Agriculture and Livestock Service (Servicio Agrícola Ganadero, SAG)

SAG is responsible for protecting, maintaining, and improving the sanitary conditions of livestock and agricultural production; protecting, preserving, and improving the natural renewable resources used in agriculture; and controlling the inputs and outputs for agricultural production, according to legal regulations and standards.

National Forest Service (Corporación Nacional Forestal, CONAF)

CONAF's mission is to preserve and increase the country's forestry resources. CONAF manages a programme for recovering eroded soils and promotes the creation of a renewable resource for small and medium-sized owners of forest areas. At the same time, it controls the enforcement of regulations concerning the use of forests. It also has a forest-fire control programme and manages a national system of protected areas.

National Irrigation Commission (Comisión Nacional de Riego, CNR)

CNR co-ordinates all the institutions with irrigation activities, and implements its own irrigation and drainage policies, programmes and projects. It also manages the funds available for promoting the construction of private irrigation and drainage projects; and promotes public actions oriented to agricultural development and training in the areas that benefit from irrigation projects.

Office of Agricultural Policies and Studies (Oficina de Estudios y Políticas Agrarias, ODEPA)

ODEPA is a centralised public institution that provides and maintains regional, national and international information useful for policy making. ODEPA advises the Ministry of Agriculture on policies related to production and international trade. It also provides services such as legal advice, evaluation and monitoring of the budget of the Ministry's agencies, and co-ordination of international technical assistance and co-operation programmes.

National Institute for Agricultural Research (Instituto Nacional de Investigaciones Agropecuarias, INIA)

INIA's mandate is to create, adapt and transfer technological knowledge. Its actions are framed within a Research and Development concept, implying that research projects are started with a final, achievable product in mind. Nevertheless, it also performs some research projects in basic science.

Foundation for Agrarian Innovation (Fundación de Innovación Agraria, FIA)

FIA promotes innovation in Chilean agriculture by financing the development of programmes and projects that are oriented to the industrial transformation and commercialisation of agricultural and forestry products. It also promotes the co-ordination of sectoral innovation efforts, and provides extension services.

Forestry Research Institute of Chile (Instituto de Investigación Forestal de Chile, INFOR)

INFOR's mission is to carry out research projects, prepare statistics, and transfer scientific and technological knowledge related to the sustainable use of forest ecosystems, the management of its resources and the commercialisation of its products. It supports the development of small and medium-sized forest owners, and technological innovation among small and medium-sized wood-product companies.

Foundation for Agricultural Communication, Training and Culture (Fundación de Comunicación, Capacitación y Cultura del Agro, FUCOA)

FUCOA is in charge of the communications of the Ministry of Agriculture and its agencies.

Box 2.1. **Institutional arrangements for agricultural policies in Chile** *(cont.)*

Natural Resources Information Centre (Centro de Información de Recursos Naturales, CIREN)

CIREN's function is to compile, update, maintain and integrate statistics and cartographic information related to the country's natural resources; and to provide timely and useful information for the analysis of different sub-sectors.

2) Policies financed by MINAGRI but implemented by Non-MINAGRI agencies

PROCHILE

PROCHILE is part of DIRECON (Directorate for International Economic Relations) and its mission is to promote Chilean exports. For this purpose, PROCHILE undertakes studies to guide and train entrepreneurs; supplies international trade information; organises and participates in international trade shows and commercial missions for entrepreneurs; develops programmes for incorporating small and medium-sized companies into international trade; and administers funds for the promotion of exports.

Economic Development Agency (Corporación de Fomento de la Producción, CORFO)

CORFO's mission is to promote the "development" of national production. It promotes management improvements, innovation, the generation of capital, and the creation of new businesses.

Fundación Chile

Fundación Chile is a private non-profit organisation that introduces innovations and develops human resources in key areas of the Chilean economy.

3) Policies financed and implemented by other ministries

These are agencies with programmes that reach the agriculture sector, but where resources do not originate from MINAGRI.

Social and Solidarity Investment Fund (Fondo de Solidaridad e Inversión Socia, FOSIS)

FOSIS is a decentralised public agency under the supervision of the President of the Republic, with whom it interacts through the Ministry of Planning (MIDEPLAN). FOSIS finances activities that contribute to poverty reduction.

SENCE, Servicio Nacional de Capacitación y Empleo

SENCE is a decentralised public agency that promotes the competitiveness of enterprises and individuals through training programmes.

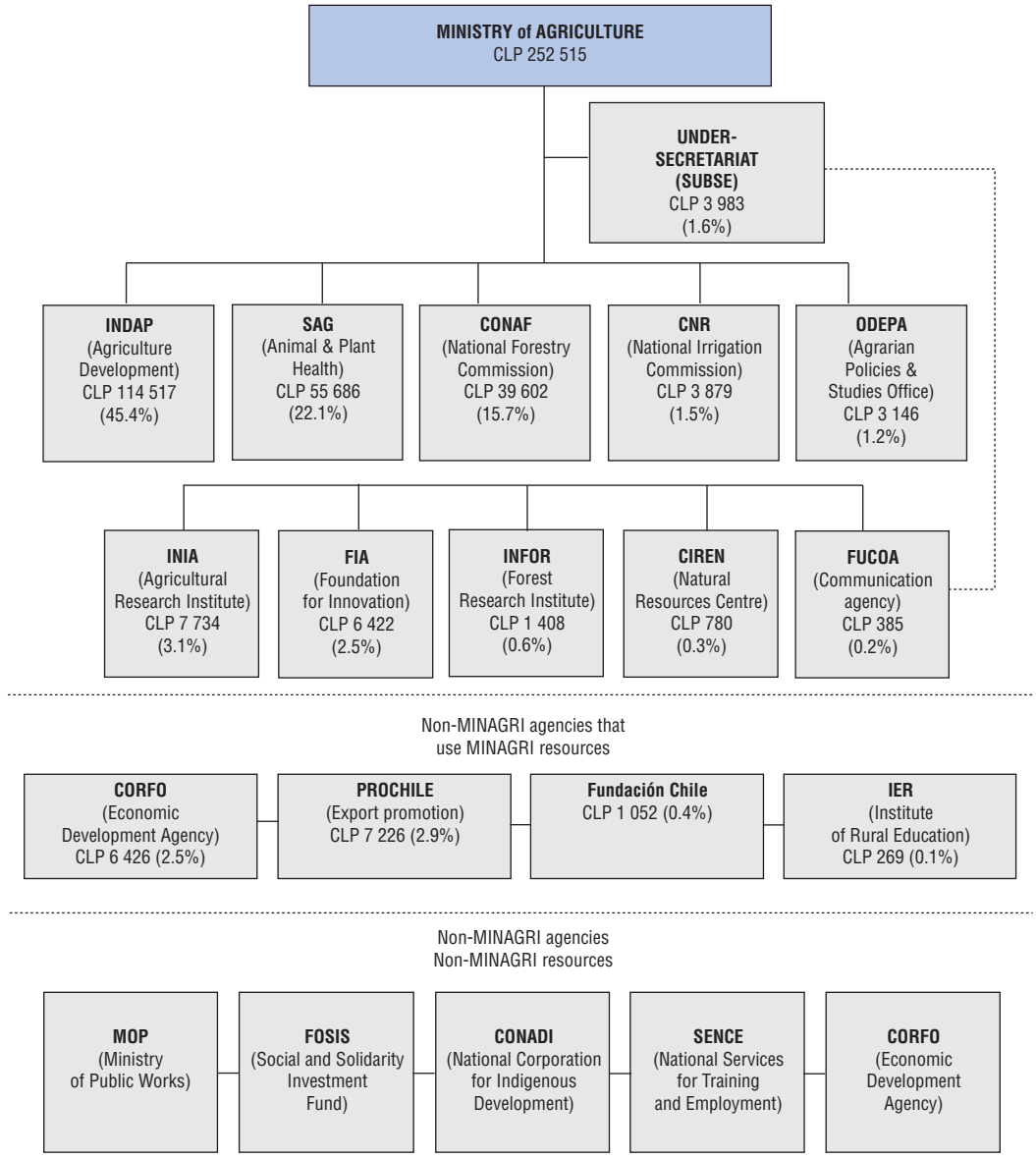
CONADI Corporación Nacional de Desarrollo Indígena – MIDEPLAN – Ministry of Planning

CONADI is part of MIDEPLAN and promotes, co-ordinates and executes state initiatives for the development of indigenous people.

MOP, Ministry of Public Works

MOP implements a number of agricultural infrastructure and irrigation projects.

Chart 2.1. **Organisation of agricultural policy making institutions and allocation of MINAGRI's total executed budget for 2006 (million CLP)**



Source: MINAGRI, 2007; DIPRES, 2007.

2.3. Agricultural trade policies

Chile has a very open trade policy, with a virtually uniform MFN tariff of 6%. Moreover, the conclusion of a wide range of preferential trade agreements has led to many exporters into Chile benefiting from tariff-free access for a majority of tariff lines. In the case of agricultural products, this has led to an average applied tariff of less than 2% (Becerra, 2006), a rate that is slightly lower than the average for manufactured goods. The only products which have been afforded more protection than the MFN rate are those covered by the country's price band system (PBS) – wheat, wheat flour, sugar (and previously edible oils) – and those for which contingency measures have been applied. Safeguards have been applied for wheat and wheat flour, sugar and fructose, and dairy products, while anti-dumping

measures have recently been applied against Argentine exports of wheat flour. In short, trade protection has been concentrated on a narrow group of import-competing products.

Changes in the trade policy paradigm

Chile undertook unilateral trade reforms under the military government. All non-tariff barriers were eliminated; there was a gradual reduction in tariff rates, which were consolidated into three levels (with a maximum of 60%); the exchange rate was unified and the currency was devalued to offset the effects of tariff reductions (ECLAC, 2002). Tariff reforms continued, with a uniform tariff of 10% reached by 1979. There was some slippage on these reforms following the debt crisis of the early 1980s, with the flat tariff raised to 20% in mid-1983 and 35% in September 1984, but by the time the country returned to democracy in 1990 tariff protection was again mostly uniform across sectors, with a standard rate of 15%.

The civilian government maintained this open trade policy, lowering the MFN tariff to 11% in 1991 and then reducing it progressively to 6% by 2003. The price band system for wheat, wheat flour and sugar is the notable exception and has meant that tariffs for these products have exceeded the MFN (and occasionally the bound) rate. The operation of the PBS, and modifications that have occurred in the light of the WTO's Dispute Settlement Body's (DSB) findings, are described below.

As a complement to unilateral reform, the Chilean government has brokered a series of trade agreements that, by offering better than MFN access, have further reduced the degree of protection. In general, preferential trade agreements have been seen as a practical way of improving Chile's market access in a protectionist world. Chile has sought agreements with all its major trading partners in order to minimise the effects of trade diversion. Given the country's low tariffs and the limited use of other protectionist instruments, Chile's Free Trade Agreements (FTAs) and Economic Cooperation Agreements (ECAs) have often had "WTO plus" characteristics, covering areas such as investment, trade remedies, intellectual property and competition policy.[2] They have also included dispute settlement procedures. Table 2.A1.1 lists Chile's trade agreements, while Box 2.2 provides summary details on the agriculture-specific components. The key point to note here is that most of these

Box 2.2. **Agricultural elements of Chile's trade agreements**

Chile has FTAs with Canada, China, Costa Rica, El Salvador, Japan, Korea, the European Free Trade Association (EFTA), Mexico and the United States. In addition, Chile has concluded ECAs with Bolivia, Colombia, Cuba, Ecuador, MERCOSUR, Peru, and Venezuela; association agreements with the European Union and New Zealand-Brunei-Singapore, and a Partial Scope Agreement with India. These agreements collectively account for the vast majority of the country's exports and imports. For countries with which Chile has an FTA, most tariff lines are covered and the average tariff levied is less than 1% (WTO, 2003).

Chile's Free-Trade Agreement with **Canada** (CCFTA) was signed in 1996 and entered into force in 1997. Most agricultural tariffs were eliminated by January 2003. However, Chile retained its duties on dairy, poultry, and egg products, and Canada retained its out-of quota tariffs on the same products. Some Chilean agricultural tariffs were subject to a phase-out period of up to 17 years. These included pork meat, vegetable oils, beef meat, potato products, corn flour, sugar and certain sugar products, milling wheat, and wheat flour. Since the agreement entered into force, its dispute settlement mechanism has been used to investigate Chile's safeguard measures on wheat and wheat flour, sugar, and edible vegetable oils.

Box 2.2. **Agricultural elements of Chile's trade agreements** *(cont.)*

The FTAs with **Costa Rica** and **El Salvador** entered into force in 2002. Immediate duty-free treatment, granted by Chile to imports from Costa Rica and El Salvador, covered 83.4% of the tariff lines. Chilean goods that do not benefit from duty-free access to these countries include live animals, meat products and tobacco. Goods from Costa Rica and El Salvador that do not benefit from duty-free treatment include vegetable oils, sugar and wheat flour.

The FTA with **Mexico** has been in place since 1992; the two parties decided to expand the scope of the original agreement, and a new FTA was signed in 1998, coming into force a year later. The agreement establishes provisions in several areas, including SPS measures. Goods excluded from duty-free treatment by both parties include various dairy products, wheat and wheat flour, edible vegetable oils, sugar and tobacco products. The agreement's dispute settlement mechanism has been used to investigate Mexico's import regime for apples.

Negotiations on a FTA with the members of the **European Free Trade Area** (EFTA) were concluded in 2003, with the Chilean government indicating that the agreement would provide duty-free access for about 90% of imports originating in EFTA members. The agreement contains provisions on public procurement, investment, trade in services, SPS measures, technical regulations, and dispute settlement.

The FTA with **Korea** was ratified in 2003 and contains provisions on customs procedures, safeguard measures, anti-dumping and countervailing measures, SPS measures, technical regulations, investment, trade in services, movement of natural persons, competition, government procurement, intellectual property rights, and dispute settlement. Chile granted immediate tariff-free access to 67% of its tariff lines, while Korea will introduce immediate duty-free treatment on 87% of its tariff lines. All other goods were to obtain tariff-free access within five, seven, ten or thirteen years. Chile permanently excluded sugar, wheat, and oilseeds, and Korea permanently exempted rice, apples, and pears.

The FTA between Chile and **China** was signed in 2005 and entered into force in October 2006. The agreement provides a free trade area in a period of ten years, with some exceptions (3% of tariff lines exported to China) mainly in the agricultural sector (*i.e.* rice, wheat, wheat flour, sugar). The agreement provides a framework for trade in goods, unfair business practices, safeguard measures, dispute settlement, customs valuation, technical regulations, SPS measures, and bilateral co-operation. Chapters on investment and trade in services are under negotiation.

The FTA with **Japan** entered into force in September 2007. The agreement provides a free trade area in a period of 15 years, with some permanent exceptions (12% of tariff lines exported to Japan) and temporary exemptions (for 3% of tariff lines). The agreement contains provisions on trade in goods, dispute settlement, customs valuation, technical regulations, SPS measures, business promotion measures, public procurement, intellectual property and trade in services.

The Free Trade Agreement with the **United States** was signed in 2003 and entered into force in 2004. The FTA eliminated most tariffs immediately and provided commitments for duty-free bilateral trade in all products by 2014. The agreement provides a framework for trade in goods, investment, intellectual property, public procurement, trade in services, electronic commerce, labour rights, and environmental regulations.

Box 2.2. **Agricultural elements of Chile's trade agreements** *(cont.)*

The ECA between Chile and **MERCOSUR** was signed on 25 June 1996 and entered into force on 1 October of the same year. Goods featuring in the general list were granted duty-free treatment as of January 2004, with complete liberalisation for the other goods to be reached by 2014. Tariff preferences are generally expressed as a percentage of respective MFN tariffs. The agreement contains provisions on market access in goods, unfair business practices, safeguard measures, dispute settlement, customs valuation, technical regulations, SPS measures, export promotion measures, and intellectual property. Since the agreement entered into force, its dispute settlement mechanism has been used to address a complaint by Argentina concerning Chile's import regime for edible vegetable oils.

Chile's Association Agreement with the **European Union** was signed in late 2002 and came into force in 2003. Chile granted duty-free treatment to about 91% of all tariff items originating in the EU. The agreement provides a framework on several issues affecting agriculture, including SPS measures. Its annex contains two side-agreements on trade in wines and on alcoholic and flavoured beverages. These side agreements include provisions on the protection of geographical indications and denominations, quality indications, trademarks, and labels.

A Partial Scope Agreement was signed with **India** in 2006 and entered into force in August 2007. The agreement provides preferences for 98% of Chilean exports to INDIA (178 tariff lines) and for 71% of Indian exports to Chile (296 tariff lines).

Chile has a Partial Scope Agreement with **Bolivia** (signed in 1993), which provides reciprocal trade preferences, but no commitments to liberalisation. It has ECAs with **Colombia** (1993), **Ecuador** (1994), **Peru** (1998); and **Venezuela** (1993). In each case the aim is to create a free trade area, and there are no permanent exemptions from tariff liberalisation, with the exception of the agreement with Ecuador. These agreements include regulations regarding rules of origin, safeguard measures, unfair trade practices, taxation, investment, government procurement, maritime and air transport, and dispute settlement.

Chile's Agreement with **Peru**, which entered into force in July 1998, provides for the gradual elimination of tariffs by July 2003. However, 329 tariff lines, mostly agricultural products, have a phase-out period of 18 years. Both parties have agreed to limit the use of export subsidies. The agreement also contains provisions on SPS measures, technical regulations, taxation, intellectual property, and customs valuation.

agreements include some exemptions from reforms on either side, and that agriculture is the main area in which those exemptions have been applied. The only agreements without exemptions are those with Colombia, MERCOSUR and the United States.

In addition to these trade commitments, Chile is a beneficiary of the Generalized System of Preferences schemes of Bulgaria, Hungary, Japan, and New Zealand, and participates in the Global System of Trade Preferences among Developing Countries (GSTP). With fewer formal implications, Chile is a member of the Asia-Pacific Economic Community (APEC), whose members are committed to achieving free trade in goods and services among developed members by 2010 and among all members by 2020. Chile committed itself to achieving free trade by 2010. It is also a founding member of the Cairns Group of 18 agricultural exporting countries.

Chile's unilateral trade liberalisation and its pursuit of preferential trade agreements have meant that WTO rules have not been a significant constraint on policy formation, with the notable exception of protection on products covered by the price band system

(see below). Under the URAA, Chile bound most of its tariff lines at 25%, although some agricultural products (including dairy products, wheat and wheat flour, oilseeds and edible oils, and sugar) were bound at 31.5%. Following renegotiations in the light of the WTO finding against the PBS, the bound rate for sugar was increased to 98%. Under Chile's preferential agreements, sugar, wheat, and vegetable oils face higher tariffs than other products and are subject to longer phase-out periods.

The price band system

The idea behind Chile's price band system was to provide producers of eligible crops with some insurance against price risk. Under the PBS, floor and ceiling prices are established around an international reference price. When the reference price is below the lower threshold, a specific duty is applied in addition to the applied tariff. When the reference price is between the lower and the upper threshold, only the applied tariff is applied. When the reference price is above the upper threshold, a rebate is deducted from the amount of the applied tariff. Between 1998 and 2000 world prices were sufficiently low that the duty levied on PBS products exceeded the bound tariff of 31.5%.

In 2001, Argentina argued successfully at the WTO that Chile's PBS was not in conformance with the tariffication requirements of the URAA. In particular, the WTO ruling upheld that the PBS contravened Article 4.2 of the Agreement, which maintains that "Members shall not maintain, resort to, or revert to any measures of the kind which have been required to be converted into ordinary customs duties, except as otherwise provided under the Agreement's special safeguards provisions".

As a result, the PBS was modified. The mechanism for vegetable oils was discontinued. The bound tariff for sugar was renegotiated and raised from 31.5% to 98%, and as a consequence Chile was obligated to open tariffs rate quotas of 60 000 tonnes for refined sugar. Finally, the reference price and threshold calculations were changed for wheat, wheat flour and sugar, with limits imposed such that the payable duty would not exceed the bound tariff rates (31.5% in the case of wheat and wheat flour, and a revised rate of 98% in the case of sugar). In the case of wheat and wheat flour, a 1.5% reduction in duties was specified for each year until 2014, after which the PBS would be abolished. Details on the operation of the PBS and changes that were made in the light of the WTO dispute settlement process are provided in Box 2.3. The new system for wheat was challenged by Argentina, and in December 2006 the WTO's Dispute Settlement Body ruled that the modified PBS was still in contravention of WTO rules. Chile appealed against this decision, but that appeal was rejected in May 2007. As a result, further changes will need to be made to wheat policy. At present these changes carry few economic consequences, as in 2003, 2004 and 2006 a rebate was applied to the MFN tariff.

Estimates of the value of these price interventions are revealed in the market price support calculations that form an integral part of the PSE measurement exercise.

The *ad valorem* equivalents (AVEs) of duties applied under the PBS have been calculated for wheat and refined sugar by ODEPA. These calculations take the MFN tariff and then add (subtract) the AVE of the duty (rebate) applicable under the PBS. In each case, the reference for calculating the AVE of the specific duty (rebate) is the corresponding import unit value. The AVEs are calculated on a monthly basis, and the simple average for 12 months is reported. In addition, the tariff collected during the year is divided by the annual import unit value to give a weighted average.

Box 2.3. **Changes to Chile's price band system**

Implementation of the PBS involves three elements: *i)* the calculation of floor and ceiling prices; *ii)* the determination of extra duties (rebates) which are applied on top of the MFN tariff in order to keep prices within the price band; and *iii)* the application of the resulting net duty to imports. The operation of these elements was changed in 2002 following the findings of the WTO panel.

The PBS was originally applied to wheat, wheat flour, edible oils and sugar. Following the WTO ruling, the system was discontinued for edible oils and modified for the other products. In order to bring the PBS into line with the DSB's 2002 recommendations and rulings, the following changes were made:

For wheat, the floor and ceiling prices were set at USD 128 per tonne and USD 148 per tonne respectively. This contrasts with the previous system where floor and ceiling prices were calculated on the basis of prices over the previous 60 months. From 2008 to 2014, these floor and ceiling prices are to be reduced by 1.5% per year, after which the system will be discontinued.

For sugar, floor and ceiling prices were set at USD 310 and USD 339 per tonne respectively, to be reduced by 2% per year from 2008 to 2014. This contrasts with a system whereby reference prices were calculated on the basis of international prices over the previous 120 months.

In the case where the reference price is below the floor price, the extra duty charged in addition to the applied MFN tariff is equal to the difference between the floor price and the f.o.b. reference price multiplied by one plus the *ad valorem* duty (6%). When the reference price exceeds the price ceiling, a rebate is provided equal to the difference between the two prices again multiplied by one plus 6%. As before, specific duties on wheat flour are 1.56 times those applied for wheat.

A further requirement is that duties applied under the price band system shall not exceed the bound rate of 31.5% in the case of wheat and wheat flour and 98% (the re-negotiated rate) in the case of sugar.

Other specific changes included reference prices established by Law, which are Trigo Pan Argentino (f.o.b. Argentina) from 16 December to 15 June, and Soft Red Winter Wheat No. 2, quoted f.o.b. in the Gulf of Mexico from 16 June to 15 December. In the case of sugar, the relevant prices are NY future price No. 11 for raw sugar, and London future price No. 5 for white sugar.

For wheat and wheat flour, relevant duties are determined six times per year as opposed to weekly. For each announcement, daily prices are averaged over 15 days. There then follows a five day announcement period, and two months of application. For sugar there are 12 determinations of duties and rebates on the basis of a five day announcement which reflects prices in the preceding month. The schedules for calculating duties and rebates, announcing them, and then implementing them are set out in Table 2.A1.2.

After the WTO verdict in May 2007, two elements characterise the proposed reform:

1. *Legal modification.* Since the PBS is defined by Law (article 10 of Law 18.525), parliamentary approval is necessary for any changes. Under the proposal before parliament, the PBS mechanism is to be replaced with a specific tariff of USD 30 for wheat and USD 47 for wheat flour per tonne. This overall tariff will be the 6% MFN tariff plus these specific rates. In *ad valorem* terms, the final tariff will depend on international prices.
2. *Preferential access.* Given that the legal modification elevates protection, a bilateral protocol will be created that will grant tariff-free access to imports of wheat and wheat flour subject to certain conditions of price. This will guarantee present conditions of access (0% tariffs for wheat, based on the high international prices). If prices fall, tariffs will activate automatically for imports of wheat and wheat flour (Table 2.A1.3). Additionally, the protocol establishes that tariffs will decrease year by year under the same measures established by the FTA with the USA, to zero in January of 2015 (Table 2.A1.3). This protocol will be applicable to all partners with preferential treatment (Canada, Central America, USA, P4, Peru, EU and MERCOSUR).

For wheat, the AVE exceeded the MFN tariff for most years in the 1990s and exceeded the bound rate of 31.5% from 1998 to 2000. As world prices have strengthened, rebates have been offered in three of the past four years, meaning that the actual duty paid has been less than the MFN rate of 6% (Table 2.1).

Table 2.1. **Wheat protection under the price band system, 1990-2006**

	Ad valorem tariff (%)	Ad valorem equivalent of duty payable under PBS		Total tariff	
		Simple average (%)	Weighted average (%)	Simple average (%)	Weighted average (%)
1990	15.0	3.7	42.6	18.7	57.6
1991	13.0	10.3	31.5	23.0	44.2
1992	11.0	7.7	9.1	18.7	20.1
1993	11.0	5.5	7.8	16.5	18.8
1994	11.0	5.1	3.7	16.1	14.7
1995	11.0	–2.2	–4.3	8.8	6.7
1996	11.0	–7.2	–6.4	3.8	4.6
1997	11.0	3.6	1.3	14.6	12.3
1998	11.0	36.2	41.2	47.2	52.2
1999	10.0	44.9	44.3	54.9	54.3
2000	9.0	41.4	41.5	50.4	50.5
2001	8.0	16.0	17.2	24.3	25.2
2002	7.0	4.0	2.4	10.6	9.4
2003	6.0	–1.0	–2.0	4.5	4.0
2004	6.0	–4.0	–3.4	2.4	2.6
2005	6.0	3.0	1.8	9.2	7.8
2006	6.0	–2.0	–1.4	3.9	4.6

Source: ODEPA, 2007.

For sugar, protection has been higher than for wheat in most years, but has come down sharply since 2003 as a result of strong world prices. A deduction from the MFN rate was made for the first time in 2006 (Table 2.2).

Table 2.2. **Sugar protection under the price band system, 1990-2006**

	Ad valorem tariff (%)	Ad valorem equivalent of duty payable under PBS		Total tariff	
		Simple average (%)	Weighted average (%)	Simple average (%)	Weighted average (%)
1990	15.0	–8.0	–3.8	7.0	11.2
1991	13.0	0.0	0.0	12.7	12.7
1992	11.0	8.5	4.5	19.5	15.5
1993	11.0	13.3	16.8	24.3	27.8
1994	11.0	0.2	–1.5	11.2	9.5
1995	11.0	–10.2	–10.6	0.8	0.4
1996	11.0	0.2	–0.6	11.2	10.4
1997	11.0	17.0	17.9	28.0	28.9
1998	11.0	42.3	39.4	53.3	50.4
1999	10.0	66.9	69.4	76.9	79.4
2000	9.0	57.3	58.5	66.3	67.5
2001	8.0	31.0	27.2	39.2	35.2
2002	7.0	39.0	31.6	45.5	38.6
2003	6.0	42.0	42.1	48.4	48.1
2004	6.0	38.0	34.7	43.6	40.7
2005	6.0	14.0	13.4	20.3	19.4
2006	6.0	–5.0	–5.1	0.7	0.9

Source: ODEPA, 2007.

Other trade policy measures

Chile applies few trade policies other than the *ad valorem* tariffs described above. Those additional measures are summarised below:

- *Tariff quotas*. The only tariff quota maintained by Chile is for sugar. This was introduced in 2002 following Chile's WTO renegotiations following the Appellate Body's finding against the PBS, and occurred in parallel with the bound tariff being increased to 98%. The quotas are maintained on refined sugar, with an out-of quota rate of 6% plus the duty payable under the PBS and an in-quota rate of 0%. The quota of 60 000 tonnes annually is allocated on a first-come first-served basis. 21 000 tonnes are reserved for Argentina, 16 700 tonnes for Guatemala; 9 700 for Brazil; and 12 600 for other countries. When the price band was modified in 2003, two more tariff rates-quotas were opened: 15 000 tonnes for HS items 1701.91 and 1701.99 and 30 000 tonnes for item 1701.9100. In 2006 quotas were not used because the PBS resulted in a deduction from the MFN rate and almost all imported sugar paid no duty. An additional quota of 45 000 tonnes for industrial use sugar was opened, on a unilateral basis, with Bolivia, Colombia, Costa Rica and El Salvador.
- *SPS restrictions*. Chile's desire to protect its natural isolation from plant and animal diseases has led to strict SPS controls. SAG is responsible for all issues related to plant and animal health and has been notified to the WTO as Chile's national enquiry point. SAG is also responsible for negotiating bilateral certification agreements.
- *Safeguards*. Since the enactment of safeguard legislation in 1999, safeguard measures have been applied to wheat, sugar, edible vegetable oils, fructose and fructose syrup, and powdered and liquid UHT milk.
- *State Trading Enterprises*. Chile has notified Comercializadora de Trigo (COTRISA) as a state trading enterprise. COTRISA purchases wheat from Chilean producers on a non-discriminatory basis and does not usually engage in import or export transactions (WTO, 2003). Its effects on policy have come through implementing the PBS, rather than its existence as an STE *per se*.

Export promotion

Export promotion in Chile is undertaken by PROCHILE, the Export Promotion Bureau, which is part of the General Directorate of International Economic Affairs (*Dirección de Relaciones Económicas Internacionales,* DIRECON) within the Ministry of Foreign Affairs. PROCHILE provides support to small and medium-sized enterprises so that they can access international markets. PROCHILE has a world-wide network, with trade offices and agencies located in over 35 countries, covering 90% of Chile's export markets. The offices are run by specialised teams that use their market expertise to help Chilean export companies conduct their international operations. PROCHILE also possesses 12 domestic regional offices which foster the development of goods and services suitable for export throughout the entire national territory. These offices – along with regional governments, the private sector, universities and other organisations – work together to identify the range of regional products and services for export and to develop appropriate trade promotion plans (Prochile, 2007).

Through a common agreement with the MINAGRI established in 1996, part of PROCHILE is dedicated to the promotion of agricultural products. Two specific programmes are the Agricultural Export Promotion Fund (*Fondo de Promoción de Exportaciones Silvo-*

agropecuarias) and the Export Promotion for Small-scale Agriculture (*Internacionalización de la Agricultura Familiar Campesina*, INTERPAC). The budgetary allocation for agricultural export promotion attributed by MINAGRI to PROCHILE has more than doubled over the last ten years, from less than CLP 3 000 million in 1996 to more than CLP 7 000 million in 2006, representing about 0.2% of the value of agro-food exports (Sotomayor, 2007; Cox, 2007).

Export promotion has been one part of a range of policy and non-policy factors that have helped boost Chile's agro-food exports over the past two decades. Box 2.4 examines the role that the state played in helping the development of three export products in the 1980s and 1990s: wine, blueberries and pork meat.

Box 2.4. **Explaining the growth of Chile's agro-food exports**

Chile's agro-food sector has been the source of several export successes in recent years. It has outperformed the manufacturing sector and made an important contribution to the country's trade performance. In seeking to explain what has prompted the discovery of new export opportunities, a range of factors have been identified. These include trade liberalisation, the attainment of relative macroeconomic and political stability, the encouragement of FDI, extended periods of exchange rate depreciation, and supportive government policies.

Agosin and Bravo Ortega (2006) consider three successes from the Chilean experience, in an attempt to discern the relative importance of these various factors and delineate the role played by the state. The three cases they consider are wine, blueberries and pork meat.

Wine started to be exported in significant volumes in the mid-1980s and is now a major industry with annual exports of around USD 900 million. The majority of these exports go to European markets. The growth of blueberry and pork meat exports is a more recent phenomenon. Blueberries, which are not traditionally consumed domestically, emerged as a significant export in the mid-1990s, with exports growing to an annual average of USD 100 million, mostly destined for the United States. Pork exports have developed even more prodigiously, rising from less than USD 6 million in 1996 to over USD 300 million in 2005. The majority of these exports are taken by Japan and Korea.

A key point made by Agosin and Bravo Ortega is that these exports have grown in the absence of an active government policy. The role of government has been to facilitate rather than direct economic activity. In addition, they note a number of specific features behind each export growth story.

In the case of wine these contributory factors include the adoption of foreign technologies, the switch to stainless steel vats that enabled Chilean producers to bring the quality of their wines up to international standards, the co-ordinating activities of industrial associations and a general growth in world demand. The growth in blueberry exports has taken place as part of a remarkable diversification in fresh fruit exports, which draws on favourable natural conditions including a mild Mediterranean climate and off-season production compared with the northern hemisphere. The main exporting companies (Hortifrut and Vital Berry) have joint ventures in the United States and strong links to specialised traders. Foreign investment played an important role in the development of pork exports. The main buyer, Japan's Nippon Meat, started prospecting for suppliers when FMD hit two of its main suppliers, Denmark and Chinese Taipei. This company buys from the dominant supplier, Agrosuper, which has a vertically integrated structure and low labour costs, which enables it to meet specific demands – notably for speciality cuts – from Asian markets.

Box 2.4. **Explaining the growth of Chile's agro-food exports** *(cont.)*

All three products have benefited from favourable natural resource, macroeconomic and trading conditions. In each case, however, the government has played an important facilitating role.

- While Chile benefits from naturally favourable SPS conditions by virtue of its physical isolation, **SAG** has played an important role in protecting this endowment, especially in the case of blueberries and pork.
- **CORFO** has sponsored the setting up of producer associations that can assist producers in meeting the quality requirements of foreign markets. This was particularly important in the early stages of the boom in wine exports.
- **Fundación Chile** helped establish a viable export concern for blueberries, helping to compensate for weak private sector R&D and an infant venture capital industry.
- More generally, **PROCHILE**'s promotion activities are considered to have had a significant effect on Chile's exports of food and wine.

Finally, the conclusion of **trade agreements** has had an important impact in each case, with exports of wine to the EU benefiting from a specific agreement within the Economic Association Agreement, and exports of blueberries to the United States and of pork to Japan and Korea covered by free trade agreements.

Producers have argued that the scope of government initiatives is too limited, and that they are typically obliged to pick up the costs of government services, such as inspection. Nevertheless, the government's focus on providing public goods and correcting clear cases of market failure, as opposed to trying to pick sectoral winners, has shown a valuable return.

2.4. Domestic policies

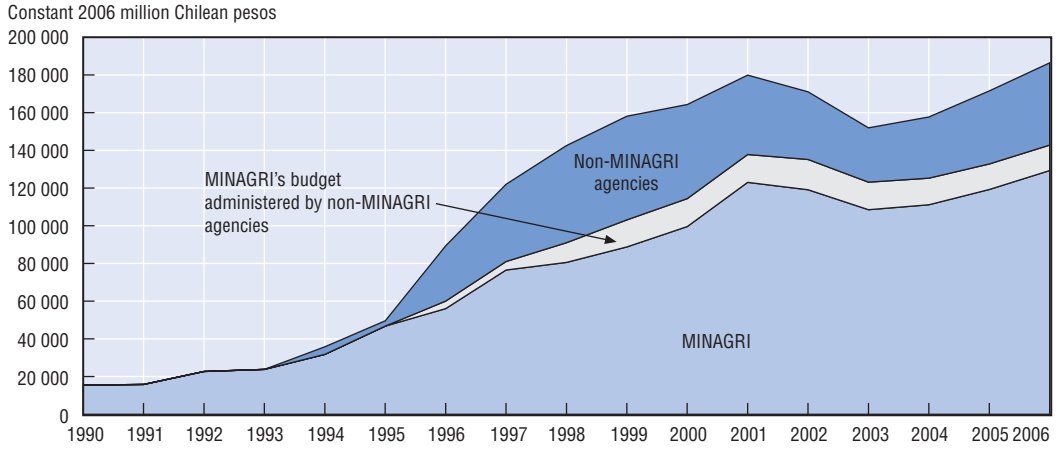
Overview

Chile domestic policy choices have been conditioned by its relatively open trade policy. Thus there has been relatively limited use of price support policies. On the other hand the government's ambitious agenda for agricultural development has led to a wide range of initiatives that involve budgetary expenditures. Budgetary transfers on agricultural policies have more than quadrupled in real terms since 1995 (Figure 2.1). Over this period MINAGRI programmes have been complemented by those of other agencies: one-third of agricultural expenditures are now undertaken by non-MINAGRI agencies.

Figure 2.2 shows the composition of agricultural spending by institution. INDAP, SAG, CNR, and R&D institutions, all part of MINAGRI, collectively account for two-thirds of expenditures. PROCHILE, CORFO (both from Ministry of Economy), the Ministry of Public Works (MOP), SENCE (from Ministry of Economy), FOSIS and CONADI (both from Ministry of Planning) have their own budgets for agricultural spending and also administer programmes that are financed fully and/or partially with MINAGRI's budget. Figure 2.3 breaks down the same spending figures by programme and Figure 2.4. shows the share of agricultural transfers allocated in each programme in 2006. The mapping between institutions and programme areas is given below (note that these categories represent programme areas rather than implementation criteria used in the PSE classification system):

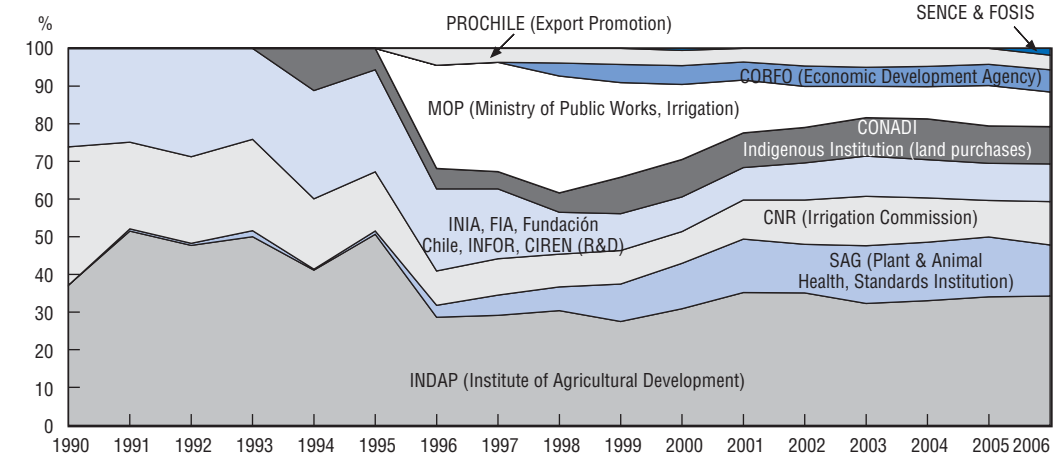
- **Irrigation** programmes are implemented primarily by CNR and MOP, with smaller contributions from INDAP and CORFO. CNR provides subsidies for on-farm improvement

Figure 2.1. **Real budgetary transfers on agricultural programmes, 1990-2006**



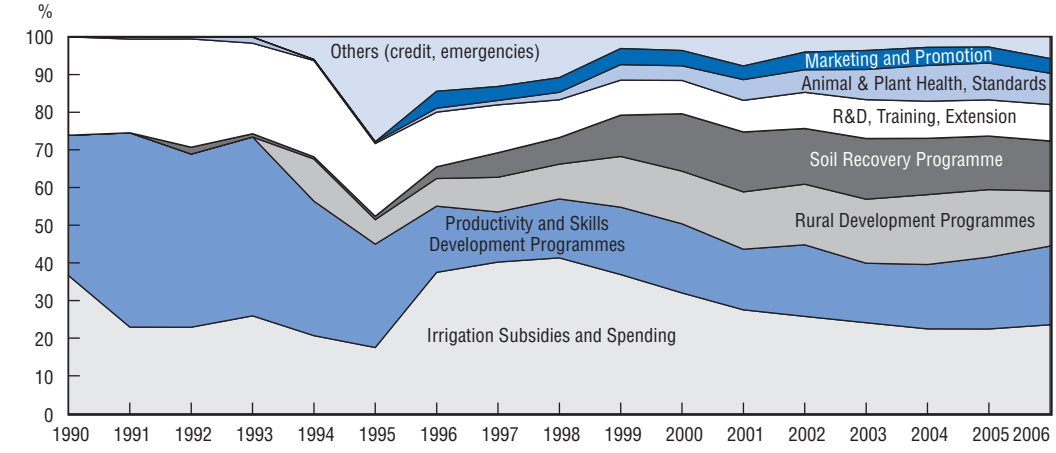
Source: DIPRES, 2007; MINAGRI, 2007.

Figure 2.2. **Shares of agricultural transfers by institution, 1990-2006**



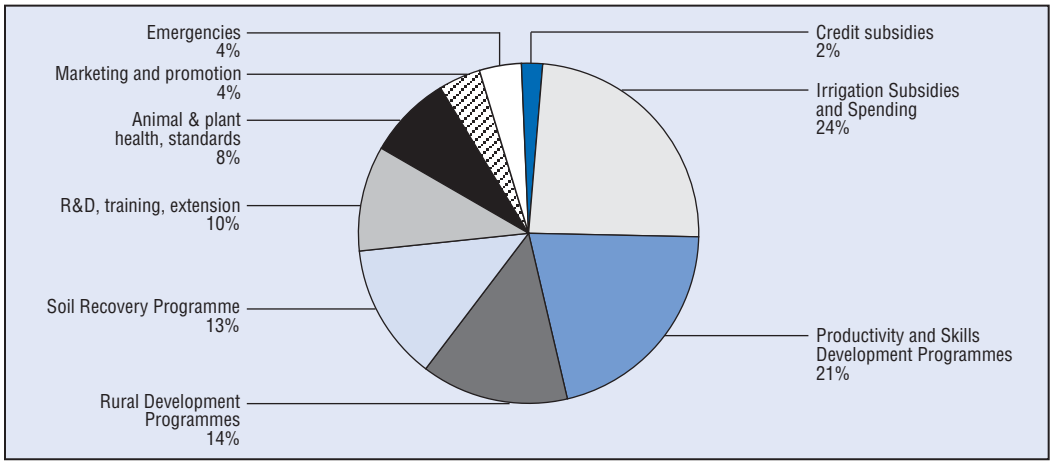
Source: DIPRES, 2007; MINAGRI, 2007.

Figure 2.3. **Shares of agricultural transfers by programme area, 1990-2006**



Source: DIPRES, 2007; MINAGRI, 2007.

Figure 2.4. **Shares of agricultural transfers by programme area, 2006**



Source: DIPRES, 2007; MINAGRI, 2007.

and makes off-farm investments; MOP makes general (off-farm) investments; while INDAP and CORFO subsidise on-farm irrigation.

- The **Soil Recovery Programme** is implemented by SAG and INDAP, and consists mostly of subsidies for the recovery of eroded and degraded soils.
- **Productivity and skills development** programmes are implemented by INDAP and CORFO through on-farm productive investments and preferential credit.
- **Rural development** programmes are implemented by INDAP with a series of subsidies for the productivity promotion, given through territorial development programmes, limited exclusively to special poor areas, and by CONADI via land purchases for indigenous people.
- **R&D, extension and training** are undertaken by several institutions (INIA, FIA, Fundación Chile, INFOR, CIREN, IER, and FUCOA), with programmes financed either partially or totally by MINAGRI.
- **Animal and plant health, and standards** programmes are implemented by SAG and include both on and off-farm measures.
- **Marketing and promotion** programmes are carried out by PROCHILE with MINAGRI's budget.

These programme areas are discussed in greater detail in the remainder of this section.

Price support policies

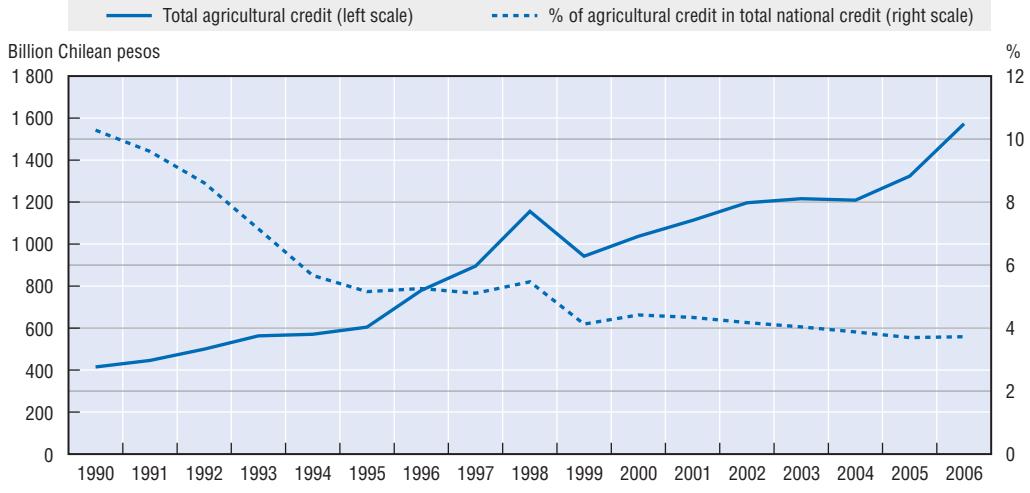
In Chile, price support is provided exclusively through trade protection, as described in Section 2.3. Chile's MFN tariff of 6% provides an upper bound on the protection provided to producers, for all products except those covered by the PBS and those for which contingency measures have been applied. The PBS was introduced in 1983 and originally applied to wheat and wheat flour, edible vegetable oils and sugar. The mechanism was discontinued for vegetable oils in 2001. Since 1999, safeguards have been applied periodically to dairy products, wheat and wheat flour, and sugar, while anti-dumping measures have recently been applied against Argentine wheat. Thus price protection that

goes beyond the applied tariff has been effectively limited to just three product groups: wheat, sugar and dairy.

Credit policies

At the beginning of the 1970s, the state exerted almost total control over the financial sector. Through institutions such as the Chilean Economic Development Agency (CORFO) and the Institute of Agricultural Development (INDAP), more than 90% of agricultural credit was disbursed at preferential rates. Following the military coup, the role of the private financial sector increased. Between 1973 and 1981, the share of agricultural loans made by the private sector at commercial rates increased to 76%, while the combined share of CORFO and INDAP declined to 24% (Cruz, 1999; FAO, 2006). Nowadays, the duality of Chilean agriculture, in which an export oriented large-scale sector exists in parallel with traditional small-scale agriculture, is reflected in the financial services that are offered. These services, in particular credit, are more developed for large-scale agriculture, with the private sector being the main provider although agricultural credit accounts for a small and declining share of the total amount of credit issued nationally (Figure 2.5). On the other hand, small-scale agriculture struggles to obtain access to credit, and the majority of credit obtained has been provided by the state. In 2006, loans allocated to small-scale farmers through INDAP direct credit and INDAP co-ordinated credit accounted for just 4% of total agricultural credit (INDAP, 2007b; ODEPA, 2007).

Figure 2.5. **Agricultural credit, 1990-2006**

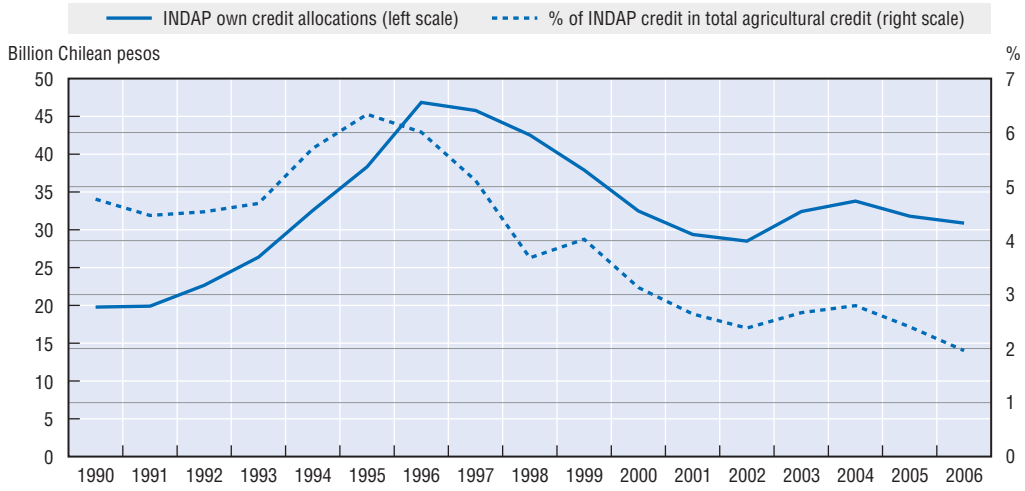


Source: ODEPA, 2007.

INDAP credit

Since its creation in 1962, INDAP has been the governmental agency in charge of providing financial services for the development of small-scale agriculture. INDAP's importance has changed over time, decreasing during the military regime and increasing since the return to democratic government. INDAP's credit allocations have increased steadily since 1990, from CLP 6 860 million in 1990 (USD 22 million) to CLP 30 000 million in 2006 (USD 57 million). Although INDAP is the state's main agricultural credit institution, its share of national agricultural loans has been minor, and has declined to under 3% in recent years (Figure 2.6).

Figure 2.6. **INDAP direct credit, 1990-2006**



Source: ODEPA, 2007; INDAP, 2007a.

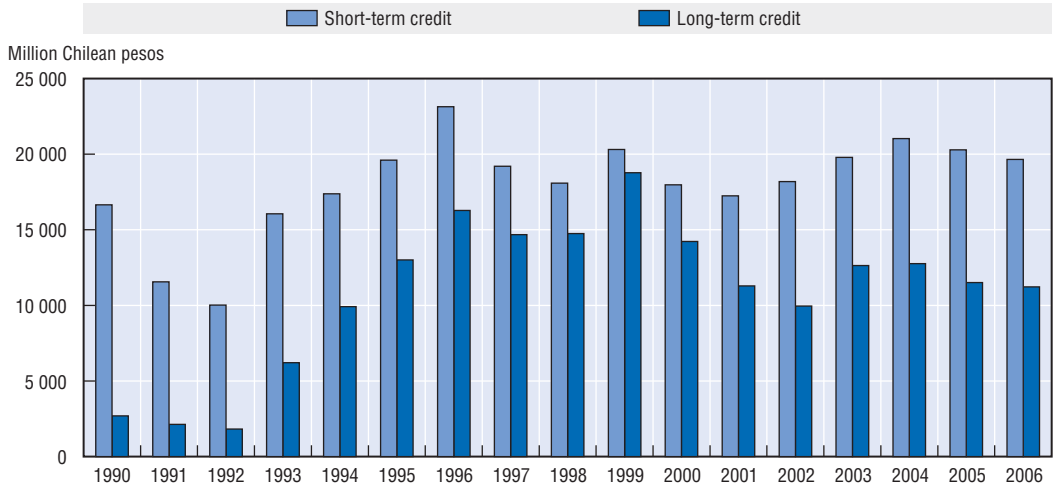
The range of financial services provided by INDAP is limited mainly to short and long term credit. Short term credit is used for working capital (*e.g.* acquisition of inputs, labour, rent of equipment, post-harvesting activities and commercialisation) and the length of loans cannot exceed 359 days. Short term loans are provided to producers of the following crops: garlic, peas, beans, chickpeas, lentils, maize, and sorghum (with a share of 32%); rice, oat, barley, rye, and wheat (with 28%); grassland (17%); and horticultural products (12%); with other crops accounting for the remaining 11%. This commodity focus reflects the activities carried out by small-scale farmers (INDAP, 2004). Long term credit may be extended for up to ten years and is mostly designed to finance investment in fixed assets such as machinery, equipment and infrastructure. Both types of credit are given to small-scale farmers individually or collectively at preferential rates.

In the early 1990s, most loans were of a short term nature, although the share of long terms loans increased through the decade, reaching 45% of all credit by 1999. Since 2001, the share of short term credit has stabilised at around 65% of total credit allocations (Figure 2.7). The number of beneficiaries of short-term loans has averaged about 35 000 households per year.

The number of households benefiting from long-term credit declined from 25 000 (including forestry and irrigation loans) in 2000 to 13 000 in 2006. Long-term credit has three modalities: *i)* "normal" long-term credit, oriented to the capitalisation of agricultural activities; *ii)* irrigation credit; and *iii)* forestry credit, which finances forestation and reforestation. Short-term loans dominate INDAP lending, with long-term loans and loans for forestry declining in absolute and relative terms. The reason for this is that the type of client has changed from small farmer organisations to individual farmers who solicit more short-term loans; while some long-term loans, *e.g.* for irrigation, have been replaced by subsidies.

The average number of farmers receiving direct credit from INDAP is around 45 000 per year (Table 2.3). In 2006, the number of beneficiaries from INDAP credit (whether direct or co-ordinated) was 60 220. This corresponds to about 22% of the total number of farmers constituting the official definition of small-scale family agriculture (*Agricultura Familiar*

Figure 2.7. **INDAP's short and long term credit, 1990-2006**



Source: INDAP, 2007a.

Table 2.3. **Number of recipients of INDAP credit, by type of credit, 2000-06**

	Short-term loans	Long-term credit		
		Agriculture	Forestry	Irrigation
2000	35 073	18 301	1 861	4 798
2001	37 184	17 057	2 479	4 528
2002	35 817	13 288	3 561	4 193
2003	35 855	14 249	4 912	2 851
2004	36 055	13 838	4 594	795
2005	34 167	10 605	1 810	21
2006	33 261	11 731	1 260	24

Source: INDAP, 2007a.

Campesina, AFC), estimated at 278 800 exploitations (INDAP, 2007; Censo Agrícola, 1997).[3] More generally, in the same year INDAP's credit and subsidies reached around 116 000 small-scale farmers, corresponding to 42% of farms in the AFC sector (INDAP, 2004; INDAP, 2007).

INDAP has acquired debt as a result of the policy of promoting farmer associations during the mid-1990s. The provision of technical assistance was contingent on the formation of an association, but out of a total of 1 500 farmer organisations with debts with INDAP, just over 400 had real activities and accounting information, while the remainder did not actually exist as agricultural businesses (Cox, 2007). The default rate on INDAP loans peaked at over 30% in 2002, but had come down to 10% by 2006 (INDAP, 2007a). The improvement in the recovery of loans was due to better institutional management and improved macroeconomic conditions. Nevertheless, some policies for rescheduling and writing off agricultural credit debt have been implemented, with a USD 12 million write-off occurring in 2001-02. The latest rescheduling policy was applied in September 2006 and affected 10 000 producers with average debts of CLP 300 000 (USD 150). The main objective of this rescheduling has been to rehabilitate users of INDAP's services.

An important INDAP instrument designed to facilitate smallholders' access to credit is the Financial Coordination Subsidy (*Bono de Articulación Financiera*, BAF), which was

introduced in 1996 and aims to increase the role of the private financial sector. This instrument covers the transaction cost involved in a loan operation and is provided to financial entities that channel credit to small-scale farmers. The subsidy is given through a bidding process to financial institutions that have already confirmed their participation and have allocated loans to farmers; that is, the subsidy is given directly to the financial institution for each agricultural loan being approved to a small-scale farmer. The monetary resources for this subsidy have increased steadily since 2002 (Figure 2.8). By 2005, INDAP had worked with 20 financial institutions: three commercial banks, eight co-operatives (credit unions) and nine foundations (NGOs). The number of annual loans made through this instrument increased from 420 in 1998 to 19 862 in 2006 (INDAP, 2007); in monetary terms this meant that private financial institutions increased their allocations from CLP 682 million (USD 1.3 million) in 1998 to CLP 23 097 million (USD 23.3 million) in 2006. The BAF payment in 2006 was about CLP 1 200 million (USD 2.2 million), equivalent to an average of USD 100 per loan for covering transaction costs and implying a subsidy of about 5% on loans.

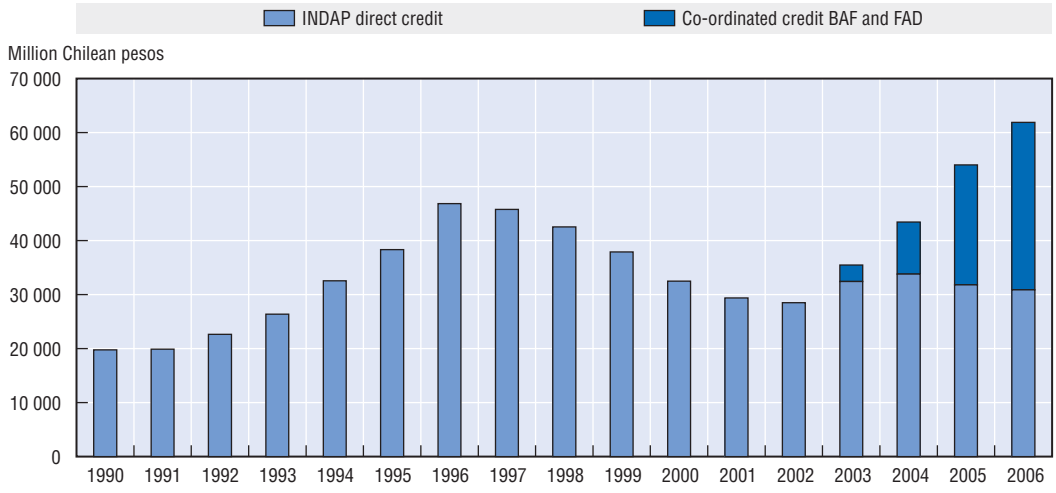
In 2003, INDAP developed a further strategy to increase the range of financial services for small-scale agriculture. Based on the assumption that commercial banks have the conditions to reach a greater number of farmers, the Fund of Delegated Cash Management (*Fondo de Administración Delegada*, FAD) was put in place. This fund operates in conjunction with BAF. While BAF is used to compensate for the higher transactions costs required when operating with small farmers, this new Fund compensates banks for the risk of operating with small farmers. The subsidy is determined through an auction system, whereby banks compete for the interest rate they have to pay to INDAP in order to receive the funds to be lent.

One novelty of this instrument is that it has a mechanism of default risk coverage; meaning that INDAP deals with any risk from transactions that were before assumed by banks. With the implementation of this fund INDAP became a second-tier-bank, by providing credit indirectly to farmers. The resources allocated to this instrument almost doubled between 2003 and 2006, from CLP 2 300 million (USD 3.3 million) to more than CLP 4 000 million (USD 7.5 million). Since its creation, 28 941 small farmers have received FAD loans from the banking sector, representing more than half the farmers reached by INDAP annually (INDAP, 2007). The success of these two instruments (FAD and BAF) is observed in the amount of credit given to small-scale farmers by private sector. In 2003, the credit allocated through these instruments was CLP 3 049 million (USD 4.4 million) by 2006 that amount increased up to CLP 31 000 million (USD 58 million), equivalent to INDAP's direct credit allocation in the same year (Figure 2.8).

CORFO-COMSA agricultural insurance

The agricultural insurance programme, COMSA (*Comité de Seguro Agrícola*), was created in 2000. It is financed by MINAGRI and administered by CORFO. Under this programme, a subsidy is given to farmers who take out crop insurance and pay a corresponding premium. The subsidy can pay up to 85% of the premium in case of small-scale farmers, and 50% for medium and large-scale farmers. Private financial institutions offer the agricultural insurance. Risks covered are those caused by climate hazards such as drought, excess or untimely rain, frost, hail, snow, and wind; while the products eligible for the subsidy are cereals, industrial crops, vegetables and legumes. In the past four years, the COMSA subsidy annually has averaged approximately CLP 1 000 million (USD 2 million), equivalent

Figure 2.8. **INDAP direct and co-ordinated allocations of credit, 1990-2006**



Source: INDAP, 2007a.

to around one-fifth of the total budgetary allocation that MINAGRI provides to CORFO, whose remaining subsidies are used for the productivity improvements and skills development programmes.

BANCO del ESTADO credit policies

Banco del Estado (BECH) is a 150 year-old public financial enterprise. Since 2001, BECH has developed a significant presence with micro and small enterprises in the agricultural sector. BECH started to provide credit to small farmers within the bank's micro-entrepreneurs unit, and in 2006 provided CLP 38 811 million (USD 70 million) to a total of 32 000 micro-agricultural clients.[4] For 2007 it planned to reach more than 50 000 farmers. Part of the credit provided to small-scale farmer is encouraged by INDAP's FAD and BAF instruments. Clients can be owners, renters and sharecroppers with at least one year of experience in the activity. In August 2006, the Bank initiated an agricultural credit line for small-scale farmers, focused on financing fruit plantations and land acquisitions. In addition, in 2007 BECH opened an agricultural credit line for sons and daughters of small-scale farmers. For eligibility, the father of the applicant must be a client of BECH. Interest rates charged by BECH are not preferential (Banco Estado, 2007).

Productivity improvement and skills development programmes

There are several programmes designed and financed by MINAGRI that aim to develop agricultural productivity and entrepreneurial and productive farmer capabilities, and fall under the general heading of Productive Promotion (*Fomento Productivo*). INDAP, SAG, CNR, CONAF and CORFO implement most of these programmes. In general, these subsidies are given to farmers, who must participate in national or regional contests in order to qualify for economic support. Besides programmes implemented by MINAGRI, programmes that aim to improve production and productivity exist, which are not limited to the agricultural sector and are applied to the entire economy, usually under the poverty reduction policies umbrella. FOSIS[5], SENCE[6] and CORFO are among the institutions that design, finance and implement these programmes.

INDAP

Within the Productive Promotion policy, INDAP has two main initiatives that comprise several instruments. The first initiative consists of Incentives for the Development of Agricultural Investment (*Incentivos para el Mejoramiento y Desarrollo de Inversiones*) and consists of the Programme for the Development of Investments (*Programa de Desarrollo de Inversiones*, PDI); the Soil Recovery Programme (*Programa para la Recuperación de Suelos* Degradados, SIRDS) and the Associative Irrigation Works Programme (*Programa de Riego Asociativo*).[7]

With the Programme for the Development of Investments (PDI), INDAP promotes investment in agricultural productive activities by financing projects which seek to capitalise and modernise the agricultural sector. This programme has increased in importance, with transfers rising from CLP 2 000 million (USD 3 million) in 2001 to CLP 18 000 million (USD 34 million) in 2006. The PDI programme accounts for 10% of all transfers to agriculture and it is currently the most important INDAP programme in terms of the subsidy provided to farmers.

The second INDAP initiative consists of Services for the Development of Productive and Entrepreneurial Capacities (*Servicios Desarrollo Capacidades Productivas y Empresariales*). The goal of this programme is to improve the productive, managerial and entrepreneurial capabilities of small-scale farmers, with a view to their insertion into national and international markets. There are four instruments:

- Technical Assistance Services (*Servicios de Asesoría Técnica*, SAT), which subsidises the acquisition of specialised technical assistance services. The providers of the assistance are private companies paid with this subsidy.
- Managerial Training Centres (*Centros de Gestión*, CEGES) are entities that provide services in areas such as business management, accounting and legal assistance, and are created and managed by farmers' associations. INDAP covers the start up and operating costs of the centres.
- The Agribusiness Integration Programme (*Programa de Redes*, PRORUBROS) finances the horizontal integration of small-scale agribusiness, whether individually or associatively, which produce and commercialise the same product. Some of the sub-sectors are wine, flowers, berries, potatoes, milk, vegetables, beef, lamb, sheep meat, honey and legumes.
- The Organisational Development Fund (*Fondo de Proyectos de Desarrollo Organizacional*, PRODES) provides subsidies to small-scale farmer organisations for the improvement of their managerial and organisational skills and capabilities.

Budgetary resources allocated under this second initiative increased steadily through the 1990s, but have since levelled off.

CORFO

CORFO (*Corporación de Fomento de la Producción*) was created in 1939 and is Chile's development agency. It provides support for the development of productive activities across all sectors of the economy. CORFO and MINAGRI have worked together since the sixties, and more recently, in 1990s, have jointly implemented policies focused on agricultural productivity development. CORFO has an agreement with MINAGRI, under which CORFO receives MINAGRI resources to be allocated as subsidies to farmers. For CORFO there is no limit on the scale of farmers who can receive support, as is the case with

INDAP. The budgetary allocation to CORFO has averaged just over CLP 5 000 million (USD 8.3 million) in the past four years.

There are five instruments used in this agreement:

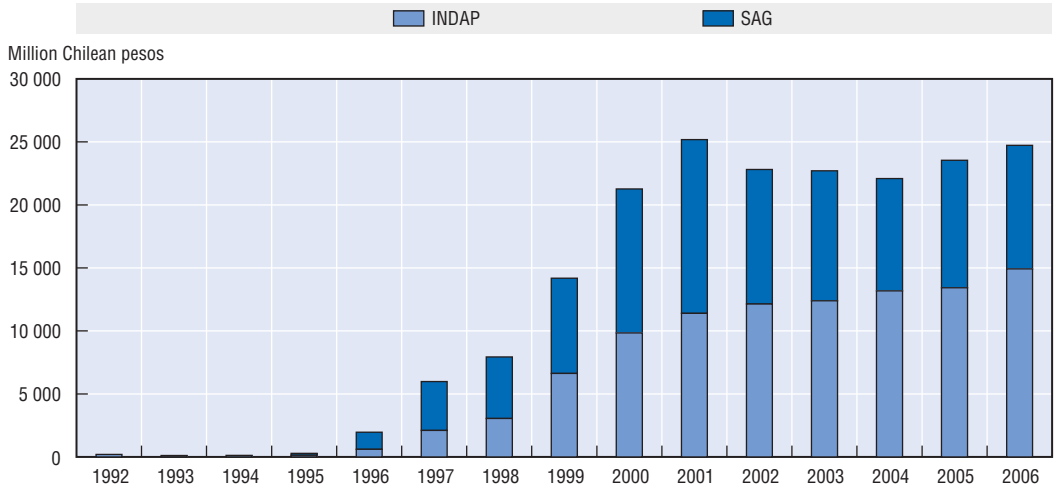
- The Partnership Projects for Development (*Proyectos Asociativos de Fomento,* PROFO) consists of a contribution made by CORFO amounting to 70%-80% of the project's costs, carried out by at least five agribusiness companies. Projects must be related to training in managerial and commercialisation, with the aim of increasing agribusiness competitiveness.
- Under the Suppliers Development Programme (*Programa de Desarrollo de Proveedores,* PDP) CORFO contributes up to 60% of the total costs of consultancy, technological transfer, and training projects incurred by agribusiness. Its most important element is vertical supply chain co-ordination through the promotion of contract farming.
- Quality Promotion (*Fomento de la Calidad*, FOCAL) provides financing to agricultural enterprises to help them meet official standards. CORFO funds up to 50% of the cost of consultancies.
- The Irrigation Pre-Investment Programme (*Pre-Inversión en Riego*, PIR) provides assistance for up to 70% of consulting costs, with limits of UF 150 for on-farm irrigation and UF 450 for off-farm irrigation projects.[8]
- Under the Technical Assistance Fund (*Fondo de Asistencia Técnica*, FAT) CORFO provides up to UF 17 (equivalent to USD 602) for diagnosis, and then 50% of the cost up to UF 150 (USD 5 310) for execution of productive projects.

Independent of MINAGRI, there is a wide variety of instruments made available by CORFO to entrepreneurs of any sector, covering areas such as start-up financing and risk capital, long term loans and the promotion of innovation. CORFO's own budgetary spending on agricultural projects has increased over the years; and in 2006 amounted to CLP 4 700 million (USD 8 million), almost the same as the amount received from MINAGRI. This number represents about 8% of total CORFO's transfers (DIPRES, 2007).

The Soil Recovery Programme

The Soil Recovery Programme is one of Chile's most important agricultural policies. It is administered by two of MINAGRI's agencies, INDAP and the plant and animal health and inspection services agency (SAG), with approximately 50% of the total budget allocated to each agency. The part of the budget administered by INDAP is only available to small-scale producers, which is not the case for SAG (evident from Table 2.4). The programme comprises a set of subsidies used to finance activities to recover and/or improve degraded soils. Some of the activities are: phosphate fertiliser applications to restore the natural level of soil fertility; calcium fertiliser applications; establishment and regeneration of grassland; soil conservation; soil rehabilitation and crop rotation. The ultimate aim of the programme is to improve competitiveness through the improvement of the soil conditions of the farm. The budget allocated to this programme has increased notably since the late 1990s, rising from CLP 5 000 million in 1997 (USD 12 million) to CLP 25 000 million in 2002 (USD 36 million). Since 2002, the budget allocated to the programme has been relatively constant, and in 2006 accounted for 13% of budgetary transfers to agriculture (Figure 2.9).

Figure 2.9. **Expenditures on the Soil Recovery Programme, by institution, 1992-2006**



Source: INDAP, 2007a; SAG, 2007.

Table 2.4. **Area and number of farmers benefiting from the Soil Recovery Programme, 2000-06**

	INDAP		SAG	
	Hectares	Farmers	Hectares	Farmers
2000	123 675	38 686	127 089	3 895
2001	117 271	39 255	131 913	4 903
2002	122 840	38 959	130 431	5 566
2003	114 146	35 320	129 344	4 762
2004	115 427	34 629	110 634	3 849
2005	116 349	31 628	111 872	4 004
2006	123 819	32 500	113 725	3 976

Source: MINAGRI, 2000-05; SAG, 2007; INDAP, 2005, 2007b.

Between 2000 and 2005, around 1.7 million hectares were improved, corresponding to 40% of the land with erosion and/or salinity problems (approximately 4 million hectares), and around 30% of total land devoted to agriculture (15 million hectares) (INDAP, 2007).

Irrigation subsidies and spending

Chile's irrigation programmes need to be understood in the context of the country's water management policies, as irrigation accounts for about 85% of national water use (a share that varies significantly by region). These policies were evaluated in the OECD's *Environmental Performance Review of Chile* (OECD, 2005b), the main findings of which are summarised in Box 2.5.

Since the mid-1990s, an ambitious irrigation policy has been implemented through four main programmes: *i)* large-scale irrigation works carried out by the Ministry of Public Works (MOP); *ii)* construction and rehabilitation of medium and small-scale irrigation works implemented by MOP; *iii)* promotion of private investment in irrigation and drainage works carried out by the National Irrigation Commission (CNR) under Law 18.450; and *iv)* an irrigation programme for small-scale agriculture implemented by

Box 2.5. **Water management policies in Chile**

Even though most Chilean water is of acceptable quality, water quality is poor in some lakes, rivers and coastal waters. There is also pressure from mining in the north, salmon farming inputs in the south and farm inputs in rural areas (OECD, 2005b). In the northern regions (I to IV) water resources are scarce and there has been increasing competition among the main water users: mining, intensively irrigated agriculture and drinking water supply. In central Chile (Regions V to IX) the amount of water available from the many rivers crossing the central valley has thus far been sufficient for various water uses and consumption. In the south (Regions X to XII), with numerous fjords and lakes, and low urbanisation, there is also enough water for most uses.

Water pollution from agricultural run-off and from urban and industrial sewage discharges is an important issue in Chile. Irrigation water drawn from the Maipo and Mapocho rivers (Metropolitan Region), the Aconcagua (Region V) and the Cachapoal (Region VI) has been found to be contaminated by heavy metals, including arsenic, copper and molybdenum. The intensity of fertiliser and pesticide use is well above the OECD average. Increases in agricultural exports were long coupled with intensification of production. In the 1980s, nitrogenous fertiliser use rose by 223% and the volume of pesticide imports increased by a factor of eight to nine. Since 1990, reliance on chemicals has been slightly decoupled from the rise in production, with nitrogenous fertiliser use increasing by 28%, pesticide use by 16%, phosphorous fertiliser use by 50% and that of potash fertiliser by 160%. Foodstuffs for export markets must meet the quality requirements of the importing countries. As a result, pesticide use is generally higher on products for the domestic market.

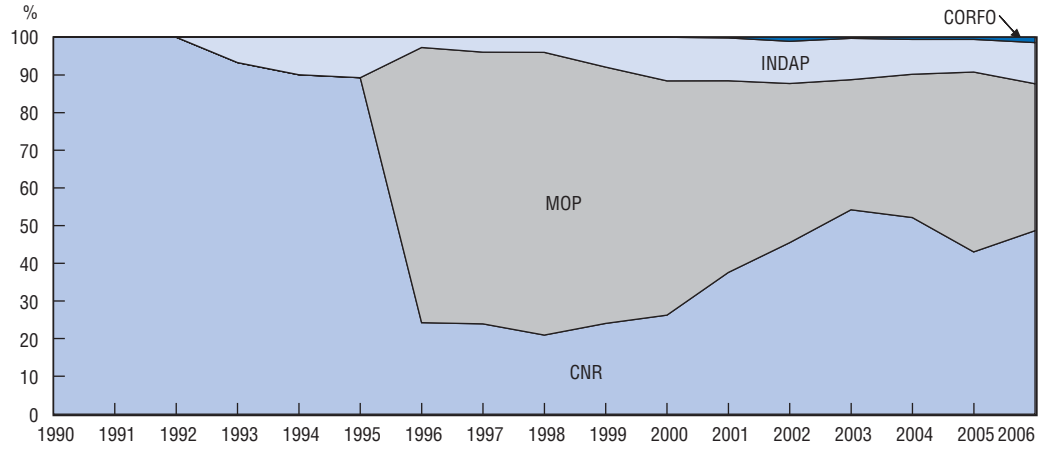
Irrigation subsidies have contributed to water scarcity problems in the centre-north, though efforts are being made to increase cost recovery. The concept that farmers must pay for water was introduced in the late 1990s. This was an important policy shift because water markets enhance water use efficiency. Furthermore, a pioneering nationwide system of tradable water rights was introduced for surface water and groundwater with the 1981 Water Code. However, active trading remains mainly confined to some irrigated areas, water markets have been inactive in most parts of the country, and the effectiveness of markets may be constrained by high transaction costs.

To address these problems, the OECD Review made the following recommendations:

- Reduce the effects of agriculture on water quality and quantity (*e.g.* those related to irrigation, nutrients, pesticides and salinisation).
- Develop an integrated watershed approach to improve water and forest resource management and provide environment-related services more efficiently.
- Improve environmental and health protection in aquaculture (*e.g.* as regards eutrophication, salmon escapes, ecological balance of lakes, antibiotics, epidemiological vigilance, eradication of infectious disease), particularly through strengthened enforcement capacities.
- Complete a precise aquaculture coastal zoning plan; adopt integrated environmental management for coastal areas.

INDAP (Sotomayor, 2007). Recently, the programmes have changed and been merged with others, but they are still managed by MOP, CNR, INDAP, and more recently CORFO. MOP and CNR dominate irrigation spending (Figure 2.10).

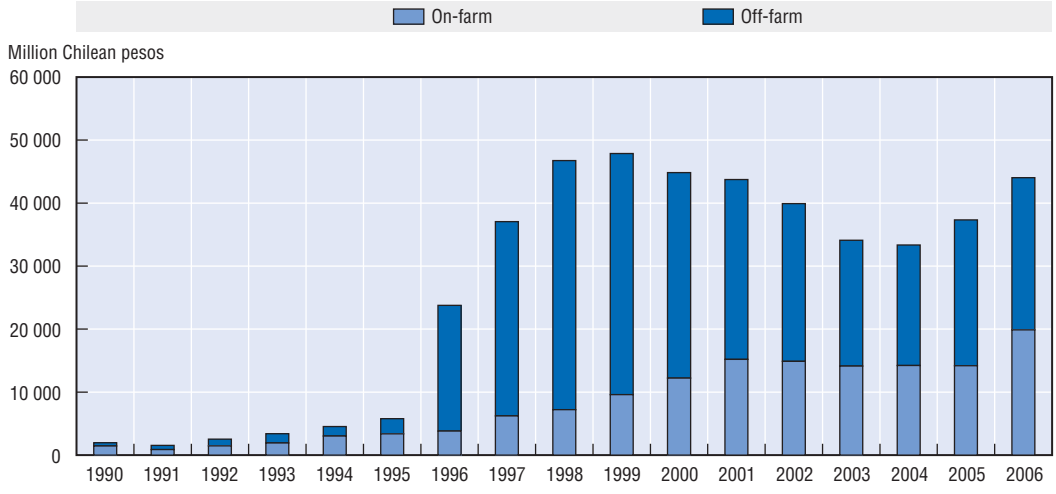
Figure 2.10. **Shares of spending on irrigation, by institution, 1990-2006**



Source: CNR, 2007; INDAP, 2007a; DIPRES, 2007.

Irrigation programmes have been among the most important of Chile's agricultural policies, accounting for an average of 30% of transfers to the sector since 1990. As with the Soil Recovery Programme, expenditures increased sharply in the mid-1990s, and over the past ten years have averaged about CLP 40 000 million (USD 68 million) per year (Figure 2.11). These expenditures have both on-farm and off-farm components. In the first case, farmers receive subsidies to install or improve existing irrigation systems. In the second, expenditures on irrigation are designed to benefit an entire community, region or area.

Figure 2.11. **On and off-farm irrigation spending, 1990-2006**



Source: CNR, 2007; INDAP, 2007a; DIPRES, 2007.

CNR

The National Irrigation Commission (CNR) has three different programmes through which its policies are implemented. The first is Law No. 18.450, Promotion of Private Investment in Irrigation and Drainage Works (*Ley 18.450Fomento Inversión en Obras Menores de Riego y Drenaje*). This law was created in 1986 and provides subsidies for on-farm

irrigation that are received only once the work is done, a requirement that effectively excludes small-scale farmers with low levels of capitalisation. In order to overcome this problem, a new INDAP programme was created in 1993 (see below), then in 2002 a specific CNR programme was established with the aim of reaching poorer farmers (Sotomayor, 2007). Approximately 40% of the Law's monetary resources are used for off-farm investments. It is estimated that about 1.2 million hectares of agricultural land is irrigated (depending on the drought cycles), corresponding to about 8% of all land devoted to agriculture, and 52% of cultivated cropland, estimated at 2.3 million hectares (CNR, 2006).

The other two programmes implemented by CNR are the Irrigation Development Programme for Poor Areas (*Programa Desarrollo del Riego en Comunas Pobres*) and the Studies and Programmes for Technology Validation (*Estudios y Programas de Validación Tecnológica*). The first has the same characteristics as the Law described previously, except that it is designed for poor small-scale farmers. The second programme evaluates the technical and economic feasibility of irrigation projects. Both instruments are relatively minor in terms of monetary resources.

MOP

All irrigation spending by MOP consists of off-farm investments. MOP, through its Department of Hydraulic Works (DOH), is in charge of large and medium-scale irrigation works, providing infrastructure at national, regional and district levels. MOP intervention in agriculture began in 1990 and focuses on the construction of irrigation works such as dams and irrigation canals. Between 1990 and 2003, 377 500 ha benefited from MOP expenditures, with most projects used to increase the certainty of irrigation in zones with water restrictions, rather than increase irrigated area (Sotomayor, 2007). MOP's spending in 2006 was CLP 17 000 million (USD 31 million) – about half the level recorded at the end of the 1990s.

INDAP

INDAP's Associative Irrigation Works Programme (*Programa de Riego Asociativo / Bono al Riego*) provides subsidies to small-scale farmers that are associated or organised for the investment in irrigation or drainage works. Spending rose sharply in the 1990s, to a peak of just over CLP 5 000 million (USD 8 million) in 2000. Allocations declined to around CLP 3 000 million (USD 5 million) in 2004 and 2005, but recovered to nearly CLP 5 000 million (USD 8 million) again in 2006.

CORFO

CORFO carries out the Irrigation Pre-Investment Programme (*Pre-Inversión en Riego*, PI or PIR). About 70% of the programme is financed from MINAGRI's resources, with the remainder borne by CORFO. The programme covers up to 70% of the *ex-ante* costs of projects such as technical and economic feasibility evaluation.

Direct income payments

Chile provides few direct income payments to farmers and only two programmes were functioning by 2006. These programmes are operated by FOSIS and INDAP.

FOSIS

The Social and Solidarity Investment Fund (*Fondo de Solidaridad e Inversión Social*, FOSIS) is an institution within the Ministry of Planning and Cooperation (MIDEPLAN) that finances in whole or in part development programmes, projects and special activities that contribute to poverty reduction. A programme executed by FOSIS that aims to improve the income of farmers is the Subsidy for Auto-Consumption Agriculture (*Subsidio para la Agricultura de Autoconsumo*). Through this subsidy, FOSIS provides direct payments to poor small-scale farmers with the purpose of increasing their production for their own consumption. The programme started in 2006 with an initial budget of CLP 1 200 million (USD 2.2 million).

INDAP

The Support for the Family Agricultural Production (*Bono de producción agrícola familiar*) was the only programme implemented by MINAGRI (through INDAP) that provided direct income payments. The programme had declined in importance since its creation in 2001 and was eliminated in 2006, on the grounds that INDAP's mandate was to develop productive activities rather than provide social support.

Infrastructure

Agricultural infrastructure is mainly provided by Ministry of Public Works (MOP). For irrigation works, this is done through the Department of Hydraulic Works (DOH), while rural roads are under the jurisdiction of the Department of Highway and Roads Administration. The Wheat Marketing Enterprise (*Empresa de Comercialización de Trigo S.A.*, COTRISA) is the only stockholding infrastructure owned and operated by the State (MINAGRI) (Sotomayor, 2007). Since the reform of the price band system, COTRISA's role has been limited to providing storage and selection services to small-scale producers of grains (Cox, 2007).

Standards

The Agriculture and Livestock Service (*Servicio Agrícola y Ganadero*, SAG) is the institution responsible for plant and animal health inspection services. Since its creation in 1967, SAG has been in charge of improving the sanitary conditions of the livestock, agriculture and forestry sub-sectors. SAG has six main areas of action: plant health, animal health, protection of natural renewable resources, seeds, laboratories and quarantine stations, and international affairs. Within the animal and plant health area, export certification and inspection activities have played a crucial role in the development of Chile's agricultural exports over the past two decades.

SAG's department of protection of natural renewable resources promotes the sustainable development of agriculture through the protection and preservation of natural resources, as well as the prevention of negative environmental impacts caused by pollution. One of the main instruments of this department is the Soil Recovery Programme described previously. The seeds department is in charge of the certification of seed quality through commercialisation and nursery control and through the registration of protected varieties. The laboratories and quarantine stations are part of a comprehensive national network of laboratories that carry out diagnostics and analysis for the evaluation and certification of sanitary quality of plants, animals and the environment. SAG supervises, validates and defines the techniques used by laboratories, which are mostly outsourced.

The department of international affairs carries out several international negotiations regarding sanitary issues. It also performs control activities within national regions and at international borders.

The total budget of SAG, including transfers and overhead costs, but excluding the Soil Recovery Programme, increased from CLP 4 500 million (USD 15 million) in 1990 to CLP 42 000 million (USD 80 million) by 2006. Most of the programmes and activities implemented by SAG are provided to the sector as a whole, although there are some on-farm services, such as pest and disease controls, the Soil Recovery Programme and the Fund for the Improvement of Sanitary Conditions. The latter provides subsidies to farmers who upgrade sanitary conditions. Subsidies cover up to 70% of the cost of projects and are awarded through competitive bids.

International recognition of SAG has created an atmosphere of trust among farmers, processors, civil society and governmental workers. This credibility has contributed to the eradication of important pests and diseases such as Velogenic Viscerotropic Newcastle disease in 1975; foot and mouth disease in 1981 (FMD); equine infectious anaemia in 1991; fruit fly in 1995; and classical swine fever in 1998. In 2000, the EU recognised Chile as a level 1 risk country for Bovine Spongiform Encephalopathy (BSE), while in 2002 Chile became free of avian influenza (SAG, 2007; Sotomayor, 2007).

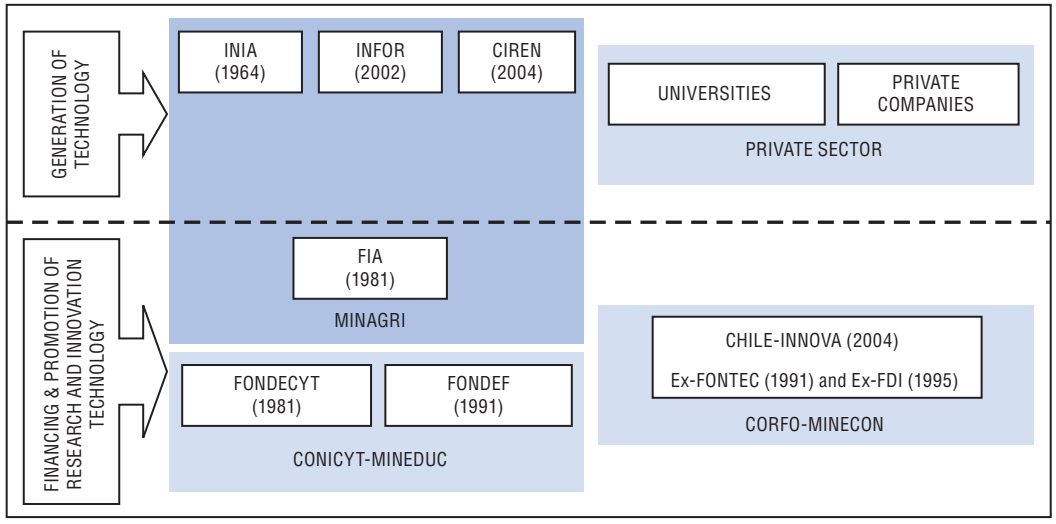
The government has played an important role in facilitating the adoption of different private voluntary standards schemes, notably the Good Agricultural Practices (GAP) scheme, compliance with which Chile's fresh fruit exporters regard as indispensible for access to OECD country markets (OECD, 2006). In 2000, the exporters' association, ASOEX, announced that all fruit produced by its members would meet GAP requirements. Subsequently, the government accredited a national scheme, ChileGap, designed to be consistent with GAP and other major international schemes, and thus enable exporters to access their main markets without having to incur the costs of complying with multiple schemes. Because ChileGap incorporates additional protocols on clean production set by the Chilean government, it is in fact more stringent than most external requirements, such as the EU's EurepGap and PROSAFE.

Research and development, education and training

The Chilean system for the generation and adoption of agricultural technology involves a diverse set of institutions, foundations, universities and private companies, which operate with a high degree of autonomy (Sotomayor, 2007). Under MINAGRI, four institutions have responsibility for agricultural technology: the National Institute for Agricultural Research (*Instituto Nacional de Investigaciones Agropecuarias*, INIA); the Forestry Research Institute of Chile (*Instituto de Investigación Forestal de Chile*, INFOR); the Natural Resources Information Centre (*Centro de Información de Recursos Naturales,* CIREN); and the Foundation for Agricultural Innovation (*Fundación de Innovación Agraria*, FIA). There are also other institutions that receive budgetary contributions from MINAGRI such as Fundación Chile, and the NGO Institute of Rural Education (*Instituto de Educación Rural*, IER). The evolution of MINAGRI's spending on R&D, education and training and extension services has increased over the last two decades, from CLP 2 000 million (USD 4 million) in 1990 to CLP 18 800 million (USD 35 million) in 2006, and accounts for 10% of the total budgetary transfers to agriculture.

INIA, INFOR, CIREN and FIA invested around CLP 147 588 million (USD 263 million) in the period 2002-05, of which 54% was provided by MINAGRI and the remaining 46% by competitive grants (Sotomayor, 2007). INIA, INFOR, and CIREN work on the generation of technology while FIA requests resources for research and innovation promotion. Grants are channelled through different funds administered by the National Commission for Scientific and Technological Research (CONICYT) under the Ministry of Education (MINEDUC) and by the Economic Development Agency (CORFO) under the Ministry of Economy (MINECON). CONICYT and CORFO channels resources FONDECYT, a fund which provides project based support, FONDEF, which supports collaborative research with industries, and CHILE-INNOVA, which undertakes a range of programmes. Chile's system for fostering agricultural technology and innovation is summarised in Chart 2.2.

Chart 2.2. **Chile's agricultural technology and innovation system**



Source: Sotomayor, 2007.

INIA was created in 1964, and is a non-profit corporation under MINAGRI. INIA has ten regional research centres across the country, equipped with laboratories and libraries, and employs around 1 000 people. INIA's mandate is to create, adapt and transfer technological knowledge. Its actions are framed within a Research and Development concept, implying that research projects are started with a final, achievable product in mind. Nevertheless, it also performs some research projects in basic science.

INFOR was established in 1965. It has five regional centres and is responsible for the creation and transfer technology to the forestry sector. Its mission is to carry out research projects, prepare statistics, and transfer scientific and technological knowledge related to the sustainable use of forest ecosystems, the management of its resources and the commercialisation of its products. It supports the development of small and medium-sized forest owners, and technological innovation among small and medium-sized wood-product companies.

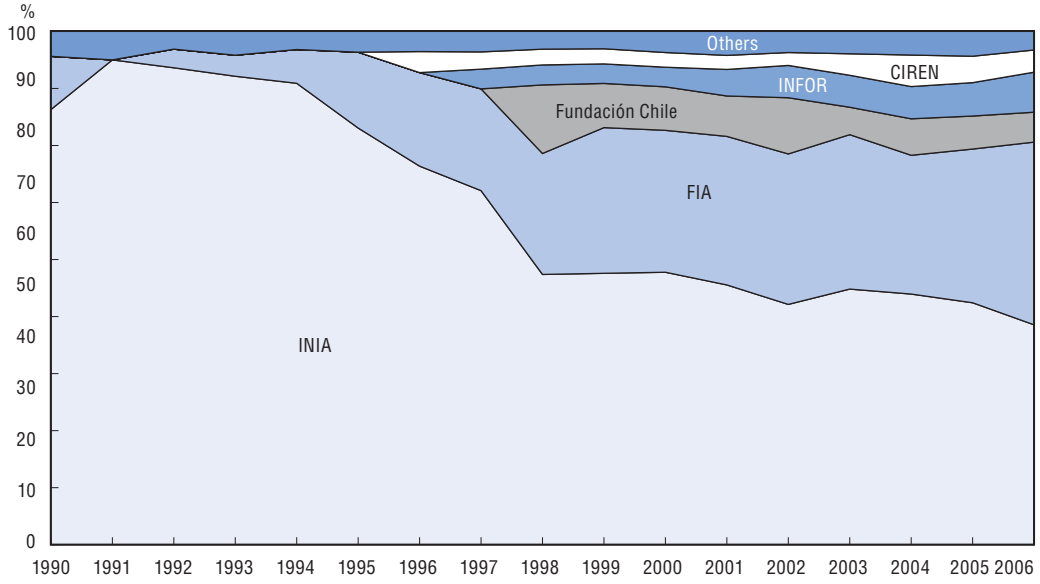
CIREN's function is to compile, update, maintain and integrate statistics and cartographic information related to the country's natural resources; and to provide timely and useful information for the analysis of different sub-sectors. CIREN was created in 1985,

but only in 2003 was an agreement with MINAGRI reached, enabling information related to the agricultural sector to be gathered, processed and disseminated.

FIA was created in 1981 and promotes innovation in Chilean agriculture by financing the development of programmes and projects that are oriented to the industrial transformation and commercialisation of agricultural and forestry products. It also promotes the co-ordination of sectoral innovation efforts, and provides extension services.

INIA and FIA receive almost 80% of MINAGRI's budgetary allocations for R&D. Allocations to Fundación Chile, CIREN and INFOR started about ten years ago, and have remained relatively less important (Figure 2.12).

Figure 2.12. **Allocation of MINAGRI's research and development budget, by institution, 1990-2006**



Source: DIPRES, 2007.

Fundación Chile's role as a non-profit venture capitalist has enabled it to fill institutional gaps in the innovation system. Fundación Chile is the largest private non-profit organisation fostering innovation in Chile. It creates new companies and joint ventures, carries out R&D, adapts foreign technology for product and process innovation for client companies in the public and private sectors, and fosters the creation of technological consortia and the diffusion of technology to small and medium-sized enterprises (OECD, 2006).

Fundación Chile was responsible for the creation of pioneering salmon firms and provision of technological services, that were fundamental for the take-off of the industry in Chile; the establishment of quality control and certification systems for fruit exports; the introduction of new berry species and varieties in Chile; the development of associations in the forestry industry, which led to the implementation of new forestry management models; the development of high quality wine production; and of furniture exports (Fundación Chile, 2007).

Across the economy, Chile's innovation policies have traditionally suffered from several weaknesses. These include a low R&D intensity relative to OECD countries; a limited role played by the private sector, with a reliance on government funding to universities; a shortage of specialised human resources; a lack of financial market mechanisms for providing risk and seed capital; and a dearth of cooperative institutional networks (OECD, 2007d).[9] These weaknesses carry over to the agricultural sector, although the consequences for the sector may not be so severe, insofar as the gains from adapting technologies and providing extension may in some cases exceed the returns to R&D (Foster and Valdés, 2006). A growing awareness of the importance of innovation for the country's future has recently led to the creation of the Innovation Council for Competitiveness, entrusted with providing guidelines for a long term national innovation strategy, and to the introduction of a mining tax to help finance implementation of that strategy (OECD, 2007d).

Rural development programmes

The Ministry of Agriculture, through INDAP, has implemented several programmes with the goal of improving the economic conditions of poor (subsistence) farmers through the enhancement of their agriculture activities. Similarly, the National Corporation for Indigenous Development (CONADI) has implemented programmes that further the development of indigenous farmers. In general these programmes equate rural development with agricultural development in poorer areas. Combined resources from INDAP and CONADI account for 15% of budgetary transfers to agriculture.

INDAP

INDAP, in co-ordination with other ministries and institutions such as Ministry of Planning (MIDEPLAN) and the Foundation for Women Promotion and Development (PRODEMU), implements four instruments under a programme called Services for the Development of Poor Areas (*Servicios de fomento Sectores Especiales*). These are: *i)* the Local Rural Communities Development Programme (*Servicio de Desarrollo Local en Comunidades Rurales*, PRODESAL), *ii)* the Indigenous Development Programme (*Programa Desarrollo Indígena*, ORIGENES), *iii)* the Rural Women Training Programme (*Programa de Formación y Capacitación para Mujeres Rurales*, PRODEMU); and *iv)* the Poor Communities Development Project (Proyecto de Desarrollo de Comunas Pobres, PRODECOP). INDAP's budget for the Services for the Development of Poor Areas programme increased steadily through the 1990s, but has stabilised at around CLP 10 000 million (USD 18 million) per year, representing 16% of the total INDAP's transfers to agriculture in 2006. PRODECOP projects ended with MIDEPLAN in 2001 and re-started with INDAP funds co-financed by IFAD and World Bank.

PRODESAL's goal is to improve the agricultural productivity of farmers living in poverty, a deteriorated environment, and with scarce productive capital. PRODESAL is executed through rural municipalities with a high incidence of poverty. It comprises a series of subsidies providing technical assistance for primary production, environmental improvement and organisational development. In 2006, the programme was present in 235 municipalities of the country, providing services to 41 200 individuals organised in 359 associations, with an investment of CLP 5 713 million (USD 11 million).

ORIGENES is implemented at the national level with the participation of several ministries. Its aim is to promote the economic, social, cultural, environmental, and legal development of indigenous areas. INDAP is a co-executer of the programme and participates through subsidies for the productive investment and technical assistance of

agricultural, livestock and irrigation activities. In 2006 INDAP's budgetary allocation for the programme was CLP 6 536 million (USD 12 million).

PRODEMU contains a set of programmes designed to promote the participation of poor women in the society. The Foundation has an agreement with INDAP under which the latter provides subsidies for training in different areas of agricultural activities such as technical assistance, managerial aspects, and organisational development. In 2006, INDAP allocated CLP 200 million for the programme, equivalent to around USD 400 000.

PRODECOP was an INDAP programme that provided subsidies for the improvement of productive activities in poor communities within regions VI, VII, VIII (PRODECOP-SECANO) and region IV (PRODECOP IV, recently (2001) renamed the *Programa de Asistencia Agrícola para Sectores Vulnerables de la Región de Coquimbo*). The action areas are productivity enhancement, local and environmental development and local farmer organisation promotion. Subsidies are provided for technical assistance, partial or total financing of productive projects, and training courses.

CONADI

The National Corporation for Indigenous Development (Corporación Nacional de Desarrollo Indígena, CONADI) was created in 1993 under Law 19.253 which established policies for the protection and promotion of indigenous people. CONADI promotes, co-ordinates and executes state actions for the economic, social and cultural development of indigenous people and their communities. CONADI has two main instruments that directly interact with agriculture. One is the Fund for Indigenous Land and Water (*Fondo de Tierras y Aguas Indígenas*), which carries out land purchases that are given to indigenous people with the purpose to be used for agricultural activities, and is also used for the acquisition of wells and waters rights. There are two ways in which the fund is implemented; the first is through direct subsidies for land acquisition by individuals or communities; the other is through the direct purchases of land by the State, which are given to indigenous people who do not possess land or possess only limited land. The budgetary allocation for land purchases has increased, from CLP 11 000 million (USD 20 million) in 2000 to CLP 17 000 million (USD 33 million) in 2006. Between 2002 and 2006 around 47 000 hectares were bought with the fund (CONADI, 2007).

Once the land is given to farmers, another source, the Fund for Indigenous Development (*Fondo de Desarrollo Indígena*), is used to provide assistance to the families recently installed in new lands. This fund provides technical assistance and financing for irrigation works. The two CONADI instruments account for about 10% of the total transfers to agriculture.

Issues concerning the evaluation and co-ordination of agricultural policies

Most governmental programmes in Chile, including those pertaining to agriculture, are evaluated upon the request of the Treasury or at the initiative of the responsible agency or ministry. Table 2.5 shows those agricultural programmes that have been evaluated upon request and contains an estimation of the share of those programmes in all transfers to agriculture.[10] Note that programmes run on from one year to the next, so a sequential evaluation of policies will not lead to a share of 100%, even if all programmes are at some stage evaluated. The highest share was in 2000 when the Soil Recovery Programme and irrigation expenditures were evaluated.

Table 2.5. **Agricultural programmes evaluated, 1998-2006**

Year	Programmes evaluated upon request of the Treasury	Share of programmes evaluated in total transfers to agriculture (%)
1998	Export promotion (PROCHILE)	
	Productive development-PROFO, Technical assistance-FAT (CORFO)	27
	Agricultural Innovation-FIA, Credit-INDAP (MINAGRI)	
	Poor communities productive development-PRODECOP-INDAP (MINAGRI)	
	Land purchases-CONADI (MIDEPLAN)	
1999	Poor communities productive development-PRODECOP IV Region (MINAGRI)	
	Indigenous development fund-CONADI (MIDEPLAN)	3
2000	Soil Recovery Programme-INDAP-SAG (MINAGRI);	
	Irrigation works (MOP)	35
2001	Irrigation works (MOP)	
	Export inspection services-SAG (MINAGRI)	15
2002	n.a.	–
2003	n.a.	–
2004	n.a.	–
2005	Irrigation subsidies-INDAP (MINAGRI)	
	Services for the development special areas-INDAP (MINAGRI)	7
2006	Agricultural Insurance-COMSA (CORFO)	
	Irrigation-CNR-Law 18.450 (MINAGRI)	12

n.a.: not available.
Source: OECD estimations based on DIPRES, 2007.

Evaluations have tended to focus on gauging the implementation and reach of programmes rather than how effective they have been relative to their ultimate objectives. Such evaluations call for a somewhat different approach, for example one which can distinguish between outcomes for those who are enrolled in programmes and those who are not.

With agricultural policies increasingly being implemented by agencies other than MINAGRI, there is also a need for closer co-ordination, in order to avoid a duplication of policy effort or a gap in intervention. In particular, policies targeting poorer farmers need to be co-ordinated with relevant poverty reduction programmes, such as Chile-Solidario (implemented by FOSIS). Since 2000, ODEPA has co-ordinated national commissions by product (*Mesas Público-Privadas de Cadenas Agroalimentarias*) where agents of a particular supply chain along with public institutions deal with issues that affect the sub-sector's competitiveness. Producers, processors, researchers and MINAGRI professionals participate in commissions. Sub-sectors for which commissions have been convened are the rice value chain, wine, wheat, potatoes, forestry and berries.

2.5. Evaluation of support to agriculture

This section provides a quantitative evaluation of the support provided to Chilean agriculture between 1990 and 2006, based on indicators of support developed by the OECD. These measures include the Producer Support Estimate (PSE), the General Services Support Estimate (GSSE), and the Total Support Estimate (TSE). Definitions of these and some other indicators are given in Box 2.6, while Table 2.5 provides a breakdown of support in Chile.

Market price support

Market price support (MPS) is calculated for ten products that account for 76% of the value of production. The total amount of MPS for the sector is calculated by extrapolating

Box 2.6. **OECD indicators of support**

Nominal indicators

Producer Support Estimate (PSE): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income. It includes market price support, budgetary payments and budget revenue foregone, *i.e.* gross transfers from consumers and taxpayers to agricultural producers arising from policy measures based on: current output, input use, area planted/animal numbers/revenues/incomes (current, non-current), and non-commodity criteria.

Market Price Support (MPS): the estimated annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity, measured at the farm gate level. MPS is also available by commodity.

Consumer Support Estimate (CSE): the annual monetary value of gross transfers to (from) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products. If negative, the CSE measures the burden (implicit tax) on consumers through market price support (higher prices), that more than offsets consumer subsidies that lower prices to consumers.

General Services Support Estimate (GSSE): the annual monetary value of gross transfers to general services provided to agriculture as a sector (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture regardless of their nature, objectives and impacts on farm production, income, or consumption. The GSSE does not include any payments to individual producers.

Total Support Estimate (TSE): the annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture, net of the associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

Relative indicators

Percentage PSE (%PSE): PSE transfers as a share of gross farm receipts (including support in the denominator).

Producer Nominal Protection Coefficient (PNPC): the ratio between the average price received by producers (at farm gate), including payments per tonne of current output, and the border price (measured at farm gate). The PNPC is also available by commodity.

Percentage CSE (%CSE): the implicit tax (or subsidy, if CSE is positive) on consumers as a share of consumption expenditure at the farm gate.

Percentage TSE (%TSE): overall transfers to farming sector as a percentage of GDP.

Percentage GSSE (%GSSE): share of expenditures on general services in the Total Support Estimate (TSE).

the value of support over the remaining 24%. Based on their contribution to the value of production, the ten products for which MPS is calculated are: grapes, poultry, pigmeat, milk, tomatoes, beef, wheat, apples, sugar beet and maize.

In the case of exported products – grapes, poultry, pigmeat, tomatoes and apples – there are no policies in place that support prices to producers above market levels, so MPS for these products is zero. For imported products, MPS is calculated on the basis of the

Table 2.6. **Estimates of support to Chilean agriculture (CLP million)**

	1990-92	2004-06	2004	2005	2006
Total value of production (at farm gate)	1 230 325	3 415 030	3 273 557	3 517 414	3 454 120
Of which share of MPS commodities (%)	*60*	*64*	*64*	*62*	*65*
Total value of consumption (at farm gate)	1 227 156	3 630 021	3 491 245	3 712 045	3 686 774
Producer Support Estimate (PSE)	119 849	193 623	163 801	176 289	240 778
Support based on commodity output	115 010	97 578	77 787	81 774	133 172
Market Price Support	115 010	97 578	77 787	81 774	133 172
Payments based on output	0	0	0	0	0
Payments based on input use	4 839	94 104	85 445	93 079	103 787
Variable input use	37	15 757	13 308	15 210	18 753
Fixed capital formation	1 252	55 004	51 633	54 615	58 763
On-farm services	3 551	23 343	20 504	23 254	26 271
Payments based on current A/An/R/I[1] production required	0	1 941	568	1 436	3 819
Of a single commodity	0	0	0	0	0
Of a group of commodities	0	1 109	151	1 436	1 739
Of all commodities	0	833	418	0	2 080
Payments based on non-current A/An/R/I[1] production required	0	0	0	0	0
Payments based on non-current A/An/R/I[1] production not required	0	0	0	0	0
Variable rates	0	0	0	0	0
Fixed rates	0	0	0	0	0
Payments based on non-commodity criteria:	0	0	0	0	0
Long-term resource retirement	0	0	0	0	0
Specific non-commodity output	0	0	0	0	0
Other non-commodity criteria	0	0	0	0	0
Miscellaneous payments	0	0	0	0	0
Percentage PSE	10	6	5	5	7
Producer NPC	1.10	1.03	1.02	1.02	1.04
Producer NAC	1.11	1.06	1.05	1.05	1.07
General Services Support Estimate (GSSE)	2 857	68 021	59 929	68 643	75 492
Research and development	1 989	15 493	13 918	15 164	17 396
Agricultural schools	90	700	673	771	654
Inspection services	0	6 723	4 902	7 126	8 142
Infrastructure	744	37 495	32 856	38 105	41 523
Marketing and promotion	0	7 103	7 069	7 015	7 226
Public stockholding	0	0	0	0	0
Miscellaneous	34	507	509	461	552
GSSE as a share of TSE (%)	2.3	26.0	26.8	28.0	23.9
Consumer Support Estimate (CSE)	–138 146	–183 264	–173 913	–176 400	–199 479
Transfers to producers from consumers	–115 241	–95 692	–77 787	–81 774	–127 516
Other transfers from consumers	–23 118	–87 666	–96 125	–94 626	–72 245
Transfers to consumers from taxpayers	0	0	0	0	0
Excess feed cost	213	94	0	0	282
Percentage CSE	–11	–5	–5	–5	–5
Consumer NPC	1.13	1.05	1.05	1.05	1.06
Consumer NAC	1.13	1.05	1.05	1.05	1.06
Total Support Estimate (TSE)	122 707	261 644	223 730	244 932	316 270
Transfers from consumers	138 358	183 358	173 913	176 400	199 761
Transfers from taxpayers	7 466	165 952	145 942	163 158	188 755
Budget revenues	–23 118	–87 666	–96 125	–94 626	–72 245
Percentage TSE (expressed as share of GDP)	0.98	0.39	0.39	0.38	0.41
GDP deflator 1990-92 = 100	100	255	233	252	281

NPC: Nominal Protection Coefficient. NAC: Nominal Assistance Coefficient.

1. A (area planted), An (animal numbers), R (receipts) or I (income).

MPS commodities for Chile are: wheat, maize, apples, grapes, sugar, tomatoes, milk, beef and veal, pigmeat, and poultry.

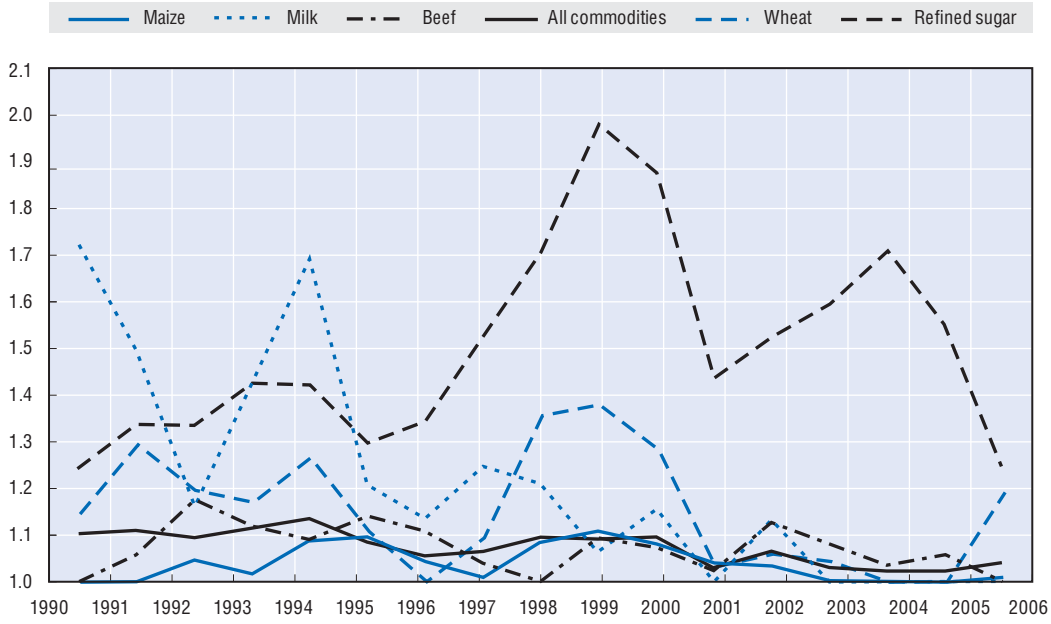
Source: OECD, PSE/CSE database, 2007.

difference between the domestic price and the landed c.i.f. price (adjusted for the cost of getting the product from the border to the domestic market). In the case of milk, which has switched to being a net export, MPS is calculated for those years in which there were net imports. MPS is equal to the price gap times the quantity of production, and captures the effects of policies that insulate producers from international markets. A related indicator is the producer NPC, which in the case of Chile (where there are no output payments) reflects the ratio of the domestic price to the border price, adjusted for the costs of getting the product to the point at which they compete.

In overall terms, the NPC is low (Figure 2.13). The rate of protection has been less than 10% (*i.e.* an NPC of 1.1) since 1995, and has declined sharply in recent years, reaching 2% in 2004 and 2005, and 4% in 2006. The decline in the overall NPC reflects reductions in Chile's MFN tariff and the increasing number of countries receiving duty free access for some agricultural products under FTAs. This downward trend has occurred despite an appreciation of the exchange rate since 2002, which lowers the cost of imports expressed in local currency and (pending equilibration of the market) increases the gap between domestic and international prices.

Among imported products, the rate of protection on price band commodities – wheat and sugar – has been much higher than for other commodities. Between 1998 and 2000, support was particularly high and consistent with the observation that Chile's import duties exceeded breached its bound tariff commitments in those years. In both cases, however, the degree of protection has since declined to very low levels that are similar to the protection offered to other commodities. In 2006 there was an increase in measured support for both commodities that is difficult to reconcile with the rates of tariffs levied under the PBS. These higher numbers may be attributable to a tendency for reference prices (recorded in the form of import unit values) to reflect contracts made months prior to delivery, and in this instance not fully capture the previous year's rise in world and domestic prices.

Figure 2.13. **Nominal protection coefficients for protected commodities, 1990-2006**



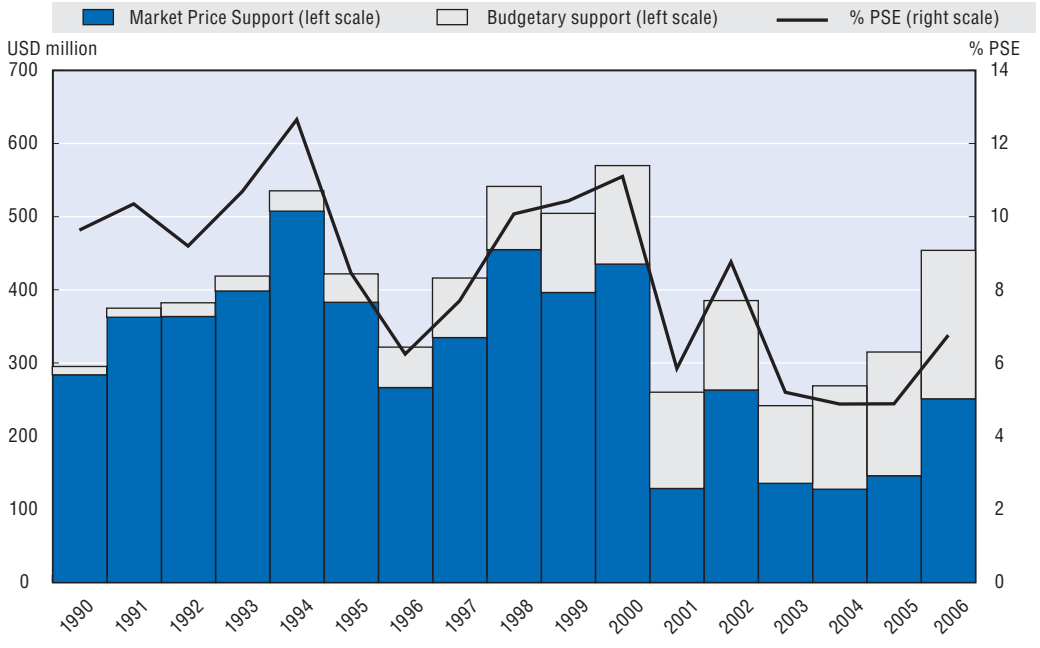
Source: OECD, PSE/CSE database, 2007.

Milk received a high degree of protection in the early 1990s, and was until recently protected more heavily than any commodity not covered by the price band system. Again, however, the extent of protection has been on a downward trend, and has been at zero for the last few years. This reflects structural change within the dairy sector and the emergence of a net export position, with exports exceeding imports in five of the last six years.

The Producer Support Estimate

As market price support has come down, Chile has scaled up its spending on agricultural programmes. The implications of these two competing tendencies are evident in Figure 2.14, which shows the %PSE and decomposes the PSE into MPS and budgetary support. Budgetary support was very low until the second half of the 1990s, and accounted for only a small share of producer support. In recent years, budgetary support has increased significantly in absolute as well as relative terms. In terms of overall support to producers, the decline in MPS has dominated, with the result that the PSE has declined from about 10% of the value of production between 1997 and 2000 to an average of 5% since then. This is comparable to the rates of support provided in Australia and Brazil, and much lower than the level of support provided in most OECD countries (Figure 2.15).

Figure 2.14. **Level and decomposition of the PSE, 1990-2006**

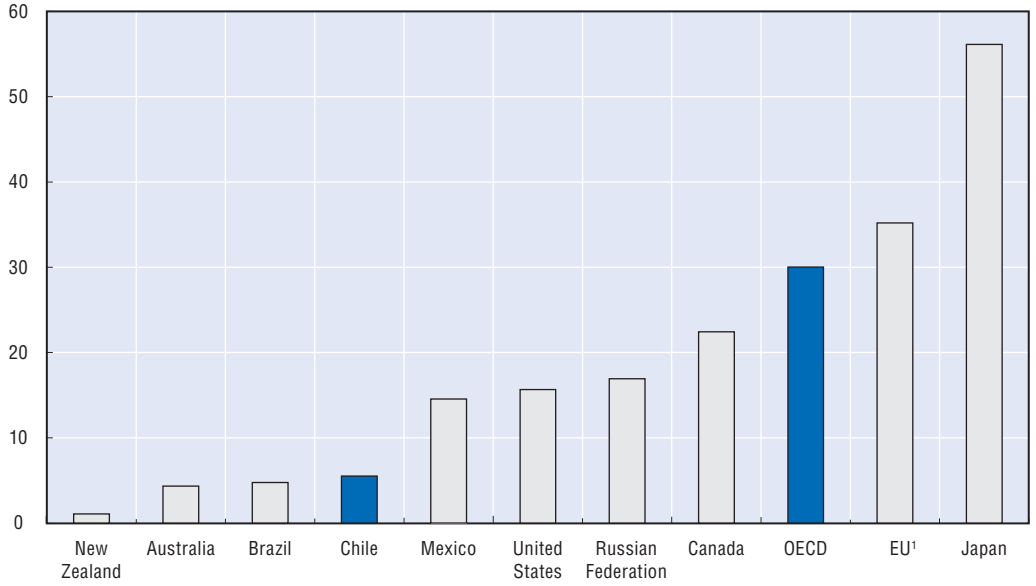


Source: OECD, PSE/CSE database, 2007.

The Total Support Estimate

Increased budgetary support to producers has been matched by higher spending on general services (as measured by the GSSE). Whereas total budgetary spending – in the form of both transfers to producers (part of the PSE) and to the sector more generally (equal to the GSSE) – accounted for less than 10% of total support in the first half of the 1990s, by 2000 this fraction had risen to more than 80% (Figure 2.16). The proportions of budgetary

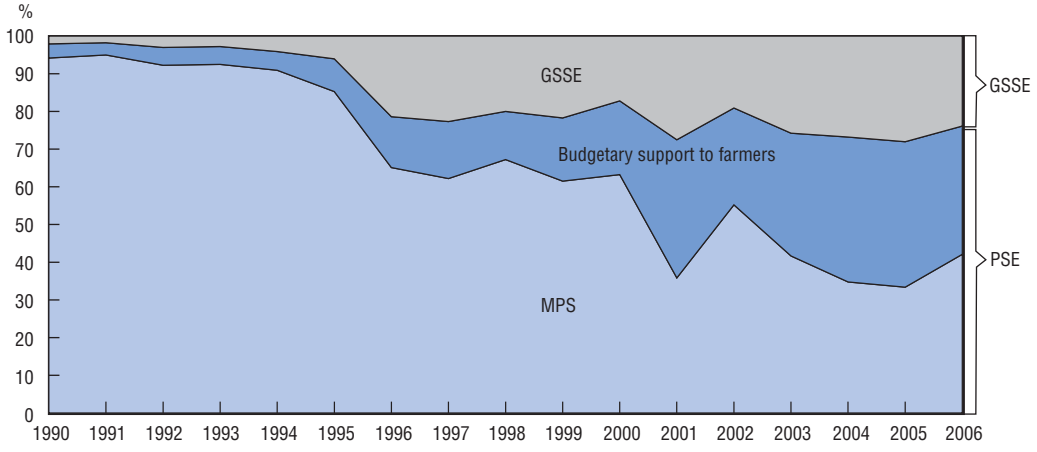
Figure 2.15. **PSE by country, EU and OECD average, 2003-05**



1. EU15 for 2003; EU25 for 2004-05.

Source: OECD, PSE/CSE database, 2007.

Figure 2.16. **Decomposition of the TSE, 1990-2006**

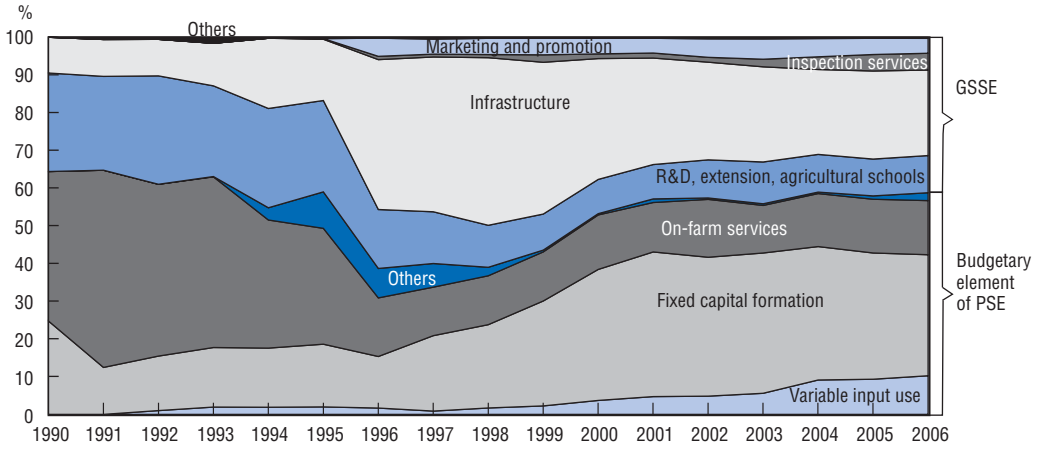


Source: OECD, PSE/CSE database, 2007.

support going into the PSE and the GSSE have stayed roughly constant since 1990 (Figure 2.17). The main reason is that off-farm investments, for example in infrastructure and investment services, have had on-farm counterparts in the form of expenditures on fixed assets and on-farm services (such as inspection). Spending on infrastructure dominates the GSSE, while fixed capital formation dominates the budgetary element of the PSE.

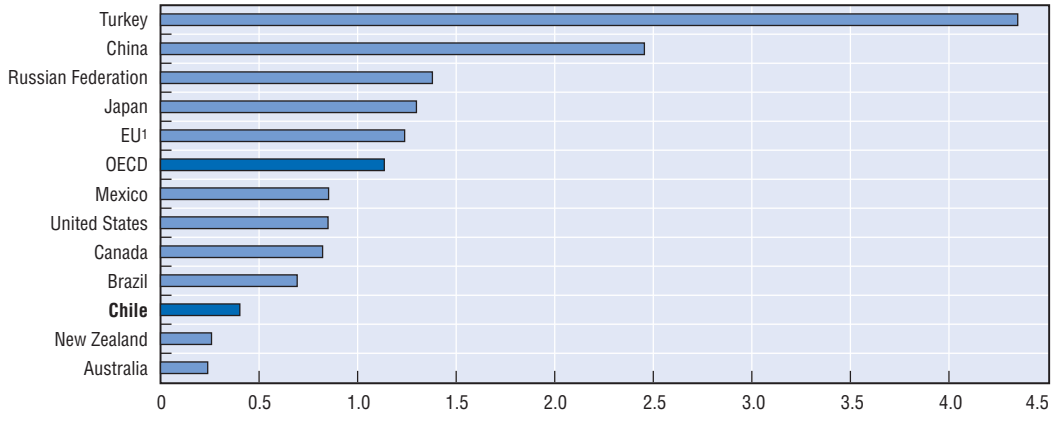
Although budgetary expenditures have risen considerably, support to the agricultural sector imposes a much milder burden on the economy than in most OECD countries. The TSE accounted for 0.4% of GDP between 2003 and 2005, compared with an average share of 1.2% in OECD countries (Figure 2.18). The main reason for this difference is that market

Figure 2.17. **Decomposition of budgetary allocations in PSE and GSSE, 1990-2006**



Source: OECD, PSE/CSE database, 2007.

Figure 2.18. **Total Support Estimate in Chile and selected countries, 2003-05 average, as per cent of GDP**



1. EU15 for 2003; EU25 for 2004-05.

Source: OECD, PSE/CSE database, 2007.

price support has declined to very low levels in Chile, whereas it still dominates producer support in most OECD countries. In addition, the share of the GSSE in total support was 26% over the same period, as compared with an average of 17% in OECD countries. Since the GSSE contains investments in areas that may be considered to be public goods, this suggests a more productive use of taxpayers' money than is the norm in OECD countries.

More than half of Chile's agricultural expenditures are undertaken by three institutions: INDAP (which delivers support to small farmers), SAG (whose mandate covers plant and animal health, standards and inspection services) and CNR (responsible for irrigation). Both SAG and CNR operate programmes that provide support both to the individual producer and to the sector more generally.

2.6. Policy conclusions

Chile has had a liberal trade policy for most of the last 30 years, and, with a uniform MFN tariff, has tended not to discriminate among sectors. With the exception of a few

agricultural products, notably wheat and sugar, there has been little protection for agricultural products, and protection for formerly protected products has recently declined to low levels too. Unilateral trade liberalisation has, since the early 1990s, been accompanied by an active policy of negotiating Free Trade Agreements and Economic Cooperation Agreements. This has reduced the degree of trade protection afforded to agriculture to much less than the MFN tariff of 6%, although many of these agreements have singled out agricultural sub-sectors for special treatment. Over the past four years, domestic prices of agricultural commodities have been on average no more than 2% above comparable prices in international trade.

At the same time, the approach to the sector is not *laissez-faire*. Over the past ten years, Chile's budgetary expenditures on agricultural policies have more than trebled in real terms. Yet despite this rise in spending, total support to the sector accounts for about 0.4% of GDP, a ratio which is about a third the OECD average. An important reason for the lower burden is that Chile provides very little market price support, still the dominant form of support in most OECD countries.

As spending on agriculture has increased, so agricultural programmes have become no longer the unique preserve of the Ministry of Agriculture. For example the Ministry of Public Works and the Ministry of Agriculture (via CNR and INDAP) spend money on irrigation. Within MINAGRI, the Soil Recovery Programme is jointly administered by SAG and INDAP, with the domain of intervention depending on whether the beneficiaries are large and medium scale farmers (in which case they fall under the responsibility of SAG), or smallholders (under INDAP). These overlapping mandates make for challenges in ensuring the coherence of policies.

The aims of Chile's budgetary programmes include improving agricultural competitiveness, inserting poorer and less competitive farmers into Chile's commercial agricultural structures, and protecting the country's environment and natural resource base. In terms of improving agricultural competitiveness, there is evidence that government policies have played an important facilitating role, and complemented the benefits of trade openness. These policies include spending on infrastructure by CNR and MOP; the specification and enforcement of standards by SAG; promotion by PROCHILE; and R&D by INIA, FIA and Fundación Chile. The reason for the success of these policies is that they have provided public goods that the private sector alone could not have developed. In many cases, public-private interactions (*e.g.* in the development of standards and inspection services, and the development of venture capital) have been a key ingredient of the success. These policies are reflected in the GSSE, which has accounted for just over a quarter of all support provided to the sector in recent years.

However, the fact that money is spent on public goods that the market would under-provide does not itself guarantee that policies are effective. Indeed, given the large number of programmes that Chile has in place, there is a need for a more thorough evaluation of performance. Some agricultural programmes are evaluated upon the request of the Treasury, but these evaluations focus more on gauging the implementation and reach of programmes than how effective they have been relative to their ultimate objectives.

The widespread use of bidding processes helps reduce the costs of agricultural programmes in Chile, while the requirement that farmers commit their own resources in order to receive support helps improve the chances of generating viable structures. However, these attributes of farm policy may limit the reach of programmes to more

profitable areas and to farmers who are more informed and better organised. The efficiency gains from such methods of intervention therefore need to be assessed relative to any potential costs in terms of programmes not fully reaching the desired set of beneficiaries.

On the objective of inserting smallholders into commercial structures, there have been important investments in a number of key areas. These programmes include measures that are not directed to specific farmers, for example on general infrastructure and irrigation, and are included in the GSSE. Some of these measures are targeted regionally, so that their main beneficiaries are poorer farmers. Even more important, however, has been targeted support delivered (principally by INDAP) to farmers individually in order to improve their productivity. The majority of this support involves the provision of on-farm assets, including on-farm infrastructure, irrigation, soil improvement and inspection services, and managerial skills. These expenditures are the largest component of the PSE, which has averaged 6% of the value of production over the past four years, compared with an average of 30% in OECD countries. Chapter 3 considers the strategy governing these particular policy initiatives.

Notes

1. Support estimates have recently been calculated for Brazil, China, South Africa and Ukraine.
2. Economic Cooperation Agreements, concluded with other Latin American countries, deal only with trade in goods. FTAs also include services, investments and intellectual property. Partial Scope Agreements, also deal only with trade in goods and contain preferences for an agreed set of commodities. Association agreements may go further than FTAs, for example with agreements on political, labour and environmental issues.
3. In order to access INDAP benefits (credit and subsidies), the applicant must: 1) be a small-scale farmer or peasant (*campesino*); 2) have a maximum of 12 hectares of basic irrigation land, regardless of land tenure; 3) have an asset value not greater than 3 500 *Unidades de Fomento* (UF); 4) have agricultural activities as the main source of income; 5) not have any overdue debt on INDAP loans; 6) in the case of farmer organisations, have a legal corporate identity and carry out activities that have direct benefits for the rural sector. A peasant (*campesino*) is a person that lives and works in the countryside whose main source of income is agricultural/forestry activities, which are carried out personally regardless of the legal status (*e.g.* worker, owner), and whose family's economic conditions must not be better than small-scale farmer conditions. Basic Irrigation Hectares (*Hectáreas de Riego Básico, HRB)*, are the area equivalent to the potential production of an irrigated hectare from the Valley of the river Maipo (Metropolitan Region), classified as Class I according to its carrying capacity. To determine the HRB, each hectare is multiplied by a conversion coefficient estimated, based on soil conditions and water availability, for each community and region across the country (INDAP, 2007).
4. A micro agricultural client is defined as those with annual sales no greater than USD 92 500.
5. Programmes implemented by FOSIS include: 1) Chile Solidario (programme of social protection); 2) Subsidies for Economic Activities in Poverty Conditions *(Apoyo a las Actividades Económicas en Condiciones de Pobreza);* 3) Support for Microenterprises *(Apoyos al microemprendimiento);* 4) Chile Emprende, which promotes Territorial Development and is not only implemented by FOSIS but also by CORFO, SENCE, INDAP and SERCOTEC.
6. Programmes implemented by SENCE include: 1) the Tax Rebate for Training Purposes (*Franquicia Tributaria a la Capacitación*), and 2) the National Fund for Training Purposes (*Fondo Nacional de Capacitación)*.
7. Given the importance in terms of budgetary transfers of the Soil Recovery Programme and that the Associative Irrigation Works Programme is part of a broader policy; a detailed description of these programmes is provided in subsequent sections.
8. The Unidad de Fomento (UF) is an indexed unit of account used to price items for sale or to specify amounts to be repaid in the future. The exchange rate between the UF and the Chilean peso is

constantly adjusted to inflation so that the value of the Unidad de Fomento remains constant. It was created in 1967, for the use in determining principal and interest in international secured loans for development, subject to revaluation according to variations in inflation. In 2006, one UF was around CLP 18 300.

9. Chile's total R&D intensity – the ratio of Gross Expenditure on Research and Development (GERD) to GDP – stood at 0.67% in 2003, which was less than one-third the OECD average of 2.25% (OECD, 2005a).

10. An important initiative will take place at national level in 2008 when the Treasury will request the evaluation of the most important programmes covering more than 50% of the budget (MINAGRI, 2007).

ANNEX 2.A1

Policy Tables

Table 2.A1.1. **Chile's trade agreements**

Country or group of countries	Type of agreement	Signature date	Effective date[3]
European Union	Economic Association Agreement	18 November 2002	1 February 2003
P4	Economic Association Agreement	18 July 2005	Parliamentary proceeding pending
Canada	Free Trade Agreement	5 December 1996	5 July 1997
Central America	Free Trade Agreement	18 October 1999	
China	Free Trade Agreement	18 November 2005	1 October 2006
Costa Rica	Free Trade Agreement	18 October 1999	2002 (Bilateral Protocol)
EFTA[1]	Free Trade Agreement	26 June 2003	1 December 2004
El Salvador	Free Trade Agreement	18 October 1999	3 June 2002 (Bilateral Protocol)
Guatemala	Free Trade Agreement	18 October 1999	Bilateral under negotiation
Honduras	Free Trade Agreement	18 October 1999	Bilateral under negotiation
Korea	Free Trade Agreement	15 February 2003	1 April 2004
Mexico	Free Trade Agreement	17 April 1998	1 August 1999
Nicaragua	Free Trade Agreement	18 October 1999	Bilateral under negotiation
Panama	Free Trade Agreement	27 June 2006	Parliamentary processing pending
United States	Free Trade Agreement	6 June 2003	1 January 2004
Bolivia	Economic Co-operation Agreement No. 22	6 April 1993	7 July 1993
Colombia	Economic Co-operation Agreement No. 24	6 December 1993	1 January 1994
Ecuador	Economic Co-operation Agreement No. 32	20 December 1994	1 January 1995
Mercosur[2]	Economic Co-operation Agreement No. 35	25 June 1996	1 October 1996
Peru	Economic Co-operation Agreement No. 38	22 June 1998	1 July 1998
Venezuela	Economic Co-operation Agreement No. 23	2 April 1993	1 July 1993
Cuba	Partial Scope Agreement	21 August 1998	Parliamentary proceeding pending
Japan	Free Trade Agreement	27 March 2007	1 September 2007
India	Partial Scope Agreement	8 March 2006	16 August 2007

1. The European Free Trade Association (EFTA) is formed by: Iceland, Liechtenstein, Norway and Switzerland.
2. Mercosur is formed by Argentina, Brazil, Paraguay and Uruguay. Chile participates as country associated to the Agreement, as well as Bolivia.
3. The date refers only to the end of the negotiations.

Source: DIRECON, 2007.

Table 2.A1.2. **Announcement of price band duties**

A. Wheat

Dates for the calculation of reference prices	Publishing dates of reference prices	Period of validity for duties and rebates	Relevant market
26 November-10 December	11-15 December	16 December-15 February	*Trigo pan argentino*
27 January-10 February	11-15 February	16 February-15 April	*Trigo pan argentino*
27 March-10 April	11-15 April	16 April-15 June	*Trigo pan argentino*
27 May-10 June	11-15 June	16 June-15 August	*Soft Red Winter No. 2*
27 July-10 August	11-15 August	16 August-15 October	*Soft Red Winter No. 2*
26 September-10 October	11-15 October	16 October-15 December	*Soft Red Winter No. 2*

Source: ODEPA, 2007.

B. Sugar

Dates for the calculation of reference prices	Publishing dates of reference prices	Period of validity for duties and rebates
16 October-15 November	26-30 November	December
16 November-15 December	27-31 December	January
16 December-15 January	27-31 January	February
16 January-15 February	24-28 February	March
16 February-15 March	27-31 March	April
16 March-15 April	26-30 April	May
16 April-15 May	27-31 May	June
16 May-15 June	26-30 June	July
16 June-15 July	27-31 July	August
16 July-15 August	27-31 August	September
16 August-15 September	26-30 September	October
16 September-15 October	27-31 October	November

Source: ODEPA, 2007.

Table 2.A1.3. **Wheat and wheat flour tariffs in the bilateral protocol with the United States**

Wheat		Wheat flour	
FOB (USD/TONNE)	*Ad valorem (%)*	FOB (USD/TONNE)	*Ad valorem (%)*
< 102	31.5	< 159	31.5
≥ 102 < 110	27.0	≥ 159 < 172	27.0
≥ 110 < 115	22.0	≥ 172 < 179	22.0
≥ 115 < 120	17.0	≥ 179 < 187	17.0
≥ 120 < 126	13.0	≥ 187 < 197	13.0
≥ 126 < 147	6.0	≥ 197 < 229	6.0
≥ 147 < 158	3.0	≥ 229 < 246	3.0
≥ 158	0.0	≥ 246	0.0

Source: ODEPA, 2007.

Table 2.A1.4. **Wheat and wheat flour tariffs established in FTA with the United States**

Year	Maximum tariff (%)
2008	28.9
2009	26.3
2010	23.7
2011	21.0
2012	15.8
2013	10.5
2014	5.3
2015	0.0

Source: ODEPA, 2007.

Table 2.A1.5. **Policies, institutions and programmes**

Policies	Institutions	Main programmes
Productivity improvements and skills development programmes	INDAP, CORFO	1. Services for the development of productive and entrepreneurial capacities, INDAP *(Servicios Desarrollo de Capacidades Productivas y Empresariales)*
		2. Incentives for the development of agricultural investment, INDAP *(Incentivos Mejoramiento y Desarrollo de Inversiones)*
		3. *Subsidies for the diversification of economic-productive activities, INDAP (Apoyo a la diversificación de actividades económico-productivas MYPE)*
		4. Livestock improvement programme, INDAP (*Desarrollo y Tecnificacion Ganaderia*)
		5. Transfers from MINAGRI to CORFO to be used in instruments like PROFO, PDP, FAT *(Transferencias de MINAGRI a CORFO*)
		6. CORFO own budget allocated in agriculture through instruments like PROFO, PDP, FAT, PIR (*Presupuesto propio de CORFO*)
The Soil Recovery Programme	INDAP, SAG	Soil Recovery Programme (*Programa para la Recuperación de Suelos Degradados*) INDAP and SAG
Irrigation subsidies and spending	CNR, MOP, INDAP, CORFO	1. Law 18.450 (*Ley 18.450*)
		2. Irrigation Development of Poor Communities, CNR (*Programa Desarrollo del Riego en Comunas Pobres*)
		3. Studies for the Feasibility of Irrigation Works (*Estudios y Programas de irrigación*), CNR
		4. Large-scale irrigation works (*Grandes obras de irrigación*) MOP
		5. Associative Irrigation Works Programme (*Programa de Riego Asociativo*) INDAP
		6. Irrigation Programme (*Programa de Irrigación*) PI/PIR, CORFO
Rural development programmes	INDAP, CONADI	1. Services for the Development of Poor Areas (*Servicios de Fomento para Sectores Especiales*) INDAP
		2. Local rural communities development services (Servicio de Desarrollo Local en Comunidades Rurales) PRODESAL, INDAP
		3. Indigenous Development Programme/Orígenes Programme, (*Programa Desarrollo Indígena*) INDAP
		4. Support for the Training of Rural Women (*Programa de Formación y Capacitación para Mujeres Rurales*) PRODEMU, INDAP
		5. Support for the improvement of productive activities in region IV (Proyecto de Desarrollo Rural para Comunidades Campesinas IV Región) PRODECOP IV-INDAP
		6. Support for the improvement of productive activities in regions VI, VII, VIII (Proyecto de Desarrollo de Comunas Pobres del Secano Regiones VI,VII y VIII) PRODECOP SECANO, INDAP
		7. Support for the family agricultural production (*Bono de Producción Agrícola Familiar*), INDAP

Table 2.A1.5. **Policies, institutions and programmes**

Policies	Institutions	Main programmes
		8. Fondo de Desarrollo Indígena (*Subsidies for Agricultural Productive Activities*), CONADI
		9. Fund for Indigenous Land and Water, Land and Water rights purchases, (*Fondo de Tierras y Aguas*), CONADI
R&D, Training, Extension	INIA, FIA, etc.	1. National Institute of Agricultural Research (*Instituto de Investigaciones Agropecuarias*) INIA
		2. Foundation for Agrarian Innovation (Fundacion para la Innovacion Agraria) FIA
		3. Fundación-Chile (*Fundación-Chile*)
		4. Forestry Research Institute (*Instituto Forestal*) INFOR
		5. Natural Resources Information Centre (*Centro de Información de Recursos Naturales*) CIREN
		6. Fund for agricultural communication, training and culture (*Fundación de comunicaciones del Agro*) FUCOA
		7. Institute of rural education (*Instituto de Educación Rural*) IER
Animal and plant health, standards	SAG	1. Fund for the Improvement of Sanitary Conditions (*Fondo de Mejoramiento del Patrimonio Sanitario*)
		2. Agricultural and Forestry Export Inspection Programme, (*Inspección de exportaciones agrícolas, forestales, pecuarias*)
		3. Export Certification Programmes, (*Certificación de exportaciones agrícolas y pecuarias*)
		4. Border Control Inspections (*Programas de controles fronterizos*)
		5. Foot and Mouth Disease Transfers Fiebre Aftosa (transferencia)
		6. Brucellosis Bovine Transfer (*Brucelosis Bovina transferencias*)
		7. Fruit Fly Transfers (*Mosca de la fruta transferencias*)
		8. Seed Programme Transfers (*Programa semillas transferencia*)
		9. Fruit Mediterranean Fly Control Region Arica (*Control integrado mosca del mediterráneo Región de Arica*)
		10. Livestock development programme-animal health programme (*Programa de desarrollo ganadero sanidad animal*)
		11. Plant Health Programme (*Programa de sanidad vegetal*)
		12. Seed Programme, labs (*Programa de semillas*)
		13. Food Safety Programme, (*Programa de inocuidad de productos agrícolas*)
		14. Genetic Improvement Programme (*Programa de mejoramiento genético*)
		15. Foot and Mouth Disease Control (*Vigilancia fiebre aftosa*)
		16. Brucellosis Bovine Control (*Vigilancia brucelosis bovina*)
		17. Fruit Fly Control (*Vigilancia mosca de la fruta*)
		18. Labs for Residuals Control (*Laboratorios de control de residuos*)
Marketing and promotion	PROCHILE	1. Agricultural export promotion fund (*Fondo de Promoción de Exportaciones Silvoagropecuarias*) PROCHILE/DIRECON/ MINAGRI
		2. Export promotion for family agriculture (*Internacionalización de la Agricultura Familiar Campesina*) INTERPA, MINAGRI
Others	INDAP and SAG	1. Emergencies (*Emergencias*) INDAP, SAG, Under-Secretariat
		2. Subsidy estimation in INDAP's credit (*Estimación del subsidio en el crédito de INDA*P)

Source: OECD, PSE/CSE database, 2007.

Acronyms and Abbreviations

AFC	Family Agriculture (Agricultura Familiar Campesina)
APEC	Asia-Pacific Economic Community
ASOEX	Chilean Exporters Association (Asociación de Exportadores de Chile)
AVE	Ad Valorem Equivalent
BAF	Financial Coordination Subsidy (Bono de Articulación Financiera)
BECH	Banco Estado – Chile
BSE	Bovine Spongiform Encephalopathy
CASEN	Chile's Socio-economic Survey (Encuesta de Caracterización Socioeconómica)
CCFTA	Chile's Free-Trade Agreement with Canada
CEGES	Managerial Training Centres (Centros de Gestión) – INDAP
CIREN	Natural Resources Information Centre (Centro de Información de Recursos Naturales)
CLP	Chilean Peso
CNR	National Irrigation Commission (Comisión Nacional de Riego)
COMSA	Agricultural Insurance Programme (Comité de Seguro Agrícola)
CONADI	National Service for Indigenous Development (Corporación Nacional de Desarrollo Indígena) – MIDEPLAN
CONAF	National Forest Service (Corporación Nacional Forestal)
CONAMA	Chile's National Commission for the Environment (Comisión Nacional del Medio Ambiente)
COOPEUMO	Cooperativa Campesina Intercomunal Peumo Ltda
CORA	Chile's Agricultural Reform Corporation (Corporación de la Reforma Agraria)
CORFO	Economic Development Agency (Corporación de Fomento de la Producción)
COTRISA	Wheat Marketing Enterprise (Comercializadora de Trigo) – Chile
CSE	Consumer Support Estimate
DIPRES	Budget Department (Dirección de Presupuesto), Chilean Ministry of Finance
DIRECON	Directorate for International Economic Relations – Chilean Ministry of Foreign Affairs (Dirección de Relaciones Económicas Internacionales)
DNA	Deoxyribonucleic acid
DOH	Department of Hydraulic Works – MOP
DSB	WTO's Dispute Settlement Body
ECA	Economic Complementation Agreement
ECLAC	Economic Commission for Latin America and the Caribbean – United Nations (Comisión Económica para América Latina y el Caribe – CEPAL)
EFTA	European Free Trade Association
EU	European Union

FAD	Fund of Delegated Cash Management (Fondo de Administración Delegada)
FAO	Food and Agriculture Organisation of the United Nations
FAOSTAT	FAO's Statistical Database
FAT	Technical Assistance Fund (Fondo de Asistencia Técnica)
FDI	Foreign Direct Investment
FIA	Foundation for Agrarian Innovation (Fundación de Innovación Agraria)
FMD	Foot and Mouth Disease
FOCAL	Quality Promotion Programme (Fomento de la Calidad)
FOSIS	Social and Solidarity Investment Fund (Fondo de Solidaridad e Inversión Social)
FTA	Free Trade Agreement
FUCOA	Foundation for Agricultural Communication, Training and Culture (Fundación de Comunicación, Capacitación y Cultura del Agro)
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GSSE	General Services Support Estimate
GSTP	Global System of Trade Preferences among Developing Countries
HRB	Basic Irrigation Hectares (Hectáreas de Riego Básico)
HS	Harmonised System
ICT	Information and Communication Technology
IER	Institute of Rural Education (Instituto de Educación Rural)
IFA	International Fertiliser Industry Association
INDAP	National Institute for Agricultural Development (Instituto Nacional de Desarrollo Agropecuario)
INE	Chile's National Statistical Office (Instituto Nacional de Estadisticas de Chile)
INFOR	Forestry Research Institute of Chile (Instituto de Investigación Forestal de Chile)
INIA	National Institute for Agricultural Research (Instituto Nacional de Investigaciones Agropecuarias)
INTERPAC	Export Promotion for Small-scale Agriculture (Internacionalización de la Agricultura Familiar Campesina)
ISI	Import Substitution Industrialisation
LBGMA	Chile's Law on the General Bases for the Environment (Ley de Bases Generales del Medio Ambiente)
MEI	OECD Main Economic Indicators
MERCOSUR	Southern Common Market
MFN	Most Favoured Nation
MIDEPLAN	Chilean Ministry of Planning and Cooperation
MINAGRI	Chilean Ministry of Agriculture
MOP	Chilean Ministry of Public Works
MPS	Market Price Support
MYPE	Micro and Small Enterprise (Micro y Pequeña Empresa)
NAC	Nominal Assistance Coefficient
NGO	Non-governmental Organisation
NPC	Nominal Protection Coefficient
NPK	Nitrogen, Phosphate and Potash
ODEPA	Office of Agricultural Policies and Studies (Oficina de Estudios y Políticas Agrarias)

OECD	Organisation for Economic Co-operation and Development
ORIGENES	Indigenous Development Programme (Programa Desarrollo Indígena)
PBS	Price Band System
PDI	Investment Development Programme (Programa de Desarrollo de Inversiones)
PDP	Suppliers Development Programme (Programa de Desarrollo de Proveedores)
PIR	Irrigation Pre-Investment Programme (Pre-Inversión en Riego)
PNPC	Producer Nominal Protection Coefficient
POVCAL	World Bank's software programme for calculating poverty measures for grouped data
PPP	Purchasing Power Parity
PROCHILE	DIRECON's Department, to promote Chilean exports
PRODECOP	Poor Communities Development Project (Proyecto de Desarrollo de Comunas Pobres)
PRODEMU	Foundation for Women Promotion and Development (Programa de Formación y Capacitación para Mujeres Rurales)
PRODES	Organisational Development Fund (Fondo de Proyectos de Desarrollo Organizacional)
PRODESAL	Local Rural Communities Development Programme (Servicio de Desarrollo Local en Comunidades Rurales)
PROFO	Partnership Projects for Development (Proyectos Asociativos de Fomento)
PRORUBROS	Agribusiness Integration Programme (Programa de Redes)
PROSAFE	Product Safety Enforcement Forum of Europe
PSE	Producer Support Estimate
R&D	Research and Development
RIMISP	Latin American Centre for Rural Development (Centro Latinoamericano para el Desarrollo Rural)
SAG	Agriculture and Livestock Service (Servicio Agrícola Ganadero)
SAT	Technical Assistance Services (Servicios de Asesoría Técnica) – INDAP
SENCE	National Service for Training and Employment (Servicio Nacional de Capacitación y Empleo)
SERCOTEC	Technical Cooperation Service (Servicio de Cooperación Técnica) – CORFO
SIRDS	Soil Recovery Programme (Programa para la Recuperación de Suelos Degradados) – INDAP
SMEs	Small and Medium-Sized Enterprises
SPS	Sanitary and Phytosanitary
STE	State Trading Enterprise
SUBSE	Under-Secretariat of Agriculture - Chilean Ministry of Agriculture (Subsecretaría de Agricultura)
TFP	Total Factor Productivity
TSE	Total Support Estimate
UF	Chilean Unit of Account (Unidad de Fomento)
UHT	Ultra-high-temperature (milk) processing
UN	United Nations
URAA	Uruguay Round Agreement on Agriculture
USA	United States of America
USD	United States of America Dollar
WTO	World Trade Organization

ISBN 978-92-64-04223-0
OECD Review of Agricultural Policies: Chile

Bibliography

Agosin, M.R. and C. Bravo-Ortega (2006), *The Emergence of New Successful Export Activities in Latin America: The Case of Chile*, IERAL and Fundación Mediterranea, *www.ieral.org*.

Anriquez, G. (2003), "The Viability of Rural Communities in Chile: A Migration Analysis at the Community Level, 1992-2002", paper presented at the International Conference *Roles of Agriculture Project*, Food and Agriculture Organisation of the United Nations, Rome, 20-22 October 2003.

Anriquez, G., W. Foster and A. Valdés (2003), "Agricultural Growth Linkages and the Sector's Role as Buffer", paper presented at the International Conference *Roles of Agriculture Project*, Food and Agriculture Organisation of the United Nations, Rome, 20-22 October 2003.

Apey, A.G. and A. Barril G. (eds.) (2006), *Pequeña Agricultura en Chile. Rasgos Socioproductivos, Institucionalidad y Clasificación Territorial para la Innovación*, INDAP, ODEPA, MUCECH and IICA, Santiago, Chile.

Avila, A.F.D. and R.E. Evenson (2003), "Total Factor Productivity Growth in Agriculture: The Role of Technological Capital", article written as part of a postdoctoral research carried out at the Economic Growth Center, Yale University, New Haven, CT, US, *www.earthinstitute.columbia.edu/cgsd/events/documents/evenson.pdf*.

Banco Estado (2007), *Programa Financiamiento Banco Estado, Segmento Microempresas y Pequeñas Empresas*, Santiago, Chile.

Becerra G. (2006), "Arancel Efectivo de la Importaciones Chilenas: 2000-2005", *Studies in Economics and Statistics* No. 50, Central Bank of Chile, Santiago, Chile.

Bellisario, A. (2007), "The Chilean Agrarian Transformation: Agrarian Reform and Capitalist 'Partial' Counter-Agrarian Reform, 1964-80", *Journal of Agrarian Change*, Vol. 7, No. 1, pp. 1-34.

CNR (2006), *Politica Nacional de Riego y Drenaje*, Ministry of Agriculture, Government of Chile.

CNR (2007), *Resultados de la Aplicación de la Ley No. 18.450, Año 2006*, Ministry of Agriculture, Government of Chile.

Coelli, T.J. and D.S.P. Rao (2003), "Total Factor Productivity Growth in Agriculture: A Malmquist Index Analysis of 93 Countries, 1980-2000", paper written for presentation as a plenary paper at the 2003 International Association of Agricultural Economics Conference, Durban, 16-22 August 2003, *www.blackwell-synergy.com/doi/pdf/10.1111/j.0169-5150.2004.00018.x*.

CONADI (2007), *Balance de Gestión Integral 2006*, Ministry of Agriculture, Government of Chile.

Cox, M. (2007), "Políticas Agrícolas en Chile", report prepared for the OECD *Review of Agricultural Policies: Chile*, Santiago, Chile.

Cruz, M.E. (1999), *La Institucionalidad en el Sector Silvoagropecuario*, report prepared for the Ministry of Agriculture of Chile, Santiago, Chile.

Diaz, M. *et al.* (2002), *El Marco Jurídico e Institucional del Mercado de Arrendamiento de Tierras en América Latina*, Regional Bureau for Latin America and the Caribbean, Food and Agriculture Organisation of the United Nations, Santiago, Chile.

Díaz Osorio, J. (2007), "Family Farm Agriculture. Factors Limiting its Competitiveness and Policy Suggestions", report prepared for the OECD *Review of Agricultural Policies: Chile*, University of Talca, Chile.

DIPRES (2007), *Informe de Ejecución Trimestral (Cuarto Trimestre) – Período 2006*, Budget Department, Chilean Ministry of Finance.

DIRECON (2007), Acuerdos de Libre Comercio, *www.direcon.cl/cuadro_resumen.html*.

Dirven, M. and S. Faiguenbaum (2004), "Dynamics of Santiago Wholesale Market of Lo Valledor and of its Forward and Backward Linkages", paper presented at the Workshop "Globalisation, Urbanisation and the Agrofood Systems in Developing Countries", 8-10 October 2003, Food and Agriculture Organisation of the United Nations, Rome.

Echenique, J. (2005), "Proyecto de Estudio Regional Andino sobre Factores de Éxitos de Empresas Asociativas Rurales", consultancy report for INDAP, Santiago, Chile.

ECLAC (CEPAL) (2002), *The Chilean Strategy of Trade Liberalization and Market Access*, Santiago, Chile.

FAO (2006), *El Sistema de Fomento Agropecuario en Chile entre 1990 y 2004*, FAO Regional Bureau for Latin America and the Caribbean, Santiago, Chile.

de Ferranti, D., *et al.* (2005), *Beyond the City: the Rural Contribution to Development in Latin America and the Caribbean*, World Bank, Washington, DC.

Foster, W. and A. Valdés (2006), "Chilean Agriculture and Major Economic Reforms: Growth, Trade, Poverty and the Environment", *Région et Développement* No. 23-2006, pp. 187-214, *www.regionetdeveloppement.u-3mrs.fr/pdf/R23/R23_Foster_Valdes.pdf*.

Foster, W. and G. Vargas (2000), *Concentration in Chilean Agriculture*, Department of Agricultural Economics, Chilean Catholic University, Santiago, Chile.

Hurtado, H., E. Muchnik and A. Valdés (1990), "Trade, Exchange Rate and Agricultural Pricing Policies in Chile", Volumes I and II, *The Political Economy of Agricultural Policies*, World Bank Comparative Studies, World Bank, Washington, DC.

IFA (2002), *Fertiliser Use by Crop*, Fifth Edition, Rome.

INDAP (2004), *INDAP en Cifras, 2000-2004*, Ministry of Agriculture, Government of Chile.

INDAP (2005), *Análisis de la Participación de los/las Clientes en los Instrumentos de INDAP, con Enfoque de Género*, Ministry of Agriculture, Government of Chile.

INDAP (2007a), *INDAP - Balance de Gestión Integral, Año 2006*, Ministry of Agriculture, Government of Chile.

INDAP (2007b), *INDAP – Cuenta Pública de Gestión 2006-07*, Ministry of Agriculture, Government of Chile.

Jarvis, L.S. (1985), *Chilean Agriculture under Military Rule: From Reform to Reactivation 1973-1980*, Institute of International Studies, Berkeley.

Larraín, F.B., J.D. Sachs and A. Warner (2000), "A Structural Analysis of Chile's Long Term Growth: History, Prospects and Policy Implications", paper prepared for the Government of Chile.

López, R. and G. Anríquez, (2003), "Poverty and Agricultural Growth: Chile in the 1990s", paper presented at the International Conference *Roles of Agriculture Project*, Food and Agriculture Organisation of the United Nations, Rome, 20-22 October 2003.

Melo, O. and J. Lopez de Lerida (2006), "Caracterización de la Agricultura Familiar en Chile", report prepared for the FAO-IADB project *Impacts of the Free Trade Agreement with the United States on Family Agriculture*, Department of Agricultural Economics, Catholic University, Santiago, Chile.

MINAGRI (2007), *Informes de Gestión*, *www.minagri.gob.cl/uapoyo/uproge/comp_agri.htm*.

Moreno, P.X.W. (2002), "A Policy Design for Solving Land Conflicts between Forestry Companies and Indigenous People in Chile", thesis presented in partial fulfilment of the requirements for the degree of Master in Applied Sciences in Natural Resource Management, Massey University, Turitea, Palmerston North, New Zealand.

Muchnik, E. and O. Saavedra (2002), *Caracterización de los Rubros de Manzanas y Jugo Concentrado de Manzana en Chile en Base a Indicadores del Proyecto Eumercopol*, Area Agroindustria and Fundación Chile, Santiago, Chile.

ODEPA (2000), "Clasificación de las Explotaciones Agrícolas del VI Censo Nacional Agropecuario Según Tipo de Productor y Localización Geográfica", *Documento de Trabajo* (Working Document) No. 5, Ministry of Agriculture, Government of Chile.

ODEPA (2003), "Situación Actual y Desafíos del Sector Lácteo", presentation in Punta de Tralca (Chile), July, Ministry of Agriculture, Government of Chile.

ODEPA (2007), *Estadísticas y Precios/Económicas*, *www.odepa.gob.cl/odepaweb/jsp/estadisticas/economicas.jsp*.

ODEPA/INDAP (2002), "Agricultura Chilena: Rubros Según Tipo de Productor y Localización Geográfica", *Documento de Trabajo* (Working Document) No. 8, Ministry of Agriculture, Government of Chile.

ODEPA/INDAP (2005), "Agricultura Chilena: Características Sociales de los Productores Según Tipología, Sexo y Localización Geográfica", *Documento de Trabajo* (Working Document) No. 9, Ministry of Agriculture, Government of Chile.

ODEPA/UC/RIMISP (2002), *Los Supermercados en la Distribución Alimentaria y su Impacto Sobre el Sistema Agroalimentario Nacional. Informe Final*, Office of Agricultural Policies and Studies of the Ministry of Agriculture of the Government of Chile, Faculty of Veterinary and Animal Sciences of the University of Chile, and Latin American Centre for Rural Development (RIMISP), Santiago, Chile, *www.rimisp.org/getdoc.php?docid=1797*.

OECD (2002), "Agricultural Policies in OECD Countries: A Positive Reform Agenda", OECD, Paris.

OECD (2004), "Trade and Competitiveness in Argentina, Brazil and Chile. Not as Easy as A-B-C", OECD, Paris.

OECD (2005a), *OECD Economic Surveys: Chile*, Vol. 2005/19, OECD, Paris.

OECD (2005b), OECD *Environmental Performance Reviews: Chile*, OECD, Paris.

OECD (2006), "Market Access and Private Standards: Case Study of Chilean Fruit Markets", OECD, Paris.

OECD (2007a) "Facilitating Trade and Structural Adjustment: Experiences in Non-Member Economies: Chile Country Case Study", OECD, Paris.

OECD (2007b), *OECD Economic Surveys: Chile*, OECD, Paris.

OECD (2007c) "Effective Targeting of Agricultural Policies: Best Practices for Policy Design and Implementation", OECD, Paris.

OECD (2007d), *Review of Chile's Innovation Policy*, OECD, Paris.

Ramírez, E. (2002), *El Mercado de Arriendo de Tierras en Chile. Estudio de Caso*, RIMISP, Santiago, Chile.

Santacoloma, P., R. Suárez and H. Riveros (2005), *Strengthening Agribusiness Linkages with Small-scale Farmers. Case Studies in Latin America and the Caribbean*, Food and Agriculture Organisation of the United Nations, Rome.

Sotomayor, O. (2007), "Fortalezas y Debilidades de la Política Agrícola Chilena", report prepared for the OECD *Review of Agricultural Policies: Chile*, Santiago, Chile.

Valdés, A. (1978), "Transition to Socialism: Observations on the Chilean Agrarian Reform", in Edwards E.O. (editor), *Employment in Developing Nations*, University of Columbia Press, New York.

Valdés, A. and W. Foster (eds.) (2005), *Externalidades de la Agricultura Chilena*, Catholic University and Food and Agriculture Organisation of the United Nations, Santiago, Chile.

Valdés, A. and W. Foster (2007), "Structural Characteristics of Agricultural Households and Policy Options in Chile. A Typology of Rural Households and Income Determinants from the 2003 CASEN", report prepared for the OECD *Review of Agricultural Policies: Chile*, Catholic University, Santiago, Chile.

Valdés, A. and E. Jara (2006), "Distortions to Agricultural Incentives in Chile", paper prepared for the World Bank project *Distortion to Agricultural Incentives*, Washington, DC.

Vergara, R. and R. Rivero (2006), "Productividad Sectorial en Chile: 1986-2001", *Cuadernos de Economía*, Vol. 43, No. 127 Santiago, Chile.

WTO (2003), "Chile – Price Band System and Safeguard Measures Relating to Certain Agricultural Products", Report of the Appellate Body, 23 September 2002, AB-2002-2, WT/DS207/AB/R, Geneva.

Table of Contents

Boxes

Tables

Figures

Charts