Cooperating to Compete
Associative Peasant Business Firms in Chile

Julio Antonio Berdegué Sacristán

Cooperating to Compete. Associative Peasant Business Firms in Chile

Stellingen

1. Give me a fruitful error any time, full of seeds, bursting with its own corrections. You can keep your sterile truth for yourself. (Vilfredo Pareto, quoted in S. J. Gould, 1993, "Eight Little Piggies. Reflection in Natural History." W.W. Norton & Company, New York.).

2. In a market economy open to international competition, Associative Peasant Business Firms cannot improve on regular market exchanges when it comes to trading undifferentiated commodities in the spot and wholesale markets. Firms involved in non-traditional products and in markets with high transaction costs can have more of an economic impact on their members' farms and households. (This thesis).

3. Effective Associative Peasant Business Firms are embedded in effective multi-agent networks. (This thesis).

4. The systems of rules of Associative Peasant Business Firms must provide incentives for an adequate allocation of costs and benefits among the members, and between them and their organization. Free riding is pervasive if the first allocation fails. Decoupling small farmers from market signals is the result of failure in the second allocation. Both lead directly to the demise of the firm as a viable market-oriented organization. (This thesis).

5. The social and geographical proximity that results from an Associative Peasant Business Firm being embedded in a rural community, reduces the cost of monitoring the members' compliance with agreements and obligations; reduces members' heterogeneity, in turn aiding the formulation of rules acceptable to all; enhances the social consequences to members of not complying; ensures fairer treatment of those who break the rules; and provides greater and better participation in the organizations' affairs. Formal business management approaches and techniques cannot replace these advantages. (This thesis).

6. When the government's strategy of signing international trade treaties left us aside, we were left with two options, to sell the land or to change. And we chose the latter. (Rafael Castro, small farmer and member of Sociedad Agrícola y Ganadera El Sobrante).

7. Learning and adaptive management cannot occur in rural development if governments, donors and NGOs do not openly accept the political cost of failure.

8. In the rapidly changing context of Latin American societies, NGOs that do not make a sustained effort to unlearn their old approaches become part of the problem of rural poverty.

9. *Y así, del poco dormir y del mucho leer, se le secó el cerebro de manera que vino a perder el juicio* (And so it was that from too little sleep and too much reading, his brain dried out and he lost his wits). (Miguel de Cervantes, Don Quijote).

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A mis padres

SUMMARY

The research context

Since 1990 the government of Chile has made a major effort to support the participation of small-scale agriculture in one of the most liberalized and competitive economies in the developing world. In particular, the Agricultural Development Institute (INDAP), an agency of the Ministry of Agriculture, has spent close to $ 1.5 billion on technical assistance and investment programs to enhance smallholders' capacities and to link them to more dynamic and profitable markets. A key aspect of this effort has been the formation and development of *Empresas Asociativas Campesinas* (EACs, or Associative Peasant Business Firms).

EACs are legally constituted organizations whose members or owners are exclusively or mainly small farmers and peasants who control the organization's decision-making process. Such organizations carry out marketing or value-adding activities directly linked (upstream or downstream) to their members' primary production, and their main purpose is to improve the performance of their members' farms as economic units engaging in market transactions.

About 780 of these EACs have been formed in the past decade, with a total membership of approximately 58,000 small farmers (about one-fifth of all small farms in the country). Their gross sales in 1998 amounted to about $ 100 million.

This program reflects a new approach to improving the economic performance of small farms and the well-being of peasant households. It is a significant move away from the traditional strategy, which took a transfer of technology approach to agricultural innovation, and emphasized yield increases of undifferentiated commodities. This new approach, which has gradually evolved since the early 1990s, instead emphasizes: (a) promoting market-driven small-scale farming, which in Chile means diversifying into non-traditional enterprises and value-adding; (b) replacing the linear research-extension-farmer arrangements with more complex and diverse private-public networks and alliances; (c) recognizing EACs as the primary social agents of peasant agricultural development; (d) developing new facilitation approaches to support the new strategy.

The research questions

The research focused on the following questions: (a) Have EACs achieved their purpose of improving the performance of their member's farms and the income of their households?; (b) Are EACs sustainable as economic organizations?; (c) What is the relationship between the institutional and the economic performances of these EACs, and; (d) What changes in public policies are needed to improve the impact and sustainability of these EACs?

Conceptual framework and methods

A multi-disciplinary approach is used in this research, taking advantage of various theoretical perspectives, including: the concepts of agricultural knowledge and information systems, and of innovation as the product of social learning within multi-agent networks; the concept of transaction costs advanced by neoinstitutional economics; the theory of social capital; and the concept of design principles of institutionally robust organizations for collective action, proposed by comparative institutional analysis.

The research combines descriptive and analytical quantitative methods applied to large data sets obtained from national surveys of peasants households, small farms and EACs, with 14 qualitative in-depth case studies of specific organizations engaged in milk, potato, vegetable and raspberry

production, marketing and value-adding.

Main results

The main findings are as follows:

1. Small farmers' participation in EACs depends more on market and policy incentives than on the assets at their disposal. The exception is the poorest strata of peasant households, who tend not to participate in these organizations. Market incentives are closely linked to farmers' transaction costs. EAC participation is higher among small farmers working in product markets with high transaction costs.
2. Community groups and organizations facilitate the formation of EACs, as they provide the initial fora where alternatives can be discussed, weighed and decided upon. These local groups 'incubate' EACs. However, a local tradition of rural organization on its own does not seem to have a decisive influence, as many regions with high levels of civic organization have low levels of EAC membership, and *vice versa*.
3. The support of external agents (such as NGOs, private extension firms, etc.) is essential for the emergence of EACs. While local leaders build on farmers' willingness to question the *status quo* and to take action, external agents provide 'road maps' for collective action, as well as the networks needed to obtain information, expertise and financial resources.
4. Hence, EACs emerge through the interplay between all these actors: individual farmers, rural communities, external facilitators, governments, and markets. The nature of that initial interaction, and the balance of each agent's contribution, has a major influence on the EAC's characteristics and future performance.
5. EAC participation only has a significant positive impact on members' farms' net profit margins when it operates in markets with high transaction costs, such as the dairy sector. An EAC cannot offer any increased benefits for small farmers operating in markets with low transaction costs, such as the spot markets for undifferentiated commodities like wheat or potatoes.
6. EAC participation does not have a significant impact on members' total household income, even where markets with high transaction costs are involved. Whatever income gains are derived from on-farm production, they are undermined by the corresponding loss of non-farm employment and income opportunities.
7. A large majority of EACs would not be viable without significant public subsidies. Only around one-fifth of EACs could survive if the current government programs were suddenly discontinued; an additional 15% could probably consolidate their position reasonably quickly if they changed their way of doing things.
8. EACs established primarily to trade undifferentiated commodities in spot or wholesale markets tend to fail. They do so when members default on their agreements regarding the collective marketing of their produce. Members' commitment wanes when they realize that under these types of markets, the EAC cannot improve on market prices or other market benefits, whilst being a member implies additional costs and risks compared to individuals trading alone. Moreover, members withdraw selectively; they may work alone to market their products, yet still take advantage of other EAC services, usually access to public programs and subsidies. Under such conditions, these EACs are rapidly undermined.
9. On the other hand, EACs can be successful when their core activities aim at: (a) differentiating the members' raw products through value-adding; (b) providing price and market information when such information is costly to obtain and when obtaining a good price can be difficult without it; (c) overcoming investment, technology, or knowledge and management market access barriers; and (d) expanding the portfolio of clients, especially where highly perishable products are concerned.

10. Effective EACs are part of effective multi-agent networks. Linkages to actors outside the rural communities are crucial when operating in dynamic and competitive markets.

11. When EACs are embedded in a rural community, this aids more effective and less costly internal rules and decision-making processes, because of their members' close social and geographic proximity. For example, it makes monitoring members' compliance with agreements and obligations cheaper; reduces members' heterogeneity, in turn aiding the formulation of rules acceptable to all; enhances the social costs and consequences to members of not complying with agreements and obligations; ensures just and appropriate treatment of those who break the rules (due to better local information about the context in which the violation occurred); and provides greater and better organizational participation. However, such close social and geographic proximity can also undermine an EAC's operational rules; for example, when enforcement of agreements is hampered by family obligations or when those with greater power in the community exert an undue influence within the EAC.

12. An EAC will ultimately fail if its system of rules 'shields' members from market signals. Effective internal rules systems must address not only the allocation of costs and benefits between the individual members (i.e., the free riders problem), but also their distribution between the members as individual and independent farmers, and the EAC as a business-oriented organization. The balance between the EAC's economic and financial performance and sustainability, on the one hand, and the impacts of the collective effort on individual farms and households, on the other, depends on how this dual allocation problem is solved. Only when the rules clearly transmit market signals to individual members, *and* when such rules effectively reduce the transaction costs of negotiating, monitoring, and enforcing agreements between the EAC and its members, can this problem be solved.

Thinking about the future

The policies and programs designed during the past decade have run their course. Dozens of EACs are currently in crisis, signaling the need for a revised strategy to improve the quality of the existing EACs. Such EACs must be: (a) more effective in improving their members' performance as independent farmers in a market economy; (b) increasingly sustainable and autonomous as business firms, and; (c) institutionally robust as social platforms for collective action. To achieve these goals, revised policies:

1. Should develop alternatives for the thousands of smallholders who produce traditional agricultural commodities and who lack the capacity to diversify into new products and markets. For many, these alternatives are to be found in new rural non-farm activities. If the options for rural development continue to be restricted to agriculture, then the political pressures to set up ineffective EACs will be irresistible.

2. Should not assume that forming an EAC is always the answer. EACs are only effective under certain conditions and can only achieve a narrower set of goals than was thought 10 years ago. EACs are not a panacea for developing 'social capital' and civic participation in the countryside. This is true even for those policies and programs designed to improve the productive, technological and economic development of small farmers. To achieve such goals public programs must work with a broader set of rural organizations and groups, and not just rely on EACs.

3. Should promote social learning as part of EAC development. While significant progress has been made in moving away from the linear transfer of technology approach, it is still not enough. To a large extent, many continue to see the development of EACs as the outcome of pre-conceived social engineering initiatives. This study has found that successful EACs are the result of gradual and complex processes of innovation involving multiple agents with different perspectives. We need to invest more in finding approaches and methods to facilitate social learning processes in EAC formation and development.

4. Should invest in human capital. The effort to develop the human capital relevant to EACs has been

negligible compared to the hundreds of millions of dollars invested in 'brick and mortar' projects. We urgently need to decide how to provide all relevant actors with the knowledge, capacities and skills indispensable to their new domains of activity.

5. Should think and act in terms of networks. Effective EACs are part of effective multi-agent networks. We need to find out how to work with EACs in the context of these wider networks. We need new concepts, methods and tools to support such work.

6. Should understand that EACs only succeed if they transmit clear market signals. EACs offer an organizational platform for small farmers to access more dynamic and profitable markets; this almost always means that they will be subject to more, not less, intense competition. Understandably, public programs in support of peasant farmers want to somehow protect them from the adverse consequences of moving into fiercely competitive markets. Whilst no-one could question the need for mechanisms to ease the transition, the question is how we do it. Until now we have relied almost solely on direct subsidies and subsidized loans which very often decouple EACs from the market signals they are supposed to respond to. What are the insurance systems, the risk-sharing private-public contracts, the training programs, the government regulations and legal frameworks, that can help small farmers and their EACs learn their way in the new markets, but which do not create artificial 'bubbles' that burst when the external funding stops? We must stimulate and support institutional experimentation with this question in mind.

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First of all, I must say a few words about Niels Röling, my supervisor. I met Niels during an international farming systems symposium in Montepellier, in November 1994. In my presentation I argued that in increasingly globalized societies, competitiveness was rapidly becoming an essential factor to consider for people doing research and development with small farmers. Niels stood up during question time and proceeded to passionately denounce this neo-liberal intrusion! This little anecdote reflects well on Niels as a Teacher with a capital T, a man who has generously lent his time and his vast knowledge and experience to a student he knows is likely to stubbornly resist some of his ideas. Since this first 'meeting of minds' in Montpellier, we have spent many hours discussing the ifs, hows and whens of such seemingly incompatible concepts as social learning, adaptive management, and cognition, and profits, efficiency, value-adding, and competitiveness. This book is proof that alchemy can work when mixing 'oil' and 'water' concepts! Working with Niels has broadened and deepened my professional perspective – all a student can ask for from his professor. Via Niels I was fortunate indeed to meet Janice Jiggins, who added to my intellectual development with her incisive questions and experiences. Both Niels and Janice made me feel very much at home during the time I spent in The Netherlands. And it is to both that I extend my deepest gratitude for enriching my life and this thesis.

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ACRONYMS AND ABBREVIATIONS

APPA	Association of Small Farmers
BOGAN	Program for the Development of Small-scale Animal Production Systems (an INDAP program)
CAL	Milk Collection Centers (in Spanish, CAL, *Centro de Acopio Lechero*)
COOPEUMO	Peumo Inter-Municipal Peasant Cooperative (an EAC)
CORFO	Chilean Economic Development Agency (in Spanish, *Corporación para el Fomento de la Producción*)
EAC	*Empresas Asociativas Campesinas* or Associative Peasant Business Firms
FAO	United Nations Food and Agriculture Organization
FECOSUR	Federation of Cooperatives of the South
FODEM	Fund for Entrepreneurial Development (an INDAP program)
FOSIS	Solidarity and Social Investment Fund
GARIM	Rural Associative Group for Entrepreneurial Initiatives (in Spanish, *Grupo Asociativo Rural de Iniciativas Microempresariales*, an INDAP program)
Ha	Hectare
Hh	Household
HRB	Equivalent Irrigated Hectare
INDAP	Agricultural Development Institute
INIA	Agricultural Research Institute
IPM	Integrated Pest Management
PTT	INDAP's Technology Transfer Program
RIMISP	International Farming Systems Research Methodology Network
SENCE	The National Labor Training and Employment Service
SFO	Small Farmers' Organization
UFOCO Ltda.	*Unión para el Fomento de la Competitividad*, or Union for the Development of Competitiveness
VAT	Value Added Tax

CHAPTER 1. INTRODUCTION

Cuando la estrategia del gobierno de firmar tratados internacionales nos dejó al margen, nos quedaron dos opciones como era vender las tierras o cambiar. Y nos inclinamos por lo último.

When the government's strategy of signing international [trade] treaties left us aside, we were left with two options, to sell the land or to change. And we chose the latter.

Rafael Castro

Member of Sociedad Agrícola y Ganadera El Sobrante

1.1 Presentation

This book is about the experience of thousands of small farmers who, like Rafael Castro, decided to walk the difficult and uncertain path of innovation in order to survive in Chilean agriculture in the context of one of the most open and liberalized economies in Latin America. It is also about the policies and the public and private organizations that stimulated and supported this change.

I look at one aspect of the changes made by these small farmers: the formation, development and work of economic organizations, known in Chile as *Empresas Asociativas Campesinas* (EACs), or Associative Peasant Business Firms.

I define an EAC as:

> *a legally constituted organization whose members or owners are exclusively or mainly small farmers and peasants and who control the decision-making process in the organization; the organization carries out marketing or value-adding activities directly linked (upstream or downstream) to its members' primary production, and its main purpose is to improve the performance of its members' farms as economic units engaging in market transactions.*

In Chile, as in other Latin American countries, economic collective action by small farmers and peasants has grown in the last 10 or 15 years in response to the simultaneous processes of economic liberalization, opening up of national economies to international competition, and privatization or outright elimination of many agricultural public services.

Economic collective action is one strategy used by small farmers and peasants in a context where market competitiveness determines the survival of any small farm that is substantially or primarily market-oriented (Berdegué and Escobar, 1997). Such economic collective action can take a variety of forms, and might include:

- the once-a-year collective purchase of seeds, fertilizers and other inputs in order to be able to negotiate lower prices;
- forming a local committee to hire a private veterinarian to improve milk production;
- negotiating local farmers' production contracts with a private agribusiness firm;
- establishing a processing firm to add value to fresh vegetables through grading, packaging and labeling;
- organizing a peasant-owned business firm capable of exporting non-traditional products such as flowers to countries in the North;
- establishing a municipal savings and loans committee to partially replace some of the financial

services that used to be provided by a now-extinct public agricultural development bank.

Economic collective action can be conducted by groups and organizations formed solely for that purpose, or by others involved in many diverse activities, such as providing social services, political and social representation, improving local public infrastructure, or managing natural resources.

EACs are a particular type of economic collective action organization. They differ from a conventional private firm in that their own objectives, even those of an economic nature, are subsidiary to their fundamental purpose of improving the economic performance of their members' farms. They differ from informal groups because their organizational objectives and obligations are different to their individual members' and because they can participate in formal and enforceable contracts with market and non-market agents. And, finally, they differ from other small farmers' organizations and groups that provide agricultural support services such as credit or technical assistance, in that their core activities focus on processing their members' raw products and/or on marketing of inputs or products required or generated by their members' farming systems. However, they can and often do provide additional services in support of agricultural production.

Since 1990, but increasingly since around 1993, Chile's Agricultural Development Institute (INDAP), the national public organization charged with developing small-scale agriculture, began to move away from its conventional promotion of primary production of traditional crops. Its new focus was on 'reconverting[1]' peasant agriculture by:

(1) linking peasant farms to more dynamic and profitable markets;

(2) diversifying away from traditional commodities towards non-traditional crops and enterprises, and;

(3) placing a much stronger emphasis on farm management, marketing and value-adding, in contrast to the traditional almost exclusive reliance on the technological improvement of on-farm primary production.

This new strategy required three major institutional changes. First, it required the development of strong, business-oriented small farmers' organizations. An individual peasant could not expect to approach a non-traditional market in the same isolated manner as he or she would a commodity market. Second, it meant developing multi-agent networks, since the old linear arrangements of agents based on the Transfer of Technology (ToT) approach simply could not even begin to deal with the organizational and institutional complexity implicit in the new strategy. Third, new approaches to facilitation were needed, since those that were part of the ToT school proved inadequate for dealing with the more complex processes of change and innovation that were being stimulated.

Several hundred EACs were formed in Chile with the stimulus of the new policies and their concomitant incentives. A decade since this strategy was launched, the time is now ripe to assess its results, achievements, failures and limitations.

1.2 The research questions

1.2.2 Public policy perspective

From the point of view of public policies, I attempt to answer the following questions through this research:

(1) Have EACs achieved their purpose of improving the performance of peasant agriculture in the

[1] The label 'reconversion' has lost favor in Chile in recent years, as it tended to be interpreted by many as excluding traditional crops, enterprises or activities. However, I still think it is an appropriate concept to describe the purpose and objectives of the new policies put in place since the 1990s. I define this reconversion policy as an attempt to 'retool' peasant agriculture with the human, financial, physical, natural, social and political assets needed to survive and develop as a viable economic and social agent in the context of an urbanized society and an internationally competitive market economy.

context of a market economy open to international competition?

(2) Are EACs sustainable as economic organizations, or, as is often the case in many Latin American countries, are they simply dependent appendices of the public programs that created them?

(3) What changes or adjustments to public policies and their instruments are needed to improve EACs' impact and sustainability?

These questions are important for the 58,000 small farmer members of the 778 Chilean EACs, for whom these organizations constitute the main, or one of the main, vehicles for accessing different markets for goods and services. From their point of view, better designed and implemented public policies and instruments in support of their organizations should result in greater benefits from their collective efforts.

These questions also matter to the Government of Chile and especially to INDAP, who is investing around $ 160 million[2] per year to support small-scale agriculture, much of it in programs directly targeted at EACs. It is quite obvious to anyone familiar with Chile that INDAP still has a long way to go in designing more pertinent, efficient and effective policies and programs to help small farmers consolidate their position in the country's new economic and institutional context.

These questions are also important because major flaws are coming to light in the policies and programs designed in the early and mid-1990s. A large number of the EACs formed in the past five to 10 years are failing and falling apart, and many people are becoming increasingly and justifiably skeptical about the policies' continued effectiveness. Unfortunately, much of the current debate, while necessary and even indispensable, is weakened by an almost complete lack of research to enlighten the discussion and separate the many myths, political preferences and expressions of self-interest from the more substantive and grounded criticisms.

Very few people in Chile would today question the need for in-depth reform of the current policies and instruments which support EACs. Nor would they question the need for a new generation of policies to improve their pertinence, efficiency and impact. To me it seems that there is no better place to start this dialogue than by taking a hard look at what has actually occurred over the past decade.

1.2.3 Conceptual perspective

From a conceptual point of view, the main aim of this research is to understand the relationship between the institutional and the economic performance of these EACs. Hence the title of the book: *Cooperating to Compete.*

By 'institutional performance' I refer to two complementary processes:

(1) Internal institutional performance: the development of rules governing the interactions between EAC members, allowing them to improve the efficiency and effectiveness of their collective action.

(2) External institutional performance: the formation of networks used by the organization to interact with the broader rural community, with governmental programs and policies, with market agents, and with intermediate organizations and agents involved in promoting agricultural and rural development.

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[2] All monetary figures in this book are in US dollars, unless otherwise stated. The exchange rate to the Chilean peso is the rate published by the Central Bank of Chile for the last day of the month to which the figure corresponds. Whenever a monetary sum is mentioned in one of the interview quotations included in the book, it has also been converted into US dollars, even if the person quoted actually mentioned Chilean pesos.

There are many 'technical' factors that can have a strong impact on the effectiveness and sustainability of an EAC. For example, good or bad management can make or break a business-oriented organization. Similarly, most would agree that if you are operating in a competitive market environment, it is important to do the right things and do them right in terms of the technologies and processes used by the EAC, in order to turn out a product that conforms to the demands, preferences and requirements of your clients or consumers.

While the social capital literature has recently drawn attention to the relationship between rules, norms, networks and economic performance[3], few studies demonstrate how these two factors relate to each other in the case of small farmers' organizations trying to compete in a developing country with a market economy.

As I will discuss in the next chapter, several studies show how rural economic organizations with 'bridging' social capital are better able to capture more resources from external agents (Woolcock and Narayan, 2000; Bebbington, 1997). This will make sense to anyone familiar with rural development programs, either of the type designed by governments, international donors and agencies, or by local NGOs: those better organized tend to be favored in the allocation of resources. By the same token, often these same institutional and organizational qualities prove insufficient when it comes to managing these resources in a way that sustains the organization when the external support comes to an end.

There is also an abundant literature showing how institutionally 'robust' communities and organizations tend to manage common property resources better, especially when there has been a long-standing association between these resources and their managers (Ostrom, 1990; Uphoff and Wijayaratna, 2000).

But few of these publications explore the specifics of the relationship between the institutional and the sustainable economic performance of business-oriented rural organizations. My research aims to contribute to filling this knowledge gap.

1.3 The context

1.3.1 The economic and social context[4]

It is vital to stress that the formation and development of EACs has taken place in a national context of rapid economic growth and of very significant improvements in most social indicators. This favorable environment is very different to many other Latin American countries, where rural economic organizations have to struggle against a backdrop of economic and social stagnation or even involution.

After 17 years of military rule and extreme neoliberal economic policies, in 1990 the new democratic government headed by Patricio Aylwin and his Center-Left coalition established a program of economic and social policies labelled *"Growth with Equity"*. This program called for the maintenance of the fundamental aspects of the neoliberal macroeconomic policies put in place under the military, complemented by an aggressive expansion of social policies to tackle the very high poverty rates and great inequality inherited from the dictatorship. This basic development strategy has been maintained by the last two democratic administrations (Eduardo Frei Ruíz-Tagle, 1994-2000, and Ricardo Lagos, 2000-2006).

This program led to an average 8% annual growth rate of Gross Domestic Product (GDP) in the 1990s, to an increase of 66% in the per capita GDP between 1989 and 2000, and to a rapid reduction of the

[3] For a recent review, see Woolcock and Narayan, 2000.

[4] Section based on official data from Chile's Central Bank (www.bcentral.cl) and Ministry of Planning and Cooperation (www.mideplan.cl).

annual inflation rate to around 4% from two-digit levels. The economy is increasingly export-oriented, and the value of exports grew in the '90s by about 90%.

Because of the positive performance of the economy and also due to the strong growth in public social expenditure (up by 140% in the 1990s, reaching US$ 747 per capita in 1999), the percentage of poor households fell from 39% in 1990 to 22% in 1998, and the rate of extreme poverty also dropped in the same period from 13% to 6%. Rural poverty has fallen from 40% to 28%, and rural extreme poverty also dropped from 15% to 9%. Even in areas where rural poverty is concentrated, the real per capita income of poor households grew by over 50% between 1996 and 2000 (Ramírez et al., 2001).

Illiteracy has been low for many years, and in 2000 it affected only 5% of the population. Essentially all children attend and complete primary education, and about 90% of those in the relevant age group attend secondary schools, even in the lowest two income quintiles.

Age expectancy at birth is 78 years for women and 72 years for men. The child mortality rate is only 10 per 1000 and decreasing. About 80% of the population is affiliated to one of the two health systems: one public, the other private.

However, there has been no progress whatsoever in the reduction of inequality: in 1990 the richest one-tenth of the population had an income 14 times larger than the poorest one-tenth; a difference that by the year 2000 had grown to 15.3.

It is also important to understand that Chilean society is highly urban. In the year 2000, 86% of the population of 15 million people lived in urban locations. Even those households whose main source of income is agriculture are rapidly becoming urban dwellers. In 1996, 40% of those 'agricultural households' lived in urban areas, compared to 30% only six years before (Berdegué et al., 2001).

1.3.2 Agriculture in the 1990s[5]

Chilean agriculture has experienced significant growth since the mid-'80s, with an average annual rate of growth of 6% between 1985 and 1997. Since agricultural growth is slower than the economy as a whole, its contribution to the national GDP dropped from 8% in 1990 to only 6% in 1997.

Employment in agriculture also decreased from 22% in the mid-'80s, to 14% in the late '90s. The gap in labor productivity between agriculture and the economy as a whole has continued to expand steadily, and by the mid-'90s the difference was 42% between both indicators. In a context of growing employment outside agriculture and increasing educational standards among the rural population, this gap in labor productivity creates a tremendous incentive for agricultural workers and members of farmers' households to look for jobs outside the sector.

However, these average figures mask the considerable heterogeneity within Chilean agriculture. The same economic and institutional policies that created a very favorable environment for the expansion of export agriculture, have led to the decline of the 'traditional' agricultural sector, i.e., the production of basic food commodities for the domestic market.

Chilean agricultural exports more than tripled in value between 1987 and 1996, while the positive agricultural trade balance more than doubled in the same period. Fresh fruit and forest products each represented slightly less than half of the total value of agricultural exports in 1987, but 10 years later their relative contribution had dropped, showing the increasing diversification in exports, with the growing importance of the agroindustrial sector. In any case, all of these non-traditional exports have grown by between 300% and almost 600% since the mid-'80s.

In contrast with the very successful expansion of export agriculture, the area under traditional commodity crops for the domestic market shrank by almost one-third in the decade prior to 1996. In

[5] Section based on data from Chile's Ministry of Agriculture, Office of Agrarian Studies and Planning (www.odepa.gob.cl), Central Bank (www.bcentral.cl) and Ministry of Planning and Cooperation (www.mideplan.cl).

part, this is due to significant growth in yields, allowing Chile to more or less maintain production levels of domestic crops, despite using less land.

However, the main factors behind the relative stagnation of traditional agriculture have been:

- opening the economy to international competition through a unilateral reduction of import tariffs and the signing of bilateral free trade agreements with a large number of countries, and,
- the appreciation (by over 30%) of the Chilean peso against the US dollar; paradoxically the outcome of Chile's success in its export-promotion policies and in attracting direct foreign investment.

For these reasons, real prices for the main traditional products dropped sharply between 1987 and 1997: wheat by 37%; sugarbeet by 36%; potatoes by 43%; maize by 28%; and dry beans by 48%. During the same period, the Consumer Price Index (CPI) increased by over 350%. The CPI more or less reflects the cost of the inputs and consumer products that small farmers need to buy given the decreasing income from their crops.

Clearly then, since the early 1990s peasant agriculture in Chile has been subjected simultaneously to 'push' (decreasing value and profitability of traditional crops) and 'pull' (increasing economic attractiveness of non-traditional enterprises) incentives to move away from the traditional crops that almost completely dominated its farming systems 10 or 15 years ago. Rafael Castro, the small farmer quoted at the start of this chapter, was referring to this when he said: *"to sell the land or to change. And we chose the latter."*

As I will discuss later in this chapter, agricultural development policies aimed at small farmers picked up these signals in the early 1990s and shifted from the conventional emphasis on increasing commodity yields to supporting the 'reconversion' of peasant agriculture into non-traditional and high-value products.

1.3.3 Peasant agriculture in Chile

According to the 1997 Agricultural Census, Chilean agriculture is composed of about 330,000 farms, of which about 8% belong to medium and large capitalist farmers and agribusiness firms. As in any other Latin American country, there are many different types of peasant farms and farming systems (CEPAL, 1984; Escobar and Berdegué, 1990), but these can be simplified into two very broad categories:

(1) *minifundia,* where the household engages in subsistence agriculture to supplement other farm and non-farm sources of employment and income, and;

(2) market-oriented small farms, where family-based agricultural production is the central activity around which the household's livelihood strategies are structured and organized.

Most of the *minifundia* have their origin either in the early occupation during colonial times by impoverished Spaniards and *mestizos* of the areas surrounding the large *Haciendas*, or in the forced relocation of the native people a few decades after independence, in the early 20th century.

A recent study based on 1997 data states that the *minifundia* category includes 102,766 farms (31% of all farms in Chile) covering 1.2 million hectares of land (2% of the total), of which slightly less than half is used for agricultural production. This gives an average of slightly more than five hectares of crops and pastures per farm (ODEPA, 2000). Other authors put the number of these subsistence farms at about 130,000 (Echenique, 2000). Most of these households are poor or extremely poor; their income is increasingly dependent on non-farm rural employment (Berdegué et al., 2001) or on being hired by commercial farms (Ramírez et al., 2001). In the past 10 years or so, monetary and non-monetary subsidies from different social programs have grown in importance in the composition of the total income of these households. Out-migration by these households' younger members is high, as an expanding economy and better educational standards offer them non-rural employment opportunities (Ramírez et al., 2001).

According to ODEPA (2000), market-oriented small farms number about 176,000, or about half of all farms in Chile, although Echenique (2000) puts their number at around 100,000. They cover eight million hectares (16% of the national total), of which slightly more than 40% are under crops or pasture (ODEPA, 2001). According to ODEPA (2001), market-oriented small farmers in Chile control around 40% of the area under annual crops, vegetables, and grapes, and between one-quarter and one-third of fruit orchards and improved and seeded pastures. These farmers also own around one-third of the bovine cattle, dairy cows, and sheep, and an even higher proportion of the goats and pigs. Over two-thirds of these farms originated during the expansion of the agricultural frontier in the late 19th and early 20th centuries, while the remaining third or so are survivors of the agrarian reform process (1964-73) and its liquidation under the military dictatorship in the mid-'70s (Box 1.1).

Box 1.1 Land reform in Chile

The agrarian reform was designed to create collective farms (*asentamientos*) from the *Haciendas* expropriated from the large landowners. The members of the *asentamientos* were basically extremely poor landless peasants who worked for the *Haciendas* under a pre-capitalist system known as *Inquilinato*. After the military coup in 1973, the new government dissolved the *asentamientos*, returned a large fraction of the land to the original owners, and sold the rest to the peasants as private farms (*parcelas de Reforma Agraria*). More than half of the new *parceleros* eventually lost the land they received, either because they could not pay the government back, or simply because they could not survive the radical neo-liberal policies of the military dictatorship and the concomitant lack of public agricultural support services. Those market-oriented small farmers who survived are thus the veterans of an extreme liberalization process, and many of them evolved, in less than one generation, from illiterate, socially marginalized landless servants under the *Hacienda* system, to small-scale entrepreneurs operating in a liberalized and internationally competitive market economy.

1.3.4 The Agricultural Development Institute (INDAP)

A brief history

The Agricultural Development Institute (*Instituto de Desarrollo Agropecuario*, INDAP) was founded in 1962 as part of a number of timid agrarian reform measures taken by Jorge Alessandri's right-wing government. This government was under pressure from the Kennedy administration in the USA and its Alliance for Progress, in response to the Cuban revolution. From 1964 under Eduardo Frei Montalva's[6] Christian Democrat administration, and to a greater extent under Salvador Allende's left-wing Popular Unity government, INDAP's political, financial and technical roles were expanded as part of the agrarian reform process. After the 1973 coup the military government put an abrupt end to INDAP's political role of supporting the emerging class of peasant landowners. It was reduced to a small and extremely weak agency providing extension services and small loans to fewer than 15,000 small farms, although its coverage was expanded in the late 1980s to a total of about 25,000 beneficiaries. In 1978, INDAP pioneered the semi-privatization or outsourcing of extension services, in an arrangement in which private consultant firms were subcontracted and paid with public funds to deliver technical assistance to small farmers (Berdegué, 1998).

By the end of the military dictatorship in 1990, INDAP was limited to managing a rather small credit program and the outsourced extension service for small farmers. Its focus was strictly on providing on-farm support for improving yields. To be fair, between 1984 and 1990, many commodities of great importance to small-scale farmers were achieving rather favorable prices, so it made economic sense for these growers and their advisors to put their energy into improving their yields as a way to increase income.

[6] Not to be confused with his son, Eduardo Frei Ruiz-Tagle, who was President of Chile between 1994 and 2000.

INDAP's extension approach at this time was based on the Training and Visit system, promoted under the auspices of two consecutive World Bank loans that supported the 'voucher system' of semi-privatized extension. As has been described elsewhere in detail (Berdegué, 1998), after an initial period of minimum governmental supervision of the work of the extensionist that ended in disaster, INDAP's Technology Transfer Program became rigid in its approach, fixing such parameters as the numbers of farmers per extensionist, or the number of farm visits and field days per year per farmer, and valuing the number of activities conducted over the actual results achieved. Farmer participation did not enter into the picture at all, except where individual extensionists were bold enough to deviate from official prescriptions. The private consultant firms were selected and hired by INDAP through a restricted bidding system that excluded any agency (such as NGOs) that could be remotely suspected of not being sympathetic or at least neutral to the military regime.

During the military regime the formation of any sort of grassroots organization was strictly forbidden, so INDAP's extension approach emphasized working primarily with individuals. INDAP's loans were all given to individuals, never to an organization, and were mostly short-term to finance the direct cost of the annual production cycles. There were few and limited financial instruments to support long-term investments on-farm.

With the return to democracy, the new INDAP authorities pushed for a new law to allow the institute to work with farmers' organizations, and to provide new forms of support. As soon as the law was approved, INDAP declared that one of its three main objectives was to strengthen farmers' organizations (INDAP, 1992). These organizations were now allowed to be subcontracted by INDAP to deliver extension services to their members and other small farmers and began to receive short and long-term loans so they could carry out economic activities on their own.

The system of working through private organizations to deliver INDAP technical support services was maintained, but participation was immediately opened to NGOs, farmers' organizations, universities and to any other agency that could legally provide these types of services to small farmers. Extension methods were soon revised and updated.

However, between 1990 and 1993 or so, a tension arose in INDAP's work with farmers' organizations. This tension was between its social representation role (an important policy objective in the years immediately following the return to democracy), and its role as a platform for the economic development of its members. This debate not only touched the public sector institutes, but also the farmers' organizations, as well as NGOs, academic centers, and so on.

This debate was tied up with discussion about the basic strategy that Chile should take to support peasant agricultural development. On the one hand, some argued that public policies should emphasize broad social objectives and should develop institutional and economic barriers to partially isolate and protect small farmers from the effects of the country's free market policies. Others - myself included - thought that an agricultural or rural development policy going against prevailing trends and processes in the wider society and in the economy in particular, could not hope to succeed. Instead, we argued that development policies should create incentives, transfer assets, and support the emergence of new skills so that small farmers could have a better chance of being successful market agents.

The debate began to settle down as the crisis in traditional agriculture - in which most peasants were involved - worsened. With the accelerated opening of the economy and agriculture to international competition and the drop in the prices of most agricultural commodities for the domestic market, it became increasingly clear that unless action was taken peasants, and in particular those who were already market-oriented, would soon find themselves in an untenable position. The need to diversify away from traditional commodities and to gain new positions in the value-adding chain, was spontaneously recognized by a growing number of small farmers who started to loudly demand that INDAP reorient its support in that direction.

In 1992 INDAP and the Ministry of Agriculture approved an official document that called for the restructuring of the technical assistance services along those lines. By 1993 the training program for extensionists was revised to give top priority to learning about non-traditional crops. More or less simultaneously, a number of new technical and financial instruments were designed and approved to

stimulate the formation and strengthening of EACs as the key organizational platforms through which small farmers could link to new, more dynamic and profitable markets. A new Marketing and Agroindustry Department was formed in INDAP to support market studies and the formulation and evaluation of investment projects in those areas. A huge effort was launched jointly by INDAP and FOSIS to expand small-scale irrigation systems, essential if small farmers were to move away from wheat and potatoes into vegetables, fruit and flowers.

In 1994 a fresh INDAP administration strengthened this new approach through three strategies:

(1) an acceptance that the productive orientation of small-scale farming was market-driven (which, in the conditions of Chile at that time, meant among other things diversification away from commodities into non-traditional enterprises and value-adding);

(2) the replacement of the linear research-extension-farmer arrangement by more complex and diverse private-public networks and alliances, organized within a clearly-defined rural territory and geared towards giving peasant farmers access to a clearly identified 'market opportunity', and;

(3) the recognition of business-oriented farmers' organizations (EACs) as the primary social agents for peasant agricultural development policies (INDAP, 1994 and 1995).

At first, these strategies were implemented via Microregional Development Projects (INDAP, 1995); projects in which one or more EACs, operating in a well-defined territory, would interact with as many private and public agents as necessary to compete successfully in a clearly identified market. Each of these projects would involve a fairly large number of small farms (500 to 1000 or so). Instead of channeling its different technical and financial instruments individually, INDAP would provide all the necessary support in one single decision, against a well evaluated project proposal designed at the local and regional levels, with greater (but, in practice, limited) participation of the farmers through their EACs. Several of the EACs discussed in this book emerged from one of these Microregional Development Programs.

At about the same time, INDAP began working on what were unofficially called 'mega-investment projects', projects costing US$ 1 million or more, to develop the production, marketing, processing and organizational infrastructure required to give small farmers access to particularly demanding and competitive markets, such as processed fruit and vegetables or cut flowers for export. While working for INDAP in 1994, I was directly responsible for designing and implementing the first of these large projects (to produce top quality fresh vegetables for the upmarket supermarkets in Santiago). This project, and most others of its kind, failed miserably for reasons that will be discussed later.

By 1995 it was clear that the formulaic approach of the Microregional Development Projects was too rigid, given the diversity within rural areas. In particular, INDAP and the EACs soon learned that most market opportunities could not accommodate dozens or hundreds of small farmers, and that in many instances the relatively complex organizational arrangements were too cumbersome to manage and almost inevitably escaped the control of the farmers themselves, even when organized.

INDAP thus abandoned this last attempt to apply a formula to implement its strategies. From then on, any arrangement would be supported provided that: (a) it was based on an EAC, and (b) it was market-driven and market-oriented.

Since INDAP was already working with over 100,000 households by 1994, the integration of individual farmers into the new scheme was necessarily gradual, if nothing else because of the limitations of human and financial resources. A given local group of farmers - usually working with one of the private extension consultants - would first receive partial support for two or three years to gradually develop a market-oriented project and an EAC. After that period of time, if the group did not manage to achieve these objectives, INDAP would discontinue its support. This policy decision proved to be a grave mistake since it induced farmers to artificially form EACs even when they did not need or want one, or simply needed more time for their project to mature. Those farmers who did form an EAC (nearly all of them, given the incentives), could then benefit from better technical and financial support to implement their market-oriented project.

INDAP's programs and instruments

INDAP has developed a large number of programs and instruments to deliver the basic strategies outlined above. Table 1.1 briefly describes the main programs and instruments operating in 1999.

One INDAP policy instrument used by many EACs to launch their projects was the Contest of Projects for the Modernization of Peasant Agriculture (Table 1.1). Instead of having to apply to each program separately, an EAC could enter a project into this contest. Their application could include funding for all types of technical and financial support required to launch their market-oriented project: legal services, technical assistance, management and administration staff, working capital, long-term loans to buy, build or equip any sort of productive, marketing or processing infrastructure, market studies, etc., without limit. When an EAC expressed its interest in participating in the contest, INDAP would hand out a grant so that it could hire the technical staff necessary to formulate the project proposal. The recipient of these grants and loans would be the EACs themselves, who of course retained the full right to select and hire whatever technical or managerial staff they required for their project. About 940 of these proposals were approved between 1995 and 2000[7]. Many of the EACs studied for this book launched their projects using this facility.

The effectiveness of this instrument was constrained by inadequate and insufficient human resources within and outside INDAP to formulate good market-oriented projects and to then be able to distinguish the good ones from the bad ones. In addition, very often when the technical staff rejected a project proposal during the evaluation phase, the EAC would use their newly acquired political power to publicly denounce this result, in many instances forcing a reversal of the technical decision.

All of the policies and programs listed in Table 1.1 were possible thanks to the sustained growth of the INDAP budget, growing at an average annual rate of about 6% in Chilean pesos, adjusted for inflation. In 1998, INDAP had a budget of US$ 164 million, nearly two-thirds of the total budget of the Ministry of Agriculture.

During President Eduardo Frei's term (1994-2000), INDAP spent or invested close to US$ 900 million to support about 150,000 small farmers and their households[8]. Of this amount, about 6% corresponds to long-term loans and 4% to short-term loans to rural organizations (including EACs, but not restricted to them). Approximately two-thirds of the loans to rural organizations were allocated through the Contest of Projects for the Modernization of Peasant Agriculture. Slightly more than one-third of the budget during 1994-2000 was allocated to individual small farmers - of which about 40% were EAC members - through long and short-term loans (37% and 63%, respectively). An additional 15% financed the cost of the technical assistance services provided by private subcontractors, in many cases the EACs themselves. About 8% of the budget is spent on a number of subsidies to EACs, other rural organizations and individual farmers, for a number of professional services (e.g., market studies and evaluation of investment projects) and farm and off-farm investments. INDAP's administrative overhead is around 19% of its budget, and about 10% goes to paying the foreign debt of the Institute (essentially the World Bank loans). The remaining 5% is spent on a number of smaller programs.

Around 33% to 40% of INDAP's annual budget is financed by the recovery of loans to farmers and organizations, a similar proportion through fresh funds from the Ministry of Finances, 14% through foreign loans, and the rest through the sale of INDAP assets and various other sources.

[7] Plus an additional 400 that were approved under individual projects.

[8] These and the following budget data come from the Annual Reports published by INDAP. The annual accounts are audited by the National Comptrollers Office and can be trusted to closely reflect actual expenses.

Table 1.1 Programs and instruments operated by INDAP in 1999

Area	Program or instrument	Description
Financial services	Short-term loans to individuals	Finances all types of annual crop and animal production expenses, with loans up to US$ 7,772 and an annual interest rate adjusted for inflation of 7.8%
	Short-term loans to organizations	Finances all types of annual crop and animal production, marketing, and processing expenses. There is no maximum limit to the amount that can be lent. The interest rate is the same as that for individual loans.
	Long-term loans to individuals	Finances all types of investment projects related to agricultural production, marketing, processing, machinery, equipment, buildings, etc., up to US$ 18,660. The annual interest rate adjusted for inflation is 7.8%
	Long-term loans to organizations	Finances all types of investment projects related to agricultural production, marketing, processing, machinery, equipment, buildings, etc. There is no maximum limit to the amount that can be lent. The annual interest rate adjusted for inflation is 7.8%
	National Contest for the Modernization of Peasant Agriculture	Competitive fund that in a single decision allocates all the forms of support necessary to carry out a predefined development project. The contest gives priority to projects that will allow a farmer or group of farmers to carry out innovative economic activities. The project investments are financed with 75% long-term loans, 15% in a direct subsidy to offset the risk of innovation, and 10% that is contributed by the beneficiaries. The professional services required by the project are subsidized with up to US$ 500 per direct participant. INDAP also subsidizes the cost of the professional services required to prepare the project proposal.
	Irrigation and Drainage Program	This program operates under two arrangements: (a) Direct financing of minor projects, in which INDAP allocates up to US$ 3,111 per project in the form of a direct subsidy to the beneficiaries. (b) Law 18,450. This law established a subsidy to stimulate private investments in irrigation or drainage by any farmer in Chile; the subsidy is administered by a special agency, and funding is allocated through a competitive system. To facilitate the access of small farmers to the benefits of this law, INDAP subsidizes the cost of the engineering and economic evaluation studies, and then provides a bridging loan of up to US$ 750,000 per project. INDAP is paid back by the farmers after they receive the subsidy established by this law, once the irrigation or drainage system is built according to specifications.
	Program for the Development of Small-scale Animal Production Systems	This program, known as BOGAN, provides a direct subsidy to projects that involve: (a) improvement of infrastructure for animal production or for processing and marketing of animal products (up to US$ 3,111 for on-farm investments, and up to US$ 31,000 for off-farm associative projects), and/or (b) improvement of the herds (up to US$ 1,867 per farmer).
	Program for the Recuperation of Degraded Soils	This program subsidizes investments carried out by small farmers to control or revert soil degradation processes. It considers several different subprograms, such as restoration of natural pastures or building of works to control soil erosion. Depending on the nature of the investment, it subsidizes between 50% to 80% of the total cost, with a maximum of US$ 6,900 per farm. To access this program, the farmer must submit a Soil Management Plan. The subsidy is allocated after the plan has been implemented according to its specifications. INDAP can give a loan to the farmer to carry out the investments, and the loan is paid back with the subsidy.
	Subsidy for Financial Articulations	The purpose of this subsidy is to stimulate private banks to give loans to small farmers. The subsidy offsets the higher transaction costs of lending to a small farmer. Through a system of public biddings, INDAP gives a subsidy of US$ 175 per client to the private banks.

Area	Program or instrument	Description
	Forestry Subsidy	Law 19,561 establishes a subsidy to stimulate forest plantations and management. The subsidy is administered by another agency. The subsidy is allocated once the project has been implemented according to specifications. In the case of small farmers, INDAP provides a bridging loan so they can carry out the project. The loan is paid back with the subsidy. The amount of the loan (and subsidy) differs according to regions and types of forests, but in the case of small farmers it is calculated so that it can pay up to 75% of the total cost of planting up to 15 hectares per farmer.
Professional and technical services	Entrepreneurial Advisory Services	This program subsidizes the cost of the advisory services provided to small farmers or their organizations by private subcontractors (private consultants, NGOs, farmers organizations, universities or technical departments of municipal governments). The program includes three main arrangements: (a) Local Advisory Services (SAL), pays up to 90% of the cost of the professional services, with a maximum of US$ 373 per farmer. It is aimed at supporting local informal groups who for the first time receive technical assistance and who, in a period of up to two years, must formulate a concrete market-oriented development project. (b) Advisory Services to Projects (SAP), pays between 90% (year 1) and 70% (year 5) of the cost of the professional services, with a maximum of US$ 560 per farmer. It is designed to support the implementation of the projects formulated during the previous two year phase. (c) Specialized Advisory Services (SAE), provides an annual subsidy of up to US$ 68,500 per economic organization, with a ceiling of US$ 311 per member. SAE is allocated to formal economic organizations (EAC) that are already involved in the full implementation of their business. In all cases, the professional services can be of whatever nature is required by the group, organization or project, including agronomists, business managers, etc.
	Management Centers (CEGE)	The CEGE are specialized units that provide management and administration services and advice to economic organizations. The CEGE are owned by one or more farmers' organizations, but the services are subcontracted to qualified agencies such as universities. The costs of the CEGE are variable and are almost fully subsidized by INDAP, although the CEGE is expected to generate income.
	Fund for Entrepreneurial Development (FODEM)	This subsidy is allocated through a competitive bidding process. It pays for the costs of specialized external advisors who help farmers' organizations carry out a diagnosis of strengths, weaknesses, opportunities and threats, followed by the formulation of Strategic and Business Plans. The whole process can last for up to two years. The amount of the subsidy varies.
	Fund to Support the Development of Farmers Organizations (GESTOR-FONDAC)	This instrument subsidizes the cost of the advisors and facilitators involved in the initial development stages of an economic organization. It can pay for such activities as participatory diagnosis and planning, training, training of leaders, legal costs, and so on.
	INDAP-TELEDUC Training Program	A TV-based distance education program implemented in coordination with a specialized department of one of the most important universities. It is aimed at farmers who are already receiving the support of the Entrepreneurial Advisory Services, and it focuses on farm management and administration. Between 1997 and 1999 it trained 12,000 farmers, with a total cost of US$ 1.3 million.
	INDAP-PRODEMU Training Program for Rural Women	This program is run in collaboration with another specialized agency. It organizes training workshops to develop skills, mostly in income-generating non-farm activities. Between 1996 and 2000 it trained 22,000 women with a per capita cost of US$ 160.

Area	Program or instrument	Description
	Price and Markets Information System	This system is managed by a network of national and regional agencies. It provides price and market forecasts for all major products of small-scale agriculture, as well as several regional daily price and market bulletins which can be accessed by phone, fax or the Internet. The bulletins are also faxed daily to many EACs who usually post them on a bulletin board for public consultation.
	Local Development Service for Poor Rural Communities (PRODESAL)	PRODESAL is the standard program providing technical assistance to poor and extremely poor households, at a cost of US$ 250 per household. Each PRODESAL unit is managed by the municipal government. The services are provided by private subcontractors, who carry out activities in three main domains: agricultural production, natural resource management, and facilitation of access by poor households to any type of economic development program or social service provided by the government or the private sector. In 1999 PRODESAL was working with about 20,000 households through 166 Cooperation Agreements with municipal governments.
	Chile Norte and Chile Austral Projects	These two projects provide services to 1600 households in poor rural areas in the extreme north and south of the country, at a total cost of US$ 1.1 million, donated by the European Union.
	Project for the Development of Peasant Communities in Region IV (PRODECOP-IV)	PRODECOP-IV is partially funded with a loan from the International Fund for Agricultural Development (IFAD). It provides technical and financial services to some of the poorest rural communities in Chile, benefiting 7,400 households at a total cost of US$ 14 million. Two of its strongest areas are natural resource management and the development of rural micro-enterprises, some of which have had considerable success. It pioneered an institutional innovation called CDL (Local Development Committees), which bring together multiple stakeholders under the umbrella of the municipal government, to plan and direct local development strategies and activities. The CDL have been adopted by other INDAP programs. In the year 2001 it received a prize from the Ford Foundation for *"institutional innovations in the fight against poverty"*.
	Project for the Development of Peasant Communities in the Dryland Areas (PRODECOP-Secano)	PRODECOP-Secano is partially funded with a loan from the World Bank. It provides technical and financial services to 8,000 poor households in the dryland areas of six regions, at a cost of US$ 15 million. It focuses on natural resource management and the development of small-scale irrigation systems linked to productive diversification projects.

Over the past seven years or so, the main budget trends relevant to our discussion have included:

- a continuous growth that has more than doubled the proportion of loans given to organizations as opposed to individual farmers, especially those allocated through competitive mechanisms;
- a higher rate of growth of long-term loans compared to short-term credit;
- a higher rate of growth of subsidies to EACs and individuals to pay for professional services and investments, compared to financing through loans.

1.4 Organization of the book

After this introductory chapter, this book is organized as follows:

- Chapter 2 reviews the literature and presents the conceptual framework on which this research is based.
- Chapter 3 outlines my research methods.
- Chapter 4 describes the EACs, based on a survey of 424 organizations.

- Chapter 5 analyzes the characteristics of EAC members in terms of their households and farms, and compares them with a control sample. It also analyzes the variables that affect the probability of a small farmer joining an EAC.
- Chapter 6 assesses the impacts of EAC membership on farms' economic performance and on the income of participating households.
- Chapter 7 analyzes the balance sheets and income statements of 410 EACs, to understand their financial sustainability.
- Chapters 8 to 12 look at several case studies to analyze the factors that have led to the relative success or failure of 14 EACs. Here I present and discuss the relationship between EACs' institutional and economic performance and their sustainability. The case studies have been arranged in different chapters based on the types of products, activities and markets involved:
  - Chapter 8: milk collection centers who sell their production to small and medium-sized cheese factories;
  - Chapter 9: milk collection centers working with contracts with large dairy agribusiness firms;
  - Chapter 10: EACs marketing potatoes for the wholesale market;
  - Chapter 11: cooperatives marketing fresh vegetables, and;
  - Chapter 12: EACs processing and marketing raspberries.
- Chapter 13 discusses the main conclusions of this research.

1.5 A word about myself and the subject of this book

I warn the reader that I do not write this book as an external and detached observer, but as someone who has been thoroughly involved in, and committed to supporting, designing and implementing the public policies and programs for developing these EACs. Between 1984 and 1990, during the years of the military dictatorship in Chile, I worked for an NGO that carried out various farming systems research and development projects; our experience, together with that of many other NGOs and a few of the surviving local rural organizations, provided many of the initial ideas for the agrarian program of the democratically elected government inaugurated in 1990.

In 1989 I was a member of the Agrarian Commission in charge of preparing the Program of Government of Mr Patricio Aylwin (President of Chile 1990-1994), and coordinated the committee to design the governmental program for rural development and small-scale agriculture. At that time, many of us were already saying that the major macroeconomic and institutional changes occurring were largely irreversible and that we therefore needed to implement strategies that challenged the conventional way of promoting rural and agricultural development, especially those most directly affecting small-scale farming. It seemed clear that small-scale farmers would increasingly have to compete on the domestic and international markets, and that it was folly to think that rural and agricultural development policies could be powerful enough to protect peasants from the wider macroeconomic and institutional context. In addition, we argued that most small farmers would never compete with large-scale capitalist producers by continuing to focus on increasing their productivity in traditional agricultural commodities.

In 1991-1992, I coordinated a public-private Commission based at the Ministry of Agriculture. Its aim was to reform one of the main small-scale agriculture policy instruments, INDAP's Technology Transfer Program (PTT). This Commission was the first to target public policy and its instruments at the 'reconversion' of small-scale agriculture. This process was actively supported by the public sector, and aimed to strengthen the individual and collective capacities of small-scale farmers, and to give them effective access to the different markets for goods and services. The ultimate aim was for small farmers to achieve adequate levels of competitiveness in a market-oriented and globalized economy. This policy had four areas of action, each aimed at overcoming one of the obstacles to small farmer

competitiveness:

(1) *Markets:* emphasizing the need to improve small farmers' market orientation and marketing options, particularly supporting value-adding and processing of their primary products;

(2) *Technologies:* including what we called 'hard' (primary production focused) and 'soft' (management and administration focused) technologies. They all aimed to help small farmers move away from traditional commodities towards new farm enterprises;

(3) *Financing:* substantially increasing the flow of long-term funding, through loans and subsidies, to support the investments required to reconvert small-scale agriculture towards new and more profitable enterprises; and

(4) *Organization:* developing strong economic organizations to allow small farmers to overcome their limitations of scale of production, access to all sorts of resources, lack of political power, and so on.

Between 1992 and 1995 I was INDAP's Chief of Agricultural Development, a position more or less equivalent to being Director of Operations. Under two different National Directors, I was part of a group of people responsible for designing and managing the policies and programs dealing with technology, marketing, agro-processing, irrigation and credit for small-scale farmers. This job gave me major responsibility for implementing the reconversion strategy for small-scale agriculture.

Many changes, large and small, were implemented during those four years. As this book will show, many of them led nowhere due to poor diagnosis, bad design, faulty implementation or friction with the surrounding contexts, policies, institutions and organizations. In many instances, I had direct or even sole responsibility for these mistakes. But I think that most observers would agree that the many hundreds of people involved in promoting these changes, did manage to change the nature of the development policies that supported small-scale farming, to the extent that today very few would want to return to the old policies and strategies. There is of course a lot of discussion in agrarian circles in Chile today, but by and large that debate centers on *how* to do things in a better way, with very few questioning what needs to be done. Few would argue with Rafael Castro, the member of the EAC El Sobrante, when he says that given the macroeconomic and institutional context, small farmers have to change to survive. Public policies should aim at stimulating and supporting this change.

Since leaving INDAP in 1995, I have worked for RIMISP (the International Farming Systems Research Methodology Network), a Latin American network of public and private research and development organizations with projects in several countries in the region. Together with several collaborating institutes, RIMISP has been evaluating some of the programs in Chile which I helped to design. Part of the field data and information on which this book is based was obtained as part of those studies.

CHAPTER 2. CONCEPTUAL FRAMEWORK

2.1 Introduction

This study aims to understand the economic and institutional performance of EACs in Chile and their impact on their small farmer members. This is an important objective because 10 years into a new government strategy for small-scale agriculture - in which EACs figure prominently – there are clear signs of trouble. As will be shown in Chapters 5, 6, and 7, many of these EACs have failed and their contribution to their members' competitiveness and welfare is not as strong as we had expected a decade ago. Understanding the conditions under which these EACs can perform well will inform the debate on how to improve future public policies and programs for small-scale agriculture in Chile.

I have taken a multi-disciplinary approach to this research. This includes various theoretical perspectives on the economic behavior of individuals and firms, on the institutional conditions for economic cooperation, and on the networks and learning processes required for EACs to succeed in their commercial ventures.

Critiques by Niels Röling and colleagues of the linear paradigm of agricultural innovation and Röling's concept of Agricultural Knowledge and Information Systems (AKIS) underpin my analysis of the public policies that facilitated EAC emergence in Chile from the mid-90s, as well as for conceptualizing the networks in which they participate as (potential) multi-agent soft systems (Röling, 1988; Röling and Engel, 1991, Röling and Jiggins, 1998). Closely associated with this theoretical tradition, the notion of social learning (LEARN Group, 2000) has allowed me to interpret the process through which some EACs develop effective networks and systems of rules to govern their own and their members' performance.

From neo-institutional economics (North, 1990, 1996; de Janvry and Sadoulet, 1998, 2001; Stiglitz, 1986; Bardhan, 1989b; Williamson, 1985) I have used the concept of transaction costs to structure my analysis of the market conditions under which EACs can succeed and make a contribution to the economic performance of their members as independent small farmers.

I apply the theory of social capital (Putnam, 1993; Woolcock and Narayan, 2000; Uphoff, 1999) to analyze how the norms, values, attitudes and beliefs that predispose people toward cooperation have affected EACs' perfomance. I also draw on that theory to understand how roles, rules, precedents, procedures and social networks facilitate cooperation and collective action (Uphoff, 1999).

From Ostrom's (1990, 1992, 1999) comparative institutional analysis I have taken the concept of design principles of institutionally robust organizations for collective action, to structure my analysis of EACs' internal systems of rules and of how such rules condition the performance and effectiveness of these organizations.

In the sections which follow I first analyze the limitations of the conventional linear approaches to small farmer agricultural development. I then discuss the market conditions under which EACs can improve their members' farms and the welfare of their households. Next I discuss the roles of multi-agent networks in the emergence and performance of EACs. Finally, I look at how social capital and, in particular, internal systems of rules, affect the emergence and performance of EACs.

2.2 Cochrane's treadmill and the Chilean response

EACs in Chile are part of a broad set of programs to help small farmers escape *"the agricultural treadmill"* (Cochrane, 1958, 1979). This concept can be explained as follows. A large number of farmers produce the same undifferentiated product. None of them is large enough to influence market prices, and all are price-takers. Those who are early adopters of new technologies can raise their productivity and make a windfall profit. The new technologies eventually diffuse to many farmers,

average productivity rises, production levels increase, and prices drop. The main effect of late adoption is essentially to reduce prices, and hence, the profits of all farmers. The cycle goes on and on. Those farmers who lag behind in the continuous adoption of new technologies are unable to compete on this treadmill and are eventually forced out of the market.

Cochrane's theory originally applied to products that face low elasticity of demand. Sunding and Zilberman (2001) argue that late adopters will also be driven out of the market when agricultural commodities have high elasticity of demand. This is because increased profitability caused by the introduction of a new technology will increase land rents, thus reducing the profits of late adopters and increasing those of early adopters.

Ultimately this type of technological change leads to the accumulation of resources by a minority of farmers who have the assets and capabilities to lead the innovation process, while the majority migrates out of agriculture (Sunding and Zilberman, 2001). Firms producing the technologies also benefit from Cochrane's treadmill, since, recognizing the dynamics of adoption, they will adjust their economic behavior accordingly and take advantage of their monopolistic power (Stoneman and Ireland, 1983).

The vast majority of Chilean small farmers produce just a few commodities: wheat, maize, sugarbeet, potatoes, and grain legumes. The very limited support programs for small-scale farming that survived the dictatorship years were totally focused on improving yields. INDAP's Technology Transfer Program (PTT), loosely based on the Training and Visit system, was completely oriented to this goal. Extensionists essentially spent most of their time promoting a few simple technologies (fertilizers and improved varieties, and sometimes, planting dates and weed control practices) that research had identified as solutions to the main yield-limiting constraints of the major crops. Subsidized credit programs provided partial funding to purchase those inputs. Extension and credit were made available to small farmers who were thought to be 'viable' (a term that was explicitly used by public officials until 1990) under market conditions.

The support policies for small-scale agriculture that began to take shape in the early-90s, after the return to democracy, have aimed to help farmers escape Cochrane's treadmill by stimulating their diversification away from undifferentiated products[9].

Röling et al. (1998) and Hubert et al. (2000) have analyzed the symbiotic relationship between Cochrane's agricultural treadmill and the assumption that innovation can be stimulated by delivering to farmers standardized technology packages developed by research systems. They have highlighted the critically important undesirable effects that have resulted from the emphasis on high yields, such as the intensification of the environmental impacts of agriculture, the loss of biodiversity, threats to consumer health, and the disruption of regional economies and rural communities. They have also argued that the conventional linear paradigm of agricultural innovation cannot deal with the complex problems facing many small-scale farmers. Complex problems and objectives cannot be tackled through the adoption of ready-made solutions, but through concerted action involving social learning by a wide diversity of actors.

Such was the task at hand in Chile. Breaking away from the perception of small farmer development involving increasing yields of agricultural commodities, demanded much more than simply transferring a different set of technologies. To begin with, it involved facilitating the emergence of a shared new perspective on agricultural development among a diverse group of actors (farmers, extensionists, researchers, and government officials). It also required networks to be built linking rural communities with market agents (agroindustries, export firms, commercial banks) who were often perceived by small farmers, extensionists and government officials, as threats, rather than potential partners. This effort meant building new types of organizational platforms for new forms of

[9] This was always seen as a necessarily gradual process as small farmers lacked the resources to make a complete transition out of commodities and into new enterprises, value-adding and marketing activities, and markets. The assumption was that if small farmers take the first step towards a new venture, that - coupled with proactive public policies and support programs - would create the incentives and generate the capacities to sustain the process.

market-oriented collective action; such platforms were not traditional institutions among Chile's rural people. It required new concepts and methods to facilitate these processes to be learnt by extensionists who knew how to teach farmers 'how to do' things, but little of how to support communication, learning, and iterative decision-making processes in uncertain environments.

Thus extensionists were no longer expected to deliver ready-made technologies to 'beneficiaries'. They were now expected to engage with local farmers' groups and other stakeholders to identify market opportunities, and to design and implement 'medium-term plans' (with a three to five year horizon) to facilitate concerted action so as to achieve their objectives. The extensionists' 'annual work plans', with their detailed lists of farm visits, demonstration plots, and field days, were simply thrown away. To be sure, the initial alternative designs were still based on the notion that new technical knowledge and leadership 'delivered' to rural communities and organizations would be the key to solving their problems. But it did not take long to learn that this assumption was very wrong. Extensionists and government officials jumped into the fray unarmed, lacking the necessary skills needed for these new circumstances. Even today, this problem continues to have dire consequences.

Yet, only one year after launching the new approach, a review of the 'medium term plans' showed that 42% of the 1,109 small farmers' local groups participating in the extension system were intending to introduce new commercial crops and farm enterprises; 47% were engaged in marketing activities; and 11% had set up the facilities to add value to primary products before reaching the market (Berdegué and Marchant, 2000). A 1997 impact assessment study of the small farmers' extension program using data from that season concluded that 48% of the participants (compared with 25% of the non-participants) had started to diversify their farming systems away from commodity production (Ministerio de Economía and Ministerio de Agricultura, 1998).

To support this process, new programs were created to substantially expand irrigation on small farms (indispensable for the production of vegetables, fruits, flowers, vegetable seeds, and so on); to provide long-term loans and subsidies to finance farm and off-farm investments; to support market studies and the evaluation of investment projects, etc.

Traditional commodities did have one advantage: practically any small farmer acting alone could sell his or her production. This was not so simple when the product was flowers or raspberries, rather than wheat, especially if the farmer wanted to grade, process, package, or label the raw products before taking them to market, or if he or she wanted to enter into long-term contractual arrangements with supermarket chains or medium and large agroindustries and export firms. EACs were needed as the basic organizational platforms for carrying out value-adding activities and accessing the new markets.

I therefore define an EAC as a legally constituted organization whose members or owners are exclusively or mainly small farmers and peasants who control the decision-making process in the organization, which carries out marketing or value-adding[10] activities directly linked (upstream or downstream) to its members' primary production, and whose main purpose is to improve the performance of its members' farms as economic units that engage in market transactions[11].

This definition contains one important difference from the critiques of the agricultural treadmill and the linear paradigm of agricultural innovation by Röling et al. (1998) and Röling and Jiggins (1998). They disagree with the notion of economic competitiveness as a guiding principle of agricultural

[10] For the purpose of this study, I use the term 'value-adding' in the broad sense of the business strategy and management literature, to include actions along the chain from farm production through distribution, processing and marketing, with the goal of differentiating products for specific market segments. According to this view, value-adding is not limited to downstream (from the farm) processing activities that transform a raw product, as it can also include actions upstream, at the farm level, and downstream, and not only restricted to processing.

[11] Although applicable to Chile, definitions similar to this one have been adopted in other countries, even some with very different conditions. For example, the Committee for the Integration of Peasant Economic Organizations of Bolivia (CIOEC-B) in a recent document demands the development of a legal framework that can accommodate *"all the peasant organizations that are formed to participate in the transformation, industrialization and marketing of rural production."* (CIOEC-B, 2000, p. 2).

development. This is not the case in my approach. In my view, achieving competitiveness is necessary if small-scale agriculture is to become a viable social and economic sector in Latin America (Berdegué and Escobar, 1997). Stepping off the agricultural treadmill does not imply doing away with economic rationality (Petit, 2000), but mobilizing, through social learning and adaptive management, those characteristics of small-scale farming and rural communities which can become competitive advantages *vis-à-vis* certain differentiated products and markets.

2.3 Market conditions under which EACs can be effective

Implicitly or explicitly, peasant agricultural development strategies assume that if peasants organize, they will be better off than if they don't. At a general level, this thesis of rural development is correct.

In Latin America, where societies are characterized by such high inequality and exclusion, peasants are subject to economic, social, ethnic and political discrimination (and increasingly in many rural areas given the feminization of agricultural labor, to gender discrimination as well). Any effort to redress this condition requires the state to strengthen the bargaining power of the less favored. We have seen in the past 20 or 30 years that strategies based on direct intervention in the economy were usually hi-jacked by the politically and economically powerful: *"... without political and social empowerment, which is by no means indifferent to economic performance, it is foreseeable that under the new conditions of deregulation and flexibility in production organization, the farmers and the rural poor - without the strength of a democratic organization and participation - will face greater disadvantages resulting from the opening of the economies and the influence of entrenched local powers"* (Gordillo, 1999, p. 3).

Latin American agrarian markets are notoriously imperfect or non-existent. In this environment, the value and productivity of poor people's assets are significantly reduced. It has been shown that farmers' and rural organizations can at least partly substitute for these imperfect or missing markets (de Janvry and Sadoulet, 2001; Stiglitz, 1986, 1989).

It has also been argued that as rural markets become more liberalized and integrated into the global economy, local communities will need to develop new skills for interacting - often impersonally - with a broader set of actors whose decisions and actions will undoubtedly have growing repercussions for their own livelihoods (Berdegué and Escobar, 1997; Bebbington, 2001). Traditional local institutions[12] are unlikely to be able to structure these new interactions. The new rural economic organizations, often closely linked to, or embedded within traditional social structures, provide local communities with the networks required to operate in an increasingly global context.

However, these general statements do not ensure that an individual EAC will always be effective in meeting its members' needs. It is this gap between the general and the specific that my research aims to address.

As the above definition of an EAC makes clear, the purpose of these organizations - recognized as such not only by public policies but also implicitly or explicitly by most farmers and farmers' leaders whom I have talked to - is to improve the economic performance of members' farms as economic units engaged in market transactions. It is important to discuss the market conditions under which an EAC could theoretically achieve this purpose.

2.3.1 Overcoming transaction costs

The first factor to consider is that participating in an EAC is not a cost- or risk-free option. The fact

[12] Institutions are *"the humanly devised constraints that shape human interaction. They are made up of formal constraints (rules, laws, constitutions), informal constraints (norms of behavior, conventions and self-imposed codes of conduct), and their enforcement characteristics"* (North, 1996, p. 344).

that most farmers in Chile have not joined EACs (Chapter 5) is no accident. Aside from the tangible costs of participation (membership fees and so on), farmers who join an EAC have to evaluate the likely outcome of their participation, which in turn depends on the behavior of their co-members. Participation may open new options to the members, but they also lose flexibility in certain areas of decision-making, where 'sovereignty' is transferred from the individual household to the collective. Game theory and the concepts of *"the tragedy of the commons"* (Hardin, 1968), Prisoner's Dilemma (Dawes, 1973) and *"logic of concerted action"* (Olson, 1965), show that under many circumstances individuals' narrow self-interest will undermine collective action. Factors external to the organization also add to the risk involved in participating in a collective action initiative, such as, for example, the volatile nature of certain markets, the consequences of new trade agreements, or the changes in the political climate. The experience of Chilean small farmers' organizations over the past three decades is a reminder of the likelihood of failure, and its serious and enduring consequences.

Core benefits

Thus EACs need to offer clear benefits to members to offset the tangible and intangible costs of participation. Sexton and Iskow (1988) argue that voluntary organizations such as agricultural cooperatives will only be successful if they provide benefits to their members in excess of what is available elsewhere. They also argue that such organizations offer no advantage in the context of a competitive market, i.e., one where there are (a) a large number of buyers and sellers that preclude collusion; (b) no barriers to entry and exit; (c) no product differentiation, and; (d) equal availability of all relevant information to all market agents.

Ruben (1997, p. 315), in his study of land reform cooperatives in Honduras, takes a similar position: *"there is no reason to belong to a cooperative organization if income and employment expectations cannot be satisfied. Cooperative farms are first and foremost economic organizations that should contribute to the satisfaction of the members' objectives"*. Under the conditions of his study, Ruben found that these cooperatives were responses to labor and commodity market failures, and that their principal function was to protect small farmers from risk by offering a set of contractual choices between collective and individual production, or what he calls a *"modernized version of the well-known sharecropping agreement"* (Ruben, 1997, p. 305). Yet Ruben concludes that a competitive market environment is one of the major external factors required for these cooperatives to succeed, and that, on the contrary, market environments characterized by high transaction costs[13] and high risks are a failure factor.

De Janvry and Sadoulet (1998) analyzed a number of disadvantages faced by smallholders wanting to integrate into markets, all of them related to market imperfections:

- undefined or weak land property rights;
- lack of formal collateral limiting their access to credit markets;
- risk coping through costly mechanisms that are ineffective under certain circumstances, such as large shocks;
- lack of insurance markets that drive households into risk management strategies that reduce the return of their economic activities;
- shallow markets with high negative covariation between production and prices;
- high unit costs in market transactions, and
- land markets biased against smallholders.

[13] Transaction costs are *"the costs of measuring the valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements"* (North, 1990, p.27).

In addition to these market failures, there are other disadvantages that relate to new markets' standards requirements, with implications for technologies and equipment (refrigerated trucks, special warehouses, processing equipment, etc.), and for knowledge (managers, traders, specialized technology advisors, legal advisors, accountants, and so on). The stronger the market imperfections, the higher the transaction costs faced by small farmers, to the point where they may be driven out of the market altogether and forced to rely instead on non-market institutions.

Holloway et al. (2000) argue that small-scale milk producers in East Africa face large transaction costs that preclude their participation in the milk market. These include: high marketing costs, the dispersion of milk markets, and the high risk of marketing perishables under those conditions. Their study confirms that the establishment of milk collection centers increases smallholders' participation in fluid milk markets, in part by reducing transaction costs. Yet these institutional innovations are by themselves insufficient to catalyze entry into the market, and they need to be accompanied by the provision of other inputs, including infrastructure and assets accumulated by the households.

As transaction costs increase with a specific product and market, one would expect to observe an increasing impact of EAC membership on various household or farm-level indicators. Non-traditional agro-exports are widely considered to have high transaction costs due to complex contractual arrangements, high labor supervision costs, high production and marketing risks, and the need for a plethora of costly inputs. Carletto et al. (1999) studied the diffusion of non-traditional agro-exports in a number of villages in the area of influence of a peasant cooperative. The average time to adoption was three times longer for non-members than cooperative members, and the former tended to withdraw from these crops much sooner than members. The authors conclude that *"the cooperative was thus the fundamental institutional mitigating factor to small holder bias in adopting [non-traditional agro-exports], in a context of transaction costs and imperfect information"* (Carletto et al., 1999, p. 366).

In Chapter 6 I discuss the impacts of membership on members' household and farm incomes, and in Chapters 8 to 12 I explore this through 14 case studies. These analyses will show that an EAC's impact depends on the product and the market. Thus, I will now link the above discussion to the specific products and markets included in my research. Table 2.1 summarizes the main points.

Wheat and potatoes

Table 2.1 shows that of the six products and markets relevant to my study, two (wheat and potatoes) have very low transaction costs, as these markets are among the closest in Chile to being perfectly competitive. Both products are undifferentiated commodities; large numbers of buyers and sellers congregate in their markets; there are no entry or exit barriers for those farmers wanting to trade, even if they have small amounts of product; and information about all relevant market conditions is widely available to all traders.

Given the nature of these commodity markets, what could an EAC offer to farmers to make them choose to sell their harvest through the organization rather than through a middleman? By pooling the production of a number of farmers the EAC could theoretically help them achieve economies of scale in the spot market. But most EACs in Chile are way too small to achieve this goal. A single medium-sized commercial potato farmer, for example, will produce more potatoes than 75 to 100 of the small farmers who typically make up an EAC's membership. To achieve economies of scale, an EAC would need to organize and coordinate the production of hundreds of small farmers. However, if the farmers live in remote and inaccessible areas, it is likely that a very small number of buyers can impose prices that are significantly lower than market prices; under these conditions an EAC will be able to offer some clear advantages.

By and large, however, one would expect farmers to derive few, if any, benefits from participating in EACs set up to market undifferentiated products in these spot and wholesale markets. To make a difference in such a context, an EAC would have to engage in value-adding activities, such as grading, packaging and/or labeling potatoes to sell to supermarkets, restaurants or fast food chains rather than in spot markets. In this case, the situation is very similar to that of fresh vegetable producers discussed

Table 2.1 Factors influencing transaction costs in selected products and markets in Chile

Product traded by EAC	**Wheat**	**Potatoes, bulk**	**Milk, fluid, precooled, with quality control**	**Vegetables, bulk**	**Vegetables, graded, packaged and labeled**	**Raspberries, graded, processed (frozen), packaged and labeled**
Market in which EAC operates	Wholesale, local or regional mills	Wholesale market in main cities outside the region	Large processing plants	Wholesale market in large city in the region	Supermarkets	Processing and export firms International markets
Alternative markets theoretically available to individuals	None	Middlemen who buy on the farm Wholesale market in main cities	Middlemen who buy on the farm Informal retail market in nearby cities with door to door delivery	Middlemen who buy on the farm Wholesale market in large city in the region	Middlemen who buy on the farm Wholesale market in large city in the region	Middlemen who buy on the farm
Mechanism through which market prices are set	International prices, moderated by national price band system. Reference price announced prior to planting season	Supply and demand with thousands of producers and hundreds of buyers	International prices, with charges of collusion between few large firms dominating the market	Supply and demand with thousands of producers and hundreds of buyers	Supply and demand, with price reference given by wholesale market	International prices
Price advantage to farmer of EAC's actual market vs alternative markets for single individual	None	Net price to farmer is higher in alternative market since intermediaries do not deduct value added tax. Advantage is even higher if farmer takes crop to wholesale market	High if EAC can meet industry quality, volume and seasonality standards	No less than 30% to 100% higher	Up to 100% higher	Low due to very high competition for product, particularly if of good quality, and because middlemen do not deduct value added tax
Barriers to individual small farmers accessing EACs' markets	None	None	Very high. Processing firms will only buy precooled, quality controlled fluid milk. Cost of individual cooling equipment is high.	None	Extremely high, due to cost of processing and, in particular, to preference of supermarkets for year-round suppliers.	Absolute, due to cost of processing which requires very large investments

Product traded by EAC	Wheat	Potatoes, bulk	Milk, fluid, precooled, with quality control	Vegetables, bulk	Vegetables, graded, packaged and labeled	Raspberries, graded, processed (frozen), packaged and labeled
Cost of obtaining price and market information	Very low to none	Very low to none	Very low to none	High, large daily fluctuations. Very difficult to predict in advance	High, must already be a supplier	Very low to none
Processing costs for EAC product	Not applicable	Not applicable	Fixed costs very high due to investment in equipment	Not applicable	Not too high; could be done with basic equipment and family labor	High due to cost of equipment.
Transportation and marketing costs	Moderate	Production is usually sold on the farm. Can be up to one third of gross price if product is taken to wholesale market	High, especially if using refrigerated trucks which are vital for obtaining best prices	High fixed costs, makes selling low volumes unattractive unless prices are very high	Relatively high fixed costs	Not applicable, produce is sold on the farm
Risk of not selling product in alternative market	None	None	Very high, farmers typically complain of up to 10% losses per year	Very high, produce can be left unsold if there is over-supply that day	Very high, produce can be left unsold if there is over-supply that day	High to very high, depending on quality and location
Perishability	Very low	Very low	Very high, must be sold same day	High, produce must be sold within a few days	High, produce must be sold within a few days	Extremely high as top quality condition can be lost in just a few hours
Cost of enforcing trade agreements in alternative market	None, crop is paid cash on delivery	None if sold cash on delivery. Higher if paid with check	There are disputes over quality control measurements done by industry labs.	None if sold cash on delivery. Higher if paid with check	Moderate. Supermarket often postpones payment and imposes a number of additional costs to its suppliers	None if sold cash on delivery. Higher if paid with check
Credit	Technically, any small farmer can get credit from INDAP. In practice, EAC members have better access. Since 2000 there is also crop insurance which INDAP can build into a loan application. Larger 'small' farmers can get credit from a State Bank or even a private bank, especially short-term loans.					
Professional services	Mostly organized farmers (not necessarily in EACs) have access to technical assistance from INDAP.					
Other services	Many EACs provide additional services such as collective purchasing and delivery of inputs.					

below, but with the added difficulty that the EAC would need to operate in different regions across the country to assure supply throughout the year, a condition demanded by supermarkets and other retailers.

Milk

Under Chile's current industry conditions, small milk producers face the highest transaction costs, as it is virtually impossible for a dairy farmer to access the formal market if his or her milk does not meet certain quality standards. These can only be achieved by investing in equipment that would be prohibitively expensive to anyone without a relatively large scale of production. The alternative market options, such as selling milk in the urban informal market or on-farm to middlemen, are clearly very unfavorable and a farmer forced into these markets is increasingly likely to shift to other crops or enterprises.

Under such conditions an EAC has a clear and significant role. The most important role is to give farmers access to contracts with the medium and large dairy plants (which reduce risk exposure), cooling tanks, and refrigerated delivery trucks. EAC membership then becomes a very attractive option for a small farmer if it can ensure access to these goods and services.

Raspberries

Conditions for small raspberry producers are little different, if slightly better than dairy farmers. While they do have the option of selling their crop on farm to middlemen, their bargaining position is very weak as they must sell their produce the same day it is harvested, or else take a sharp drop in prices as quality deteriorates within hours.

The goods and services that small raspberry producers could not obtain acting alone depend on how far they want to go along the value-adding chain. If they only want to reduce their risk exposure whilst marketing unprocessed primary products, they would need to have a refrigerated warehouse. This is too large an investment for a small farmer with only a half to two hectares of raspberries. If the farmer wants to grade, package, freeze and label his or her produce before selling it to an exporter in order to capture a larger share of the final price, then the investments are even larger. In this case the farmer would need access to rather specialized technical and managerial expertise. And finally, if the farmer wants to export directly to Europe or the USA, then he or she would need to have access to sophisticated financial services, to highly skilled traders and managers, and to links with a whole array of service providers and clients. It is thus very clear that a small farmer needs an EAC as soon as he or she wants to go beyond the very basic step of selling to the two or three local middlemen who may be in the area on the day he or she is harvesting his or her crop.

Vegetables

Fresh vegetable producers are in an intermediate position. Whilst the supermarket chains would pay them much better prices, they are more or less in the same position as milk producers: entry barriers are almost insurmountable for an individual small producer. The farmer in this case would need to be able to sign a supply contract or option with the supermarket. Yet this is nearly impossible for a small producer who can deliver only a relatively small volume of produce during only a few weeks of the year. He or she would also need to have access to grading, packaging, labeling, warehouse and transport facilities, all of which require costly investments. Since the supermarkets only pay their suppliers 60 to 90 days after delivery, the farmer would need credit to finance the operation. Finally, it

is possible that the farmer would also need to hire managers and accountants, as well as high quality technical advisors to help him or her produce the quality goods that supermarkets require. Clearly, a small fresh vegetable producer wanting to reach the more profitable retail markets must operate through an EAC, since none of these goods and services will be provided by the market to an individual small producer.

However, small vegetable farmers supplying the wholesale market often can and do operate alone. For these farmers there are four main advantages to EAC membership:

(1) Most importantly, EACs can set up and finance storage, information, management, and delivery systems that allow the members to better regulate their supply according to the very large price fluctuations that characterize this market, even on a day-to-day basis; that is, an EAC reduces the risk exposure of an individual small farmer in these markets.

(2) An EAC can build or purchase warehouses, delivery trucks, establish a fixed post at the wholesale market in one of the large cities, and pay the staff in charge of managing the marketing operation, thus spreading these high fixed costs across a larger volume of produce.

(3) Because of the greater stability of supply that an EAC can enable, it is more likely to acquire a regular portfolio of clients, a factor that is of great importance if one considers the high rate of unsold produce that characterizes this market.

(4) EACs engaged in the fresh vegetable market can also diversify their clients: they can sell part of their product in bulk to the wholesale market, but they often also process (grade, package, and label) part of it to sell to supermarkets or restaurant chains.

Thus, while a small fresh vegetable farmer supplying the wholesale market can work alone, there are clear benefits to be obtained from EAC membership.

On the other hand, all EAC members in Chile have better access to a number of different support services than unorganized small farmers. Of these, three are most important:

(1) subsidized credit provided by INDAP at preferential interest rates, and with the *de facto* option of defaulting with very low costs or consequences to the borrower;

(2) collective purchase of agricultural inputs. Whilst this does not always mean obtaining a much better price, it normally involves low cost delivery to their farms or a nearby location, as well as perhaps better payment conditions, and;

(3) almost completely subsidized technical assistance from INDAP private contractors.

However, it is important to highlight that access to these services is a relative and not an absolute advantage over unorganized farmers. For example, in the case of credit and technical assistance most INDAP beneficiaries are not EAC members. In other words, joining an EAC gives you a slightly better chance of accessing these services, but it is likely that you could obtain the same or similar support without being a member.

Thus far, the answer to my question is that EAC membership can significantly reduce small farmers' transaction costs by improving value-adding, market integration and increasing the direct benefits they receive. The higher the transaction costs, the greater the advantages the EAC offers. On the contrary, there is little that an EAC can do for small farmers producing commodities to be sold in spot or wholesale markets which are reasonably competitive. This explains why most recently established EACs tend to be engaged in diversifying away from traditional commodities, not only in Chile but in

the rest of Latin America as well (Berdegué, 1999).

Other benefits

However, the direct economic benefits from EACs' core marketing or value-adding activities cannot entirely explain why farmers join these organizations. First of all, as the sources of household income and the functions and services provided by the EACs diversify, it becomes more difficult to apply the transaction costs framework wholesale to understand the organization's contribution to an individual household. A model in which one household has one and only one source of income from one agricultural product, and where the full range of tangible or intangible costs and benefits derived from membership in an EAC can be ascribed to that single flow of income (as in Table 2.1), is far too simplified.

In Chile, as for Latin America as a whole, employment and income diversification are increasing among rural households (Reardon et al, 2001; Berdegué et al., 2001). The implication is that under these conditions, EACs can contribute to enhancing other employment and income opportunities available to the household, and this could increase the attractiveness of an EAC's services. Examples of such non-core benefits include buying farm machinery and transport vehicles that are then used by some of the members to sell services to medium and large farms; building or repairing rural roads that not only help the EACs' marketing activities, but which also help local farmers get work in nearby rural or urban communities; rural electrification and communication projects that stimulate new local small non-farm businesses to emerge; accounting and legal support systems to help formalize many local micro-enterprises, in turn increasing their access to credit and to different fiscal benefits; training EAC members in business management skills, which are applied not only to running the farm but to other small businesses; etc.

These indirect benefits stem from two important assets which EACs give their members and rural communities: access to networks linking them to external agents, and greater political power. Both these factors help EACs access services that are only partly used to improve their core activities.

Consequently an EAC can still be an attractive option to a small farmer even if operating in a perfectly competitive market. The farmer may derive little additional benefit from selling his product through the EAC, but he or she may value the access to the other, non-core assets or services provided by the organization. As will be seen in several of the case studies in Chapters 8 to 12, this situation is common in Chile. It means that EACs need rules to ensure that members do not participate selectively in those non-core activities to the neglect of the organization's central business. Designing and enforcing such rules is extremely difficult when the EAC is engaged simply in the marketing of undifferentiated commodities in the spot or wholesale markets.

2.4 Networks and the emergence and performance of EACs

As will be shown in Chapters 4 and 5, even for those products/markets which have high transaction costs, most small farmers have still not joined EACs. Counteracting the effects of imperfect and missing markets does not provide enough incentives to catalyze the emergence of EACs. Figure 2.1 presents a conceptual model that shows that an EAC is part of a network involving many different public and private agents. It proposes that the emergence and performance of an EAC is facilitated by the coexistence of a complex sets of factors provided by several different types of actors. Like all models of its kind, Figure 2.1 oversimplifies reality. But it offers a heuristic device for a discussion of

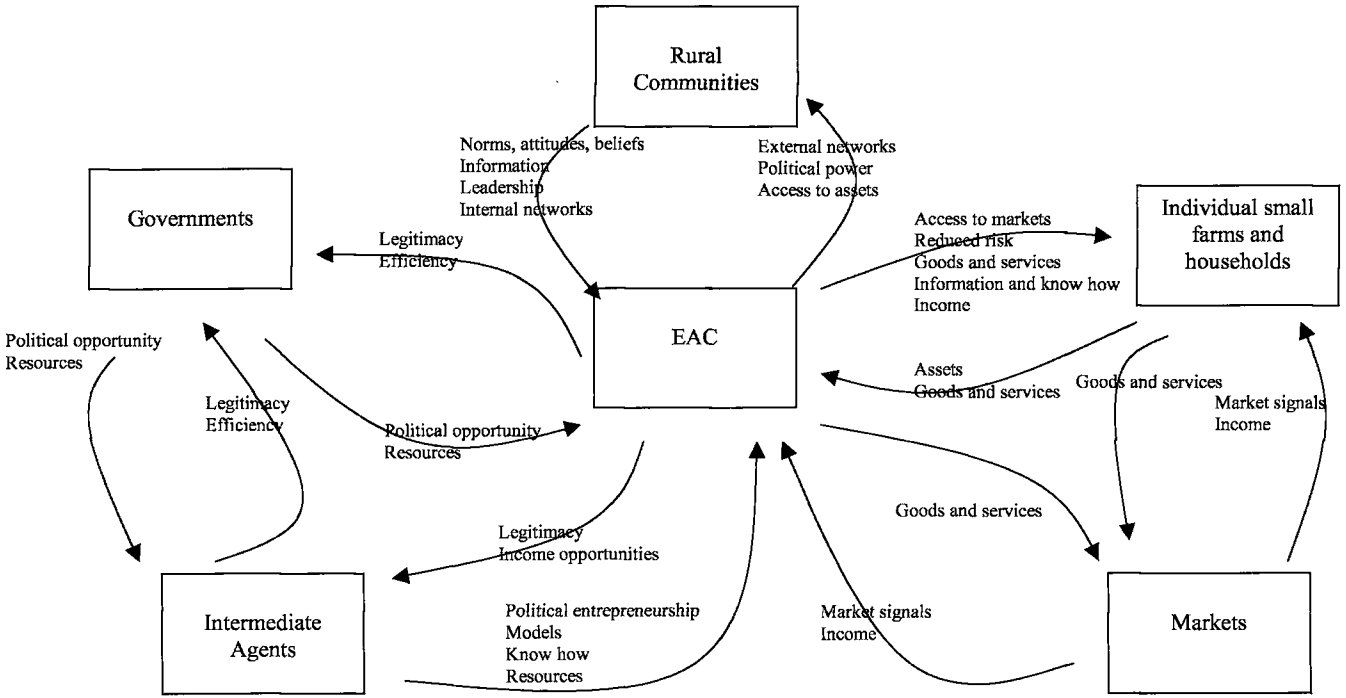

Figure 2.1 Model of networks required for the emergence and effectiveness of EACs

the importance of multi-agent interaction for the emergence and performance of EACs.

Röling's (1988) notion of Agricultural Knowledge and Information Systems (AKIS) can be used to understand these networks. As Röling and Jiggins (1998, p. 304) point out, *"It has become common practice to speak about 'agricultural knowledge systems', i.e., to use a (soft) systems approach for looking at the interaction among the (institutional) actors operating in a 'theatre of agricultural innovation'. Innovation emerges from this interaction and is no longer seen, as was customary in the 'transfer of technology perspective', as the end-of-pipe product of a sequential process. The knowledge system perspective looks at the institutional actors, within the arbitrary boundary of what can be considered the theatre of innovation, as potentially forming a soft system. A soft system is a social construct in the sense that it does not exist. One cannot, therefore, say that such actors as research, extension and farmers are a system. In all likelihood they are not, in that there is no synergy among their potentially complementary contributions to innovative performance, but by looking at them as potentially forming a soft system, one begins to explore the possibilities of facilitating their collaboration and hence the possibilities for enhancing their synergy and innovative performance."*

The model in Figure 2.1 is not a knowledge system in the strict sense of Röling's definition, as it not only involves the social construction and exchange of knowledge, but also of goods, services, and therefore, value. In this sense, I think that the model in Figure 2.1 is more strategic than Röling's AKIS. But, in common with AKIS, it depicts a potential soft system, a platform for potential coordination and cooperation leading to innovation in a given domain of human existence. In the case studies presented in Chapters 8 to 12, I will show that as collaboration and concerted action in these networks become more effective, an EAC's performance improves, while, on the contrary, the failure to construct balanced synergistic relations with public and private actors is a characteristic of failed EACs.

Evans (1996) and Ostrom (1996) have proposed the concepts of 'embeddedness' and 'co-production' to refer to specific ways in which coordination and cooperation can be organized across the public-private divide so as to enhance efficiency, effectiveness and the satisfactory accommodation of potentially conflicting objectives and goals.

In her research on effective public policies and programs in north east Brazil, Tendler (1995, 1993a, 1993b) has provided compelling evidence that cooperation and coordination across different societal divides is key for overcoming the frictions and inertia that hamper so many well-intentioned development efforts. In his analysis of a range of rural and agricultural development initiatives in Asia, Uphoff (1993, p. 613) found that *"in a comparative study of 16 countries ... [those] which had the best linkage between central government and rural communities through a network of local institutions, had the best performance in agriculture and in social indicators."*

In summary, the emergence and performance of EACs requires synergistic relationships between rural individuals and communities, markets, governments, and intermediate agents across a number of social divides. The nature of the new EAC will be greatly influenced by this exchange, i.e., by the relative combinations of the different actors' contributions.

In Figure 2.1, government and markets are sources of *incentives*[14] to small farmers to form an EAC. Rural communities, households, and individuals contain certain *capacities* to respond to these incentives, which are derived from their sets of natural, human, physical, financial, and social *assets*. Intermediate agents (in Chile, largely NGOs and private consultant firms) play a *catalytic and facilitation role*. I will now describe these roles and how they relate to EAC formation and performance.

[14] Incentives are *"the positive and negative changes in outcomes that individuals perceive as likely to result from particular actions taken within a set of rules in a particular physical and social context"* (Ostrom et al., 1993, p. 8).

Government

The most obvious support provided by government agencies is resources channeled through public programs such as those described at length in Chapter 1. In Chile these resources are often made available through intermediate private agents. A key point is that through their design and implementation, these resources constitute not only *assets* of the EAC, but also sources of *incentives* in that they affect the perceived and the actual costs, benefits, and risk of different options available to the EACs, and thus always favor certain responses and courses of action over others.

In his analysis of the relationship between collective action and politics, Tarrow (1994) concludes that the former is likely to emerge in response to changes in opportunities that reveal potential allies. Collective action of the sort we are describing is a political act, in the sense that it always implies a challenge to the *status quo*. Challenging the *status quo* is stimulated by shifts in ideology, knowledge, power and/or resources (White and Runge, 1995). These shifts counterbalance other factors favoring the maintenance of the *status quo*. By creating a favorable political environment, government officials and agencies acting as political entrepreneurs in effect question the legitimacy of the *status quo* and reduce the uncertainty of the outcomes of collective action.

Thus, a second, less tangible but perhaps more powerful incentive provided by government, has been called by Fox (1996) *"political opportunity."* Political opportunity is generated by proactive public policies and reformist public servants, and it serves the function of *"buffer[ing] the negative sanction that other state actors usually deploy against autonomous collective action beyond the village level"* (Fox, 1996, p. 1090). In the case of EACs, Fox's analysis should be extended to buffering the perceived risks of engaging with new market agents and new forms of market exchange. Government agencies are perceived by the farmers engaged in the EAC as allies that can help them counterbalance the power of markets. As will be seen in the case studies, only the more successful EACs can close the loop, by using their links with market agents to counterbalance the power of the state.

Government agencies derive benefits from their engagement with EACs. First, they gain efficiency, as working with and through local organizations simultaneously expands the reach of public programs, and reduces the cost of their implementation. Second, governments working with EACs expect to gain legitimacy among the rural population, a political objective. Governments and government employees sometimes also derive other less legitimate benefits by supporting EACs, such as undue influence and control over rural communities through political patronage and clientelism; from this follows the importance of effective and successful links with market agents as a counterweight to the power of the state.

Markets

In the previous section we have already discussed how markets create incentives for collective action when transaction costs are high enough to impede or limit individual smallholders' market exchanges. Relative prices linked to different products and markets are also a powerful incentive to challenge the *status quo*, as will be shown at length in the case studies: by observing more favorable production or market options and comparing them with their present practices, farmers are stimulated to change. An example is the case of raspberries (Chapter 12), where small wheat producers rapidly learned about the profit potential of the new crop when it was introduced locally by commercial farmers.

Government and market incentives can of course reinforce or negate each other. In Chile, for example, diversification, new marketing options and value-adding activities really accelerated among small farmers once the main agricultural support programs, and the public policy discourse, shifted their focus away from promoting higher yields in basic commodities. In the absence of this public-market synchrony, small wheat producers wanted to diversify into raspberry production, but their options were limited as long as technical assistance and financial support kept focusing on wheat yields. Yet, when the interests and objectives of the public sector are synchronized with market signals, the response can be phenomenal. For example, in the case of the Milk Collection Centers (Chapters 8 and 9), a shortfall in supply relative to demand led the dairy industry to pay attention to small farmers. The

public sector acted rapidly by providing the necessary support to respond to the market demand, with the result that within four or five years about half of the small milk producers in the country had become organized in dozens of EACs.

The two-way arrows between EACs and markets in Figure 2.1 show that their interaction is subject to the rules of market transactions. This seems obvious, but it is amazing how often this simple statement and its practical outcomes are poorly understood, with the consequences that the reader can imagine. For example, a smallholder who stops selling his or her vegetables to middlemen and instead gains access to more profitable outlets such as a supermarket chain, can only expect to capture the additional benefits if he or she, together with the other farmers in the EAC, are capable of meeting the stringent quality standards that are characteristic of the new market.

The incentives generated through government programs sometimes distort the nature of the relationship between EACs and markets. An example may clarify this point: as explained in Chapter 1, investments by small farmers and their EACs are very often heavily subsidized in Chile[15], and, in addition, there is a long-established tradition of condoning defaulted public loans. Both policies in effect transfer a large share of the economic risk of a given investment project from the farmers to the public sector. Thus they create an incentive to engage in enterprises that have a low probability of success. This policy-driven disassociation between market risks and potential rewards sometimes leads to EACs engaging in what can only be called adventures (as opposed to properly evaluated business-oriented projects), and it explains many of the observed failures.

Intermediate agents

I turn now to discussing the interaction between EACs and intermediate agents. In Chile, these are largely NGOs and private consultant firms working under contract to government agencies to organize and manage the delivery of public services to rural communities and small farmers' groups and organizations.

As mentioned before, the emergence of an EAC is a political act in that it implies social mobilization to challenge the *status quo*. The *status quo* is challenged when a community acts on the perception that the current state of affairs is inefficient, or unfair, or both. Such a challenge implies questioning the present distribution of rights and duties, of costs and benefits; an alteration of power and authority (White and Runge, 1995).

The challenge to the *status quo* will not just come about through dissatisfaction with current conditions; there is also a need for some form of *"political entrepreneurship"* (White and Runge, 1995). Bebbington (1996, 1997) and Berdegué (1999) have shown that generally in Latin America successful cases of local collective action are induced and supported by external intervention, increasingly coming from private commercial and not-for-profit organizations.

Such intermediate agents usually operate by facilitating a social dialogue on the nature of the problem; by providing organizational models and information about alternative solutions; by contributing an ideological, moral or knowledge basis for challenging the *status quo*; by setting performance standards; and by fully or partially offsetting the transaction costs of cooperation and coordination (White and Runge, 1995). In exchange, intermediate agents derive benefits such as social legitimacy which open up new income opportunities.

Individuals

EACs' networks link the organizations to individual farmers, each with certain 'capabilities', or

[15] Although compared to the subsidies received by farmers in the OECD countries, the magnitude of the support is child's play. In a recent press conference, the Commissioner for Agriculture of the European Union put the annual subsidies received by USA farmers at $ 11,000 per year, and those obtained by European farmers at *"only"* $ 4,500 per year (source: Agroenlinea.com, August 2001).

capacities *"to be and act"* (Bebbington, 1999). Capabilities grow out of the 'assets' held by these agents (de Janvry et al., 1991; Bebbington, 1999; Uphoff and Wijayaratna, 2000; Uphoff, 1999): their human, natural, physical, financial and social capital.

An individual's human, physical, financial and natural assets define their *relevant* and *feasible* courses of action. As we will see in the case studies, many farmers choose not to join an EAC because it does not deal with their products or markets (the proposed action is not relevant), or because they cannot afford to participate (the proposed action is not feasible). For these reasons, better-off small farmers tend to participate more in EACs than their poorer neighbors.

If public policies are founded on the vision that EAC membership is always, under any circumstances, better than not being a member, then non-participation by the poor and subsistence farmers can only be characterized as exclusion. But if we acknowledge that deciding to join an EAC involves weighing costs and benefits, and if we accept that costs may sometimes be higher than benefits, then non-participation by the poor can sometimes be a rational and voluntary decision. However, the poor are sometimes excluded involuntarily. For example, in several of the case studies in Chapters 8 to 12, farmers explain that many of those originally involved in forming the EAC did not join because they could not afford the initial membership fees.

It has also been well established that a household's assets influence its perception of risk and its risk avoidance or risk management strategies (de Janvry et al., 1991; de Janvry and Sadoulet, 1998; Ruben, 1997). EAC participation means that members must evaluate the probable behavior of the other participants, as well as the likely outcomes of the various alternatives (White and Runge, 1995). Individual's differences in assets enhance the uncertainty under which this evaluation takes place. As the conditions of uncertainty and the perception of risk increases, all other factors being equal, it is less likely that the individual will choose to participate.

2.5 Social capital and systems of rules

Metaphors such as the *"tragedy of the commons"* (Hardin, 1968), Prisoner's Dilemma (Dawes, 1973) and *"logic of concerted action"* (Olson, 1965) predict that individuals' 'rational choices' will usually undermine collective action institutions. In these theories, collective action aims at the production or consumption of public or common goods, where the cost of excluding non-cooperating individuals will range from very high to infinite (Hardin, 1982). They assume that the incentives to 'free ride' in collective action are such that individuals will do so in order to maximize their own benefits. Since all individuals face the same incentive to 'free ride', under most circumstances no collective benefit will result. These theories are essentially pessimistic about the likelihood of collective action being successful: collective goods usually end in collective tragedies.

As we will see in several of the following chapters, this argument is not without substance. Yet, some of the EACs I studied manage to constrain the pervasiveness of this sort of opportunistic behavior and to achieve their objectives. How do they do this?

The more recent studies of game theorists have identified a number of group situations and characteristics that can lead to successful collective action (Nugent, 1993). The Prisoner's Dilemma situation, in which defection is the dominant strategy of each player, no matter what the other one does, can be avoided when (Bardhan, 1993):

- Assurances can be built into the game so that one player defects if the other defects, but cooperates if the other cooperates
- The costs of monitoring and controlling free riders are low
- The consequences of defection are so bad that either of the players would rather do the work himself if the other does not cooperate
- Actors repeatedly face the same or similar decisions about cooperating or defecting (dynamic or

iterative prisoner's dilemma game situations)

- Pre-game communication is allowed
- There are credible threats and commitments to retaliatory actions against non-cooperators and free riders
- Social norms, values, beliefs and attitudes induce cooperation
- Exit options are not readily available

In recent years the concept of social capital has been used to explain social interaction among individuals, groups and communities against the predictions of 'rational-choice' theories.

As with many other concepts that suddenly become fashionable in the development literature, 'social capital' has become a catchword that is used by many with different contents and diverse purposes. It is thus very important to be precise about what is meant by 'social capital' in this book, and for this purpose I have chosen to follow Uphoff's (1999) definitions of cognitive and structural social capitals.

First, it is necessary to highlight that Uphoff links the concept of social capital with the proposition that the resulting social interaction should lead to mutually beneficial collective action. However, as Portes and Landolt (1996) have shown, there are also downsides to social capital. These also apply to the performance of EACs: closely bound groups may exclude new potential participants; strong social networks based on ethnic or village-based identities can constrain exchange with outsiders (Nagengast and Kearney, 1990); roles and precedents may stifle innovation, initiative, and competing leaderships; solidarity and reciprocity can camouflage the interests of the more powerful; trust can weaken monitoring and enforcement of agreements. The social institution of *cacicazgo*[16], which pervades rural Latin America, is perhaps the best example of what Rubio (1997) has called *"perverse social capital."*

2.5.1 Cognitive social capital

Uphoff (1999) proposes the concept of cognitive social capital to refer to norms, values, attitudes and beliefs that predispose people towards cooperation.

The starting point for collective action must be the willingness or predisposition of individuals to commit themselves to such behavior. Röling (2000, p. 10) contrasts social learning, soft systems and overcoming social dilemmas with *"rational choice"* behavior. The former are *"processes by which individual cognitive agents realize their common fate and agree to engage in collective action,"* while the latter induces individuals to act strategically in response to their own individual interests. Collective cognition, rather than rational choice behavior, is needed for *"perceiving, intentional and reasoning individuals to engage in collective action"* to overcome social dilemmas (Röling, 2000, p.12). In this view, effective collective action requires *"shared sense-making, conflict resolution, negotiated agreement and accommodation ... [and] collectively learning about and controlling our own collective behavior"* (Röling 2000, p.35). Röling and Jiggins (1998) state that social learning of new perspectives can lead to consensual decision-making based on the accommodation of interests.

Two social norms (i.e., standards of behavior shared by members of a social group) are recognized in the literature as being particularly important for predisposing people towards cooperation and collective action. These are trust and reciprocity, which are developed through recurrent social interaction (Woolcock and Narayan, 2000; Putnam, 1993).

Reciprocity

The decision to cooperate depends on perceptions of the probable behavior of others. People tend to be cooperative when others are. Reciprocity is a norm of fairness: people are not expected always to

[16] The social relations built around individuals who hold great power in rural communities and even regions, and exert control and almost domination over social, political and economic life.

cooperate, but must do so when others do so (Sugden, 1984; Coleman, 1988; Bardhan, 1993). The actual behavior of the individual engaging in collective action is influenced by the interaction between the moral limits and social obligations imposed by norms of reciprocity and the logic of self-interest (Bardhan, 1993; Taylor, 1982). Fafchamps (1992) claims that there is no contradiction between solidarity as a moral obligation and subsistence as a right grounded in rational behavior.

Reciprocity is not always balanced, because individuals are linked with each other in a multilayered social system. For example, landless peasants in Haiti contribute a very high share of the labor to build erosion checkdams because of their membership in other labor sharing arrangements, not directly related to the problem of land degradation or erosion control (White and Runge, 1995). The expectations and obligations created through reciprocity are exchangeable across areas of activity, as well as over time (Coleman, 1988). Putnam (1993) has shown that repeated exchange over a period of time fosters *"generalized reciprocity"*, which is a particularly efficient counterweight to opportunistic or free-riding behavior. Reciprocity, according to Putnam (1993), is the most important of the social norms that facilitate the building of trust.

Trust

Trust, *"the belief or confidence in the honesty, goodness, or skill..."*[17] of another individual or group of individuals, predisposes potential EAC members to engage in collective action because it reduces their uncertainty about others' probable behavior, or about the rewards of collaboration. The existence of trust may be particularly valuable when formal institutions for protecting and enforcing one's rights, such as efficient judicial systems, are not readily accessible (Lyon, 2000). Trust promotes civic engagement (Putnam, 1993; Evans, 1996) by helping build *"mutual interdependence"* (Bardhan, 1993), *"interdependent utility functions"* (Uphoff, 1993), or *"welfare interdependence"* (White and Runge, 1995); concepts which are well captured in Bates' (1987) proposition that *"in a world in which there are prisoners' dilemmas, cooperative communities will enable rational individuals to transcend collective dilemmas."*

Uphoff (1993, p. 609) stresses that at the local, community and group levels, people have *"face-to-face relationships and are likely to have multistranded connections - as members of a common church, as buyers at the same market, as relatives through extended families, etc. This provides a better basis for collective action."* In a totally different context - modern Italy - Putnam (1993, p. 167) also states the same: *"Spontaneous cooperation is facilitated by social capital."*

Cooperation is also made possible by the fact that collective action institutions solve different problems for different individuals. Ostrom (1996) explains that successful co-production (a form of public-private cooperation) encourages citizens to develop other horizontal relationships, with many positive spillover effects for other activities. Collective action institutions can address multiple needs because the *"utility function"* of each member is the result of a large set of arguments, displayed over a time dimension which is not necessarily the same as that of the collective action itself.

2.5.2 Structural social capital

Structural social capital comprises the roles, rules, precedents, procedures and social networks that facilitate cooperation and collective action (Uphoff, 1999).

Structural social capital facilitates the formation of EACs because it reduces the transaction cost of the exchange by simplifying the processes of finding information, negotiating and enforcing agreements, and protecting the rights of the participants. Social networks reduce the cost of acquiring information. Roles, rules, and precedents built over repeated social exchange limit the set of choices available to the individuals and reduce the complexity of decision-making in uncertain environments. Precedent, i.e., practical knowledge about the potential benefits of cooperation, derived from previous practical experiences of working with and through local organizations and institutions, is one of the

[17] Cambridge International Dictionary of English.

most powerful motives for an individual to cooperate in collective action (Walters et al., 1999).

As will be shown in detail in Chapters 8 through 12, rules are an element of structural social capital of particular importance to the development and performance of EACs, and thus they should be discussed in detail.

Rules

Ostrom (1990, 1992, 1999), and Ostrom et al. (1994a, 1994b) have analyzed a large number of collective activities at different levels. They found that some systems were more institutionally robust in that the day-to-day operational rules *"have been devised and modified over time according to a set of collective-choice and constitutional-choice rules"* (Ostrom, 1990, p. 89)[18]. According to their analysis, the specific operational rules vary greatly across these robust systems, but a set of seven *"design principles"* can be found in most of them[19]. *"A design principle is defined as a conception used consciously or unconsciously by those constituting and reconstituting a continuing association of individuals about a general organizing principle"* (Ostrom, 1999, p.1).

I have adapted Ostrom's design principles (1990, p. 90-101) to the specific case of EACs:

(1) Clearly defined boundaries. It must be clear who can benefit from the organization. It must also be clear what the organization wants to achieve in terms of the common good. These boundaries define who must contribute and who can benefit, and what they have to contribute to or benefit from.

(2) Congruence between appropriation and provision rules, and market conditions. Rules defining benefits ('appropriation') are congruent with rules defining costs ('provision'), and both are related to the conditions of the markets in which the EAC will participate. Operational rules based on this principle ensure that the rewards obtained by the different participants in the collective action are clearly related, in a way that is acceptable to the participants, to the efforts and contributions made by each individual. In turn, both the efforts and contributions of each individual, as well as the rewards that he or she can extract, must be in balance with the conditions of the markets in which the EAC is participating.

(3) The individuals affected by the day-to-day operational rules can help modify them. This allows the EAC to tailor its rules to its own circumstances. It also gives these rules social legitimacy. White and Runge (1995) have shown that compliance with rules is enhanced and the costs of monitoring and enforcement are lowered, when the participants believe that rules are fair.

These three design principles allow the members of the EAC to define a set of operational, day-to-day rules, and to agree in principle with them. The following two principles provide additional incentives for the members to actually follow the rules they have designed:

(4) Low cost systems for monitoring compliance should be in place, and those who carry out the monitoring must be members of the organization, or accountable to them.

(5) Sanctions on those who violate the operational rules should be graduated, depending on the seriousness and context of the offense.

In an EAC, the costs of monitoring must be low, or more precisely, lower than the benefits derived from enforcement. Sanctions should be graduated because enforcing them entails a cost. If the

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[18] Operational rules guide decisions of appropriation, provision, monitoring and enforcement; collective-choice rules define policy making, management and adjudication; constitutional-choice rules address formulation, governance and modification (Buck, 1998).

[19] For larger, more complex systems, Ostrom (1990) proposes an eighth design principle: systems, appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises. I have left this principle out of my analysis because it does not apply to most EACs.

costs of monitoring and enforcement are as low as possible and in balance with each other, and if the information produced by the monitoring system is accepted as 'true' or reliable, then it is more feasible to achieve what Levi (1988) calls quasi-voluntary compliance with the rules. Following Levi, Ostrom (1990, p. 94) states that *"She [Levi] uses the term 'quasi-voluntary compliance' to describe taxpayer behavior in regimes where most everyone pays taxes. Paying taxes is voluntary in the sense that individuals choose to comply in many situations where they are not being directly coerced. On the other hand, it is 'quasi-voluntary' because the non-compliant are subject to coercion—if they are caught."*

(6) Low cost internal mechanisms should be readily available to solve conflicts between members of the organization or between them and their officials. In an EAC there are many cases of ambiguity in the applications of the rules. Many rules are open to interpretation, and the seriousness of an offense often depends on the context in which it takes place and on the past history of the violator. If operational rules are to be kept as simple as possible, there must be mechanisms to solve the conflicts that can emerge from their interpretation and enforcement.

(7) The right of members to devise and enforce their own internal rules should be recognized and respected by external authorities. If external authorities constantly interfere in an EAC's system of operational, collective-choice and constitutional-choice rules, it will become almost impossible for organizational learning to take place; such learning is necessary for the progressive improvement of these institutions.

2.5.3 Learning processes and the development of systems of rules

Systems of rules, like other forms of social capital, are created through social interaction over time. Hirschman (1984) has proposed that individuals and cooperative groups continually transform themselves to deal with new social problems, so that there is an accumulation of knowledge about collective action, when it is feasible, what the probable outcomes are, if and which parts of the community will become involved, etc. Communities with a deeper tradition of collective action have a better chance of addressing common goods or common resource problems successfully. Putnam (1993) reaches the same conclusion from a different level of social aggregation, in his study of civic institutions and regional governments in modern Italy.

EACs design, assess, and revise their systems of rules through organizational learning processes (Argyris, 1992; Nonaka and Takeuchi, 1995; Cohen and Prusak, 2001; Axelrod and Cohen, 1999). Often social exchange among the members began before the organization was officially formed; in this case, the learning process leading to effective systems of rules also precedes the emergence of an EAC.

EACs learn by comparing expectations with outcomes, by interpreting changes in their external environments, from observing similar organizations and other relevant experiences, and by drawing lessons from unpredicted and surprising events (I. Guijt, personal communication, May 2001). The information and knowledge derived from this analysis modifies the behavior of the EAC and its members, and, eventually, *may* be codified into new or modified procedures and rules.

All EACs have the opportunity to convert lessons into procedures and rules, but only some actually do this. Others do not seem capable of adapting, even in the face of failed expectations, changing environments, 'best practice' examples or surprising events.

The ability of an EAC to incorporate learning into progressively more effective sets of rules, depends on how it emerged (Figure 2.1), especially the balance between the incentives provided by governments and markets, the capabilities of the individuals, households and communities involved, and the support given by intermediate agents.

If one of these elements is missing or undermined by another of the elements, the EAC is unlikely to be able to generate effective rules for countering opportunistic behavior. It would take the onset of a major crisis to alter its institutional development path and to give it an opportunity to amend its system

of rules.

When the EAC is forming, the assets of the individuals involved may or may not be sufficient to achieve the common objectives. This can occur, for example, because the organizational models contributed by intermediate agents, or the design of the public programs impose certain boundaries which do not correspond with the EAC's objectives. In several of the case studies discussed in Chapters 8 to 12, we will see how the EACs were initially artificially enlarged to satisfy the requirements of certain public programs. The result is likely to be great difficulty, if not impossibility, in devising a system linking rewards and contributions that is fair to all the members. Some members become 'enforced free riders' simply because their capacity prevents them from meeting the rules guiding contributions. In turn, this creates an incentive for other members to defect.

Figure 2.1 shows that markets provide incentives for EAC formation through relative prices. Such prices are a major consideration when potential EAC participants are assessing the likely costs and benefits of collective action. The nature of government incentives to stimulate or support EAC formation can radically alter this assessment, for example, by externalizing certain costs. If the government incentives are on-going, then there is a good chance that appropriation and contribution rules will not concur with each other or with the market signals. In other words, the system of rules will not transmit the appropriate market signals to individual members, and the EAC will rapidly 'lose touch' with the market. Under these conditions, all members will have a strong incentive to defect, as was the case for EACs engaged in potato marketing (Chapter 10).

The same can occur when external agents offer misleading organizational models. For example, many NGOs, extensionists or private consultants believe that EAC membership will always improve a small farmer's results when marketing his or her produce. Farmers can be easily be convinced by this argument; they almost universally feel that the prices they receive are unfair because of their lack of power in negotiating with traders, and that pooling their resources in an EAC will increase their chances of influencing market prices. Furthermore, if members of a new EAC lack a common history of collective action, they will also lack norms and precedents for rule-making. This will make them more likely to accept models imposed or proposed by external agents.

Social capital can also undermine the rule development process. Strong leaders or tight core leadership groups within emerging EACs can weaken broad member participation in defining rules for guiding contributions and appropriations, or can block the process of monitoring and enforcing compliance with agreements and obligations. Communities with particularly strong internal networks and well-established roles (*"bonding social capital"*, Woolcock and Narayan, 2000), may be less able to adapt rules to make them relevant to economic activities. Family ties among EAC members can undermine the enforcement of agreements through graduated sanctions. The effects of social capital at the onset can sometimes occur in a way which runs counter to what much of the literature predicts. For example, lack of trust among members can actually result in better-designed and more effective rules for monitoring compliance. If the EAC is not embedded in a rural community, it will not benefit from many low-cost compliance monitoring and enforcement rules that are based on close physical and social proximity.

The types of rules designed at the EAC's inception create incentives for certain courses of action by members and discourage others. This pattern of behavior reinforces the original set of rules, creating a cycle. An EAC's behavior tends to follow one of three broad paths, each exemplified by the various case studies in Chapters 8 to 12:

(1) Very soon after the formation of the EAC (even by the time of the first collective effort of marketing or value-adding), all or most of the members default on their commitments and obligations and the collective action fails. This tends to happen when the operational rules governing decisions on costs (contributions) and benefits (rewards) did not concur with the conditions of the relevant markets, either because the EAC's activities or business-plan were designed based on false assumptions (e.g., *"if 30 smallholders get together they will surely force middlemen to pay them a higher price compared to that received by non-members"*), or because government subsidies to the EACs and/or its members are so large that they completely distort

market signals. The EAC may only survive if members want to maintain access to resources provided by the government or by intermediate agents, such as loans, grants or technical advice. As these external supports are withdrawn or come to an end, the EAC collapses. This sort of situation can be seen in Chapter 10, where the cases studies of potato-marketing EACs are discussed.

(2) Some of the members free ride on others' contributions. No sanctions are applied because of the internal power relations within the EAC, or because the costs of sanctions are too high. Those that bore the cost of the opportunistic behavior are discouraged from contributing further. They may defect if there are exit options available, or they may remain within the organization if the perceived cost of defecting is higher than sustaining the free riders. The result is a lack of incentives to improve their contributions for either the free riders or for those who sustained the cost of their opportunistic behavior, and the EAC will gradually lose its market competitiveness. Any change in rules will be resisted by the free riders. The rules are only likely to be changed if a crisis either allows the contributing members to get rid of the free riders, or if it greatly increases the perceived or actual cost of the free riders' behavior. We can see examples of this situation in some of the case studies of the Milk Collection Centers (Chapters 8 and 9), and, to some extent, in two of the EACs dedicated to processing and marketing raspberries (Chapter 12).

(3) All or most of the members abide by the rules. The system of rules is reinforced and improved over time. The EAC is likely to be sustained even in the face of disappointing results, as long as the members continue to perceive that the outcomes are not due to behavior against the rules. The EAC can become an effective and sustainable economic organization, if other factors (aside from its institutional performance) also contribute to its achieving positive economic and financial results. Examples of this situation are given in Chapters 8 and 9 (milk), 11 (vegetables) and 12 (raspberries).

Before I use this conceptual framework to analyze the information gathered for this study, I first discuss the methods and materials used in my research (Chapter 3).

CHAPTER 3. MATERIALS AND METHODS

This research combines descriptive and analytical quantitative methods applied to large data sets obtained from national surveys of peasant households, small farms and EACs. It also includes a series of qualitative case studies of specific organizations.

It was very important to include quantitative analysis of large data sets. This is because given the current public policy debate in Chile, hard data is needed to establish the magnitude, effects and sustainability of the phenomena under study. After a decade of very large public investments to develop and strengthen EACs, it was simply not enough to ask how things could be done better without first understanding the actual impacts of policies defined 10 years ago. To make a credible argument for the need to improve public policies for EACs, I needed hard evidence to support my arguments. Have the efforts to date had any impact? Are we on the right track? Or do we need to fundamentally revise current strategies because we are not accomplishing what we set out to do?

Once I answered those questions, I could then identify the key factors needed to improve public policies for EACs. To do this I explored several case studies of EACs in great detail, looking at the issues of institutions, social interactions, meanings and perceptions, as well as the links between these factors and the economic performance and sustainability of the EACs.

The main methods used are as follows (all the methods I used are summarized in Table 3.3 at the end of this chapter):

3.1 Describing EACs in Chile (Chapter 4)

Surprisingly, despite investing hundreds of millions of dollars to support them, no-one in Chile could describe an EAC with any degree of precision before this research. My first task was to explore the characteristics of these organizations in Chile, which I had already defined as follows:

> *Legally constituted organizations whose members or owners are exclusively or mainly small farmers and peasants and who control the decision-making process in the organizations; the organizations carry out marketing or value-adding activities directly linked (upstream or downstream) to their members' primary production, and their main purpose is to improve the performance of their members' farms as economic units engaging in market transactions.*

In October 1998 I distributed a questionnaire to all the INDAP local and regional offices, the regional offices of the Solidarity and Social Investment Fund (FOSIS), and to all the rural organizations, NGOs and consulting firms registered in INDAP. The questionnaire went to a total of 1,050 rural organizations that I had identified by name and tax code from INDAP records. The purpose of this questionnaire was to obtain basic descriptive information that would allow me to identify those organizations which met the definition of an EAC. The questionnaire covered such aspects as when the EAC was formed and when it started operating, its size by number of members and gross annual sales, the products and markets it was working with, the services it provided to its members, the types and numbers of paid employees, and so on.

This questionnaire was completed by 407 organizations. I asked the INDAP local and regional offices to review these responses and to correct any mistakes. I also asked them to point out additional organizations missing from the list of 407. Through this process an additional 221 organizations were identified, giving a total of 628 organizations.

I sent a second questionnaire directly to the 628 organizations, asking them to complete, revise or approve the information. With considerable effort I managed a response rate of 85%. This allowed me to remove duplications, as well as organizations that were no longer functioning or that did not meet my definition of an EAC (i.e., they did not have a legal status, or their primary objectives were not of

an economic nature). The end product was a list of 424 organizations, crossed-checked twice, which met my definition of an EAC. Chapter 4 is based on this data set.

That still left 422 organizations out of the initial list of 1,050 that did not respond to either questionnaire. With the help of INDAP staff and contacts in the different regions, I eliminated 68 of these organizations because they seemed to be other forms of rural organizations or associations, such as trade unions, committees, and so on, rather than EACs.

This analysis allowed me to estimate the number of EACs in Chile (778), and to cross-check the representativeness of the sample of 424 EACs for which I did have descriptive information (about 50% of all EACs).

3.2 Description of EAC members (Chapter 5)

In the second semester of 1997 I coordinated a survey of 3000 small farms and households to evaluate the impact of INDAP's Technology Transfer Program (General Survey - see Table 3.3). This was under contract to the Ministries of Economics and of Agriculture, and was done with a team of experts from RIMISP and other organizations. The survey sample is statistically representative of farms smaller than 12 equivalent irrigated hectares[20], in 15 agroecological and agroeconomic zones in five of Chile's administrative regions, which is where 72% of all small farms are located. The same impact study surveyed a sub-sample of 602 of these farms using a larger questionnaire covering detailed farm and off-farm production costs and income (Costs Survey, Table 3.3). These two surveys have yielded the best and most representative recent data set on small farms and households in Chile by far.

One of the sections in the survey allowed me to identify farms and households affiliated to an EAC, and to compare them with a control group comprised of non-members of these organizations. One crucial limitation of my data set is that I do not have information to compare EAC members before and after they joined the organization. For some factors such as size of the farm or education of the household members, this may not be an important consideration, for one can reasonably argue that in a period of five or six years an EAC is highly unlikely to have such a great impact that it could alter these types of variables. But for other variables, such as for example annual income or access to credit, that is not the case, as theoretically participation in an EAC could cause a significant change even in a relatively short period of time.

Therefore, the results of Chapter 5 should be interpreted carefully, resisting the temptation to imply that there is causality between participation in an EAC and a given variable. For example, if we were to observe that EAC members are less poor than non-members, we cannot say whether membership *caused* a reduction in poverty rates, or if the poor were *excluded* from EAC membership.

After a descriptive section in Chapter 5, I analyze the survey data for the effect of different variables on the probability of a small farmer being an EAC member. For this purpose I used a Probit model, where participation in an EAC is the dependent variable, and the independent variables were:

(1) Location, represented by a total of 14 dummy (yes/no) variables for geographic location relative to a 15th site (e.g., does being located in zone Z affect the probability of being an EAC member, relative to being located in zone 15?). In my model, location is a proxy for natural capital and economic environment, and the 15 zones have been defined so that they account both for agroecological and agroeconomic differentiation. Each of the 15 zones is readily recognizable by anyone familiar with the Chilean countryside; they are defined by their specific bio-physical and socio-economic characteristics.

[20] An Equivalent Irrigated Hectare (HRB) is a measurement unit defined during the agrarian reform. It uses soil and climate variables to establish a production potential equivalent throughout the country. It is formally defined as the number of hectares needed in each zone to yield the same production as one irrigated hectare in the Maipo river valley. Detailed conversion tables are available for most rural areas in the country. The limit of 12 HRB is the legal ceiling for a farmer to be an INDAP beneficiary. The limit is widely used for broad demarcations of small-scale agriculture in Chile.

(2) Product orientation, represented by a series of dummy variables that show whether the farmer produces milk, potatoes, wheat or beans; these being the most common crops in small-scale agriculture in Chile for which I had sufficient data.

(3) Human capital, represented by variables that measure the age, sex and education of the head of the household, as well as the number of household members.

(4) Physical capital, represented by two variables: total farm size and percentage of the farm with access to irrigation.

(5) Access to agricultural advisory services.

(6) Position of the household relative to the official poverty line, represented by dummy variables that show whether the household is poor or extremely poor.

I tested the auto-correlation between 'access to agricultural services' and each of the different 'product orientations' (e.g., milk producers might get more advice than potato producers), and found that the correlation coefficients were not statistically significant. Using Hausman's test, I analyzed the model for endogeneity[21] for the variables 'access to agricultural services', 'household is poor', and 'household is extremely poor'. All of the variables were shown to be exogenous, that is, uncorrelated with the error term of the model.

In July 1998 I held a three-day workshop for EAC leaders to explore the most significant factors in their decision to set up an EAC. Twenty-seven EACs participated, each represented by one board member. The 27 participants had already been chosen as potential case studies for this research (see Section 3.5.1 in this chapter for a detailed description of the selection method). Participants worked in three groups based on their enterprise: milk, potatoes, fruit and vegetables. All groups were given the same questions for each session; a note-taker recorded the results and conclusions, but was not allowed to join in the discussion. In Chapter 5 I report the results of the session dedicated to the question: *"What were the most important factors that stimulated the formation of the EACs present in this group?"* The participants of each group were asked to identify and list all the factors that they thought were relevant, and then to rank them in order of importance.

3.3 Analysis of impacts on farm and household income (Chapter 6)

I used three sources of information to determine the relationship between EAC participation and members' farm and household income:

(1) During the field work for the case studies (Chapter 8 and Section 3.5.1 below) I surveyed 223 small farmers involved with the 16 case study EACs, and 234 small farmers who live in the neighborhood but who do not work with the EACs (Case Study Survey - see Table 3.3). As part of the survey I asked farmers to identify the costs and benefits of EAC involvement. I have pooled their answers to compare the opinions of EAC members and non-members. I should emphasize, however, that the results from this 'quasi-opinion poll' cannot be extrapolated to any population other than the 457 farmers who were asked the questions.

(2) To test whether participation in an EAC affects members' farms' net margin (operational revenue minus direct and fixed costs), as well as annual household income, I analyzed the data from the two farm and household surveys described in Section 3.2 (General and Costs Surveys) using Heckman's two-stage procedure (Heckman, 1979). Heckman's approach allows the impact of a program to be controlled for the possible effect of selection bias, as I shall explain below.

The conceptual model is as follows: the net profit margin of a small farm, or the annual income of the household, will be affected by the human, financial, physical and natural capital of those households

[21] One key assumption of valid regression models is that the explanatory variables in the model will vary independently of each other, including the error term. If this assumption is met, it is said that the models fulfill the condition of exogeneity.

and farms, as well as by participation in an EAC. The hypothesis to be tested is whether the farm's net margin or the annual household income increases with greater access to any of these assets, and with participation in an EAC. These assets are represented in my model by the size of the household and the number of its members in the labor force; by the age, gender, and educational level of the household head; by the size of the farm and the proportion under irrigation; by its location in an agroecological region; and by a dummy variable for participation in an EAC.

One way to test this conceptual model would be through a regression model where the dependent variable (the net margin of the farm or the household's annual income) would be explained by the factors mentioned above. However, the conceptual framework (Chapter 2) and findings reported in Chapters 4 and 5 indicated that EAC participation may depend on the specific markets in which the EAC operates (i.e. for milk, potatoes or wheat). Thus, I needed to control for this potential bias and to do this I used Heckman's two-stage procedure. If one has reason to believe, for example, that milk producers' income-generating behavior is fundamentally different from that of wheat producers, then the two sets of households should be modeled separately. However, if one just segregates the two groups and runs regressions separately, there is an implicit selectivity bias (that is, one is not controlling for the conditional probability of a household being included in a particular group). Heckman's two-stage procedure uses a Probit analysis to determine the factors that condition whether a household is in a particular group, say potato producers; the algorithm then calculates, for each household, an observation on a variable called the inverse Mill's ratio (IMR); the observation is the conditional probability of the household being included in the potato-producers group. The second stage is, in our case, the income multiple regression equation, estimated with the Ordinary Least Squares procedure (OLS), only for, for example, the potato-producing households. In that equation, the IMR is included on the right hand side to control for selectivity bias. If the coefficient of the IMR is not significant, this indicates that the selectivity bias is not statistically significant. The second stage also includes EAC membership as an independent variable. This approach ensures that the results for the independent variable 'participation in an EAC' are not confounding effects that in fact are due to the crop or enterprise.

To make sure that participation in an EAC is not endogenous to the farm's net margin or the household's annual income, I also ran a test of endogeneity using Hausman's procedure. This test confirmed that participation in an EAC is exogenous to both the farm's net margin and the household annual income. I could not show income before and after EAC membership because the data come from a cross section survey.

(3) In 1996, the *Universidad Austral de Chile* was contracted by the Ministry of Planning and Cooperation (MIDEPLAN) to survey rural households in 15 areas spread across six regions (V through X) in Chile's interior and coastal dryland zones (MIDEPLAN, 1999). This large area is characterized by much higher poverty levels than other rural areas. Agriculture is facing a sharp decline here due to its dependence on traditional crop and livestock systems which are increasingly unable to compete with imports.

In the year 2000 INDAP contracted RIMISP to conduct a survey of 779 of these households, covering 51 municipalities in five regions (VI through X) (Ramírez et al., 2001). Of the 779 original households, we were able to re-contact 617 (79% of the original MIDEPLAN-*Universidad Austral* sample). Of these, about 60 had such large and inexplicable discrepancies between the 1996 and 2000 data that we removed them from the data set. Thus, we ended up with 555 households with consistent data for 1996 and 2000 (Drylands Panel Survey - see Table 3.3). Of these, 193 were households with access to land (owned, rented, sharecropped, etc.), while the remaining 362 were rural households but not farmers. I have therefore limited my analysis to the 193 small farmer households. Of those 193 households, 76% were not members of an EAC. I use these data to compare EAC members and non-members, in terms of the changes in a number of income variables between 1996 and 2000. This analysis allows to me discuss the impact of EAC membership on household income in poor and marginalized rural regions.

3.4 Economic and financial performance of EACs (Chapter 7)

In early 2000, INDAP contracted RIMISP to conduct an appraisal of the economic and financial status of EACs in Chile. I coordinated this study. I asked the INDAP local and regional offices to supply me with the balance sheets and income statements of the 1,050 small farmers' organizations that had outstanding loans with INDAP in 1999. We received 543 balance sheets and income statements. According to the information provided by the local and regional officials, the remaining 507 organizations did not maintain such accounts.

I hired a team of six Certified Public Accountants to help me analyze these documents. Of these 543 balance sheets and income statements, 133 were incomplete or had obvious errors and thus were not useful for our analysis. As we did not have the resources to conduct an external audit of each of the remaining 410 reports, we proceeded with our analysis on the assumption that the information they contained was complete and correct. Unfortunately, the conditions under which I obtained authorization to use this information severely restrict how I can use the data; in particular, I cannot use the variables that would have allowed me to cross-reference this data set with that described in Section 3.1 above, matching individual EACs or even to disaggregate the analysis by crop or enterprise to relate it to the analysis on the impact of EACs on farm and household income (Chapter 6).

It is probable that there are biases in the final sample of 410 EACs, but it is not easy to establish with any certainty the direction of the bias. On the one hand, one may think that the EACs that were less successful as business-oriented organizations, would be less willing to make their accounts public. On the other hand, well informed sources at five of 12 INDAP regional offices and 12 of the 100 or so local offices, told me that many of the EACs that do not maintain proper accounting books are among the smallest and most simple in their operations; they do not feel the need to spend scarce resources on paying an accountant to keep their books. According to these sources, one can not conclude that these EACs are less successful than those that do keep proper accounts. Still, as this issue could not be settled, the reader is advised to avoid extrapolating from the results for these 410 EACs.

Fortunately, as I was finishing writing this book, I had access to the results of an in-depth study conducted independently by a consultant firm (FUNDES Chile, 2001). Their study focused on 156 EACs that INDAP considers to be among the most financially exposed. The FUNDES study's methods included a proper audit of the books and accounts of these EACs, as well as an expert assessment of operational and management issues. The FUNDES results can therefore be used to indirectly cross-check my study's results. Their conclusions are more optimistic than mine concerning the economic and financial viability of EACs as business-oriented organizations.

Each of the 410 balance sheets and income statements was processed using standard accounting procedures to calculate the values of the variables required for this analysis. These variables are listed in Table 3.1. Using these variables, three performance indicators were calculated as shown in the last three rows of Table 3.1:

(1) Operational performance: measures whether an EAC is capable of generating sufficient income to cover its expenses.

(2) Financial performance: measures the EAC's degree of indebtedness relative to its assets.

(3) Financial dependence: measures the extent to which an EAC relies on public programs and agencies to generate its income, either through direct transfers, grants or services sold to them.

One should note that I do not propose a threshold level above or below which an EAC should be considered sustainable or unsustainable. However, if an EAC has an income much higher than its expenses, has a low level of indebtedness, and has little or no dependence on public subsidies, common sense dictates that it will be more sustainable in the short run than one which cannot cover its expenses, is highly indebted, and is highly dependent on external grants.

All of the information refers *only* to the EACs' *own* accounts; that is, these accounts do not include the income, expenses, assets or liabilities of the EACs' members. From a legal and managerial point of

view, the EAC is a separate entity from its members. It is of course linked functionally to its members through different exchange operations, but this in no way affects the fact that EACs are separate legal and management units from their members' farms and households. Of course, the transactions between an EAC and its members will be reflected in the EAC's accounts; for example, the cost of the products sold by the members to the EAC is reflected in the organization's operating expenses, and the price charged by the EAC for the services provided to its members constitutes part of its sales revenue.

In addition to this analysis, I was able to obtain official information from INDAP about the amount owed by 1,050 small farmers' organizations (SFO). These SFOs not only include EACs as defined in my study, but also other types of peasant and small farmers' groups and organizations. Since INDAP protected the identity of these 1,050 SFOs, I cannot cross-reference this information with that obtained from the balance sheets and income statements.

Table 3.1 Definitions of economic and financial indicators

Variable	**Definition**
Current assets	Assets expected to be consumed or converted into cash during the next operating cycle. Include cash, amounts receivable, inventories, etc.
Non-current assets	Assets expected to be consumed or converted into cash after the next operating cycle. Include fixed assets, non-current receivables and long term investments.
Total assets	Current plus non-current assets.
Current liabilities	Funds payable during the next 12 months.
Non-current liabilities	Funds payable after 12 months.
Total liabilities	Current plus non-current liabilities.
Net assets	Total assets minus total liabilities.
Sales revenue	Income from sales of goods and services that constitute the EAC's stock-in-trade.
Revenue from other sources	Income from sales and sources that do not constitute the EAC's stock-in-trade, such as interest.
Total revenue	Sales revenue plus revenue from other sources.
Operating expenses	Expenses incurred in activities that constitute the EAC's stock-in-trade.
Non-operating expenses	Expenses incurred in activities outside the EAC's stock-in-trade, including depreciation, provision for taxes, etc.
Financial costs	Interest expense.
Total expenses	Operating plus non-operating expenses plus financial costs.
Operating income	Sales revenue minus operating expenses.
Income from public sources	Income from public programs and agencies (grants plus sales of services to INDAP programs).
Indicator of operational performance	Total revenue / total expenses.
Indicator of financial performance	Total liabilities / total assets.
Indicator of financial dependence	Income from government programs / total revenue.

3.5 Case studies (Chapter 8)

My case study approach corresponds to what Stake (1994, p. 237) has defined as collective instrumental case studies: *"a particular case is examined to provide an issue or refinement of theory. The case is of secondary interest; it plays a supportive role, facilitating our understanding of something else... with even less interest in one particular case, researchers may study a number of*

cases jointly in order to inquire into the phenomenon, population or general condition."

3.5.1 Selection of case studies

I selected the 16 EAC case studies in the following way:

(1) I started with the registry of 424 EACs described in Section 3.1 above.

(2) To reduce field work costs, I excluded EACs in the more remote northern and southern parts of the country.

(3) I also excluded all EACs with fewer than 10 members.

(4) After applying these screening criteria, the database was left with 107 records from which I randomly chose 10 EACs from each of the following product areas: milk, potatoes, fresh market vegetables, and raspberries[22]. This gave me a total of 40 EACs.

I chose milk, potatoes and vegetables because they are the EACs' most common products in Chile. I also included raspberries because they are a new product and the whole chain from production to export is still taking shape. I thought it would enhance the study to observe how EACs fared in this environment of intense change and innovation.

The 40 EACs were invited to a workshop in July 1998, although 13 did not attend since they had decided not to participate in the study. At the workshop I gathered additional information from each of the 27 remaining EACs, and found that seven did not really meet my selection criteria. Of the remaining 20, 16 were happy for me to do the field work.

Table 3.2 describes these 16 case study EACs. In Chapter 8 I discuss the results of 14 of these case studies. I dropped one of them because I could not get reliable information about its financial and economic performance. I decided not to include the second one because it was so different to the other case studies in terms of size and organizational complexity.

3.5.2 Field methods

For each of the 16 case studies, I sent a detailed letter to the formal head of the EAC, the intermediate agencies that worked with them (e.g., an NGO, an extension firm), the head of the local INDAP offices, and representatives from the market agents with whom the EAC interacted (e.g., the buyers of their products). The letter detailed the work involved, the objectives of the study, the type of information required, and my methods. I then phoned each of these people to answer any questions or doubts, and to arrange a date to do the field work.

I conducted the following field activities for each case study:

(1) Individual interviews. For each study I interviewed:

- farmer members on the EAC board (usually two or three)
- farmer members who were not and had never been members of the board (usually three to five)
- local farmers who were not members of the organization (usually two or three)
- hired technical and management staff, if any
- the head of INDAP's local office

[22] Unfortunately, the opportunity to do the financial and economic analysis of 410 EACs described in Section 3.4, arose when the case studies where almost finished. Otherwise, I would have undoubtedly used the results from that analysis to guide me in the preliminary selection of the potential case studies.

Table 3.2 Description of the 16 case study EACs

Name	Year of birth	Major enterprises	Services provided	Members	Annual sales
Centro de Acopio Lechero Ranchillo	1997	Milk	Milk collection, cold storage, marketing	10	$ 130,000 (1998)
Centro de Acopio Lechero Lo Ovalle	1994	Milk	Milk collection, cold storage, marketing	10	$ 76,000 (1998)
Golden Berries S.A.	1997	Raspberries	Cold storage, quality control, packaging, marketing, technical assistance, input supplies	339	$ 1.5 million (1998)
Cooperativa Campesina El Renacer del Cajón Ltda.	1991	Tomatoes	Marketing, seedling production, accounting, quality control, technical assistance	10	$ 84,000 (1998)
Cooperativa Campesina We Tekucan Ltda	1996	Fresh vegetables	Quality control, marketing, technical assistance, investment projects (drip and sprinkle irrigation)	27	$ 530,000 (1998)
Cooperativa Campesina Intercomunal Peumo Ltda.	1969	Citrus, vegetables, cereal grains	Marketing of products and agricultural inputs, gas station, technical assistance, investment projects	405	$ 4 million (1998)
Central Campesina Talagante	1982	Garlic, raspberries	Technical assistance, marketing (directly for export)	120	Unknown
Agrícola y Comercial Coyam Ltda.	1996	Milk	Milk collection and cold storage, marketing	44	$ 250,000 (1998)
Cooperativa Campesina El Arrayán Ltda.	1995	Milk	Milk collection and cold storage, marketing	74	$ 225,000 (1998)
Agrícola y Comercial Chirre Ltda.	1997	Milk	Milk collection and cold storage, marketing	47	$ 210,000 (1998)
Agrícola Santa Bárbara S.A.	1996	Milk, potatoes	Milk collection, cold storage and marketing (starting a new milk quality control laboratory)	40	$ 140,000 (1998)
Frutas de Guaico S.A.	1997	Raspberries	Storage, processing, marketing, technical assistance	44	$ 600,000 (1998)
Frutas de Romeral S.A.	1995	Raspberries	Storage, processing, marketing, technical assistance	48	$ 1.2 million (1998)
Sociedad Agroindustrial y Comercial Agrocamp S.A.	1995	Potatoes, milk	Technical assistance, marketing of inputs, supplies and products, supermarket	530	$ 1.1 million (1998)
Agrícola y Comercial Carahue Ltda	1997	Potatoes	Marketing	10	$ 8,500 (1998)
Cooperativa Campesina Pullallán Ltda	1996	Potatoes	Marketing, technical assistance	32	$ 17,000 (1998)

- staff from the INDAP office with close working relationships with the particular EAC
- staff from the intermediate agencies (NGO, extension consultant firms) who dealt directly with the EAC, and
- at least one, and often more, purchasing clients.

I personally conducted these interviews following a flexible checklist of open questions and topics, specific to the type of person being interviewed. There were six of these checklists: one for intermediate agency and INDAP staff, one for EAC board members, one for EAC members not on the board, one for non-member farmers, one for market agents, and one for the EAC's technical and management staff. Each interview lasted between 30 and 60 minutes. I conducted a total of 240 individual interviews for the 16 case studies.

(2) Half-day group meetings with the EAC board and with members who were not on the board. I facilitated these meetings, which focused on the salient points of the interviews.

(3) A survey of a random sample of EAC members and a random sample of non-members from the area (Case Study Survey - Table 3.3). The members were picked at random from the EAC membership list. I obtained the information to compile a list of non-member farmers at the end of the individual interviews with the member farmers. In several cases when I was in doubt about the 'representativeness'[23] of the non-members, I checked with some of the other sources (e.g., the local extensionist). My aim was to compile a list of all the small farmers who lived near the members, and to pick a random sample from this list. 'Near' was defined in each case by the people who helped to compile this list, but in general it meant the immediate area where the members lived, usually within a radius of perhaps 1 to 3 km.

I must emphasize that while the sampling method is likely to have resulted in reducing sampling bias, the result is *not* a statistically representative sample of the population of members and non-members of each particular EAC, much less of all EACs within a certain category (e.g., all Milk Collection Centers). Lack of resources meant I could not afford to have statistically representative samples in each case study. And more important than that, the choice of a case study approach meant that I did not have pre-established hypotheses that I wanted to test through statistical analyses. The surveys in this case are only a method of inquiry that helped me understand better and cross-check the information that I was receiving from the in-depth interviews and workshops. This seemed necessary because much of the conversation was focused on issues in which quantities are important. Hence, the interpretation of these quantitative data depends on the qualitative information I received from the persons I talked to, and not on a formal statistical analysis.

The survey included the following sections:

- relationship with the EAC
- household composition and characteristics of the individuals
- access to land and land markets
- access to irrigation
- roads
- farm management practices
- fixed and quasi-fixed capital assets
- animal production

[23] In the sense that with the information available, I had reason to suspect that these farmers would perhaps not be comparable to those who were EAC members (e.g., their farms were substantially larger or smaller, they were engaged in different crops or enterprises, etc.).

- crop and forestry production
- manufactured and processed goods
- fixed costs
- direct costs for main crops or animal production systems
- access to credit
- access to technical assistance
- participation in organizations and collective action projects
- opinions about costs and benefits of organizations
- multiple choice questions on trust and reciprocity, changes in technology, off-farm and non-farm income and unearned income (i.e., income from social subsidies and remittances).

The survey was conducted by two teams of consultants with more than five years of experience in this type of work. Each team was supervised by a RIMISP staff member. Each household was visited first to agree a convenient time and place for the survey. In each case, we explained that we would like to interview both the head of the household and his/her spouse, although usually only the head of the household was present during the interview. Each questionnaire took about two hours to answer. Each survey form was revised by the field supervisor to try to detect any apparent error before the team left the area; when there were doubts, the household was visited again. A computer program was prepared by a programmer using criteria defined by me, to check most answers for internal and external consistency against a set of rules (e.g., if question A = 102, then question Z cannot be less than 50). A total of 234 non-member and 223 member surveys were retained for data analysis out of 246 and 254 conducted in total.

(4) Analysis of available documentation. In all cases but one (which was subsequently dropped from my analysis), I had access to the EACs' accounting information, such as the balance sheets and the income statements, and, in a few cases, to external audits. In many cases I also obtained copies of reports prepared by consultants, INDAP staff, etc., which often contained useful information.

(5) I also interviewed other people who could provide specific information relevant to the case studies. For example, experts were interviewed about the milk, potato, fresh vegetable and raspberry markets. People knowledgeable about the policies and activities of INDAP in a certain region, or who had an external view of the EACs, were also interviewed.

All the field activities took place in the second semester of 1999 and the first semester of 2000. I analyzed the qualitative and quantitative information between March 2000 and February 2001.

3.6 Summary

For easy reference, Table 3.3 summarizes my research methodology.

Table 3.3 Summary of the methodology

Chapter	Hypothesis/aim	Methods / information source	Sample size
4	To describe EACs and to estimate their number and membership	Two postal questionnaires	Questionnaire 1 was directed at 1050 rural organizations and was completed by 407. Questionnaire 2 was sent out to 628 organizations and was completed by 534. Of those, 424 met the definition of an EAC and the data was used for the analysis in Chapter 4.
5	To describe and compare EAC members and non-members in terms of household and farm characteristics.	Survey of household and farm characteristics (General Survey).	3000 households and farms. Sample is statistically representative of the population of small farms in five regions of Chile (where 72% of all small farms in the country are located)
5	To compare EAC members and non-members' farm net margins and household annual income.	Farm production costs and household income composition survey (Costs Survey).	602 households and farms, sub-sampled from the sample of 3000 households and farms.
5	To identify factors that contribute to a small farmer being an EAC member.	Probit analysis using data from the General and Costs Surveys described above.	471 households and farms with complete information from the general and costs surveys.
5	To identify factors influencing the decision by farmers to set up an EAC.	Three-day workshop with farmers belonging to 27 EACs.	27 farmers from the same number of EACs.
6	To analyze the perception by farmers of the costs and benefits of EAC membership.	Multiple choice questions included in a survey applied to farmers during case studies of 16 EACs (Case Study Survey).	223 small farmers who are members of 16 EACs, and 234 neighboring non-member small farmers (control group).
6	To test whether EAC membership has a statistically significant effect on: (a) a farm's net margin, and, (b) the household's annual income; controlling for the EAC's product orientation.	Heckman's Two-Stage Procedure, using data from the General and Costs Surveys.	298 farms and households with complete information.
6	To test the impact of EAC membership on total household income and its composition by sources of income, specifically for farmers in poor and marginalized areas.	Survey in 1996 and again in 2000, applied to the same farms and households in the dryland areas of 51 municipalities in five regions (Drylands Panel Survey). T-test comparison of means between EAC members and non-members	193 households and farms with complete information for 1996 and 2000.
7	To analyze (1) EACs' operational performance, (2) EACs' financial performance, and (3) the relative importance of income generated from public programs. All these analyses were for 1999 fiscal year.	Un-audited balance sheets and income statements of EACs for 1999. Analysis by Certified Public Accountants of the information contained in these documents.	Balance sheets and income statements were requested from 1050 rural organizations. 410 of them provided complete information.
8 through 12	To understand the main factors conditioning the performance and sustainability of EACs, and to analyze the relationship between institutional and economic performance.	Qualitative case studies, using individual and group interviews with different stakeholders, half-day workshops, analysis of available documentation, and a survey of members and non-members (Case Study Survey).	16 case studies of EACs involved in milk (6 case studies), potato (3 case studies), vegetable (4 case studies) and raspberry production (3 case studies), processing and/or marketing. Results of 14 case studies are reported.

CHAPTER 4. THE EACs IN CHILE

4.1 Introduction

This is a descriptive chapter, in which I characterize the EACs in terms of age; membership; location; size according to sales, employees, services they provide to their members; and the markets, crop and animal enterprises with which they work.

4.2 Method

The methods used in this chapter are described in detail in Chapter 3, Section 3.1.

Hypothesis/aim	Methods / information source	Sample size
To describe EACs and to estimate their number and membership	Two postal questionnaires	Questionnaire 1 was directed at 1050 rural organizations and was completed by 407. Questionnaire 2 was sent out to 628 organizations and was completed by 534. Of those, 424 fit the definition of an EAC and the data was used for the analysis in Chapter 4.

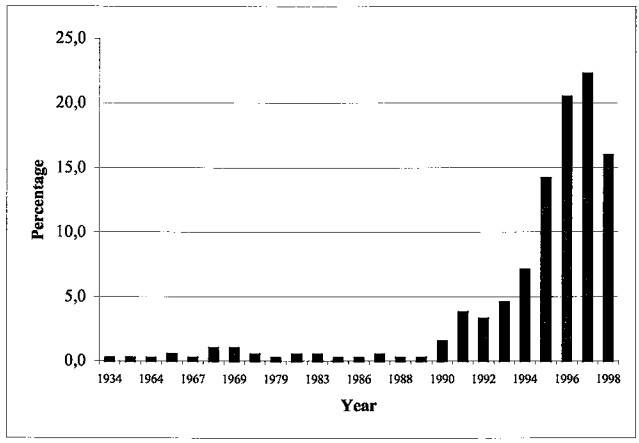
4.3 Characteristics of EACs in Chile

I estimate the number of EACs in Chile to be around 778, with a total membership of approximately 58,000 small farmers. These figures come from a careful, line by line analysis of the available information for each of the 1,050 rural organizations which were receiving some form of financial support from INDAP in December 1999. While I am fairly confident that the organizations I excluded did not meet my definition of an EAC, it is possible that among the remaining 778 some more would be excluded given more information. Thus, this is an overestimation of the number of EACs and their members. However, on the other hand, I am not counting those EACs that may exist but which have never had access to INDAP's services, although admittedly these must be very few.

Gómez (2001) addresses this issue in a recent study of all rural organizations in Chile. He separates EACs from cooperatives and trade associations (Asociaciones Gremiales), while in my own definition a local cooperative or a trade association can be an EAC if its primary purpose is to engage in marketing or value-adding activities. That is, Gómez uses the specific legal status of the organization as a distinguishing criterion, while I do not. After adjusting Gómez' figures according to my own definition, I arrive at a total of 55,000 members of what he calls EACs, cooperatives and trade associations, a sum similar to my own estimates.

Of the estimated 778 EACs in Chile, my two postal questionnaires yielded detailed information for 424. I have found no evidence that could suggest that this sample is biased in any particular direction, although I have to admit that this is a rather subjective assessment, based on my own experience, and that I simply do not have any hard evidence to prove that the 354 EACs which did not answer my questionnaires are not systematically different from those included in my sample. What follows is based on the information for the 424 EACs which replied.

Figure 4.1 shows that the vast majority of the existing EACs formed since the return of democratic government in 1990. Clearly the formation of EACs in Chile has been directly and strongly facilitated by public policies that, since 1990, have explicitly aimed at fostering the formation of economic organizations of this sort, at stimulating the incorporation of as many small farmers as possible, and at prioritizing these economic associations as the primary counterparts of several public agencies (such as INDAP, FOSIS, or CORFO).



Note: 1998 includes only first semester

Figure 4.1 Year of legal constitution of EACs

Table 4.1 shows how the regional distribution of EACs closely follows the distribution of subsistence and market-oriented small farmers.

Table 4.1 Regional distribution of EACs in Chile (percentages)

Region	% of EACs in region	Small Farms[1]		
		Subsistence	Market-oriented	Total
1	1.2	0.8	1	0.9
2	0	0.6	0.5	0.6
3	1.7	0.6	0.6	0.6
4	3.3	7.5	3.8	5.2
5	10.7	6.2	5.9	6
6	10.2	9.4	10.2	9.9
7	9	12.7	13.8	13.4
8	13.7	17.7	18.9	18.4
9	23	16	23.5	20.8
10	19.9	25	15.6	19.1
11	0.7	0.3	1	0.7
12	1.7	0.2	0.4	0.3
13	5	2.8	4.8	4.1
Total	**100**	**100**	**100**	**100**

[1] Source of number of small farms and their regional distribution: ODEPA, 2000, based on data from the 1997 Agricultural Census.

The 424 surveyed EACs declared that they work with a total of 31,500 small farmers. If we extrapolate the average number of members of these 424 EACs to the 778 EACs that I estimate exist in Chile, we would come up with a total membership of around 58,000 small farmers, or around 21% of all small farms in Chile, or one third of the number of market-oriented small farms in the country. These estimates agree with my survey of 3,000 small farmer households (see Chapter 5), which found that 22% claimed to belong to an EAC, as well as with the results of Gómez (2001).

The average number of members and clients[24] of the surveyed EACs is 74.7, ranging between three and 3,000. However, Figure 4.2 shows that about half of the EACs work with less than 30 small farmers, and that larger EACs, with more than 100 or 150 members or clients, are not very common in Chile. I cannot explain the dip in the number of EACs with members between 75 and 100 members.

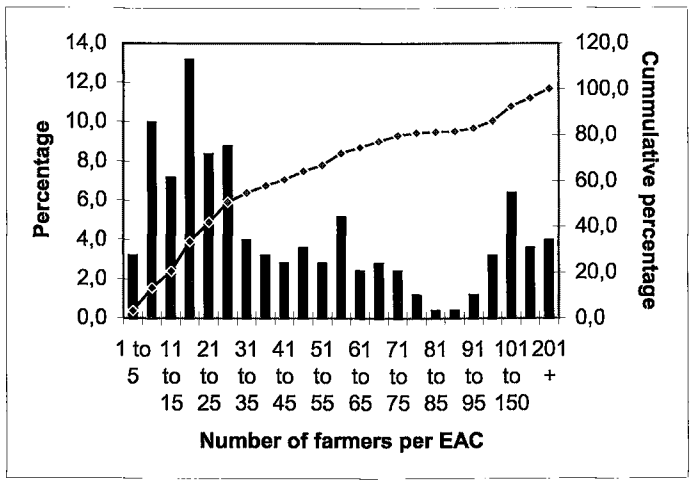
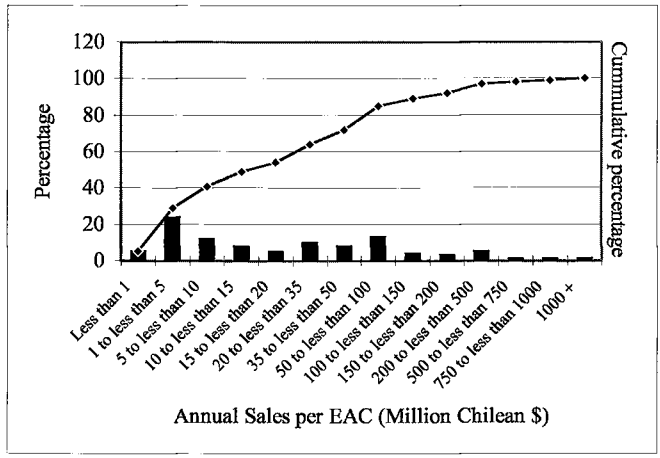


Figure 4.2 Size of EAC according to number of farmer members

The total declared value of sales in 1998 of the 424 surveyed EACs was $57 million, or $ 1,800 per small farmer client. According to the total value of declared sales in 1998 (goods and services), the largest EAC had annual sales of $4.2 million. The average value of sales was $ 135,000. However, as shown in Figure 4.3, most EACs' sales were less than about $ 35,000 at the time of the survey; only 28% had sales of more than $ 100,000.

The 424 EACs in our survey directly employ 1,757 people made up of 122 managers, 241 administrative staff, 280 technical staff, 115 promoters, and 999 'other' types of employee. 46% of EACs do not have any paid employees, and an additional 32% have between one and three paid employees (Table 4.2). This makes an average of 4.4 employees per EAC, with a minimum of zero and a maximum of 190 (a large milk cooperative). However, an average of 6.7 persons per EAC work *ad honorem*, meaning that the members themselves are most often in charge of management, clerical, or technical tasks within the organization. In fact, most volunteers work in management.

[24] Members are those who have a legal right in the EAC (e.g., shareholder), while clients are farmers who are regular users of the services of the EAC, regardless of the legal status of their relationship to the organization.



Note: $ 1 = Chilean Pesos 453 at time of survey

Figure 4.3 EACs' annual sales (1998)

Table 4.2 EAC employees

	Percentage of 424 EACs				
Number of employees	**Managers**	**Administrative**	**Technical**	**Promoters**	**Other**
0	77.6	67	75.2	94.3	73.3
1 to 3	21.9	31.2	20.5	3.5	17.9
4 to 5	0	1.1	1.4	1.1	3.8
6 to 10	0.4	0.4	2.3	0.2	1.1
More than 10	0	0.2	0.4	0.6	3.9
Total	**100**	**100**	**100**	**100**	**100**

In relation to the markets to which EACs have access, the most important category is local markets (Table 4.3). This basically means a combination of selling goods and/or services to local people, or that the EACs are acting as a first-stage intermediary between the individual farmer and traders that travel in the countryside buying agricultural products. However, almost half of the EACs operate in national markets, and 13% are involved with exports. Furthermore, most EACs operate at two market levels on average (e.g., regional and national, local and regional, etc.).

Table 4.3 Types of markets accessed by 424 EACs in Chile

Type of market	**Percentage of 424 EACs**
Members' households	27.7
Local	78
Regional	57.2
National	46
International	13

Note: The total is greater than 100% because a single EAC can operate in two or more market types

Table 4.4 shows that most EACs are involved with more than one crop or animal product. Livestock production (milk and meat) is more important than crop production. This undoubtedly reflects the influence of the Milk Collection Centers that were widely promoted in the early 1990s.

Table 4.4 EACs and their enterprises

Enterprise	**Percentage of 424 EACs**
Milk	37.3
Fresh vegetables	32.3
Potatoes and other extensive field vegetables	28.5
Meat	19.3
Basic cereals	13.2
Leguminous grains	11.8
Berries	9.7
Flowers	8.5
Temperate fruits	8
Vegetables for agro-industrial processing	7.1
Seeds	6.6
Honey	6.4
Agro-tourism	5.4
Handicrafts	4.2
Wine	3.3
Forest products	3.3
Others	12
Traditional enterprises in Chilean small-scale farming	114.3
Non-traditional enterprises in Chilean small-scale farming	87.3

Note: The total is greater than 100% because a single EAC can work with two or more enterprises

Fresh vegetables are the EACs' main crop. On the contrary, crops such as basic grains and legumes – very common in peasant farming systems – have a limited presence in the portfolio of EAC activities. This could mean that there are disincentives to collective action associated with these crops and their markets. Activities involving non-traditional crops are carried out by 87% of EACs, emphasizing the significant role these organizations play in diversifying peasant agriculture into more profitable areas.

EACs provide a wide array of services to small-scale agriculture (Table 4.5), including members and clients. Support to crop and livestock production is the predominant activity, despite the fact that during interviews EAC leaders and managers, marketing and post-production support were mentioned as top priorities. Nevertheless, marketing of supplies and products, and other services directly related to marketing (such as storage, transportation and price and market information systems), are very important areas for EACs. Value-adding through processing is still a relatively small area of activity. In other Latin American countries, credit provision is one of the most important services provided by EACs, but not so in Chile, as in this country members of these organizations almost automatically have access to INDAP's credit programs.

Table 4.5 Services provided by 424 EACs to small farmers

Service	Percentage of EACs
Agricultural production	57.3
Marketing of products	48.6
Storage	34
Animal production	30.9
Machinery services	21.9
Marketing of inputs	21.2
Technical assistance and extension	20.5
Agro-industrial processing	17.7
Preparation of investment projects	14.9
Price and markets information	13.4
Training	12.5
Credit	11.8
Accounting	10.6
Legal services	9.4
Forest production	8
Assistance to agro-tourism	5.2
Other services	9.9

Note: The total is greater than 100% because a single EAC can provide two or more services

4.4 Discussion

The main conclusions from this survey are as follows:

(1) The pro-active policies of three successive democratic governments have been instrumental in stimulating the formation of EACs, most of which have emerged since the return to democratic rule in 1990. Such policies have created two complementary incentives: (a) a climate of favorable political opportunities, where the organization of rural people has been encouraged as a means to strengthen civil society and to promote public participation in civic life; and (b) promotion by rural and agricultural development agencies of small farmer economic organizations to incorporate small-scale agriculture into the market-oriented economy. As we have seen in Chapter 1, these policy objectives led to very large amounts of public funds (subsidies and loans) being made available to support EAC formation.

(2) EACs are engaged in supporting small farmers' strategies to diversify products, markets and services. Historically, small-scale agriculture in Chile has concentrated on a number of 'traditional' crop and animal products (e.g., milk, small grains, grain legumes, vegetables and a handful of industrial crops such as sugarbeet). Most of these products are sold locally through middlemen. However, my findings show that a very large proportion of the EACs are involved in non-traditional production systems, services and markets.

(3) Small farmers have avoided repeating the trend prevailing until the 1973 military coup, of forming large-scale organizations with hundreds of members. While this probably enhances the internal cohesion of these EACs, it may lead to important problems of scale of operations for several of their products and markets (e.g., wine, flowers, fruits).

CHAPTER 5. THE MEMBERS OF EACs

5.1 Introduction

In this chapter I address three questions: (a) Who are the EAC participants? (b) Are all small farmers equally likely to participate in these business-oriented organizations? and (c) Do the poorest farmers have an equal participation rate as the wealthier farmers?

These are important questions for at least two different policy objectives:

(1) Reducing rural poverty: it is important to know if the poor and the extremely poor are being included in these organizations.

(2) Diversifying small-scale agriculture away from traditional commodities and towards more competitive and profitable enterprises: it is important to know if all small-scale farms are equally likely to participate in these organizations regardless of their type of production or productive capacities.

Current public policies, in particular those of INDAP, make no *de jure* discrimination between different types of farmers in terms of the support they can receive if they want to set up an EAC. It is assumed that all small-scale farmers can take advantage of the instruments and programs which support EAC development. Yet not all small farmers may be equally interested in participating in these organizations, and/or some farmers who would like to join may face *de facto* barriers to doing so.

In this chapter I assume that the participation of a small farmer in an EAC is determined by the interplay between a number of factors, discussed in detail in Chapter 2:

- the incentives he or she faces to engage in collective economic action;
- the resources or assets that the household and its participants command; and
- the household's predisposition towards participating in such organizations, which, as discussed in Chapter 2, is influenced by their previous experience of collective action and other institutional issues.

Chapter 2 mentioned three types of incentives for a farmer to engage in collective economic action:

(1) market incentives (i.e., market characteristics or signals that justify a household's investment in the time and other resources required to join and participate in an EAC; see Chapter 2 and especially Table 2.1);

(2) political incentives (i.e., policies and public resources that create the political opportunity and lower the costs and uncertainties involved in a decision to join an EAC);

(3) incentives provided by intermediate agents, such as NGOs, technical advisors and extension agents, etc. (who provide leadership in signalling alternatives to the *status quo*; models of organization; technical and entrepreneurial expertise; access to information and to networks extending outside the rural communities; and sometimes financial resources, all of which lower the direct and transaction costs of organizing). Faced with such incentives, the capacity of a household to respond depends on its capital assets, including natural, human, physical, financial, and social capital.

5.2 Method

The methods used in this chapter are discussed in detail in Chapter 3, section 3.2.

Aim	Methods and information source	Sample size
To describe and compare EAC members and non-members in terms of household and farm characteristics.	Survey of household and farm characteristics (General Survey).	3000 households and farms. Sample is statistically representative of the population of small farms in five regions of Chile (where 72% of all small farms in the country are located).
To compare EAC members and non-members in terms of farm net margin and household annual income.	Farm production costs and household income composition survey (Costs Survey).	602 households and farms, sub-sampled from the sample of 3000 households and farms.
To identify factors that contribute to a small farmer being an EAC member.	Probit analysis using data from the General and Costs Surveys described above.	471 households and farms with complete information, from the General and Costs Surveys.
To identify factors influencing the decision by farmers to set up an EAC.	Three-day workshop with farmer leaders belonging to 27 EACs.	27 farmers from the same number of EACs.

5.3 Comparison between EAC participants and non-participants

In this section I compare the characteristics of the individuals, households and farms of EAC participants with those of non-participants. The data come from a cross-sectional survey and I do not have information on the characteristics of the individuals, households, and farms before they decided to join an EAC. As discussed in Chapter 3 (Section 3.2), the reader should be aware that correlations between participation in an EAC and any of the variables included in the analysis, do not imply causation.

5.3.1 Levels of participation by type of organization and region

Nearly three-quarters of all rural households are affiliated to an organization of some kind (e.g.., for economic, social, recreational or religious purposes), but only one-fifth of them are in an EAC. One-third of the participants of rural organizations belong to an EAC. The participation in EACs is statistically independent of participation in rural organizations of some kind.

Table 5.1 shows that there are strong regional variations in the degree of participation, both in rural organizations and in EACs. Moreover, there are regions with high participation in rural organizations and low levels in EACs, and *vice versa*. There are also regions where participation is either high or low in both types of organizations. Statistically speaking, the correlation between the degree of participation in rural organizations and EACs, by regions, is low and non-significant. High levels of civic participation do not necessarily lead to similar degrees of participation in economically-oriented organizations. I would hypothesize that a high density of civic organizations aids the formation of EACs by providing leadership, accustoming people to working with others, providing information about which individuals can or cannot be trusted, or providing a forum where people can discuss new collective action initiatives. But these activities do not necessarily foster collective economic action; just as in an urban setting being a member of the same sports club as another person does not necessarily mean that one will become his or her business partner.

Table 5.1 Participation in rural organization and in EACs by region (percentage of households)

Region	Rural organization	EAC
V irrigated	50	25
VI irrigated	N/A	N/A
VI dryland	N/A	14.3
VII north irrigated	90.9	48.5
VII south irrigated	87.2	12.8
VII dryland	79.2	16.7
VII piedmont	87.5	28
VII-VIII rice	69.6	4.3
VIII irrigated	82.4	13.7
VIII dryland	51.2	4.9
VIII piedmont	60.9	0
X red clays	69.2	34.6
X *ñadis*	81.1	47.3
X *trumaos*	57.4	34.4
X *Chiloé*	76.7	6.7
Total	**73.1**	**21.5**

Note: *Ñadis* and *trumaos* are local names for particular soil types. The area where these soils are prevalent are known by the same name. Chiloé is a large island in Region X.

High civic and economic participation occur in only a few regions; those where the farming systems and markets used by small farmers create incentives for economic collective action (e.g., VII irrigated region North, with its fruit, vegetables and berries; and X region *Ñadis*, where milk production is a primary enterprise). High civic participation and low EAC participation occurs in some areas with a strong rural identity and culture, such as the island of Chiloé, but where subsistence potato, wheat and sheep farming are also very important. In fact, there are a couple of regions with lower than average levels of civic participation and higher than average participation in EACs (e.g., the *trumaos* area in the X Region, where potato is the predominant crop of small-scale farming). These results are consistent with the discussion in Chapter 2 of market conditions under which EACs can make an effective contribution to their members.

5.3.2 EAC participation and cropping systems

According to the conceptual framework presented in Chapter 2 (in particular Table 2.1), a household's interest in joining an EAC partly depends on the incentives derived from its specific productive or market environment.

Table 5.2 shows that participation of milk producers in EACs is significantly higher than would be expected statistically if product and market orientation is not influencing such a decision. For many of them these organizations are the only way they can respond to the new grades and standards being enforced by the dairy industry. For them, the only alternatives to collective action would be to purchase an individual cooling tank (which requires a certain scale of production as well as the financial capacity to invest), or to remain in the informal milk market.

Table 5.2 Participation in EACs by enterprise (percentage of households who produce a given product)

Enterprise	Participation in EAC
Milk	54.6**
Wheat	14.5**
Beans	19.6
Potatoes	24.4
Total	**21**

** Chi-square test significant at 1%

In the case of wheat and bean producers, there is no advantage to organizing for marketing these commodities (Table 2.1 in Chapter 2). There are no significant market entry barriers; the price is set through fairly transparent mechanisms; there are plenty of buyers even in the most remote areas; there is no way to differentiate one's own product; transaction costs are very low; and economic risk in wheat is regulated in Chile through the operation of 'price bands' that attenuate the year-to-year fluctuations of international prices. Under these conditions, farmers would have little to gain from a marketing organization.

Potato producers face more or less the same market conditions as those engaged in wheat and bean production. In fact, a recent study (Vargas and Foster, 2000) which examined the market conditions for the 15 most important Chilean agricultural products found that the potato market is the closest one can find to a 'perfectly competitive' market. However, in this case there are two conditions that may create an incentive for joining an organization: potato prices fluctuate widely from year to year, so the degree of economic risk is rather high; and if an organization can differentiate and process its product, it may be able to access the supermarket outlet, where prices can be significantly higher than in the spot market. However, for an EAC to be able to intervene in any of these two levels, it would have to be able to market an extremely large volume of potatoes more or less constantly throughout the year. Achieving this goal is probably beyond the means of most, if not all, the existing local or regional potato-marketing EACs.

5.3.3 Rural poverty

Chile uses the concept of an official poverty line to monitor poverty. A household is considered extremely poor if its per capita income is not sufficient to cover the cost of a 'basic food basket', and is defined as poor if the income can meet food needs but not those of clothes, housing and basic services. At the time of the survey, the rural poverty line was set at $ 636 per capita/year, and the extreme poverty line was $ 363 per capita/year.

There are statistically significant differences in the degree to which these different kinds of households participate in EACs (Table 5.3). Participants in EACs are concentrated in the non-poor category, with a much lower representation of extremely poor households than in the control group. Yet EACs do have a higher proportion of poor households than the non-participant category[25].

[25] At this point it is particularly important to remind the reader that the data do not permit us to establish any causality between participation in an EAC and the position of the households in this classification of poverty. From this result we cannot conclude that participation in an EAC results in a household overcoming poverty, or if in fact the poorest participate less, either by their own free will or by being excluded.

Table 5.3 Poverty and participation in EACs

Type of household	**Participants (%)**	**Non-participants (%)**
Non-poor	59.1	51.5
Poor	18.3	13.3
Extremely poor	22.6	35.2
Total	**100**	**100**

Chi^2 significant at 5% level

5.3.4 Human capital

The heads of households which participate in EACs tend to be, as a group, somewhat better educated than the non-participants. Among non-participants, 73% of household heads have no schooling or only incomplete primary education, as compared to 57% in the EAC participants group. These differences are statistically significant in a Chi^2 test.

However, there are no other important differences in other human capital variables, such as household size, age of the household head, number of members in the labor force, dependency ratio (economically inactive / active members of the household), or, surprisingly, percentage of female-headed households (Table 5.4).

Table 5.4 Human capital and participation in EACs

Variable	**Non-participants**	**Participants**
Household size (average number of members)	3.92	3.94
Household members in the labor force (average number)	2.7	2.8
Non-working / working household members (average number)	1.4	1.3
Age of head of household (average years)	55.3	57
Female-headed households (%)	10.4	8.7
Head of household, no schooling (%)	7.6	7
Head of household, incomplete primary education (%)	65.1	49.6
Head of household, complete primary education (%)	14	20
Head of household, incomplete secondary education (%)	5.2	8.7
Head of household, complete secondary education (%)	6.7	7.2
Head of household, further education (%)	9	7.5

5.3.5 Farm size

Participants in EACs have larger farms than non-participants (Table 5.5). However, this conceals a location effect, since most participants tend to be located in the south where farms are larger but less productive per hectare due to soil and climate constraints. When controlled by agroecological zone, the differences in farm size are only statistically significant in one of the regions. Also, there are no statistically significant differences between members and non-members of EACs in the number of irrigated hectares per farm, nor in the proportion of the farm under irrigation.

Table 5.5 Farm size and EAC participation

Variable	Non-participants	Participants
Average farm size (ha)	17.6	28.7
Average irrigated farm area (ha)	2.9	3
Share of farm under irrigation (%)	29.2	23.9

5.3.6 Crop yields and prices

I was able to analyze mean yields for six crops. EAC participants have significantly higher yields for oats, potatoes and beans. There are no statistically significant differences between EAC participants and non-participants in the yields of corn, sugarbeet or wheat.

I examined the mean price received by EAC participants and non-participants for 83 different products. The conclusion is clear: EACs have not been able to negotiate better prices for their members' production. Participants in EACs only received statistically significant higher prices for short-grain rice, dry green peas and garbanzo; all of which are rather minor crops in peasant farming systems. In no case did EAC participants receive lower prices than non-participants.

5.3.7 Diversification into non-traditional crops and farm enterprises

Traditional crops in Chile are those that were predominant in the country until the late 1970s. The most important traditional crops are wheat and maize; grain legumes; the so-called traditional industrial crops (sugarbeet, oil crops, and tobacco); traditional varieties of wine; and potatoes. Traditional animal enterprises include milk and meat from double-purpose cattle, and milk from dairy cattle. Non-traditional crops are those produced for the export market, agroindustries, and retail market (supermarkets and restaurant chains). They include fruit, fresh vegetables produced under intensive cropping systems, agroindustrial vegetables (e.g., tomatoes for tomato paste), quality wine, flowers, and seeds. Non-traditional animal products include all specialized systems using modern technologies. As the reader will rapidly see, this is a confusing classification, in that the same crop can be considered both traditional and non-traditional, depending on the market it is destined for and the production technology used. However, I am using this classification because it is the one applied in Chile.

Diversification away from traditional commodities has been an important objective of public policies and private investments. This is a reaction to macroeconomic and trade policies that have significantly decreased Chile's competitiveness in these non-traditional products. However, there are no significant differences between EAC participants and non-participants in the number of hectares growing non-traditional crops per farm (in both cases, an average of less than 1 ha per farm).

5.3.8 Access to non-traditional markets

Traditionally most small Chilean farmers rely on middlemen to buy part of their harvest at the farmgate. Given EACs' emphasis on marketing, it is surprising that there are no significant differences between EAC participants and non-participants in terms of the share of their production that is sold in formal markets, such as supermarkets, restaurant chains, or agroindustries. Around 25% of the harvest (by gross value) is sold in these markets for both members and non-members. There are also no significant differences between EAC participants and non-participants when one looks at the percentage of households that have production contracts with agroindustries (around 12% in both cases). This means that in 1997 many EACs were still selling their members' products in traditional markets.

When I do this same analysis separately for milk, potato and wheat producers (the three products for

which I have sufficient data points), then I find that milk producers who participate in EACs, on average sell slightly less than half of their production in formal markets (mostly large dairy plants), while non-members on average only sell a quarter of their production in those markets, the rest going to the middlemen. The difference is highly significant from a statistical point of view. On the other hand, the results for potato and wheat producers show no differences between EAC participants and non-participants. These results are in line with the conceptual framework presented in Chapter 2 and in particular in Table 2.1.

5.3.9 Access to technical assistance services and credit

In Chile, agricultural technical assistance is provided to small farmers by non-governmental agencies (NGOs, private consultant firms and individuals, and small farmers' organizations), under contract to government agencies, the most prominent of them being INDAP. As shown in Figure 5.1, the vast majority of small farmers who participate in EACs have access to these INDAP services, while half of the non-participants receive this type of support. Seen from another angle, almost three-quarters of the small farmers who receive technical assistance from INDAP, are not participating in an EAC. All these results are statistically significant. What this means is that participation in EAC does increase the access of a small farmer to technical assistance and advice, but that being a member of these organizations is not a *sine qua non* condition for receiving these services.

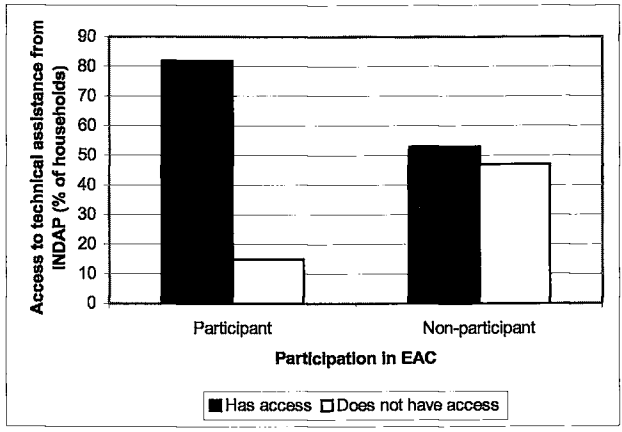


Figure 5.1 EAC participation and access to INDAP technical assistance services

More or less the same trends are observed for credit provided by INDAP, except that there is even less discrimination against non-participants, since two-thirds of them still have access to loans (Figure 5.2). Close to three-quarters of all INDAP credit customers are not members of EACs. Of those EAC participants who have access to INDAP credit, 42% receive long-term loans, as opposed to only 26% of the non-participants who are financed by INDAP. All these differences are statistically significant As can be seen in these results, INDAP does not condition loans on being an EAC member. Some loans require collateral and others do not, but this is not contingent on being an EAC member. When required, the collateral is requested directly from the loan recipient (whether an individual, an EAC or some other type of rural organization). EACs must commit their own assets as collateral - and sometimes that of the members as well, depending on the size of the loan - only when they are the direct recipients of the loan. Interest rates are exactly the same for all types of loans. Loans to EACs do have some advantages, such as higher loan size limits. EACs often process as one single loan application the sum of the individual loans required by their members; this reduces the cost of the loan process both to the members and to INDAP.

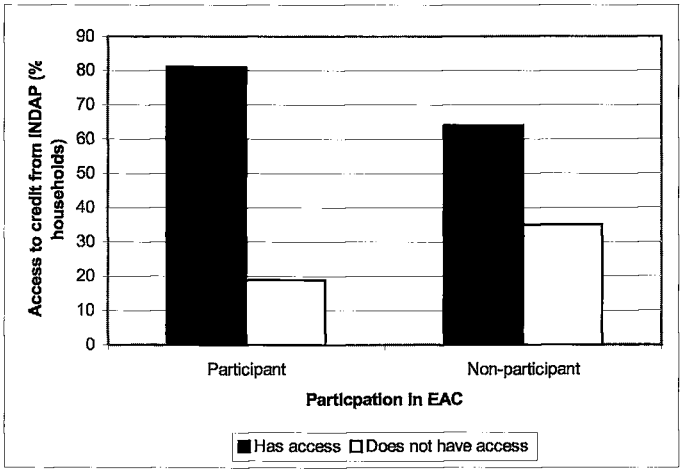


Figure 5.2 EAC Participation and access to credit from INDAP

5.3.10 Farm and household income

Table 5.6 shows that the net annual household income of EAC-participating households is 43% higher than that of non-participants. The net annual farm income of EAC participants is 96% higher than that of non-participants. The main reason for these annual results is the much higher gross value of production (78%) achieved by participants.

Note in Table 5.6 that the ratio of direct costs (labor plus agricultural inputs) to gross value of farm products is only slightly higher for participants (63%) than for non-participants (58%). This indicates that their profit rates are roughly similar. Also, there are no statistically significant differences between participants and non-participants in the ratio of gross value of farm output to on-farm labor (whether from their own households or hired); yet, participants do invest more household labor in on-farm activities.

Table 5.6 Farm and household income and EAC participation

Variable	Non-participants	Participants
Net annual household income ($)	3,385	4,230 *
Net annual farm income ($)	1,132	2,223**
Gross value of farm output ($)	5,285	9,397 **
Direct costs of farm production ($)	3,088	5,888 **
Fixed costs of farm production ($)	1,065	1,285
Off-farm income ($)	807	869
Unearned income ($)	484	576
Value of on-farm household labor ($)	449	793 **

* = t-test significant at 5%; ** = t-test significant at 1%

EAC participants derive a lower proportion of their gross income from off-farm sources (18%), as compared to non-participants (24 %); the difference is statistically significant. However, this is not due to participants having a significantly lower income from off-farm sources. Whilst participants and

non-participants receive more or less the same gross income from off-farm sources, participants have a much higher total gross income, so the share is lower. In both cases the main source of off-farm income is wage employment in agriculture. There are no differences in unearned income between both groups of households, meaning that they have equal access to social subsidies.

5.4 Deciding factors in the decision to establish an EAC

As described in Chapter 3, a three-day workshop was held with farmer leaders of 27 EACs. The participants were divided into different groups according to their EAC's main product focus. All the groups were asked the same question: *"What were the most important factors that stimulated the formation of the EACs present in this group?"* In this section I first present the results of the workshop (see Section 5.1) classified by producer group (milk, potato, and fruit and vegetable EACs), and then I compare the different groups.

5.4.1 Potato producers' perspectives

Potato producer EAC leaders felt there were three main factors involved in establishing an EAC:

(1) The most important factor is the presence of a leader or a small group that can take the initiative to form an organization. In all cases, these leaders first formed informal groups to do things other than marketing potatoes, such as receiving technical assistance in forest management; sharing the costs of and transport for agricultural supplies and inputs; improving a road or some other similar investment in local infrastructure or services.

(2) The second factor relates to the markets in which they operate. By selling their potatoes themselves, small farmers receive low and unfair prices. Small farmers joined their EAC so that they could negotiate collectively with buyers, and thus obtain better prices for their product. Markets demand larger volumes and higher quality; EACs can help small farmers meet these market demands.

(3) The third factor, according to this group, is the support received from public agencies and programs. In all cases, the informal groups that had carried out successful and largely non-economic initiatives were approached either by municipal governments or by national agencies such as INDAP and FOSIS (the Solidarity and Social Investment Fund), to invite them to participate in programs that required the formation of an EAC. In most of these cases, such programs involved the availability of loans and subsidies to finance investments, working capital and technical assistance, and these resources are what captured the interest of the members of the informal organizations.

5.4.2 Fruit and vegetable producers' perspectives

This group felt that two factors were important:

(1) Most important was intervention by intermediaries, such as traders, NGOs, the National Confederation of Cooperatives, the local priest, and a private technical assistance consultant working under contract with INDAP. In the view of this group, these agents *"motivated the community, brought in financial support, and trained us to work together in EACs"*.

(2) The second most important factor was the need to access new markets. In many cases, this was due to farmers having recently embarked on growing new fruit or vegetable crops, such as cherries or raspberries. The new market opportunities were in most cases identified by a member of the local organization or by the intermediary agents, who *"learned something"*, or *"knew someone"*. With this information and the support of the intermediate agents, the group began to get going.

This group felt that working together created links between neighbors that were then useful when forming an EAC. Kinship links also played a role. However, in the case of some of the vegetable producers, social relationships were initially strained because of having to compete against each other

in limited local markets.

5.4.3 Milk producers' perspectives

This group identified a very long list of factors that brought about an early decision to form an EAC (in all cases, these were Milk Collection Centers):

(1) Market factors: A few years ago, all the dairy agribusinesses began to reject milk that had not been cooled. There was no way to escape this new standard, since all the factories had the same policy. Many sectors were being left out of the itineraries of the milk collection trucks, due to low volume and because the milk they picked up was not cooled.

At the same time, some dairy plants were offering to set up Milk Collection Centers, sometimes even contributing the cooling tank, offering to pay a higher price for higher volume, and, in some cases, even subsidizing the cost of transport. In some cases, two plants would compete with each other to serve a group of small farmers. One of the medium-large dairy agribusinesses (COLUN) is a cooperative owned by farmers, and they were more supportive than the largest firms (e.g., Nestlé and Soprole).[26]

The dairy plants did not want to be responsible for administrating these Milk Collection Centers, and so there was a need for the farmers to establish a formal organization to own, set up and run the center.

(2) Intermediate agents: Technical advisors working as INDAP contractors told farmers about the new dairy agribusiness grades and standards policies. They argued that if the farmers did not organize and set up Milk Collection Centers, they would be left without a market. They knew about centers already working in other parts of the country or region, and had technical and economic information to design the new ones. These technical agents also knew how to approach INDAP and FOSIS - and, in some cases, the dairy firms - to tap the resources (loans and subsidies) available for setting up a center.

(3) Government agencies: INDAP and FOSIS provided the loans, subsidies and technical assistance required to set up a Milk Collection Center. INDAP insisted that in order to set up a Milk Collection Center, a group would need to establish itself as a formal EAC (e.g., to be able to buy the land and equipment, contract the electricity services, receive the payments from the dairy plant, etc.). INDAP would often subsidize in part or in full the legal costs involved in establishing an EAC. In many cases, INDAP insisted the group receive technical assistance from private contractors before agreeing to give out a start-up loan.

(4) Rural communities: In all cases, the farmers perceived the new grades and standards policies as a threat. Under these conditions, *"a hidden leader"*, a member of the community or a small group, took the initiative to mobilize other farmers to respond to the threat. In only one case, the community as a whole reacted, because they already had an informal neighborhood organization that had carried out many projects to improve the local school, roads, church, etc.; this group was able to react very fast to the offer by one of the dairy firms to set up a Milk Collection Center, while the communities that lacked these organizations needed more time to start up the process. Individuals within the communities are also important because in almost all cases, one of the neighbors donated the piece of land (usually around 0.5 ha) needed for housing the cooling tank.

5.4.4 Common factors

The three groups in the workshop identified the same factors behind their early decision to organize,

[26] By *"more supportive"*, the farmers basically mean that COLUN had a more helpful attitude to finding solutions to the problems that the farmers could have in setting up the EACs, while the largest firms simply would establish their conditions and then it was up to the farmers to meet them in whatever way they could. However, prices, grades and standards are more or less the same across these different dairy firms.

but with differing emphases on their relative importance.

The process of setting up the milk, fruit and vegetable producer EACs was catalyzed by new market trends. In the case of milk, a change in grades and standards in the dairy industry threatened to put them out of business. For fruit and vegetables, the traditional markets were insufficient or inadequate to absorb diversified products.

Potato producers emphasized the role of pre-existing community organizations as platforms to facilitate the start-up of economic collective action. Market conditions were also a factor, referring to the long-standing aspiration of small farmers of being able to negotiate better prices with the traditional local merchants and traders.

All the groups highlighted the importance of community organizations and of individual or collective leaders. The former provide the initial fora for debating alternatives. These community groups, whether formal or informal, 'incubate' the initiatives that will become an EAC. Individual and community leaders played a clear role in all the cases present in the workshop. Participants appeared to place greatest emphasis on the role of these persons or groups in motivating other farmers. This attitudinal or political leadership provided by local leaders is complemented by the more 'technical' leadership of external agents. If local leaders build on farmers' willingness to question the *status quo* and to take action, external agents provide the 'road map' for collective action, as well as the networks needed to obtain information, knowledge, expertise and financial resources.

The role of government agencies was mentioned by all three groups. It appears to be stronger or more decisive for potato growers, where the market stimulus is weaker, but is also very important in the case of milk and fruit and vegetable producers who require the financial and technical support of government agencies to set up their organizations and start their operations. In other words, for potato growers, public programs both stimulate and facilitate economic collective action, while for milk and fruit and vegetable producers, the stimulus comes from the market and government provides the means to respond.

5.5 Factors affecting the probability of being an EAC member

Table 5.7 shows the results of the Probit regression analysis, using the data from the 1997 survey of small farms and households (see Chapter 3). The conceptual model is as follows:

(1) There will be significant location effects, as location is related to factors that create incentives or disincentives to becoming a member of an EAC, such as access to markets and the structure of farming systems.

(2) Milk producers are more likely to join EACs, since there are significant barriers to market access in the dairy industry if a farmer is not organized. There will be no effects, or the effect will be negative, when the farmer is a potato, wheat or bean producer, as farmers can produce and sell these commodities in the spot market, without needing to work through an organization.

(3) All the human capital variables have a positive effect on the probability of being an EAC member, since these households will tend to be wealthier, more informed and more involved in social networks that extend outside their communities. Households headed by women are less likely to be EAC members as these households face very significant constraints on their capacity to invest time and other resources in any but the most indispensable production and domestic activities. Education will have a positive effect on the probability of EAC membership, as better educated households have access to more information and contacts and have higher income and other assets.

(4) Total farm size and access to irrigation will both have a positive effect on the probability of being an EAC member, as these households will be wealthier, more linked to market and non-market networks, and more dependent on farm income.

(5) Access to technical assistance will have a positive effect on the probability of being an EAC

member, as farm advisors provide a strong link to the public programs and instruments available to support EACs.

(6) Being poor and extremely poor will diminish the probability of a household being a member of an EAC, as they derive a large fraction of their income from non-farm sources and their farming systems are oriented not to market exchange but to household food security.

Table 5.7 Determinants of EAC participation

Number of observations = 471 LR Chi^2 = 196.9 Prob. > Chi^2 = 0.0000 Log likelihood = -163.3451 Pseudo R^2 = 0.3761				
Variable	**Coefficient**	**Standard error**	**z**	**P>|z|**
Location in Northern irrigated VII Region[1] (1 = yes)	1.26	.73	1.72	0.085
Location in the *Ñadis* area of the X Region[1] (1 = yes)	.83	.51	1.61	0.100
Milk producer? (1 =yes)	1.30	.22	6.00	0.000
Potato producer? (1 = yes)	-.35	.19	-1.82	0.069
Wheat producer? (1 =yes)	-.11	.20	-0.54	0.589
Bean producer? (1 = yes)	.00	.26	0.01	0.995
Number of household members	.04	.05	0.90	0.370
Age of head of household	.02	.01	2.18	0.029
Gender of head of household?	-.06	.28	-0.20	0.840
Incomplete basic education? (1 = yes)	-.25	.34	-0.72	0.470
Complete basic education? (1 =yes)	.11	.38	0.30	0.764
Incomplete secondary education? (1 = yes)	.02	.46	0.03	0.973
Complete secondary education? (1 = yes)	.07	.45	0.15	0.884
More than complete secondary education? (1 = yes)	.64	.54	1.20	0.231
Total farm size (ha)	.00	.01	0.97	0.333
Percentage of farm with irrigation	.00	.01	0.291	0.771
Receives technical assistance from INDAP? (1 = yes)	1.33	.20	6.81	0.000
Poor but not extremely poor? (1 = yes)	.21	.24	0.86	0.391
Extremely poor? (1 = yes)	-.33	.19	-1.70	0.090
Constant	-3.25	.82	-4.00	0.000

[1] The remaining 12 location variables are not shown in this table, as they are all non-significant

The model is robust, and all the signs are as predicted in the conceptual model:

- Farmers in the northern part of the irrigated valley of the VII Region have a high probability of being EAC members. Here many small farmers are engaged in high risk, non-traditional crops (vegetables, fruits, berries, wine grapes, etc.) sold in markets with strong access barriers and high transaction costs. Also, being located in the Ñadis area of the X Region, where milk production is important means farmers have a very strong incentive to organize in order to have access to the dairy industry market.
- Milk producers have a high probability of being EAC members. As mentioned before, the quality

grades and standards imposed by the dairy industry more or less force most small farmers to organize. Being a potato producer has a strong negative effect on the probability of being a member of an EAC; recent research has shown that this is one of the agricultural markets that works best in Chile, and small farmers would have little incentive (and plenty of disincentives) to join an EAC if the purpose is to market this product in spot markets. The coefficient of the variable for being a wheat producer also has a negative sign, but in this case it is not statistically significant. The constant of the variable for being a bean producer is positive but very low and non-significant. In short, milk producers have incentives to join an EAC, while potato producers have disincentives to do so, with less distinct results for wheat and beans.

- All the human capital variables, aside from gender of the head of household, have a positive sign, but only the age of the head of household is statistically significant, meaning that older households tend to participate more in EACs. The variable for having a female-headed household is not significant, showing that the gender of this individual does not affect the probability of being an EAC member.
- Surprisingly, neither farm size nor access to irrigation have a statistically significant effect, although in both cases the sign of the coefficient is positive, as expected. This means that participation in an EAC is neutral with respect to these types of assets.
- Having access to the technical assistance services provided by private consultant firms acting as subcontractors for INDAP has the largest positive effect on being a member of an EAC. Those farmers who receive these services will have greater support for EAC formation and development.
- Being poor does not have a significant impact on being an EAC member, relative to not being poor: in fact, the sign of the coefficient is positive. However, being extremely poor does have a negative and statistically significant effect on membership. That is, there is some degree of social exclusion, but this applies only to the most disadvantaged households. Whether this is due to the poorest having the incentive but lacking the capacity to participate, or simply to the fact that the poorest tend to derive a smaller fraction of their income from farm sources and engage less in market transactions, is a question that the model does not address.
- Finally, the constant term of the model has a negative sign and is statistically significant, meaning that an individual who does not have the attributes shown in the model to be statistically significant (e.g., being a milk producer, having access to technical assistance, etc.), has a very low probability of being a member of an EAC.

5.6 Discussion

At the start of the chapter I asked three questions: (a) Who are the EAC participants? (b) Are all small farmers equally likely to participate in these business-oriented organizations? and (c) Do the poorest farmers have an equal participation rate as the wealthier farmers?

I will answer these questions with reference to incentives and assets.

5.6.1 Incentives

Among the incentives, the leaders of 27 EACs highlighted the importance of certain market characteristics, in particular: (a) what they perceive as unfair prices resulting from unbalanced power relationships with intermediaries and traders; (b) quality standards that require the use of technologies that an individual small farmer cannot acquire alone; and (c) the need to access new markets for diversified commodities.

As discussed in Chapter 2, market incentives depend on the product. Both the qualitative and quantitative results in this chapter confirmed that small farmers working in markets with higher transaction costs (such as for milk, fruits and vegetables), have a stronger incentive to join an EAC than those who operate in spot markets with no entry barriers and with a large number of buyers and

sellers (as in the case of traditional commodities such as potatoes, beans or wheat). I would especially like to highlight the results in Section 5.3.2 which showed that milk producers have a higher participation rate than potato farmers, who in turn have a higher participation rate than wheat and bean producers.

The desire to extract better or 'fair' prices by acquiring a better bargaining position vis-à-vis middlemen and traders is mentioned by almost all the EAC leaders as an important motivation to set up and join an EAC. In fact, in almost all of the dozens of interviews with individual farmers that I conducted for this research, this usually came out as the first answer to the questions *"Why do small farmers need an EAC?"* or *"Why did you join an EAC?"*. However, as seen in Section 5.3.6, this goal is elusive. In a market economy, 70 or so small farmers (the average membership of an EAC as shown in Chapter 4) are almost always as powerless as a single farmer to influence market prices.

Public agencies and their programs are also powerful sources of incentives to participate in EACs. Many small farmers participating in the workshop stated that the new policies favoring the organization of small farmers, and the new subsidies and loans associated with these policies, helped catalyze EAC formation. This opinion is supported by the analysis in Section 5.3.9, that showed that members of EACs do have greater access to agricultural support services.

Intermediate agents (including representatives from national organizations of small farmers, NGOs, priests, extension agents and political leaders) were also identified by the EAC leaders as key players in stimulating EAC formation. In all cases, they appear to have contributed leadership by informing farmers about ways of organizing themselves, as well as providing access to the necessary contacts with public agencies or markets. In many cases they also contributed financial resources and technical expertise. Where small farmers were facing strong and very specific market incentives to organize (e.g., with milk, and fruits and vegetables), public and intermediate agents pointed out concrete ways to move forward. When the market incentives were less clear (e.g., with potatoes), the stimulus of available public funds appears to have been most influential in getting the process started.

5.6.2 Assets

With respect to assets and capacities, the presence of pre-existing community organizations and informal groups appears to be an important precondition for EAC formation. These organizations provide a social setting where alternatives can be discussed, weighed and decided upon. These community groups 'incubate' the initiatives that will result in an EAC. However, the statistical analysis in Section 5.3.1 shows that while pre-existing community groups can ease the formation of EACs, they do not always lead to the formation of these organizations.

Extremely poor households - but not those that are only 'poor' according to Chilean standards - tend to be excluded from participating in EACs. It is possible that these households have less need for an EAC, as much of their income comes from non-farm sources and only a small fraction of their agricultural production is destined for the market. For these very poor small farmers, the perceived costs of membership may be higher than the perceived benefits, as discussed in Chapter 2. However, we cannot exclude the possibility that the design of public policies is in fact a disincentive for these very poor farmers to join an EAC. For example, the amount of money that INDAP lends to very poor farmers is lower than that which is available for less poor ones, and the intensity of technical assistance is also significantly lower.

Surprisingly - and within the limits discussed above - access to assets such as land, irrigation, or education, does not appear to have a significant impact on EAC participation. The same is true for the head of household's gender.

5.7 Conclusions

Returning to the questions asked in this chapter, the quantitative and qualitative evidence shows that not all small farmers are equally likely to participate in an EAC. Incentives (from markets, government support programs, and intermediate agencies) appear to have a stronger influence on the decision to participate than a household's assets. A key exception is that the poorest farmers will participate significantly less either because of *de facto* exclusion due to the design of the public support programs, and/or because they have less need for an organization whose purpose is to engage in market transactions. A local tradition of forming rural organizations appears to facilitate the formation of EACs, but does not, on its own, seem to have a decisive influence as many regions with high levels of civic participation show low levels of EAC membership.

CHAPTER 6. EFFECTS OF EACs ON SMALL FARMERS

6.1 Introduction

Public policies which support EACs aim to make small-scale farming more profitable and to increase farmers' household income. To assess the effectiveness of these policies, therefore, we need to look at their impact at the farm and household levels.

Most of the EAC leaders and members to whom I talked agreed that the EACs were not an objective in themselves, but the means for improving their members' farming and living standards. This came out clearly, for example, when we talked about how to deal with the frequent tension between maximizing the performance of the EACs themselves, and transferring the benefits to the members. The almost unanimous opinion was that EACs should prioritize benefits to farmers, subject to the constraints necessary to assure the sustainability of associated businesses.

In this chapter I ask two questions: (a) Have the EACs contributed to increasing the profits for their members' farms?, and; (b) Does participation in an EAC contribute to higher income for members' households?

6.2 Method

The methods used in this chapter are described in detail in Chapter 3, Section 3.3.

Aim	Method/sources of information	Sample size
To analyze the perception by farmers of the costs and benefits of EAC membership.	Multiple choice questions included in a survey applied to farmers during case studies of 16 EACs (Case Study Survey).	223 small farmers who are members of 16 EACs, and 234 neighboring non-member small farmers (control group).
To test whether EAC membership has a statistically significant effect on: (a) a farm's net margin, and, (b) the household's annual income; controlling for the EAC's product orientation.	Heckman's Two-Stage Procedure, using data from the General and Costs Surveys.	298 farms and households with complete information.
To test the impact of EAC membership on total household income and its composition by sources of income, specifically for farmers in poor and marginalized areas.	Survey in 1996 and again in 2000, applied to the same farms and households in the dryland areas of 51 municipalities in five regions (Drylands Panel Survey). T-test comparison of means between EAC members and non-members	193 households and farms with complete information for 1996 and 2000.

6.3 Effects and impacts

6.3.1 Farmers' opinions

Table 6.1 summarizes the responses of 457 small farmers to 23 questions about the costs and benefits of being an EAC member.

Table 6.1 Costs and benefits of EAC membership

Benefits and costs	**Non-participants n = 234**		**Participants n = 223**		**Chi² test**
	Not true %	**True %**	**Not true %**	**True %**	
Benefits:					
Improved household income	43	37	23.8	21.8	**
Improved yield and production	43.7	44.7	17.6	65.5	**
Crop and livestock diversification	61.8	32.4	42.3	49.8	**
Improved marketing of products	61.8	28.4	38.7	35.7	**
Improved prices of products	72.5	17.6	57.1	25.6	**
Lowered production costs	56.4	24.8	41.8	38.5	*
Farm improvements	52	38.2	33.9	58.9	**
Improved quality of life of family	37.6	48.5	24.4	56.3	**
Improved quality of live of women	36.7	53.1	30.3	57.5	*
Improved quality of life of youth	41.2	47.4	34.4	47.6	ns
Optimistic view of the future	40.6	39.6	21.1	56.9	**
Improved relations with government agencies	45.1	31.4	31.9	45.6	*
Improved relation with municipal government	50.5	34.7	38.9	39.7	*
Improved relations with neighbors	35	52	12.7	70.5	**
Doing better as a small farmer	35.6	42.6	18.8	61.1	**
Costs:					
Has to incur in debts	45.5	42.4	17.6	72.7	**
Has to pay membership fees	49.5	40.6	21.3	76.2	**
Greater risks in agriculture	58.6	27.3	30.9	51.1	**
Loss of time in meetings	52	28.4	41.4	38.5	*
Share of product prices taken by organization	60.6	25.3	34.8	59.9	**
Worsened relationships with neighbors	82.4	5	82.8	5	ns
Some take advantage of the rest	39	48	38.7	49.3	ns
Less trust in the future	54.5	30.3	48.9	31.6	ns

* = Chi^2 test significant with p > 5%; ** = Chi^2 test significant with p > 1%; ns = Chi^2 test not significant.

Difference between 100% and the sum of 'Not true' and 'True', is due to answers of *"More or less"* and *"No opinion"*

The most striking result is the significant difference of opinion between participants and non-participants. EAC participants are consistently more optimistic than the non-participants about the

benefits of EAC membership.

A clear majority of participants agree that working with an EAC leads to improved yields and production, to being able to make improvements to the farm, to improved quality of life for the family and for women in particular, to having better relations with their neighbors, to having a more optimistic view of their future as small farmers, and to doing better as a small farmer.

When it comes to the costs of EAC participation, members are more aware of the direct economic costs: higher debts and higher risks, membership fees, and the fee charged by the EAC (a percentage of the products' prices) to cover its services.

In contrast, most non-participants do not think it is true that EAC participation can result in crop and livestock diversification, improved marketing, better prices for their products, or lower production costs. All of these issues relate to the economic benefits of participation; thus, non-participants do not think that working with an EAC can improve their performance or results as small farmers.

A majority of both groups agree that EAC participation is unlikely to help them obtain better prices for their products. But most agree that EAC participation improves the quality of life for women, as well as relationships with their neighbors.

In short, participants recognize economic and non-economic benefits, while non-participants foresee few benefits and only of a non-economic nature. As regards costs, participants stress the economic costs of participation, while most of the non-participants do not realize the types of costs that a small farmer would face if he/she joined an EAC.

6.3.2 Effect of participation on a farm's net margin

In this section I test the hypothesis that EAC participation increases member farms' net margins (i.e., gross value of production, whether sold or consumed by the household, minus direct and fixed costs). As explained in the methods chapter (Chapter 3, Section 3.3), I analyzed small farms engaged in milk, potato and wheat production separately (Tables 6.2, 6.3 and 6.4).

In all cases the test using Heckman's Two-Stage Procedure confirms that there was a selection bias for product, and that using standard regression techniques would have yielded biased results. This result supports the hypothesis that the effect of EAC participation is influenced by the specific product.

Controlling for product, EAC participation increased net margins for milk producers, but not for potato or wheat farmers. This result is consistent with Chapter 5, where we observed that the percentage of organized milk producers was much higher than the national average EAC membership among small farmers, while those of potato and wheat producers was around the average (potato) or lower (wheat). As we will see in detail in the discussion of the case studies of specific EACs (chapters 8, 9, and 10), this result is also consistent with the opinions of the members of the case study milk and potato EACs.

Let us now examine the effect of other factors on a farm's net margin:

- *Location.* While location has a significant effect on a farmer's choice of production, it has less impact on the farm's net margin, with the exception of milk producers. This may be because the productivity of small-scale potato and wheat farming tends to be low to very low throughout the country, including a very large number of farms where these two crops are destined solely for household consumption.

- *Human capital.* The number of household members in the labor force has a positive influence on milk farmers' margins, but not for potato and wheat producers. This probably reflects prevailing production technologies: beyond a certain minimum level, increased potato or wheat productivity requires access to machinery, while there appears to be a greater potential for labor-based production in the case of milk. As expected, the farm's net margin is in all cases negatively related to the household head's age, but this effect is only statistically significant in the case of wheat production. For milk producers, the farm's net margin will be lower when the household head is a

woman; this probably reflects a lower availability of labor in female-headed households. The effect of the level of schooling is never significant, a fact that has been established by other studies in Chile (López, 1996; Ramírez et al., 2001); under present conditions, small-scale agriculture does not reward higher educational levels, and better educated individuals in rural households can expect to generate higher income only if they move to other types of employment.

- *Farm size and access to irrigation.* As expected, these two variables have positive and significant effects on the profitability of small-scale farming.

Table 6.2 Effect of EAC participation on the farm's net margin: milk producers

N= 298; censored obs. = 230; Uncensored obs. = 68 Wald Chi^2 (13) = 67.93 Log likelihood = - 180.160 Prob > Chi^2 = 0.0000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm's net margin				
Participant in EAC? (1=yes)	0.498	0.170	2.930	0.003
Location North of X Region	2.069	0.688	3.006	0.003
Household members in labor force	0.269	0.111	2.470	0.016
Age of head of household	-0.001	0.009	-0.899	0.369
Square of age of head of household	-0.000	0.000	-0.550	0.582
Gender of head of household (0=female)	-1.974	0.408	-4.834	0.000
Primary education, incomplete (1=yes)	0.214	0.474	0.452	0.652
Primary education, complete (1=yes)	0.622	0.537	1.158	0.247
Secondary education, incomplete (1=yes)	0.124	0.545	0.228	0.820
Secondary education, complete (1=yes)	-0.509	0.594	-0.857	0.391
More than secondary (1=yes)	0.372	0.604	0.616	0.538
Farm size (hectares)	0.007	0.003	2.201	0.028
Percentage of farmland with irrigation	0.000	0.006	0.034	0.973
Constant	15.657	0.949	16.492	0.000
Dependent: Milk producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-1.479	0.350	-4.220	0.000
Location in dryland areas VI through VIII regions	-2.152	0.373	-5.765	0.000
Household members in labor force	-0.062	0.083	-0.742	0.458
Farm size (hectares)	0.007	0.003	2.176	0.030
Percentage of farmland with irrigation	0.002	0.004	0.705	0.481
Constant	0.0178	0.244	0.073	0.942
Rho	-0.913	0.127		
Inverse Mill's ratio	-0.934	0.336		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 1.40 Prob. > Chi^2 = 0.237				

Table 6.3 Effect of EAC participation on the farm's net margin: potato producers

N= 298; censored obs. = 233; Uncensored obs. = 65 Wald Chi^2 (12) = 21.70 Log likelihood = - 241.603 Prob > Chi^2 = 0.041				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm's net margin				
Participant in EAC? (1=yes)	0.255	0.395	0.646	0.518
Location North of X Region	0.236	0.481	0.491	0.623
Household members in labor force	0.011	0.136	0.085	0.932
Age of head of household	-0.015	0.012	-1.184	0.236
Square of age of head of household	-0.001	0.001	-1.436	0.151
Gender of head of household (0=female)	0.359	0.391	0.920	0.358
Primary education, incomplete (1=yes)	0.432	0.540	0.800	0.424
Primary education, complete (1=yes)	-0.362	0.743	-0.487	0.626
Secondary education, incomplete (1=yes)	-0.114	0.804	-0.142	0.887
Secondary education, complete (1=yes)	0.046	0.937	0.050	0.960
Farm size (hectares)	0.015	0.006	2.304	0.021
Percentage of farmland with irrigation	0.012	0.004	3.070	0.002
Constant	12.910	1.903	6.782	0.000
Dependent: Potato producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-0.515	0.273	-1.883	0.060
Location in dryland areas VI through VIII regions	-0.266	0.224	-1.187	0.235
Household members in labor force	0.087	0.061	1.420	0.156
Farm size (hectares)	-0.004	0.003	-1.504	0.133
Percentage of farmland with irrigation	0.000	0.002	0.168	0.867
Constant	-0.671	0.210	-3.189	0.001
Rho	0.132	1.432		
Inverse Mill's ratio	0.126	1.391		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.01 Prob. > Chi^2 = 0.933				

Table 6.4 Effect of EAC participation on the farm's net margin: wheat producers

N= 296; censored obs. = 167; Uncensored obs. = 129 Wald Chi^2 (15) = 82.44 Log likelihood = - 332.496 Prob > Chi^2 = 0.0000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm' net margin				
Participant in EAC? (1=yes)	0.072	0.260	0.279	0.780
Location in irrigated valleys V through VIII Regions	1.117	1.103	1.012	0.311
Location in dryland areas V through VIII Regions	0.110	0.948	0.116	0.908
Location in rice-growing area VII and VIII Regions	-0.414	0.994	-0.416	0.677
Household members in labor force	0.005	0.056	0.092	0.926
Age of head of household	-0.019	0.008	-2.329	0.020
Square of age of head of household	-0.002	0.000	-3.171	0.002
Gender of head of household (0=female)	0.112	0.380	0.296	0.767
Primary education, incomplete (1=yes)	0.513	0.331	1.551	0.121
Primary education, complete (1=yes)	0.259	0.331	1.551	0.121
Secondary education, incomplete (1=yes)	0.259	0.379	0.685	0.493
Secondary education, complete (1=yes)	0.457	0.453	1.009	0.313
More than secondary (1=yes)	-0.660	1.005	-0.657	0.511
Farm size (hectares)	0.025	0.005	4.910	0.000
Percentage of farmland with irrigation	0.005	0.007	0.705	0.481
Constant	13.373	1.425	9.379	0.000
Dependent: Wheat producer? (1=yes)				
Location in irrigated valleys V through VIII regions	2.172	0.285	7.619	0.000
Location in dryland areas VI through VIII regions	1.783	0.230	7.737	0.000
Household members in labor force	0.007	0.060	0.122	0.903
Farm size (hectares)	0.003	0.003	1.017	0.309
Percentage of farmland with irrigation	-0.015	0.002	-5.592	0.000
Constant	-1.043	0.226	-4.603	0.000
Rho	0.033	0.865		
Inverse Mill's ratio	0.031	0.808		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.00 Prob. > Chi^2 = 0.970				

6.3.3 Effect of participation on a household's annual income

I used the same approach to test the effect of EAC participation on a household's annual income. The household's annual income is the sum of the on-farm income, plus other non-farm revenue, including off-farm wage labor in agriculture, non-agricultural employment, public subsidies, pensions and transfers. Tables 6.5 to 6.7 show the results for milk, potato and wheat producers respectively.

EAC participation does not have a positive and statistically significant impact on annual household income, although there is a somewhat stronger (but non-significant) positive effect on milk producers than on wheat and potato farmers.

This result is consistent with the findings of other researchers (Berdegué et al., 2001; Ramírez et al., 2001), who have established that for a very large proportion of rural households, on-farm income is only one (and sometimes, a rather low) component of the total household income. Households who choose to engage in small-scale farming usually receive a higher proportion of their income from that source, but show a lower share of income from other employment sources. The net effect on total household income therefore tends to be neutral and, in many cases, even negative if one considers that other livelihood strategies (such as permanent off-farm employment, particularly in non-agricultural jobs) could offer higher economic rewards.

As in the case of the previous analysis for the farm's net margin, farm size and access to irrigation also generally have a positive and significant impact on the household's net annual income. This result is consistent with the findings of Berdegué et al. (2001), who found that these assets had a positive impact not only on the economic returns from agricultural production, but also on non-farm income. This is because households with more agricultural assets can either extract capital to start other rural non-farm businesses in the services or manufacturing sectors, or can invest in labor-saving technologies and free up household members for other employment.

6.3.4 Effect of EAC participation on households in poor regions

This section is based on data from the panel study for the years 1997 and 2000 of 193 households living in poor rural dryland areas of Regions VI to X. First of all, it is important to clarify that for these households there are no statistically significant (and almost no arithmetic) differences between EAC participants and non-participants in such characteristics as number of household members, age of the head of the household, number of household members in the labor force, number of children lagging in school with respect to the standard for their age, years of schooling of the head of household, percentage of the households headed by women, access to drinking water and electricity, farm size, or distance to the main road.

As shown in Table 6.8, the increase in total average annual household income between 1996 and 2000 for EAC participants was $756 (adjusted for inflation), and for non-participants was $635; the difference is not statistically significant. However, the differences are statistically significant when it comes to farm income (gross value of production minus direct costs); EAC non-participants lost an average of $158 between 1996 and 2000, while participants gained $344.

This difference between household and farm income is because those households who were not EAC members between 1996 and 2000 tended to be more reliant on working as waged laborers (mainly in the agricultural sector). The increased income from wage labor for the non-participants is $448, much higher than the $36 higher earnings by the EAC participants for wage labor. The non-participants' higher wages more than compensate for their lost farm income. As reported by Ramírez et al. (2001), in these poor areas of Chile livelihoods based on wage labor have generally been much more successful at improving total household income and getting these people out of income poverty than have livelihoods based on farming.

In summary, in these poor rural regions most small farmers increased their household income substantially between 1996 and 2000. Those who participated in EACs raised their farm income but

Table 6.5 Effect of EAC participation on a household's annual net income: milk producers

N= 298; censored obs. = 230; Uncensored obs. = 68 Wald Chi^2 (11) = 28.04 Log likelihood = - 185.365 Prob > Chi^2 = 0.0032				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.312	0.186	1.673	0.094
Location North of X Region	0.912	0.754	1.209	0.227
Household members in labor force	0.141	0.103	1.370	0.171
Age of head of household	-0.000	0.009	-0.020	0.984
Primary education, incomplete (1=yes)	0.427	0.448	0.953	0.341
Primary education, complete (1=yes)	0.742	0.501	1.479	0.139
Secondary education, incomplete (1=yes)	0.300	0.492	0.609	0.542
Secondary education, complete (1=yes)	-0.104	0.564	-0.185	0.853
More than secondary (1=yes)	0.423	0.579	0.731	0.465
Farm size (hectares)	0.008	0.003	2.410	0.016
Percentage of farmland with irrigation	-0.000	0.006	-0.077	0.939
Constant	13.143	0.794	16.543	0.000
Dependent: Milk producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-1.384	0.344	-4.014	0.000
Location in dryland areas VI through VIII regions	-2.298	0.415	-5.533	0.000
Household members in labor force	-0.046	0.083	-0.555	0.579
Farm size (hectares)	0.006	0.003	2.060	0.039
Percentage of farmland with irrigation	0.001	0.003	0.493	0.622
Constant	-0.025	0.242	-0.105	0.916
Rho	-0.165	0.624		
Inverse Mill's ratio	-0.116	0.451		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.05 Prob. > Chi^2 0.825				

Table 6.6 Effect of EAC participation on a household's annual net income: potato producers

N= 298; censored obs. = 233; Uncensored obs. = 65 Wald Chi^2 (10) = 22.18 Log likelihood = - 230.745 Prob > Chi^2 = 0.014				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.268	0.333	0.804	0.422
Location North of X Region	-0.202	0.335	-0.603	0.547
Household members in labor force	0.065	0.099	0.653	0.514
Age of head of household	0.011	0.009	1.207	0.227
Primary education, incomplete (1=yes)	-0.086	0.431	-0.201	0.841
Primary education, complete (1=yes)	-1.130	0.605	-1.866	0.062
Secondary education, incomplete (1=yes)	-0.532	0.657	-0.809	0.418
Secondary education, complete (1=yes)	-0.200	0.763	-0.263	0.793
Farm size (hectares)	0.008	0.004	1.822	0.068
Percentage of farmland with irrigation	0.009	0.003	2.902	0.004
Constant	12.976	1.223	10.04	0.000
Dependent: Potato producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-0.520	0.273	-1.899	0.058
Location in dryland areas VI through VIII regions	-0.267	0.224	-1.190	0.234
Household members in labor force	0.087	0.061	1.422	0.155
Farm size (hectares)	-0.004	0.003	-1.514	0.130
Percentage of farmland with irrigation	0.000	0.002	0.181	0.857
Constant	-0.671	0.210	-3.197	0.001
Rho	0.235	0.916		
Inverse Mill's ratio	0.194	0.788		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.05 Prob. > Chi^2 = 0.828				

Table 6.7 Effect of EAC participation on a household's annual net income: wheat producers

N= 298; censored obs. = 167; Uncensored obs. = 131 Wald Chi^2 (11) 48.58 Log likelihood = - 315.439 Prob > Chi^2 = 0.000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.188	0.204	0.924	0.356
Location North of X Region	-0.888	0.301	-2.945	0.003
Household members in labor force	0.032	0.057	0.565	0.572
Age of head of household	0.008	0.005	1.407	0.159
Primary education, incomplete (1=yes)	0.041	0.241	0.170	0.865
Primary education, complete (1=yes)	-0.302	0.287	-1.051	0.293
Secondary education, incomplete (1=yes)	0.329	0.340	0.969	0.333
Secondary education, complete (1=yes)	0.108	0.350	0.309	0.757
More than secondary (1=yes)	-0.915	0.727	-1.259	0.208
Farm size (hectares)	0.013	0.004	3.011	0.003
Percentage of farmland with irrigation	0.013	0.002	5.006	0.000
Constant	14.582	0.539	27.008	0.000
Dependent: Wheat producer? (1=yes)				
Location in irrigated valleys V through VIII regions	2.288	0.252	9.061	0.000
Location in dryland areas VI through VIII regions	1.586	0.224	7.053	0.000
Household members in labor force	-0.015	0.054	-0.276	0.783
Farm size (hectares)	0.004	0.003	1.386	0.166
Percentage of farmland with irrigation	-0.016	0.002	-6.397	0.000
Constant	-1.003	0.216	-4.641	0.000
Rho	-0.995	0.047		
Inverse Mill's ratio	-0.981	0.128		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 10.02 Prob. > Chi^2 = 0.0016				

tended to stay away from the wage labor market. Those who didn't participate in EACs have experienced a drop in farm income on average, but have made significant gains in income from wage labor.

The conclusion is that in these regions EAC participation makes economic sense for rural households whose livelihoods depend on small-scale agriculture.

Table 6.8 Changes in average household income and income composition (1996-2000) for small farmers in the dryland areas of the VI, VII, VIII, IX and X Regions ($)

Item	Participants	Non-participants
Change in household income	756	635
Change in farm income	**344	- 158
Change in non-farm income, self-employment	24	41
Change in income from wage labor, permanent	* 43	359
Change in income from wage labor, seasonal	*- 7	90
Change in income from wage labor, total	** 36	448
Change in income from pensions and public transfers	354	303

* = t-test significant p > 5%; ** = t-test significant p > 1%

6.4 Discussion

At the start of this chapter I asked two questions (1) Have the EACs contributed to higher profits for their members' farms? and (2) Does EAC participation give members' households higher incomes?

The answers are:

(1) For a rural household whose livelihood is largely dependent on non-farm employment, EAC participation does not make much economic sense; in fact, these households tend not to participate in these organizations. This conclusion is common sense: EAC participation always involves some costs and risk; a household has little incentive to incur these when the financial benefits promise to be few.

(2) EAC participation does not seem to have an effect on total annual household income, regardless of the EAC's product orientation. Apparently, whatever gains can be made in on-farm income through EAC participation will be negated by reduced income from off-farm employment.

(3) For those households who continue to make their living from small-scale agriculture, the effect of EAC participation on their finances will depend on their product.

(4) According to 457 small farmers, EAC participation can bring important non-economic benefits, such as better relations among neighbors and improved quality of life for women.

Conclusions (1) and (2) together have important policy consequences. Despite the fact that rural public policies in Chile continue to assume that 'rural' equals 'agricultural', the truth is that rural non-farm income represents just over 40% of total rural income (Berdegué et al., 2001). Farm-based economic collective action is relevant only to those rural inhabitants who continue to base their livelihoods on small-scale farming.

The results of the statistical analysis for milk, wheat and potato producers are fully consistent with the views of the farmers I interviewed for the case studies reported in Chapters 8, 9 and 10. For potato marketing EACs, the leaders and managers complained that in most seasons their members would continue selling their produce to traditional traders and middlemen, and that only a small fraction of

the total production was marketed through the organization[27]. Only when there was a particularly bad season, with extremely low prices and lower demand, would the members demand that the organization buy their potatoes at a higher price!

The leaders felt that this conduct reflected a lack of "*compromiso*" (commitment) on the part of the members, or an individualistic attitude that favored individual over collective action. To them, this was an attitudinal, rather than an economic, problem that could be corrected by greater training and 'conscientization' efforts. Yet the grassroots members of a potato-marketing EAC explained to me that the prices the EAC paid were no better than those paid by the middlemen, and that often the net price was somewhat lower because: (a) the EAC discounted at least a fraction of the Value Added Tax (18%) from the market price, while the traders, who largely evade this tax, do not apply this discount; (b) the traders normally pay cash on the spot, while the EAC frequently paid up to 30 or 45 days later, after the potatoes had been sold; (c) the traders would normally take the whole year's production, while the EAC imposed stricter quality standards, and; (d) if farmers handed over their potatoes to their organization for marketing, then they would need to ensure that the transactions had been done in an efficient and transparent manner, and that the final costs and prices reported by the leaders were in fact the real ones.

This was never an issue for the Milk Collection Centers. Here, leaders and members had other problems and concerns, but in the many interviews I held with these farmers, they never questioned that the EAC was the best (or , at a minimum, the least bad) option for marketing their production. The discussions in these EACs were centered on how performance could be improved, but no one questioned that selling their milk through the organization was a better deal than the non-organized alternative.

Whilst I did not do a case study of a wheat-focused EAC, COOPEUMO, one of my vegetable case studies, has also operated as a wheat broker for many years. COOPEUMO leaders and members were clear on one point: COOPEUMO was just one alternative on offer to small farmers, but prices and conditions for wheat were essentially the same as those offered by any other medium or large broker working in the region.

As I have discussed before (Chapter 2), economic collective action through an EAC offers no advantages (but plenty of risks and costs!) when a farmer is operating in a market that approaches the concept of being 'perfectly competitive'. For example, in the case of potatoes and wheat, there are no barriers to market access, there are large numbers or buyers and sellers so there is no room for oligopolic or oligopsonic behavior, transaction costs are low or non-existent as most operations are conducted in the spot market. For these reasons, in this case a small farmer would usually be better off working directly through market channels when selling his produce. In fact, under these conditions an EAC imposes additional operational, financial and transaction costs. The members of the potato-marketing organizations arrived at the same conclusion, choosing to sell their produce to middlemen instead of channeling it through their organizations.

Milk producers, on the other hand, have important market incentives to organize and sell their milk collectively. The dairy industry will no longer buy milk that is not cooled soon after milking, and the prices they pay are directly and clearly linked to the quality of milk, which in turn cannot be maintained if the farmer has no access to a cooling tank. For most small farmers, purchasing a cooling tank is out of the question, due to cost and scale of production. Even if a farmer did have a cooling tank, many live in areas not reached by the trucks from the dairy firms, or would be charged a substantial transportation fee to collect their milk. The same problem applies to veterinary services and the supply of veterinary products. The Milk Collection Centers offer a convenient solution to these and other production and marketing constraints; the alternative for most non-organized farmers is to move out of this enterprise or to limit themselves to the informal market of the '*tarreros*[28]'.

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[27] An exception that corroborates these findings is that of small potato producers who live in remote and relatively isolated areas, where only one or two middlemen work. These farmers will sell a much higher share of their harvest through their EAC than those who live nearer rural towns or main roads.

[28] Middlemen who buy the milk on-farm to be sold in the informal markets in nearby towns and cities.

One has to be very precise in stating that it is the market and not the product *per se* that makes the difference. For example, an EAC would make perfect sense for a group of small potato farmers wanting to access the supermarkets rather than the wholesale market. In the case of supermarkets, an individual small farmer working alone would face insurmountable barriers to selling his or her potatoes through that channel. Expensive equipment would be needed to clean, grade and package the produce; lots of time would have to be invested to obtain a contract and to enforce it against the much more powerful buyer; the supermarket would require constant delivery throughout the year of a large volume of potatoes; and the financial cost of marketing through supermarkets, who pay only after 60 to 90 days after delivery, would surely ruin a small farmer.

Summing up, we can conclude that economic collective action through EACs makes sense to only a fraction of Chilean peasant households: those whose livelihoods depend on on-farm income, and who operate in markets characterized by high economies of scale, strong market access barriers and/or high transaction costs.

Unfortunately, lack of data means I cannot calculate with any precision the size of this population relative to the total number of peasant households. However, at least two-thirds of subsistence farmers (25% of all peasant households in Chile) produce crops such as wheat and potatoes. For these farmers EAC participation is pointless so we can subtract them from the target population for public policies supporting EACs. Of the market-oriented small farmers, perhaps 50% or more primarily grow wheat, potatoes or agro-industrial fruit and vegetable crops[29]. Removing them from the target population leaves, optimistically, around 125,000 small-scale farming households, about 40% to 50% of the peasantry sector, who could potentially benefit from EAC participation.

Thus the assumption held by most policy-makers (including myself when I was in that position), that EAC participation is a pertinent and necessary strategy for most, if not all, peasant households, needs to be urgently revised. But while we must refine the targeting criteria of public policies, there is still a large number of peasant households who could potentially benefit from EAC participation who have yet to join.

Finally, there are the non-economic benefits identified by the 457 small farmers in my opinion poll. There is little doubt that in many cases, women EAC members place great value on some of the social and cultural consequences of participation. In one workshop I held with about 15 women EAC members, they were adamant that having the opportunity to generate income was of greater significance than the income itself. Participation in an EAC often opens a new dimension in the life of rural women; when they can obtain a loan to start a business, when they find that they can produce flowers that are of such quality that exporters become interested in them, this has an impact on their life and on their self-esteem that goes way beyond economic rewards. Perhaps this is why most of the extensionists, public officials and even farmers' leaders that I interviewed agreed that in general EACs that included a large proportion of women tend to be much more hard-working and more efficiently and rigorously run than those of their male counterparts. It would be worth studying in the future whether the gender of the members makes a difference to the institutional and economic performance of EACs.

[29] In Chile, most fruit and vegetable agroindustries refuse to contract production to organized groups of farmers. This is not the case in other Latin American countries where there are many examples of group-based production contracts.

CHAPTER 7. ECONOMIC AND FINANCIAL PERFORMANCE OF EACs

7.1. Introduction

Are the EACs viable business-oriented organizations, or are they dependent on the political and financial support of INDAP and other government agencies? Latin America is full of examples of unsustainable 'bubbles' created by the political will and resources of a government, foreign donor or an NGO. These 'bubbles' grow and glow while the artificial environment in which they live endures, but burst as soon as the political winds change and the flow of subsidies dries out.

To endure in a competitive market economy, a firm will need to be able to innovate, to link to new and dynamic markets, to anticipate new developments, to increase its productivity, to learn and to harness knowledge to improve its strategies.

But even before these difficult objectives are met, in the short run a firm will only be sustainable if its income can meet its expenses and if its assets have a higher value than its debts. In the context of a government-funded effort, another important indicator of sustainability will be the degree to which the firm is independent of public subsidies to fund its expenses or its investments. In this chapter I look at these three indicators to answer the question posed above.

7.2 Method

The methods used in this chapter are described in detail in Chapter 3, Section 3.4.

Aim	Method/Information source	Sample size
To analyze (1) EACs' operational performance, (2) EACs' financial performance, and (3) the relative importance of income generated from public programs. All these analyses were done for the 1999 fiscal year.	Un-audited balance sheets and income statements of EACs for 1999. Analysis by Certified Public Accountants of the information contained in these documents.	Balance sheets and income statements were requested from 1050 rural organizations. 410 of them provided complete information.

Also of importance here are the definitions given in Table 7.1.

Table 7.1 Definitions of economic and financial indicators

Variable	**Definition**
Current assets	Assets expected to be consumed or converted into cash during the next operating cycle. Include cash, amounts receivable, inventories, etc.
Non-current assets	Assets expected to be consumed or converted into cash after the next operating cycle. Include fixed assets, non-current receivables and long term investments.
Total assets	Current plus non-current assets.
Current liabilities	Funds payable during the next 12 months.
Non-current liabilities	Funds payable after 12 months.
Total liabilities	Current plus non-current liabilities.
Net assets	Total assets minus total liabilities.
Sales revenue	Income from sales of goods and services that constitute the EAC's stock-in-trade.
Revenue from other sources	Income from sales and sources that do not constitute the EAC's stock-in-trade, such as interest.
Total revenue	Sales revenue plus revenue from other sources.
Operating expenses	Expenses incurred in activities that constitute the EAC's stock-in-trade.
Non-operating expenses	Expenses incurred in activities outside the EAC's stock-in-trade, including depreciation, provision for taxes, etc.
Financial costs	Interest expense.
Total expenses	Operating plus non-operating expenses plus financial costs.
Operating income	Sales revenue minus operating expenses.
Income from public sources	Income from public programs and agencies (grants plus sales of services to INDAP programs).
Indicator of operational performance	Total revenue / total expenses.
Indicator of financial performance	Total liabilities / total assets.
Indicator of financial dependence	Income from government programs / total revenue

7.3 Operational performance

The operational performance of an EAC refers to its capacity to generate sufficient income to cover its expenses. The indicator is the ratio of total revenue to total expenses. Table 7.2 shows that in 1999, 44% of the 410 EACs for which we have information had much higher total expenses than their total revenue. Just over a third of these EACs had total expenses that were either 10% below or above their total revenue, and thus could be considered to be more or less in equilibrium, with a small profit or a small loss respectively. Only about one-fifth of the EACs had revenues that were significantly higher than their costs and thus could be considered to be profitable[30].

[30] It may be interesting to compare these results with the fact that only 20% of US farmers made a profit in 1999 (personal communication, Dr. T. Reardon, Dept. of Agricultural Economics, Michigan State University, August 2001).

Table 7.2 Operational performance of 410 EACs in 1999

Indicator of operational performance	Number of EACs	Percentage of EACs	Cumulative percentage of EACs
0 (very bad)	19	4.6	4.6
0.10 - 0.25	30	7.3	12
0.26 - 0.50	29	7.1	19
0.51 - 0.75	57	13.9	32.9
0.76 - 0.90	47	11.5	44.4
0.91 - 1.10	140	34.1	78.5
1.11 - 1.20	20	4.9	83.4
1.21 - 1.50	25	6.1	89.5
1.51 + (very good)	40	9.8	99.3
N.A.	3	0.7	100
Total	**410**	**100**	

7.4 Financial performance

The indicator of an EAC's financial performance measures the organization's degree of indebtedness relative to its assets (total liabilities/total assets). Table 7.3 shows that in 1999 over one-third of EACs had extremely high levels of debt relative to assets, to the point where 24% were technically bankrupt. In Chile, many analysts agree that a liability/assets ratio of less than 0.6 shows that a firm is in a healthy financial condition; one-third of the EACs could be placed in this category at the end of 1999. An additional 29% of the EACs were in between these two states.

Table 7.3. Financial performance of 410 EACs in 1999

Indicator of financial performance	Number of EACs	Percentage of EACs	Cumulative percentage of EACs
1.25 + (very bad)	30	7.32	7.32
1.24 - 1.10	31	7.56	14.88
1.09 - 0.90	83	20.24	35.12
0.89 - 0.75	70	17.07	52.20
0.74 - 0.60	49	11.95	64.15
0.59 - 0.30	65	15.85	80
0.29 - 0.0 (very good)	71	17.32	97.32
N.A.	11	2.68	100
Total	**410**	**100**	

An additional indicator of the financial condition of Chilean small farmers' organizations in 1999 (including, but not limited to, EACs), is the total amount they owed to INDAP and the amount involved in defaulted loans (Table 7.4). This official information (audited by Chile's General Comptroller Office) was provided to me directly by INDAP. As of 31 December 1999, the 1,050 small farmers' organizations had a total debt with INDAP of $49.4 million. Of that amount, $39.4 million

were loans in good standing, while the rest ($10 million) were defaulted (20% of the total). Of the 1,050 organizations, 279 (27%) had defaulted on their loan payments.

The 598 organizations (57% of the total) with debts of less than $20,000, owed a total debt of $4.2 million (8.5% of the total). Of these, 21% had defaulted on their loans, giving a total of $0.5 million owed (5% of the total amount defaulted by all organizations, and 10% of the total debt of this group). The number of organizations defaulting is somewhat lower than average for this group of smaller debtors, and the amount of money involved is significantly lower than for other groups.

The 45 organizations (4% of the total number) with debts of $200,000 or more, had a combined debt of $21 million (42% of the total). Of this group, 21 (47%) had defaulted, and the amount involved added up to $6.1 million (61% of the amount defaulted by all organizations, and 30% of the total debt within this group of largest debtors). The top 10 organizations in terms of debt accumulated US $4.1 million in defaulted loans (41% of the total amount defaulted by all organizations)[31].

One should be very careful in extrapolating from this information to the conditions of most EACs. The largest loans are associated with very special projects and, as can be seen, are highly concentrated in a few very large EACs. These special 'megaprojects' - as they were unofficially called - have been subject to different decision-making procedures and to special support programs, than the vast majority of EACs.

In my interviews with many of the leaders and managers of these very large organizations, and with INDAP staff familiar with these cases, I generally received the same explanations for the failure of these large projects: (a) they were linked to very profitable but highly risky and dynamic markets (e.g., flowers for export); (b) they entailed complex organizations; (c) most of those involved (members, managers, advisors, INDAP staff) lacked the experience, contacts and expertise to run these complex firms; and (d) the public systems lacked the agility to respond to the early signs of trouble, both because of bureaucratic rigidity and also due to the political cost of having to recognize failure and act consequently.

Table 7.4 Debts owed to INDAP by 1054 small farmers' organizations (31 December 1999)

Size of loan ($)	Number of organizations	Outstanding loans		Defaulted loans		Total
		$	%	$	%	$
200,000 - 2,028,895	45	14,549,102	70.4	6,141,715	29.6	20,690,816
100,000 - 199,999	64	7,581,535	87.2	1,113,335	12.8	8,694,870
50,000 - 99,999	130	7,442,372	84.1	1,405,516	15.9	8,847,889
20,000 - 49,999	217	6,103,389	87.7	862,290	12.4	6,965,679
21 - 19,999	598	3,765,577	89.2	458,907	10.1	4,224,484
Total	**1.054**	**39,441,975**	**79.8**	**9,981,764**	**20.2**	**49,423,739**

7.5 Financial dependence

The indicator of financial dependence measures the extent to which an EAC relies on public programs and agencies to generate its income, either through direct transfers, grants or services sold to them. More precisely, the indicator is defined as income from government programs / total revenue.

Some EACs may divert part of these grants to cover some of their operational costs, but typically EACs use this income to cover the costs of the technical advisory services that the organizations provide to their members, to pay for market studies and the preparation of investment projects, and to

[31] At the time of writing this chapter, INDAP had begun actions to liquidate several of these larger EACs.

hire external consultants for management and technical advice. Hence, funding from government programs does not always constitute a subsidy to core operational expenses. In fact, most grants are certainly used for what can only be called very legitimate, appropriate, and necessary services provided by the EACs to their members. One cannot always, or even most of the time, attach a negative connotation to this type of income.

However, experience from many countries in Latin America over the past decades tells us that if EACs are very dependent on this type of income, they will be vulnerable if such support is suddenly withdrawn or policies suddenly changed.

Table 7.5 shows that almost a quarter of EACs generate all their income from government programs and agencies; these EAC are totally dependent on the prevailing political climate for their survival, and they have been completely incapable of linking to any market client in the private sector. If one adds those that generated 60% or more of their income from these non-market sources, the percentage of EACs overly dependent on government programs rises to about 32%.

At the other extreme, 37% of the 410 EACs in 1999 did not generate any income from public grants or from sales of services of any kind to government (although they may have received loans from public agencies); 100% of their revenue came from market sources. If one adds those that received funds from government to make up less than 10% of their revenue, the percentage increases to about 45%.[32] In between these extremes lie 23% of EACs who are quite, but not extremely, dependent on government.

Table 7.5 Financial dependence of 410 EACs in 1999

Indicator of Financial Dependence	Number of EACs	Percentage of EACs	Cumulative percentage of EACs
1.00 (very dependent)	100	24.39	24.39
1.00 - 0.80	15	3.66	28.05
0.79 - 0.60	15	3.66	31.71
0.59 - 0.40	25	6.10	37.80
0.39 - 0.20	41	10	47.80
0.19 - 0.10	28	6.83	54.63
0.09 - 0.01	33	8.05	62.68
0.00 (fully independent)	153	37.32	100
Total	**410**	**100**	

7.6 Combined analysis

To be sustainable in the short run, an EAC should meet all three conditions: its expenses should be lower than its revenue, its liabilities should be much lower than its assets, and its independence from government funding must be high. How many of the 410 EACs meet these conditions?

I have classified these 410 EACs into four categories (ranging from 'A': very good, to 'D': very bad) according to their performance against these three indicators (Table 7.6). These categories depend on subjective threshold values of what constitutes 'good' or 'bad' performance in each of the three dimensions:

[32] As a comparison, it may be interesting to note that the subsidy rate (share of total farm income) for US farmers in 1999 was 45%. Personal communication, Dr. T. Reardon, Dept. of Agricultural Economics, Michigan State University, August 2001.

- Operational performance: an EAC is doing 'better' if the index is greater than or equal to 1.00; that is, if the EAC was at least capable of meeting its total expenses from its own sales revenues (not including income from public sources) in 1999.
- Financial performance: an EAC is doing 'better' if the index is less than 0.60; that is, if its liabilities represent no more than 60% of its assets. This threshold value was suggested by several financial analysts whom I consulted, and it can also be found in some accounting and financial management texts (Amat, 1998).
- Financial dependence: an EAC is doing 'fine' or 'better' if the index is less than 0.15; that is, if at least 85% of the organization's total revenue comes from market sources. This is the most arbitrary of the three threshold values that I have chosen, but it appears likely that a firm can cope with the sudden loss of a client who represents less than 15% of its total revenue.

Table 7.6 shows that, according to the balance sheets and income statements provided by these 410 EACs, only 11% of them perform well in all three indicators. If one relaxes the threshold values a bit[33], an additional 20 organizations (5% of the total) could be considered to be 'almost As'. Hence, according to my evaluation method, only around 15% of the EACs are in reasonable shape.

Table 7.6 Evaluation of short term sustainability of 410 EACs

Category/Subcategory	Explanation	Number of EACs	Percentage of EACs
A (very good)	High performance in all three indicators	46	11.2
B	Low performance in one of three indicators	111	27.1
B1	Low in operational performance indicator	27	6.6
B2	Low in financial performance indicator	52	12.7
B3	Low in financial dependence indicator	32	7.8
C	Low in two of three indicators	152	37.1
C1	Only fine in operational performance indicator	73	17.8
C2	Only fine in financial performance indicator	45	11.1
C3	Only fine in financial dependence indicator	34	8.3
D (very bad)	Low performance in all three indicators	101	27.7

At the other extreme, 28% of the EACs fail to meet the standards in all three categories, and an additional 37% fail in two of the three. Thus at least 65% of the 410 EACs are in a bad to critical financial and economic condition. It is likely that they would fail if the policies and programs that are supporting them now were discontinued.

As I was finishing writing this chapter, I was able to compare my results with those of a major review done by a consultant firm under contract to INDAP (FUNDES Chile, 2001). In this study, 156

[33] To 0.90 in operational performance, 0.75 in financial performance, and 0.25 in financial dependence.

EACs'[34] balance sheets and income statements were subjected to an in-depth audit, each taking several months of work. FUNDES also assessed their operations and management. The study's most important conclusion is that 21% of these EACs *"demonstrated an acceptable financial condition, that is, these EACs can meet their financial obligations without problem, their liabilities are under control, and their normal operations yield sufficient resources to sustain their business."* The study also concluded that an additional 14% of these EACs could become viable business-oriented organizations if INDAP agreed to restructure their loans and cancel part of the accumulated interest. An additional 36% would need more in-depth support, including cancelling a substantial share of the loan owed to INDAP, as well as significantly restructuring their business plans, management and organizational structures. The remaining EACs were unlikely to survive even if they underwent an in-depth restructuring.

These results are more optimistic than mine. Since their study focuses on the most financially-exposed EACs, and since their analysis was much more in-depth than mine in this part of the study, I would tend to think that their results probably reflect better the true condition of at least these group of EACs.

What are the characteristics of the best performing EACs, compared to the B , C and D categories? Table 7.7 shows that, on average, they have larger than average assets, sales revenues, and operating incomes than most of the 410 EACs. They also have very low levels of income derived from public sources. Their total liabilities are not much lower than average, so it seems that it is not how much debt they have that determines success or failure, but rather their ability to gain access to markets where they can generate sufficient income to cover their expenses and reduce or eliminate their initial dependence on public support.

Table 7.7 Accounting factors of EACs according to performance categories (US dollars for fiscal year 1999, average per EAC per category)

Category	Number of EACs	Total assets	Total liabilities	Sales revenue	Operating income	Income from public sources
A	46	317,363	126,389	394,460	139,287	3,751
B	111	152,378	89,164	107,319	26,831	10,878
C	152	173,902	149,524	196,659	35,745	11,421
D	101	67,048	67,364	32,755	6,139	17,519
Total	**410**	**157,848**	**110,348**	**158,089**	**37,655**	**11,916**

This information contradicts the opinion of many EAC leaders and, especially, advisors whom I interviewed, who stated that the reason for the failed EACs was the lack or insufficiency of public subsidies. It also runs counter to the opinion of many INDAP staff and managers, many of whom feel that in order to be successful, EACs should be financed through grants rather than loans. From the point of view of a business-oriented organization, the key factor shown in Table 7.7 is that the more successful EACs are distinguished by their ability to generate income from market sales that are 55% higher on average than their costs, and 100 times higher than the subsidies they receive from government.

7.7 Discussion

At the start of this chapter I asked *"Are the EACs viable business-oriented organizations, or are they dependent on the political and financial support of INDAP?"*. I think the evidence shows quite conclusively that at the end of 1999 only about one-fifth of EACs were viable.

[34] The 156 EACs chosen for the study were those judged to be particularly exposed due to the size of their total liabilities.

The EACs that perform poorly are highly dependent on public sources of support. Since subsidies are always scarce, their total income is very low and is not sufficient to cover their financial costs and often not even their operating expenses.

The message to farmers and government advisors is clear: do not start an EAC unless you can be sure that it will be able to tap into sufficiently large and profitable markets very rapidly, so that it can break or significantly reduce its dependency on public funds.

Whilst the data for the 1,050 small farmers' organizations (including but not limited to EACs) show that the projects which require very large start-up loans are more likely to fail, the analysis of the 410 EACs shows that the most successful ones are, on average, more in debt than the majority of poorer performers. This is a very important finding because recently there has been a tendency in Chile to extrapolate to all EACs from the failure of almost all of the special 'megaprojects' set up in the past six or seven years. One should not compare these megaprojects even with the larger, more 'normal' types of EACs. So, while it is wise to beware storming ill-prepared into large and complex business initiatives that require assets, access to networks and to highly specialized expertise not normally found in the sphere of public programs for small farmers, it would be a mistake to extrapolate that lesson to the point where only the smallest initiatives receive support.

CHAPTER 8. THE LO OVALLE AND RANCHILLO MILK COLLECTION CENTERS

8.1 Introduction

In Chapters 8 to 12 I analyze 14 EACs in detail. Following Stake (1994), my emphasis is on what can be learned from each case, with no attempt at generalization. The purpose is to identify factors that in each case influence the EAC's performance. Each case study chapter compares a subset of the 14 case studies. The idea is to help the reader visualize more clearly the differences in performance and the importance of the various factors that determine or influence them:

- Chapter 8 analyzes two EACs involved in value-adding and marketing milk, whose clients are medium-size cheese factories.
- Chapter 9 discusses four Milk Collection Centers in the south of the country, each of them a supplier of fluid milk to large dairy firms.
- Chapter 10 deals with three potato-marketing EACs, also in the south.
- Chapter 11 presents the cases of two fresh vegetable marketing EACs, one of them selling to supermarkets in the south, the other one to wholesale markets in the Central region.
- Chapter 12 describes EACs involved in value-adding and marketing raspberries, located in the southern limit of the Central zone.

Since most of the main findings are quite similar for all 14 case studies, I have left the overall discussion to the last chapter in the book (Chapter 13).

In each chapter I describe the context in which these organizations work, their history, how they relate to market and non-market agents, and how decisions are made in the organization. Then I describe these EACs' achievements at two levels: the organizations' economic and financial performance and the impacts on their members' households and farms. I then try to explain these results by looking at different factors such as the households and farms' assets, the EACs' systems of rules, and the networks in which they are involved. I close the chapter with my main conclusions and lessons.

8.2 Method

The method used to select and conduct the case studies is described in Chapter 3, Section 3.5.

Aim	Method/Source of information	Sample size
To understand the main factors conditioning the performance and sustainability of EACs, and to analyze the relationship between institutional and economic performance.	Qualitative case studies, using individual and group interviews with different stakeholders, half-day workshops, analysis of available documentation, and a survey of members and non-members.	16 case studies of EACs involved in milk (6 case studies), potato (3 case studies), vegetable (4 case studies) and raspberry production (3 case studies), processing and/or marketing. Results of 14 case studies are reported.

8.3 Basic description of the Lo Ovalle and Ranchillo Milk Collection Centers

The Milk Collection Centers (CAL, *Centro de Acopio Lechero* in Spanish,) of Lo Ovalle and Ranchillo are in María Pinto municipality, 74 km (about 90 minutes on good roads) from Santiago, and only 25 km from the provincial capital of Melipilla. These CALs are only three km apart. Their legal names are Sociedad Agrícola Lo Ovalle, Limitada, and Agrícola Ranchillo, Limitada. Both are Limited Liability firms.

These two CALs, together with four others, jointly own a second tier EAC called UFOCO Ltda. (*Unión para el Fomento de la Competitividad*, or Union for the Development of Competitiveness). UFOCO provides various agricultural services to the six CALs, their members, and other small farmers in the area. The most important of these services are technical advice (as a subcontractor for INDAP), agricultural machinery, and the supply of agricultural and veterinary inputs.

CAL Ranchillo and Lo Ovalle's core business is to collect, test, cool, and market the milk produced by their members and other small farmers in the area. CAL Ranchillo has 10 members, all of whom are active. It also collects and markets the milk for a few other local farmers. The Ranchillo area has 10 dairy farms, all of whom sell the bulk of their milk through this CAL. In addition to milk marketing, CAL Ranchillo buys bulk agricultural and veterinary inputs and supplies for its members, as well as selling these supplies to other local farmers. Four of CAL Ranchillo's members jointly operate a separate collective enterprise to provide specialized agricultural machinery services to small and medium farmers.

CAL Lo Ovalle also has 10 members, of whom only seven or eight can be said to be active. They also receive milk from 11 other non-member suppliers. The link between the CAL, the community and the farmers of Lo Ovalle is rather weak, as only five of the 19 milk producers in the locality work with the CAL, while five of the members actually live in other localities in a 10 to 15 km radius.

The farmers who make up these CALs were given land in 1977 as part of the final stages of the agrarian reform process. Previously, they or their parents had worked as *inquilinos* (peons) in the large *haciendas* that were later expropriated during the agrarian reform. Hence, their history as independent farmers is only 25 years old.

8.3.1 The CALs' markets

The CALs mainly sell their milk to medium-sized cheese factories in the region. When the CALs were launched, meetings were held with representatives of all the 15 or so local cheese factories, and with SOPROLE, the largest dairy agribusiness in the country and the dominating player in the milk market in the Santiago region. According to the General Manager of UFOCO, the main reason for choosing the cheese factory market was that SOPROLE refused to deal with the EACs and insisted on making individual payments to the members of each CAL. Also, while the cheese factories have lower quality standards than the large dairy agribusiness companies, they pay very similar prices for the milk. In fact, according to the General Manager of UFOCO, if one factors in the lower quality standard, the cheese factories probably offer a better price than the large agribusinesses. More recently, some of the cheese makers have begun offering a premium for better quality milk, and some of the CALs are actually responding to this incentive[35].

The grades and standards imposed by the cheese factories are not very stringent. They want a regular

[35] However, UFOCO's General Manager acknowledges that only two of the six CALs are capable of enforcing their own quality rules. Diluting milk is the most frequent problem, followed by acidity.

and dependable supply of milk, especially during the winter, and this milk must meet some very basic quality standards: it must not be diluted with water, and it must not be acidic. As they compete with SOPROLE for their milk supply, these factories must offer market prices for the milk they buy.

The most common alternative market for small farmers are the *tarreros*, middlemen who roam the country roads buying milk with few questions asked. Their quality standards are even lower than the cheese factories, but, since there are numerous *tarreros*, the net price they pay is close to the market price. However, *tarreros* operate informally, and do not pay farmers Value Added Tax (VAT - 18%). As a result, farmers who sell to them without a legal invoice cannot recover at least part of the VAT they paid every time they bought an agricultural or veterinary input or paid a contract. During the spring and summer months when milk is abundant and prices are low, these *tarreros* often only buy part of the day's production; the rest is wasted.

Another alternative market would be the large-scale dairy industry, which in this region is dominated by only one player, SOPROLE. This firm will of course pay the market price (baseline price), supplemented by a series of bonuses for sanitary quality, volume, pre-cooling of milk, stability of production during the winter/fall vs the spring/summer, and fat content[36]. If a farmer can meet all these standards to their maximum level, the final price per liter can be as much as 50% higher than the baseline price. Of course, achieving each of these standards requires important investments, and some (i.e., pre-cooling of milk and bonus for volume) have important scale effects. Hence, small farmers are at a great disadvantage with this pricing system. In addition, SOPROLE has been the least interested of all the medium and large diary processing firms in working with CALs, and their policy when these EACs were started in María Pinto was that they would collect the milk at the EACs' cooling tank, but would then deal with each farmer separately in terms of payments, quality controls, etc

Clearly then, for these small farmers the cheese factory market has distinct advantages over the *tarreros* and SOPROLE.

8.3.2 The birth of the CALs in María Pinto

The initial stimulus for forming CALs was INDAP's credit and technical assistance programs, in particular INDAP's *Programa de Transferencia Tecnológica* (PTT, Technology Transfer Program).[37] The original idea of forming CALs in the María Pinto area came in 1993 from an extensionist working for an NGO acting as the local PTT contractor. She had heard of other CALs being established in the south of the country, also in the context of the PTT. Her idea was supported by a commercial firm (Alfa Laval) that manufactured and sold dairy equipment, including the milk cooling tanks that are the core equipment of a CAL.

At the same time, small farmers in the María Pinto area were actively looking for alternatives to their traditional vegetable cropping systems. There had been an outbreak of cholera in Santiago, and the authorities had banned the production of fresh vegetables in many areas where irrigation water was contaminated (including María Pinto). Dairy farming was an attractive alternative due to the strong local tradition of milk production, as well as the high prices being paid for milk at the time.

Also at this time INDAP started to move away from working with isolated local groups and a traditional commodity focus, towards an emphasis on stimulating 'microregional development' processes by linking larger groups of farmers with specific and clearly identified markets. Diversification away from traditional commodities was another important goal for INDAP at the time.

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[36] See Section 9.1 in Chapter 9 for a more detailed discussion of the dairy industry in Chile.

[37] In fact, each of the six CALs evolved from a local group formed to participate in PTT activities.

In the María Pinto area, milk was chosen for this focus as it was a very attractive economic option, and also because the CAL had identified groups of farmers keen to shift from vegetables into milk production. A group of young INDAP employees designed the María Pinto Microregional Development Project, which was rapidly approved and launched in 1995.

Both case study CALs emerged from the Microregional Development Project. CAL Lo Ovalle was one of the first to be started in 1995, while CAL Ranchillo was the last to be formed, in 1997.

Hence, the stimuli for CALs in María Pinto came from many sources: local communities who already had a basic, though informal organization as a result of the action of a government program, an extensionist who knew of the CAL model elsewhere in the country, a private firm interested in selling its equipment, a crisis in the traditional farming system due to sanitary restrictions imposed by government, and the high price of milk.

8.3.3 The CALs' steps towards independence

INDAP originally contracted the School of Animal and Veterinary Sciences of the University of Chile to coordinate the new microregional project in María Pinto. This decision meant that the NGO behind the initial idea was removed from the area. INDAP felt that the university would provide better technical services, and they wanted the coordinating agency to emphasize not only production technology, but also farm management and entrepreneurship, areas in which the NGO had no experience.

Some of those interviewed for this case study mentioned that INDAP also felt the NGO had developed too strong a sense of 'ownership' of the work in the area, and that this would hamper the active participation of the farmers in the decision-making process within the new microregional project. The policy behind the Microregional Development Projects stated that farmers should have a decision-making role, and that the external advisory agencies would need to establish a contractual relationship with them, something that was not evident in the much more 'top down' tradition of the PTT.

The Microregional Development Project was managed by a board (*Directorio*) consisting of six farmers (one from each of the five existing CALs, plus one from the Ranchillo group that was expected to join the project soon), plus one representative from each of the following agencies: the Municipal government, the university, and INDAP. This board selected a Project Manager and the field staff through a public contest.

It did not take long for differences to appear between the university and the farmers. The latter complained that the university did not present the expense accounts to the board promptly; that the contents of the training workshops were not previously discussed with the farmers and that much of the training was not relevant or useful; and that the university gave greater importance to formal workshops while the farmers preferred to spend their time and the project's resources on other activities, such as field days and veterinarian visits to individual farms. *"They gave us documents, but some of us cannot read, much less these long things"* (a member of CAL Ranchillo). In addition, the farmers resented the overheads charged by the university: *"with that 10% they took, we were able to hire another vet"* (a UFOCO board member).

The tension grew as the university did not react to the farmers' complaints and suggestions. With the support of the project's field staff, the farmers proposed to INDAP that they should take direct responsibility for managing the project, getting rid of the university, or, for that matter, any other external agency. For several months INDAP tried to stop this from happening, as it was felt that the organization and experience of the farmers was not sufficiently strong to take on this challenge without the permanent support of an external agency.

The farmers increased the stakes by creating UFOCO in 1996, to have an organization that could legally take over the contract and manage the project. INDAP could no longer resist the pressure from the farmers, and in August 1997, the coordination of the microregional project was turned over from the university to UFOCO. *"When we took control of the technical assistance, for the first time we had to be responsible for our decisions. When others were in charge, our attitude was 'they will solve the problems'"* (a farmer member of the UFOCO Board).

8.3.4 The different dynamics between the two CALs

Despite their joint participation in UFOCO, each CAL operates independently. Each is responsible for its relationships with its members and other milk suppliers, and each must negotiate with buyers. The community of Ranchillo – unlike Lo Ovalle – had a very well-established history of collective action, such as building a soccer stadium, improving roads and bridges, and so on. Four of the 10 members have, since 1993, been partners in another EAC supplying agricultural machinery services in the area. According to different people interviewed during the field work, this collective tradition goes back to the 1970s, and the agrarian reform. In addition, Ranchillo farmers were more innovative than Lo Ovalle farmers, and by the time the CAL was formed, several key technologies were firmly established (e.g., a second milking in the afternoon, and giving that milk to local women for their own income-generating projects).

Community life in Lo Ovalle, in contrast, is very weak. Even the most basic form of rural organization found in Chile, the Neighborhood Committee (*Junta de Vecinos*), was only formed there in the late 1990s.

Ranchillo and Lo Ovalle's different community dynamics came to the fore during the formation of the CALs and the initiation of the microregional project. In Ranchillo, the decision to establish a CAL was discussed at length for two years. Discussions and disagreements ranged from the advantages and disadvantages of investing in a CAL as opposed to other projects, how the CAL would be managed, what would happen with the afternoon milk that was controlled by the women, how to repay the loan for building the CAL and buying the equipment, what type of building and what types of equipment were the most appropriate for their scale of operations and purposes, to whom they would sell the milk, etc. During all this time, INDAP kept putting pressure on the local organization to get the CAL going as soon as possible so that the local group could join the microregional project. However, the group took all the time it felt it needed to make this decision.

By contrast, the future members of CAL Lo Ovalle met each other for the first time a few weeks before having to go to the Notary Public's office to sign the legal documents to establish their organization. All the work was done by one of the future members (the current president of the firm, administrator and sole employee of the CAL), who knew the other partners from driving a truck for an NGO working in the area. One by one, he contacted a number of potential participants, and after only two meetings, convinced them to help form the CAL. A major argument was that given INDAP's new orientation (i.e., microregional projects), if they did not join they would have trouble getting credit and technical assistance.

Thus, while these two groups have much in common: a similar and simultaneous origin as independent small farmers in the 1970s; similar locations, agroecological potential, educational levels, farm size, farming systems, access to technical assistance and credit services, relationships with the same network comprising private and public organizations (NGO, INDAP, a private dairy equipment firm, the University of Chile, and, later UFOCO); they differ in their tradition of collective action.

These different traditions are also expressed in the running of these two CALs. While both have a formal *Directiva* for legal purposes, real decision-making takes place, in the case of CAL Ranchillo, at regular monthly meetings, supplemented by extraordinary meetings whenever needed. All those

interviewed agreed that CAL Ranchillo was by far the most independent of all the six CAL in its decision-making, concerning all sorts of issues. For example, they do not use the accounting services of UFOCO, but hire their own accountant so as to have direct control over this information; they negotiate directly with potential buyers; they deal with the repair and maintenance services to keep their equipment working; and they solve internal disagreements and conflicts with no external intervention whatsoever. According to the General Manager of UFOCO, *"CAL Ranchillo almost never requests our assistance"*.

The situation is quite different for CAL Lo Ovalle. All decisions are nominally taken by the President (who is also the administrator of the CAL, as well as its sole employee in charge of receiving the milk each day). He delegates (or tries to) almost all significant decisions to UFOCO, such as calculating and establishing the fee that will be charged to farmers for the services of the CAL, negotiating with buyers, repairing the equipment, and solving conflicts with the members. When the sector was flooded and the road was cut because of heavy rainfall, they sat and waited (losing several day's worth of milk) until help came from UFOCO and the municipality. Membership meetings are rare; there had been only two in the year prior to the field work.

8.4 Performance and impacts of CAL Ranchillo and CAL Lo Ovalle

In this section I discuss and compare the performance of both organizations at two different levels: (a) their economic and financial performance as businesses, and (b) the impact of CAL participation on members' households and farms. It will become clear that CAL Ranchillo is a successful organization from both points of view, while CAL Lo Ovalle is not.

8.4.1 CAL Ranchillo and CAL Lo Ovalle's economic and financial performance

Table 8.1 lists several indicators of CAL Ranchillo's economic and financial performance in 1998:

(1) The operational results are modest but positive, as the firm is able to cover all of its costs (operational, administration and financial) with its operational income. Its assets are being used in a very efficient manner, since each peso invested is generating a cash flow of more than seven pesos.

(2) Its financial situation is very healthy. Almost all of its debts are long term, and it could easily cover its short and long term debts with its own assets.

(3) Its operational dependency on government subsidies is down to zero.

Table 8.1 also shows CAL Lo Ovalle's performance for three years (1996-98):

(1) CAL Lo Ovalle's operational results are very precarious, as for the three years its costs have almost equaled its income, despite the fact that members have had to make extra biannual contributions to meet the costs.

(2) As a result, its financial position has deteriorated gradually, although it has been able to pay part of its debts. It has tried to shore up its financial position by resorting to levying additional fees from its members, and by increasing the fees charged to non-members who used the CAL's services. However, as a result these non-members have been migrating to the nearby CAL Ranchillo, thus further undermining CAL Lo Ovalle's performance.

(3) CAL Lo Ovalle does not receive any government subsidies to implicitly or explicitly pay any of its operational costs. This of course is a positive sign.

Table 8.1 Economic and financial performance, CAL Lo Ovalle and CAL Ranchillo

Item	CAL RANCHILLO	CAL LO OVALLE		
	1998	1996	1997	1998
Total income ($)	125,339	62,928	66,020	69,536
Income (milk sales) ($)	116,498	62,928	66,020	69,536
Income (agricultural and veterinary supplies) ($)	8,891	0	0	0
Non operational income (subsidies from public agencies) ($)	0	0	0	0
Costs (not including depreciation of buildings or equipment) ($)	121,355	62,955	65,305	70,017
Operational result ($)	4,036	-26	714	- 480
Liquid assets ($)	22,233	21,928	19,453	15,920
Fixed assets ($)	15,481	19,824	20,075	23,320
Short term debt ($)	415	1,678	333	344
Long term debt ($)	17,709	18,594	16,160	15,290
Patrimony (capital plus operational results) ($)	14,650	20,073	16,513	14,890
Debts/patrimony	1.21	0.93	0.98	1.03
Income/assets	7.53	3.17	3.13	2.98
Operational result/patrimony	27.55	-0.13	4.32	-3.22
Operational capital (liquid assets – short term debts) ($)	21,818	20,250	19,120	15,576
Liquidity (liquid assets/short term debts)	53.60	13.07	58.35	46.23

In short, as of December 31, 1998 CAL Ranchillo was a rather successful organization from an economic and financial point of view, while CAL Lo Ovalle was facing a gradual decline and was struggling to make ends meet.

8.4.2 Impacts on members' farms and households

In this section I analyze the impact of these EACs on their members' farms and households in terms of:

(1) Household income

(2) Farm profits and production and sales values

(3) Land use, technology adoption, management practices and yields

(4) Access to technical assistance and to credit

Household income

Table 8.2 shows that the net annual household income of CAL Ranchillo members is 70% higher than that of their control group or CAL Lo Ovalle members. The net annual household income of CAL Lo Ovalle members is also slightly higher than their control group, but in this case the difference is not statistically significant.

About 80% of the net household income of CAL Ranchillo members comes from household members' on- and off-farm labor, the rest being made up mostly by pensions and government subsidies. In the case of CAL Lo Ovalle members, this figure is only 67%. In all cases, almost all the earned income comes from agricultural sources.

Table 8.2. Income and income composition, CAL Lo Ovalle and CAL Ranchillo ($, 1998-99 agricultural year)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	Non-participants	Participants	Non-participants
Net hh income	25,827	15,199	15,446	11,187
Earned net hh income	20,561	9,888	10,377	6,496
Unearned net hh income	5,301	5,091	5,068	4,691
Non-agricultural net income	1,239	1,240	1,285	1,196
Farm net income	19,704	8,931	9,178	5,355

Farm profits, production and sales

CAL Ranchillo members' net farm income is more than double that of CAL Lo Ovalle members, as well as that of its own control group (Table 8.2). CAL Lo Ovalle members' farm net income is also higher than that of the control group, by 70%.

By value, the members of CAL Ranchillo produce about twice as much as any of the other three groups (members of CAL Lo Ovalle, and farmers in the control groups for both CAL). In all cases, seeded forages and annual crops (of which forage maize for silage is a dominant component) make up more than 80% of the output of these farms. Fresh vegetables play a complementary role in these farming systems (Table 8.3).

It is important to also consider the economic performance of milk production. In the 1998-99 season, when prices were particularly low, only the CAL Ranchillo members achieved a positive gross margin for their milk production operations: $ 0.04/lt on costs of $ 0.15/lt. All the other groups had losses, of $ 0.06/lt, $ 0.04/lt and $ 0.08/lt, for the CAL Lo Ovalle members, the Ranchillo control group, and the Lo Ovalle control group, respectively. It is important to clarify that these figures include, as part of the direct costs, the opportunity cost of family labor which represents 68% of the total costs in the case of CAL Ranchillo members, 80% for their control group, 77% for CAL Lo Ovalle members, and 77% for their control. While these are indeed costs of milk production, they are also a positive flow when seen from the point of view of the household's total income (Table 8.4).

Since the milk prices received by all these farmers were very similar (around $ 0.18/lt), the differences in gross margins are explained by the wide differences in the cost of producing one liter of milk: $ 0.15/lt for the members of CAL Ranchillo, $ 0.22/lt for their control group, $ 0.24/lt for the CAL Lo Ovalle members, and $ 0.25/lt for their control group. These differences in production costs are mainly

driven by yield differences per cow and per hectare, as will be discussed later.

Table 8.3. Gross value of production, CAL Lo Ovalle and CAL Ranchillo ($, 1998-99 agricultural season)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
GVP Crops	7,111	2,488	4,438	2,466
GVP Forages	3,692	2,638	1,912	3,037
GVP Fresh vegetables	1,636	1,231	3,765	2,049
GVP Total vegetable production	12,003	4,517	6,156	5,353
GVP Total animal production system	9,244	4,795	3,595	4,544

Table 8.4. Economic performance of milk production, CAL Lo Ovalle and CAL Ranchillo (1998-99 agricultural season)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
Direct costs ($)	6,418	4,312	4,016	4,786
Gross income ($)	8,176	3,454	3,013	3,262
Gross margin ($)	1,757	- 859	- 1,005	- 1,525
Production (lt)	44,355	19,537	17,066	19,032
Direct cost per liter ($/lt)	0.15	0.22	0.24	0.25
Gross income per liter ($/lt)	0.18	0.18	0.18	0.17
Gross margin per liter ($/lt)	0.04	- 0.04	- 0.06	- 0.08

Lo Ovalle and Ranchillo's crop and forage farming systems (for members and non-members alike), are basically oriented to supplying feed to their dairy cattle. Little is sold outside the farm except for vegetables, most of which are sold in Santiago, either directly or through middlemen (*tarreros*) who buy them at the farmgate. Almost all the milk is also sold, and CAL Ranchillo's members generate a gross income of more than double that of CAL Lo Ovalle's members, and much higher than any of the control groups (Table 8.5).

For members of both CAL, nearly all their milk is sold through their organizations, while the non-members sell it on their farm to middlemen. As would be expected from the production figures, the gross income from CAL Ranchillo members' milk sales is twice as large as the other groups of farmers.

Table 8.5. Gross income from sales of agricultural products, CAL Lo Ovalle and CAL Ranchillo ($, 1998-99 agricultural season)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
Crops	1,149	933	2,278	955
Forages	77	88	55	760
Fresh vegetables	1,442	1,119	2,406	1,983
Total vegetable production	2,285	1,094	2,704	2,075

Land use, technology adoption and yields

CAL Ranchillo's members farm much more intensively, using nearly all available land. By contrast, about a quarter on average of CAL Lo Ovalle's members' farm area is not under any production; a much lower intensity of use than Lo Ovalle's members' control group neighbors. One third of the farmland of CAL Ranchillo's members is under annual crops (mostly maize, used to prepare silage for winter feed for the cows), and an additional 50% is under seeded forages. This is a key decision that allows farmers to maintain milk production at a higher level during the winter months, when prices are highest. By contrast, the members of CAL Lo Ovalle are more dependent on natural pastures, which grow little during the winter (Table 8.6).

Table 8.6 Land use, CAL Lo Ovalle and CAL Ranchillo (1998-99 agricultural season)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-parts.**	**Participants**	**Non-parts.**
Crops (ha)	2.98	1.02	1.67	1.02
Fruits (ha)	0	0	0	0
Forages (ha)	4.59	3.39	2.91	3.82
Fresh vegetables (ha)	1.61	1.54	2.27	1.59
Agro-industrial fruits and vegetables (ha)	0.5	0	0	0
Natural and improved pastures (ha)	6.5	10.8	6.5	10.3
Forest plantations (ha)	0	0	0	0
Total under production (ha)	9.23	11.83	8.06	11.94

One of the most striking differences between CAL Ranchillo's members and their non-participating and CAL Lo Ovalle neighbors, is the degree to which the CAL Ranchillo participants have adopted technological innovations. While there are basically no significant differences in adoption of technological innovations between the CAL Lo Ovalle participants and their control group, the CAL Ranchillo members have much higher and statistically significant rates of adoption in crop diversification, marketing of agricultural products and inputs, use of new machinery and equipment, changes in construction and installations, crop varieties, use of fertilizers, weed control, improvement of cattle breeds, and introduction of artificial insemination. In nine of the 13 categories of

technological change, the members of CAL Ranchillo show statistically higher rates of adoption than their control group. The CAL Lo Ovalle members, on the other hand, show no significant differences compared with their control, except in marketing of products and inputs (Table 8.7).

These differences in technology use express themselves in the yields. The members of CAL Ranchillo consistently get higher average yields than their control group and CAL Lo Ovalle members, while the latter's yields are very similar to their control group (Table 8.8).

The members of both CAL are somewhat better than their control groups in using several good farm management practices asked about in the survey. In particular, they apparently operate more formally in fiscal terms, since almost all of them are legally registered as farmers and each month file their Value Added Tax (VAT) forms. In the case of the control groups, only about 70% of them show these characteristics. By participating in a CAL, these farmers enter into formal markets, meaning that they have to adapt to new fiscal conditions. From the point of view of the government, this is a positive and valuable result. From the point of view of the farmers, by declaring the VAT paid to them by the buyers of their milk, they become eligible to recover at least a fraction of the VAT paid by them when purchasing supplies, equipment or services (Table 8.9).

Table 8.7 Technological changes implemented in past five years, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	**CAL RANCHILLO**		**CAL LO OVALLE**	
	Participants	**Non-parts.**	**Participants**	**Non-parts.**
	Yes %	**Yes %**	**Yes %**	**Yes %**
Crop diversification	53.8	5	6.7	0
Contract agriculture	7.7	10	0.4	4.8
Marketing of inputs and products	76.9	10	60	9.5
Irrigation and drainage	30.8	10	26.7	14.3
Machinery and equipment	61.5	10.5	26.7	10
Constructions and installations	61.5	10	40	14.3
Crop varieties and seed quality	69.2	11.1	40	10.5
Use of fertilizers	53.8	11.1	13.3	10.5
Weed control	61.5	11.1	13.3	10.5
Insect and disease control	38.5	16.7	20	15.8
Cattle breeds	69.2	10	20	9.5
Reproduction of cattle	76.9	10	6.7	9.5
Sanitary management of cattle	69.2	55	60.6	52.4

Table 8.8 Yields, CAL Lo Ovalle and CAL Ranchillo (1999-99 agricultural season)

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
Silage maize (kg/ha)	32,759	29,000	26,800	29,000
Potatoes (kg/ha)	13,000	12,140	11,400	12,140
Alfalfa (kg/ha)	9,637	9,600	7,550	9,637
Vegetables (kg/ha)	8,400	5,928	5,930	5,958
Milk (lt/cow/year)	5,661	1,790	1,925	1,737
Milk (lt/ha/year)	2,891	1,550	3,546	1,718

Table 8.9 Farm management practices, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-parts.**	**Participants**	**Non-parts.**
	Yes %	**Yes %**	**Yes %**	**Yes %**
Legally registered as farmers for fiscal purposes	92.3	70	93.3	71.4
VAT accounting and filing	92.3	70	93.3	71.1
Costs and income records	30.8	30	33.3	40
Holds a bank account	100	100	100	100
Legalized land titles	100	100	100	100
Legalized water titles	100	100	100	100

8.5 Explaining the performance differences

The following factors may explain the differences in performance between these two EACs:

- Exposure to a different set of policy, agroecological or market incentives
- Different capacity of the individual members, in terms of human, financial or physical capital
- Different capacity of the organizations themselves, in terms of social capital or management

However, the first set of factors (incentives) does not differ for these two organizations as they are located in the same area, work within the same policy and institutional framework, and deal with the same products and markets. Hence, the varying performances of these two organizations can only be explained by differences in individual members' farms and households, or in the organizations themselves.

8.5.1 Access to agricultural services

All the participants of these two CALs receive technical assistance from UFOCO. In addition, 38% of

CAL Ranchillo's members receive other technical assistance from governmental agencies. About half of the non-members receive technical assistance from government agencies, while about 15% of them also receive support from UFOCO (Table 8.10).

Table 8.10 Access to technical assistance services, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	Non-participants	Participants	Non-participants
	Yes %	Yes %	Yes %	Yes %
Tech. assistance from EAC	100	0	100	4.8
Tech. assistance from government	38.5	50	6.7	47.6
Tech. assistance from university	7	0	13.3	0
Tech. assistance from private firm	7.7	0	0	0
Tech. assistance from private advisor	15.4	15	0	14.3

Table 8.11 Payments for technical assistance, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	Non-parts.	Participants	Non-parts.
Cost to farmer of TA from EAC ($/yr)	90	0	47	1
Cost to farmer of TA from gov't ($/yr)	0	0	0	1
Cost to farmer of TA from private adv. ($/yr)	21	0	0	0

CAL Ranchillo's members pay 100% of the cost of UFOCO's technical assistance services[38], while CAL Lo Ovalle's members only pay about 50%, despite the fact that as shareholders of UFOCO their representative must have approved these charges. None of the other technical assistance services are paid for (Table 8.11).

EAC participants are more indebted than non-members. In CAL Ranchillo, seven of the 10 members have debts, averaging $ 1,939, all of them with INDAP. All CAL Lo Ovalle's members have debts averaging $ 3,130, nine of them with INDAP, one with the State bank ($ 2,206) and one with a private bank ($ 11,028). Less than one-third of the surveyed non-members have debts, and the average amounts are significantly lower than those of the CAL members; all the non-members' debts are with INDAP.

In summary: (a) CAL Lo Ovalle members are more prone to taking out loans, and for larger amounts than the members of CAL Ranchillo; (b) INDAP is the main and almost single source of credit for these farmers; (c) the members of these CALs either have greater access to and/or have a more open attitude towards taking out loans than non-members; (d) even in the case of CAL Lo Ovalle, the

[38] To be precise, the share of the cost that is supposed to be paid by the farmer, after the largest share is paid for by a subsidy financed by INDAP.

amounts these farmers owe is very small, almost insignificant, if compared with their assets (Table 8.12).

Table 8.12 Access to credit, CAL Lo Ovalle and CAL Ranchillo (1998-99 agricultural season)

INDICATORS	CAL RANCHILLO				CAL LO OVALLE			
	Participants		Non-participants		Participants		Non-participants	
	N°	$	N°	$	N°	$	N°	$
Total loans	7	1,939	3	662	11	3,130	4	1,048
Short term loans	5	1,544	2	551	9	1,229	3	1,103
Long term loans	3	1,948	1	882	5	4,676	1	882
INDAP loans	7	1,939	3	662	9	2,356	4	1,176
State Bank loans	0	0	0	0	1	2,206	0	0
Private banks loans	0	0	0	0	1	11,028	0	0

8.5.2 CAL Ranchillo and CAL Lo Ovalle's members' assets

Household characteristics (human capital)

There are very strong similarities between participants and non-participants in terms of the household composition and their sex, age and educational characteristics, both in CAL Ranchillo and CAL Lo Ovalle. The only significant difference is that the schooling of the male members of the CAL Ranchillo households, and in particular that of males between 31 and 45 years of age, is considerably higher than that of the control group (7.47 vs 4.93 years at school for all males, and 10.10 vs 6.33 for 31 to 45 year old males). This means that amongst CAL Ranchillo participants there is usually one person in the household who has an almost complete high school education. The participants in CAL Lo Ovalle tend to have somewhat fewer years of formal schooling than the CAL Ranchillo members, or any of the two control groups; however, none of the differences between the CAL Lo Ovalle control group are significant (Table 8.13).

Physical and financial assets

With respect to land resources, the members of both CAL own around 9 ha on average, with those in CAL Lo Ovalle having slightly larger farms than those of CAL Ranchillo, but those of CAL Ranchillo having a somewhat larger proportion of irrigated land. There is a small local market for land rental and sharecropping, which is used by members of both CAL to slightly increase the area under their management. In both cases, the non-participants own and manage larger land areas than the participants (Table 8.14).

Table 8.13 Household composition, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO		CAL OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
Members of household	4.3	4.3	4.3	4.2
Female members	2.3	2.2	2.4	2.2
Male members	2.2	2.1	1.9	2
Members 0-12 yrs	0.6	0.6	0.6	0.6
Members 13-18 yrs	0.2	0.3	0.3	0.2
Members 19-30 yrs	0.4	1	1.1	0.9
Members 31-45 yrs	1.3	0.7	0.5	0.7
Members 45-65 yrs	1.2	1	1.2	1
Members 66+ yrs	0.7	0.9	0.6	0.8
Schooling members 7 yrs or +	6.97	5.96	5.72	6.44
Schooling members 15 yrs or +	7.17	6.11	5.70	6.58
Schooling members 19-30 yrs	12.44	10.38	10.03	10.38
Schooling members 31-45 yrs	10.10	6.33	5.90	7.30
Schooling members 46-65 yrs	4	5.73	4.90	6.37
Schooling members 66 or +	3.78	1.83	2.12	1.83
Schooling of head of hh	5.46	4.15	4.06	4.71
Schooling of spouse	4.53	2.45	3	3.09
Schooling of sons/daughters	6.57	6.23	6.36	5.97
Schooling of other members hh	2.33	2.68	2.82	2.55
Schooling of female members hh	5.30	5.47	5.97	5.97
Schooling male members of hh	7.47	4.93	5.65	5.46
Age of head of hh	59.46	69.85	58.60	62.23
Age of spouse	51.62	34.75	39.06	34.66
Age of sons/daughters	34.69	30.40	28.73	28.95
Dependency ratio	0.52	0.73	0.55	0.69

Table 8.14 Land assets, CAL Lo Ovalle and Cal Ranchillo

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-parts**	**Participants**	**Non-parts**
Land owned by hh (ha)	8.36	11.08	9.86	11.22
Land taken by hh, shareholding (ha)	0.07	0	0.26	0
Land taken by hh, rental (ha)	1.15	0.50	0.53	0.47
Land taken by hh, other contracts (ha)	0	0.68	0	0.64
Land let by hh, shareholding (ha)	0	0.45	0.40	0.42
Land let by hh, rental (ha)	0	0	0.70	0
Land let by hh, other contracts (ha)	0	0.15	0	0.14
Land under management by hh (ha)	9.55	12.46	10.36	12.53
Irrigated land under management by hh (ha)	6.02	4.52	4.39	4.50
Irrigated land owned by hh (ha)	8.43	7.74	6.99	7.66

In terms of access to main roads and towns, there are no major differences. Houses and farms are between 0.5 and 2.0 km from the main road, and about 10 km from the town of María Pinto. Most farmers have motor vehicles and can reach María Pinto, any of the larger regional cities, or even the capital city of Santiago with little difficulty.

In terms of the value of fixed or quasi-fixed assets, CAL members have less capital than their control groups, due basically to the greater value of non-participants' land assets. The individual interviews conducted during the field work confirmed that participants' farms tend to be somewhat smaller than those of non-participants. Since land is by far the most valuable asset of these farmers, the non-participants have a greater total value of assets than participants (Table 8.15).

Table 8.15. Fixed and quasi-fixed capital assets, CAL Lo Ovalle and CAL Ranchillo ($)

INDICATOR	CAL RANCHILLO		CAL LO OVALLE	
	Participants	**Non-participants**	**Participants**	**Non-participants**
Value of buildings and infrastructure	28,117	17,958	16,333	20,386
Value of machinery and equipment	5,869	18,284	6,469	7,746
Value of land owned by household	133,022	187,825	159,000	191,385
Value of livestock	8,527	4,844	3,683	4,713
Total value of physical assets	187,953	234,811	162,458	243,488

Although CAL Lo Ovalle members' total land assets are higher, they are lower than CAL Ranchillo's members in terms of the value of buildings, infrastructure such as milking sheds and livestock. Ultimately the members of CAL Ranchillo seem to have somewhat greater total assets than members of CAL Lo Ovalle, despite their unfavorable position with respect to land. This is probably because CAL Ranchillo members have been able to invest more in non-land assets over time, and this is

reflected in their better economic results and higher income (Table 8.15).

In summary, there are no large differences between the members and the non-members of these two CALs in terms of human and physical capital, with the exception of the higher levels of education of certain categories of Ranchillo household members. Also, there are no major differences in location, access to roads and towns, climate, soil quality or access to irrigation, as would be expected from two communities that are only three km apart. These two organizations have also grown out of the same INDAP-supported development projects. Both communities have access to credit and technical assistance, from the same source and for the same period of time. Finally, the long term history of these two communities is also very similar, as is their origin in the agrarian reform process.

It is therefore highly unlikely that the significantly different performances of these two EAC can be explained either by the set of incentives to which they have been subject, or by the structural assets of their members' farms and households. I will thus now explore the effect of social capital on these differences.

8.5.3 Social capital

I will discuss the effect of social capital on the EACs' different performance from four points of view:

(1) CAL members' participation in other organizations

(2) Prevalence of social norms amongst EAC members, such as trust and reciprocity, that could lead to better cooperation

(3) Rules governing the relationship among members

(4) Participation of the EACs in networks with public and private agents

Participation in community and economic organizations

CAL Ranchillo members tend to participate in more economic organizations (e.g., machinery services firms) than their control group and CAL Lo Ovalle members. On average, each member of CAL Ranchillo participates in six organizations (economic and non-economic), compared with an average of four for CAL Lo Ovalle members, and two for the control groups.

When asked the open ended question *"What should small farmers do to improve their situation?"*, about a third of the CAL Ranchillo members and both control groups spontaneously mentioned participating in or forming economic organizations, while none of the CAL Lo Ovalle members mentioned this strategy.

The participation of CAL Ranchillo members is significantly higher in organizations dealing with irrigation projects, soil conservation, pasture improvement and marketing of agricultural supplies. There is also a very high level of participation of women from the CAL Ranchillo households in projects and organizations that pursue economic objectives (including some, such as cheese-making and marketing using the afternoon milk, that put them in direct conflict with their husbands over the control of that resource). About 30% of the CAL Ranchillo members hold leadership positions in these other economic organizations. While the members of CAL Lo Ovalle also participate in many of these organizations, the degree to which they do so is not significantly higher than their control group (Table 8.16).

Table 8.16 Participation in development projects and organizations, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO		CAL LO OVALLE	
	Participants	Non-parts.	Participants	Non-parts.
	Yes %	Yes %	Yes %	Yes %
Organizations or projects with economic objectives:				
Irrigation or drainage	38.5	10	13.3	9.5
Marketing of products or purchasing of inputs	53.8	0	20	4.8
Soil conservation and pasture improvement	30.8	5	20	9.5
Storage of products	15.4	0	6.7	4.8
Youth	0	0	6.7	4.8
Women's	53.8	5	20	4.8
Asociación Gremial	0	0	13.3	0
Cooperative	0	0	13.3	4.8
Held leadership position in any of the above	30.8	10	14.3	13.3
Organization or projects with social development objectives:				
Neighborhood Committee	76.9	50	66.7	47.6
Sports, culture and recreation	46.2	40	38.1	46.2
Housing or local improvement	0	5	0	4.8

Participation in non-economic community organizations is similar across all the categories of households (members of both CALs and their control groups); participation is particularly high in the Neighborhood Committees and in sports and recreation organizations (Table 8.16).

Despite the very favorable results discussed in Section 8.4.2, between one-fifth and one-third of CAL Ranchillo members consistently feel there are few benefits of EAC membership. This proportion increases to more than 60% when asked about impacts on prices and production costs (Table 8.17). This negative view is based on the downward trend in milk prices that started after the CALs were launched. The cost and income surveys confirm that accessing the market through these EACs has not influenced the average milk price. In the meetings held with CAL Ranchillo members, they expressed their frustration at not being able to extract higher prices. In fact, they mentioned that prices had dropped substantially since they had started their organization (due to market trends throughout the country). As one member of CAL Ranchillo put it, *"this has been our failure."*.

In their opinion, the middlemen (*tarreros*), faced with the competition of six CALs in the area, immediately matched their prices. Since they operate without declaring VAT, these *tarreros* can easily match the net prices that the CALs pay their members and suppliers. Hence, the CAL members complain that they are performing an unrecognized public service for local farmers, who see their prices go up without having to go through the process and costs of organizing. They say that without the CAL, the *tarreros* would immediately lower their prices again, because an isolated small farmer does not have any other market in which to sell their milk.

CAL members cannot understand why the tax authorities do not control the *tarreros*; if they had to pay taxes, they would have a harder time competing against the EACs: *"The SII (Internal Revenue Service) actually checks more on us than on the* tarreros, *because it easier since we are always here"* (a UFOCO board member).

CAL Ranchillo members have a more optimistic view of the benefits of EAC participation when asked about diversification in crop and animal production, farm improvements, improved quality of life for the women in the household, and improved relations with the neighbors. In addition, most CAL Ranchillo members are also optimistic when they are asked if, in general, EAC participation has led to their doing better as small farmers (Table 8.17).

One of the main conclusions of a meeting held with six of the CAL Ranchillo members was that being part of the CAL made them feel *"more secure."* When asked to specify why, four things were mentioned: without the CAL, the *tarreros* would lower prices; the *tarreros* would also not pick up the milk some days, as often happens during the spring and summer months; being organized makes it easier to access other public programs, such as credit from INDAP or subsidies to improve pastures; and by being organized they have been able to undertake other common projects, such as buying agricultural inputs together, which helps to reduce costs.

These general trends are more or less the same for CAL Lo Ovalle. Many members do not believe that EAC participation has led to better prices or to improved product marketing. This was one of the main conclusions of a meeting I held with five of the CAL members: *"Our profits have decreased because the price of milk is down, while our costs have increased because we are now paying the Chilean $ 9.4 million (around $ 20,000) loan we took to build the CAL".*

However, in contrast with the members of CAL Ranchillo, CAL Lo Ovalle members were much more positive when asked about the effect of participation on improving relations with the government, in particular at the municipal level. This probably reflects the fact that for the first time the Lo Ovalle area has a functional organization, allowing them to tap into certain municipal funds and services. On the other hand, the members of CAL Lo Ovalle are less optimistic about the effects of EAC participation on farm improvements, improved quality of life for women, their performance as small farmers, or their future as small farmers (Table 8.17).

In a group meeting CAL Lo Ovalle members listed the following benefits of CAL membership: access to UFOCO technical assistance; a secure outlet for their milk (*"during the spring and summer, the* tarreros *frequently refuse to take all the milk, and some days they don't take any at all"*); and access to a number of subsidized INDAP programs (pasture improvement, etc.)

The same questions were asked to the CAL Ranchillo and CAL Lo Ovalle control groups who had participated in an economic organization of some sort. Their view was much more pessimistic than the CAL members; most denied that the economic organization in general would be of value for 11 of the 15 questions, and in the remaining four, the percentage of negative responses was between 40% and 49% (Table 8.17).

There is an even stronger contrast between EAC members and non-members in their perceptions about the *costs* of participating in an economic organization. Most CAL members very clearly recognize that participation costs include greater indebtedness, membership fees and giving a cut to the organization from the money received for their milk. Only a minority of the non-members recognize these factors as real costs of joining an EAC (Table 8.17).

Thus non-members have a more pessimistic view of potential benefits, but a more optimistic (and less realistic!) opinion about the costs of engaging in this form of collective action. Even the group which has clearly benefited from EAC participation is pessimistic about the economic benefits.

Table 8.17 Perception of costs and benefits of participating in EAC, CAL Lo Ovalle and CAL Ranchillo

INDICATORS	CAL RANCHILLO				CAL LO OVALLE			
	Participants		Non-participants		Participants		Non-participants	
	Not true %	True %	Not true %	True %	Not true %	True %	Not true %	True %
Benefits:								
Improved household income	23.1	46.2	45	25	20	53.3	42.9	28.6
Improved yield and production	23.1	46.2	60	30	20	60	57.1	33.3
New crops and livestock	38.5	53.8	75	15	33.3	33.3	71.4	14.3
Improved marketing of products	38.5	30.8	65	20	46.7	26.7	61.9	23.8
Improved prices of products	69.2	23.1	70	20	53.3	13.3	66.7	23.8
Lowered production costs	61.5	23.1	60	10	33.3	33.3	57.1	9.5
Farm improvements	23.1	69.2	70	10	26.7	53.3	66.7	14.3
Improved quality of life for family	23.1	38.5	45	35	33.3	40	42.9	38.1
Improved quality of life for women	30.8	53.8	45	40	33.3	40	42.9	38.1
Improved quality of life for youth	38.5	23.1	50	30	33.3	40	47.6	28.6
Optimistic view of the future	23.1	53.8	50	30	26.7	40	47.6	28.6
Improved relations with government agencies	46.2	38.5	40	20	20	33.3	38.1	19
Improved relation with municipal gov't	53.8	23.1	55	20	20	53.3	52.4	23.8
Improved relations with neighbors	30.8	61.5	55	30	13.3	66.7	52.4	33.3
Doing better as small farmers	30.8	61.5	50	25	33.8	40	47.6	28.6
Costs:								
Incurring debts	15.4	61.5	60	15	20	40	57.1	19
Membership fees	15.4	69.2	55	20	26.7	53.3	52.4	23.8
Greater risks in agriculture	38.5	23.7	70	10	26.7	20	71.4	9.5
Loss of time in meetings	15.4	38.5	55	10	33.3	26.7	52.4	14.3
Share of product prices taken by organization	7.7	76.9	70	5	20	66.7	71.4	4.8
Worsened relationships with neighbors	76.9	7.7	80	0	60	20	78.8	3
Some take advantage of the rest	7.7	61.5	40	35.5	33.3	53.3	42.9	33.3
Less trust in the future	53.8	23.1	50	25.5	20	46.7	52.4	23.8

Note: The difference between 100% and the sum of 'true' and 'not true' answers, is due to response of *"More or less"* and no response

Social norms that foster cooperation

As discussed in Chapter 2, the literature on social capital highlights two important social norms that facilitate cooperation and collective action: trust and reciprocity.

When asked whether the CALs tend to benefit a minority or majority of members, about 50% of the farmers in all the groups answered that they benefit a few or none. Surprisingly, the CAL Lo Ovalle members have a more optimistic view of how widespread these benefits are (Table 8.18).

When asked about trust and reciprocity, very sizable majorities (around 70 to 80%) in all groups thought that one should not trust most people, and that most individuals only care about themselves, rather than being concerned for others. Again, the Lo Ovalle members were more optimistic about the likely behavior of other individuals (Table 8.18).

A majority of the EAC members, to a much greater extent than non-members, thought that some of their partners would take advantage of others, given the opportunity. This perspective might be expected in the case of CAL Lo Ovalle, but is surprising in the case of CAL Ranchillo, with its long history of collective action (Table 8.18). Apparently, within the CAL Ranchillo group there has been some tension between some of the members; however, according to several of the people interviewed, this has been going on for a long time and *"it does not affect us, because we know we have to be frank and open in our discussion, we try to reach consensus, and if we can't, then we vote and we accept the decisions"* (CAL Ranchillo member).

The somewhat greater degree of trust amongst the CAL Lo Ovalle members recorded in the survey was confirmed in the meetings with members of both CAL. The members of CAL Lo Ovalle repeatedly emphasized their great trust in the President-Administrator of their organization. In fact, during the individual interviews prior to the meeting, all the CAL Lo Ovalle members spontaneously gave the same explanation when asked why they did not meet frequently or why was they were not more involved in the management of the CAL: *"The Administrator is always there and he is perfectly well informed... He is a very honest person... Whenever he needs us, he calls us and we meet... He is a member just like any of us"*. Even the Administrator's nickname, 'Uncle Pedro', reflects this high degree of trust.

The members of CAL Ranchillo take a different approach. They demand to be informed, review all major issues together, are informed in detail each month about costs and income, regularly monitor the quality of milk supplied by each member, etc.

What I find, then, is that trust is operating in CAL Lo Ovalle as a form of perverse social capital: it leads to complacency, replaces monitoring rules, and it conveniently justifies the members' reliance on the efforts of a single individual. On the other hand, in CAL Ranchillo we see that a lower degree of trust, probably due to personal differences among the dominating personalities in the group, has resulted in strong monitoring and clear rules that are enforced when necessary. As one member of the group put it during an individual interview when explicitly asked if he trusted his fellow members *"We do not need to have trust, because we all know what is going on, and each one knows the consequences of his actions"*.

Networks

An EAC operates in the context of a network of formal market and non-market exchanges. In fact, EACs can be said to be *co-produced* (Evans, 1996) through the interaction of a set of private and public agents. The birth and performance of these two CAL can be explained by the interaction of favorable ideas, trends and/or actions by markets, governments, intermediate organizations (such as NGOs), rural communities and individual farms and households (Table 8.19).

The high milk prices (pull factor) and the sanitary restrictions to vegetable production (push factor),

Table 8.18 Trust and reciprocity, CAL Lo Ovalle and CAL Ranchillo

QUESTION	CAL RANCHILLO				CAL LO OVALLE			
	Participants		Non-participants		Participants		Non-participants	
Ease of organizing with neighbors, compared to 10 years ago	More difficult %	Easier %	More difficult %	Easier %	More difficult %	Easier %	More difficult %	Easier %
	7.7	76.9	30	50	13.3	46.7	28.6	52.4
Household's degree of participation in organizations compared to neighbors	Less %	More %	Less %	More %	Less %	More %	Less %	More %
	30.8	23.1	45	20	26.7	20	42.9	23.8
Community and farmers' organizations are useful	Never or almost never %	Almost always or always %	Never or almost never %	Almost always or always %	Never or almost never %	Almost always or always %	Never or almost never %	Almost always or always %
	15.4	76.9	5	75	20	80	19	76.2
For you and your family, participation in organizations is...	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %
	15.4	53.8	10	80	13.3	66.7	9.5	81
Farmers' and community organizations benefit...	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %
	46.2	46.2	55	45	40	60	52.4	47.6
Can you trust most people?	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %
	61.5	30.8	75	25	46.7	46.7	76.2	23.8
Most people...	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %
	76.9	23.1	80	20	46.7	26.7	81	19
Most people...	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %
	38.5	46.2	65	30	46.7	40	61.9	33.3
Has your situation as small farmers compared to 10 years ago...	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %
	23.1	53.9	35	60	53.4	26.7	33.4	57.2
In the next 10 years, will your situation as small farmers...	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %
	7.7	53.8	25	50	13.3	40	23.8	47.6

Table 8.19 Networks in the formation and performance of CAL Lo Ovalle and CAL Ranchillo

AGENT	CAL RANCHILLO	CAL LO OVALLE
Government	INDAP creates incentive with 'Microregional Development' programs that broke away from the traditional objective of supporting increased production and yields and emphasized market-orientation and diversification of small-scale agriculture. The promotion of EACs was a key objective of such policies. INDAP also had the necessary instruments to provide technical and financial support to these projects. María Pinto's Municipal Government led by a reformist mayor whose political support base included small farmers, created political opportunity. Health authorities restricted vegetable production in the María Pinto area due to a cholera outbreak, thus creating a sense of greater urgency for the diversification of production.	
Intermediate agents	The NGO INPROA, the private firm Alfa Laval, University of Chile and UFOCO, acting at different times, provided political leadership (in the sense of questioning the *status quo* and presenting alternatives), organizational models (based on the experience of the CAL in the south of the country, in turn 'imported' into Chile by a university in the mid-1980s), technical and organizational expertise, resources (e.g. equipment donated by Alfa Laval for an initial demonstration CAL), and access to networks (initially to other farmers' groups in the region that were also working with INPROA, government agencies, dairy firms, etc.)	
Markets	In the mid-1990s increased real income in Chile heightened demand for dairy products and led to a shortfall in supply, resulting in very high farm-gate prices for milk, as well as in strong competition among major firms to increase their share of milk supply. This made cooling tanks an attractive technology from the point of view of the large dairy industry firms, because that reduced the mobility of suppliers from one firm to the next. At the same time, due to health and sanitary constraints, the market for vegetables from the María Pinto area was particularly poor.	
Community	Ranchillo had a long tradition of community-based collective action, often for non-economic objectives (e.g., building a local soccer stadium). There was a group of farmers already involved in collective action with economic objectives. All members are neighbors in the same small village, with families who had fought together during the agrarian reform. A fairly homogeneous group.	Future members of the CAL did not even know each other well before being called together to form a CAL. A very heterogeneous group (age, income, residence...).
Individual farmers	Forward-looking, better educated, younger and innovative farmers, who had already implemented changes in their farming systems.	Traditional farmers, several of whom had major sources of income other than milk production.

created *market incentives* for changing the *status quo*. Government (INDAP and the municipal government) also contributed to these incentives by designing policies that:

(1) created the *political opportunity* for small farmers to act collectively, by making this an explicit public objective and by implying that groups who became organized would get preferential access to assets such as credit, technical assistance and other subsidies (in the case of farmers), and contracts (in the case of the NGO); and,

(2) channeled *resources* which lowered the costs to farmers and intermediate agents for acting collectively.

Intermediate agents (the NGO INPROA and the private firm Alfa Laval, and later the University of Chile and UFOCO) provided:

(1) *political leadership*, by showing how farmers could actually challenge the *status quo* represented by their dependence on a disappearing vegetable market and on the *tarreros*;

(2) *models* of organization, by bringing the experience of the more advanced southern CAL to María Pinto;

(3) *knowledge* and technical expertise, in the form of advice given to the farmers by Alfa Laval for designing the first demonstration CAL;

(4) *resources*, in the form of donations of equipment for the CAL;

(5) access to *networks*, since it was the extensionist from INPROA who provided the link with the municipal government, INDAP, FOSIS and the regional government, all of whom contributed political support and resources to get the CAL started.

All of these factors were present in both case studies. The main difference between Lo Ovalle and Ranchillo is that the latter had a functional social group with a well-established history of collective action, both in the economic and non-economic domains. How much of this was due to the better educational levels of the Ranchillo members' households, and how much they achieved this better education because of the local progressive environment, is a chicken-and-egg question.

In the interviews and workshops with the CAL Ranchillo members and several outside informants familiar with the experience, it soon became apparent that the outcome of that long history of collective action was more than just a new soccer field or brand new equipment for harvesting and bailing hay. It was also a catalytic community group, i.e. a set of individuals who could work collectively guided by explicit and implicit rules that emerged as very important byproducts of their previous collective activities. I return to this system of rules below.

There is no such functional group in the history of CAL Lo Ovalle. In fact, at the beginning there was almost no group at all, but rather an artificial and perhaps quite accidental collection of individuals who shared little more than a common interest and a common set of incentives. The group in this case is replaced by an energetic individual.

Systems of rules

The rules guiding the conduct and action of the EAC members can be described according to the conceptual framework proposed by Elinor Ostrom (1990). In Chapter 2, Section 2.5, I have discussed in detail how these systems of rules condition the performance and sustainability of EACs. Table 8.20 summarizes much of the information collected through the individual interviews and group meetings.

It is quite evident that the institutional performance of these two groups is conditioned by the way in which the organization was formed. CAL Ranchillo is an example of 'an established group starting a new project', as opposed to CAL Lo Ovalle, which is 'a group established to meet the needs of a pre-existing project'. From the interviews and workshop with CAL Lo Ovalle members, it seems that the main factor holding this group together is their debt with INDAP. In the case of CAL Ranchillo, the individuals share a vision for a long-term development project, and they see this CAL as one step in that direction.

My aim, however, is to explain how these different systems of rules affect the CALs' economic performance, as well as their impact on their members' households' income.

CAL Ranchillo's operation is characterized by three important facts:

(1) Most of the milk it markets (68% in December 1998) is produced by its own members.

(2) The average productivity of its members is 216% higher than the non-members'. In fact, the interviews and workshops revealed that members' productivity has increased over the past three years, whilst non-members' productivity has remained constant and may even be decreasing as they drop some technologies as milk prices fall.

(3) The rules guiding the calculation of service fees for members and non-members ensure that members always receive a higher net price per liter than the net price paid to non-member suppliers.

The situation in CAL Lo Ovalle is quite different:

(1) The total contribution of members to the amount of milk processed and marketed by the CAL has steadily decreased from 79% in December 1995, to 59% in December 1998. In fact, during the winter of 1998, most milk was supplied by non-members.

Table 8.20 Rules of CAL Ranchillo and CAL Lo Ovalle (based on Ostrom, 1990)

RULES	CAL RANCHILLO	CAL LO OVALLE
Clearly defined boundaries	Membership is legally defined in the organization's bylaws. All members are active. Rules governing fees and charges favor members over non-members.	Membership is legally defined in the organization's bylaws. Only a fraction of the members is active. The organization is highly and increasingly dependent on non-member suppliers of milk. Rules governing fees and prices do not favor members over non-members: non-members get the same services, at the same cost, and without having to take any of the risks involved in collective action.
Low cost systems for monitoring compliance	Careful and permanent monitoring of the quality of milk supplied by each individual member. Monthly meetings in which members discuss different technical and administrative topics, review incomes and costs, plan new projects, or discuss the position of the CAL vis-à-vis external agents such as UFOCO or INDAP. External accountant keeps records and prepares monthly reports that are posted on a bulletin board outside the CAL.	Sporadic meetings (*"whenever the Administrator needs to, we meet... since he sees us each day, he can also inform us of important things"*). Main meetings are when the buyer wants to discuss the price of milk. They monitor quality of milk only in response to serious complaints from buyers. Detailed information about costs, income, quality control is known only by the Administrator, who keeps detailed records in a notebook. (*"The Administrator is always here so he knows... since he is also a member, we would sink together if anything goes wrong"*)
Congruence between appropriation and provision rules, and market conditions	Clear rules guide payment for services received from the CAL (fee per liter of milk processed and sold) and for paying the loans that financed the investment (fixed fee per member). Members and non-members are charged the same fee for the services provided by the CAL and the technical assistance provided by UFOCO, on a per liter basis. Members are charged an additional fee to cover the start-up loan. The gross price paid to members is slightly higher than that paid to non-members. As a result, the net price per liter received by members is 90% of the gross price, while non-members receive 85%.	Rules that establish fees and charges favor non-members over members. The CAL pays the same gross price to members and non-members, but charges widely different fees for the services provided by the CAL and by UFOCO (technical assistance). In addition, members must pay extraordinary fees to pay back the loan that financed the CAL's building and equipment. As a result, both members and non-members end up with a net price that is about 86% of the gross price.
Graduated sanctions for non-compliance with rules	Fines are levied for not participating in monthly meetings. First time offenders get a warning. At the second offence a fine ($15) is automatically discounted from the milk payments. System of fines for diluting milk supplied to the CAL. The fine increases with repeated offences ($30 the first time, $150 the second time, and the third time the person is expelled from the CAL). Only once have they had this problem; the fine was applied and the subject was intensively discussed in several meetings.	The group as a whole pays the costs when milk has become contaminated in the common cooling tank due to actions by individual members. As a result, they lost their buyer once. Some members have not paid the extraordinary fees to repay the loans, and no sanctions have been enforced. (*"This is a small group, and if we take measures against one member, they would leave, and in the end we could not survive"*).
Participation of members in defining and changing rules	It took two years for the original group to discuss forming a CAL, in particular how to finance the CAL, risks of taking out a loan for the initial investment and how it would be paid, type of building and equipment that would be most convenient and most efficient, what to do with the afternoon milking controlled by the women but needed to make the enterprise profitable (the women refused to let go of this resource, until the group as a whole was able to start other projects controlled by them, like flowers and strawberry production). When the	The bylaws were given to the group by INDAP and were never discussed. Several members say they have never read them. Rules change repeatedly over time. *"We do not have rules; we solve each problem as they come"; "The only rule we have is to pay our loan"* (conclusions of meeting with members). Decision-making is basically done by the President-Administrator, who in turn relies on UFOCO staff. *"He is one of us, he is here all the time, and if we sink we sink together"*. The members explain that this is fine since that is why they are paying an

RULES	CAL RANCHILLO	CAL LO OVALLE
	falling price of milk forced them to raise the service fee, they opted to start new income-generating activities (sales of agricultural and veterinary supplies). According to their bylaws, decisions are taken by majority vote. In practice, *"all important things are usually defined by consensus, but a few times we have had to vote"*.	administrator, to make decisions, although they do expect him to consult with them *"when necessary"*
Low cost mechanisms for solving conflicts	Problems are discussed in monthly or, if necessary, extraordinary meetings.	UFOCO managers and staff make all the important decisions and even solve many day-to-day problems, on the request of the Administrator. Conflicts have ended with dissenting members or suppliers leaving the CAL.
External authorities respect the right of members to establish their own rules	Members maintain almost complete autonomy from UFOCO in their decision-making. In fact, they compete against UFOCO in their new business venture (agricultural and veterinary supplies). This group held prolonged negotiations with INDAP before deciding to form a CAL. They imposed their will in terms of the type of building structure and equipment needed, and today the other five CAL in the area recognize these as much more appropriate than those favored by INDAP. This resulted in lower start-up costs and a smaller loan. INDAP provided ready-to-use bylaws prepared by an external lawyer. Members took some articles, but changed many and added some.	INDAP took all the decisions during the formation of the CAL. Almost total dependence on UFOCO even for minor day-to-day problems. When asked to define their relationship with INDAP, the group supports the description provided by one of the members: *"INDAP is our father"*.

(2) The average amount of milk supplied by the members has remained constant for four years. This is likely to be an indication that the productivity at the farm level has not changed over time.

(3) The service fee charged to the non-members has always been between two to three times higher than the members' fee.

Thus in the case of CAL Ranchillo, the system of rules protects the interests of those who are most important to the survival and performance of the CAL itself: its members, who provide most of the milk that the CAL processes and markets. As the system of rules provides clear incentives for the members, their contribution over time has increased, and thus the system reinforces itself.

In the case of CAL Lo Ovalle, the situation is quite the opposite. The rules discriminate against those who are most important to the performance and survival of the CAL: the non-member suppliers. This has two effects: on the one hand, the members free-ride, and thus have little incentive to improve their productivity. On the other, the non-members do not profit to the extent they should, and thus have a strong incentive to look elsewhere.

In 1998 and 1999, these two CALs were threatened by a very pronounced drop in the market price of milk. This presented them with a dilemma: if they did not raise their fees for each liter of milk, they would not be able to afford to operate the cooling tanks or to offer marketing services. But if they raised the fee, they would compound the pressures already facing members due to declining prices. In other words, there was a stark contradiction between the interests of the CAL itself, and those of its members as individual milk producers.

CAL Ranchillo tackled this situation through three measures: (a) launching new business ventures (sales of agricultural and veterinary supplies); (b) reviewing new technology to help increase members' milk productivity, either by increasing yields and/or reducing costs, and; (c) looking for new non-member suppliers to increase the amount of milk processed and marketed. All of these

decisions made sense given the signals they were receiving from the market. According to the manager of CAL Ranchillo, without taking these steps they would have had to increase the service fee charged per liter of milk by 50%.

CAL Lo Ovalle, on the contrary, responded to this challenge by again raising the fees for non-member suppliers of milk. In doing so, the members were effectively saying *"let the non-members pay the cost of the new market trends, and we will free-ride as we have been doing until now"*. In a meeting with CAL Lo Ovalle members, we made the following calculations using records for February 1999: non-members contributed 46% of all the milk processed and sold that month, but their service fees paid 67% of the CAL's total monthly costs. Whilst CAL Lo Ovalle's non-member suppliers could probably absorb this fee when prices were high, they could not continue to do so when the market fell. At this point CAL Lo Ovalle's two largest suppliers left the organization and started selling their milk to CAL Ranchillo.

CAL Lo Ovalle's inability to enforce its own rules governing the quality of milk also caused them to lose their original buyer. This had a major effect since this person was paying the highest prices in the area ($0.23/lt compared with an average of $0.20/lt in 1997). Today CAL Lo Ovalle is left with a buyer who is facing serious economic problems himself, and in fact owes the CAL a substantial amount of money for past milk purchases.

The combined effect of these two problems (loss of suppliers and loss of buyer) is the major cause of the CAL's poor operational performance.

Another important example of how institutional performance affects economic performance, is the size of each CAL's debt (and the financial costs). During the early design of each CAL's buildings and equipment, CAL Lo Ovalle (whose members at that time barely knew each other) accepted INDAP's recommendation, influenced by the University of Chile's School of Animal and Veterinary Sciences, that they needed a large cooling tank. *"This is what Alfa Laval said, and we did as told... it was a closed package"*. Today, at best, CAL Lo Ovalle is only capable of using 25% of the capacity of this large tank, but of course they still have to pay back 100% of the financial cost of their investment.

CAL Ranchillo had the internal strength to resist pressures for two years from INDAP and the University of Chile to get the CAL up and running. They observed the design flaws of the older CAL, and members argued among themselves about the wisdom of taking out a loan, and how it could be repaid through milk fees. As a result, they negotiated a cooling tank that was 20% smaller than the one purchased by CAL Lo Ovalle, and also altered the building design to one which was cheaper, more functional and efficient.

CHAPTER 9. MILK COLLECTION CENTERS IN THE SOUTH

In this chapter I describe four more EACs which own and operate Milk Collection Centers (CALs). These differ from the two analyzed in the previous chapter in that they work directly with the large dairy industries, rather than small independent cheese producers. The four CALs discussed in this chapter are located in Region X, in the southern part of Chile, about 1000 km from the capital city, Santiago.

9.1 The context

Region X is Chile's most important dairy region, producing two-thirds of the dairy industry's milk in the year 2000. The region's agroecological advantage lies in its climate and pasture; while the national average for head of cattle per hectare is 0.7, in Region X dairy farms have an average of 1.2 heads/hectare.

Region X has many small dairy farms, with 77% of all farms producing less than 50,000 lt per year. This contrasts with the Metropolitan Region (where CALs Ranchillo and Lo Ovalle are located), where only 14% of the dairy farms produce less than 50,000 lt/year. Region X's small farms support an average of around 25 head of cattle, and yields per cow of around 1,000 lt, four to six times lower than the yields of larger farms with 100 or more cows.

It is estimated that nationally 38% of the small milk producers (i.e., those that produce less than 100,000 lt/year) are associated with CALs, and that these organizations produce around 65% of the milk supplied by small farmers to the dairy industry, or about 9% of the total national milk production (Universidad Austral, 1999).

The dairy industry is undergoing rapid and deep changes in the following areas[39]:

- *Demand and production:* Due to the growth in the population's real per capita income, consumer demand for dairy products grew annually by almost 7% between 1986 and 1998. In the 10 years to 1998, milk production in Chile doubled. Production is increasing in Region X by 55 million liters/year, as compared to 12 million liters/year or less in the other regions. Today, demand and supply are more or less in balance (IFCN, 2000).
- *Prices:* As supply has grown faster than apparent demand, average prices dropped sharply from a high of around $ 0.30/lt in 1989, to a low in 1998 of $ 0.20/lt. With these prices, many small farmers claim that their production costs are actually higher than the market price of their milk. These prices are the 'basic price', supplemented by a number of important bonuses: for higher production during the winter months, fat and protein content, total annual volume, cooling milk on the farm, and sanitary quality. These bonuses are so important that a large producer who meets the highest standards can easily expect a final price 90% higher than the basic price, while the final price received by many small farmers can be as low as only 5% to 10% above the basic price. In the late 1980s and early 1990s, these bonuses aimed primarily at increasing milk production. Many CALs were created precisely to take advantage of the premium price being paid to large suppliers: by delivering their milk together and thus appearing before the dairy industry as a single supplier, a large number of very small producers could actually capture the higher price paid to larger farmers. However, since the mid-1990s the emphasis has clearly shifted to improving milk quality and seasonal stability of production.

[39] This section is based of official statistics provided by the Office of Agricultural Studies and Policies (ODEPA) of the Ministry of Agriculture, as well as on information kindly provided by Mr. Víctor Esnaola, also of ODEPA. Most of this information is available online at http://www.odepa.gob.cl

- *Yields:* Due to the large number of farms producing milk for household use and informal markets, average yields in Chile are low. Annual production per cow ranges between 1,200 lt for small producers, to 6,500 lt for large farms. Most observers agree that yields have tended to increase significantly over the past decade, due mainly to the growing importance of improved and seeded pastures as opposed to natural pastures; the area under the former increased by 20% in the eight years leading to 1997.

- *Seasonal fluctuations in production:* In order to stabilize production throughout the year, the milk industry has paid significant bonuses to farmers who can improve the ratio of winter to spring production. The result of these bonuses has been a decrease in production in the peak spring month (December, in the southern hemisphere) by 20%, with an increase in the lowest winter month (July) of 27%, thus leading to a more stable supply of milk throughout the year. To stabilize production, a diary farmer has to make substantial investments to improve feed supply during the winter months, and also to improve the genetic quality of his or her herd. Stabilizing production is seen by most small farmers as a very difficult objective to achieve.

- *Number of milk producers:* There are around 13,500 milk producers in Chile, of which 82% produce less than 100,000 lt per year. The number of producers who supply milk to the dairy industry has decreased significantly over the past five years, in particular among the small producer group, which has lost at least 25% of its members (Universidad Austral, 1999).

- *Herd size:* Given that many of the bonuses are directly or indirectly linked to scale of production, there has been a significant increase in the average size of dairy herds. In 1997, the average herd size nationally was 25 head of cattle per farm, and for Region X it was 35. The annual rate of growth of herd size between 1990 and 1997 was 5% nationally. With less than 30 head of cattle, a small farmer in Region X is likely to produce less than 50,000 lt of milk per year.

- *Markets:* The medium and large dairy firms buy and process 75% of all milk produced in the country, most of the rest going to the informal market. The share of total milk production processed by the dairy industry is increasing at a rate of about 1.5% per year. Although Chile is a net importer of milk and dairy products, increased production and quality have allowed the country to start exporting certain kinds of dairy products (mainly dry milk) to other Latin American countries; exports have grown by more than 25% per year.

- *Market concentration:* The milk market in Chile is highly and increasingly concentrated. According to Vargas and Foster (2000), in 1998 the largest dairy firm controlled 28% of the market, while the largest four firms together had a market share of 80%. Six years earlier, the top four firms controlled 'only' 62% of the market.

In summary, CALs in Region X are operating in a rapidly changing and demanding context, where the viability of small-scale milk production is being put to the test by the market trends described above.

Table 9.1 shows the evolution of some key statistics for the CALs in Region X and nationally[40]. The most important trends are:

- CALs in Region X have always been larger than those in other regions, both in terms of number of suppliers and volume of milk processed;

- there was a period of CAL expansion until 1997, followed by a decrease after the price of milk started dropping and the standards of the industry became more stringent;

- after 1997, many CALs outside Region X were unable to sustain themselves and had to close down or merge with other CALs, but CALs in Region X did not decrease in number;

- after prices started to drop and until 1999, the number of suppliers per CAL dropped significantly (by 30% nationally and in Region X), meaning that a large number of small farmers were unable

[40] Personal communication, Mr. Carlos Cristi and Mr. Juan Burrows, both of INDAP, April, 2001.

to continue producing milk for the formal market;

- as a consequence of the fall in the number of suppliers (and perhaps also in the total production per supplier), the volume of milk processed by the CALs also dropped between 1997 and 1999, by about 30% nationally and by 40% in Region X;
- however, after prices improved in the year 2000, the number of suppliers and the total volume of milk processed recovered, although the peak levels of 1997 have still not been fully regained.

Table 9.1 Evolution of CALs, suppliers and output

Year	National					Region X				
	No. of CALs	No. of CAL suppliers	Liters of milk processed x 10^6	Supplier per CAL	Liters of milk processed per CAL x 10^3	No. of CALs	No. of CAL suppliers	Liters of milk processed x 10^6	Supplier per CAL	Liters of milk processed per CAL x 10^3
2000	n.a.	n.a.	n.a.	n.a.	n.a.	68	4588	59	67	868
1999	135	4736	74	35	548	69	3797	48	55	696
1998	154	5932	104	39	675	70	4440	75	63	1071
1997	137	6776	106	50	774	69	5278	82	77	1188
1994	84	5000	98	60	1167	51	3810	42	75	824

Until 1998 or so, the CALs' main objective was to increase total production, as the industry was paying premium prices for volume. By 1997-98 the industry started signaling that this period was coming to an end. This was because supply had caught up with demand, and favorable exchange rates were making it more and more convenient for the industry to import milk instead of buying it domestically. The industry now began to concentrate on improving milk quality and stabilizing year-round production. Despite having advance warning, most CALs did not react to these signals until the industry actually changed its pricing structures to reflect its new priorities.By early 1999, it became apparent that most CALs in Region X were not adjusting rapidly enough to the new market conditions, and that this was a major threat to their survival. INDAP in Region X launched a special Program to Improve the Sanitary Quality of Milk in Milk Collection Centers. The plan included a number of measures at the farm and CAL levels, all designed to help small farmers and their organizations adapt to the new market conditions. These included on-farm investments to improve milking shed hygiene, intensive monitoring of the performance of each CAL, and linking subsidized payments to the private advisory firms who work with the CALs to the performance of the organizations they work with.

According to Jofré and Monje (2001),[41] after 18 months this special program had substantially improved the quality of milk produced by many of the CALs. In July-August 1999, only 32% of CALs were achieving the top standard of the indicator measuring bacterial counts, while by the end of 2000, 56% were doing so. By this time the average bacterial count for all CALs in Region X had decreased by 84%. The second key indicator of milk quality is somatic cell counts. In 1999 only 28% of CALs achieved the top industry standard for this indicator; this had increased to 73% by the end of the year 2000. The average somatic cell count for all CALs in Region X decreased by 32% in the 18-month period analyzed by Jofré and Monje. These major improvements mean that many more small farmers are now capturing the bonuses linked to the top milk quality standards.

[41] Who based their reports on official information provided by the dairy industry.

9.2 The case studies

9.2.1 Agrícola y Comercial Coyam S.A

Agrícola y Comercial Coyam S.A (CAL Coyam) was founded in 1996 by 44 small farmers from Maullín municipality, Region X.

A brief history

In 1990 20 small farmers got together to form an APPA (Asociación de Pequeños Productores Agropecuarios). These APPAs had been promoted in Region X by INDAP as a sort of first-step formal organization, since obtaining legal recognition for an APPA was quick and cheap.

Using their APPA as an organizational platform, the 20 members began to collect their milk and sell it to Nestlé. This milk was not pre-cooled, and was delivered to a collection point in individual milk bins by each farmer. Soon, the farmers started to feel that Nestlé was not being fair in its deals: according to them, with certain regularity Nestlé would acknowledge receiving less milk than the amount the farmers claimed, and, more importantly, a significant share of the milk would go off since it had not been pre-cooled, the truck was not refrigerated, and the Nestlé plant was a long way from the farms. An additional complication was that the APPA could not legally engage in for-profit or commercial activities. Thus, each farmer had to invoice Nestlé individually.

By 1994, the 20 APPA members recognized that they needed to change the way things were going. INDAP had told them about the Milk Collection Centers (CALs), and they thought that this type of organization would serve their purposes very well. As they were forming a new CAL, the dairy industry's price policies began to favor higher production and supply volumes. The farmers realized that to capture these price incentives, and also to justify the investment in a CAL, they needed to invite other local farmers to join. Around 20 or so new members joined, many of whom were very small farmers with only a handful of cattle each, who produced milk in the spring and summer months but not during the winter. As we will see later, although this decision made sense given the market signals at the time, it would create major problems for the CAL in the future.

A key decision by the original APPA members was to invite not only small farmers to join the new CAL, but also their 'large' neighbors (actually medium-size traditional dairy farms, but larger than the APPA member farms, and large enough to disqualify them from INDAP programs, although far from being large-scale or high-tech enterprises). The idea was that joining forces with them would help the CAL achieve two goals: (1) increase the amount of milk and, thus, capture the price premium being paid by the diary firms, and, (2) spread the fixed costs of the CAL among a larger number of farmers. Only one 'large' farmer accepted the invitation, and he almost immediately took effective leadership of the organization, largely due to his capacity to interact with INDAP and the milk processing firms. As one of the members put it, *"before, they would never receive us when we needed to talk to them, but this changed.... the family name is important!"* This commercial farmer eventually also became the President of the Association of Milk Collection Centers, and as such became an important political counterpart of INDAP.

Sourcing clients

In March 1995 the Milk Collection Center started operating, still under the legal form of the APPA. FOSIS subsidized most of the building costs, INDAP paid for the legal services needed to constitute a new organization[42], and the farmers received agricultural and veterinary advice, also funded by INDAP.

At first, the farmers tried to negotiate a contract with Nestlé, but in the end they preferred to reach an

[42] The new legal status was obtained in 1996.

agreement with SOPROLE, the largest dairy agribusiness in Chile[43]. SOPROLE provided – for free - the cooling tank and the necessary bins to deliver the milk from each farm to the CAL, while also offering to pay a better price for milk than Nestlé. In 1999, SOPROLE notified the CAL that it was interested in selling the cooling tank to the organization; this was interpreted by some of the farmers I interviewed as a sign that the firm was probably thinking of dropping CAL Coyam as a milk supplier. Other sources explained that this was a new general policy of most of the milk-processing agribusinesses, reflecting the shift from a priority in 'capturing' as many suppliers as possible in the early1990s, when there was a gap between supply and demand, to the new emphasis on fewer but larger suppliers capable of delivering high quality milk throughout the year.

SOPROLE was initially more open and helpful than Nestlé, but with time this began to change. As one farmer put it, *"before they (SOPROLE) would listen to us, but not anymore. Now they just go ahead and change the rules, and they simply inform us one month in advance, and we just have to follow whatever they say"*.

Changing buyers brought new challenges. When the CAL started operating, Nestlé immediately opened two collection centers at both ends of CAL Coyam's area of influence and began paying significantly better prices. However, none of the 44 members left the organization because they were told by their advisors that Nestlé was closing down some of their collection centers, and they felt that if they deserted the CAL, they could well end up with neither the Nestlé nor the SOPROLE contracts.[44]

Since 1996, the organization has started other projects with INDAP's support. Through the National Contests for the Modernization of Small Scale Agriculture and BOGAN[45], INDAP has funded (through loans and grants) two trucks for milk collection, an artificial insemination laboratory, an extension to the CAL's premises, a machine to wash the milk delivery bins, and the infrastructure required to comply with environmental regulations prohibiting dumping of liquid industrial residues. INDAP also supported the investments to start a new line of business: potato seed production, which, however, failed after the second year. According to information provided by the local INDAP office, between 1995 and 1999, CAL Coyam received 10 loans for a total of $ 35,000. During the same period, the organization also received $ 122,000 in grants, of which 72% was linked to a special program to support the restoration of degraded soils on members' farms.

In one of my meetings with the grassroots members, it was acknowledged that INDAP's strong support for this CAL was mainly due to the influence and initiative of its commercial farmer leader. An interesting fact is that the CAL Administrator – hired by the organization - did not know how much money had been invested or how much they owed to INDAP because of the loans involved in all these projects.

Performance analysis

The CAL's total production increased rapidly from 462,000 liters in 1995 to 1.2 million liters in 1998 and 1999. However, total income has not shown the same trend, since the price received by farmers dropped from $ 0.2/lt in 1996, to about $ 0.13/lt by the end of 1999. This does not include the $ 0.016/lt fee charged by the CAL for its services and to help pay the outstanding loans from INDAP; this fee represented 8% and 13% of the market price in 1996 and 1999, respectively. While the fee generates only just enough income to cover the CAL's operational costs, it is not enough to cover its debt repayments. For this reason, the CAL has had to reschedule its payments a number of times, and at the time of my field research, it had its credit suspended because it had not been able to meet payments.

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[43] At the time of revising this chapter, Nestlé and SOPROLE announced a strategic alliance that will give them direct control over half of the milk market in Chile.

[44] Nestlé later closed down one of the collection centers, and turned over the second one to another EAC.

[45] BOGAN is an INDAP program that combines grants and loans to support fixed capital investments directly related to animal production (milk and/or meat).

In addition, most of the CAL members have not registered individually as tax payers; this means that the CAL must retain the Value Added Tax (18%), which in November 1999 represented an additional loss of $ 0.02/lt[46]. Including all these factors, the final price that an average CAL member received in November 1999 was $ 0.09/lt, equivalent to 44% of the price he or she got four years earlier. In my interviews, all the members agreed that with the current prices, there is no incentive to increase milk production further.

The low price being paid in 1999 reflects the market trend, but is sharply aggravated by the failure of CAL Coyam and its members to stabilize production year-round and to improve the quality of their milk. For example, with SOPROLE's pricing policy, in November 1999 CAL Coyam should have received $ 0.19/lt, but in fact lost $ 0.06/lt (31% of the basic price) due to the low quality of its milk and the very high differences in production between the spring and the winter seasons.

Why has the organization been unable to improve its performance in all these years? There are two clear reasons:

Welfare versus profits

Firstly, around half the total membership comprises very small farmers, known as '*temporeros*'.[47] These farmers maintain old and low quality cattle, and lack improved pastures for winter feeding. They lack the land and other resources to make the investments required to improve their situation. In order to improve the overall winter to spring ratio of milk production, the CAL would have to stop receiving the milk of these very small members during the spring and summer months. During the interviews, many of the members explained to me that this move was strongly opposed by the commercial farmer who leads the organization, despite the fact that many of the members were in favor. Several of the larger members also said they were unwilling to exclude the *temporeros*, since these were their friends and neighbors; as one of them put it using a Chilean expression: *"we have the heart of a grandmother"*.

Thus, a membership policy that made sense in one particular market context has now turned against the organization as a whole and, in particular, against the many members who could adjust to the new market conditions. This is another example of the permanent tension between seeking results at the level of the EAC, and prioritizing the welfare of members as individual farmers. The heterogeneous nature of the membership reduces the CAL's options for responding to shifting market signals: if the CAL adjusts to meet the new market demands, it will hurt its smaller members; if it does not adjust, it will hurt the 'larger' farmers.

What is surprising is that the commercial farmer who holds the key to a change in CAL policy, opposes the alternative that would directly favor him, since he is the largest of all the members. When confronted with this discrepancy, some of the members lacked an explanation, while others said that their leader was a good man willing to make sacrifices for those who are much poorer. While one cannot discard this explanation offhand, the obvious contradiction leaves open the possibility that the commercial farmer is deriving other benefits from his participation in this organization, ones that I could not identify, aside from the fact that he has become a well-known farmer leader in the region.

Over-riding market signals

There is a second reason for the CAL's inability to improve its performance over the years. As I explained earlier, the dairy industry's pricing policy combines a basic price and a number of direct, transparent and explicit price incentives or bonuses linked to milk quality, seasonality, and so on. Farmers who meet the grades and standards of the industry receive a significantly higher price than those who don't. INDAP's policy, shared by almost all CALs, is that each organization should transfer these market signals to the individual members, as an indispensable move if small-scale milk

[46] Once a year, after the CAL pays its taxes, the farmers recover most of the VAT they paid on each liter of milk.

[47] Seasonal producers who produce milk only during the spring and summer months.

producers are to remain in the market. To transfer these market signals to the individual members, a CAL has to monitor each member's performance against the different pricing variables. This is not difficult to do: the CAL knows the amount of milk delivered daily by each farmer, and once or twice a month each member's milk is sampled and analyzed for quality. With this information, it would be a simple matter for the CAL to calculate the price per liter paid monthly to each member. This is the way most CALs work, but not CAL Coyam.

CAL Coyam's agricultural advisory consultant firm is contracted to receive the information from SOPROLE as well as from the individual laboratory analyses, and to calculate the price per liter per member. With the backing of the commercial farmer, the consultants' policy is to subtract from the price that should be paid to the better performing members, to increase the amount due to those who are below average. When I interviewed the advisor, he told me that *"if we applied the industry rules, some of the members would be receiving less than Chilean $ 0.04/lt, and others would be getting close to Chilean $ 0.19/lt or more. Those that receive the lower price and have only one or two cows would not survive. We prefer to regulate their money."* The advisor also explained that instead of relying on prices to reward good farming, they analyzed the results of each individual and visited those who were not performing well to explain what technical changes they should introduce to improve things. Part of the reason for this, they said, was that they felt that the data provided by SOPROLE was fudged and did not reflect the real performance of the farmers; in their view, firms such as SOPROLE are out to get the small farmers, to drive them out of business, and they saw that it was their duty as advisors to counter that policy by assuring *"solidarity among the members of the organization"*. Finally, the advisors told me that this policy was supported by the members, a fact that all the members I interviewed strongly denied.

The results of this policy are very clear. According to a report from the INDAP regional office which analyzes the quality of the milk produced by all the CAL in Region X in July-September 1999, CAL Coyám had some of the worst results. In fact, its milk was twice as bad as the average quality of 64 CALs in Region X, and around four times worse than that of the other three CALs that I have included as case studies[48].

I asked the staff of the local INDAP office what they thought of this practice. They were surprised by this information, and told me they did not know this was going on. However, they said that it was not up to a government agency to intervene in how a CAL runs its affairs. The head of the local office stated: *"Our task is to define a policy in favor of these technological changes, and to provide the services and resources for farmers and their organizations to be able to adjust to market demands. If and how they do it is not an area for government intervention"*.

In meetings without the commercial farmer leader I asked the rest of the CAL board members and a group of six grassroots members what they thought about this policy. The board members said they were conscious that the price differential between the best- and worse-performing members was never greater than around $ 0.01/lt. They knew that this was contributing to very poor results both in terms of quality and seasonality. Yet, despite the fact that many members complained in private, the issue had never been formally raised in one of the monthly meetings because discussing it was more likely to lead to open conflict than to reach a satisfactory agreement. They said that it was the advisory firm who defined the issues to be discussed at the monthly meetings, and that *"they are the referees"*. In short, the board members are aware of the negative implications of the pricing policy but feel powerless to change it or even discuss it openly.

The grassroots members made additional comments. First, they were fully aware of the differential performance of the members, since in the monthly meetings the advisory firm informs them of the total results, and then details the information for each member. *"The problem is that we took the decision that if a member delivered low quality milk for a third time, he or she would be suspended for at least 15 days... but this rule had never been enforced. We all discuss this during the meetings, but*

[48] The indicators for the other three case studies placed them around two times better than the average for the 64 CALs for which I have information.

no one dares to say 'let's cut this or that person' because we do not want to have a problem with our neighbors... besides, if we cut one person, we lose the $0.016/lt fee and we can't afford this."

The grassroots members also explained that at first there were no individualized laboratory analyses provided, so they decided to pay an average price because they did not know who should be rewarded or punished. But, *"we also decided to start doing the individual lab analyses... this has been going on for many months, but nothing changes"*. They also claimed that they have never received detailed information about how the individual prices are set for each member, they are only told their final monthly price. Not one of the grassroots members I interviewed knew if or by how much his or her price had been adjusted. But several of them loudly agreed when one said: *"we are making an effort in vain"*. When pressed on the issue of why they did not force an open discussion of this problem if they felt they were being hurt, they finally said that the commercial farmer leader is the one who *"cuts the cake"*. They went on to give me a number of concrete examples of when the majority had been in favor of X decision and the commercial farmer had said that in that case he would resign and leave the organization: *"we could not survive without him"*.

9.2.2 Cooperativa Campesina El Arrayán Ltda

The second CAL in this group of case studies is the Cooperativa Campesina El Arrayán Ltda. (El Arrayán Peasant Cooperative Ltd.). It was founded in 1995. It has 74 members, of which about 10 are inactive and do not deliver milk; however, there are five milk suppliers who are not members of this CAL.

A brief history

This group of farmers lives 70 km from the nearest milk processing plant. For many years, a truck from the dairy firm would pick up their milk but it took so long to deliver it that much of the milk would become sour and lose its value.

The small farmers in the area had been supported by an NGO linked to the Catholic Church, as well as receiving advice from one of the private advisory firms contracted by INDAP. In 1990, the NGO invited some of them to attend a workshop organized by the Universidad Austral, a regional university that had played a pioneering role in promoting the formation of Milk Collection Centers. At once, they became enthusiastic about the idea and began talking with the dairy firm SOPROLE, in a process that extended over three years.

A core group of five or six persons kept the process going throughout this period. This group invited all of the 150 or so small farmers in the area to join, 45 of whom responded favorably. When the talks with SOPROLE stalled, only nine farmers remained interested. When an agreement was finally reached with SOPROLE, the number again grew until the cooperative reached its present membership of 74 small farmers. *"The doors were left open for two years after we formed the cooperative, but now are closed because we now own many things and it would not be fair for others to come and reap the benefits"*. Today, if a new member wants to join, he or she must pay a fee of $ 420 and remain a non-member supplier for three months until the quality of his/her milk can be ascertained.

The legal process to establish a business was started simultaneously with the negotiations with SOPROLE. INDAP paid for a lawyer who explained to them the advantages and disadvantages of several legal alternatives, until they decided in favor of a cooperative (*"because it is easier for a person to join or leave, compared to a Limited Liability firm, and it has tax advantages, compared to a Corporation"*). The cooperative was registered in September 1994, but the Milk Collection Center (CAL) began its operations in May 1995.

The CAL was built with a grant from FOSIS for $ 2,520, plus a loan from INDAP for $ 10,500. Although the INDAP loan was scheduled to be paid over four years, they settled it in only half that time, with each member contributing $ 158, spread over the two year period. Their cooling tank has been lent to them by SOPROLE free of charge. In 1996, after the INDAP loan was paid, they bought the land were the CAL was built.

Since starting their CAL, the organization has carried out other projects. In 1998, a severe drought year, they connected the CAL to the local school's deep water well because the CAL's much smaller well had dried up. In 1998 they also built infrastructure to process their liquid residues, so as to comply with environmental regulations. That same year they completed the CAL's buildings. The next year they built their own deep well, and the organization is now setting up a distribution system to sell drinking water to local houses. Also in 1999, they bought a feedmill to process feed for their cattle. They also have a small store where they sell veterinary supplies and other goods that are in constant demand (*"we have a profit of 6% which is not high, but we do this as a service to the members who can save the cost of traveling to town to buy these products"*).

At the start of each season, the members of the cooperative each state the annual loan they will require from INDAP. The organization negotiates the loan, but each member is responsible for his or her own debt. In the spring of 1999, the organization obtained a loan of $ 42,000 for this purpose. The cooperative also negotiates collectively to purchase fertilizers and other agricultural inputs needed by the members. While the prices they obtain are not much lower, they do get some important benefits, such as free delivery to the CAL and up to three months to pay.

The organization has also negotiated access to some of INDAP's programs on behalf of its members. For example, in order to improve milk quality the cooperative has obtained grants and loans so that 76% of the members could have cement floors and clean pressurized water in their milking sheds.

Another important achievement is that they now exert greater control over the technical advisory services provided by a private firm under contract to INDAP. They even fired the old firm due to the bad quality of their services. They invited three new firms to present a work plan to the members, who voted to select one. At the same meeting, the members elected a commission to supervise and control the advisors' work. An annual fee of $ 67 is paid by each member to the advisory firm, the proportional amount being discounted monthly from the milk payments.

These investments have been paid for by cash and in kind contributions from members, as well as through additional loans and grants from INDAP and from the municipal government. The organization has had a consistent policy of keeping their debts at a low level, and has also ensured that members' contributions are set at a level that is acceptable to the poorer households.

Organizational structure

The CAL's organizational structure is as defined by law. Since its foundation, the cooperative has held three board elections. The original president was replaced at the second election, but was elected again the last time.

Once a year, an external accountant comes to a general meeting to present and explain the cooperative's balance sheet and income statement. An elected Accounts Revision Committee liaises throughout the year with the external accountant and with the board, and informs the membership during their periodic meetings.

The board meets up to four times per month, and the General Assembly meets every two months, but it holds extraordinary meetings to discuss any major decision, such as taking out a loan. Around 45 to 50 members participate in each membership meeting, and those who do not attend are fined $ 4.2. If a board member does not attend the board meetings, the fine is $ 6.3. The fines are always applied and paid, with no exceptions.

The internal bylaws have been adapted over time, according to need and experience. The members I interviewed felt the most important rules are those governing the election of the board, the obligation to participate in meetings and other activities, and the pricing system that considers the same variables as those of the milk industry. The rules are harsh; for example, if a member is caught diluting his/her milk, the first time the payment is cut by 50%, and a warning is issued; the second time the member is suspended for 10 days (meaning he/she cannot sell milk for that period); the third time the member is suspended for life. Most of those who are fined do not come back: *"In 1999 two left because of this,*

but it is better, since they were the ones with the lowest quality."

Pricing incentives

When asked about positive and negative price incentives to stabilize production and ensure milk quality, the members reply with what has obviously become the organization's slogan: *"The organization does not reward or punish; each member rewards or punishes him or herself alone"*. The CAL analyses the milk quality for each member, and keeps data on other variables of individual performance. Since they do not trust the quality analysis done at SOPROLE's laboratory (*"the plant is a dictatorship"*), they have hired an independent private lab to do a separate test for the cooperative, which they use to set the final price each member receives every month. In December 1999, for example, the average price was $ 12/lt, but the best-performing member obtained $ 18/lt while some got only $ 0.06/lt. The results are printed each month and a copy is delivered to each member, so everyone knows who is below or above average in each indicator, and each person has a clear and detailed explanation of how his/her monthly prices were calculated.

This system of individualizing price incentives has allowed the organization to make significant progress in overcoming some of the most important technological problems of milk production in Chile. In 1996, the CAL had a 6:1 relationship between milk produced in the spring and summer months versus winter production, and the ratio had been cut by half in 1999. Milk quality has also improved significantly over time, to the point where the different indicators are comparable to those of a farmer selected by Nestlé as an example to be followed by others (Nestlé Chile S.A., 1999).

Farm level performance constraints

While progress has been made in adjusting to the industry standards, this has been distributed unevenly: in 1999 around 70% of the members had below average performance indicators, judging by the average price they received for their milk. The correlation between total production (indicative of farm and herd size) and average price is not strong enough[49] to conclude that performance is predetermined by assets: there is obviously room for improvement for most, if not all, CAL members.

Despite the progress shown by the CAL as a whole, the low price of milk is hurting this CAL and its members, to the point where total milk processed by the CAL has been decreasing steadily since a high of 1.23 million liters in 1997, to 916,000 liters in 1999 (the CAL started with 661,460 liters in its first full year, 1995). Many farmers stopped selling their afternoon milk production because of the low price (*"given the price paid by SOPROLE, it is more profitable to use the afternoon milk to raise calves and perhaps make a bit of cheese"*).

According to the owner of the advisory firm that works with CAL Arrayán, lower production does not only reflect decreasing prices, but also the influence of a severe three-year drought that damaged pastures severely, as well as the pressure being put by the organization on members with low quality standards to leave the cooperative.

Due to the lower levels of production, the cooperative had to increase its service fee to its members for each liter of milk processed and sold from Chilean $ 0.014/lt in 1995, to Chilean $ 0.021/lt in November 1999. Taking into account average milk prices at the time, the fee has increased from representing around 7% of the price, to 23%.

This situation is beginning to create some tension among the members. One of them told me: *"This is something I don't think is fair. Now that things are not going well, there are many who are not delivering the afternoon milk, so there are fewer of us pushing the cart of the cooperative. Once things improve, they will come back and continue to benefit. Besides, the organization is also supporting those who cut back on the milk delivery, to get loans and subsidies from INDAP... they remain in the organization only because it helps them to get loans."*

[49] The correlation coefficient between price and production is 25%.

When asked if they have a plan to reverse this situation, the board members readily acknowledge that most members have not really tried to increase quality and production, especially during the winter: *"we made an attempt to introduce artificial insemination to increase winter production, but few did it, in part because they felt they did not have enough feed for winter feeding"*. On the other hand, *"many have not taken the time to register for INDAP's soil fertilization program... if you do not invest in your fields, each year you will get less and less"*.

Several members I interviewed agreed with the board members that during the good years, when the prices were high, most members invested their profits in increasing the size of their herd, but without improving their pastures. In fact, an informal survey I conducted of eight members showed that, on average, at the start of the year 2000 each of them had 12 head of cattle, compared to only three in 1990, but the growth in the acreage under improved pastures was much less significant.

In a meeting with the board they estimated that a comprehensive plan to improve winter milk production would require an investment of around $ 126,000, or about $ 1,700 per member. The main obstacle is that most members are already in debt to INDAP, so they do not have more credit.

I asked local, regional and national INDAP authorities what could be done in this type of situation, where an EAC is hampered by constraints at the farm level. They acknowledged that policies which support economic organizations emphasized investments at the organizational level. There is a disassociation between the instruments which support the EAC and those which support primary production. On the other hand, Luis Marambio, former National Director of INDAP, explained that this posed a dilemma: *"INDAP has a large number of unorganized clients. If we concentrate more resources on those who are organized, so that the support to the EAC itself is complemented with strong investments in their members' farms, it would mean that we could attend less farmers."*

The cooperative's private advisor had this to say: *"I may preach in favor of specialization, arguing in favor of investing in all that which is needed to increase winter production and improving quality. But the strategy of peasant survival has historically been one of diversification, not of intensification and specialization... besides, the dairy industry radically shifted its policy in the past decade, from volume to quality, and no one really knows where it will be ten years from now, so I could not promise them that the types of investments that I am recommending based on today's signals are the ones that will pay off in the future."*

Performance analysis

Once again we see that in times of difficulty, the ever present tension between the interests of the EAC and those of the members, becomes stronger and stronger. Despite the strong commitment and discipline of the members and the serious way in which the cooperative runs its affairs, both the organization and the individual farmers failed to adopt any of the possible strategies to cope with the problem: diversify into new business enterprises or new markets, lower administrative and fixed costs, and/or increase primary productivity at the farm level. In the absence of these pro-active changes, the organization is now dependent on support from the public sector, as well as on the capacity of its members to survive until conditions improve.

While the members despair about the decreasing prices, all of those I interviewed were unanimous in expressing their satisfaction with their organization. The most frequent reason I heard was that *"we are still selling our milk, while those who are not organized cannot find a buyer."*

9.2.3 Sociedad Agrícola y Comercial Chirre Ltda.

Sociedad Agrícola y Comercial Chirre Ltda.(CAL Chirre) was founded in 1997 in the municipality of Río Bueno, although the organization had been operating under a different legal status since 1994. This CAL has 46 members, plus an additional eight non-member suppliers.

A brief history

One of INDAP's Technology Transfer Program consultants initially promoted the idea of forming an organization of milk producers in this area. CAL Chirre's President of the Board explains: *"This person knew what was coming, that the diary plants would in the future not receive milk in individual bins; besides, this advisor also showed us a big carrot, which was the extra Chilean $ 0.05/lt being paid at that time by the dairy firms as an incentive for larger amounts of milk per supplier"*. Yet, it took a lot of work to get the organization going: *"we lacked trust in the organizations"*. Finally, the small farmers established an APPA (Association of Small Farmers) with about 30 initial members. This operated for three years until they formed the current organization in September 1997. They sell their milk to Loncoleche, one of the largest dairy firms in the country.

The Milk Collection Center was built in 1995, funded by an INDAP loan to be paid off by all the members over four years. In 1998 they made several investments to improve and expand their CAL, and to add the infrastructure required to comply with the liquid residue disposal regulations. In 1999 they bought a truck and built a house next to the CAL for the administrator. They have also made a considerable investment to buy milk delivery bins, and have improved a road to shorten by 15 km the route that the truck has to take to pick up the members' milk. Taking advantage of loans and grants made available through INDAP's BOGAN program, they have made improvements to members' milking sheds through the acquisition of milking machinery, cement floors, tin roofing and so on.

Organizational structure

As with CAL Arrayán, INDAP paid for a legal study to compare the advantages and disadvantages of different types of organizations. CAL Chirre chose to be a limited liability firm rather than a cooperative because it is too easy for members to leave cooperatives, and since the organization would incur debts, they were afraid that a few members would be left to pay the loans: *"as a limited liability firm, we are all tied together"*.

A monthly membership meeting provides members with a detailed report on prices, production, quality standards and any other matters of importance. Attendance used to be low until they decided that milk payments would be made at the end of these meetings. The board usually meets at least twice a month, or more if necessary. All the external stakeholders I interviewed agreed that CAL Chirre's board provides excellent leadership. A well-informed INDAP professional, familiar with many CALs, explains: *"in some CALs, you see that the leadership is provided by the advisor. In other CALs, everything rests on one single person. Some CALs do not have any leadership at all and are totally dependent on INDAP. But CAL Chirre has a strong team of at least seven members who are deeply involved in managing their organization; they are very positive and forward-looking, always with clear goals and with good relations with the membership"*.

This CAL charges a service fee to members of $ 0.021/lt, including debt repayments: *"we started charging $ 0.017/lt, but almost immediately saw that this was not enough, so we raised it and have kept it constant since then"*. They have been able to maintain this fee because buying a truck in 1999 allowed them to lower their fixed monthly costs by 30%.

However, they have lost their two largest milk suppliers because Loncoleche financed individual cooling tanks for them: *"one of them we did not mind since he never wanted to accept our rules, but the second one has hurt us."*

In 1996 the CAL adopted rules governing milk quality and seasonality of production, but these weren't really enforced until 1998 when pressure from the dairy industry increased. In addition to the standards required by the industry, they have added their own measures to improve performance more quickly. For example, if a member fails to meet the industry sanitary quality standards for two months in a row, the CAL doubles the discount in the price of milk on top of the discount applied by their buyer Loncoleche. Rules of this sort have been agreed not only for sanitary quality, but also for fat content, milk dilution, and so on. A few members have withdrawn from the organization after being fined.

Performance analysis

The results of these rules speak for themselves: between 1998 and 1999, the CAL improved the main average indicators of milk quality by a factor of two, and improved the fertility and the quality of 188 hectares of pasture, leading to higher production during the winter months. The board feels that all their members have responded very well to this program: *"60% are doing very well, and only 10% still have quality levels that are not acceptable"* (in fact, records kept by the organization show that almost one third of the members are below average).

The board attributes their success to the combination of price incentives and well focused technical assistance to those who lag behind. In a meeting with grassroots members, they agreed when one of them explained that until the price incentives were enforced, nobody paid much attention to their technical advisors' recommendations: *"it costs money to do what they say, so unless we stand to lose money, it is more comfortable to keep working as we are used to".*

However, the members and the board feel that what they have done is not enough. For example, board members say: *"We are losing the battle to improve the winter to spring production ratio. So we analyzed this and decided several things. First, right now every member has a silo for winter feeding. Given that we now have enough feed, we have sent one of our members to receive training in artificial insemination at the Universidad Austral of Valdivia. We will shift more cattle to winter production".*

When I asked the grassroots members what they thought of this plan to increase winter production, they agreed that it was necessary. However, none of them had any idea of what the change would cost them. This lack of detailed knowledge about the economic costs and benefits of different technological options was also shared by the private advisors and the INDAP staff whom I interviewed: despite being heavily involved in promoting certain practices or discouraging others, none was able to tell me the actual costs or expected benefits, for example, of improving milk quality versus seasonal stability of production. The head of the local INDAP office explains: *"to have access to the market, you need quality, that is the key that opens or closes the door. Once you are in, then we should be doing a finely detailed analysis of different options, but we are not. We are just reacting to the signals we receive from the market, and even that is hard enough, so we do not have a capacity to think ahead."*

In any case, the farmers think that change will be slow: *"each of us has only 10 to 12 head of cattle. There is no way we can leave half of them for the winter, because we would lose the production of one year. So we will go slow, perhaps with two cows per year."*

Despite the achievements of CAL Chirre and its members, the amount of milk received, processed and sold by this CAL has decreased by 18% between 1997 and 1999, as the price of milk fell by more than 20%. The members are disappointed that they have not been able to increase the price of milk as they had expected when they started their CAL. But they do not blame the CAL, instead blaming the government for signing international trade agreements that let foreign milk into the country: *"It is the fault of Mercosur",* one of them said, *"so it is now up to the government to take action to put a stop to this situation which is bankrupting all milk producers, not only the small ones".*

However, they still see themselves as doing much better than their non-organized neighbors: *"those who did not join are really doing bad, they are barely surviving."*

CAL Chirre's members know that their individual monthly income is now lower than before, due to the lower price of milk. Yet each month they are informed that the CAL itself is showing a surplus. Why don't they lower the fee charged for each liter of milk to increase members' benefits? (I estimate that the fee could be lowered by at least 5% without seriously affecting the CAL's finances). When I asked this question to the board and grassroots members they unanimously agreed with one person's response: *"bread for today, hunger for tomorrow!".* They clearly see the organization as their main support system in a very complex and uncertain environment, and as such they are willing to make individual sacrifices to ensure its survival.

9.2.4 Agrícola Santa Bárbara S.A.

Agrícola Santa Bárbara S.A. (CAL Santa Bárbara) was formed in 1996. It is located in the municipality of Puerto Varas, Region X. The organization is the result of a more or less continuous process of collective action beginning as early as 1978, when a number of small farmers joined a program of on-farm trials and demonstration plots. The first local farmer to join these tests is the current President of CAL Santa Bárbara.

A brief history

In 1984, INDAP contracted the private consultant firm SERVIAGRO to provide technical assistance to farmers in the area under the Technology Transfer Program. The firm, whose work continues today, organized the first two groups which included about a third of the current members of CAL Santa Bárbara. SERVIAGRO and the farmers made rapid progress in improving basic technologies in wheat, potato and milk, taking advantage of what they call *"the price bonanza of 1985-88."* The good results reinforced the working relationship and the trust between the farmers and their advisors. Today, this advisory firm is deeply involved in the organization's strategic planning and decision-making processes, to the extent that one of its senior staff members is on the CAL's board (without voting rights).

When in the early 1990s INDAP began to promote the formation of CALs, this group was initially reluctant. According to the President of the organization, *"we never believed the story that we could force the dairy plants to increase prices when all we have are 1 million liters per year... to us that it a lot, for them it is nothing."* INDAP put pressure on them, arguing that a CAL was viable even if they only produced 500,000 liters per year. Despite the fact that they were producing 600,000 liters, farmers and SERVIAGRO felt this was not enough to sustain a CAL, so for some time they rejected INDAP's approaches.

Their opinion changed when the dairy industry started to tell farmers that unless they could deliver pre-cooled milk they would be left out of the market. Towards the end of 1994 they agreed to start a CAL and in six months (a record time) they had built the necessary infrastructure, negotiated a contract with a dairy firm, and started operations. However, it became obvious that the dairy agroindustry's interest in CALs was waning: of the five firms they contacted, only one (Loncoleche) was interested in discussing a contract. Also, the dairy firms, included Loncoleche, soon began to raise their quality and seasonality standards, to lower the price of milk, and to transfer the cost of several operations to the CALs (e.g., transportation of milk, recording and measurement of individualized production and quality levels, emission of a single payment to the CALs as opposed to one check for each farmer, and so on).

To start the CAL, the original group of about 30 farmers realized they would need to expand the membership, since the CAL had been projected to work at a 1.5 million liter level. They invited all the farmers in the neighborhood, and an additional 40 agreed to join. Loncoleche accepted all 70 members, on the explicit and formal condition that not a single additional farmer could ever be added to the group. Thus, all those who did not join the CAL have been excluded from the formal milk market, at least while Loncoleche continues as the dominant buyer in the area.

Organizational structure

Since they lacked a legal status, the group initially worked under the umbrella of the local Small Farmers' Association. To build the CAL and start operating, INDAP loaned the Association $ 26,300. Each of the 70 members had to make a cash contribution of $ 420 to repay that original loan.

The organization obtained its new legal status in 1996. As a Corporation, Agrícola Santa Bárbara had to issue shares. Each of the 70 members owns four shares which cannot be sold outside the group. Given Loncoleche's strict conditions about the number of members, the organization has ruled that if a shareholder dies, his or her place has to be taken by only one person; if the surviving family members cannot agree among themselves how to manage their four shares, then they have to sell them to the

Corporation.

The members I interviewed agreed with this system of closed membership: *"what we have developed is a way to understand our work.. it has taken us many years to learn, and we have gone through much pain... if we start to let in new people, then we will have some speaking in Chinese and others in Spanish! Besides, under the old ways of producing milk, we would have welcomed anyone, but today we are under strong pressure, and often have to change things from one month to the next... We know that in the end only ten percent of the farmers will remain in this business of producing milk; what we set out to accomplish is that this ten percent includes all of our 70 members.. we have already lost five or six, and with the summer prices they are paying this year, some more will leave."*

The corporation is legally required to hold a shareholders meeting only once a year; however, they have continued their long tradition of meeting once a month. Failure to attend incurs a fine. The board meets as often as necessary, at least once or twice a month, and informally almost every other day or so. The board members are elected for a two year period; in the last election, for example, two of them where reelected and three were changed. The CAL has a full time manager, who is also a shareholder and holds an Agricultural Technician degree.

From the start, this CAL concentrated on improving milk quality and stabilizing production throughout the year. However, their quality levels are still lower than the average of the Loncoleche Osorno plant, which is where their milk is delivered. To improve their performance, they have revised their internal bylaws each time the dairy industry has adjusted its prices and/or its grades and standards. On top of all the discounts applied by Loncoleche when milk does not meet their standards, this CAL has voluntarily adopted rules that increase the cost to the farmer of non-compliance (e.g., the farmer's price is not only discounted, but he or she is suspended for a number of days from delivering his or her milk). Furthermore, the CAL rules that anyone who breaks the same rule three times is suspended for life. Already one shareholder has been suspended (*"he still is a shareholder and we cannot take that away, but the law does not say that we have to buy his milk"*).

This CAL charges one of the lowest milk-processing fees in Region X, only $ 0.011/lt, half of what the other CALs included in my study are charging. Farmers see this fee as an indicator of the organization's achievements, but in fact it is artificially low, since the manager and the advisors recognize that it is not sufficient to cover the costs of running the organization. For example, *"the salary of the manager is subsidized by INDAP through the FODEM program"*.

To cover this gap between costs and income the other organizations I studied increased their membership fees. However, CAL Santa Bárbara has instead started new business enterprises in order to make a profit to subsidize the CAL's running costs. One of these initiatives failed (a potato marketing scheme), but two yield handsome profits: a 'mini market' and a gasoline station. The mini market, for example, has annual sales of around $100,000. As a board member explains, *"ideally we would like these other businesses to cover the full cost of the CAL, so that the farmer could receive the full price paid by the dairy plant"*. However, this strategy has risks; the potato marketing project left them with a debt that, with interest rates, has climbed to $ 42,000: if INDAP does not agree to forego this debt, it will bankrupt the CAL[50]. The gas station, a good source of income for a number of years, had to close down when a competitor opened another one in the area. They agreed with the owner of the new station that he would charged them lower prices for gasoline, in exchange for their closing down their own pump (*"it was a good business for a time, and we got out before we started losing money"*).

CAL Santa Bárbara's low service fee is also possible because of the contract between the CAL and the advisory firm. This establishes that one of the senior SERVIAGRO staff members will spend half time

[50] The farmers feel that INDAP should not ask them to repay that loan, because the whole potato marketing project was designed, managed and strongly promoted by INDAP. It failed after only one year, leaving a number of organizations with high debts! At the time of writing this note (June 2001), I have been told that INDAP is likely to cancel the debt.

supervising the overall operations of the CAL, supporting the hired manager, and especially focusing on assuring the quality of milk. Since INDAP subsidized most of the payment to the advisory firm, this results in lower administrative costs for the CAL. For example, in 1999 this CAL had gross sales of about $ 467,000; the cost to the farmers of the technical advisory services that year was equivalent to 2% of that value, while the INDAP subsidies represented an amount equivalent to 8% of the CAL's gross income. If the farmers had had to pay the full cost, it would have represented almost $ 0.02/lt, an amount that would be almost impossible for the farmers alone to pay.

This relationship between the advisory firm and the CAL is largely built on the trust of the farmers, itself a product of 16 years of continuous work with a good and proven track record of success. In turn, the advisory firm has proved adept at improving its knowledge and skills as required by the changing circumstances of its small farmer clients. For example, the two senior staff members have recently obtained MBAs in order to be able to operate better in the business- and market-oriented environment that their clients are facing.

Despite the fact that this fruitful relationship is grounded in very concrete achievements, one must remember that financially it is only possible through government subsidies to small farmers for private advisory service. Both the small farmers and the advisors readily acknowledge that it would not be possible to sustain these sorts of arrangements if subsidized technical assistance for small farmers was ended.

The very deep involvement of the advisors in the running of the CAL has created a high degree of dependence on the part of the farmers. For example, when due to some bureaucratic adjustments INDAP temporarily suspended the functioning of the advisory services, it only took five months for the old manager of the CAL and some of his cronies to run up a debt of $ 36,000 with Loncoleche, of which $ 21,000 disappeared! To this day, the CAL is facing the financial consequences of this mismanagement.

While the advisory firm has designed a very good training program for the farmers, the curriculum is strongly focused on production and technological issues, such as operation and maintenance of milking equipment, animal feeding, forage conservation, and so on, with much less attention to farm and business management topics. The opinion of the advisors is that *"in the short run, small farmers cannot operate alone in the very competitive market environment that characterizes the dairy industry; it will take many years of work before they can achieve a stage of complete independence."*

Performance analysis

The evolution of production in this CAL is similar to the other CAL I have described. In 1995, the CAL received, processed and sold only 650,000 liters, and this grew very rapidly until peaking in 1997 at close to 3 million liters. Since then, with the fall in milk prices (31% between 1995 and 1999), production has begun to decrease, reaching 2.2 million liters in 1999.

Of course, this drop in total production hurts the CAL's finances. In 1999, the organization generated a total income of $ 139,000: 62% from the mini market, 24% from CAL service fees, and 14% from the FODEM subsidy. Its total operational expenses were $ 118,000. The balance is destined to pay outstanding INDAP loans. The drop in milk production has meant that this amount is almost 10% lower than its 1997 income.

As in some of the other case studies, CAL Santa Bárbara uses the industry's system of price incentives to stimulate its members to improve quality and stabilize annual production. In November 1999, the farmer with the best price received $ 0.17/lt, while the lowest price was only $ 0.09/lt, with an average for the CAL of $ 0.15/lt. This system of incentives, together with the intense and open monthly discussion of the quality results (*"we discuss the five best and the five worst, why they got those results"*), plus the good technical advice these farmers receive, have resulted in quality standards that are twice as good as the average for the 64 CAL in Region X, and the best among the four CAL that I studied.

Yet nearly 60% of the members still achieve quality indicators below the CAL's own average. I asked

a group of six grassroots members to explain why new, harsher rules were approved unanimously in August 1999. After some discussion, they agreed that this was for two reasons: first and foremost, improving quality is the key to continued market access (*"and we have seen that those who left are really doing very, very bad"*), and if the Loncoleche contract is lost, they see absolutely no chance of gaining a new contract with another firm; second, I quote one of them, *"we have a business vision, which has to be a long term vision, the old vision is one of having bread today and being hungry tomorrow"*.

However, the members are not satisfied with the results so far in terms of milk quality and seasonal stability of production. Milk quality could be further improved by cooling milk between milking and reaching the CAL's cooling tank. The board is assessing the option of installing individual storage tanks for their largest producers, plus 'sector cooling tanks' distributed around the area so that each farmer could cut down the time it takes him/her to get the milk into cold storage. Getting these individual or sector cooling tanks is seen as a critical step by the manager: *"if we do it, we could get an additional $ 0.02/lt, and if we don't do it, in the end the larger members will do it by themselves... and ciao to the organization!"* The problem is that this plan would cost between $ 158,000 and $ 210,000 to implement, and would only be viable if the loans could be paid in a 10-year period, *"but no one wants to take the risk since we don't want to even think about how low the price of milk will be in ten years!"*.

9.3 The southern CALs' performance and impacts

This section discusses the performance of these four organizations at two different levels: (a) their economic and financial performance as businesses, and (b) the effects of CAL participation on members' households and farms.

9.3.1 Economic and financial performance

Table 9.2 shows the economic and financial performance of the four CALs for 1999 (1998 in the case of CAL Coyam). It is important to remember that 1999 was a year of very low prices, when production reached its lowest level. Hence, these results probably show these organizations at their weakest economic and financial levels since their inception.

All of the CALs, except CAL Coyam, had a positive net income. Relative to the value of their assets, CAL Santa Bárbara and CAL Arrayán show the best results, while relative to annual income, CAL Arrayán performs best.

Financially speaking, CAL Santa Bárbara is very exposed, since its debts are worth almost 80% of its assets (the result of the failed potato marketing project), although most of the debt is long-term and thus more manageable than if it was short-term. The remaining three CALs have their debts well under control.

All the CALs are receiving substantial grants from the public sector, but this mostly reflects the importance of the BOGAN program through which INDAP is supporting on-farm investments. Based on complementary information I was able to collect, I estimate that in none of the cases do government subsidies represent more than 5% or so of the operational or fixed costs of the CALs themselves.

In conclusion and with the possible exception of CAL Coyam, these EACs' economic and financial performances have been acceptable, even during years characterized by low prices and decreasing production.

Table 9.2 Economic and financial performance of four Milk Collection Centers in the south of Chile

Item	Coyam 1998	Arrayán 1999	Chirre 1999	Santa Bárbara 1999
Total revenue ($)	196,760	158,071	191,612	572,401
Total expenses ($)	198,198	138,225	184,502	551,171
Net result ($)	- 1,159	19,845	7,110	21,231
Total assets ($)	14,499	71,994	44,168	248,686
Current assets ($)	14,499	43,466	13,749	80,825
Noncurrent assets ($)	0	28,528	30,420	167,861
Total liabilities ($)	3,670	21,800	13,633	198,425
Current liabilities ($)	3,670	19,204	2,264	14,287
Noncurrent liabilities ($)	0	2,596	11,370	184,138
Net assets ($)	11,127	50,193	30,535	50,261
Grants from government ($)	33,342	51,974	33,066	74,725
Net result/total revenue	- 0.01	0.13	0.04	0.04
Total liabilities/total assets	0.23	0.30	0.31	0.80
Operational capital (current assets – current liabilities) ($)	11,127	24,262	11,485	66,538
Liquidity (current assets/current liabilities)	4.30	2.26	6.07	5.66
Dependency (grants/total revenue)	0.17	0.33	0.17	0.12

9.3.2 Impacts on members' farms and households

I will now analyze the impact of these four CALs on their members' farms and households.

Household income

In all four cases the CALs' members are doing substantially better than their non-organized neighbors in terms of net annual household income (Table 9.3). The differences are particularly striking for CAL Santa Bárbara and Chirre.

In all cases, farm income is the main component of total household income. The members, however, generate more non-farm income than their non-organized counterparts, except for CAL Arrayán, where this figure is the same for both groups. Unearned income is much less important, with the only exception being CAL Chirre members.

Table 9.3 Income and income composition, CAL Santa Bárbara, Coyam, Arrayan, and Chirre (1999-2000 agricultural season, $)

INDICATORS	SANTA BÁRBARA		COYAM		ARRAYÁN		CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Net hh income	27,046	4,399	7,190	4,256	28,532	22,936	12,621	7,297
Earned net hh income	27,015	4,273	6,720	4,459	27,693	21,415	10,225	6,763
Unearned net hh income	31	127	469	67	839	1,522	2,396	534
Non agricultural net income	3,247	228	1,955	526	3,322	3,122	8,146	3,368
Farm net income	25,067	4,227	6,134	4,354	26,364	19,853	8,415	4,926

Farm profits, production and sales

When comparing farm net income between the members and the non-members of the four CALs, the differences are 6 to 1 in the case of CAL Santa Bárbara, and between 1.3 and 1.7 to 1 in the other three cases. This evidence supports members' opinions that their non-organized neighbors are getting much poorer farm results.

For crop and pasture production, these figures reflect the fact that members produce more by value than non-members. The gross value of production closely mirrors the results already described for farm net income, meaning that members are not necessarily producing better, but are producing more (in the area of crops and pastures). I suspect this result is probably due to members having more access to cash, both from the greater household income, but also because by being organized they have better access to loans and grants from INDAP. Just as non-members have reduced milk production to a greater extent than members, they are likely to have also been forced to decrease the area under crops and improved pastures.

An extremely interesting result in shown in Table 9.4: in all cases, except for CAL Chirre, the non-

participants have *better* economic results for milk production than the EAC members. This is because, compared to non-participants, participants:

- produce much more milk (between 41% and 142% more),
- obtain better prices per liter of milk (around 3% to 13% higher, with the exception of CAL Coyam, where the price paid to the participants is 3% lower than that received by the non-participants),
- generate a much higher gross income (between 37% and 149% higher),
- but also incur much higher costs per liter (between 0.5% and 80% higher), with the exception of CAL Chirre where participants' costs per liter are 7% lower,
- with the final result that the non-participants end up with a lower gross margin per liter of milk, with the exception of CAL Chirre where the participants are ahead.

Table 9.4 Average per farmer economic results of milk production, CALs Santa Bárbara, Coyam, Arrayán, and Chirre (1999-2000 agricultural season)

INDICATORS	SANTA BÁRBARA		COYAM		CAL ARRAYÁN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Production (lts)	34,960	16,225	14,559	10,347	16,965	10,335	29,983	12,390
Price per liter ($/lt)	0.14	0.13	0.13	0.14	0.14	0.13	0.14	0.13
Gross income ($)	5,033	2,065	1,947	1,427	2,326	1,370	4,103	1,644
Direct costs ($)	6,981	1,798	2,218	1,573	2,308	928	2,609	1,158
Direct costs per liter ($/lt)	0.20	0.11	0.15	0.15	0.14	0.09	0.09	0.09
Gross margin ($)	-1,948	267	-272	-146	18	442	1,494	485
Gross margin per liter ($/lt)	-0.06	0.02	-0.02	-0.02	0	0.04	0.05	0.04

This result is consistent with the information gathered in the interviews and meetings with the farmers and their advisors. CAL members stated that maintaining market access was the primary objective; in economic terms this means they are using practices and technologies (both at the farm and EAC levels) which are not profitable given the current price of milk. In fact, these farmers are supporting the CALs financially at the expense of their own individual income. This is not surprising if we remember that, because of the drop in prices, their service fees have grown in relative terms to represent up to 20% of the price paid by the dairy plants.

The non-member farmers who mainly trade in the informal markets are freer to cut down on more expensive practices. But the members cannot afford to cut down quality or seasonal stability, as this would surely mean losing their contracts with the dairy firms.

Ultimately, the explanation for the magnitude of the effect of decreasing milk prices on farm income, lies in the low productivity achieved by most of these farmers. This is demonstrated by the direct

production costs per liter shown in Table 9.4; these are way too high when compared to those of many medium and larger farmers. These small farmers can sustain these high production costs because family labor plays a major role. However, sustaining production on the basis of cheap family labor certainly results in lower total household income. This is because in Chile the opportunity cost of labor is so high, with more than 40% of total rural income coming from off-farm employment, with real wages in the agricultural sector having grown continuously for more than 10 years due to the expansion of the for-export sector and with low unemployment rates both in the countryside and in the economy at large.

I feel it is important to distinguish between the enterprise (e.g., the CAL itself), and the associative project, which must include actions both at the EAC level and at the level of members' farms. Ultimately, the EACs' performance and sustainability will depend to a large extent on productivity improvements made at the farm level. Besides, increased productivity at the farm level is the only way to deal with the permanent tension between prioritizing the results and survival of the organization, against those of the members. Table 9.4 shows that, given the low productivities of the members of these CALs, when the prices fell, the conflict between firm and members was resolved in favor of the former and at the expense of the latter. If, as many of the farmers told me during our interviews, they had invested part of the profits made during the 'good years' in, for example, increasing winter production by improving pastures, then the results in Table 9.4 would have been different, and the inevitable adjustment during the 'bad years' would have been less detrimental to the individual farmers (for example, because if average prices had increased due to higher winter production, it could have been possible to drop the service charges, instead of having to increase them, as most CALs had to do).

Of course, organized farmers will not be able to sustain their organizations at the expense of their farm incomes indefinitely if prices continue their downward trend. Fortunately, I can report that in the years after I collected my data, the trend was reversed and prices improved substantially, to an average level in Region X of about Chilean $ 103/lt in the year 2000, an improvement that would again give these farmers a significant profit (ODEPA, 2001).

Yet, in the long run the lesson is clear: the members of the CALs and the CALs themselves are operating with productivities and costs that leave them very vulnerable to sustained low prices. It would seem very important for them to take advantage of the new cycle of high prices to: (a) accelerate their plans to further improve yields, milk quality and seasonal stability of production, (b) capitalize their CALs and strengthen their complementary income-generating activities.

Dealing with member heterogeneity

The above results are averages for the CALs, and as such mask a very important factor that has a major influence on their performance: the heterogeneity of their members. The reader will remember that the CALs were formed when the dairy industry's major objective was to increase total production to meet the growing demand for dairy products. The pricing system was such that a CAL would gain most if it increased membership so as to be able to sell more milk, regardless (to a certain extent) of the quality or seasonal stability of production. This resulted in very heterogeneous organizations in terms of the production capacities of their members. When the priorities of the dairy industry changed in favor of milk quality and seasonal stability of production, this heterogeneity became a major liability for the EACs, because many members lacked the resources to respond rapidly to the new market demands.

I can illustrate this issue and its effects with data from CAL Chirre for the 1999 season. The number of cows per member ranged from 5 to 19, with a coefficient of variation (standard deviation divided by

the mean) of 100%. Average milk yields ranged from 750 to 2,143 lt/cow/year, with about half the members below 1,500 lt/cow/year and with a coefficient of variation of 38% Spring-summer production per member was 2,474 lt to 41,468 lt, with a coefficient of variation of 74%. Production during the critical winter months ranged from 0 to 19,700 lt. The ratio between spring-summer and winter production ranged from an almost ideal 1.19 to 12, with an average of 3.6 and a coefficient of variation of almost 60%. Bacterial counts (a major indicator of quality) range from 2,000/ml to almost 800,000/ml, with a coefficient of variation of 216%. Considering the wide heterogeneity in all these performance indicators, it is no surprise that the prices per liter received by each farmer also differ sharply: the minimum price received by each farmer ranged between $ 0.10/lt and $ 0.16/lt, while maximum prices varied between $ 0.11/lt and $ 0.22/lt.

The first implication of this heterogeneity is that CAL Chirre's farmers will have widely different capacities for improving their performance indicators. To a CAL member with five cows producing less than 5,000 lt of milk per year, it is hardly worth investing in improving the sanitary conditions of his or her milking shed, as the cost would be much higher than the total value of one year's worth of milk. On the other hand, to a farmer who has 19 cows and produces 200,000 lt of milk, such investments would represent less than 10% of the value of his or her milk. These differences in capacity to adjust to market conditions become even greater when talking about the investments needed to improve winter production, as the basic means to achieve better seasonal stability.

On the other hand, the pricing rules imposed by the market and followed by the CAL also have different meanings for different members. To a farmer receiving an average price of $ 0.11/lt, the CAL service fee represents 20% of the price, while for a farmer who had the capacity to invest and improve his or her performance, the fee may represent as little as 9% of the price paid by the dairy plant.

The point is that when the members of the CALs are as heterogeneous as in CAL Chirre (and the situation is much worse, for example, in CAL Coyam), it becomes almost impossible to establish costs and benefit rules that have more or less equal impact on all members. A rule that for some members promotes improved performance, to others can represent an absolute barrier to further action.

Member heterogeneity is a major threat to these CALs under current market conditions. And it will not be a simple task for these organizations to solve this problem. Any attempt to expel a large fraction of the members would be a major disruption to the internal life of the organization and to the surrounding rural community. Furthermore, even the least productive members make an indispensable contribution to the CALs. In the case of CAL Chirre, for example, the milk production of the smallest members makes up between 12 and 15% of total production. If the CALs lost this production, it would result in increased fees for those who remain, and probably in lower average prices due to the loss of incentives that the dairy firms still pay to suppliers of larger volumes.

Regardless of what the CALs decide, the market is making its own adjustments, with CALs' membership falling significantly between 1997 and 1999. However, this market-driven adjustment does not automatically affect the smallest members. Firstly, there are no statistically significant correlations between farm size or number of heads of cattle, and the performance indicators I describe above. Secondly, almost none of these farmers produce milk exclusively; like most small farmers throughout the world, they maintain diversified farming systems, and, as small farmers do, will use other crops and enterprises to mitigate the shocks such as those resulting from the decreasing price of milk. Hence, some of the smallest farmers have and will continue to raise the productivity of their milk operation. Those who have diversified their farm activities may well draw on their other resources to remain with the CAL as this represents the only option to maintain access to the formal dairy market, and, not least, to the many non-market benefits that result from being an EAC member.

Technology adoption and yields

One of the most striking differences between CAL members and non-members is in the adoption of new production and marketing technologies (Table 9.5). In particular, members are better than non-members at using animal production technologies, such as health, artificial insemination and genetic improvements. However, they are also ahead of non-members in crop diversification, use of fertilizers, access to machinery and equipment, and use of improved seeds and new varieties.

Table 9.5 Technological changes implemented in the past five years, CALs Santa Bárbara, Coyam, Arrayán, and Chirre

INDICATORS	SANTA BÁRBARA		COYAM		CAL ARRAYÁN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Crop diversification	50	40	60	50	50	60	44.4	27.3
Marketing of inputs of products	80	40	50	30	40	10	22.2	9.1
Machinery and equipment	70	60	50	10	20	30	66.7	9.1
Constructions and installations	50	50	90	50	50	40	44.4	45.4
Crop varieties and seed quality	70	33.3	80	60	30	70	55.6	36.4
Use of fertilizers	100	40	80	70	80	70	77.8	36.4
Weed control	50	50	50	60	50	40	66.7	36.4
Insect and disease control	80	50	20	40	70	30	55.6	36.4
Cattle breeds	60	20	40	30	0	50	22.2	27.3
Reproduction of cattle	80	40	70	70	40	20	77.8	18.2
Sanitary management of cattle	100	70	70	100	70	50	100	90.9

Table 9.6 Average yields, CAL Santa Bárbara, Coyam, Arrayán, and Chirre (1999-2000 agricultural season)

INDICATORS	SANTA BÁRBARA		COYAM		ARRAYÁN		CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Potatoes (kg/ha)	28,090	19,651	23,914	19,500	16,203	17,688	23,083	10,845
Milk (Lt/cow/yr)	1,825	1,629	1,933	1,509	1,500	1,195	2,214	1,452

Because of this, members are obtaining higher yields than non-members (Table 9.6). Members' annual milk yields per cow are between 12% and 53% higher than those of the non-members. In potato yields (perhaps the main crop of small farmers in Region X), most of the members come out ahead of non-members by 23% to more than 100%.

Access to agricultural services

Virtually all the small farmers included in the survey (members and non-members) have access to some form of technical assistance, from the CAL advisors, other INDAP consultants, NGOs, or private advisors. However, in all four cases CAL participants spend more on these services. Members also tend to pay for a wider variety of technical assistance providers, including the CALs, the advisors hired with the INDAP subsidy, and private advisors working independently, while the non-members only pay for the services of firms linked to INDAP.

However, there are important differences in access to credit (Table 9.7). Compared to the non-members, a much higher proportion (75% to 200% higher) of the members have access to at least one type of agricultural loan. Also, the members obtain loans that are 20% to 50% larger than the non-members, with the exception of CAL Arrayán. Yet, the total average debt of these farmers is usually below $ 2,000, an amount which is very reasonable and even low considering the value of their assets and their production.

Table 9.7 Access to credit, CAL Santa Bárbara, Coyam, Arrayán, and Chirre (1999-2000 agricultural season)

INDICATOR	SANTA BÁRBARA				COYAM				CAL ARRAYÁN				CAL CHIRRE			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	N°	$	N°	$	N°	$	N°	$	N°	$	N°	$	N°	$	N°	$
Total loans	7	1,602	4	1,343	9	1,743	5	1,272	8	1,182	4	1,992	7	1,457	2	973
Short term loans	5	1,465	3	1,117	9	115	5	91	8	1,182	3	554	4	1,272	2	973
Long term loans	2	1,945	1	2,023	7	694	5	1,083	0	0	1	631	3	1,703	0	0
INDAP loans	6	179	4	1,343	1	1,547	1	946	8	1,182	3	554	7	1,457	2	973
State bank loans	0	0	0	0	9	1,229	5	1,272	0	0	1	631	0	0	0	0
Private banks loans	0	0	0	0	1	4,625	0	0	0	0	0	0	0	0	0	0

9.4 Explaining the performance differences

In previous sections we saw that CAL Coyam was not performing as well as the other three. We also saw significant differences between members and non-members in terms of household and farm income, production, technology adoption, yields and access to certain agricultural services. In this section I will explain these differences.

Table 9.8 Household composition, CALs Santa Bárbara, Coyam, Arrayán, and Chirre

INDICATORS	SANTA BÁRBARA		COYAM		CAL ARRAYÁN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Members of household	3.6	4.1	4.2	3.9	4.4	3.7	3.4	3.2
Female members	1.7	2.4	2	1.8	2.4	1.5	1.6	1.8
Male members	1.9	1.7	2.2	2.1	2	2.2	1.9	1.5
Members 0-12 yrs.	0.5	1	0.8	0.3	1	0.3	0.3	0.3
Members 13-18 yrs.	0.3	0.3	0.3	0.5	0.2	0.1	0.3	0.3
Members 19-30 yrs.	0.3	0.9	0.8	0.6	1	0.7	0.8	0.6
Members 31-45 yrs.	1	0.6	0.6	0.8	0.5	0.6	0.2	0.5
Members 46-65 yrs.	0.9	1	1.3	0.9	1	1.2	1.3	1
Members 66+ yrs.	0.6	0.3	0.4	0.8	0.7	0.8	0.4	0.6
Schooling members 7 yrs or +	7.2	6.8	5.7	6.9	7.1	5	6.8	5.2
Schooling members 15 yrs or +	7.5	6.8	6.1	7	7.6	5	6.8	5.2
Schooling members 19-30 yrs or +	6.4	6.5	4.2	4.2	6.7	5	6.8	3.8
Schooling members 31-45 yrs or +	6.3	3.3	3.4	4.5	2.4	3.5	1.8	3.5
Schooling members 46-65 yrs or +	4.5	3.6	5.2	4.6	5.4	3.4	5.2	2.1
Schooling members 66 yrs or +	2.3	1	0.4	1.3	1.3	1.1	2.5	1
Schooling of head of hh	7.1	5.1	5	5.1	6.1	3.5	6	4.1
Schooling of spouse	5.3	4.4	4.2	5.1	7.4	3	4.9	3.2
Schooling of sons/daughters	5.3	5.6	6.6	8.1	4	6	4.8	5.9
Schooling of other members hh	1.6	1.3	1.3	2	1.9	2.4	3.4	1.1
Schooling female members hh	6.8	5.8	5.1	5.7	7.2	4.1	6.5	4.8
Schooling male members hh	7.2	4.5	5.1	6	6	5.5	6.7	4.5
Age of head of hh	54.5	53	57	60	52.9	64.4	54.7	57.2
Age of spouse	42	34	37	51	51.5	50.3	35	48.1
Age of sons/daughters	16.8	14.7	20	18.6	13.7	23.1	10.1	17.9
Dependency ratio	0.6	0.5	0.5	0.6	07	0.6	0.5	0.6

9.4.1 Farmers' assets

The performance differences between the CALs and between members and non-members cannot be explained by differences in the specific types of assets available to these households, as I shall explain.

Household characteristics (human capital)

There are almost no significant differences between the four CALs and between members and non-members in terms of household composition and their sex, age, and educational characteristics (Table 9.8).

Physical and financial assets

Only in the case of CAL Chirre do members have access to more land than non-members (Table 9.9). The average size of the farms (between 20 and 40 ha) clearly places these farmers in the category of commercial small producers, although, as we have seen, each CAL has a significant share of members with smaller farms (the coefficient of variation of the total farm size variable is in all cases larger than 50%).

Table 9.9 Land assets, CAL Santa Bárbara, Coyam, Arrayán, and Chirre

INDICATORS	SANTA BARBARA		COYAM		CAL ARRAYAN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Land owned by hh (ha)	35.16	38.60	19.76	22.05	26.43	24.25	41.37	23.83
Land taken by hh, shareholding (ha)	0.45	0	0	0	0	0	0	4.54
Land taken by hh, rental (ha)	0	0	0.35	0	1	0	0	0
Land taken by hh, other contracts	3.50	0	0	0	4.70	0	0	0
Land let by hh, shareholding (ha)	0	0	0	0	0	0	0	0
Land let by hh, rental (ha)	0	1.90	0	0.10	0	0	0	0
Land let by hh, other contracts (ha)	0	0	0	2.50	0	0	0	0
Land under management by hh (ha)	39.56	36.70	20.11	19.45	32.13	24.25	41.37	28.38

In all cases, land rental and sharecropping arrangements are not very common, and over 80% of the total land is owned by the household, both for members and non-members. None of these small farmers has access to irrigation, a resource which is very uncommon in Region X.

There are no important differences in the distance between the farms and main roads with public transportation, which are around 1 to 4 km. The nearest town or city is about 10 to 20 km away and in all cases the roads are paved or gravel. These are not isolated farms.

The total value of members' physical assets (buildings, machinery, cattle and land) tends to be

somewhat greater than that of the control groups, although the differences are not large, with the exception of CAL Chirre, where members are 50% wealthier than their non-organized neighbors (Table 9.10). The total value of these farmers' assets (members and non-members alike) ranges between $ 60,000 and $ 120,000.

Table 9.10 Fixed and quasi-fixed assets, CALs Santa Bárbara, Coyam, Arrayán, and Chirre ($)

INDICATORS	SANTA BÁRBARA		COYAM		CAL ARRAYÁN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Value of buildings and infrastructure	41,610	24,443	18,033	14,789	17,335	18,895	25,725	12,584
Value of machinery and equipment	13,238	4,646	650	3,269	2,037	6,962	4,606	2,081
Value of land owned by hh	78,305	80,680	33,010	28,370	59,178	76,400	105,292	75,538
Value of livestock	10,822	5,127	4,810	4,829	6,345	5,584	7,398	4,195
Total value of physical assets	138,492	111,989	56,309	48,800	84,895	105,033	142,814	94,934

9.4.2 Social capital

I will discuss the influence of social capital on the comparative performance of these farmers and CAL from four points of view: participation in organizations, social conditions for cooperation, systems of rules that govern the relationships among farmers, and participation of the organization in larger networks.

Participation in community and economic organizations

Aside from CAL membership, there are no large differences between members and non-members in terms of their participation in either economic or community organizations, although the differences are somewhat greater in the cases of CAL Santa Bárbara and, in particular, of CAL Coyam, whose members are significantly more involved than the non-members in other economic organizations (Table 9.11).

However, there are very important differences in the way members and non-members perceive the benefits and costs of participating in an EAC (Table 9.12). Significantly, in the three cases with better economic and financial performance and with a richer and more intensive degree of participation and organizational commitment on the part of the members (Santa Bárbara, Arrayán and Chirre), participants were less positive than non-participants about the benefits of membership, and also much

Table 9.11 Participation in development projects and organizations, CALs Santa Bárbara, Coyam, Arrayán, and Chirre

INDICATORS	CAL SANTA BÁRBARA		CAL COYAM		CAL ARRAYÁN		CAL CHIRRE	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Organizations or projects with economic objectives								
Marketing of products or purchasing of inputs (other than CALs)	60	30	60	0	0	0	0	0
Soil conservation and pasture improvement	30	0	30	20	0	0	0	0
Storage of products	40	0	60	0	10	0	0	0
Youth	0	0	0	0	0	0	0	0
Women's	0	0	40	10	0	0	0	0
Trade Association	10	10	50	10	0	0	11.1	0
Cooperative	10	0	0	10	0	0	0	0
Organizations or projects with social development objectives								
Neighborhood committee	40	30	100	80	80	90	44.4	27.3
Sports, culture and recreation	20	10	30	20	40	20	22.2	18.2
Housing or local improvement	10	20	40	30	30	30	33.3	27.3

Table 9.12 Perception of costs and benefits of participating in EACs, CALs Santa Bárbara, Coyam, Arrayán, and Chirre

INDICATORS	SANTA BÁRBARA				COYAM				CAL ARRAYÁN				CAL CHIRRE			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %
Benefits																
Improved household income	30	50	33.3	66.7	20	60	66.7	0	60	0	0	0	0	88.9	0	0
Improved yield and production	20	70	33.3	66.7	10	80	25	75	40	40	0	0	22.2	77.8	100	0
New crops and livestock	40	60	33.3	66.7	10	80	33.3	66.7	40	40	40	40	22.2	77.8	100	0
Improved marketing	40	20	0	100	50	30	100	0	70	20	0	0	33.3	44.4	100	0
Improved prices of products	77.8	11.1	66.7	33.3	80	10	100	0	100	0	0	0	77.8	22.2	100	0
Lowered production costs	30	30	33.3	33.3	40	50	66.7	33.3	30	50	0	0	11.1	88.9	0	100
Farm improvements	30	70	0	100	0	100	0	66.7	40	50	0	0	0	88.9	100	0
Improved quality of life for family	40	40	0	100	20	70	33.3	66.7	55.6	11.1	0	0	22.2	66.7	100	0
Improved quality of life for women	57.1	42.9	0	100	11.1	66.7	50	50	77.8	11.1	0	0	33.3	66.7	0	100
Improved quality of life for youth	50	50	0	50	42.9	57.1	50	50	77.8	0	0	0	44.4	44.4	0	0
Optimistic view of the future	37.5	62.5	33.3	0	0	50	33.3	66.7	55.6	22.2	0	0	33.3	55.6	100	0
Improved relations with government agencies	50	50	33.3	0	11.1	55.6	33.3	66.7	33.3	33.3	0	0	12.5	87.5	100	0
Improved relations with municipal government	62.5	25	66.7	0	0	70	33.3	66.7	20	60	0	0	42.9	57.1	0	100
Improved relations with neighbors	30	70	33.3	66.7	0	80	0	50	33.3	66.7	0	0	11.1	77.8	0	100
Doing better as small farmers	20	70	0	33.3	0	80	0	100	50	30	0	0	11.1	77.8	0	100
Costs																
Incurring debts	10	60.2	66.7	33.3	10	80	33.3	66.7	30	50	0	0	22.2	77.8	0	100
Membership fees	0	100	66.7	33.3	20	80	0	100	20	80	0	0	11.1	88.9	0	100

INDICATORS	SANTA BÁRBARA				COYAM				CAL ARRAYÁN				CAL CHIRRE			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %
Greater risks in agriculture	50	50	66.7	33.3	40	50	50	50	40	50	0	0	44.4	44.4	100	0
Loss of time in meetings	60	40	33.3	33.3	40	60	33.3	66.7	60	10	0	0	66.7	33.3	0	0
Share of product prices taken by org.	11.1	88.9	66.7	33.7	10	80	33.3	66.7	10	90	0	0	11.1	88.9	0	100
Worsened relationships with neighbors	70	10	100	0	100	0	100	0	100	0	0	0	77.8	11.1	100	0
Some take advantage of the rest	37.5	62.5	66.7	33.3	66.7	33.3	50	50	77.8	22.2	0	0	44.4	55.6	100	0
Less trust in the future	44.4	55.6	66.7	0	55.6	11.1	100	0	57.1	42.9	0	0	33.3	55.6	100	0

Difference of 100% is due to those who did not answer or said they did not know.

more aware of the actual costs of participation. In the low-performing CAL Coyam the opposite is true: the members are more positive about the benefits and less aware of the actual costs of participation. This result is similar to the case studies of CAL Ranchillo and Lo Ovalle, where members of the better performing EACs seem much more critical about costs and benefits of participation in these organizations.

The members of CALs Santa Bárbara, Arrayán and Chirre are especially downbeat about the economic benefits of participation, in terms of product prices, marketing, household income and so on. But they are more optimistic than the non-members about their future in general and as small farmers, as well as with respect to improved relations with their neighbors and with the central and municipal governments.

Members of the three better-performing CALs are also much more aware than non-members of the actual costs of participation, such as increased indebtedness or the need to pay membership and service fees to the organization.

The results for CAL Coyam are almost the opposite. Here, the members feel that the organization has allowed them to improve prices, marketing and household income, despite the fact that the quantitative evidence from the survey tends contradict this. There are no differences among members and non-members when it comes to appreciating the costs of participating in an EAC.

One possible explanation for the notable difference in points of view between members of CALs Santa Bárbara, Arrayán and Chirre, on the one hand, and CAL Coyam on the other, is that for the former members have much more access to detailed information and real debate about their organizations' actual results, achievements and problems. In the interviews with CAL Coyam members, I always ended up feeling that they tended to rely more on the 'official' discourse promoted by the leadership and by their advisors, but that they were much less aware of the actual details of their results, achievements and constraints. For example, none of them was fully aware of how prices were set for each member, or what use was made of the organization's income. I do not mean to say that grassroots members of CAL Coyam were totally unaware of what was happening, but they clearly moved more in the area of 'suspicions' than of clear and detailed information.

Norms which foster cooperation

Trust and reciprocity are two important social norms attributed by the literature as important foundations for cooperative behavior.

When compared to non-members, the members of the four CALs trust other people more and are more open to thinking that other individuals will in general try to be fair and to help others instead of taking advantage of them. They also feel that it is easier to become organized now than in the past, that they participate more than their neighbors in community and farmers' organizations, and that these organizations are almost always useful for them and for the majority of the participants (Table 9.13).

Networks

In many respects, there are no major differences among the four CALs in terms of the networks in which they participate as organizations and through which they engage with other market and non-market agents.

With respect to the rural communities to which these organizations belong, the four CALs grew out of

Table 9.13 Trust, cooperation, reciprocity and view of the future, CAL Santa Bárbara, Coyam, Arrayán, and Chirre

QUESTION	SANTA BÁRBARA				COYAM				ARRAYÁN				CHIRRE			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
Ease of organizing with neighbors, compared to 10 years ago	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %
	40	20	20	40	0	80	0	50	10	70	40	40	22.2	77.8	18.2	36.4
Household's degree of participation in organization compared to neighbors	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %
	10	30	60	10	10	30	40	0	20	0	40	0	0	66.7	36.4	9.1
Community and farmers' organizations are useful	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %
	20	80	30	50	10	80	20	70	0	90	20	80	0	100	18.2	72.7
For you and your family, participation in an organization is...	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial	Waste of time	Beneficial
	20	70	50	40	10	90	0	60	20	70	0	50	0	77.8	36.4	27.3
Farmers' and community organizations benefit...	Only a few or none	The majority	Only a few or none	The majority	Only a few or none	The majority	Only a few or none	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %
	10	90	60	20	0	100	20	50	30	70	50	20	33.3	66.7	36.4	63.6
Can you trust most people?	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %
	80	10	80	10	50	50	50	20	60	40	70	30	44.4	44.4	63.6	9.1
Most people...	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %
	50	40	100	0	30	60	50	20	60	30	70	30	55.6	22.2	81.8	0
Most people...	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %
	50	20	60	10	30	50	20	60	30	40	70	20	33.3	55.6	72.7	9.1
Has your situation as small farmers compared to 10 years ago...	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %
	70	30	80	10	0	80	60	20	50	50	40	50	45.5	55.5	11.1	88.9
In the next 10 years, will your situation as small farmers...	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %
	20	60	0	10	20	10	10	20	10	50	20	70	11.1	66.7	18.2	63.6

pre-existing informal community groups. These groups gradually became formal organizations as the political environment in the country changed from one in which collective action was discouraged and repressed, to one that promoted organized civic participation in different spheres of social life. In the specific case of CAL Coyam, the small farmers have forged a strong link with at least one large and dynamic farmer who is also a regional leader of milk producers.

The four CALs are intimately connected with INDAP, a government agency. I often heard the farmers say things like *"we are a product of INDAP"* or *"without INDAP we would have disappeared as small farmers"*. INDAP's policies and programs created the political climate for these organizations to form, and supplied the financial and technical resources and expertise to turn that incentive into fruitful action. There is very little doubt that the survival of these CALs at least in the short-term, is extremely dependent on INDAP's support.

The four CALs and the community groups from which they grew, have a long history of interaction with intermediate agents, such as NGOs, extension agents, or church organizations. Through them, they can reach out to other public or private agencies, have access to information and expertise, capture public or non-governmental resources, and interact with other farmers' groups in the region or elsewhere. In fact, none of the four CALs would have been possible without the cooperation and active work of these intermediate agents.

Yet, there are important differences in the way these CALs interact today with these intermediate agents. In the case of CAL Santa Bárbara, the private consultant firm working with them continues to play an essential leadership role. Its involvement in the organization's daily life and operations goes way beyond a nominal advisory role. CAL Chirre and CAL Arrayán rely on their external advisors for technical and managerial support, but are significantly more autonomous in their decision-making; their relationship conforms more to the idea of a contractual arrangement, with well-specified and limited roles. In the case of CAL Coyan, the advisory firm - apparently in agreement with the commercial farmer who is the leader of the organization - plays a very traditional paternalistic role. It decides by itself what is best for the farmers, with little or no discussion or consultation, to the extreme point of handing money belonging to some members to others, as it does each month when it 'redistributes' the milk payments that are due to each!

By definition, the four CALs are strongly and formally linked to the dairy market through their contracts with specific firms, all of which are major industry players in Chile. The signals sent by these market agents through their pricing and standards policies are major determinants of the specific objectives, priorities and lines of activities of the Santa Bárbara, Arrayán and Chirre CALs. In the case of CAL Coyam, these market signals are 'blurred' by the direct intervention of the advisory firm and the commercial farmer who leads the organization. His *ad hoc* 'price and income redistribution system' works against the trends favored by the market by artificially creating a strong disincentive to all types of members to improve the productivity of their farms, the quality of their milk, and the seasonal stability of production. By redistributing income from the better- to the worse-performing members, this top-down set of rules discourages those farmers who have made an effort to improve their performance and who cannot capture the benefits of their work, and it also discourages those who are behind because they can free ride on the efforts of their fellow members.

Systems of rules

Table 9.14, adapted from the work of Ostrom (1990), summarizes the information collected during the field work relative to the system of rules that govern these four organizations.

To summarize Table 9.14 there are three different rule systems:

(a) CAL Coyam: the *de facto* system of rules encourages free riding by around half the members of the organization, who reap important benefits without having to incur the costs of improving their milk production. According to some respondents, this peculiar system of rules means that these free riders get as much as 50% more income per liter than they would otherwise.

This money is being taken from those members who have invested in improving their milk quality and stabilizing their annual production. Under normal circumstances, one would expect these members to change the rules (actually, to enforce their written rules and bylaws), or else leave the organization.

Why has this not occurred? Most farmers do not have the option of leaving the CAL, as the industry has in fact closed itself to new suppliers; those who leave risk losing their access to the formal dairy market. This illustrates a point I heard expressed by many small farmers during the interviews: *"we are stuck together in this ship... either it floats and we all win, or else we sink together!"*.

Table 9.14 Rules of CALs Santa Bárbara, Coyam, Arrayán and Chirre (based on Ostrom, 1990; see Chapter 2, Section 2.5)

RULES	**Santa Bárbara**	**Coyam**	**Arrayán**	**Chirre**
Clearly defined boundaries	Membership is clearly defined and its bylaws in effect close it for the indefinite future. Policies actively discourage new members.	Membership is clearly defined.	Membership is clearly defined. While nominally open to new members, joining requires the payment of a large sum of money.	Membership is clearly defined. Legal structure makes it very difficult for new people to join.
Low cost systems for monitoring compliance	Well-defined and efficient monitoring system of compliance with key rules is in place. Rules are well enforced.	Members lack effective monitoring system. Key detailed information is available only to a few members and to external advisors. Rules are defined on paper but seldom if ever applied.	Well-defined and efficient monitoring system of compliance with key rules is in place. Rules are well enforced.	Well-defined and efficient monitoring system of compliance with key rules is in place. Rules are well enforced.
Congruence between appropriation and provision rules, and market conditions	Two different areas: rules governing pricing system are directly and formally based on market signals. Rules governing fixed investments, participation in the internal life and decision-making process, are based on a criterion of equality of contributions and benefits.	*De facto* system of pricing rules whereby those who contribute more, receive less and subsidize those that contribute less and end up receiving more than their fair share. System discourages innovation and encourages free riding.	Two different areas: rules governing pricing system are directly and formally based on market signals. Rules governing fixed investments, participation in the internal life and decision-making process, are based on a criterion of equality of contributions and benefits.	Two different areas: rules governing pricing system are directly and formally based on market signals. Rules governing fixed investments, participation in the internal life and decision-making process, are based on a criterion of equality of contributions and benefits.
Graduated sanctions for non-compliance with rules	With respect to prices received by each member, sanctions are proportional, graduated, automatic and self-enforcing.	Sanctions are almost never applied.	With respect to prices received by each member, sanctions are proportional, graduated, automatic and self-enforcing.	With respect to prices received by each member, sanctions are proportional, graduated, automatic and self-enforcing.

RULES	Santa Bárbara	Coyam	Arrayán	Chirre
	With respect to participation and other commitments, graduated sanctions are indeed decided and applied by the membership whenever necessary.		With respect to participation and other commitments, graduated sanctions are indeed decided and applied by the membership whenever necessary.	With respect to participation and other commitments, graduated sanctions are indeed decided and applied by the membership whenever necessary.
Participation of members in defining and changing rules	Although external advisors have a major influence in suggesting adjustments, the process is transparent and considered legitimate by members. Rules are approved with the active participation of all members. Rules are well-tuned to allow the organization to respond to key market signals.	Members are formally consulted, but in fact key decisions are made by one leader. Formal rules about pricing systems are superseded by *de facto* rules designed and managed by main leader and external advisors. *De facto* system of rules runs counter to what the market is demanding.	Rules are defined with the active participation of all members. Rules are well-tuned to allow the organization to respond to key market signals.	Rules are defined with the active participation of all members. Rules are well-tuned to allow the organization to respond to key market signals.
Low cost mechanisms for solving conflicts	External advisors are 'referees' of last resort, although most conflicts are managed and solved by the organization. The CAL has gone through at least one major internal conflict and managed it very effectively.	Conflicts are not discussed or brought into the open. Leader imposes his will whenever he feels it is necessary, by threatening to resign, an action that would have a severe effect on the organization.	Conflicts are solved by consensus or majority vote through open discussion in periodic meetings.	Conflicts are solved by consensus or majority vote through open discussion in periodic meetings.
External authorities respect the right of members to establish their own rules	External advisors have a very strong influence on the organization. However, on many specific occasions when the majority of members have held an opinion against them on large or small issues, such opinions have been accepted.	External advisors and one leader largely decide all key issues. Opinion of members counts for little.	External authorities do not intervene in the internal affairs of the organization.	External authorities do not intervene in the internal affairs of the organization.

The better milk producers could also 'take over' the organization and expel the free riders, as in fact is happening in the other three case study CALs. However, there are too many poor-performing farmers in CAL Coyam, and there is no way the remaining good-performers could finance the CAL without them. Its members are way too heterogeneous in terms of their assets and their productive capacities, the product of an early decision in the formation of this organization. Fully half of them lack the minimum farm size or resources to finance or justify economically the investments required to improve milk quality or the seasonal stability of production. Thus, CAL Coyam is caught in a Catch-22 situation: if only the best-performing members remain in the organization, they will lack the volume of production required to sustain the CAL, and if all the members remain, the organization

will not be capable of adjusting to meet the industry requirements.

On the other hand, this CAL has not been capable of making a gradual adjustment because of the power of one single member: the commercial farmer who is the leader not only of the CAL, but of all the CALs in Region X. He has the internal power to impose his personal views on many of his fellow CAL members. And he also has the contacts and political influence to block any externally-induced efforts to change the internal conditions of the organization, as well as to increase the risk that would be run by any members who attempted to gain control of their organization or to leave to form or join another CAL. On the other hand, this commercial farmer, because of his political influence, can reward the acceptance of the *status quo* by his fellow CAL members through his ability to capture important resources from INDAP and other public agencies. According to some sources, even the dairy firm to which this CAL sells its milk is unlikely to want to start a public political problem by terminating its contract with CAL Coyam.

Hence, one likely future scenario for CAL Coyam is that it will linger on for some time, but that it gradually loses presence and importance as its members' milk production continues to decline. How long this decline will last depends on the evolution of milk prices and on the capacity of the CAL leader to continue to capture public subsidies.

(b) ***CAL Santa Bárbara:*** a solid, highly motivated and innovative group of farmers, reinforced by the influence and support of an equally capable external agent – the private advisory firm.

Thanks to the work of the public advisors, this organization is probably ahead of many CALs in terms of its information and knowledge about future trends in the industry and its capacity to implement the necessary technological and management changes. Decisions are made and implemented rapidly[51] not only because the group is solidly constituted, but also because of the great trust placed in their advisors' recommendations. When an EAC is working in a dynamic and unpredictable market, this is an invaluable resource. For example, this was the only group already thinking beyond the current issues of quality and seasonal stability of production, and beginning to look at alternatives such as the investment in individual and sector collecting tanks in order to ensure further progress once the current industry standards were met.

However, the support of this external agency is only possible thanks to INDAP funding. We saw that when the advisors had to suspend their work even for a few months, the organization rapidly ran into major problems as it tried to keep up the pace to which it was accustomed, without the benefit of the technical and managerial expertise and the contacts and networks supplied by the agency.

This is a major gap in INDAP's policies and instruments: the emphasis and investment in training and learning processes is extremely low. INDAP is pouring millions of dollars into pastures, buildings, equipment, technical support, and so on, but very little into training farmers and farmer leaders and developing learning systems to improve the decision-making capacity of these EACs.

In June 2001, I interviewed Mr. Luis Marambio, who had been National Director of INDAP between 1994 and 2000. Looking back, he rapidly acknowledged that perhaps the most important failure of INDAP during his administration had been its inability to improve what he calls the human capital within the organizations. He stated: *"We assumed that we could buy the necessary professional services. We were wrong. Not only are those top-quality professionals not widely available to work with small farmers, often in remote areas, but even if they were, that would only solve certain needs, but would still leave the organizations highly dependent. We erred in our diagnosis and in our strategy to address this problem. An improved policy in support to small farmers has to place a much stronger emphasis on creating human capital and supporting learning processes inside the economic organizations."*

(c) ***CAL Arrayán and Chirre***: these organizations function with a much greater degree of autonomy

[51] Consider, for example the six months that it took this group to set up and start operating their CAL, with the close to three years that it took the farmers of CAL Arrayán to do the same.

from external agents. Of course, they rely on their technical advisors to inform and support many decisions and lines of action, but the lines between the EACs and the advisors are much more clearly drawn.

The drawback is that, compared to CAL Santa Bárbara, these CALs are probably less aware of future opportunities and threats, and are in this sense more vulnerable to sudden market changes. They react well to what is going on around them today, but their vision is shorter.

On the plus side, these two EACs are less dependent than CAL Santa Bárbara on the flow of public funds to sustain their information-gathering and decision-making processes. Some of their members have acquired knowledge and skills that in Santa Bárbara still reside with the external advisors.

CHAPTER 10. POTATO MARKETING EACs

In this chapter I present three case studies of EACs engaged in marketing their members' potato crops, one in Region X and two in Region IX. These case studies allow me to explore the theory presented in Chapter 2 that economic collective action only makes sense if the participants are being hurt or constrained by market failures. The wholesale potato market in Chile is considered to come closest to the concept of a 'perfectly competitive market'. Thus, I would expect to see that EACs involved in wholesale potato marketing would fail to deliver any significant economic benefits to their members, who would end up deserting their organization.

10.1 The context

Vargas and Foster (2000) studied the markets of the most important crop and animal products in Chile, and concluded that *"of the 15 products considered, only the market for potatoes corresponds to the textbook model characterized by many market participants whose activities are determined by spot prices generated by open markets."* The bulk of potato production is concentrated in a few distinct areas of the country; thus, competition is intense and there is ample information at harvest time about market and price conditions.

The 1997 Agricultural Census identified over 90,000 potato producers in Chile, the vast majority of them small farmers with an average crop size of less than 1 ha. Although there is no information on the number of buyers, it certainly runs into the hundreds. Industrial contracts with potato growers are still not very important (7% to 12% of total production), and supermarket chains command less than 10% to 15% of the total retail sales of potatoes.

A typical small farmer sells his or her production on-farm to a middleman, who only needs to collect the production from one or two hectares to fill a truck and be ready to go to the major markets in Santiago or elsewhere. If the farmer is a bit larger, he or she can hire a truck and send the production to Santiago or other large cities directly.

Most potatoes pass along a large chain of intermediaries until they reach the two main retail outlets. The largest by far are the neighborhood vegetable fairs set up weekly in all small and large cities in Chile, where thousands of small merchants may each sell between 200 to 800 kg of unbranded and ungraded potatoes. The second most important retail outlet is the supermarket, where potatoes are sold in two, five or 10 kg bags of graded potatoes; three brands dominate this outlet.

Industrial processors (of which Nestlé and Pepsico are the largest) and those who supply the fast food and restaurants chains, usually buy their produce from a handful of medium and large producers or import it directly when they need special types of potatoes.

The price paid by the final consumer at the end of the marketing chain is two to four times greater than the price paid to the farmer by the initial intermediary. This price differential has been an important incentive for many small farmers to think about engaging in collective action to market their potatoes.

Potato prices vary significantly between and within years, due to changes in the area under this crop and, thus, in total supply. In the past 26 years, average annual prices (adjusted for inflation) have varied between $ 0.23/kg and $ 0.62/kg. However, with 90,000 producers in the market, there is nothing an EAC could do to regulate supply and thus affect market prices. But an EAC may be able to capture better prices if it could store its potatoes and regulate the timing of sales, as there are also large differences in the monthly prices of potatoes (an average for the past decade of 53% or more between the prices at the best and worse month of the year).

INDAP has promoted the formation of potato grower EACs with two objectives in mind. The most common one has been to allow small farmers to capture a larger share of the final price paid by end consumers, by selling their potatoes at some point further down the marketing chain, and by regulating

the timing of sales through investments in storage capacity.

The second option has been to reach the supermarket with a processed (cleaned, graded and branded) product. An EAC that can sell its product through this outlet can expect to increase its gross income by no less than 75%, although there are processing and marketing costs involved.

Although INDAP has commissioned several studies to analyze the option of setting up EACs engaged in industrial processing of potatoes, the conclusion has always been that this is not a viable option as the resources required are huge, the competition fierce from very large agroindustrial conglomerates such as Nestlé or Pepsico, and the marketing opportunities scarce and dominated by a few firms who have the financial resources and the expertise to easily out-compete any new entrant.

10.2 The case studies

The three case study EACs are the Sociedad Agroindustrial y Comercial Agrocamp S.A., in Region X, and Cooperativa Pullallán Ltda and Agrícola y Comercial Carahue Ltda., both in Region IX.

10.2.1 Sociedad Agroindustrial y Comercial Agrocamp S.A.

The Sociedad Agroindustrial y Comercial Agrocamp S.A. (Agrocamp S.A) was legally founded in late 1996 (but had been operating under that name for at least a year before), by 16 grassroots organizations, themselves legally constituted, who are the shareholders of Agrocamp S.A. These 16 organizations have around 530 members. Agrocamp works mainly in Los Muermos, an area well known as an important potato-producing region.

A brief history

In 1990, INDAP contracted the Federation of Cooperatives of the South (FECOSUR) to provide technical assistance to small farmers in the Los Muermos area. From the start, the head extensionist and the staff of INDAP-Los Muermos, put a strong emphasis on supporting the formation of grassroots organizations for those farmers receiving technical assistance. Local Associations of Small Farmers (APPA) and cooperatives began to form; by 1993 these local EACs were already buying the fertilizer their members would need for the season, and in some cases they had started to negotiate collectively with potato buyers.

As these local experiences were generally successful, the farmers reacted favorably when some of the leaders, with the encouragement and support of INDAP, began to promote the idea of establishing a second-tier organization. The key argument for this move was that by bringing together all the local organizations in Los Muermos, they would control a large enough volume of potatoes to justify establishing their own outlet in the Concepción[52] and Santiago wholesale markets, thus avoiding a number of intermediaries and obtaining better prices for their members.

Organizational structure

Agrocamp has a staff of 22 paid employees, including a General Manager, three people who work in the Administration and Finances department, nine people who make up the Technical Assistance unit, and the rest who are in the Commercial department. There is also an elected Accounts Inspection Commission, actually comprising a single farmer who works on his own without support from any internal or external accountant. Agrocamp's General Manager is also Chairman of the National Potato Network, an umbrella organization for all the potato marketing EACs.

The 16 shareholders (the grassroots EACs) elect a five-member board every three years, although the

[52] Chile's second largest city, more or less half way between Los Muermos and Santiago.

board members have not changed since the organization was formed. The board members claim that they keep being reelected because *"we have received training, have gained knowledge and experience, and besides, it takes a lot of time to do this job, so there are few volunteers"*. Every year there is a general meeting with all the shareholders, which can be attended by any individual member. The local grassroots organizations meet every month. Board members visit each grassroots organization every year. However, some of the farmers I interviewed mentioned that in these meetings they usually talk about new Agrocamp projects and future plans, but the outcome of past Agrocamp activities or its economic or financial situation are never explained.

The General Manager and the board meet at least once a month in a formal session, but if necessary they can get together on an almost daily basis. There appears to be great trust and a good working relationship between the board and the Manager.

Agrocamp is a contractor of INDAP's technical assistance programs, and provides this service to almost all of its members[53].

As mentioned above, the organization was launched with the primary purpose of marketing potatoes, but early on it decided to diversify operations, as the board and management very rapidly realized that potato marketing would not yield sufficient income to justify the organization. Agrocamp now has five Business Units: potato marketing (in Los Muermos and in an outlet at the wholesale market of Concepción), sales of agricultural and construction supplies (starting in 1997), a supermarket (launched in 1998, the first one to be set up in the town of Los Muermos), a veterinary pharmacy (1998), and milk marketing. Agrocamp also owns a small local hotel and some real estate in the town of Los Muermos.

To launch all these ventures and acquire these assets, the EAC has had to incur a substantial debt with INDAP, and at the time of my field work had defaulted on the payments. Even the supermarket was financed by an INDAP loan.

Performance analysis

Agrocamp's annual gross sales have grown by a factor of 30, starting from $ 40,000 in 1996. Although potato marketing was the organization's original intention, gross income from potato sales in 1999 represented less than 7% of total sales. The largest source of income was the sale of agricultural and construction supplies, representing around 70% of total income. The next largest source was from providing technical assistance (about 12% of total income), followed by supermarket sales (8%).

Why do potatoes represent such a low share of the EAC's total annual income? According to a survey of a sample of Agrocamp's farmer members, the members only sell around 9% of their total *marketed* potato production through the EAC (although according to sales figures provided by the General Manager, it is around 14%). However, some of the members who live in more remote areas sell as much as 50% or more of their harvest to the EAC, because in these locations the middlemen pay a lower price. These data are confirmed by the interviews I held with a number of grassroots members in December 1999: the previous season, some of them had not sold even one sack of potatoes through Agrocamp.

Why don't EAC members sell their potatoes through their organization? Some of the board members claimed that this was due to the ingrained individualistic and selfish behavior of small farmers. The General Manager's theory is that they are speculating against future market prices (*"although they usually end up losing money when they do this"*). Most of the grassroots members I interviewed have a different opinion: they say they do not sell to Agrocamp because it is more convenient to work with the traditional middlemen. I agree with this explanation and will now explain why.

In the first year, Agrocamp hired a trader to visit members' farms and offer to buy their produce. The results were disappointing even from the start, with members preferring to sell their produce to the

[53] Although INDAP funds the costs of attending only 330 farmers.

hated *conchenchos* (middlemen). This was ironic, as the whole point of the EAC was to circumvent this middleman system which farmers blame for the low prices they often get for their products. The EAC leaders decided the prices they were offering were not competitive enough.

Hence, the EAC board decided to offer a better price, which ended up being higher than the average market price for the season. Consequently, Agrocamp lost a substantial amount of money. As the President of the Board put it, *"we learned right there that one cannot go against the market price."*

To avoid repeating this mistake, the organization decided to pay farmers only once the potatoes had been sold; that is, between 15 and 30 days after delivery. According to the General Manager, this has solved the potato-marketing operation's cash flow problems, but he failed to mention that it has also resulted in members returning to the old middlemen, who pay cash on delivery, and often pay better prices (in part because they are avoiding paying the 18% Value Added Tax).

Agrocamp briefly sold potatoes to a supermarket in the regional capital city of Puerto Montt. The Manager explains: *"they would pay 60 to 70 days after delivery, return unsold produce, and sold less than 3200 kg per week*[54]*"*. The board members debated a few other ideas, the most sensible of which was the production and marketing of seed potato. Middlemen are far less active in this market and this strategy would allow the EAC to broker deals with other small farmers in the north of the country, where seed potato cannot be produced due to phytosanitary restrictions. This idea has already been put into practice, and they would like to expand it at a faster rate, but lack the necessary financing having defaulted on their INDAP loan repayments.

Despite the actual figures, board members and the Manager do not think they have failed in what they still feel is their essential mission: to improve marketing of their members' potato harvest. They insist that the other businesses are only part of a necessary diversification strategy to support the potato marketing operations. The manager explains: *"our agriculture-related businesses only leave a 2 to 5% profit rate, while those not related to agriculture, like the supermarket, yield 12 to 20%... we create new business units to subsidize agriculture."*

In a meeting I held with the board, they unanimously claimed that even if they did not sell their members' potato harvest directly, they still had an indirect positive effect. Their theory was that they were acting as a price regulator in the region by establishing a price at which potatoes would be bought by Agrocamp. I doubt that this is in fact happening. First of all, if Agrocamp paid prices above the going market price paid by the middlemen, it would incur heavy losses, as happened before. Second, Agrocamp lacks the financial clout to deliver on its promise to buy, at a given price, the production not bought by the middlemen. Third, Agrocamp is certainly buying less than half a percent of the total potato crop in its area of influence, and hence it is a minor player even in the local market. Fourth, even if Agrocamp could influence prices in the area, buyers would still be free to move just a few kilometers away, and buy the production from the region's remaining 20,000 hectares of potatoes.

Not one of the grassroots members I interviewed mentioned potato marketing when asked about the three main benefits of being a member of Agrocamp. The most frequently mentioned benefits were: commercial credit for the purchase of fertilizers, technical assistance at a reasonable cost, and commercial credit for supermarket purchases. Some of the farmers I interviewed claimed that the price of fertilizers and other agricultural supplies in Los Muermos decreased noticeably after Agrocamp started operating in this line of business and began competing against other commercial firms. Several members also mentioned the added convenience of working with technical advisors. Technical advisors can give farmers a purchase order so that they can immediately obtain the necessary agricultural inputs from the EAC itself. These are delivered by Agrocamp to the farmers' fields, saving travel time and red tape, while keeping prices competitive.

The conclusion is that Agrocamp's *marketing program* is not having any major effect, directly or indirectly, on the prices members are paid for their potatoes. Yet, as I will explain below, Agrocamp is

[54] The yield of perhaps less than one-quarter of a hectare, and thus, not a very significant amount if the purpose is to find an outlet for the majority of the EAC members.

having a major influence on its members' net farm and household income, because of its work as a technical assistance consultant and as a supplier of fertilizers and other agricultural inputs.

10.2.2 Cooperativa Pullallán Ltda.

The Cooperativa Pullallán Ltda. is located in the Puerto Saavedra, on Region IX's coast. There is much poverty in this area, with many small farmers being Mapuche people[55], the original inhabitants of Central and Southern Chile (about 90% of the members of Pullalán are Mapuche). Still, according to INDAP sources Cooperativa Pullallán's members tend to have larger farms and be better-off than most of the very poor peasants in the Puerto Saavedra area.

A brief history

The cooperative acquired its current legal status in 1996. But as all the members belong to the same Mapuche local community (*comunidad*), there are family ties among many of them. For many years this community has engaged in collective action through a Small Farmers' Committee, an informal organization frequently found in Mapuche communities. The cooperative was formed because the Committee could not legally engage in formal market transactions of any kind.

The cooperative has 32 members, most of whom used to belong to the Committee (the rest are younger farmers who joined the formal organization when it was established). Although all the members of the Pullallán community were invited to join, not all did. Old rivalries were partly to blame, while not all wanted - or were able - to pay the initial fee of $ 147. Membership is now closed, because as some of the current members explain *"we have made many investments and worked hard to get what we own, so now it would not be fair to let others come and enjoy all of this"*.

The organization has been led since its informal inception by a small group of members, one of whom is very influential in the cooperative, despite not being from the local *Lonko's* household (the head of the Mapuche local community).

Organizational structure

The members meet once a month at a general meeting, with attendance usually between 50 and 60%; however, everyone makes sure not to miss three meetings in a row, because this leads to suspension of his or her membership. All the current board members were selected from among the younger farmers (aged between 21 and 35), a decision that had the unanimous backing of the membership. The board meets every week.

The first President and key leader of the EAC is now the cooperative's administrator, and participates in the weekly board meetings. The members wanted him as administrator so he would be free to travel and work with INDAP, potential buyers, and other farmers' organizations: *"there is no one here with more experience and know-how than him"*. Although the administrator was once paid by the cooperative as a full time employee, the position is now an honorary one because the cooperative can no longer afford the salary. The administrator therefore no longer devotes all his time to EAC business. It is interesting to note that at least one of the younger board members accompanies the administrator to every meeting, be it with INDAP, a client, another organization, and so on. *"We now have contacts with the buyers in Osorno and Santiago, as well as with the firm that sells us the fertilizer, and we know who to talk to in INDAP for the different issues"*, says one of these young board members.

External observers familiar with the history of this group explain they have always been active in

[55] Due to centuries of injustice, exclusion and discrimination, poverty is rampant among the Mapuche and other indigenous Chilean populations.

starting new projects, thanks in large part to the strong leadership of one highly motivated and energetic individual. They see the group as solid and well constituted, rights and duties are clear, and the members are always being driven to achieve new goals. In fact several farmers have left the group, unable to cope with the strong peer pressure to achieve.

Pullallán has received loans and grants from INDAP, and other public sources support potato production and marketing. They have designed and implemented small-scale sprinkler irrigation systems on most members' farms, complete with a network of 20 small dams. They own one pump and the full set of pipes and sprinklers, which they move from field to field according to a schedule defined in weekly meetings with the technical advisor.

Early on they built a good, medium-size warehouse to store their harvest, as well as a meeting house which is used by them and the other five community organizations that are active in Pullallán. This building also houses the cooperative's office, and is equipped with two desktop computers; the younger members are being trained to use these PCs.

For two years in a row Pullallán has run a project to collectively produce seed potato for selling to farmers in the north of the country. This operation is run as a sharecropping arrangement between the farmers (who provide the land and labor) and the cooperative (who supplies the certified seed). When I visited Pullallán, the cooperative was also considering buying a truck and a potato harvester to help reduce costs.

Between 1996 and 1999, the cooperative bought into INDAP's technical assistance programs, and was able to hire its own advisors. Every two years, with the aid of the advisors, they run soil fertility tests, a practice they feel has allowed them to make substantial savings on the use of fertilizers.

The members have made significant contributions in cash and in kind to all these projects. Sometimes, some members put up the initial capital, and the cooperative pays them back over a set period and at a prearranged interest rate.

The farmers in Puerto Saavedra are poor and their farms small. Access is also difficult compared with many other potato-growing regions, so there are few middlemen willing to travel to the region to buy their potato harvest. Most of the traders who do go there are small operators who find it hard to compete in more prosperous areas and lack the resources to buy the crop of medium and large farmers. It is likely, therefore, that the farmers of Puerto Saavedra receive some of the lowest prices in the country for their potatoes. When I visited the area in January and February 2000, most farmers were talking of *"the crisis of potato production"* in Puerto Saavedra (due to low prices and a major three-year drought), and the local INDAP office had a record 65% default rate on loans given to potato producers.

Each year since it was formed, the cooperative has sold part of its members' potato harvest at the wholesale markets in Osorno (a medium-sized city in the south) and in Santiago. The contacts with the buyers were established by their leader, whose travel to these cities was funded by INDAP. The board members explained potato prices were between Chilean $ 0.03/kg to $ 0.07/kg higher in these cities than those paid locally by the middlemen; these differences are very substantial. Moreover, they have learned to exploit a window of opportunity in the Osorno market, which they can reach in November before the harvest has started in most areas to the south.[56]

The cooperative also buys potatoes from local farmers who are not members. A board member told me *"we pay them a bit more than what the* conchencho *(middleman) would, but less than the price we pay to our members."* Members also receive preferential prices, though not exclusive access, to the fertilizers the cooperative buys in bulk.

The cooperative ensures that members sell their potatoes through it by linking sales with the supply of its other services, such as the use of the irrigation system or delivery of fertilizers to the farm. If a

[56] Due to phytosanitary restrictions, potatoes from the north cannot be sold in the disease-free areas south of the country. Hence, by harvesting early these farmers are enjoying a regional non-market trade barrier.

member does not sell his or her potatoes through the organization, he or she will not have access to these other services, or will be charged the full non-member fee.

Performance analysis

How effective has this strategy been? Not very, according to the information, opinions and complaints of the board and grassroots members. Based on data from the local survey of members and non-members and the income statements of the cooperative, I estimate that the cooperative is not marketing more than 15% to 20% of its members' total potato harvest. Although low, this share is higher than for most other EACs, according to several well-informed sources and my own case study results.

During a meeting I held with several grassroots members of the Pullallán cooperative, they listed the main problems they face in marketing their potatoes: low quality (*"we use the same seed year after year.. buying new seed is too expensive"*), small volumes, and the *"lack of loyalty of us, the members... the cooperative cannot buy all of our harvest in cash, so we sell part of it to the* conchencho... *also, we have to transport our harvest to the warehouse by cart, while the* conchencho *takes it from the farm; this is why we now want to buy our own truck."*

To raise working capital so as to afford to buy a larger share of the local harvest, the General Meeting approved an extraordinary contribution of $ 315 per member. Those who do not make this contribution will become 'passive members' and will be charged the full commercial fee for all the services provided by the cooperative. A time frame has been established so that all the members, including the poorest ones, can fulfill this obligation.

In 1997 the cooperative was awarded a special grant to train 20 of their members in 'accessing and competing in the potato market'. As a result of this training workshop, they were able to secure a contract with a regional supermarket chain. However, according to one well-informed source, the cooperative could not fulfil its obligation to deliver clean, graded and bagged potatoes, so they eventually lost the contract. This failure was due to three linked factors:

(a) The cooperative was of course tied to its members, that is, a specific group of farmers who are its suppliers. The per kilo production costs for poor farmers are high, because their yields are very low. Quality is uneven, in part because their fields are also uneven and because they use old and degraded seed. Hence, the cooperative was trying to reach a high-end market, more demanding in quality than the wholesale market, from a very weak and unfavorable production base.

(b) The cooperative lacked the financial strength to pay its members cash on delivery, and the supermarkets typically pay only after 60 or more days. Moreover, the supermarket charges them - according to the law - the 18% Value Added Tax, which they cannot claim as a financial credit since most of them are not registered as tax payers. Poor farmers are financially unable to engage in this sort of transaction, so they end up selling a large share of their harvest to the traditional middlemen, who not only pay cash on delivery, but also can pay a slightly higher net price since they operate illegally by avoiding paying VAT.

(c) Because of the small scale of its operations, the cooperative cannot afford to buy the machinery necessary to clean, grade and bag the potatoes they intend to sell to the supermarket. They must hire this service elsewhere, and they end up working with old, inefficient and expensive equipment.

This experience motivated Pullallán to join forces with other organizations to give them a scale of operations necessary for more ambitious projects, such as selling to supermarkets. They joined with other six potato-marketing EACs from Puerto Saavedra and three other neighboring municipalities, to form SOPROPAR S.A., a second-tier EAC that will be their common trader and technical assistance provider.

The farmer who leads the Pullallán cooperative was a major force behind the decision to set up SOPROPAR, and was elected as its first Chairman. One of the organizations that is a member of

SOPROPAR S.A. provided a warehouse in Santiago to be used to wholesale or retail potatoes. In addition, INDAP has lent the new organization a large potato-storage warehouse, built during the agrarian reform in the 1960s. Finally, all the member organizations have renounced their own technical assistance contracts, and the new organization is now hired by INDAP as their common provider of agricultural advisory services.

Some questions that neither INDAP nor the SOPROPAR leadership could answer are why they think that they can build a robust second-tier organization on the basis of seven very weak EACs, and, in particular, why they think they can command the loyalty of their members in marketing potatoes, when the member organizations have failed to do so.

10.2.3 Agrícola y Comercial Carahue Ltda.

Agrícola y Comercial Carahue Ltda. is better known to its members and to external agents as Santa Celia, the name of the sector in the municipality of Carahue, Region IX, where this EAC is based. Although the organization started with about 50 or so members, it now has only 10, of which only eight are still active. All come from the same small sector, and there are close family ties between several of the members. There is no single leader running this organization, but there is a core group of three or four members who appear to have the greatest influence. A distinctive characteristic of Santa Celia is that most of the members are young and have completed at least their high school education, and a few of them even have technical or incomplete university studies.

A brief history

Santa Celia was formally established in 1997, although the group had been working for over 30 years as a Committee of Small Farmers, then as a local group of INDAP's Technology Transfer Program, and since the early 90s as one of the local branches of the Cooperativa El Alma, a large potato-marketing EAC that went bankrupt in the mid-90s.

Since 1991 Cooperativa El Alma had received grants from a major poverty alleviation program funded by the Dutch government; some of these funds were used to build a large number of small warehouses scattered in different sectors of the coastal provinces of Region IX. The idea was that local organizations would collect the potato harvest, to be sold later by Cooperativa El Alma. That EAC faced the same problem of lack of membership loyalty seen today in the cases of Agrocamp and Pullallán. It took only one year of trying to overcome this problem by buying the harvest in cash on delivery, as the traditional middlemen do, for the cooperative to go bankrupt: it is difficult to outsmart and outcompete the traditional traders!

After the failure of El Alma, INDAP started putting pressure on several of the best local groups to formalize their own EACs. The members of San Celia did not see much need for this change in status, since the activities they were interested in carrying out could be done using their informal local Committee of Small Farmers. When INDAP started conditioning the continuity of its support on EAC formation, 10 of the 50 Committee members decided to take the step. However, the Committee of Small Farmers continues to exist, and the members of Santa Celia are also active in that organization.

The group from the Santa Celia sector decided to take advantage of the existing infrastructure, and to try to continue marketing their potatoes together. They were highly motivated by the fact that two of the members had inherited a warehouse in Santiago, located in the middle of a wholesale market neighborhood. Since they now had the capacity to store and regulate the flow of potatoes thanks to the local warehouse, plus the option of retailing their production at the market end because they also had storage facilities in Santiago, they felt they had all the necessary elements to bypass the middlemen and sell directly to final or almost final consumers. As one of the members put it *"for 30 years the Committee had been dreaming about bypassing the* conchenchos*, and we now saw a light at the end of the tunnel".*

First, they had to take out a loan with INDAP in order to repair the Santiago warehouse and to have some working capital to start their marketing operation. Then, INDAP gave them a grant for a delegation to visit Santiago to learn how the wholesale and retail potato markets worked (as one member of the Board of Santa Celia put it, *"we learned all the theory, but we were left alone to learn how things really work."*).

Part of the loan has been paid with the profits from two small collectively-managed seed potato crops (0.75 ha the first year and 1.75 ha the second year). Once they pay their debts, they plan to continue with this project and to split the profits between the members.

After several months of work, they took their 1997 harvest to Santiago, where they immediately found that they could not compete given the market prices and their cost structure. It took them over one month to sell about three truckloads of potatoes, less than 20% of their total harvest.

Performance analysis

According to information from INDAP and Santa Celia members, and the data I gathered in the survey, I estimate that the direct production, transportation and marketing costs of Santa Celia are around $ 0.14/kg. With these costs and compared with official price statistics for the past decade in the Santiago market, I estimate that, with luck, Santa Celia could have competed in only five of the past 10 years, even when bypassing many middlemen by selling their potatoes in Santiago.

As a comparison, the costs of a sample of five nearby commercial potato farmers were never greater then $ 0.10/kg. Why the difference in costs per kilo? This is because of the commercial farmers' much higher yields, which more than compensate for the differences in direct production, transportation and marketing costs.

Santa Celia's small farmers, with their very low productivity levels due to their late adoption of outdated technologies, cannot expect to compete in a market of undifferentiated commodities, because of Cochrane's treadmill effect (Cochrane,1958) discussed in Chapter 2. Bypassing one or even several links in the marketing chain is simply not enough, as the market price includes the costs of liaising between the producers and the final consumers.

Although these farmers have had the support of different extension programs for many years, they have a very poor opinion of their quality: *"Nobody here believes the technical assistants... there have been so many mistakes and so many failures, and then nobody becomes responsible for them... the technicians come once every so often and they expect us to do as they say."*

After their failed venture in the retail market, the farmers of Santa Celia were more or less forced by INDAP to join SOPROPAR, the second-tier organization to which Cooperative Pullallán also belongs. The Santiago warehouse was turned over to the new organization, and SOPROPAR will hire a trader to run the marketing operation in Santiago. According to INDAP sources, SOPROPAR will be able to do better because it will have a larger stock of potatoes to sell. According to the members of Santa Celia, if SOPROPAR does better it will be due in large part to the fact that the grassroots organizations are shouldering many of the costs; for example, each of the seven member organizations has agreed to lend SOPROPAR one large truckload of potatoes, so that the new EAC can start its operations.

In the face of these results and dim perspectives, I asked the Santa Celia members why they had agreed to join SOPROPAR, and they gave me two reasons. First, INDAP put pressure on them by making it clear that all future loans and grants would be channeled through the new organization; *"we are used to having a* Patrón *[the large landowners before the agrarian reform], and our* Patrón *today is INDAP."* Secondly, one of them says, *"it is the hope we have left... what are we going to do? We know that if we sell to the* conchenchos *we will lose, so we might as well lose on our own. If we stop trying, we might as well sell the land."*

10.3 Performance and impacts of potato-marketing EACs

As with the previous case studies, I will now explain the economic and financial performance of these three EACs, and will then analyze their impacts on their members' household and farm incomes.

10.3.1 Economic and financial performance of the potato-marketing EACs

In this section I will show that these three EACs are not viable economic organizations.

I have two different sources of information for Agrocamp; one an external audit mandated by INDAP in 1999, and the other the unaudited balance sheet and income statements given to me by their own internal accountant. For the other two EACs, I only had access to the information from their accountants. Table 10.1 shows the main results.

According to the external auditors, Agrocamp is broke, while according to its own books, it is in very bad financial shape and close to going broke. According to the external auditors, in 1998 Agrocamp had a modest but positive net income of $ 42,000, while according to their own internal accounts, they lost $ 6,300 that year, despite government grants for close to $ 63,000. The potato-marketing operation is the source of Agrocamp's losses. The external audit makes it clear that Agrocamp's situation has deteriorated sharply since 1997.

On the other hand, Cooperativa Pullallán nominally shows very positive economic and financial results, but this is only due to the fact that 66% of its income comes from government grants. These grants were supposed to be used to pay for the technical advisory services that the organization should give to its members under contract to INDAP, but in fact only 60% or so was spent on this or other purposes, the rest appearing as the organization's profit. The organization did manage to obtain a small profit on its potato-marketing operation, helped in part by the fact that most of its fixed costs and part of its marketing expenses were covered by INDAP grants.

In 1999, Santa Celia experienced a small loss. Although this organization shows a healthy financial status, this is only due to the fact that the board members pledged their own assets in favor of the EAC; otherwise, Santa Celia would also show negative financial results.

What we see then is that the three organizations are losing money and are only sustained thanks to the largesse of INDAP, through its subsidies and loans. In the absence of this substantial support, the three organizations would rapidly collapse.

The common reason for this failure is the inability of these EACs to market their members' potato harvest, who prefer to sell most of their production through the traditional middlemen. The EACs' claim that this failure is largely due to their lack of working capital is only partly true. While they do lack enough financial resources to buy their members' full potato harvest, their accounts clearly show that they could be marketing a much larger share than what is actually being sold through them. This reinforces the members' own arguments that they sell their produce to the middlemen because it is more convenient and profitable than marketing it through their own organizations.

10.3.2 Impact on members' farms and households

Household income

Table 10.2 shows that the member households of these three EACs have a net income of between 40 and 160% higher than non-members. As in the case of the CALs, the members of these EAC tend to generate more non-farm income than the non-members. Farm income is the main source of total income, but non-farm income is also very important, as its contribution can be as high as 25 to 40% of total income.

Table 10.1 Economic and financial performance of three potato-marketing EACs

Item	Agrocamp 1998 External audit	Agrocamp 1998 Own accounts	Pullallán 1998	Santa Celia 1999
Total revenue ($)	1,266,932	1,321,468	51,854	8,235
Total expenses ($)	1,224,694	1,314,955	34,855	8,926
Net result ($)	42,238	- 6,515	16,999	- 690
Total assets ($)	533,769	682,832	45,387	40,384
Current assets ($)	339,174	511,919	29,589	20,413
Noncurrent assets ($)	194,595	170,913	15,798	19,971
Total liabilities ($)	564,430	613,710	9,973	8,977
Current liabilities ($)	429,522	428,895	817	568
Noncurrent liabilities ($)	134,878	184,815	9,155	8,409
Net assets ($)	- 30,661	69,122	35,414	- 2,102
Grants from government ($)	59,193	n.a.	34,074	0
Net result/total revenue	0.03	- 0.05	0.33	- 0.08
Total liabilities/total assets	1.06	0.90	0.22	0.22
Operational capital (current assets – current liabilities) ($)	- 90,377	83,024	28,771	19,845
Liquidity (current assets/current liabilities)	0.79	1.19	36.21	35.96
Dependency (grants/total revenue)	0.05	n.a.	0.66	0

Table 10.2 Income and income composition, Agrocamp, Santa Celia and Coop. Pullallán ($) (1999-2000 agricultural season)

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Participants	Non-parts.	Participants	Non-parts.	Participants	Non-parts.
Net hh income	7,495	5,696	7,919	2,955	2,536	1,471
Earned net hh income	7,479	5,314	6,604	1,299	1,380	960
Unearned net hh income	466	382	895	1,656	1,156	511
Non agricultural net income	2,001	235	3,322	1,036	n.a.	n.a.
Farm net income	6,411	2,650	5,917	885	304	-6

In the Santa Celia and Pullallán areas, unearned income (transfers and government subsidies) represents a very large component of total income, possibly reflecting the impact of the multiple poverty alleviation public subsidies, as well as remittances from migrant family members, which are known to be particularly high in the case of Mapuche households.

Farm profits, production and sales

Since I have already shown that these EACs are only marketing a small fraction of the potato harvest, these operations are not likely to be having much impact on members' farm or household income.

However, Table 10.3 shows that all member farmers have higher gross margins per hectare for their potato crop than non-members. This is basically due to their significantly higher yields, more than compensating for their higher direct production expenses[57]. As we saw in the three case studies, the farmers who decided to join these organizations have a long tradition of participation in different technical assistance and extension programs.

Did the best potato farmers join these organizations, or does participation in the organization lead to better results? Probably both. There is no doubt that these three EACs have continued a long process of technology transfer and agricultural advice promoted by INDAP since at least the early 1990s, and in some cases going back even longer. It is likely that the farmers who joined these EACs were more inclined to innovate and were already performing better in terms of yields, costs and quality. But the majority of the farmers I interviewed (with the exception of those from Santa Celia), highly valued the access to technical assistance that the EACs are giving them. Has EAC membership added to the initial technical advantage of their members? I don't know. But INDAP and the farmers need to explain whether it is necessary to go through the whole process of setting up an EAC to have this technical assistance service.

[57] There may be an effect of lower costs of fertilizers and other inputs, since the organizations also offer these supplies at a lower cost to their members. However, I did not measure that variable in the survey, although I did find that the total expenditure per hectare on fertilizers and other inputs was much higher for members than non-members, thus explaining the higher yields.

Table 10.3 Participation in potato-marketing EACs and economic results of potato production (1999-2000 agricultural season)

VARIABLE	THREE EACS		AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	**Non-parts.**	**Parts.**	**Non-parts.**	**Parts.**	**Non-parts.**	**Parts.**	**Non-parts.**
Gross income ($)	5,968	1,699	5,173	1,356	10,231	3,095	4,516	1,333
Direct expenses ($)	3,931	1,767	3,465	1,576	5,293	2,654	4,058	1,452
Gross margin ($)	2,037	- 68	1,708	- 220	4,938	441	458	- 119
Gross margin per hectare ($/ha)	679	- 56	657	- 245	667	147	120	- 85
Price ($/kg)	0.09	0.09	0.08	0.08	0.10	0.10	0.10	0.10
Yield (kg/ha)	20,952	15,502	25,808	19,253	14,612	10,049	12,095	9,700
Crop area (ha)	3	1.2	2.6	0.9	7.4	3	3.8	1.4
Production sold (%)	63	47	71	44	60	53	41	42
Production sold through middlemen (%)	57	43	68	44	50	44	23	42

Comparing the farm income item in Table 10.2 with the potato gross margin line in Table 10.3, we can see that for Agrocamp and Santa Celia members, potatoes make a rather small contribution to total farm and household income, while in the case of Pullallán all of the net income comes from potatoes (in fact, the other farm activities are losing money, as net farm income is less than the potato gross margin). A question that should be explored in depth and for which I do not have an answer, is whether there is a relationship between the relative importance of the crop to a household, and the 'loyalty' of the individual member to the organization when it comes to marketing that crop. On the one hand, one could argue that the more important the crop, the more incentive a household would have to become involved in the organization. On the other hand, the more important the crop, the less willing the household would be to market its potatoes through a channel that, as we have seen, offers few benefits compared to the traditional approach.

Table 10.3 also shows that EAC members are more market-oriented than non-members, as a higher percentage of their harvest is sold in the marketplace, with the exception of Pullallán.

The results also confirm that on average (for these three EACs), 94% of the production sold by EAC members is marketed through the traditional middlemen. The Pullallán cooperative sells less than 18% of the total marketed potatoes of its members, and the shares for Santa Celia and Agrocamp are even lower, 10% and 3%, respectively. In fact, EAC members on average receive a slightly lower price for their potatoes than non-members, although the difference is not statistically significant.

A very important finding is that on average the member farmers' on-farm production costs are around

$ 0.09/kg, to which one should add an additional $ 0.03/kg to $ 0.04/kg for transportation costs. These figures leave these farmers in a very uncompetitive position, compared to 'normal' market prices, by at least $ 0.02/kg to $ 0.03/kg, or around 15 to 20% of their current production plus transportation cost. It is impossible even for a very efficient EAC to yield good results when it is starting from such a low point!

This illustrates the need for policies and programs to focus on actions at both the farm and the EAC levels. In the long run, an EAC cannot survive if the primary productivity of its members is so low that, no matter what, it will never be able to buy their products or sell them a service at a price which is realistic both to them and to the members. When many or all of the members have productivity levels that are far below most competitors, there is a strong incentive for the EAC to disengage from them and start acting as *"just another firm, buying and selling from and to whomever it is most convenient"*, as I have heard said by many managers, advisors, policy-makers, and even small farmers on EAC boards.

However, one should remember how difficult and improbable it is for most small farmers, especially the poorest ones, to keep ahead of the mean productivity level in a commodity crop such as potatoes. Cochrane (1958) has already explained the consequences of being trapped on the agricultural treadmill while at the same time being late-adopters of productivity-enhancing technologies. While EACs may improve their chances under certain conditions, they do not seem to offer a definitive means of escaping this fate. Instead, these small potato producers remain in the market only because up to 80% of their direct costs are represented by the opportunity cost of family labor; self-exploitation is what lets these households continue producing potatoes, a strategy that allows them to survive as production and consumption units, but that spells poverty.

Technical assistance, technology adoption and yields

All the EAC members have had access to technical assistance and extension services for at least a decade. In some cases, they are receiving these services from more than one source. Non-members do not have access to direct support, but they benefit indirectly from the local diffusion of many of the innovations introduced by the organized farmers, in particular in Pullallán and Santa Celia where the EACs are so embedded in their local communities. A significant number of EAC members are paying part of the cost of these services, with an average contribution of between $ 32 to $ 53 a year. The result is that most members have adopted more innovations over the past five years than non-members. In the case of Agrocamp, this is true mainly for fertilizer, insecticide and fungicide use, and to a lesser extent crop diversification, new infrastructure, crop varieties, seed quality and artificial insemination of cattle. Santa Celia members are ahead of their control group in terms of use of machinery, equipment fertilizers and insect and disease control. Pullallán members show better results in terms of crop diversification, use of irrigation systems and access to mechanized equipment (Table 10.4). The effect of the greater use of these production technologies is that EAC members have higher yields not only in potatoes, but also in other locally important enterprises such as oats and milk (Table 10.5).

Table 10.4 Technological changes implemented in the past five years, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Participants	Non-parts.	Participants	Non-parts.	Participants	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Crop diversification	53.3	40	22.2	40	50	20
Contract agriculture	3.3	0	0	0	0	0
Marketing of inputs of products	33.3	26.7	55.6	0	70	20
Irrigation and drainage	0	11.8	0	0	25	0
Machinery and equipment	13.3	16.7	66.7	20	50	20
Constructions and infrastructure	53.3	33.3	33.3	40	50	30
Crop varieties and seed quality	63.3	56.7	77.8	70	80	80
Use of fertilizers	86.7	53.3	66.7	30	80	70
Weed control	46.7	33.3	77.8	70	90	90
Insect and disease control	26.7	6.7	77.8	40	80	70
Cattle breeds	17.2	20	0	10	22.2	20
Reproduction of cattle	51.7	33.3	11.1	22.2	22.2	10
Sanitary management of cattle	75.9	63.3	88.9	60	60	60

Table 10.5 Average yields, Agrocamp, Santa Celia and Coop. Pullallán (1999-2000 agricultural season)

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Participants	Non-participants	Participants	Non-participants	Participants	Non-participants
Oats (Kg/ha)	4,605	3,188	2,236	996	3,520	2,301
Potatoes (Kg/ha)	20,952	15,502	25,808	19,253	14,612	10,049
Milk cow (Lt/cow/yr)	2,143	1,774	311	216	257	192

EAC members are also ahead of non-members in terms of the incorporation of some new farm management practices, notably costs and income records: 17%, 22% and 70% of the Agrocamp, Santa Celia and Pullallán members keep records, while none of the farmers in the control groups do so. However, there are no differences in terms of other management practices, such as VAT accounting and filing, being legally registered as farmers for fiscal purposes or holding bank accounts (Table 10.6).

Table 10.6. Farm management practices, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Farmers legally registered for fiscal purposes	13.3	6.7	22.2	30	20	0
VAT accounting and filing	6.7	6.7	22.2	30	20	0
Costs and income records	16.7	0	22.2	0	70	0
Holds a bank account	3.3	0	11.1	0	10	0
Legalized land titles	64.3	86.2	100	88.9	100	62.5
Legalized water titles	0	0	0	0	0	0

Access to credit

In the case of Agrocamp and Santa Celia, over 60% of the members and a slightly smaller proportion of the non-members have access to agricultural credit from INDAP. These are basically short term loans. The amount lent by INDAP to the members is significantly larger than to non-members, by as much as 94% in the case of Agrocamp, and by 13% in the case of Santa Celia. In the case of Pullallán, less than one-third of the members had access to INDAP loans last season, but this is most likely due to many of them having defaulted on previous payments. Only a handful of farmers, members or non-members, have access to credit from other sources, such as the State Bank, private banks, or commercial credit from agricultural supply firms (Table 10.7).

Table 10.7. Access to credit, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP				SANTA CELIA				COOP. PULLALLÁN			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	N°	$	N°	$	N°	$	N°	$	N°	$	N°	$
Total loans	23	1,455	16	731	6	1,710	6	2,554	3	610	1	526
Short term loans	23	1,109	14	625	6	1,710	6	2,186	3	610	1	526
Long term loans	5	1,608	2	1,472	0	0	1	2,207	0	0	0	0
INDAP loans	21	1,413	16	731	6	1,710	4	1,519	3	610	1	526
State bank loans	0	0	0	0	0	0	2	4,625	0	0	0	0
EAC loans	3	1,261	0	0	0	0	0	0	0	0	0	0

All EAC members valued the simplification of loan paperwork for members. The common practice is for the technical advisors to fill in the loan applications in the field, and then take care of the

paperwork at the INDAP office. Although not as frequently mentioned by the farmers, but emphasized by INDAP sources, an additional advantage is that those who are organized have more leverage to ask INDAP to reschedule debts, although, as seen in the case of Pullallán, there is a limit to how far INDAP is willing to go, and eventually those who do not pay will end up without access to this service.

10.4 Explaining the performance differences

In the previous section we saw that members of these three EACs tend to have higher household and farm incomes. In this section I will explore the probable reasons for that finding.

10.4.1 Farmers' assets

The members of the potato-marketing EACs are less poor and better educated than non-members.

Household characteristics (human capital)

In the case of Agrocamp, members have significantly larger households and, in particular, more male members of ages 19 to 45, suggesting that there is greater seasonal or permanent out-migration from non-member households. However, this does not seem to be the case for the other two case studies (Table 10.8).

There are important differences between members and non-members in educational levels. In Santa Celia, heads of household, males, females, and all age groups are distinctly better educated than non-members. In Agrocamp, members are doing better in terms of the education of women and the younger generations. In Pullallán, only the head of the members' households are ahead of their counterparts in educational attainment (Table 10.8).

Physical and financial assets

In all cases, EAC members have more land, owned and managed, than non-members. The differences in land owned are of 64%, 30%, and 200% in favor of the members of Agrocamp, Santa Celia and Pullallán, respectively (Table 10.9). Members also tend to own more buildings and infrastructure, machinery and equipment, and livestock (Table 10.10). On the other hand, there are no differences between members and non-members in terms of distance to a road with public transportation or to nearest town or city.

I did not find any quantitative or qualitative evidence whatsoever to suggest that EAC participation has allowed members to acquire these valuable assets; one must conclude that the poorest farmers have been left out of these organizations. There are two probable explanations: first, all these EACs require new members to contribute cash to constitute the organization's initial capital, and the poorest farmers may be incapable of paying this fee. Second, the poorest farmers consume most of their potato crop within the household, and therefore have less reason to join a potato-marketing EAC.

Table 10.8 Household composition, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Members of household	4.9	4	4.6	5.1	3.7	4.2
Female members	2.2	1.8	2.2	2.2	1.7	2.2
Male members	2.7	2.2	2.3	2.9	2	2
Members 0-12 yrs.	1.1	0.7	1.4	0.8	1.1	1.2
Members 13-18 yrs.	0.5	0.4	0.7	0.7	0.6	0.7
Members 19-30 yrs.	0.9	0.6	0.4	1.1	0.4	0.5
Members 31-45 yrs.	1.2	0.9	1.2	0.9	0.8	1
Members 46-65 yrs.	0.8	1.1	0.8	1.3	0.4	0.5
Members 66+ yrs.	0.4	0.3	0	0.3	0.4	0.3
Schooling members 7 yrs or +	5.5	6.6	8.3	5.6	7	5.7
Schooling members 15 yrs or +	5.7	6.8	10	5.8	7.7	5.5
Schooling members 19-30 yrs or +	3.9	5.4	3.7	5.1	3	2.8
Schooling members 31-45 yrs or +	4.3	4.6	9.5	3.1	5	4.7
Schooling members 46-65 yrs or +	2.6	3.5	5.6	3	0.8	1.8
Schooling members 66 yrs or +	1	0.9	0	0.3	0.7	0.3
Schooling of head of hh	5.1	5.5	10.3	4.4	*8.4	5.2
Schooling of spouse	4	5.9	8.1	5.1	4.2	4.9
Schooling of sons/daughters	5.7	5.7	5.1	4.3	3.2	3
Schooling of other members of hh	0.8	1.1	0.4	1.2	0	0.4
Schooling female members of hh	4.3	6.6	7.2	5.1	3.8	3.8
Schooling male members of hh	5.6	5.5	9.1	4.9	7.2	5.3
Age of head of hh	53.2	53	46	52.9	47.4	44.6
Age of spouse	40	43	37.8	43.6	39.7	32.5
Age of sons/daughters	19.2	14.5	11.8	13.8	6.7	6.9
Dependency ratio	0.7	0.5	0.6	0.4	1	0.8

Table 10.9 Land assets, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Land owned by hh (ha)	29.06	17.71	38.44	29.65	15.40	4.77
Land taken by hh, shareholding (ha)	0	0	6.77	2.90	0.40	1.12
Land taken by hh, rental (ha)	2.68	0.10	0	1.40	1.87	0.3
Land taken by hh, other contracts (ha)	0.46	0.16	0	0	0	0
Land let by hh, shareholding (ha)	0	0	0	1.50	0	0.30
Land let by hh, rental (ha)	0.10	0	0.66	3	0	0
Land let by hh, other contracts (ha)	0.66	0	0	0	0	0
Land under management by hh (ha)	31.45	17.98	44.55	29.45	17.67	5.90

Table 10.10 Fixed and quasi-fixed assets, Agrocamp, Santa Celia and Coop. Pullallán ($)

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Value of buildings and infrastructure	13,766	15,191	28,599	14,873	14,157	4,202
Value of machinery and equipment	1,236	673	4,886	2,846	1,791	299
Value of land owned by hh	31,340	18,679	60,650	71,802	30,478	6,269
Value of livestock	4,144	2,876	3,998	3,162	1,791	978
Total value of physical assets	50,078	37,330	93,931	92,707	48,219	11,749

So, while it makes sense for a poor farmer to stay away from such an EAC, it is troubling that INDAP channels a higher share of *all* its loans and subsidies to the organizations and to those who are organized. In this way the poorest farmers are excluded from services they do need and are likely to want, such as technical advice and credit. Why does INDAP do this? The first incentive is political: an organization has more political visibility and power than one isolated poor farmer. The second incentive is that of increased government efficiency: working through the organizations allows INDAP to reach many more farmers at a significantly lower cost, and thus enhances its capacity to reach more households with the same budget.

10.4.2 Social capital

As with the previous sets of case studies, I will discuss the role of social capital in the performance of these three EACs from four points of view: participation in organizations, social norms that foster cooperation, systems of rules, and involvement of these EACs in larger networks.

Participation in community and economic organizations

The members of these three EACs show a significantly higher degree of participation in other economic organizations and collective action projects, compared to non-members. The differences are important in most of the types of organizations and projects included in the case study surveys, except for those exclusively made up of youth and women. Moreover, the members of these three EACs are five or six times more likely to hold leadership positions in these other economic organizations or projects (Table 10.11). However, participation in non-economic community groups tends to be more even, and in some specific cases the non-members show a greater degree of involvement.

Table 10.11 Participation in development projects and organizations, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP		SANTA CELIA		COOP. PULLALLÁN	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Organizations or projects with economic objectives						
Irrigation or drainage	0	0	0	0	10	0
Marketing of products or purchasing of inputs	23.3	0	0	0	10	0
Soil conservation and pasture improvement	16.7	13.3	0	0	0	0
Storage of products	13.3	6.7	11.1	0	10	0
Youth organizations	0	0	0	0	10	0
Women's organizations	0	0	11.1	0	0	0
Trade organizations	20	26.7	11.1	0	10	0
Cooperatives	30	3.3	0	0	10	0
Held leadership position in any of the above	33.3	6.7	44.4	10	60	0
Organizations or projects with social development objectives						
Neighborhood committee	73.3	53.3	33.3	30	70	30
Sports, culture and recreation	56.7	43.3	33.3	60	50	60
Housing or local improvement	26.7	20	55.6	30	10	30

Table 10.12 Perceptions of costs and benefits of EAC participation, Agrocamp, Santa Celia and Coop. Pullallán

INDICATORS	AGROCAMP				SANTA CELIA				COOP. PULLALLÁN			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	Not True %	True	Not True %	True	Not True %	True	Not True %	True	Not True %	True	Not True %	True
Benefits												
Improved household income	16.7	56.7	28.6	71.4	44.4	11.1	83.3	16.7	30	60	0	0
Improved yields and production	10	76.7	7.1	85.7	44.4	22.2	50	50	33.3	44.4	0	0
New crops and livestock	56.7	43.3	35.7	57.1	88.9	11.1	100	0	50	40	0	0
Improved marketing	50	20	50	42.9	44.4	11.1	66.7	16.7	11.1	44.4	0	0
Improved prices of products	66.7	23.3	100	0	77.8	11.1	83.3	0	40	50	0	0
Lowered production costs	33.3	43.3	35.7	57.1	55.6	33.3	50	50	30	60	0	0
Farm improvements	16.7	80	7.1	92.9	88.9	11.1	100	0	50	40	0	0
Improved quality of life for family	30	60	0	100	77.8	22.2	80	0	20	50	0	0
Improved quality of life for women	48.1	40.7	0	100	55.6	33.3	100	0	30	50	0	0
Improved quality of life for youth	35.7	39.3	0	100	55.6	22.2	100	0	40	50	0	0
Optimistic view of the future	25	50	21.4	57.1	11.1	55.6	40	40	30	70	0	0
Improved relations with govt. agencies	41.7	33.3	21.4	71.4	44.4	44.4	83.3	16.7	20	60	0	0
Improved relations with municipal govt.	40	40	28.6	64.3	22.2	77.8	20	80	90	0	0	0
Improved relations with neighbors	10.3	75.9	0	85.7	11.1	66.7	0	83.3	20	50	0	0
Doing better as small farmers	14.8	66.7	0	100	44.4	22.2	50	16.7	10	70	0	0
Costs												
Incurring debts	10	80	50	50	22.2	77.8	0	100	50	40	0	0
Membership fees	0	100	42.9	57.1	11.1	88.9	0	100	40	60	0	0
Greater risks in agriculture	33.3	51.9	83.3	16.7	33.3	66.7	33.3	66.7	20	70	0	0
Loss of time in meetings	36.7	33.3	50	42.9	0	55.6	50	33.3	40	30	0	0
Share of product prices taken by org.	80	20	28.6	71.4	66.7	33.3	100	0	50	50	0	0
Worsened relationships with neighbors	86.7	0	85.7	0	88.9	0	83.3	0	100	0	0	0
Some take advantage of others	44.4	44.4	15.4	84.6	33.3	55.6	33.3	66.7	50	40	0	0
Less trust in the future	44.8	34.5	69.2	15.4	22.2	33.3	0	100	70	20	0	0

In terms of their perception of the costs and benefits of participating in an EAC, a solid majority (60% or more of the responses) of Agrocamp's members think that participation leads to higher yields and production, farm improvements, improved quality of life for the family, better relations with their neighbors, and to doing better in the future as small farmers. A clear majority also does not think that EAC participation results in receiving higher prices for their products. With respect to costs, most Agrocamp members think that EAC participation leads to greater debts and to having to pay membership fees, while they clearly disagree with the idea that participation means that the EAC will take a fraction of the price received for their products or that it will result in conflicts with their neighbors (Table 10.12).

A clear majority of the members of Santa Celia agree only about two benefits: improved relations with the municipal government, and with their neighbors. A majority also agrees that the following are *not* benefits of EAC participation: diversification into new crops or animal production enterprises, improved prices for their products, farm improvements, or achieving a better quality of life for their families. In terms of costs, a significant majority of the members agree that these include higher debts, paying membership fees, and having to take greater risks as a farmer. However, they also agree that conflicts with the neighbors are not a cost of participation, or that the EAC will charge them a commission on the price its products (Table 10.12).

In the case of Pullallán, a clear majority of the members identify the following as benefits of participation: higher household income, lower production costs, better relationships with national government agencies (but not with the municipal government), and doing better in the future as small farmers. Most members agree that participation led to taking greater risks in agriculture and to having to pay membership fees (Table 10.12).

In summary, while members of these three EACs have a tendency to participate more in other economic organizations and projects, their reasons for doing so vary. The only clear benefit they perceive is that participation leads to better relations with their neighbors. They clearly do not join to receive better product prices (despite the fact that this was the major reason for forming the EAC in the first place). They agree strongly that the main costs are paying membership fees, incurring debts, and raising the risk of agriculture. In other words, the costs perceived by the majority are of an economic nature, while the perceived gains are all social.

Norms that foster cooperation

Non-member farmers in Pullallán and Santa Celia have less trust in their neighbors and in the benefits of collective action than the EAC members. Whilst most feel that community or economic organizations are always or almost always beneficial, they also think that they benefit only a few of the members. The non-members in these two localities also agree that most people try to take advantage of others, and that they only care for themselves. A large majority of the Pullallán non-members add that you cannot trust most people (Table 10.13).

On the other hand, the members of the Pullallán and Santa Celia EACs only agree with the statement that most people only care for themselves, but not with any of the other options that would suggest a lack of trust in their neighbors or in collective organizations. In fact, the majority of the members of these two EACs think that economic and community organizations are always or almost always beneficial, and that their benefits reach the majority of the members. The Santa Celia members think that today it is easier to form a community or economic organization (Table 10.13).

Table 10.13 Trust, cooperation, reciprocity and view of the future, Agrocamp, Santa Celia and Coop. Pullallán

QUESTION	AGROCAMP				SANTA CELIA				COOP. PULLALLÁN			
	Participants		Non-participants		Participants		Non-participants		Participants		Non-participants	
Ease of organizing with neighbors, compared to 10 years ago	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %
	13.3	53.3	26.7	43.3	22.2	66.7	50	50	10	40	30	30
Household's degree of participation in organizations compared to neighbors'	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %
	23.3	33.3	10	36.7	22.2	66.7	10	30	0	50	50	0
Community and farmers' organizations are useful	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %
	0	83.3	13.3	76.7	0	88.9	40	60	0	100	30	70
For you and your family, participation in organizations is:	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %
	6.7	70	20	56.7	11.1	44.4	20	50	0	70	50	20
Farmers' and community organizations benefit...	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %
	33.3	56.7	46.7	53.3	33.3	66.7	60	40	20	70	80	20
Can you trust most people?	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %
	73.3	20	63.3	16.7	55.6	44.4	40	50	40	50	80	20
Most people...	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %
	76.7	6.7	63.3	23.3	77.8	22.2	50	40	60	40	90	10
Most people...	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %
	36.7	33.3	63.3	13.3	55.6	44.4	80	20	60	30	80	20
Your situation as small farmers compared to 10 years ago has...	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %
	16.7	73.3	26.7	40	33.3	44.4	60	40	30	20	40	30
In the next 10 years, will your situation as small farmers...	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %
	10	36.6	10	43	22.2	55.6	30	40	10	90	20	50

In the case of Agrocamp, there are no major differences of opinion between members and non-members. Both groups feel that community and economic organizations are always or almost always useful, but they also think that you can't trust most people and that most people only care for themselves (Table 10.13).

Networks

Cooperative Pullallán and Santa Celia are very strongly embedded in their communities. They are the product of long histories of community-based collective action, and both grew directly out of Small Farmers Committees - for decades the predominant form of organization for agricultural production. However, the step to become formal, legally constituted business-oriented organizations, has clearly divided both communities: while the Small Farmers Committees included most people, the new EACs represent only those who are wealthier or less poor, and thus more market-oriented. Nevertheless, community relations have not been strained. The many non-members whom I interviewed do not seem to feel excluded from membership; instead, they say that it was they who decided not to join. They also feel that the EACs have given them some direct and indirect benefits, such as having access to new technologies, being able to join with the EAC members to buy fertilizer and other agricultural supplies, or having access to the EACs' warehouses or Meeting Houses. Although the non-members continue to work with the traditional middlemen - as do the members - the EAC is an additional option to consider each time they need to sell their potatoes. The EAC members continue to work with and, in many instances, lead the different community organizations that coexist alongside the EACs.

Agrocamp is a different matter. In this case the organization is almost completely separated from the local communities to which their members belong. The links with the grassroots organizations that are Agrocamp's shareholders are largely formal, and one has no significant influence on the daily life and work of the other. Agrocamp is basically seen by the individual grassroots members as just another business firm, although they do recognize that being owned by a group of farmers' organizations gives them certain benefits that they could not expect from a typical business firm. The grassroots members whom I interviewed have no interest or intention of getting more involved in the management or daily work of Agrocamp. As in the case of Santa Celia and Pullallán, the individual farmers who belong to the grassroots organizations which make up Agrocamp also tend to be among the wealthier or less poor households in their communities.

In contrast with the Milk Collection Centers I described earlier, these EACs do not maintain permanent relations with a specific market agent. In fact, their main problem is that they have little connection with their target market; the exception being Agrocamp with its supermarket and fertilizer operations. These organizations were formed because of a false image of how the market is organized and functions. For decades, as one of the farmers I interviewed said, they had thought that local prices were the result of some sort of conspiracy by the *conchenchos*, and that all would be well if they could just get together and take their potatoes to Santiago or Concepción directly. This misconception has meant that members continue to deal with the same middlemen, in the same old way that for decades they have considered unfair. By not conforming to the real ways in which markets work, these organizations have ended up being largely irrelevant as potato-marketing EACs.

As their links with the markets have failed, these EACs have become more and more dependent on INDAP. This is a lesson: if an economic organization cannot link to a market-demand engine, it will either disappear or run into the arms of some public or non-governmental agency willing to protect it and sustain it. As one of the members said; *"INDAP is our* Patrón", and until now it has been a nice *Patrón*, pumping millions of pesos into keeping these EACs alive. Why has INDAP been willing to do this? There are a few reasons, including:

- lack of information and analysis about the future prospects of the EACs and the belief that the problem has been one of implementation and not a fundamental flaw in design;
- an unwillingness to pay the political cost of letting these organizations fail;

- an institutional culture in INDAP that thinks that letting these EACs go would be tantamount to betraying the peasantry, to whose cause and survival most of the INDAP staff are deeply and sincerely committed.

As part of their survival strategies Agrocamp and Pullallán have totally dismissed the intermediate external technical agencies that helped them in their initial years. Basically, they needed the resources that used to be channeled by INDAP to those agencies in order to cover the growing gaps in their annual net results. Besides, the advisory services that are now being provided by their own staff are reasonably well evaluated by the farmers. The question is whether the large share of resources that is being deviated from its intended use - technical advice - could not be better used to find new options to improve farming systems and the well-being of these farmers. The fact that the three organizations continue to insist on the same failed approach to doing business suggests that there is a lack of strategic thinking about fresh new courses.

Systems of rules

Table 10.14 (adapted from Ostrom, 1990 - see Chapter 2, Section 2.5) summarizes the systems of rules that govern these EACs. What we see are three completely different situations:

- ***Agrocamp***. The relationship between Agrocamp and its members increasingly resembles the type of interaction that any commercial business firm has with its clients. Just like a regular firm has certain preferential clients, so Agrocamp gives some additional benefits to its members (such as 30-day credit in supermarket purchases). The shareholders do not act in their capacity as owners of Agrocamp, and they have left the organization to be run by the small group of farmers who are board members and by the General Manager. The grassroots individual members could not care less about being actively involved in Agrocamp's decision-making process. Strictly speaking, Agrocamp should probably not be considered an EAC at all, at least by my definition which requires that the members control the decision-making process of their organization.

- ***Santa Celia***. This EAC has reverted to the system of rules that characterizes the traditional Small Farmers Committees, despite maintaining the decision-making structures and authorities required by law. This system of rules has evolved over at least 30 or 40 years, and is very appropriate to the needs of this organization.

- ***Pullallán***. Pullallán's rule system is a mixture between a cooperative and a Small Farmers Committee. As in a cooperative, the elected board is in place and functions as an effective decision-making unit, but the general meeting of members is also very active, as in the traditional Committees. Two interesting innovations deserve attention: first, members can decide whether or not to participate in the organization's projects and activities, and thereby decide which obligations they want to assume and which rewards they expect to obtain. The second is an exception to the first rule, and is the decision to link the cost of some key services to the degree of members' participation in the potato-marketing operation. Also of importance in this case is the good balance achieved between the role of their major leader, and the democratic and participatory functioning of the organization. The leader exerts his influence because of his greater knowledge and experience, and not by imposing his will against that of the majority of the members. The leader has also made persistent and fruitful efforts to bring young members into leadership positions, and to help them acquire experience and expertise by insisting that they actively participate in the meetings and activities that are his responsibility.

Table 10.14 Rules of Agrocamp, Santa Celia and Pullallán (based on Ostrom, 1990)

RULES	Agrocamp	Santa Celia	Pullallán
Clearly defined boundaries	Ownership is formally defined, but in fact the governance of the organization is out of the hands of the members. Access to its services is fully open, although the members do obtain limited preferential treatment. The EAC resembles a conventional commercial firm, with the members being treated more or less equally to other clients.	Membership is clearly defined.	
Low cost systems for monitoring compliance	There is no monitoring system in place that allows the members to be informed and take action. In fact, the grassroots members show no interest in being informed or in becoming involved in running the EAC. In practice, there are no rules to be enforced, other than the commercial obligations that the members acquire when they purchase agricultural inputs or consumer goods on credit.	Well-defined and efficient monitoring system of compliance with key rules is in place. The fundamental rule that members should market their potatoes through the organization, is not and cannot be enforced, as it would surely lead to the breakup of the organization. Other rules guiding participation in meetings and other activities, are enforced on a regular basis	Well-defined and efficient monitoring system of compliance with key rules is in place. Compliance with the fundamental rule that members should market their potatoes through the organization is partially encouraged by linking it to preferential access to other services provided by the organization.
Congruence between appropriation and provision rules, and market conditions	Currently the members make no contributions. Although each of the 16 shareholders was supposed to have contributed $ 2,100 to the assets of the organization, many have not done so. All individual members and all the shareholders have access to the same services, regardless of their contribution. The nominal operational rule that members should market their potatoes through the EAC, is not coherent with market conditions.	Not for potato marketing. For other services and activities, those who have contributed receive greater benefits than those who haven't. The nominal operational rule that members should market their potatoes through the EAC, is not coherent with market conditions.	
Graduated sanctions for non-compliance with rules	No sanctions are enforced, as members in fact are not expected to make any contributions or perform any duty. The EAC itself lacks any real authority to impose any type of sanction on a member.	The EAC expelled one member when he committed a major offense.	For potato marketing, the EAC lacks the means and authority to apply sanctions to those who do not comply with the rule of selling the crop through the organization, although it does link the access to and cost of other services to their contribution to the marketing operation. For other aspects, the EAC has devised a system

RULES	Agrocamp	Santa Celia	Pullallán
			where a member can decide whether to participate in projects. Once a member is 'in', then sanctions are applied if necessary.
Participation of members in defining and changing rules	None. The EAC is run by the General Manager and the board (same board members since the EAC was formed).	Although there is a board in order to comply with legal requirements, the organization is in fact run by the group as a whole, who make all decisions together in periodic meetings.	Members are regularly consulted in frequent meetings. The board also functions as a decision-making unit, meeting weekly to decide on all aspects of the organization. One member has a strong influence on the decision-making process, but not to the extent of undermining the role or authority of the general meetings or of the board.
Low cost mechanisms for solving conflicts	Conflict management and resolution takes place behind closed doors in board meetings. According to the board members, *"there are never any conflicts"*.	The monthly meetings are the forum where problems or conflicts are discussed and solved. Most conflicts are solved by consensus. However, in both cases the members recognize the authority of the general meeting to make decisions by majority vote if necessary.	
External authorities respect the right of members to establish their own rules	INDAP is on a crash course to exerting greater control over the organization and its management, as it needs to control Agrocamp's financial crisis.	INDAP has imposed decisions that were formally and openly opposed by the EAC, by threatening to withhold its support.	INDAP has a great respect for the main leader of the organization, and thus more or less allows this EAC to run its own affairs.

CHAPTER 11. VEGETABLE MARKETING EACs

This chapter describes two EACs, Cooperativa We Tukucán Ltda. and Cooperativa El Renacer del Cajón Ltda, dedicated to the production and marketing of vegetables for the fresh market.

11.1 The context

There are nearly 60 different species in the Chilean vegetable sector. In the 1997 Agricultural Census, about 45% of the farms in Chile declared they cultivated one or more vegetable crops, covering 9% of the total cultivated area (excluding pastures and forest plantations). Over the past decade, the annual area under vegetable crops has fluctuated up and down between 105,000 ha and 115,000 ha per year.

The main vegetable crops by area are tomato (15% of the area), fresh corn (11%), onion (5%), lettuce (5%), and green peas (4%). Beet, an important crop in one of my case studies, represents only 1% of the vegetable crops' area.

Two-thirds of the vegetable growing area is concentrated in the more temperate and irrigated areas of Regions V and VI, as well as in the Metropolitan Region (the central part of the country around the major population center of Santiago) with its well developed network of roads and small and medium sized towns.

Region V, were the El Renacer del Cajón cooperative is located, supports 13% of the area under vegetables. Its greatest advantage lies in its high yields and, in particular, its climate which allows it to produce an early crop of many of the fall and winter vegetables (*primores*). This comparative advantage has been enhanced by the massive introduction of greenhouses (about 1,200 ha) for early vegetable production. Much of the acreage under greenhouses belongs to medium and large commercial farmers.

Region IX in the south of the country, where the We Tukucán cooperative operates, is not known as a vegetable producing area. However, for decades there has been a vegetable production subsector around the regional capital city of Temuco, with an area that fluctuates around 4% of the national total. At least half of the area under vegetables in Region IX comprises small gardens kept by the many Mapuche[58] households, most of whose production does not reach the market.

Vegetable production in Chile is largely dominated by small farmers. The average area under vegetables per farm is less than one hectare. Average areas per farm per crop do not exceed 1.5 ha per farm, even for the most important vegetable crops. This is true for my case study crops and regions: tomatoes in Region V (1.2 ha per farm), and lettuce and beet in Region IX (around one-tenth of a hectare per farm).

The city of Santiago is easily the biggest market for fresh vegetables in Chile. The main retail outlets, accounting for over 85% of total sales, are the *Ferias Libres* ('free fairs'), comprising hundreds of small traders with pickup trucks who move around different neighborhoods daily. These mobile shopkeepers buy most of their produce at Santiago's three wholesale markets, although some of them also travel to nearby farms to buy directly from the producers. Many of the farmers in the central provinces transport their produce to these wholesale markets, but there is also a large group of wholesale middlemen. Some farmers have 'commission agreements' with traders, whereby they send their produce to the wholesale market to be sold for either a fixed fee per unit or for a pre-established share of the final price.

In this very competitive and open market, the key variables determining the success or failure of a

[58] The main native people in Chile.

vegetable farmer are location, yields, production costs and quality. However, transaction costs are also important, especially if a farmer intends to reach the wholesale market directly, without going through a middleman. Prices can fluctuate by as much as 10 to 20% in a day; access to timely information about daily supply and prices and the capacity to enforce agreements with wholesale buyers and traders can make the difference between success or failure. Small farmers in particular, must weigh up the costs of leaving the farm to take their crop to the wholesale market and directly supervise its sale, versus selling on the farm or relying on a trader.

11.2 The case studies

11.2.1 Cooperativa El Renacer del Cajón Ltda.

This cooperative was established in 1991. It is located in Region V, in the municipality of Quillota in the central part of the country. It started with 10 members, five of whom are relatives (three brothers, one sister and one cousin), all young, and all close friends who together have been active in different community activities and organizations for a long time. One more member joined in 1998. Of the 11 formal members, six are active (three brothers, one cousin and two non-relatives). The brothers and sister make up the core group of the cooperative; she is a young, intelligent, hard driven and hard working woman who is the undisputed leader and President of the cooperative. The father of the core group was one of the more important local leaders in the agrarian reform of the 1960s and 70s, and remains a leading community activist (*"but he has an awful business sense and always has had bad results.. we did not allow him to become a member of the Coop because he would have wanted to lead, and we would have gone under for sure"*).

They started working together in the late 1980s as a politically-motivated youth group linked to the Catholic Church. As a way of expressing their opposition to the military dictatorship, they started forming pre-cooperative organizations for Region V's Regional Federation of Cooperatives. Their first economic project was honey production, funded by a Dutch NGO through the Regional Federation of Cooperatives. However, it failed when they could not control a new disease that had a major impact on Chile's honey industry.

Nevertheless, part of the group remained highly motivated and decided to try their luck with a crop they were more familiar with. Although none of them had produced greenhouse tomatoes before, there were large commercial farmers in the area who had established greenhouses. *"We would look at those greenhouses and spend our time asking ourselves 'How can we do the same?' ... we learned that they had computerized irrigation systems, and to us that seemed incredible... we later learned that the irrigation timer only costs $ 200 and we laughed ... we were the first small farmers to set up greenhouses with automatic drip irrigation."*

Six of the members put up their homes as collateral for an INDAP loan, as well as their personal savings, to set up the first 15 greenhouses (around 3,000 m^2). This was the final outcome of their participation in GARIM, a special program launched jointly by INDAP and SENCE (the National Labor Training and Employment Service) which provided training, technical assistance and start up capital to young rural people willing to launch a career as self-employed entrepreneurs.

Their failed honey project taught them the importance of technical knowledge; they immediately hired one of the top regional advisors on tomato production. *"He was extremely expensive, but we worked with him for two years and we learned a lot... we then had two other very good advisors, also expensive, but they really knew what they were talking about and we learned... the first advisor saved us so much money and he made us bring down the initial greenhouses because he said that they were trash; he would not let us go on until we got it right... this is why many of other groups failed, because they started doing things wrong."*

Their current advisor is a specialist on management and marketing: *"we are now good producers, but we still have a long way to go in learning how to manage our business and how to penetrate new*

markets."

Initially they worked on the project collectively, with little division of labor. However, they rapidly learned that they needed to specialize, so one of the women (the current president) took over the finances and administration (she had worked as a commercial assistant in a medical laboratory firm), one of the brothers became the trader, and the rest remained in charge of production.

At the beginning, none of the members owned any land, so the tomato production project was started on one hectare rented from other farmers (not relatives, since they did not want to mix family and business matters). One of the members then obtained another hectare of land from her father, took out a loan and put up her own greenhouses. Finally, another member inherited about half a hectare, and installed his own greenhouses there. Thus, at the time of my field work, the cooperative had three family-based production units, each run privately by the direct owners.

Through the cooperative they collectively buy their agricultural inputs and supplies, negotiate their loans with INDAP, sell their produce, contract their agricultural advisors, and produce the seedlings in order to manage the production schedule throughout the year and to ensure uniform varieties and quality. In 1994 they bought a truck to improve their marketing options, and in 1996 they took out a loan that allowed them to more than double the number of greenhouses.

They pride themselves on their ability to change varieties very rapidly as consumer preferences change *"most other farmers, even the big ones, don't change until they lose money one year... we don't want to lose money so we change ahead of time."*

They have also installed a fax machine so as to keep in touch daily with prices and market conditions: *"good information is essential, otherwise you harvest and take the truck to the market only to find that it is full of tomatoes..."*

Three of the brothers and the sister, together with their father, have also launched a separate EAC based on about 10 ha of avocadoes, all using drip irrigation.

Thanks to their early emphasis on doing things right during production, and to their willingness to invest in hiring the best advice possible, the group's yields are extremely high (around 135 ton/ha), almost twice the national average. The very best commercial producers in Region V manage to get 140 ton/ha, so this cooperative is among the top producers in the country. *"We aim for top yields with the best quality, because we know that's where the profits are".*

The quality of their production is so high and their prices so competitive, that they easily sell all the tomatoes and other vegetables they can produce[59]. This has allowed them to expand the area of greenhouses to a total of almost one hectare in less than three years.

The group faced a serious crisis between 1997 and 1999. A very severe drought and lower than normal winter temperatures affected yields and quality severely, and lowered prices. *"We faced this crisis head on, by investing heavily in wells and to improve our irrigation systems... we put all the money we had, and we also took out a loan to recapitalize the cooperative."*

A couple of years ago the group became interested in moving towards organic production, after one member went to Germany and saw that organic tomatoes in supermarkets were more expensive than conventional ones. The cooperative has an agreement with the national Agricultural Research Institute (INIA) to acquire integrated pest management (IPM) and drip irrigation technology through a local demonstration plot installed in one of the cooperative member's fields.

Most small vegetable farmers in the area sell their produce on the farm to middlemen, but the cooperative has acquired its own truck and a permanent post at the Valparaíso wholesale market, where one of the members sells their produce. The cooperative also buys and sells other small farmers' produce.

[59] According to the management and marketing advisor, the break-even point of the cooperative's tomato production is of around $ 0.10/kg, while market prices normally are above $ 0.42/kg.

The members readily acknowledge that they have had no impact whatsoever on the market price: *"when we started, we thought that by being together we could negotiate better prices... this is an illusion."* They explain that the only way to get better prices is by producing better quality. Being known as producers of top quality tomatoes is particularly important when the prices are low: *"when there are good prices, anyone can make it... but when there is a bad year, then it makes a big difference if the buyers know that your tomatoes are all well graded and packaged and so on."*

They also sell a small fraction of their produce to a supermarket in Valparaíso; they wish they could sell more through this outlet because prices are higher, but the problem is that the demand from one or two supermarkets is quite limited. To target a large number of supermarkets or whole supermarket chains, they would need much larger volumes, as well as packing and grading equipment and storage facilities.

They could expand the volume to the needed levels to justify a packing house and the use of their own label by letting other farmers join the cooperative, or through supply agreements with other farmers. However, they fear that if they go this route they would lose control over quality and would almost certainly need to abandon their idea to some day specialize as organic producers. *"Everybody will some day produce tomatoes under greenhouses, so this will become a crowded market... organic production offers a very concrete way to differentiate ourselves from the rest and continue obtaining prime prices."*

Hence, the cooperative needs to decide between two different development pathways. On the one hand, they could take the large-scale option and become an important supermarket supplier of tomatoes. Alternatively, they could target the niche market of organic tomatoes and aim for a higher priced differentiated product.

The group is keen on improving their business and management skills, and so they have joined with several other EACs from Region V to establish a *Centro de Gestión* (Management Center), an organization that can provide business, management, accounting and marketing advice to small farmers' organizations in the area.

The staff of the local INDAP office feel that this cooperative is by far the best among the seven local EACs. The local head of INDAP told me that *"they are very responsible... other groups are always trying to have everything financed by INDAP, while they tend to reinvest a major share of their profits and ask only for the smallest possible loans."* Most of the people I interviewed who are familiar with the Cooperative agree that this EAC could survive even without support from INDAP or other public agencies.

While the organization maintains legally-required formal structures, decision-making is based on group meetings and a clear assignment of tasks and responsibilities to individual members. The group meets as frequently as necessary: *"before we would have a formal meeting once a month... now, each of us has a concrete assignment, so we only meet when necessary... while we waste little time in useless meetings, it is also true that we share less information; for example, I am in charge of the administration, and I do not have any obligation to inform the others on a regular basis."*

This system of decision-making is based on very deep trust among the members, perhaps the strongest among all the EACs that I studied. Such deep trust is made possible by the close family and friendship ties, by their long experience of working together and by the fact that the group is closed and very homogeneous. Often, when one of the members needs to take out a loan but has no collateral, the rest will vouch for him or her. At times, when one member is facing difficulties in meeting the payments on his or her loans, the rest help until the situation is brought under control: *"we all know that none of us will ever let the rest down. Therefore, if today I help one of my colleagues, tomorrow I will also be able to receive the support of the rest."*

11.2.2 Cooperativa We Tukucan Ltda.

This Cooperative was established in 1994 by 28 small farmers, 75% of whom are Mapuche. About

seven of the members are significantly larger than the rest, providing the bulk of the produce sold by the cooperative. The cooperative also buys from non-members to fill in specific demands that cannot be covered by the members. Its members reside in several different small towns and villages around the city of Temuco, the capital of Region IX, in the south of Chile.

All of the members have been vegetable producers for a long time. Before the formation of the cooperative, these farmers used to compete with each other in Temuco's wholesale markets. None of the members produced enough to have their own permanent post at the wholesale market. *"None of us had a permanent post at the market, and the big traders always had the best location because they were there all the time."* Each was forced to rely on middlemen, or to undertake the cost of taking their produce to the market and staying there one or two days. *"We all used to have the same problems, and for years we tried to solve them fighting against each other, with the only result that the middlemen were the only winners... this was so absurd that we were brother against brother and friends against friends, and all of that to put more money in the pockets of the middlemen."*

The first meetings were promoted by a small group of the current members of the cooperative, without any external support or stimulus. The talks went on for almost six years, and they carried on inconclusively until INDAP's policies to support EACs began to show a clear way of putting their plans and ideas into practice. INDAP rapidly became a strong supporter of this EAC. A member of INDAP who is familiar with We Tukucan told me: *"This was an emblematic EAC in this region. They were involved in the types of crops we would like to see more in small-scale agriculture, were strongly organized, and moved aggressively to create new business opportunities. We gave them all the support we could."*

When the time came, of the 90 or so initial participants, only 28 finally joined the EAC. As one of the grassroots members explained, *"when it was time to stop talking and put up $ 63 each, then most of them just never showed up again".*

According to the board members, their initial expectations were to increase the volume they could sell together, and thus to be able to share the costs of the marketing process: *"we could not be good traders and good producers at the same time; if you are small, it is too expensive to spend all that time trying to sell your products, especially if you don't have a permanent post at the marketplace."*

From the end of 1994, the group began implementing a large number of projects: building their warehouse and packing facilities; setting up a refrigerated storage unit; buying three delivery trucks; installing sprinkler and drip irrigation systems on all members' farms; hiring their own General Manager, sales agent, accountants, and technical advisors; buying computers to improve the efficiency of their administration; and carrying out, as a member put it, *"an infinite number of training courses"* on production, management, quality control and marketing issues.

Each member runs his or her own farm as an independent production unit. The main products are lettuce, carrots, beet, leeks, and cabbage. The cooperative coordinates production schedules to avoid too much or too little production of any one crop at a given time. It does this by asking members what they intend to produce that season, and then negotiating production levels with each farmer. The cooperative also tries to standardize the varieties of each crop in order to be able to offer a larger volume of the same product, and to differentiate themselves from other sellers.

Each farmer is responsible for taking his or her produce to the cooperative's central warehouse. The amount of produce they should bring in each day is determined by the management, and communicated to each member using two-way radios (now being replaced by mobile phones). At the warehouse, the produce is graded, packaged, labeled, and delivered to the buyers. The members are paid 15 days later, at the produce's average price over the previous two weeks, minus the value of the produce returned unsold by the supermarkets. The cooperative charges a flat 25% fee on the price paid by its clients for its services (transport, grading, packing and marketing, plus the support services such as technical assistance, accounting and so on).

What the members like most about this arrangement is, as one put it, that *"as individuals we can now forget about the marketing side, since this is taken care of by the organization. We can concentrate on*

producing more, and each of us has at least doubled his production levels. Besides, our clients receive a better service, because we have staff that are dedicated full time to working with them. If one of us at one time has only a small amount of produce, it can be still taken to the market in Temuco instead of having to sell it on the farm."

The members have to sell all their harvest through the cooperative. If this rule is violated, the member will be fined *" an amount similar to the damage caused to the organization"*. It is up to the technical advisors to determine the amount sold privately by the individual. The rule has been enforced in the past, and some of the members paid the fine, while others left the organization. The capacity to enforce this key rule was weakened when the cooperative started running into liquidity problems and was unable to buy all its members' harvest. Nowadays, *"there are some cases of members who routinely purchase their inputs through the cooperative on credit, get all the services, and then go off and sell on their own."* This example underlines the two-way relationship between rules and economic performance.

By 1998 over three-quarters of We Tukucan's sales were to three supermarket chains, of which one, Santa Isabel[60], generated 51% of the total sales that year. That same year, the income from sales at the wholesale market represented 23% of total sales. The gross value of these sales reached more than half a million dollars that year, and the organization was one of, if not the largest, regional suppliers of fresh vegetables. Anyone familiar with the We Tukucan Cooperative pointed to this EAC as one of the most impressive success stories, emphasizing that it was particularly notable for 27 small farmers to have achieved such results in only four years!

And yet, as one friend has put it, at the same time *"the volcano was getting hotter"*! In December 1998 the cooperative defaulted on its loan payments. This crisis was the result of two factors, the most important being that the cooperative had become top-heavy, and that its operational and non-operational expenses had grown to the point where they could not be covered by the EAC's revenue.

The second factor was that the cooperative could not adjust to the supermarket chains' payment methods. Not only did they pay 60 or 70 days after delivery, but they also returned any unsold produce to the cooperative[61]. The cooperative could not transfer this payment method to its members, as they would be likely to desert the EAC and continue marketing their vegetables on their own.

It was only a matter of time before this two-pronged attack on the cooperative's finances would reach a point of no return. A key point is that the cooperative members did not know what was coming until the problem had become a crisis.

The organization reached this point through a process of successive investments justified more by the results of past experiences than by a clear and cold-headed analysis of the merits of the new projects. In 1994 and before, the group had impressed INDAP as it showed a capacity to organize a relatively large number of small farmers with very little or no external support. The group had a strong leadership, a clear diagnosis of their marketing constraints, and a well defined vision of how they could overcome them. INDAP provided the initial grants and loans, and the results were clearly positive, one could even say almost spectacular. The EAC expanded rapidly, supported by larger loans and more grants. INDAP was happy because it could use this EAC as a public showcase of its policies and their effects. The farmers were not only producing and selling more, but were also proud of their new status as one of the best EACs in the region. The results of previous investments were considered sufficient proof that this EAC could make it, and the analysis of future prospects as well as their monitoring practices, became more and more relaxed[62]. INDAP seemed to restrict its monitoring to the

[60] A subsidiary of Royal Ahold of Netherlands, the largest food retailer in the world.

[61] About 20% to 30% of the produce 'bought' by the supermarket is returned unsold to the farmers, who not only lose the income but must also incur the costs of disposing of it.

[62] Weak monitoring practices were shown by the Cooperative Board and members, and also by INDAP. After the crisis, an analysis conducted by INDAP showed that the Cooperative had been showing a negative net revenue for at least two years, and yet INDAP continued to lend it money during that period, unaware of its poor financial position.

physical outputs of the projects: a larger warehouse, irrigation systems installed on members' farms, more trucks, more production, and so on. As far as INDAP was concerned, the members seemed happy, no one was complaining, and that was that.

Little or no attention was given to the economic and financial results of these investments, much less to the sustainability of the whole process. *"We never had a method for monitoring this process, we were following the wrong indicators, we did not ask the correct questions, and we were far too short-sighted,"* says an INDAP member, adding that *"in my opinion, the same happened at the cooperative."* Another external advisor familiar with the process, puts it bluntly: *"there were two blind persons [INDAP and the cooperative] driving a very fast car."*

Those who asked questions about the wisdom of this accelerated growth were viewed suspiciously as 'technocrats' who did not trust the capacity of small farmers. One INDAP employee told me: *"they were gold nuggets that we wanted to support, and our analysis became more and more emotional; a closer look would have told us to slow down and to restrain at least the more recent loans and investments until they consolidated their previous gains."*

The almost continuous flow of fresh cash supplied by INDAP through new grants and loans financed the growing deficit. Between 1996 and 1998, INDAP loaned the cooperative $235,000, an amount equivalent to more than two-thirds of annual sales, to which one should add $84,000 in different subsides in 1998 alone.

Paradoxically, the cooperative's cash flow problem was aggravated as a direct consequence of its success in penetrating the supermarket chains. To the members and to INDAP this penetration was clear proof of the EAC's great success; no-one seemed to pay attention to the fact that these outlets pay their suppliers only after 60 days or more. Eventually, the deficit became so large that not even the largesse of INDAP could sustain it, and the bubble burst.

The Board knew about the problem immediately, but the leadership did not inform the rest of the members until four months later. However, the members soon knew something was wrong when the frequency of the payments for their produce began to extend rapidly from 15 to 60 days, and when the service fee was increased from 20% to 25%. Finally the Board could not hide the information any longer and the crisis exploded in the open.

After intense recrimination and debate, the members grew calmer when it became evident that although there were severe administrative deficiencies and mistakes, no-one had stolen one cent from the organization. The members then focused together on identifying the precise problems and diagnosing the causes. One member explained that at that point *"we realized that we had made numerous mistakes in the administration of our business... none of us really knew how to manage something like this, so we left it in the hands of the managers and we did not control them".*

Afterwards, in a series of fully attended meetings, the members defined a course of action: they cut their staff by 40%; brought their administration costs under control by lowering the fixed salaries of the hired staff and establishing payments according to results; they fired the manager and hired a new one; took a number of steps to reduce the share of the produce that was left unsold; and made an extraordinary cash contribution to increase the working capital of the cooperative. The president of the board, the prime promoter of the formation and growth of the cooperative, also resigned his position to let a new leadership guide the restructuring process, but has remained an active member with a very supportive attitude towards the new board and management.

The new manager has taken a number of measures to put the administration in order, and launched a special campaign to market the production of new non-member farmers. Through this plan, the cooperative was able to double gross sales in less than one year by bringing in about 25 new non-member suppliers.

However, the cooperative has had to stop working with the supermarkets because it could not sustain the financial cost of being paid 60 or more days after delivery. This was especially problematic given the growing importance of non-member suppliers who would not work with the EAC under those

conditions. Also, members acknowledge that they are delivering a lower share of their total harvest to the cooperative, and selling more on their own. This is because the cash flow constraints mean that the EAC often lags behind in its payments; in fact, several of the members who left the organization did so because of this problem.

According to the members, the cooperative is now being managed more tightly; they are stricter about demanding high quality and timely products from the member and non-member suppliers alike; and they are also doing better in demanding payment for the credit given by the EAC to its members when they buy agricultural inputs through the organization.

However, when I asked several of the members if they now had better and more frequent information about the organization's performance, they acknowledged they did not. While they say that it is true they should be more involved in monitoring the day to day operations of the cooperative, they still rely on a small core group of leaders because they prefer to spend their time working on their farms rather than attending meetings.

Things began to brighten a bit when the cooperative signed a contract with a British firm to export beet to the United Kingdom. After an initial test with one container, the cooperative was asked to ship six more, and there were good prospects for continuing this business in future years.

All of these measures have resulted in a substantial improvement in the EAC's operational results. After a negative net revenue of about $80,000 in 1998, the losses in 1999 were 10 times lower. However, the debt (principal plus interest) has grown to such a magnitude that it is virtually impossible for the EAC to ever pay it back. The future of the organization depends on INDAP's decision to condone a very large part of the debt.

One of the cooperative members told me that *"during this time we often talked about throwing in the towel, handing in our assets to INDAP and forgetting about the whole thing. What kept us going was the knowledge that if we don't correct this problem, we will end up back where we started, at the hands of the middlemen. We know that there is no chance of making it as small vegetable producers if we go it alone."* Of course, this argument is particularly valid for the majority of the EAC's members, who are very small farmers. The larger farmers are also tied to the EAC because they put up their own private assets as collateral for some of the INDAP loans. Finally, a very powerful argument that underlies the whole process was made explicit during a meeting I held with nine members: *"we know that if worse comes to worse, INDAP will not foreclose on us."* In the end, only seven of the members left the organization as a result of the crisis.

11.3 Performance and impacts of vegetable marketing EACs

I now turn to describing and explaining the economic and financial performance of these two EACs, as well as their impacts on members' household and farm income.

11.3.1 Economic and financial performance of the vegetable marketing EACs

The available information shows that Cooperativa El Renacer del Cajón has achieved reasonably good economic and financial results, while We Tukucan is basically bankrupt (Table 11.1).

El Renacer del Cajón has managed to obtain substantial profits (37%) on its total revenue. This is mainly because of its low administration and marketing costs, as well as being able to keep its financial costs very low by financing members' expansion and its own assets primarily through the reinvestment of profits. However, the ratio between total assets and liabilities is close to becoming dangerous, although 85% of the liabilities are long term and thus the cooperative should be able to meet its financial commitments as long as it continues to sustain its high profits. Only 6% of the cooperative's total revenue comes from government grants, and this is used to pay part of the technical and management advisors' costs.

We Tukucan, on the other hand, had important losses because its operational expenses were significantly higher than its revenue, even after receiving a substantial amount of money from government grants. Its liabilities are significantly larger than its assets, and given the annual losses it is impossible to expect that the cooperative will be able to pay its debts. More important, the cooperative has lost all of its operational capital, and thus will face severe difficulties in buying produce from its members or other farmers unless they agree to be paid many days after delivery. Since We Tukucan has defaulted on its loan repayments, legally all of its debts have become due and are now short term liabilities. Clearly this aggravates the EAC's financial position. Unless INDAP agrees to cancel a substantial share of the debt, We Tukucan will not be able to survive.

Table 11.1 Economic and financial performance of two vegetable marketing EACs

Item	El Renacer del Cajón 1998	We Tukucan 1998
Total revenue ($)	79,701	535,669
Total expenses ($)	50,574	611,930
Net result ($)	29,127	- 70,261
Total assets ($)	57,720	207,899
Current assets ($)	8,367	82,562
Non-current assets ($)	49,352	125,337
Total liabilities ($)	38,352	260,436
Current liabilities ($)	9,225	260,436
Non-current liabilities ($)	29,127	0
Net assets ($)	19,368	- 52,537
Grants from government ($)	4,919	83,891
Net result/total revenue	0.37	- 0.14
Total liabilities/total assets	0.67	1.25
Operational capital (current assets – current liabilities) ($)	- 858	- 177,874
Liquidity (current assets/current liabilities)	0.91	0.32
Dependency (grants/total revenue)	0.06	0.16

11.3.2 Impact on members' farms and households

Household and farm income

As shown in Table 11.2, El Renacer del Cajón cooperative members have a significantly lower average net household income than their neighbors. The opposite is true for We Tukucan. I will explain these differences later on, but note that especially in the case of El Renacer del Cajón the comparison group comprises landowners, while members own very little or no land.

Non-agricultural household income is particularly high for El Renacer del Cajón members, as each family has at least one person who is employed off-farm. The members of El Renacer del Cajón agreed that their decision to reinvest a large share of their profits in the EAC was made possible by this non-farm income. Actually, several of this cooperative's members used to be employed in the nearby cities, before going back to being farmers as a result of their project. The interviews I held with all the members of this organization confirm that most of them have seen their annual income grow as a result of EAC participation, even those who renounced permanent jobs in the services sector.

In the case of We Tukucan, the households clearly derive all their income from agriculture. While all informed observers agree that most of these small farmers were not poor at the time the cooperative was launched, the average annual income they have achieved is clearly impressive, in particular if one remembers that most of them are very small farmers belonging to the Mapuche people, who generally are amongst the poorest and more marginalized in Chile. All the members I interviewed were convinced that, despite the crisis, their income had increased substantially as a result of EAC participation.

Table 11.2 Income and income composition, El Renacer del Cajón and We Tukucan ($, 1999-2000 agricultural season)

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
Net hh income	10,003	16,107	29,021	11,679
Earned net hh income	9,059	9,169	23,844	10,760
Unearned net hh income	945	6,937	5,177	919
Non agricultural net income	6,302	1,693	6,606	4,457
Farm net income	4,017	8,202	21,201	9,769
Gross income for vegetables / Gross farm income (%)	96	100	90	77

Table 11.3 allows us to explore any possible causal links between EAC participation and farm and household income. These two cooperatives illustrate two different strategies: one (We Tukucan) has strived to break into a new, dynamic and seemingly more profitable market, while the other has tried to become the best and most efficient participant in a traditional market.

Compared with non-members, members of El Renacer del Cajón earn a 10 times larger gross margin per hectare for their tomatoes. I confirmed this impressive result in the field. The difference in performance is due to three facts: (a) cooperative members grow all their tomatoes in greenhouses and hence their yields are four times larger than the average for open-field tomatoes; (b) greenhouses allow them to harvest earlier and attain better prices; and (c) since they are marketing almost all of their production directly, rather than depending on middlemen, they receive almost double the price compared with their control group. Ultimately, cooperative members get about the same total gross margins as non-members on an average of 1,800 m^2 of land per member. Non-members need 10 times more land to get the same result.

The story is different for We Tukucan. The cooperative's main impact has been to allow its members to increase their income from vegetables by expanding the area under those crops. In fact, on a per hectare basis non-members do better than members. While members' yields are significantly higher than non-members, they cannot capture the full effect of this advantage because they end up getting about the same net price for their products.

Why is this so? Remember that the members of We Tukucan are selling about three quarters of their produce to different supermarket chains, and that these outlets force them to 'buy back' unsold produce; usually around 20% to 30% of the produce sold. On top of that, the cooperative charges

members a 25% fee for their services.[63] That is, the net price paid to the farmer per kilo delivered to the supermarket is around 50% lower than the gross price paid by the supermarket per kilo effectively sold.

Table 11.3 Average economic results of vegetable production, El Renacer del Cajón and We Tukucan (1999-2000 agricultural season)

	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	**Non-parts.**	**Parts.**	**Non-parts.**
Gross income ($)	10,406	14,138	28,181	110,351
Direct expenses ($)	2,544	6,802	8,230	1,783
Gross margin ($)	7,862	7,336	19,951	9,252
Gross margin per hectare ($/ha)	42,885	4,009	3,772	6,294
Price tomato ($/kg)	0,42	0,22	n.a.	n.a.
Price beet ($/kg)	n.a.	n.a.	0.13	0.10
Price lettuce ($/kg)	n.a.	n.a.	0.17	0.17
Price carrot ($/kg)	n.a.	n.a.	0.02	0.02
Yield tomato (ton/ha)	135	35	n.a.	n.a.
Yield beets (ton/ha)	n.a.	n.a.	71	12
Yield lettuce (ton/ha)	n.a.	n.a.	54	47
Yield carrot (ton/ha)	n.a.	n.a.	20	13
Crop area (ha)	0.18	1.83	5.29	1.47
Production sold (%)	100	100	77	72
Production sold on farm (%)	19	100	3	5

Experts interviewed agreed that farmers are usually paid around 30% to 50% higher prices per kilo effectively sold by the supermarket, than the wholesale market. If we assume that the 20% to 30% return rate of unsold produce is more or less standard for high quality fresh vegetables such as lettuce, leeks or cabbage, then the service fee charged by the cooperative to its members would have to be below 10% for there to be any net gain from selling to the supermarkets. Anything above that means that a farmer is probably better off selling in the old way.

And to this we should add the financial costs of the supermarkets' payments 60 or 70 days after delivery[64], which is an extremely long period if we consider that many of these vegetable crops have a 75 to 100 day cycle. Therefore, the supermarket's method of payment increases the required working capital of a farmer by two-thirds. We Tukucan absorbed this huge cost by paying its members after 15

[63] The supermarket chains also discount other costs, or force their suppliers to absorb them directly, such as the cost of promotions, shelf space, staff salaries, and so on. In the case of We Tukucan, several of these costs are included in the 25% service fee charged by the EAC.

[64] At the time of writing this chapter, several major supermarket chains announced that they would extend this period to 150 days in case the government enacted a proposed law to make them pay Value Added Tax on time. That is, they would make the suppliers shoulder the cost of paying their taxes on time.

days, even if the supermarket paid after 60 or 70. The alternative, transferring this cost to the members, was not an option as it would have meant that most, if not all, would have started selling their produce elsewhere. The EAC's attempt to absorb these costs was one of the main causes of its financial collapse, as it meant keeping a supply of working capital at least four times larger than if it paid its members once the supermarket had paid.

The lesson seems to be that small vegetable farmers should be extremely careful when trying to access the supermarket chains. Unless they have deep enough pockets to withstand the predatory payment methods of supermarkets, and unless their volumes are so high that they can keep the per unit costs of marketing and administration very low, then they are probably better off sticking to the wholesale markets. The ways in which supermarkets operate create very large barriers for small farmers, even if they are well organized as in the We Tukucan case.

Access to technical assistance and credit

Virtually all vegetable farmers, organized or not, have access to one or more forms of technical assistance. All EAC members have access to their own advisors hired with the aid of INDAP's grants (Table 11.4). Moreover, most of these farmers also receive support from private advisors usually employed by the commercial agricultural inputs and supply firms.

Table 11.4. Access to technical assistance services, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %
Tech. assistance from EAC	75	0	100	0
Tech. assistance from government	100	57	100	100
Tech. assistance from local gov't	0	0	100	100
Tech. assistance from university	0	0	0	0
Tech. assistance from NGO	0	0	0	0
Tech. assistance from private firm	0	0	0	0
Tech. assistance from other org.	0	0	0	0
Tech. assistance from private advisor	67	71	100	100

All these farmers also have access to loans from different sources. Notably, in the case of the EAC members, almost all the loans come from INDAP, whilst non-members work with INDAP *and* other providers of financial services, such as the State Bank and private banks (Table 11.5). Non-members presumably use these other sources because the amounts they can get from INDAP are four to five times lower than the amounts lent to the EAC members.

An interesting finding is that the average debt of El Renacer del Cajón's members is three times smaller than We Tukucan members, despite the fact that greenhouse vegetable production is more capital intensive than traditional cropping systems. This may be because El Renacer del Cajón's policy of financing growth largely through the reinvestment of profits is also followed by individual members on their own farms; in turn, this practice is made possible by their significant access to non-farm income.

Table 11.5. Access to credit, El Renacer del Cajón and We Tukucan ($, 1999-2000 agricultural season)

INDICATORS	EL RENACER DEL CAJÓN				WE TUKUCAN			
	Parts.		Non-parts.		Parts.		Non-parts.	
	N°	$	N°	$	N°	$	N°	$
Total loans	2	2,031	6	460	8	5,991	4	1,713
Short term loans	1	908	1	631	8	3,337	4	1,188
Long term loans	1	3,153	6	4,499	5	4,247	1	2,102
INDAP loans	2	2,031	6	450	5	6,139	4	1,713
State bank loans	0	0	0	0	2	3,153	0	0
Private banks loans	0	0	0	0	0	0	1	4,265
EAC loans	0	0	0	0	0	0	1	210
Commercial loans	0	0	1	631	0	0	0	0
Personal loans	0	0	0	0	0	0	1	4,205

Technology adoption

As in most of the other case studies, the members of these two EACs are more advanced than their non-organized neighbors in their adoption of certain production practices and technologies.

Table 11.6. Technological changes implemented in past five years, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %
Crop diversification	100	71	70	44
Contract agriculture	50	14	70	11
Marketing of inputs and products	50	29	80	33
Irrigation and drainage	100	86	90	56
Machinery and equipment	100	100	100	78
Buildings and infrastructure	75	71	60	33
Crop varieties and seed quality	75	86	100	100
Use of fertilizers	75	86	90	78
Weed control	75	71	100	89
Insect and disease control	75	86	80	89

In the case of El Renacer del Cajón, the differences are particularly striking for market-oriented technologies or practices, such as crop diversification (all the members had begun producing bell peppers, cucumbers and other vegetables, as opposed to the neighbors who only produce tomatoes),

experimenting with contract agriculture, and changing the marketing of products or inputs. Members told me they had hired an expert on farm management and marketing, as they felt this was where they needed to focus their energy, having solved all the main technical problems of production (Table 11.6).

The same is true of We Tukucan members, who have been quicker than their neighbors to adopt various farm improvements such as sprinkler and drip irrigation, machinery and equipment, and buildings and infrastructure (Table 11.6).

These differences between members and non-members also extend to farm management. We Tukucan members are clearly ahead of the non-members in having legally registered themselves as farmers, maintaining accounting systems and filing for Value Added Tax payments and credits, keeping farm costs and income records, or holding bank accounts (Table 11.7). The differences are less striking in the case of El Renacer del Cajón, because in the Quillota area farmers have worked in a more 'entrepreneurial environment' for many years (Table 11.7).

Table 11.7 Farm management practices, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %
Legally registered farmers for fiscal purposes	100	100	100	33
VAT accounting and filing	100	100	100	33
Costs and income records	100	43	70	22
Holds a bank account	20	0	30	0
Legalized land titles	100	100	44	57
Legalized water titles	100	100	13	0

11.4 Explaining the performance differences

In this section I explore the relationship between the performance of these two EACs and of the members versus the non-members, and the different characteristics of the individuals, households, and organizations.

11.4.1 Farmers' assets

Household characteristics

In both cases, EAC members are younger and better educated than non-members. In the case of El Renacer del Cajón, members' households are also significantly smaller than those of the non-members.

The better education levels among members are true for most categories; younger children and older persons, as well as males and females. The differences are very important; for example, members aged 31 to 45, the heads of households and their spouses, on average have twice or more years of education than non-members (Table 11.8).

Table 11.8 Household composition, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
Members of household	3	4.3	4.6	4.6
Female members	1.4	1.9	2.2	2.2
Male members	1.6	2.4	2.4	2.3
Members 0-12 yrs.	0.4	0.9	1.9	0.6
Members 13-18 yrs.	0	0.4	0.4	0.8
Members 19-30 yrs.	0.2	1.3	0.4	0.9
Members 31-45 yrs.	1.6	0.7	1.2	1.1
Members 46-65 yrs.	0.4	0.9	0.7	0.9
Members 66+ yrs.	0.4	0.1	0	0.3
Schooling members 7 yrs or +	9.1	6.8	8.6	7.8
Schooling members 15 yrs or +	9.1	6.8	11	8.1
Schooling members 19-30 yrs or +	1.4	5.5	2.6	7.1
Schooling members 31-45 yrs or +	10.2	3.6	9.3	5.7
Schooling members 46-65 yrs or +	2.8	2.1	4.9	2.8
Schooling members 66 yrs or +	0	0.9	0	1.3
Schooling of head of hh	8.8	4.4	10.4	5.2
Schooling of spouse	9.4	5	10.1	5
Schooling of sons/daughters	3	5.4	4.3	8.8
Schooling of other members hh	0.8	2.7	0.5	3.4
Schooling female members hh	8.6	6.5	8.6	6.8
Schooling male members hh	8.4	4.7	7.7	6.7
Age of head of hh	44.2	50.3	42.9	56.3
Age of spouse	37.4	41.4	36.7	43.1
Age of sons/daughters	9.6	11.4	9.2	23
Dependency ratio	0.3	0.3	0.9	0.4

Physical and financial assets

On average EAC members own less land than non-members. However, We Tukucan members addressed this situation by renting as much land as they own, so that they end up managing more land than non-members. Of great importance is the fact that We Tukucán members have a significantly larger area under irrigation compared to non-members; this is a great advantage in Region IX, were irrigation is not widespread. El Renacer del Cajón members also have access to additional land through different contractual arrangements, although they still end up with an average of less than two hectares of land per member, of which less than 50% is irrigated[65] (Table 11.9).

[65] Only irrigated land is suitable for vegetable production in Region V, but not in Region IX with its much higher rainfall and lower evapotranspiration levels.

Table 11.9 Land assets, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
Land owned by hh (ha)	0.38	2.22	5.34	6.68
Land taken by hh, shareholding (ha)	0	0	0.50	0.88
Land taken by hh, rental (ha)	0.03	0.78	5.25	1.33
Land taken by hh, other contracts	1.37	0	1	1.27
Land let by hh, shareholding (ha)	0	0	0.02	0.22
Land let by hh, rental (ha)	0	0	0	0
Land let by hh, other contracts (ha)	0	0	0	0.11
Land under management by hh (ha)	1.79	3	12.07	9.84
Irrigated land under mngt by hh (ha)	0.74	1.81	5.97	1.72
Irrigated land owned by hh (ha)	0.67	2.07	4	4.57

The total value of We Tukucan members' capital assets is twice as high as their control group. The members are wealthier in all the categories included in the survey: buildings and infrastructure, land, machinery and equipment and livestock. The interviews and workshops revealed that, with the exception of land, many of these assets were acquired as a direct result of the EAC's skill in capturing different grants, subsidies and loans for their members. In fact, several We Tukucan board members told me that one of their main roles was to make sure that their members could benefit from the many different programs made available by INDAP, CORFO, FOSIS and other public agencies (Table 11.10).

Table 11.10 Fixed and quasi-fixed assets, El Renacer del Cajón and We Tukucan ($)

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
Value of buildings and infrastructure	13,866	21,763	14,733	11,249
Value of machinery and equipment	76,295	10,312	20,411	3,813
Value of land owned by hh	18,794	103,168	82,795	40,862
Value of livestock	3,771	910	2,649	1,568
Total value of physical assets	112,727	136,155	120,060	57,322

El Renacer del Cajón members are wealthier than non-members in machinery, equipment (mainly irrigation), and livestock, but lag behind in the value of land, buildings and infrastructure, as well as in the total value of all these different assets. Machinery and equipment make up two thirds of the total value of members' assets, and there is no doubt that their acquisition has been possible through the EAC's activities and projects (Table 11.10).

In short, these two EACs have been very effective in helping their members acquire significant amounts of capital, through their organized participation in different development projects and programs. Their perception by public agents as successful and dynamic EACs has given them privileged access to many different kinds of public support.

11.4.2 Social capital

As in the previous case studies, I will discuss the role of social capital in terms of participation in rural organizations, social norms that foster cooperation, systems of rules within the EACs, and the EACs' participation in wider networks.

Participation in community and economic organizations

These EAC members tend to participate more than non-members in other rural organizations. This is true for both economic and community organizations. Moreover, a significant proportion of the EAC members hold leadership positions in these rural organizations (Table 11.11).

Table 11.11 Participation in development projects and organizations, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN		WE TUKUCAN	
	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %
Organizations or projects with economic objectives				
Irrigation or drainage	100	29	100	44
Marketing of products or purchasing of inputs	60	14	90	22
Soil conservation and pasture improvement	0	0	0	11
Storage of products	20	0	60	11
Youth	0	0	0	0
Women	0	0	30	22
Trade Association	0	0	30	22
Cooperative	100	0	100	11
Held leadership position in any of the above	20	14	50	33
Organizations or projects with social development objectives				
Neighborhood committee	40	100	40	11
Sports, culture and recreation	40	29	40	22
Housing or local improvement	40	14	30	11

El Renacer del Cajón members are extremely positive about the costs and benefits of participating in EACs. Most, if not all, members agreed that participation had brought many specific benefits. Perceived economic benefits included improved household income, higher production, agricultural diversification, and improved marketing, whilst social benefits comprised better quality of life for the family as a whole and for women and youth in particular, better relations with their neighbors and with government agencies, etc. Few, if any, members cited reduced production costs as a benefit of membership. Nearly all agreed that the main costs were indebtedness, exposing their farms to greater risks, and having to pay membership fees (Table 11.12).

Table 11.12 Perception of costs and benefits of EAC participation, El Renacer del Cajón and We Tukucan

INDICATORS	EL RENACER DEL CAJÓN				WE TUKUCAN			
	Participants		Non-participants		Participants		Non-participants	
	Not True %	True	Not True %	True	Not True %	True	Not True %	True
Benefits								
Improved household income	0	100	20	80	10	70	0	50
Improved yield and production	0	100	20	80	20	80	0	50
New crops and livestock	0	100	20	80	20	70	50	50
Improved marketing of inputs and products	20	60	40	60	200	60	25	75
Improved prices of products	20	40	40	40	70.	0	25	50
Lowered production costs	80	20	50	25	30	40	50	25
Farm improvements	20	80	20	80	20	80	50	50
Improved quality of life for family	0	100	20	80	30	50	0	25
Improved quality of life for women	0	100	20	80	30	50	0	100
Improved quality of life for youth	0	80	20	80	25	62.5	0	100
Optimistic view of the future	0	100	20	80	10	80	25	75
Improved relations with government agencies	0	60	40	60	20	70	25	50
Improved relations with municipal government	40	40	40	60	40	40	0	75
Improved relations with neighbors	0	40	25	75	10	80	0	100
Doing better as small farmers	0	100	20	80	20	60	0	50
Costs								
Incurring debts	0	100	0	100	0	100	0	100
Membership fees	0	100	0	100	10	90	0	100
Greater risks in agriculture	40	60	40	20	20	70	0	100
Loss of time in meetings	40	40	60	20	20	80	25	50
Share of product prices taken by org.	100	0	66.7	33.3	0	100	25	50
Worsened relationships with neighbors	100	0	100	0	90	10	75	25
Some taking advantage of others	40	40	40	40	22.2	77.8	25	50
Less trust in the future	100	0	80	20	80	10	75	25

A very interesting finding is that the El Cajón control group has an equally positive view of membership benefits. Perhaps this is why many said they would like to become members of the cooperative, but accused the old members of being *"selfish"* by keeping membership closed.

We Tukucan members are also positive about the benefits of membership. Most agree that the

economic benefits are higher incomes, improved yields and production, diversification into new crops, improved marketing and farm improvements. Hardly anyone cited improved prices as a benefit of EAC participation, confirming the results given in the section above on household and farm impacts. In terms of the costs of participation, We Tukucan members cite costs familiar in all the other case studies: higher debts, higher risks and having to pay membership fees. However, they also include time lost to meetings, net prices being reduced because of the share taken by the EAC, and *"some members take advantage of the rest"* (Table 11.12).

The We Tukucan control group identified fewer benefits of participation, and discarded most of the economic benefits apart from improved marketing. The benefits they recognize are social: better quality of life for women and the youth and better relations with their neighbors and with the municipal government. On the side of the costs, they agree with members about debts, risks and membership fees, but do not realize (as the members do) that EAC participation can lead to the organization taking a share of the product prices, losing time in meetings or to some members taking advantage of others. In short, they appear to be less aware of certain benefits but also of some of the costs identified by the members (Table 11.12).

Norms that foster cooperation

Compared with non-members, El Renacer del Cajón members are more trusting of other people. Nearly all non-members interviewed felt that you cannot trust most people, that most individuals only care about themselves, and that given the opportunity, most people would take advantage of others. EAC members disagree with this view, tending to think that you can trust most people and that organizations benefit the majority of their members. Cooperative members also think that rural organizations are always or almost always beneficial, that participating in these organizations has been good for them and their families, that they are doing better as small farmers than 10 years ago, and that 10 years from now they will be doing even better (Table 11.13).

In the case of We Tukucan, the control group was also more negative when it comes to trusting others: they think that you cannot trust most people, that individuals only care about themselves, and that rural organizations only benefit a few of the members. The members are split almost 50/50 on these questions, with about half answering along the same lines as the non-members. This split is probably the result of We Tukucan's ongoing crisis. I perceived during meetings with members that there were clearly two groups: (a) those who were active in the EAC until the crisis were still optimistic and committed to finding a solution, while (b) those who were less active before were more negative about the events leading to the crisis, blaming the leadership and the other members, and thinking that things were unlikely to change (Table 11.13).

Networks

The El Renacer del Cajón cooperative is clearly embedded in one rural community. The parents of the current members lived through the agrarian reform together, fought against the *latifundistas*, and together suffered repression and persecution during the military regime. They all belong to the same community organizations. Before forming their cooperative, the members had obtained much experience of collective action together, having carried out many common economic, social, cultural and political activities and projects. The cooperative is one more step in a longer social process at the local level.

Table 11.13 Trust, cooperation, reciprocity and view of the future, El Renacer del Cajón and We Tukucan

QUESTION	EL RENACER DEL CAJÓN				WE TUKUCAN			
	Participants		Non-participants		Participants		Non-participants	
Ease of organizing with neighbors, compared to 10 years ago	More difficult %	Easier %	More difficult %	Easier %	More difficult %	Easier %	More difficult %	Easier %
	0	100	57.1	28.6	0	80	33.3	66.7
Household's degree of participation in org. compared to neighbors	Less %	More %	Less %	More %	Less %	More %	Less %	More %
	20	60	28.6	14.3	20	50	44.4	22.2
Community and farmers' organizations are useful	Never or almost never %	Always or almost always %	Never or almost never %	Always or almost always %	Never or almost never %	Always or almost always %	Never or almost never %	Always or almost always %
	0	100	0	100	10	80	22.2	55.6
For you and your family, participation in org. is...	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %
	0	100	0	71.4	0	80	0	66.7
Farmers' and community organizations benefit...	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %
	40	60	42.9	42.9	50	50	55.6	33.3
Can you trust most people?	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %
	40	60	71.4	28.6	50	50	66.7	22.2
Most people...	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %
	60	40	85.7	14.3	50	50	77.8	22.2
Most people...	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %	Take advantage of the rest %	Try to be fair %
	40	20	57.1	28.6	40	40	33.3	44.4
Has your situation as small farmers compared to 10 years ago...	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %
	0	100	42.9	57.1	20	70	22.2	33.3
In the next 10 years, will your situation as small farmers...	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %
	20	80	14.3	57.1	0	70	0	88.9

In the case of We Tukucan, the members belong to a number of different communities dispersed over a relatively large area around the city of Temuco; their social interaction is largely limited to this EAC. Because of this, cooperative members had no prior experience whatsoever of working together, either

for economic or non-economic objectives. The cooperative is the result, not of a previous history of collective action, but of the inspirational leadership of a few individuals. This origin is reflected in the cooperative's management style whereby a small number of founder members took charge with little active participation by the majority.

We Tukucan decided to make supermarkets their main market. This relationship gives little bargaining power to members; the EAC can basically 'take it or leave it' when it comes to the supermarkets' imposed demands and requirements. As the supermarkets themselves are engaged in fierce competition with each other, their rules and conditions are extremely difficult for small farmers to meet, and leave the EAC very little room for maneuver. While perhaps five or six of the members of We Tukucan could have survived under these conditions, most of the rest, being very small farmers, could not; thus, heterogeneity of the EAC introduced further degrees of rigidity into their decision-making process. What is perhaps more important is that the EAC engaged in this difficult and demanding relationship without sufficient preparation.

In contrast, El Renacer del Cajón has remained in the much more flexible and impersonal traditional fresh vegetable market. They can shift clients at will and from one day to the next, based on results of previous engagements or on the conditions offered by the many potential buyers. While they often think about accessing the supermarkets, they have always felt that before they get there they have to be on much more solid economic, financial and technological ground. They do not want just to sell tomatoes to the supermarkets; they want to enter that market when they can offer organic tomatoes, when they have control over the necessary volume of produce with uniform quality, and when they have accumulated enough working capital to be able to survive the supermarkets' financial conditions.

When I asked the members of El Renacer del Cajón to explain why they are so cautious, their answer surprised me: *"because of the honey bees!"*. They explained how they had tried to rapidly increase the number of hives, and that when faced with the first serious threat (a new disease), they just did not have enough knowledge and experience to know how to react (*"we were completely dependent on others, and it turned out they out they did not know either what has happening"*), nor the financial strength to sustain the losses. The project collapsed overnight. As the woman who heads this EAC told me, *"we produce tomatoes, but always keep thinking about the bees when sometimes we feel the urge to move ahead more rapidly... if we want to be* pequeños empresarios *[small business entrepreneurs], we have to think long term, and this means to be willing to sacrifice short term benefits in order to make sure that you are building on very firm foundations."*

Both organizations base their relationship with INDAP and other public agencies on the fact that they are widely seen as successful EACs (until 1998 in the case of We Tukucan). As such, they had greater leverage than most economic organizations to extract greater benefits from the many public programs designed for small-scale agricultural development and the promotion of EACs. We Tukucan played this card to the full, launching on a very rapid expansion process fuelled by public funds, and paying very little attention to the need to consolidate previous gains before moving ahead again. El Renacer del Cajón was much more careful; although they clearly had the option to take out more and larger loans (for example, to buy and sell produce from other farmers), they have based their expansion largely on the reinvestment of their own profits.

System of rules

Table 11.14 (adapted from Ostrom, 1990 - see Chapter 2, Section 2.5) summarizes the system of rules governing these EACs. These EACs have two completely different systems of rules.

El Renacer del Cajón relies on a system based on:

- the very active and detailed involvement of all members in all important decisions affecting the EAC, so that all rules have a very high degree of consensus and legitimacy;
- every member having almost daily access to extremely detailed information concerning not only the activities of the EAC itself, but also of each member, with the result that there are few if any

opportunities for anyone to free ride or take advantage of the rest;

- the very close relationship of trust, friendship and reciprocity among all the members, imposing great peer pressure on each person to conform to the agreements and commitments.

The result of such legitimate rules, close monitoring, and strong norms fostering cooperation, is that this organization is run on the basis of what Ostrom (1999), following Levi (1988), calls *"quasi voluntary compliance"*; while the members could in theory cheat and free ride, they do not because they would certainly be caught almost immediately, and the cost of such action could be extremely high both in economic, social and personal terms. From the point of view of its internal institutional performance, this cooperative is by far the most robust of all those I studied.

We Tukucan is a different story. It is run by a very small group of members and hired managers, while most members remain passive. This system worked well while things were going smoothly; the leadership enjoyed the legitimacy afforded by good results and concrete and frequent achievements that clearly benefited most members. However, it also meant that the EAC was completely unable to monitor and learn about those results that were not immediately obvious, and to take corrective action in time. The consequence was a crisis threatening the organization's survival. The EAC lacked what could be called 'institutional know-how', i.e., a set of internalized or embedded organizational practices, traditions, rules and norms to guide decision-making when the going got rough. Consequently, the organization has been incapable of taking full control of its problems, and has been forced to rely on short term decisions imposed by external agents. It does not have the institutional strength to devise and put into action any sort of long term plan to correct its fundamental problems.

Table 11.14 El Renacer del Cajón and We Tukucan's rules (based on Ostrom, 1990)

RULES	**El Renacer del Cajón**	**We Tukucan**
Clearly defined boundaries	Membership is clearly defined. The EAC deals with non-member small farmers from whom it buys produce, strictly on a client basis. All benefits are completely restricted to the members.	Membership is clearly defined. However, with the financial crisis the EAC has been forced to blur its boundaries by offering non-member suppliers a number of benefits which are identical to those received by the members.
Low cost systems for monitoring compliance	Given the very close contact between all the members, they are almost fully aware on a daily basis of what is happening in the production and marketing side. All the members are informed in detail of all the organization's debts and other commitments, as well as of each individual member. Given this intimate knowledge of what is happening in all the relevant areas, it is highly unlikely that any one member could free ride. All the members comply with the rules required to achieve the EAC's main objectives (e.g., assuring uniform quality and a well thought-out production schedule)	Before and after the crisis, most members had little or no information about the EAC's performance or future plans. They trusted that the board members knew what they were doing and would inform them if necessary. In turn, most of the board members lacked the technical know-how to effectively monitor the performance of their EAC on the basis of the information that should be made available by management. Although the EAC has written bylaws that define a number of benefits and obligations, after the financial crisis the EAC has less power to enforce many of the most important ones, such as the obligation to sell produce through the EAC. This has resulted in many of the farmers selling a larger share of their harvest on their own.
Congruence between appropriation and provision rules, and market conditions	The relationship between provision and appropriation is regulated by a careful separation of activities and	Given the heterogeneity in size, production capacity and socioeconomic status among the members, the smaller

RULES	El Renacer del Cajón	We Tukucan
	separation of activities and responsibilities between the individuals and the EAC itself. Each individual is responsible for his or her own production units and must meet the quality standards agreed upon by all. Each individual has well defined responsibilities in the EAC (marketing, administration, production technologies, relations with clients, and so on).	status among the members, the smaller and poorer members end up making a relatively larger effort to meet certain expenses of the EAC. Also, the system of payment used by the EAC (average net price received in a 15-day period, after discounting the cost of unsold produce) punishes those who can deliver higher quality produce. The appropriation rules followed by the EAC until the crisis (paying the members after 15 days), was not congruent with the conditions of their major client (supermarkets who pay after 60 or more days), and the EAC lacked the resources to fill in the gap on a sustainable basis.
Graduated sanctions for non-compliance with rules	Given the extremely detailed information available to all members about the different aspects of the EAC, the members can usually react almost immediately to any sign of non-compliance. Until now peer pressure has been sufficient to force members to correct their behavior when they have not complied with their obligations or commitments.	While the members are fully aware of who is or is not complying with some of the most important rules, the EAC does not impose sanctions until the infractions are very serious. In those cases, some members have preferred to leave the EAC. The weakened financial position of the EAC has affected its capacity to enforce sanctions as it cannot afford more members leaving the organization.
Participation of members in defining and changing rules	All the members are intimately involved in all significant decisions. Rules are changed routinely to meet changing conditions.	A small group of members shoulders most of the work involved in running the EAC. The majority of members are very passive in the decision-making process. The members formally approved the EAC's bylaws, but the *de facto* rules are decided by management or by those few members who are most involved in management.
Low cost mechanisms for solving conflicts	Given the detailed information that all members have concerning all aspects of the EAC and of each of the members' work, this organization is characterized by what Ostrom (1999) following Levi (1988) calls *"quasi-voluntary compliance"*.	The 1998 crisis shows that this EAC lacked low cost mechanisms for solving conflicts, since nothing was done until the problem exploded with all the consequences that have been described above.
External authorities respect the right of the members to establish their own rules	The members take a very strong position of not allowing INDAP or any other authority to become involved in their decision-making. On many occasions they have rejected offers of external support when they feel they could undermine their independence.	Before the financial crisis of 1998, INDAP usually respected the right of the EAC to run its own affairs. After the crisis, INDAP has taken a much more active role in many of the fundamental decisions of the organization.

CHAPTER 12. EACs FOR PROCESSING AND MARKETING RASPBERRIES

In this chapter I describe three EACs dedicated to the processing and marketing of raspberries for international markets: Golden Berries S.A., Frutas de Guaico S.A. (or Guaicofrut), and Frutas de Romeral S.A. (or Romefrut). As discussed in Chapter 4, raspberries do not figure prominently among the EACs' main crops and enterprises. Only 41 of the 424 EACs that I surveyed were involved in raspberry processing and/or marketing. However, these cases are interesting because raspberries are an almost totally new crop in Chile. In less than 10 years, production and exports have grown to the point where Chile is now the largest producer in the southern hemisphere, agroprocessing facilities have been set up, export firms have been established, technologies have been developed and disseminated, production areas with comparative advantages have been consolidated, etc. We can thus use these case studies to analyze how EACs adapt and function in a climate of very rapid innovation along the whole chain from the field to consumers in the North.

12.1 The context

World production of raspberries increased by about 60% between 1992 and 2000. Total world production is around 400,000 tons, of which Chile contributes about 8%. However, Chile is the only large producer in the southern hemisphere, allowing it to supply the markets in Europe and North America off-season.

Chile's aggressive incursion into raspberry production was motivated by the sharp increase in international prices when civil war disrupted production in the former Yugoslavia, until then the world's most important producer. Chile, a major exporter of fresh fruit for a long time, had the right climate, the expertise and the infrastructure necessary to respond rapidly to this window of opportunity.

Chile exports its production to the European Union (frozen) and to the USA (fresh). Chile's exports represent about 40% of the European Union's imported raspberries, and about 16% of the USA's. Chile's market share grew steadily during the 1990s. There are about 36 industrial firms which process and export raspberries in Chile, two of which control about 61% of the market.

As a result of this market opportunity, Chile's production and area increased from nearly zero in the early 1980s to about 30,000 tons on 7000 ha in the late '90s. As the farmers involved in this crop learned how to manage it, average national yields increased by about 50% in the last decade, and by close to 300% in the most productive regions.

There are around 3,200 farmers involved in raspberry production in Chile. The average size of raspberry plantations per farm is around 2 ha. About 70% of all the producers are concentrated in Regions VII and VIII. Several agroindustries are also present in these zones. Almost all the production is destined for the international market, where prices can be up to $ 6 per kg higher than on the national market. Small farmers play an important role in raspberry production, thanks in part to an early and aggressive support program headed by the regional offices of INDAP in Regions VII and VIII. For example, over one-third of the raspberry production in Region VII, the most important region for this crop in Chile, is controlled by small farmers who are INDAP clients.

From year to year raspberry prices can fluctuate by as much as 300% on the international and national markets, making this a very profitable but very risky product. Growing international competition has imposed high quality standards that producers must meet to remain in the market. Those farmers who can meet these standards can access the fresh or frozen product markets, while those who fail must sell their produce to juice and marmalade factories. The price difference between the fresh, frozen, and juice and marmalade markets, can be as high as 400% and 800%, respectively.

The average cost of establishing one hectare of raspberries is around $ 5,600, while annual production costs run at about $ 7,000. Small farmers can compete basically because they rely on household labor. This is a very important advantage in such a labor-intensive crop, where harvest costs can represent up to 60% of total production costs. In addition, small farmers can supervise the harvest process closely, often allowing them to maintain a high quality product, compared to a medium or large farmer who can easily have hundreds of workers in the fields during harvest.

Another advantage for small farmers is that they can count on subsidies from INDAP to establish irrigation systems; in a commercial farm this makes up about 20% of the initial investment.

12.2 The case studies

12.2.1 Golden Berries S.A.

Golden Berries S.A is a corporation owned by 10 shareholders, themselves EACs with a total membership of 339 small farmers. Each of the 10 EACs which owns Golden Berries is organized around a cold storage warehouse. Golden Berries markets its members' raspberry production as well as that of an additional 247 small farmers who are not members of the shareholding EAC. Its main offices are in the city of Parral, Region VII, about 400km south of Santiago.

A brief history

Golden Berries grew out of a Microregional Development Project, formulated and approved by INDAP in 1995. In the microregion of Bullileo, two private consultant firms were working with 540 small farmers under contract to the Technology Transfer Program. Over 150 of these farmers went into raspberry production with technical support from these advisors and with loans and grants from INDAP. In 1995 the area under raspberries controlled by these farmers represented about 3% of the national total.

I interviewed many of the small farmers who were among the first to start producing raspberries. They told me that until the early 1990s, wheat had been their main crop. However, as Chile began to open its markets to international competition, they found that they could not compete with Argentinean wheat. One of these farmers told me that *"a large farmer with 100 ha or more of wheat, can still make enough money to make a living, even if he only obtains a profit of $ 420 per hectare. But a small farmer, with a maximum of 5 or 10 ha of wheat, cannot expect to survive based on wheat production... we had to find new alternatives, or we would end up having to sell the land so that our children could go to school and have a future."*

By the mid-'90s average raspberry prices had reached a peak of between $ 6/kilo to $ 17/kilo (depending on quality), meaning that a small farmer could generate a gross income of up to $ 70,000 per hectare, close to one hundred times more than what one hectare of wheat could produce.

The idea of planting raspberries had been taken from several large farms who had brought the crop into the region *"One day we would find out that a few raspberry plants had somehow crossed the fences during the night from the large farms and had appeared in our backyard.... this is how we began to learn how to propagate the plants, what diseases affected them, and so on... but we were only learning, because we lacked the money to start growing them on a larger scale."* At the same time, the staff of the private consultant firms working with the small farmers began to learn about the new crop and to start small-scale demonstration and experimentation plots.

In 1993-94 INDAP opened up a credit line to finance small farmers' raspberry plantations. One of them told me that *"as soon as we had the funding available, this spread like a wildfire"*, and in only one year there were dozens of small farmers with a quarter to half a hectare of raspberries.

Several farmers told me that with the support of their advisors and by observing the large farms, they soon learned how to produce raspberries, achieving moderately high yields and good quality, but that

marketing remained an important problem. *"We could not sell directly to the exporters, because we lacked the volume they demanded, so we had to sell through middlemen."* Their bargaining position was very weak, because the produce must be sold the same day it is harvested as it is highly perishable.

The high prices of raspberries in the mid-'90s provided an extremely strong incentive for small farmers to expand their production as fast as possible, but this could not happen without the producers solving their marketing constraints and especially without ready access to cold storage during harvest.

Under the Microregional Development Project, the first five cold storage warehouses were built in 1995, and another five were added the next year. The groups of farmers that made up the EACs controlling each warehouse had formed several years before to participate in the Technology Transfer Program. According to the General Manager of Golden Berries, the second group of warehouses was *"a big mistake"*, since it led to excess cold storage capacity. A better plan would have been to add greater volume to the initial five units. Around half of the warehouses have perennial problems meeting their own costs, given the low amount of raspberries processed and sold by them, relative to the size of the investment and the cost of running the cold storage unit.

Several sources confirmed that the decision to have 10 warehouses was made because each local group of farmers wanted their own unit, and because INDAP did not have the long-term vision to convince farmers that the prevailing high prices would eventually have to fall and that to be profitable each unit would need to work at close to full capacity.

During 1995 and 1996 the Microregional Development Project was coordinated directly by INDAP, who hired a small team of consultants to manage it. These were more accountable to INDAP than to the farmers. INDAP's management of the project soon led to a growing tension between the productive and technological aspects (coordinated by the private advisory firms) and the commercial side of the project (managed by the INDAP consultants). It was unclear who was accountable to whom, and there were frictions between planning, management and implementation. In other words, INDAP had started the project with an organizational design typical of an agricultural development project, and this soon became incompatible with the needs of a business endeavor.

With reference to INDAP's organizational design, one of the Golden Berries board members explained that *"the concept was correct, but it was badly applied. Because of the mistakes in the implementation, several of the warehouses were on the brink of bankruptcy... the optimistic production goals were not achieved, and the quality was also not very good.... the original advisors would come to our farm two or three times per year, and they would spend most of the time in meetings when what we needed was to have them on the farm as frequently as possible... when we had a problem that we did not know how to solve, we would have to wait for them or go to their office, and by the time we had a solution it was too late... they kept working with raspberries the same way they used to do with wheat, but with wheat we knew what to do since we had been planting it since always... with raspberries we were learning and we needed more support, and they [the advisors] just were not up to it."*

One of the Golden Berries board members told me that when they realized the project was not achieving its intended results, *"we began to see that to make it work we needed to take direct control."*[66]

In 1996 INDAP hired a new Coordinator of the Microregional Development Project, who led the transition from the development project organization to the formation of Golden Berries. When the EAC formed in 1996, the Coordinator of the project was hired by the farmers as the General Manager of the firm. Finally, in 1997 the new EAC convinced INDAP to transfer to Golden Berries the funds used to pay the private consultant firms that were providing technical assistance to the farmers. With

[66] Despite these early failures, prices were so high that farmers still ended up with a much higher income than they used to with wheat. Besides, as many told me, the very labor-intensive raspberries meant there was plenty of well-paid work for hundreds of farmers and their families.

these funds, the EAC was able to hire its own technical and administrative staff and establish its own offices.

Organizational set-up

The board of Golden Berries has 10 members, one from each of the shareholding EACs. Golden Berries has 16 paid employees: a General Manager, an Operations Manager, a manager for administration and finances, six administrative staff, and five specialists in charge of providing technical assistance to the farmers.

The main service that Golden Berries provides to its members is to market their raspberries. Golden Berries sells the product to several exporters, although the trend has been to concentrate on fewer clients. The individual farmer is responsible for producing, harvesting and delivering his or her raspberries to the cold storage warehouse, where they are graded according to industry standards, packaged and stored. Golden Berries is informed daily of the amount of product available in each warehouse for the different quality grades, and with this information it negotiates directly quantities, prices and payment and delivery conditions with the buyers.

In each step in this process (farmer to warehouse, warehouse to Golden Berries, Golden Berries to processing and export firm) there is a sales operation. That is, the farmer sells to his or her warehouse, who sells to Golden Berries, who sells to the final client. The EAC has chosen this system because it feels that it stimulates greater efficiency at each link in the chain, and specifically because it avoids having the more efficient (farmer or warehouse) subsidize the less efficient (farmer or warehouse). The farmers also told me that with this system it is much easier to clarify and render accounts: Golden Berries is accountable to each warehouse individually, and each warehouse to each of its individual members. As one of the warehouse managers told me, *"some organizations only know about averages, average costs, average prices... so they end up not knowing if someone is a cat or a rabbit!"*

The second most important service provided by Golden Berries, and one that is highly valued by the farmers, is technical assistance. As with many other EACs, Golden Berries also sells the most important agricultural inputs that its members need, not only for raspberry production but also for their other crops. The EAC also takes care of the accounting of the individual warehouses, who thus share this cost.

Performance analysis

The formation of Golden Berries has solved many of the original problems: technical assistance improved substantially, a fact confirmed by all the farmers that I interviewed: *"the technicians now respond to the General Manager and to the board, and not to somebody sitting in an INDAP office... the technicians have clear goals that they must meet, and these are the same goals that we need to achieve in order to turn out a profit, so production and the economic side are like two sides of the same coin, not like before... when the advisors are hired by the farmers, things go much better, because if we lose money, they don't get paid or they are fired."*

Under the new arrangement, yields and quality improved substantially, and the farmers were able to work with several buyers, so selling their production has never been a problem. However, Golden Berries itself never managed to balance its accounts, as its owners (i.e., the small farmers) always demanded very high prices for their raspberries, leaving the EAC little or no margin to cover its own costs. To many farmers, Golden Berries was a 'service organization' that should continue behaving as before: an organization subsidized by INDAP to provide an almost free service to small farmers. This pressure was strongest from the four or five warehouses that were having difficulties meeting their own costs due to their relative low volumes of operations. A simple analysis showed that at best Golden Berries could expect to generate an annual income of around $ 78,000, but its costs in 1998-99 were around $ 282,000. The gap was financed by INDAP through a series of grants, which by 1999 added up to $ 177,000 per year.

Why did INDAP and the farmers get involved in an investment project that had such a faulty design? One of Chile's top raspberry experts explained to me that *"in 1993-94, few people in Chile and much less in INDAP knew much about raspberries. When they launched these raspberry projects with the small farmers, they were probably afraid of getting involved in the processing and export side of the business because they lacked the technical and managerial know-how. They wanted the small farmers to take advantage of the new opportunity, but they just did not know how to do it right."*

Towards the end of 1999 the board became aware of their EAC's tenuous financial position. However, many board members insisted that it was the duty of the government to supply the necessary funding to sustain the organization, as it was indispensable for small raspberry growers to have this marketing service to avoid falling prey to the middlemen. Other board members and the managers explained to me that the only alternative was to diversify into different income-generating activities, and, in particular, to move several steps ahead in the value-adding chain to become not only a trader but also a processor and, eventually, an exporter of raspberries.

At the same time, by 1998-99, it was becoming quite obvious to many stakeholders and observers that decision-making power was mainly concentrated in the hands of the General Manager of Golden Berries, despite the fact that the board appeared to be quite active and involved in management. On the surface, the board carried out all of its duties, but in fact the General Manager was directing the decision-making process. Several well informed sources (including four members of the board) told me that the board was limited by the small farmers' restricted capacity as corporation directors. The result was an EAC owned by a group of shareholders incapable of controlling and directing a strong external manager.

Over time, the information to the board and to external stakeholders such as INDAP, became less specific and less regular. In May 1999, INDAP requested an external audit of the EAC because the General Manager had not been able to provide sufficient information to justify the use of certain grants. The audit established that a substantial amount of money was missing. The board fired the top three executives of the EAC, and immediately informed the shareholders.

The initial reaction of the members was to put an end to the EAC. Eventually, however, the EACs that make up Golden Berries decided to try to rescue their organization. Since INDAP had stopped the flow of funds to the organization, they approached a commercial bank for a short-term loan to help process the 1999 harvest, and they also obtained an advance payment from one of their main clients, a large exporter. When the EAC secured this fresh funding, INDAP partly resumed its financial support. They hired a new manager and imposed a severe cut in the fixed costs of Golden Berries. They also hired an independent external auditor to help the board supervise the new management.

With this effort, Golden Berries managed to survive for one additional harvest. However, by the end of the season it had become obvious to all that the EAC was no longer viable, and the farmers decided to close it down. Seven of the warehouses have decided to continue working together to market their raspberries. One of the warehouses closed down its own operations and the farmers have either stopped producing raspberries or are back to selling to middlemen. The remaining two warehouses have decided to continue their own operations independently.

12.2.2 Frutas de Romeral S.A.

Frutas de Romeral S.A. (also known as Romefrut) is an EAC with 48 members. It was founded in 1995 by a group of small farmers who the previous year had successfully sold their raspberries together. Romefrut is based in the municipality of Romeral, in Region VII. The great majority of Romefrut's members are beneficiaries of the agrarian reform with a socioeconomic level that is probably above average for Chilean small farmers.

A brief history

The original idea of collective marketing was promoted by one small farmer who had been a technical

advisor for IANSA, a large agroindustrial complex working with small farmers in sugarbeet production. As a technical advisor, this local leader had worked with many of the small farmers who would become involved in this project. Since his establishment as a farmer in the area, he had become a highly respected leader in many local development projects.

Many small farmers in the area started planting raspberries in 1990 and 1991. With the boom in raspberry production, this leader began convincing his neighbors of the need to work together to negotiate with the middlemen. The talks went on inconclusively until 1994, when he and a partner rented a small cold storage warehouse and bought around 300 tons of raspberries from 80 small farmers at a higher price than that paid by the traditional middlemen. This convinced the group that it was feasible to sell their produce together.

The group asked INDAP for support to consolidate their experience. As INDAP was promoting the participation of small farmers in the booming raspberry industry, it very rapidly processed this request and in only a few months the project was approved. Of the 80 initial participants, only 48 decided in the end to join the EAC, while the rest declined to make the contribution to the initial capitalization of the firm (the total cost of the shares per farmer was around $ 4,200, payable over a two year period).

Organizational set-up

Romefrut was conceived as a processing and marketing EAC. Using its own infrastructure, it can participate in all the steps in raspberry processing: it buys the raspberries from its members and any other farmer, large or small, willing to sell; it grades, freezes, packages, labels, stores and sells the raspberries through exporting firms. Almost all the produce is sold frozen (IQF, or Individually Quick Frozen, and block-frozen, depending on the quality of the raspberries), in line with the main trend of Chilean raspberry exports, destined for the European market. Less than 5% is of such poor quality that it has to be sold to the juice and marmalade industry.

The EAC buys the raspberries from its members *"because that is how the market operates... the middlemen pay cash on delivery, and if we want the members to sell their raspberries through us, we have to do the same."*

The EAC also buys berries from other small and medium farmers in the area. Members and non-members receive exactly the same treatment in terms of prices and quality control, but the members receive additional benefits, such as technical assistance and greater access to different public programs which support small-scale agriculture. These include the subsidized installation of irrigation systems. In addition, many of the members I interviewed told me that by the time their children grow up and take over the farms, they will have paid the cost of setting up Romefrut; they think they will be able to pass this EAC on to their children, who, as one of the farmers told me, *"will not have to deal with the* conchenchos *[middlemen] as we used to do."*

In 1999 Romefrut had about 10 main clients to whom it sold its processed product. However, the EAC is gradually reducing its portfolio of clients, as it wants to concentrate on no more than four or five to be able to negotiate better and more stable contracts. The EAC has been very successful in using the 'carrot' of its 60 tons of top-quality berries destined for the very profitable fresh market, to negotiate better prices and payment conditions for its frozen product. The manager of one of the two largest exporters in Chile, who buys from Romefrut, said that *"60 tons of fresh-quality raspberries is an extremely interesting proposition, placing Romefruit amongst our most valuable clients."* In the 2000-2001 season, Romefrut, in association with six other EACs, managed for the first time to export a fraction of its production directly to Europe; this trial was successful and the EACs plan to gradually expand this operation.

In its first three years, this EAC experimented with different management approaches. It was led by two people who had played a catalytic role in the formation of the organization. One was the chairman of the board, and the other acted as general manager of the EAC. Like many other EACs, Romefrut had received a direct grant from INDAP to be used to hire and pay its own management, administrative and technical staff. In addition, the EAC received several long-term loans to buy the

land, build and equip its processing plant. Between 1995 and 1997, the EAC implemented several consecutive investment projects to finish and expand the processing plant, until it was able to process over 1000 tons of raspberries per season.

Performance assessment

Most of the informants I talked to agreed that during the first two or three years the management and administration of the EAC and its investment projects was very deficient. The technical and administrative staff had been selected and hired by the leaders of the EAC, and apparently they lacked the expertise to adequately manage a complex business operation that was moving close to $ 1 million per year. Gradually, the EAC began to lose much of its working capital. This was because it was diverting a growing proportion of its income to finance expansion projects, and also because of a policy of granting generous credit to many members for buying agricultural inputs, which would be paid back after harvest. In addition, in 1996-97 farmers experienced significant difficulties with their raspberries, due to declining prices and unfavorable weather; many of them had expanded the area under raspberries very rapidly, only to discover that they lacked the necessary labor, technical and managerial capacity to maintain the same high yields and quality standards.

During these early years, the grassroots members neither demanded nor received adequate information about the EAC's operations and performance. This was due to their great trust in the capacity of their leaders who had managed to bring them together and to successfully negotiate the necessary support to start the organization and build the processing plant. The leadership gave the members general information, stating that the EAC was doing well, and the members felt confident as they saw the new buildings and equipment growing day by day.

In 1997, INDAP requested an external assessment of the project, with an emphasis on management issues. This study reported severe deficiencies in the management of the EAC: lack of control and weak accounting practices, extremely large amounts of money owed by the members to the EAC for agricultural inputs, large investments in equipment and infrastructure that had never been used, payments with inadequate documentation, and so on. Based on this report, INDAP requested that the EAC find a new manager with the technical expertise required to put the administration in order. The board, with the support of the shareholders' General Meeting, refused. A few months later at the next board elections, several members were replaced by new ones, but the core of the leadership remained in place. The members felt this was a triumph against INDAP's imposition as an external authority: they felt they had the full control of their EAC and they intended it to stay that way.

One year later, during the 1998-99 harvest, the EAC ran out of money and was unable to pay its members for most of the raspberries that had already been delivered, processed and sold. INDAP this time demanded an in-depth audit, which revealed that the EAC had been steadily losing money for several years in a row and, in particular, that it had lost all of its working capital. Within four months of the crisis being brought out into the open, the members made a number of decisions that eventually saved the EAC.

The members' analysis, conducted in a series of meetings, clearly showed that the problem was the result of bad management and not of any inappropriate or dishonest action on the part of the board or the management. Information provided by the external accountants and auditors was key in allowing the EAC members to regain their trust and to decide on a clear course of action. When it became clear that there had been no foul play, the farmers reacted by electing a new board and hiring a new manager. The new board was expanded to seven members so that each geographic sector could directly elect one board member from their local neighborhood. The original leader, who had been the main promoter of the EAC, was also removed. Because of the shortage of funds, they were unable to hire a professional manager, so instead they hired the most highly educated EAC member. However, the members did agree to hire an external consultancy firm which supports the board and the farmers in several aspects of management, administration, accounting and production and quality control. INDAP supported the emergency plan by agreeing to reschedule the loans it had made to the EAC, but it would not agree to throw in any fresh funding.

In addition to these organizational and administrative steps, the 48 members unanimously made an extraordinary contribution of capital by each donating one ton of raspberries. In addition, for the first time they signed individual contracts with the EAC in which each member established a formal commitment to sell a specified amount of raspberries to the EAC during the next season.

Several of the farmers I interviewed explained that the donation and commitment were more than justified by the benefits they derive from Romefrut. In particular, they see the EAC as providing the basic security they require to continue expanding the farm area under berries. *"Each of us has around 1 ha of raspberries, but we all want to get to at least 2 or 3 ha,"* one of the members told me, adding that *"with Romefrut here, we know we can sell all of our production at a fair price... if we had lost the EAC, we would have ended back with the middlemen and under those conditions it would have been much riskier to expand production."*

Several of the members I interviewed told me that after the crisis it was possible to regain members' trust and support, thanks to a policy of clear, detailed, and frequent information from the external advisors and accountants. Before the crisis, the members would meet three or four times a year, but the information they received was very general. Today, the members meet once a month, and most members attend regularly. The external accountant provides detailed information to members at each meeting. A written accounting report is distributed to all the members every three months. All the major decisions, especially those that pass judgment on a fellow member, are now taken by secret ballot.

These measures began to yield results as the EAC made a profit on its operation the following year. However, the EAC does not have enough capital to buy all of its members' harvest. Its contract with each member covers about two-thirds of a farmer's harvest, and the member is free to sell the rest to the middleman. This way, the EAC has a bit more room to delay payment for a few days, as the members receive cash from the middlemen to meet their immediate expenses.

While this system is an innovative and smart solution to a difficult problem, it still leaves the EAC short of the tonnage it must process to start turning a large and stable profit. In 1999 the members had about 76 ha of berries (mostly raspberries, but some had begun diversifying into boysenberries and strawberries) in full production, plus an additional 25 ha that would go into production one or two years later; an area that is more than enough to sustain the EAC. In addition, all of the members I interviewed made it clear that they intended to continue expanding the area under berries through the partial reinvestment of profits[67]. Thus, the EAC has clear potential to become financially stable if it can increase its working capital enough to purchase a higher proportion of its members' harvest. This is a central goal of the current board, management and external advisors.

12.2.3 Frutas de Guaico S.A.

Frutas de Gauico S.A. (also known as Guaicofrut) was established in 1997, after having operated for some time informally. The EAC was formed by 44 small farmers who had been previously working as non-member suppliers of Romefrut.

A brief history

Many of the farmers in the new group had been involved in Romefrut's formation. Several of them told me they had not joined Romefrut because they distrusted economic organizations, mainly because of bad experiences in the early '70s. According to different sources, the farmers who did not join Romefrut tended to have smaller farms and fewer raspberries than those who did agree to form the organization. To the former, the initial capital contribution of more than $ 4,000 was too much.

[67] Even after prices dropped in the mid-90s, most of the farmers I interviewed agreed that in a 'normal year' they could gross at least $ 3,000/ha, which is at least three times more than the next best local alternative. In addition, they explained that with raspberries they could provide almost full time employment for all the family members throughout the year. Finally, since they can now produce their own plants, the initial investment is considerably lower than when they started.

When Romefrut built its processing plant and began its operations, many of those who had not joined changed their mind. However, the owners would not let them in, although the EAC did buy their raspberries. However, the 1997 raspberry harvest in the area was so large that Romefrut did not have the capacity to buy the produce of close to 100 small non-shareholder farmers; as a result, they lost a high percentage of that year's production.

Motivated by Romefrut's example and being aware that they lacked security in marketing their raspberries, part of this group of farmers secured INDAP grants and loans to launch their own EAC. Each of them had to make an initial capital contribution of $ 200 in cash, plus one ton of berries (about half of the farmers who had been involved in the initiative declined to join when they had to commit themselves to this payment). By the next harvest the EAC was organized and had the basic infrastructure and equipment necessary to begin operating.

The new EAC had the advantage of learning from Romefrut's experience, and, as one member of the board of Guaicofrut told me, *"since we are all neighbors we knew well how Romefrut was working, and when we started our project we were able to take those things that we liked and change those that we did not like."*

In particular, the Guaicofrut group, being made up of smaller farmers with fewer raspberries, could exert a more careful control over their crop, and from the start they decided to compete based on producing top quality fruit. *"The members of Romefrut are larger and they have more volume, but they cannot match our quality. Romefrut has had several of its shipments rejected because of poor quality control, and this has never happened to us."*

Guaicofrut was also able to see how much of Romefrut's infrastructure remained underused, so their investment and expansion strategies were much more careful, thus keeping their fixed and financial costs lower.

Romefrut and Guaicofrut have engaged in several activities together. For example, they have financed joint marketing campaigns; have traveled together to other regions and countries to visit raspberry traders, plantations and processing plants; have organized joint training workshops for their members; and have commissioned joint market studies. However, all the Guaicofrut members that I interviewed agreed they would not join with Romefrut in commercial operations because of the differences in quality.

According to several grassroots members that I interviewed, the most important services they receive from the EAC are:

- the security of knowing that the EAC will buy their fruit at a fair price;
- loans to buy agricultural inputs
- the ability to recuperate the Value Added Tax they pay on their inputs (18% of the gross price)
- cash loans to pay labor costs (up to $ 500/ha), and
- access to good quality and specialized technical assistance services.

Guaicofrut also organizes its members' individual INDAP loan applications, thus saving them time and the cost of traveling to the INDAP local office. Finally, Guaicofrut has an active program of social and community activities for members' families.

Organizational set-up

Guaicofrut's board is very well organized; each member has a specific area of responsibility: assessing the applications for credit on agricultural inputs, supervision of accounts, maintenance of the processing plant and equipment, social and community affairs, and so on. The board meets every week, with the General Manager in attendance. Since 1997, there have been two board elections; the last time a new Chairman was elected, together with several younger EAC members, part of an

explicit policy of encouraging the younger members to take on greater responsibilities. The board has the authority to decide on each and every contract with potential clients, and the General Membership meeting decides on any significant investment, as well as on the general conditions of all the commercial and financial transactions between the EAC and the members.

There are two General Membership meetings per year; one meeting is dedicated to an in-depth analysis of the results of the previous season, and the other to issues such as defining the price, quality, delivery and payment rules for the next season, or defining criteria for auxiliary services like technical on-farm support, or the credit program for agricultural inputs. External informants who are familiar with Guaicofrut told me that there is always a frank debate in the General Membership meetings, and that open but respectful criticism of the board, management or individual members is frequent and well accepted. One of the members of Guaicofrut, who has a technical degree, is the EAC's paid General Manager.

After several years of work, the General Assembly mandated the board to revise the EAC's internal bylaws. One board member explained to me that *"the initial bylaws were written by a lawyer, and we just accepted them... over time we have devised our own rules, and this time the bylaws will be tailored to our own specific needs."*

The EAC has always been careful to keep all its administration and finances in order. In our conversations, the board members emphasized the importance of their decision to hire an expensive external accounting and auditing firm: *"if you want to go into a project like this, you have to be willing to invest in having good information and good accounting services, otherwise you are blind."* The EAC has always paid its loans promptly, and is very careful in assessing each member's application for loans for agricultural supplies, charging a reasonable interest rate: *"there is no use being generous today if we cannot have the results that will let us continue providing the same support tomorrow."*

During the first years, the EAC insisted that all members sell all or most of their harvest through the EAC. In a meeting with the board, I was told that thanks to on-farm visits by the technical advisors (twice weekly), they always have a very good idea of how much fruit each member is likely to harvest, and, in addition, *"we are all neighbors and our farms are next to each other, so it is impossible for one member to sell to the middleman without the rest knowing about it."* To prevent members from selling too much of their production to the middlemen, they established a number of rules, such as linking the credit for agricultural inputs to the delivery of the fruit. But, as the EAC developed, they now think that these rules are less important: *"the members sell to us most of their production because we are doing well and we pay good prices on time.. if we were having problems, we could have all the rules in the world and it would not make any difference."*

The manager adds that the EAC's price policy is to pay the highest possible price that will let the EAC meet its own costs, pays its loans, and finance its new investments: *"the members know perfectly well that until we finish paying our loans, we cannot transfer all of our profits to the members via the price we pay for their product. We know that this will come in time, but first we must lay firm foundations."*

The overall price policy for each season is set at the General Assembly before the harvest starts. The external accountant and the manager first inform the members of the EAC's financial needs for covering its loans and costs. Then the members decide on a profit target for the EAC. This information is then translated into a reference price, based on the available information on international prices at that time. The manager uses the Internet daily to monitor the international prices of raspberries during the harvest season, to help calculate the actual price it will pay to member and non-member suppliers. The grassroots members told me that the actual prices they receive are similar to those paid by the middlemen, but they feel this is because they are still paying off the large investments needed to set up the EAC. During the harvest and marketing season, each member receives a written statement twice a month with a detailed explanation of the amount delivered, results of the quality controls of his or her production, gross price, discounts to pay back any outstanding personal loans, and net total price.

Performance analysis

Small price increments have been possible over time as the EAC has managed to raise the volume of operations while maintaining costs, and, in particular, because the EAC has always placed a great emphasis on making investments that allow it to add more value to the product before selling it. In 1996-97, the EAC was only capable of collecting 200 tons in cold storage chambers and negotiating the sale collectively; in 1997-98 it was able to freeze a small share of the produce, and it made its first direct export to England (45 tons or about 15% of production). One year later it processed all the produce and directly exported 150 tons (40% of the total production) to Canada, the USA and different European countries. In 1999-2000, its plans included increasing production by about 60%, processing all of it before selling it, and exporting at least 80% of the stock directly. In the year 2000, the EAC took out a loan with a private bank for equipment for processing vegetables.

12.3 The raspberry EACs' performance and impacts

In this section I will describe and analyze the economic and financial performance of these three EACs, as well as examining their impacts on their members' farms and households.

12.3.1 Economic and financial performance

Table 12.1 shows that in 1998 all three EACs were in a delicate economic and financial position.

Table 12.1 Economic and financial performance of three raspberry processing and marketing EACs

Item	Golden Berries 1998	Romefrut 1998	Guaicofrut 1998
Total revenue ($)	1,589,916	1,161,844	609,654
Total expenses ($)	1,589541	1,238,892	586,529
Net result ($)	- 176	-77,048	23,125
Total assets ($)	552,300	930,321	610,555
Current assets ($)	543,266	296,546	336,542
Noncurrent assets ($)	9,034	633,775	274,013
Total liabilities ($)	516,040	823,957	585,953
Current liabilities ($)	489,748	145,791	130,349
Noncurrent liabilities ($)	26,293	678,167	455,603
Net assets ($)	36,260	106,364	24,603
Grants from government ($)	293,846	31,534	31,534
Net result/total revenue	-0.001	- 0.07	0.04
Total liabilities/total assets	0.94	0.89	0.96
Operational capital (current assets – current liabilities) ($)	53,518	150,756	206,193
Liquidity (current assets/current liabilities)	1.11	2.03	2.58
Dependency (grants/total revenue)	0.19	0.03	0.05

In the case of Romefrut, 1998 was the year when it incubated the financial crisis that exploded a few months later, in April-May 1999. We can see that the EAC was losing a substantial amount of money, at a rate that was rapidly depleting its working capital. The EAC reached this point because of its

policy of very rapidly expanding its processing facilities, while at the same time working with volumes of raspberries that were 50% below its full processing capacity. This policy was, in turn, the result of very flawed management decisions, taken by a board and management controlled by small farmers who simply lacked the expertise to plan and implement a more sensible development strategy.

Guaicofrut is the only one of the three EACs that had positive results in 1998, although it was facing a very high level of indebtedness. However, most of the debt was long-term and the organization was able to meet its financial obligations on time and in full. Again, this EAC's fragile position was partly due to its low levels of operations relative to its processing capacity, as well as to the maintenance of a number of expensive technical assistance and credit services that put a heavy strain on its finances. In contrast with the other two EACs, Guaicofrut's board and management were always more conservative when it came to deciding on new investments and new lines of work. In particular, its tradition of setting up a raspberry pricing policy that gave priority to meeting its own obligations, meant that value-adding was the only way it could balance its own economic and financial obligations with the need to pay competitive market prices for its members' raspberries.

One common negative element is the high debts of these three organizations, ranging between $ 500,000 and $ 825,000. Golden Berries' situation is particularly vulnerable as almost all of its liabilities are short-term, while Romefrut and Guaicofrut have to deal with mostly long-term loans taken to build and equip their processing plants.

Romefrut and Guaicofrut have low dependency on government grants, while Golden Berries essentially was still alive thanks to the very high rate of support from INDAP, allowing it to meet a fifth of its total expenses.

12.3.2 Impact on members' farms and households

Household and farm income

Table 12.2 shows that there are no significant differences between the income and income composition of the members and non-members of Romefrut and Guaicofrut.

In the case of Golden Berries, however, the differences are important, as members have significantly higher total household and farm income than non-members. The Golden Berries data in Table 12.2, combined with those in Table 12.3, show how an EAC can improve its members' well-being and the profitability of their farms, and at the same time go bankrupt in part because of the unreasonable or unsustainable magnitude of that impact.

Table 12.3 shows that in all cases EAC members have a much greater area under raspberries than non-members. From my interviews and meetings, I think there are two reasons for this. Firstly, members have privileged access to credit; necessary for expansion in such an expensive crop. Secondly, as members told me time and again, they feel that being part of the EAC lowers the risks involved in marketing this highly perishable crop, and thus they can risk producing a higher volume. In other words, EAC participation creates both an incentive to grow more raspberries, and delivers the resources required to respond to that incentive. In addition, EAC members repeatedly told me how much they valued the fact that with a larger area under raspberries, they could provide more on-farm work for family members. This is confirmed by the data in Table 12.2, which show that between one-fifth and one-third of the direct costs of raspberry production are represented by family labor and should thus be added to the annual household income.

Table 12.2 Average income and income composition, Golden Berries, Guaicofrut and Romefrut (1999-2000 agricultural season, $)

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Net hh income	13,230	8,709	11,178	12,552	12,035	12,546
Earned net hh income	10,578	4,651	9,632	11,917	11,338	11,911
Unearned net hh income	2,652	4,059	1,547	635	697	635
Non agricultural net income	681	1,551	1,932	4,759	2,690	4,759
Farm net income	9,898	3,100	7,700	7,158	8,873	7,152

Table 12.3 Average economic results of raspberry production, Golden Berries, Romefrut and Guaicofrut (1999-2000 agricultural season)

Variable	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Gross income ($)	4,697	1,001	14,402	7,390	10,993	7,385
Direct costs ($)	3.945	770	9,080	3,926	5,011	3,935
Cost of family labor ($)	1,366	392	1,655	738	931	740
Gross margin ($)	751	231	5,322	3,464	5,982	3,450
Gross margin per hectare ($/ha)	951	1,050	2,801	3,981	4,097	3,966
Total production (kg)	4,987	1,230	13,868	7,794	11,173	7,789
Percentage fresh quality	5.1	10	6.2	3.2	3.3	3.2
Percentage IQF quality	0	0	79.7	77.1	70.4	77.1
Percentage block	5	2	12.4	14.7	24.7	14.7
Percentage pulp	3.2	9.9	0.1	0	1.2	0
Percentage ungraded harvest	88.1	79	1.2	5	0.5	5
Yield total (kg/ha)	6,313	5,595	7,299	8,959	7,653	8,953
Average price ($/kg)	0.94	0.81	1.04	0.95	0.98	0.95
Crop area (ha)	0.79	0.22	1.90	0.87	1.46	0.87
Production sold through EAC (%)	97	0	71	0	82	0

Apparently there is a cost to be paid for this expansion, as members tend to have significantly lower yields than non-members. As anyone familiar with raspberries knows, managing 1.5 or 2 ha well is a difficult undertaking, especially if one considers that these farmers have only been involved with this crop for around five or six years.

However, in terms of quality - an extremely important variable in this crop - there are no large differences between members and non-members. Both the members and non-members in the Golden Berries area sell most of their crop *"all barrer"*, that is, as an ungraded lot. This is because they lack the processing and value-adding facilities that would allow them to meet all the quality grades recognized by the industry. As a result the prices received by the Golden Berries members are between 5% and 19% lower than those obtained by the members of the other two EACs.

An extremely interesting finding is revealed by analyzing the price differentials between members and non-members across the three EACs: they are 16%, 10% and 4% for Golden Berries, Romefrut and Guaicofrut, respectively.

For Golden Berries, there is little doubt that this huge bonus over the market price is mainly responsible for the EAC's bankruptcy, as no business in a market as competitive as raspberries, can afford to pay prices that are so much higher than the market price. This is especially true when Golden Berries is not adding much value through processing or directly exporting its raspberries. The same can be said, more or less, for Romefrut, although with an important difference of magnitude; the external audits of this EAC make it clear that the firm was paying prices that it could not sustain financially.

Only in the case of Guaicofrut do the price differentials begin to make sense, as this EAC was not only processing all of its fruit, but was also exporting most of its produce directly, and was thus more capable of capturing a higher share of the final consumer price and transferring it to the members.

Access to technical assistance and credit

All of the farmers (members and non-members) sampled as part of these three case studies have access to technical assistance services. In fact, most of them receive this type of support from more than one source, and the only difference is that EAC members get advice from more sources than non-members (Table 12.4). One important difference is that members tend to pay for some of the technical advice they receive, while most of the non-members only get free advice.

Table 12.4 Access to technical assistance services, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Tech. assistance from EAC	96.7	0	100	0	100	0
Tech. assistance from government	16.7	0	80	100	100	100
Tech. assistance from university	0	0	33.3	0	0	0
Tech. assistance from NGO	3.3	0	0	0	0	0
Tech. assistance from private firm	56.7	53.3	50	100	100	100
Tech. assistance from other org.	3.3	0	33.3	0	0	0
Tech. assistance from private advisor	6.7	0	0	0	0	0

One very important difference between members and non-members in the three case studies is that the former have more access to short and long-term loans, from INDAP and other commercial sources, and the amounts they receive are also significantly higher. Only a small minority of the non-members has access to short-term loans, and none of the non-members included in my samples received long-term financing; this is obviously a very serious constraint to participation in a perennial and expensive crop like raspberries (Table 12.5).

Table 12.5. Access to credit, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES				ROMEFRUT				GUAICOFRUT			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	N°	$	N°	$	N°	$	N°	$	N°	$	N°	$
Total loans	16	1,384	4	972	11	4,908	2	652	7	2,970	2	652
Short term loans	11	1,069	4	972	4	1,493	2	652	5	2,813	2	652
Long term loans	9	1,154	0	0	9	4,868	0	0	2	3,364	0	0
INDAP loans	15	939	4	972	10	3,456	1	1,051	3	1,787	1	1,051
State bank loans	1	631	0	0	1	1,682	0	0	0	0	0	0
Private bank loans	0	0	0	0	0	0	0	0	1	4,205	0	0
EAC loans	0	0	0	0	1	2,102	0	0	2	631	0	0
Agroindustry loans	1	694	0	0	0	0	0	0	1	9,460	0	0
Commercial loans	0	0	0	0	1	505	1	252	1	505	1	252
Other sources of loans	1	1,051	0	0	0	0	0	0	0	0	0	0

Technology adoption

The differences between members and non-members in the adoption rates of a set of different technologies are not as large in these three cases as in those analyzed in the previous case studies chapters. This is true both for production, marketing and farm management technologies and methods. We have seen that almost all these farmers have access to technical assistance services, and all of them have been involved in commercial agriculture for at least 20 or 30 years. The fact that they have chosen to diversify into a new and risky crop such as raspberries, is in itself a sign of the disposition of these farmers to innovate (Tables 12.6 and 12.7).

12.4 Explaining the performance differences

In this section I explore the relationship between the performances of these three EACs and of the members versus the non-members, and the different characteristics of the individuals, households, and organizations.

12.4.1 Farmers' assets

There are no large differences between these groups of farmers in terms of their human capital, access to land, or the value of other physical assets, although the members of Guaicofrut and Romefrut tend to be slightly better off than their control groups.

Household characteristics

There are no significant differences between members and non-members, or between the three case studies, in terms of the characteristics of the individuals and their households: age, education, household size and so on (Table 12.8).

One interesting observation is that these households tend to be larger than those of the potato and milk producers in the south. Because of their location in a dynamic region that offers more off-farm employment opportunities, and also because of the higher labor intensity and profitability of their own

Table 12.6 Technological changes implemented in past five years, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Crop diversification	73.3	33.3	83.3	62.5	58.3	62.5
Contract agriculture	36.7	6.7	53.8	25	50	25
Marketing of inputs of products	70	13.3	66.7	37.5	66.7	37.5
Irrigation and drainage	50	40	58.3	62.5	33.3	62.5
Machinery and equipment	43.3	13.3	66.7	50	58.3	50
Buildings and infrastructure	30	33.3	75	37.5	33.3	37.5
Crop varieties and seed quality	83.3	33.3	81.8	50	45.5	50
Use of fertilizers	53.3	35.7	66.7	50	66.7	50
Weed control	70	53.3	66.7	75	75	75
Insect and disease control	70	60	66.7	85.7	63.6	85.7
Cattle breeds	29.2	15.4	44.4	60	28.6	60
Reproduction of cattle	25	7.7	42.9	0	28.6	0
Sanitary management of cattle	45.8	30.8	57.1	40	42.9	40

Table 12.7 Farm management practices, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Legally registered farmers for fiscal purposes	96.7	73.3	75	62.5	90.9	62.5
VAT accounting and filing	100	73.3	100	83.3	100	83.3
Costs and income records	30	6.7	41.7	37.5	58.3	37.5
Holds a bank account	30	6.7	8.3	12.5	8.3	12.5
Legalized land titles	63.3	40	100	100	100	100
Legalized water titles	80	96.7	87.5	100	88.9	100

farming systems, these households apparently are more capable of retaining their younger members, as seen, for example, in the higher number of household members who are between 19 and 30 years of age.

Table 12.8 Household composition, Golden Berries, Guaicofrut and Romefrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Members of household	5.6	5.1	5.8	6	5.2	6
Female members	2.3	2.4	2.3	3	2.8	3
Male members	3.3	2.7	3.6	3	2.3	3
Members 0-12 yrs.	1.1	0.9	1.2	1	0.9	1
Members 13-18 yrs.	0.3	0.4	0.8	0.5	0.6	0.5
Members 19-30 yrs.	1.7	1.3	1.3	2.5	1.3	2.5
Members 31-45 yrs.	1	1.1	0.7	0.6	0.8	0.6
Members 46-65 yrs.	1.2	1.1	1.3	1.1	1.2	1.1
Members 66+ yrs.	0.3	0.3	0.5	0.3	0.3	0.3
Schooling members 7 yrs or +	6.4	5.6	6.3	7.7	6.7	7.7
Schooling members 15 yrs or +	6.5	5.7	6.8	7.7	7	7.7
Schooling members 19-30 yrs or +	8.7	8.5	6.4	10.3	7	10.3
Schooling members 31-45 yrs or +	6.1	6.1	3.7	1.1	3.6	1.1
Schooling members 46-65 yrs or +	5.4	3.9	4	1.9	2.7	1.2
Schooling members 66 yrs or +	2.4	1	0.4	0	0.3	0
Schooling of head of hh	4.3	3.3	5.8	4.6	3.8	4.6
Schooling of spouse	4.8	3.7	4.8	1.5	4.1	1.5
Schooling of sons/daughters	6.9	6.1	7	7.5	8	7.5
Schooling of other members of hh	1.5	2	1.3	3.1	1.2	3.1
Schooling female members of hh	6.4	5.1	5.5	5	2.7	3.5
Schooling male members of hh	5.7	4.9	6.3	7.4	3.3	4.2
Age of head of hh	56.3	56.7	53.8	53.8	51.5	56.7
Age of spouse	42.8	44	48	44.8	40	42.3
Age of sons/daughters	27.9	25.1	16.5	18.4	19.8	20.1
Dependency ratio	0.4	0.5	0.6	0.4	0.6	0.6

Physical and financial assets

The members of Golden Berries and Guaicofrut have larger farms than non-members, although the differences are not very important. As is common in this region, all the farms are almost fully irrigated (Table 12.9).

The total value of the capital assets of members of Romefrut and Guaicofrut tends to be slightly higher than non-members; these differences reflect the greater value of the land, buildings and infrastructure, and machinery and equipment. However, the differences are not that large (Table 12.10).

Table 12.9 Land assets, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Land owned by hh (ha)	17.34	12.77	7.54	9.22	13.88	9.22
Land taken by hh, shareholding (ha)	0	0	0.65	0.06	0.08	0.06
Land taken by hh, rental (ha)	1.64	0	0.33	0.19	0.45	0.18
Land taken by hh, other contracts	0.19	0	0.89	1.93	0.14	1.93
Land let by hh, shareholding (ha)	0.38	10	0.12	0.37	0.45	0.37
Land let by hh, rental (ha)	0.28	0.73	0	0.12	0.02	0.12
Land let by hh, other contracts (ha)	0.28	0.13	0.06	0.04	1.41	0.06
Land under management by hh (ha)	18.32	11.04	9.25	10.85	12.67	10.85
Irrigated land under management by hh (ha)	3.34	1.46	4.99	3.75	6.05	3.75
Irrigated land owned by hh (ha)	9.55	10.53	7.33	8.66	10.87	8.66

Table 12.10 Fixed and quasi-fixed assets, Golden Berries, Romefrut, Guaicofrut ($)

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
Value of buildings and infrastructure	15,018	12,071	19,929	15,401	13,784	15,626
Value of machinery and equipment	14,188	4,785	12,578	4,572	9,464	4,572
Value of land owned by hh	91,709	84,082	85,028	74,268	111,016	73,861
Value of livestock	3,771	910	1,980	1,882	2,691	1,856
Total value of physical assets	112,727	115,132	118,138	93,967	133,560	93,731

Almost all the households are located within one or two kilometers of a main road, which in the three cases are paved highways to the towns of Parral (Golden Berries) or Romeral (the other two EACs), or to the major cities of Talca (Golden Berries) or Curicó. These farmers definitely do not have transportation or communication problems.

12.4.2 Social capital

As in the previous case studies, I will discuss the role of social capital in terms of participation in rural organizations, social norms that foster cooperation, systems of rules within the EAC, and participation of the EAC in larger networks.

Participation in community and economic organizations

Overall, the members of these EACs participate more than non-members in other economic and community organizations. In addition, they tend to hold leadership positions in these other organizations to a greater extent than the non-members (Table 12.11).

Table 12.11 Participation in development projects and organizations, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES		ROMEFRUT		GUAICOFRUT	
	Parts.	Non-parts.	Parts.	Non-parts.	Parts.	Non-parts.
	Yes %	Yes %	Yes %	Yes %	Yes %	Yes %
Organizations or projects with economic objectives						
Irrigation or drainage	36.7	33.3	8.3	0	8.3	0
Marketing products or purchasing inputs	63.3	6.7	33.3	12.5	50	12.5
Soil conservation and pasture improvement	10	6.7	33.3	12.5	16.7	12.5
Storage of products	20	0	0	0	25	0
Youth	10	13.3	0	0	16.7	0
Women's	6.7	20	0	0	0	0
Trade Association	17.2	0	8.3	12.5	8.3	12.5
Cooperative	43.3	20	0	0	0	0
Held leadership position in any of the above	43.3	13.3	50	12.5	16.7	12.5
Organizations or projects with social development objectives						
Neighborhood committee	6.7	20	66.7	37.5	50	37.5
Sports, culture and recreation	43.3	33.3	41.7	25	43.3	25
Housing or local improvement	13.3	6.7	50	25	58.3	25

In the case of Golden Berries, there are very striking differences of opinion between the members and non-members about the perceived costs and benefits of participating in economic organizations. The non-members almost unanimously agree that an economic organization cannot have any sort of economic or social benefit. A large majority of the members, on the other hand, agree that a number of benefits are likely, although more in the social (e.g., improved relations with neighbors, better quality of life for women), rather than the economic, sphere (e.g., improved marketing and better prices). The members of Golden Berries identify the same costs already highlighted in most of the other case studies: higher debts, having to pay membership fees, and the EAC taking a share of the price paid by the buyers of their product (Table 12.12).

In the cases of Romefrut and Guaicofrut, most members and non-members have a very positive opinion of the benefits, both social and economic, that can be derived from participating in an economic organization. Their opinion is particularly strong - compared to many of the other case studies, including Golden Berries - when it comes to the benefits of participation on prices, marketing, lower production costs, crop diversification, etc. The members and non-members of these two EACs identify the same costs already noted by the members of many of the other case studies: higher debts, higher risks, and membership fees (Table 12.12).

Table 12.12 Perception of costs and benefits of participating in EAC, Golden Berries, Romefrut and Guaicofrut

INDICATORS	GOLDEN BERRIES				ROMEFRUT				GUAICOFRUT			
	Parts.		Non-parts.		Parts.		Non-parts.		Parts.		Non-parts.	
	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %	Not True %	True %
Benefits												
Improved household income	43.3	43.3	60	26.7	20	60	20	60	10	80	10	80
Improved yield and production	16.7	56.7	73.3	6.7	20	60	0	0	0	90	0	0
New crops and livestock	33.3	60	93.3	6.7	20	80	0	100	50	50	0	100
Improved marketing and products	33.3	46.7	93.3	0	0	80	0	100	0	100	0	100
Improved prices of products	40	43.3	80	6.7	0	70	0	100	0	50	0	100
Lowered production costs	43.3	36.7	86.7	0	50	10	100	0	60	40	100	0
Farm improvements	46.7	53.3	73.3	20	50	40	0	100	44.4	55.6	0	100
Improved quality of life for family	23.3	60	80	13.3	10	90	0	100	0	90	0	100
Improved quality of life for women	26.7	66.7	66.7	20	10	90	0	100	0	100	0	100
Improved quality of life for youth	43.3	46.7	80	13.3	20	70	0	100	0	77.8	0	100
Optimistic view of the future	33.3	60.	60	20	0	60	0	100	10	60	0	100
Improved relations with govt. agencies	40	43.3	93.3	6.7	0	50	0	0	11.1	55.6	0	0
Improved relations with municipal govt.	43.3	36.7	86.7	6.7	40	30	100	0	20	50	100	0
Improved relations with neighbors	10	73.3	53.3	26.7	10	70	0	100	0	100	0	100
Doing better as small farmers	20	53.3	73.3	6.7	0	80	0	100	0	88.9	0	100
Costs												
Incurring debts	26.7	70	80	20	0	100	0	0	20	70	0	0
Membership fees	13.3	86.7	86.7	13.3	20	80	100	0	20	70	100	0
Greater risks in agriculture	23.3	53.3	53.3	20	10	60	0	100	20	40	0	100
Loss of time in meetings	33.3	56.7	73.3	26.7	0	80	0	100	40	50	0	100
Share of product prices taken by org.	26.7	66.7	73.3	13.3	60	40	0	100	40	50	0	100
Worsened relationships with neighbors	76.7	10	100	0	60	10	0	100	80	10	0	100
Some take advantage of others	46.7	46.7	66.7	26.7	10	80	0	100	33.3	55.6	0	100
Less trust in the future	40	43.3	73.3	13.3	60	20	0	100	55.6	22.2	0	100

The turbulence that Romefrut went through one year before this survey is revealed by both the members and non-members agreeing, almost unanimously, that two of the costs of participation are having to spend time in a lot of meetings (Romefrut was having two or three meetings per week for three or four months during the crisis), and that some of the members take advantage of others (presumably related to the fact that the external audit revealed that around 15 or so of the members,

those with closest ties to the original Chairman of the board and the first manager, had accumulated unpaid loans from the EAC for almost $ 105,000) (Table 12.12).

In summary, there are important differences of opinion between the three case studies about the costs and benefits of participation. The members of Guaicofrut and Romefrut are very positive about the economic and social benefits of participation, while Golden Berries' members underline only the social aspects. Romefrut members identify several unusual costs related to the crisis their EAC went through, while the members of Guaicofrut and Golden Berries identify those costs already seen in most of the other case studies: debts, risks and fees.

Norms that foster cooperation

There are no large differences between members and non-members, or between the case studies, in terms of how the farmers view issues such as trust and reciprocity (Table 12.13).

In the three cases, large majorities of both members and non-members tend to think that nowadays it is easier to work collectively than 10 years ago, that economic and social organizations are always or almost always beneficial, and that their families have benefited from participating in economic and social organizations.

However, large majorities in all groups also think that most people only care for themselves and that they will try to take advantage of the rest. The only area in which there is some difference between the members and non-members in the Guaicofrut and Golden Berries case studies, is that a majority of the non-members plainly say that you cannot trust most people.

In my long talks with leaders and grassroots members, as well as with many unorganized farmers in these three areas, I always got the impression that these farmers approached the EAC from a very utilitarian point of view. Time and again, many of them would talk about the need to be vigilant about the behavior of others, including the leadership, the other members and the management staff. Unlike some of the potato and milk case studies, I never had the sense that I was in the presence of a trustful community, and, on the contrary, it appeared that the members of these three EACs worry that it is likely that others will try to take advantage of them if they can.

In short, there is no evidence whatsoever that the members of these organizations have more or less trust in their neighbors and their partners in the EAC than the non-members.

Networks

There are very significant differences in the networks which surround these three EACs. I will argue that Golden Berries is an example of an EAC with very weak, often non-existent, links with many of the agents crucial to the development of a robust economic organization. Guaicofrut represents the other pole, having invested in building strong and effective links with other agents. Romefrut is in some ways similar to Golden Berries, and in others it is closer to Guaicofrut, although one can see a difference before and after its financial crisis in 1998-99.

First of all, Guaicofrut and Romefrut are embedded in a specific rural community, so that the members interact with each other not only in the EAC but in a large number of social and community organizations, and in many cases belong to the same extended families. This facilitates a more intimate knowledge of the behavior of each individual in areas that have a direct effect on the EAC, such as their complying with the rule of not selling a large proportion of their harvest through middlemen, or their capacity as leaders. Similarly, these two EACs dedicate important resources to local social activities. Finally, the political leverage and the human resources of these EACs are used to negotiate with local authorities for community benefits, such as improving the local roads, schools or health centers.

This embeddedness of an EAC in a local community can bring benefits to both, but it can also have negative effects. For example, the internal conflicts that Romefrut has gone through have affected

Table 12.13 Trust, cooperation, reciprocity and view of the future, Golden Berries, Romefrut and Guaicofrut

QUESTION	GOLDEN BERRIES				ROMEFRUT				GUAICOFRUT			
	Participants		Non-participants		Participants		Non-participants		Participants		Non-participants	
Ease of organizing with neighbors, compared to 10 years ago	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %	More Difficult %	Easier %
	23.3	50	20	60	8.3	83.3	0	62.5	8.3	91.7	0	62.5
Household's degree of participation in organizations compared to neighbors	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %	Less %	More %
	16.7	30	46.7	20	41.7	25	37.5	0	8.3	33.3	37.5	0
Community and farmers' organizations are useful	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %	Never or Almost never %	Always or Almost Always %
	13.3	76.7	13.3	80	0	100	25	75	0	91.7	25	75
For you and your family, participation in organizations is:	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %	Waste of time %	Beneficial %
	6.7	70	13.3	53.3	0	75	25	50	0	91.7	25	50
Farmers' and community organizations benefit...	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %	Only a few or none %	The majority %
	40	56.7	33.3	40	53.8	41.7	50	50	50	50	50	50
Can you trust most people?	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %	No %	Yes %
	50	40	73.3	13.3	58.3	33.3	62.5	12.5	41.7	50	62.5	12.5
Most people...	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %	Only care for themselves %	Try to help others %
	76.7	13.3	86.7	13.3	75	25	75	25	91.7	8.3	75	12.5
Most people...	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %	Take advantage of others %	Try to be fair %
	60	26.7	53.3	26.7	66.7	16.7	62.5	25	66.7	25	62.5	25
Has your situation as small farmers compared to 10 years ago...	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %	Worsened %	Improved %
	23.3	60	26.6	46.7	0	100	0	87.5	8.3	91.7	0	87.5
In the next 10 years, will your situation as small farmers...	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %	Worsen %	Improve %
	20	43.3	13	46.7	0	66.6	0	75	0	74	0	75

local community cohesion; many farmers explained that since Romefrut's financial crisis there are now two camps within the community and the EAC, one of them aligned with the original leadership displaced after the crisis, and the other with the new leaders.

Golden Berries is a different story. Here the 10 warehouses that make up the EAC are spread over a relatively large area. Moreover, since Golden Berries is a second-tier organization, the grassroots members of the 10 warehouses rarely interact directly, since even in the General Shareholder meetings they are represented by only one or two members. Each of the 10 first-tier organizations which make up Golden Berries, however, is part of a single rural community, and at that level there are similar social interactions as in Guaicofrut and Romefrut. However, there are only very weak links between Golden Berries itself and the rural communities from which the individual grassroots members come.

Perhaps this is why the leadership and management of Golden Berries was left to the professional staff. The top managers were widely admired by both the farmers and INDAP for being the type of modern, well-trained managers that supposedly could lead an EAC trying to work in a complex market environment. However, the distance between the members and management was so large that there was no way in which the latter could be monitored, controlled or directed. The farmers of Golden Berries - and INDAP - paid dearly for this decision to rely so much on their well-trained and ambitious managers!

Golden Berries was not only a weak social organization, but it also functioned in a way that distanced its grassroots members from market agents and market signals. It used INDAP's generous subsidies and grants to try to alter the market trends and signals, for example, by strongly subsidizing the net prices received by the farmers. The EAC could sustain this strategy for about three or four years, and there is no doubt that in the short-run the grassroots members profited tremendously. But the distortion was so large that Golden Berries was unable to survive the crisis.

In my talks during and after the crisis with many grassroots members and leaders, I often heard arguments that revealed that, ultimately, they did not feel that Golden Berries was indispensable to them as raspberry producers. Since they still had the 10 local cold-storage warehouses, each group felt that they could still organize and manage the marketing of their raspberries. Moreover, leaders and many of the members of the five or six warehouses that were showing good results, actually felt that they would gain by getting rid of the other local groups. Some even told me that they would actually profit from the fall of Golden Berries, as the members of the weaker warehouses in the long run would end up selling their raspberries to them.

In short, both from the point of view of the social interactions among the members and of the relationship with market agents, Golden Berries proved to be an artificial organization, making little sense either from an institutional, economic or financial point of view. The members of Guaicofrut have strongly supported a policy of increasing integration in the value-adding chain of the raspberry national and international markets. Guaicofrut's interaction with market agents and market trends has been based on trying to build and exploit a competitive advantage that can be sustained without external support. Whilst they have not fully managed to achieve this goal, and the EAC no doubt has been dependent on public programs for funding its projects, the basic logic of their decision-making is clearly in this direction. To this end, they have been willing to explicitly sacrifice short-term gains, as for example when setting their price policy prior to each harvest. They have put considerable energy into building close ties with specific market agents, as they understand that they cannot proceed with their strategy without these relationships, especially if they are going to consolidate their capacity to export directly, thus bypassing the large commercial firms that dominate this market.

Guaicofrut has also built close links with other EACs in order to reach the international markets. It is loosely associated with other economic organizations in Region VII that are also engaged in raspberry processing and export. It has been very careful in selecting its partners, choosing only those that it feels can fulfill their obligations in terms of top quality, volume and timeliness of delivery. For this reason, it has avoided working with Romefrut.

Guaicofrut has also established working relationships with a wide range of individuals and

organizations that can provide specialized technical expertise. In contrast with Romefrut, from the start it contracted an external firm to help it with their accounting systems, in order to have permanent access to detailed information about their administration and finances. It has taken care to set up a strong technical department to give on-farm advice and support to the members, as they understand that the results of their collective activity are largely determined by what happens before the raspberries arrive at the processing plant. Finally, it has contracted, on a long-term basis, the services of some of the top Chilean experts on the raspberry international market, since members know that exporting directly requires making use of highly specialized skills. As they say, they have always been willing to *"pay expensive advisors"* and they make no pretence of thinking that they can ride these rough waters alone, as Romefrut tried to do during its first years.

However, these advisors and experts clearly do not dominate Guaicofrut's decision-making process. They explain the standards that the EAC and the farmers have to meet, based on the requirements of the international markets. With that information, the members of the EAC can decide how fast they want to approach specific goals (e.g., exporting directly or indirectly through other firms; diversifying into new berry crops to counterbalance the declining prices of raspberries; starting to process vegetables to reach totally new markets and make better use of their installed processing capacity; or setting minimum acceptable shares of the harvest that each member must sell through the EAC). That is, the technical advisors are precisely that, technical advisors.

These interactions with markets, with external intermediate agents and specialists, and with rural communities, determine the nature of the relationship with INDAP and other public organizations. Simply put, the stronger the interaction with market and technical agents and with rural communities, the less dependent the EAC is on government support. Thus, Golden Berries was always almost totally dependent on INDAP's good will, Romefrut became increasingly dependent as their financial problems grew, and Guaicofrut has always managed to have the highest independence from INDAP.

This does not mean that Guaicofrut or any of the others could have managed to get anywhere, or even be formed, without decisive support from INDAP and public funding. Very simply, no private bank in Chile would ever have dreamed of lending a group of peasants half a million dollars to start a raspberry processing plant and export firm! The relevant question is not if these EACs can make it in the absence of any external support and subsidized public funding, but whether they can manage to achieve a degree of autonomy in their decision-making, given their financial dependency. Being part of a strong network with other market agents and intermediate organizations and specialists gives an EAC greater power to negotiate the terms of their relationship with the government agencies.

Rules

In discussing these EACs' systems of rules, it is important to remember that raspberry production, processing and marketing is a rather new activity in Chile, and one in which these small farmers had not previously been involved. Together with cut flower production and marketing, raspberries exemplify the boldest attempts by small farmers in Chile to become involved in the new farming enterprises that have come about through the liberalization and globalization of Chilean agriculture. The small farmers' organizational traditions, including systems of rules for decision-making in economic collective action, were developed in the '60s and early '70s in a very different context. These three case studies illustrate the extent to which small farmers have been capable of adapting that institutional tradition to the challenges and demands imposed by global markets.

It can be argued that Golden Berries was incapable of adapting its systems of rules beyond the context of traditional, government-led agricultural development programs, while Guaicofrut has successfully created rules appropriate to the new context of international markets. Romefrut is somewhere in between, with a break before and after the crisis.

Simply put, Golden Berries' members wanted their EAC to operate in the same way as INDAP had: the design and implementation of the service was left largely in the hands of professional staff, and it was assumed that the cost was to be financed by the government. The managers of the EAC were the

key players, in the same way that the INDAP consultants had coordinated the Microregional Development Project, or, previously, the private consultants who had introduced them to raspberry production. In this arrangement, the role of the farmers' leaders was essentially one of liaison between the grassroots and 'the authorities', even if they were now staff and specialists hired by the EAC. This arrangement was very convenient for the farmers, who were able to capture the full benefits of collective action (technical assistance, higher prices, greater security in marketing, and so on), without having to take responsibility for designing, implementing, monitoring, adjusting or paying for those services.

Guaicofrut is a very different story. From the start, the members and leaders understood that to penetrate and survive in the international raspberry market, they had to proceed gradually, build each successive step on firm foundations, interact with well qualified specialists who could provide the management and technical expertise they lacked, and be willing to sacrifice short-term gains in favor of securing their position in the market.

The best example of this attitude is the way they define their price policies before each harvest. They ensure they have secured the funds necessary to fulfill their commercial obligations and to launch new investment projects, always with the aim of adding value to their product before selling it. The priority given to seeking knowledge from specialists on production business management, agroindustrial processing, and marketing, and the willingness to invest important sums of money to receive this support, also demonstrates Guaicofrut's philosophy of sacrificing short-term benefits in order to build the foundations of a stronger long-term position in the raspberry market.

Most of Guaicofrut's members have always actively participated in the key decisions that affect their organization. Every person I interviewed agreed that debates have always been lively and that respectful criticism is allowed and even encouraged. While there are important leaders who play a distinct role, they have never had an overwhelming position in the organization. The external specialists play a technical role in outlining options, helping the members understand the markets in which they operate and identifying threats, opportunities and goals, but there is no doubt that decision-making remains in the hands of the farmers.

Why is it that two groups of relatively similar small farmers – those of Guaicofrut and Golden Berries – using the same set of policies, programs and instruments, arrived at such different organizational and institutional designs? I do not have a definitive answer to this question, but I believe that Guaicofrut's emergence from a serious crisis may have played a role. When, in 1997, they lost a large part of their production, they realized two things: first, how fragile their position was in the raspberry market; and, second, that once they had made a substantial investment in their raspberry orchards, they were involved in a high-stakes game in which the losses could be extremely high. Guaicofrut is the child of an event that threatened the best opportunity these farmers had of surviving as independent producers, once the macroeconomic and trade reforms ended their expectations of improving their life through traditional farming systems.

Golden Berries, on the other hand, developed along a very different pathway, led mainly by external agents. When the critical step was taken – changing from a development program into an economic organization – there was no break in the fundamental logic with which both the external agents and the farmers themselves had acted. It was a change of form, but not of substance. The old rules of the development program could not resist the test of the new circumstances that the farmers and the EAC were facing.

In the case of Romefrut we observe a change in the system of rules before and after their crisis of 1998-99. In the initial years, the rules of development programs dominated, although in this case the key role was played by a small core group of leaders, in contrast with Golden Berries where external agents were in charge. The rest of the members had great trust in this core group and in particular in a couple of its members, who had been the key players in getting the EAC started. Because they felt they were in good hands, the majority of the Romefrut members were happy not to worry about what was going on in the EAC. The leaders and the managers, who had been very effective in the past when dealing with relatively small projects, made a tremendous number of errors now that they had to

handle a much larger and complex project. They mistrusted external specialists and felt confident that they knew enough to guide the organization and its development. There was little debate among the members and few questions were asked, as the continuous growth of their processing plant, the good prices the members were receiving, and the generous credit program for agricultural inputs, were definitive proof that the leaders knew what they were doing. When INDAP pressed the EAC to hire an external firm to support management and administration, the members rallied in support of the leaders, and rejected this attempt as an unnecessary and unwelcome intrusion.

Finally, reality caught up with Romefrut. Yet, the EAC survived the crisis because of the strong bonds between the members. A new team of leaders took over, and the membership agreed to drink the bitter medicine of cutting their benefits, and even more telling, of donating a very large amount of raspberries to keep the EAC alive. This was possible in part because the farmers who make up Romefrut are not poor, and while these investments did hurt, they did not threaten their survival as independent small farmers. In addition, even the watered-down benefits provided to them by the EAC are important enough to justify the costs involved in rescuing their operation; what they value most, as many told me, is that having the EAC greatly reduces their risk as individual farmers working in a very competitive market.

However, having discussed this crisis at length with many of the members and leaders, I am convinced that Romefrut was able to sort out its problems largely because of the underlying social relationships that bind the members together. Their initial assessment of the crisis focused firstly on determining if there had been foul play by the leaders, or if they were due to 'technical' mistakes. When they were convinced that their leaders had not behaved inappropriately, their attitude immediately changed: this was a mistake, perhaps a large one, but only a mistake, not something that could split the group. It is difficult to convey the emphasis all the farmers I interviewed put on this point, stressing the great difference between 'technical' errors and simply unforgivable social behavior. One farmer's comment illustrates this point: *"when we learned that this was only a problem of money, right then we knew that we could deal with it. If the auditors had said something else, it would have been the end."* Also, by being part of a tight rural community, the members of Romefrut were also able to rapidly generate a new leadership team made up of individuals they knew and trusted to guide them through a difficult period. There is little doubt that although the crisis weakened Romefrut financially, it also strengthened the organization institutionally.

The system of rules designed by each of these EACs is summarized in Table 12.14, following Ostrom (1990; see Chapter 2, Section 2.5).

Golden Berries has almost none of the rules that Ostrom sees as important for robust organizations. There is a reason for this: for all practical purposes, the grassroots members did not see their organization as an EAC, they continued to relate to it in the same way they had approached the INDAP support programs.

In the case of Guaicofrut, all of the Ostrom rules are more or less in place. There are two rules that I would like to highlight, for they are important in giving an EAC a comparative advantage in the market place:

(a) The EAC explicitly differentiates between members and non-members in the provision of a number of support services, but not in the rules that govern its core business. All suppliers, whether they belong to the EAC or not, get the same treatment when it comes to receiving and paying for their raspberries. In this essential aspect, the EAC simply transfers to the individuals the prevailing market signals governing quality and prices. The EAC has internalized these market signals as part of its internal system of rules. In doing so, the EAC avoids the short-term costs that would result from trying to act against market trends, and it also gains long-term benefits by forcing farmers to adjust to what the market demands, or else pay the consequences. Thus, having a set of important support services, valued by the members, allows the EAC to give additional benefits to those who contribute most to the EAC (for example, by selling a larger proportion of their harvest through the organization), and to impose sanctions on those who violate their commitments and obligations, without having to distort market signals. In other words, if the EAC did not have these support services, it could only reward or

sanction a given individual by manipulating market variables, and, as we know well from the case of Golden Berries, this is an extremely dangerous game.

(b) Guaicofrut is able to monitor the behavior of each of its members in detail. On the one hand, it relies on the very close geographical and social proximity of its members to learn about such key issues as a farmer's decision to sell some of his or her crop through middlemen. Golden Berries, being dispersed over a relatively large area and not having any links with a particular rural community, could never obtain this extremely valuable information without setting up an expensive *ad hoc* monitoring system. In addition, Guaicofrut uses the information from modern accounting and information systems, such as external auditors and the Internet, to monitor daily international prices and to allow its members to monitor the organization's performance (which in practice means the performance of the board and the management). A typical commercial firm can of course have access to such monitoring systems, but it must pay a high cost to have field supervisors, lawyers and managers to monitor the decisions of its individual suppliers and to enforce their contractual commitments.

The case of Romefrut is more complex, since we have to deal with two somewhat different sets of rules, before and after the crisis of 1998-99. Beforehand, the EAC had a set of rules modeled on a typical development project. After the crisis, the EAC began to move the same way as Guaicofrut. What I would like to emphasize, though, is that this transition remains incomplete, as if there was some force preventing the EAC from learning the full lessons of the crisis, and making a clear adjustment in its system of rules, even though the members are clearly aware of this shortcoming. This issue deserves more research, but I would like to venture two hypotheses:

Firstly, based on Romefrut's experience, it appears to me that a collective action process generates an 'institutional know-how'; that is, a body of traditions, knowledge, rules, and methods that guide the individuals and the organization in their daily decision-making. When something happens that forces the EAC to change track, it still carries with it many elements of that institutional know-how, developed under different circumstances, and which cannot be discarded from one day to the next. People cannot 'reformat' their minds and the way in which they relate to each other as if they were a hard disk on a computer. If you wish, there is a path dependency in institutions and organizations, where patterns of the past continue to affect present decisions.

Secondly, when an EAC undergoes a crisis that weakens it substantially, it loses power and autonomy vis-à-vis external agents who become critical to its survival (INDAP in the case of Romefrut). These external agents attain the power to impose decisions by conditioning their continued support on the adoption of certain rules. As the external agents themselves have a stake in solving the crisis (because it would affect their own performance and expose them to the public or to other, more powerful decision-makers), there is a strong incentive for them to make decisions in their own favor. This constrains the options open to an EAC and its members. External authority becomes decisive, and it is no longer possible to say to what extent the system of rules is the EAC's or the external agents'.

Table 12.14 Rules of Golden Berries, Romefrut, and Guaicofrut (based on Ostrom, 1990)

RULES	**Golden Berries**	**Romefrut**	**Guaicofrut**
Clearly defined boundaries	The members of the EAC are clearly defined. The members receive exclusive benefits in terms of preferential prices and of access to different support services.	The members of the EAC are clearly defined. The members receive exclusive benefits in terms of access to different support services, but they and the non-member suppliers receive the same treatment in terms of price, delivery and quality conditions for their raspberries.	
Low cost systems for monitoring compliance	The EAC totally lacked a system to monitor the performance of the different members and of management.	Until this EAC's financial crisis, members lacked an effective monitoring system and	The EAC always had a strong and effective monitoring system, based both on participatory mechanisms and

RULES	Golden Berries	Romefrut	Guaicofrut
	members and of management.	thus they could not enforce compliance with their own rules. The system has improved somewhat after the crisis but it is still relatively weak.	on the use of specialized information services provided by external advisors.
Congruence between appropriation and provision rules, and market conditions	Each member received more or less equal benefits, regardless of his or her individual contribution to the EAC. This not only affected the support services, but also those related to the core business as the EAC averaged its costs and distributed them uniformly across all the members.	In terms of the core business of the EAC, the members do receive differential benefits according to their performance and contribution. However, this does not occur in terms of the different support services, where all have more or less equal access to benefits.	Each member receives benefits carefully tailored to his or her individual contribution to the EAC, both in terms of the core business and of the different support services (e.g. cash advances for labor costs or credit for agricultural inputs).
Graduated sanctions for non-compliance with rules	No sanctions were ever applied for non-compliance.	No sanctions are applied for non-compliance with the rules.	A system of sanctions is in place and is applied when necessary, mainly by restricting access to support services.
Participation of members in defining and changing rules	There was little, if any, participation of members in defining and changing the rules. This process was in the hands of the hired managers and, to some extent, a few leaders.	Most decisions were originally left to a small core group of leaders. During the crisis, INDAP imposed a number of key rules.	The members definitely play the decisive role in defining all important rules. The rules have been changed frequently to meet new conditions.
Low cost mechanisms for solving conflicts	Due to the lack of any significant degree of participation, there was no mechanism to deal with problems and conflicts. The EAC broke up as a result of this.	The EAC lacked a system for dealing with problems and conflicts gradually.	Conflicts and problems are approached rapidly before they grow out of proportion, and are solved through dialogue and discussions in membership meetings. The board and management have a clearly delineated authority to deal with many day-to-day problems and conflicts.
External authorities respect the right of members to establish their own rules	INDAP always had a great influence on the decisions of the EAC, given its extreme dependency on public funding.	During the EAC's crisis, INDAP intervened and forced a number of key decisions.	The EAC has always had a large degree of autonomy in managing all of its affairs, including the definition of rules.

CHAPTER 13. DISCUSSION AND CONCLUSIONS

13.1 The context: a reminder

This study analyzed the emergence and development of *Empresas Asociativas Campesinas* (EACs), or Associative Peasant Business Firms in Chile. Since the early 1990s, these EACs have been a key part of Chile's new small-scale agricultural development strategy; a strategy launched in response to the opportunities and threats stemming from the liberalization and globalization of the Chilean economy, and of the agricultural sector in particular.

This new strategy arose from the realization that focusing on increased productivity in the commodity sector was achieving little. The Chilean economy was already committed to a process of liberalization, and agriculture was inevitably going to be exposed to intense international competition. Commodity prices were likely to continue their downward trend, pushed by the global processes of technology innovation and diffusion. Small farmers in Chile would be continually trying to catch up with those leading the technological innovation process, always behind the going price while lacking the capacities of the most competitive in the global market, only surviving by self-exploiting family labor.

The previous years had shown the limitations of public policies aimed at halting this treadmill, such as the price stabilization programs for the main commodities launched in the early 1980s. For about five or six years, those policies brought good prices and favorable marketing conditions for the key commodity crops grown by small-scale farmers. But by the early '90s this impact was eroded by declining international prices and the appreciation of the Chilean peso against the US dollar.

Small farmers were painfully aware of the futility of the strategy to increase yields for commodity crops. How often did we hear them complain that they were sick and tired of seeing extensionists demonstrate the advantages of yet another improved wheat variety! They would explain that they had done as they were told; thousands of small producers over the past 10 years had increased their yields to levels as high as 4 or 5 tons/ha for wheat, 12 tons/ha for maize, or 60 tons/ha for sugarbeet, and yet they were often worse off than before in terms of their income and welfare, as the real prices of these products dropped by 25% to 50%. As one peasant asked in despair: "*When is this progress going to end? Before progress came, we used to live very well...*"

The only alternative for small-scale farming was to diversify into new, higher-value, non-traditional products, linked to more dynamic markets, in which small farmers could capture a larger share of the final price paid by consumers by engaging directly in marketing and value-adding activities.

This new approach began to take shape in the early '90s, based on three explicit policy statements, which implied a break with the conventional thinking about peasant agriculture and its options for development:

(1) The market-driven nature of small-scale farming in Chile means moving away from traditional commodities destined for the domestic market, into diversified non-traditional products linked to agroindustrial, export and niche markets.

(2) The arena for public policy support to such an approach is no longer the linear research-extension-farmer arrangement, but complex and diverse private-public networks and alliances, within well defined rural territories and geared towards gaining access by peasant farmers to clearly identified market opportunities.

(3) The primary social agents for the development of small-scale agriculture are to be business-oriented farmers' organizations (EACs).

The new policy orientation was strongly influenced by a context of high and sustained economic growth, liberalization of the economy, and opening up of agriculture to international competition;

democratic governments, and strong, proactive and relatively efficient social policies.

This context had four major impacts on small-scale agriculture. First, the liberalization of the economy and the opening up of agriculture to international competition resulted in both 'push' and 'pull' incentives that caused small farmers to diversify away from traditional commodities and into new and more profitable enterprises and more dynamic markets. As Rafael Castro, the farmer quoted at the start of Chapter 1 said, small farmers in Chile were and still are faced with a clear-cut option: "*change or sell the land.*"

Second, the development options available to small farmers are shaped by the broader transformation of the Chilean countryside. Rapid urbanization; the improvement and spread of infrastructure and public services; the emergence of a dynamic for-export agricultural and agroindustrial sector and the concomitant expansion of all sorts of agricultural support services; and the doubling of the area under irrigation not only provided some of the material conditions for transformation in small-scale farming, but also led to a mentality, or a culture, of change and innovation. One would have had to work with small farmers in Chile over the past 15 or 20 years to understand the enormous importance of the changes in outlook and attitudes among so many small farmers.

Third, the high and sustained growth of the economy allowed the government to fund a proactive and expanding social policy and to make a concerted effort to support social and economic sectors that otherwise would have lacked the opportunity to capture some of the potential rewards of liberalization and globalization.

Finally, on a less positive note but not without consequences for our analysis, one cannot forget that the market-oriented small farmers who make up the bulk of EAC membership are the hardened veterans of the intense social and political reforms of the 1960s and early 70s, and the survivors of the extreme neoliberal experiment launched by the military dictatorship in 1973. They have come a long way from their situation only 30 years ago, when they were illiterate, extremely poor and socially and politically marginalized landless peons under the *Hacienda* system.

13.2 Research questions and answers

The study addressed the following questions:

(1) Have EACs achieved their aim of improving the performance of peasant agriculture in the context of a market economy open to international competition?

(2) Are EACs sustainable as economic organizations, or, as has occurred many times in many Latin American countries, are they simply dependent appendices of the public programs that created them?

(3) What changes or adjustments in public policies and their instruments are needed to improve the performance, impacts and sustainability of EACs?

The answers to the first two questions are straightforward and have been presented in detail in Chapters 4, 5, 6 and 7. In summary:

- Public policies coupled with market incentives have stimulated the emergence of around 750 EACs, involving a fifth of all small farmers in Chile. The poorest peasants participate much less in these organizations than the better-off.
- Most new EACs are involved in non-traditional production systems, services and markets.
- The economic impact of EACs on their members' farms depends on the products and markets involved. EACs focused on marketing commodities in the wholesale or spot markets have little economic impact. Those involved in non-traditional products and in markets with high transaction costs can have more of an impact.
- EAC membership does not appear to affect annual household income, regardless of the EAC's

product and market orientation. Gains in on-farm income will generally be compensated for by losses in off-farm employment.

- Around one-third of EACs are economically and financially strong enough to operate as sustainable business-oriented organizations. About a fifth are in good financial shape, and would have a good chance of surviving if public program support suddenly withdrew today. I estimate (without direct hard evidence) that a severe economic and financial crisis is facing most of the EACs whose core business is marketing commodities such as wheat, grain legumes, and potatoes, and up to one-third of the EACs engaged in non-traditional products, services and markets.

I answer the third question in the rest of this chapter.

13.3 Improving the performance, impact and sustainability of EACs

Many lessons and recommendations have emerged from this research, and in particular from the case studies. However, my personal conclusion is that of the many factors that affect an EAC's performance, impact and sustainability, three deserve special attention:[68]

(1) Market, service and product orientation. EACs can be effective vehicles for farmers changing their practices, but not for improving the performance of small-scale agriculture within the traditional realm of commodity production.

(2) Networking. Effective EACs are embedded in effective multi-agent networks.

(3) Rules and incentives. EACs' systems of rules must provide incentives for an adequate allocation of costs and benefits among the members, and between them and the EAC.

I will now discuss each of these in turn.

13.3.1 EACs as vehicles for change

In this study I analyzed - using quantitative methods and through qualitative case studies - a large number of EACs. Both approaches have revealed the following key finding:

EACs formed to improve their members' bargaining position within traditional commodity markets have not been able to improve the performance of their members as small farmers, and also have not achieved the economic and financial viability that would ensure their sustainability as business-oriented organizations in the absence of government loans and subsidies. I estimate that about 36% of Chile's EACs are in this position.

On the other hand, EACs formed to support their members as they diversify into non-traditional products, new marketing arrangements, and/or new value-adding activities, can (although not always) improve the performance of their members' farming systems, and can become viable business-oriented organizations. I estimate that about two-thirds of EACs fall into this category.

Commodity-based EACs

In a market economy open to international competition, EACs cannot improve on regular market exchanges when it comes to trading undifferentiated commodities in spot or wholesale markets. At any given time, prices will correspond to the interplay of supply and demand. The number of buyers and sellers is large enough in these markets to preclude any one of them from having any significant effect on prices. A group of 50 or 100 or 200 small farmers certainly will have more produce to offer

[68] I do not include such obvious factors as honest and competent managers, sound investment projects, business plans which meet at least the minimum standards of professional quality, etc. These business management topics were outside the scope of this study, but I do not want to imply that they are not of great importance in determining the performance, impact and sustainability of EACs.

than a single peasant, but the total amount will continue to be insignificant compared with the total market size. If such a group attempts to negotiate a higher price than the going market price, buyers will simply look elsewhere. Only producers at the cutting edge of technological innovation and whose productivity is higher than average will be able to make a higher profit, but always based on the prevailing price. In an economy open to international competition, those farmers leading the pack may well be in another country.

Furthermore, in this context EACs will certainly incur higher costs than an individual farmer selling his or her crop directly to a trader or middleman. Such costs include: (a) direct and fixed organizational/administrative costs; (b) taxes, especially the Value Added Tax that middlemen usually evade; (c) costs resulting from free riders within the EAC, which we know to be very high. Thus there are no additional rewards to offset the increased costs: this explains why this type of EAC will tend to fail.

There are two 'smoking gun' pieces of evidence that confirm this finding. The first is that farmers who produce commodity crops such as wheat or potatoes have a significantly lower rate of EAC membership. Secondly, those farmers who actually join an EAC to market these products tend to default on their commitment and continue marketing most of their harvest through the traditional channels, despite these channels being universally despised as 'unfair'.

Of course, these organizations can still make a contribution to their members, as long as they engage in services other than marketing undifferentiated commodities. They can provide technical support under contract to INDAP, they can run agricultural machinery services, they can sell agricultural supplies, and, above all, they can use their greater social and political influence to capture a greater share of government loans and subsidies for their members. In short, they could actually succeed if they stopped doing the things they were set up to do (marketing of commodities), or, at the very least, reduce the relative importance of those activities.

EACs as instruments for changes in practice

A number of EACs have been set up to support *changes in practice*, i.e., to help their members diversify into new products, new marketing arrangements, and/or new value-adding activities. The markets in which these EACs operate are characterized by:

- Products differentiated by quality or other grades or standards. This implies transaction costs involved in the identification of the produce to be exchanged, negotiating prices, delivery and payment conditions, and in enforcing agreements with clients. In my study, the raspberries cases are a good example.
- Costly price and market information: accessing such information is expensive, and the lack of such information can have significant repercussions on the actual price obtained. For example, prices for fresh vegetables fluctuate widely even over the space of a few days.
- High market access barriers: due, for example, to the high cost of the equipment, infrastructure or technologies required to participate in the specific market (such as processed goods that require expensive facilities for grading, processing, packaging, storage, and so on); or because of the volume, seasonal supply and delivery conditions imposed by potential clients (such as supermarket chains or the large dairy industries); or because the marketing costs are very high and a high total volume of marketable produce is required to offset them (as for certain fresh vegetables). One should note that what is relevant here is that these are barriers to market access from the point of view of individual small farmers.
- Perishable products: the risk of not selling one's product on a given day is high, so having access to a larger portfolio of clients is key. This is of importance, for example, to fresh vegetable producers, especially when prices are low due to over-supply.

In markets characterized by high transaction costs, EAC membership can lead to a significant improvement in market access, risk exposure, and price obtained. Furthermore, markets with high

transaction costs are no place for a small farmer to be walking alone!

Again, the actual behavior of farmers revealed in my research confirms the theory. In markets with high transaction costs, the rate of EAC membership is significantly higher than the national average, and opportunistic behavior by free riders is much less prevalent.

However, it is important to clarify that engagement in a market with high transaction costs is a necessary but not sufficient condition for the success of an EAC. I estimate that about one-third of the EACs in these markets have failed.

13.3.2 EACs as part of multi-agent networks

Effective EACs are embedded in effective multi-agent networks. This is because linkages to a broader set of actors than those found within rural communities provide vital support for EACs operating in new, more dynamic and competitive markets. These networks include rural communities, markets, government agencies and programs, and intermediate support organizations.

Rural communities

In almost all the cases studied, EAC members participate more in other rural organizations than non-members, and tend to hold leadership positions in these organizations. EACs thus bring together many farmers who are part of "*el activo social*", or the socially-active members of local communities. These individuals are positive about the potential costs and benefits of collective action, making them more likely to join an EAC, and with less hesitation, than others. Their past experience of collective action helps the formation of EACs.

Such experience of collective action among rural communities also leads to the formation of *catalytic community groups*. These are groups comprising more or less the same individuals within a community, which persist over time and 'switch on' or become active when a new collective initiative is needed. When one examines the history of collective action in a community, this same group of people, more or less, pops up time and again. These groups catalyze and organize other community members to participate in new collective efforts.

Such groups give the emerging EACs a broad knowledge base. This might include the norms, attitudes, beliefs, information about the likely behavior of the other participants, organizational principles such as leadership roles, initial sets of rules, and experience in dealing with external agents. Rural communities, through the individuals who make them up and through these catalytic community groups, can accumulate and store such organizational knowledge, even drawing on it years later if necessary.

The existence of these catalytic community groups greatly enhances the emerging EAC's chances of succeeding. Without them, initial leadership is likely to be taken on either by a strong individual or by external agents. These people tend to have a disproportionate influence in an EAC's important formative period when rules are established, roles defined, technologies chosen, staff hired, negotiations occur and agreements are reached with clients, suppliers, and external agencies, and so on.

The case studies illustrate other ways an EAC can benefit from being embedded in its rural community:

- A reduction in the costs of monitoring whether members fulfil their organizational obligations. Social and geographic proximity provide valuable information at low cost to the EAC.
- A reduction in the material heterogeneity of its members, at least according to certain characteristics associated to location. As I will discuss below, greater homogeneity in terms of different variables associated to location makes it easier to enforce rules about the benefits members receive and the costs for which they are liable.

- Social costs which deter members from behaving opportunistically. Relationships between members outside the EAC can be important in deterring people from breaking rules and failing to meet obligations.
- Community knowledge can ensure that fines or sanctions are appropriate and fair. Knowledge of the community helps an EAC to distinguish, for example, unintentional mistakes, behavior resulting from major problems or emergencies within a household, or serious, intentional violations.
- Better member participation in EAC discussions and decision-making processes. When the members are all neighbors, it is easier for them to meet as often as necessary. Discussion and dialogue can take place not only in the formal instances designed for such purpose, but also informally.

For all the case study EACs which were not embedded in a rural community, there were no formal mechanisms which effectively replaced the social exchanges listed above. In these cases there was a very clear communication gap that impeded interaction between the EAC and its members. The members participated less, they were definitely less informed about what was going on in their EAC, there was more room for undetected opportunistic behavior, and it was clearly more difficult to impose sanctions when necessary. This suggests that formal management or organizational procedures and mechanisms (board meetings, hired managers, accounting systems, etc.) can never fully replace the quality of interactions based on social and geographic proximity.

On the other hand, the case studies also yielded some examples of how EACs embedded in a rural community can undermine operational rules. For example, the social and economic power of a single individual within the community led them to dominate an EAC's decision-making process. Also, I often observed how close social relations prevented the EAC from enforcing its rules of sanctions, because of fear of affecting good relations between friends, neighbors or members of the same families. In at least one of the case studies, this sort of 'perverse social capital' largely explains the failure of the EAC.

EACs not only benefit from the rural communities in which they are embedded, but in almost all cases they also contribute to them. A rural community that contains an EAC has acquired a political asset, often enabling investments in drinking water distribution systems, rural electrification projects, repairing and improving roads and small bridges, building meeting houses that are open to many other community organizations and groups, providing access to valuable information obtained through the contact established with government agencies, and so on. Furthermore, EACs very often give non-members access to some of their services, such as marketing their produce.

Markets

An EAC which lacks effective links to specific markets will either collapse from lack of purpose, or will become something other than an EAC, such as a channel for government or intermediate agency funds, taking advantage of the greater political leverage enjoyed by almost any organized group of farmers. Thus *"effective links to specific markets"* implies real exchange of goods and services, and not simple declarations of intent.

An EAC's meaning and purpose is defined by the conditions of a specific market. This shapes members' expectations about EAC membership. Where EACs focus on marketing commodities, members' expectations and objectives cannot be fulfilled. They will rapidly conclude that they will not get the benefits they originally expected. The lack of correspondence between market conditions and the domain of action of the EAC becomes a disincentive, and the members default on their commitments.

When this happens, the organization will usually change its role, but may still keep up the pretence to maintain access to the resources provided by other actors in the network. Examples from the case studies include EACs that become extension firms working under contract to INDAP, a supermarket

owner and operator, or simply an apparatus for improving members' access to various subsidies.

When, on the contrary, there is congruence between the EAC's domain of action and market conditions (as when the organization helps its members access a new market from which they were previously barred), then market signals are an incentive for continued collective action. In a successful EAC, the members will continuously try to improve the congruence between their practice and market conditions. To do so, they adjust and refine their systems of rules. I will return to this later when I discuss the relationship between systems of rules and the economic performance of the EAC.

Government agencies

All of the case studies clearly illustrate the key role of government agencies, especially INDAP. This confirms my hypothesis in Chapter 2 that the 'political opportunity' provided by government through its public policy signals is a prime incentive for EAC formation.

The case studies demonstrate three levels of government involvement in EAC formation:

(1) At one end of the spectrum, a few EACs are basically creatures of government intervention. There is no history of collective action among the individuals involved. The whole process is put in motion only after government agents (or intermediate agencies) make a deliberate effort to set up an EAC. Clearly such an origin leads to quite an artificial organization, largely dependent on the continuous flow of government funds for its survival.

(2) Some of the EACs emerged out of pre-existing local groups or organizations, with a previous history of working within government programs, notably INDAP's extension services. In these cases, the government program transformed the existing group into an EAC. However, in at least three cases, whilst the EAC ended up being ineffective, the original groups (lost or weakened in the process) managed quite well before their government-induced transformation.

(3) Finally, there are five case studies where pre-existing local groups or organizations took the initiative to set up an EAC. Some of them had some contact with government programs in the past, but some had not. In most of these cases, the pre-existing groups had been trying for years to form some sort of formal organization to engage in marketing or value-adding activities. In all cases, the farmers did not know exactly what type of organization they needed, or how to form it, but they did have a more or less well identified problem, and they certainly knew what they wanted to achieve. Eventually, one way or another they managed to 'connect' with sympathetic government officials, usually through an intermediate agent (such as an NGO, an extension agent, a parish priest, or a regional federation of cooperatives), and the EAC was formalized with the support of both government and intermediate agencies.

It is unlikely to be coincidence that the latter five EACs were most successful in extracting precisely what they wanted from public programs, or in defining with greater autonomy how they would run their organizations. This does not mean that all have been successful, for we have seen at least two of them (We Tukucan and Romefrut) run into great difficulties precisely because their notorious 'drive', fuelled by their own accomplishments, encouraged an unsustainable rate of growth. Neither does it mean that the second type of EAC cannot manage to become rather successful business-oriented organizations.

In my cases there was no correlation between the autonomy of the original groups and their success as sustainable EACs, except for the extreme case of those that were artificial creatures of government programs.

After the organization forms, its relationship with government agencies is conditioned by how successful the EAC *appears* to be. Those case study EACs which did not quickly show clear signs of success, soon fell into the protective embrace of the government agency and lost much of their autonomy. The reason is clear: once a government agency and its officials have invested in an EAC, they will do anything to prevent it from going under, for they are not willing to pay the political cost of failure. This occurs even when the EAC's failure cannot reasonably be attributed to a mistake or

omission by the government agency.

This is a major problem for two important reasons:

(1) At the first visible sign of trouble government agencies will react by, in effect, externalizing at least some of the costs out of the EAC. They do so by providing implicit or explicit subsidies, either to the EAC itself or to the members at the farm level, or to both. Inevitably, this decouples the EAC from its market context, and eventually distorts incentives and rules and disguises market signals. This sort of 'salvage' operation leads to a vicious cycle: the externalization of costs and risk decouples the EAC from market signals and trends, incentives and rules are altered accordingly, the negative results are enhanced, more subsidies are poured into the EAC, its disconnection from market realities increases, and so on. The dozens of EACs facing financial crises in the past two years were the ultimate outcome of this distortion in the nature of the relationship between these organizations and government programs.

(2) The government's response to EACs in trouble means that it is impossible to bring problems out into the open for analysis and discussion. Such analysis would help negotiate more lasting solutions than simply pumping millions into keeping them alive, and would also allow people to learn from the mistakes that may have been made.

The gradual development of each EAC, as well as the progressive improvement of public policies and support programs, requires concerted social learning. This 'reflex reaction' by government agencies is a very serious stumbling block for processes of social learning and the adaptive management of these kinds of soft systems.

Intermediate agencies

In my conceptual framework (Chapter 2) I highlighted the role of intermediate agencies (NGOs, extension firms, etc.) in building linkages between the actors who form part of the EACs' networks. I also explained that these agencies provide organizational models and expertise to give shape and content to emerging EACs. These roles reduce the actual and perceived costs and risks to farmers when starting up an EAC, and increase their chances of success.

In all the case studies, intermediate agencies were important facilitators of EAC formation. This is true even of those pre-existing local groups or organizations who took the initiative to set up an EAC. While these proactive local groups had developed their own notion of why they wanted to change the *status quo*, and despite having some idea of the type of activities in which they would like to engage and their objectives, it was not until they linked to an intermediate agency that they were able to get going. This was because of the models, expertise and contacts provided by the external facilitators.

While being good catalysts of EAC formation, these intermediate agencies are often less capable of supporting the actual implementation and consolidation of the organizations and their business-oriented project. Why is this?

In June 2001, I interviewed Mr. Luis Marambio, National Director of INDAP from 1994 to 2000. Looking back, he acknowledged that one important limitation of this government agency had been its inability to improve the human capital surrounding the organizations. He stated: *"We assumed that we could hire the necessary professional services. We were wrong. Those top-quality professionals very often were simply not available to work with small farmers, often in remote areas."*

The existing intermediate agencies and facilitators are basically the same ones that had been accustomed to working within the linear transfer of technology paradigm. Their outlook was one of delivering ready-made options and solutions to well defined problems and constraints, mainly in the domain of production technology.

But the courses of action for the new EACs can no longer be defined in terms of standardized pathways towards pre-conceived 'optimum' outcomes. The new strategy requires a new set of skills, information and knowledge to facilitate communication between different stakeholders operating from

different perspectives, and to negotiate agreements for concerted action, almost always within very dynamic and uncertain contexts.

The technical problems which need to be solved are also fundamentally different from the old focus on raising traditional commodity crop yields. Many intermediate agents and advisors simply lack sufficient expertise and experience in producing high-value products, marketing, management and processing for value-adding.

These problems were sometimes compounded by some EACs insisting on taking over the delivery of technical assistance, thereby displacing the intermediate agencies. Sometimes this resulted in more pertinent and more focused support and advice, and in better coordination between support to the production, marketing and value-adding parts of the process. But very often it weakened the technical quality of the support services, in particular when some EACs diverted part of the funds available for technical support to help cover their other costs and investments.

Some of the EACs have made much progress in learning how to relate to the world of technology and professional advice. They avoid contracts which do not have very clear objectives, time frames, and indicators of progress and results. They talk and negotiate with a larger number of potential advisors before choosing the most appropriate, often visiting other communities where they have worked to obtain information on their performance. They prefer to sign specific contracts with a diverse number of specialists, as opposed to hiring one single agency to provide all the forms of advice they need.

13.3.3 EACs with coherent systems of rules

As discussed in Chapter 2, collective organizations require systems of rules to constrain the types of opportunistic behavior described by the *"tragedy of the commons"* and the Prisoner's Dilemma metaphors. These theories of collective action are focused primarily on the question of how costs and benefits are allocated *between the individual participants* in the collective action effort.

The case studies underline that the presence of such systems of rules dictates effective collective action within EACs. These rules permit EAC members to construct agreements for concerted action that they deem fair and legitimate; to create incentives for the members to comply with their rules; and to adjust their rules and agreements according to circumstances. Without such systems, opportunistic behavior prevails and collective action is undermined.

However, one aspect is particularly important for EACs. Effective systems of rules need not only to address the allocation of costs and benefits between the individual members, but also and *simultaneously*, the allocation of contributions and appropriations between the members as independent farmers, and the EAC as a business-oriented organization. The balance between the EAC's economic and financial performance and sustainability on the one hand, and the impacts of the collective effort on individual farms and households, on the other, depends on how this allocation problem is solved.

In each transaction between the EAC and its members, there is a trade-off between the interests of individuals as independent farmers, and those of the EAC itself. In each transaction the EAC could enhance its own performance by limiting the returns to individual members or by transferring a larger share of the costs incurred to them. Similarly, members could profit more by making the EAC shoulder more of the costs, or by privately extracting a greater proportion of the benefits.

As discussed earlier, if an EAC's activities are not dictated by market conditions, most members will turn their backs on collective action, or else the organization will become, in practice, something other than an EAC. This is the case for EACs marketing undifferentiated commodities in the spot and wholesale markets. They fail to achieve either one of their declared goals: becoming a viable business-oriented organization, or improving the conditions of their members as independent farmers.

EACs involved in markets characterized by high transaction costs can address the allocation of costs and benefits through systems of rules which:

(1) Transmit undistorted market signals directly to each member. This means that the costs and benefits to each member are directly related to his or her farming performance and to market conditions. Thus rules must prevent costs or benefits being spread among EAC members. In terms of Ostrom's (1990) design principles, the key is to ensure congruence between rules defining benefits and costs to members with those relating to market conditions. If this does not occur, then the EAC shoulders the difference between the farmer's performance and market conditions, and/or the rest of the members carry the costs.

(2) Reduce the transaction costs of negotiating, monitoring, and enforcing agreements between the EAC and its members. If these costs are high, then the EAC and its members will have to choose between affecting the organization's income or reducing members' profits.

Five of the 14 case study EACs (for milk, vegetables and raspberries, but not potatoes) achieved this tricky balance because of their:

- Previous history of significant collective action involving many of the members. The formation of these EACs was just another step along a longer road of concerted action. These groups had the advantage of a significant stock of organizational expertise. They had learned to work together. They had rules, norms, tested leaders, and knowledge about how others were likely to behave in collective activities. Through past experiences they had often already weeded out those individuals who were not group players.
- Similar farming capacities among members. If members do not have more or less equal production potential it is extremely difficult for them to negotiate provision and appropriation rules that can be met by all. Of course, in these five EACs there were differences among the members, but these were less significant than in other cases. It was thus easier for them to reach agreements acceptable to all, and to fulfil their obligations once they had done so.
- Clear links to the local rural community. As discussed before, the geographic and social proximity of members helped their dealings within the organization, and were vitally important for reducing the cost of obtaining information, negotiating agreements through frequent and frank dialogue, monitoring compliance with the rules, enforcing graduated and fair sanctions, solving conflicts, and adjusting the rules and agreements as circumstances changed.
- Lack of exit options. To put it bluntly, for all the EACs who solved the problem of dual allocation of costs and benefits, the members had no other affordable options other than EAC membership. They *had* to sustain their organization, any alternative approaches were unacceptable. Losing the EAC would mean either being left out of the market (as in the case of the Milk Collection Centers), or at least having to cut back significantly on their scale of production (as in the cases of raspberries and fresh vegetables). This position forced members to accept lower benefits, or even accommodate some losses when the market was unfavorable or when the EAC made a bad business decision.
- Capacity to learn and adapt. A striking feature of these five EACs was their detailed knowledge about their position vis-à-vis market conditions and trends and especially their capacity to turn that information into clear plans for future action. Put simply, they knew where they were, where they wanted to go to remain competitive, and what they needed to do to get there, both at the level of the EAC and of the individual farms. This information and knowledge was used to refine and update their rules, their priorities and their investment plans whenever necessary. With the support of their advisors, they had developed a remarkable capacity to use their knowledge to inform action.

13.4 Thinking about the future

Over the past two years or so, it is becoming clear that hundreds of EACs are experiencing major

economic and financial problems, to the extent that many are unlikely to survive.

This has led some to question the very notion of small farmers engaging collectively in new products, services and markets. To them, the failure of so many EACs proves that small farmers lack the skills to participate in complex production systems and very competitive markets. To them, the main hope for small-scale agriculture lies in the adoption of a protective and interventionist economic policy in the agricultural sector to reduce unfair competition from heavily subsidized agriculture in the North, and to stabilize internal prices and production levels.

Others argue that the failure of these EACs is due to the involvement of government agencies in providing technical and financial support to small farmers. This support will inevitably degenerate into clientelistic, politically-motivated, power-seeking machines. In this view, EACs have failed because they were never intended to be *bona fide* business-oriented organizations. The appropriate response in this view would include such measures as targeting only those small farmers who are 'viable', and terminating government-managed financial support systems, leaving it to commercial banks to carry out this function.

In my view, putting the debate in these terms of 'state or market' is not very helpful. Instead, I want to stress that we need to take advantage of the fact that today we can learn from actual experience. This is where the social energies of all those who are genuinely committed to a society that includes small farmers should be concentrated. This must be the most valuable point of departure for rethinking public policies to support small-scale agriculture in the years to come.

I believe that the public policy agenda defined in the mid-90s has run its course. If in the past decade our immediate goal was to facilitate and support the formation and development of as many EACs as possible, in the coming years we need to emphasize improving the quality of these organizations, so that they become: (a) effective in improving the performance of their members as independent farmers in a market economy, (b) increasingly sustainable as business firms, and, (c) institutionally robust as social platforms for collective action.

We could make much progress towards these goals by engaging in open and constructive debate on the following issues:

1. Alternatives for smallholders engaged in the production of traditional agricultural commodities

This study has clearly shown the futility of setting up EACs to improving the position of small farmers as producers of raw agricultural commodities. Yet, only a fraction of Chilean small farmers are able to diversify into new products and markets. We have an enormous challenge to discover different development alternatives for those households who are unlikely to make this transition.

What are the alternatives for those smallholders who cannot gain access to new products, new markets, new value-adding activities? How can these alternatives be promoted, and by whom? And, perhaps, most importantly, how do public programs define targeting criteria and procedures which avoid discriminating against certain categories of smallholders, based simply on the personal biases and preferences of decision-makers in government offices.

If we continue to narrowly focus rural development on agriculture-based options, instead of aiming for a more broad-based approach to rural regions, we will fail to provide clear alternatives to those who cannot link to profitable agricultural markets. The political pressures to continue setting up ineffective EACs will be irresistible.

2. Conditions that justify an EAC

We must not always assume that having an EAC is always preferable to not having one. Public policies and programs over the past six or seven years have - implicitly at least - identified EACs as the desired outcome of any development initiative. Often, creating an EAC was an indicator of development progress; not forming such an organization was a sign of stagnation, or of outright failure, to the extent that if a local group had not set up an EAC in two or three years, technical advice services were supposed to be discontinued. We have seen the perverse incentives created by these

policy decisions, and how they often led to the formation of weak and even lifeless EACs.

The strengthening of rural civil society, or even of rural economic organizations, should not be a one-lane highway. We need to devise policies and programs to support a broad diversity of rural groups, associations and organizations. Not all the objectives or needs of rural populations or of small farmers can or should be addressed through EACs.

EACs are only appropriate instruments for change and development when the following conditions are met:

(a) Members' goals are clearly market-oriented.

EACs are organizations for market exchange. If members mainly expect to gain access to public support programs; to improve public services and infrastructure; or to represent the corporate interests of a group or community before government or society at large; then EACs are *not* the way to go, and public policies and programs should support the formation of other, more appropriate types of organizations.

(b) Markets fail to provide the goods and services required by the members to achieve their goals.

Even when members' goals are market-oriented, one should not automatically assume that an EAC is the best or only way forward. In a sense, given the costs and risks involved in setting up an EAC, this should be a last resort option, not the first one in the list of development agencies or farmer groups.

Certain types of market exchange can be most successful if individuals engage other market agents on their own. If a farmer wants to sell his or her wheat crop, it is unlikely that he or she could do better than selling it to the local mill. This fact is not going to be altered significantly even if 50 or 100 small farmers sell their crop collectively.

EACs are needed when farmers' marketing objectives involve high transaction costs. An institution can reduce or offset such costs, by gaining access to the goods and services that the market alone will not deliver. If farmers do not get together, the market will not deliver cooling tanks for their milk; they will not have access to expert advice on processing and exporting raspberries; they will not gain a contract to deliver potatoes to a supermarket; the market will not deliver the long-term financing needed to set up a vegetable packing and storage facility.

Often such activities require the existence of a formal organization, i.e, a legal entity recognized as such by other market and non-market agents. This allows the group to enter into valid and enforceable agreements and contracts. This is when an EAC becomes indispensable.

3. Effective and sustainable EACs are the product of social learning processes

We have made much progress in Chile in moving away from the linear transfer of technology mentality. However, we still have a long way to go in developing a widely-agreed alternative approach. In other words, we are much more aware of how not do things because we have seen what does not work. But we are less clear about how we should do things differently.

In my view, an alternative approach to developing more effective and sustainable EACs should be built around the concept of social learning. I think that this study has shown that effective and sustainable EACs are not the product of pre-conceived social engineering initiatives, in which 'someone' illuminates a group of farmers with the knowledge and skills they lack and which, once adopted, automatically produce a successful business-oriented organization.

Instead, the development of effective and sustainable EACs involves:

- communicating and negotiating across several public-private and private-social divides, and between different stakeholders, each with their own interests and own perspectives about what needs to be done;
- negotiating difficult trade-offs between different actors, different objectives, and different courses of action;

- building networks linking EACs with individual farms, rural communities, government agencies, markets and intermediate support organizations;
- developing a shared understanding of the gaps between initial expectations and actual outcomes of the collective action effort;
- finding meaningful and constructive common ground between the expertise and skills of the technical, management and business specialists, and the logic of peasant economies;
- ensuring access by EAC members, leaders, staff and advisors to the information, knowledge and skills required to support effective decision-making;
- creating an ability to deal with change and a capacity to read and react to unexpected and surprising events;
- developing a capacity to probe, experiment and monitor processes, performance and outcomes;
- finding methods to embed the results of all of the above into new knowledge that can inform further action.

And then we need to scale-up this learning process, to continuously adapt the design and implementation of the public policies and programs which support EAC development.

None of this is happening in any systematic way today in Chile, and we are thus missing a tremendous opportunity to improve our work both at the level of each EAC and of the pertinent public policies and programs.

I feel strongly that if we are going to make further progress in developing more effective and sustainable EACs, we must embark on a very significant campaign of *learning to learn*. We need to invest heavily in becoming equipped with the concepts, methods and tools for facilitating social learning processes for EACs. This is the only way forward. Otherwise the whole process will be coopted by those who think that the solution is to put good business managers in charge, just as before they thought that a well-organized extensionist with the support of a good 'subject matter specialist', could conquer all technical problems and get small farmers up to par.

4. Investing in human capital

Social learning is not contradictory, nor can it replace well-designed, strong and comprehensive training programs directed at EAC members, leaders and staff, as well as the staff of intermediate support organizations, and of the government agencies responsible for the policies and programs which support of small-scale organizations.

EACs place small farmers and those who work with them in new contexts. We must not let an EAC reach crisis point before its leaders and members learn about the importance of good accounting systems; or the practical consequences of the difference between a firm's cash flow and the net result of a business operation; or why the notion of depreciation of fixed assets was invented in the first place. We cannot expect technical advisors to stop talking about weed control in wheat and start emphasizing cut-flower production if we do not give them access to the best possible knowledge and expertise in these new areas. We should not ask small farmers to collectively take out a loan for hundreds of thousands of dollars if we cannot be sure that the project has been evaluated according to the most rigorous technical standards. We cannot seriously talk about building robust sets of operational rules within the organizations if we do not prepare farmers, their leaders and advisors, with the skills necessary to facilitate good communication processes. It is difficult to think how we can build the types of networks that EACs need to perform well, if we lack the methods and instruments to negotiate concerted action between multiple stakeholders with their own perspectives.

The effort to develop the human capital in and around EACs has been negligible compared to the hundreds of millions of dollars invested in 'brick and mortar' projects. We must debate very seriously the wisdom of this approach, and start thinking about more appropriate ways to make up for the time lost in providing all these actors in and around EACs with the knowledge, capacities, and skills that

are indispensable in their new domains of activity.

5. Thinking and acting in terms of networks

More work is needed to not only understand and learn how to work with EACs, but with EACs in the context of multi-agent networks.

Too often the other participants in the network are treated as parameters external to the EAC development initiative. For example, we can invest thousands of dollars in financial and technical support to the EAC itself, whilst lessening support to members' farms; this gives the EAC the impossible task of adding value to and marketing low quality and expensive products. Or we encourage EACs to venture into very competitive and demanding markets, without considering whether the intermediate support organizations actually have the expertise required to provide meaningful advice in the new market context. Or we encourage an EAC to enter into contracts with a powerful supermarket chain, but fail to analyze in time what the new standards and conditions will mean in terms of demands for new technologies and new investments, new forms of technical advice, and a radically new demand on the EAC's cash flow, all of which require changes in the organization's operational rules. Or we form an EAC in a social setting were there is no evidence of any previous history of collective action.

All of these are actual examples, taken from the case studies, of how in practice we have not been very good at looking at EACs as elements of multi-agent networks. Again, the need is for a concerted effort to invest in the development of the concepts, methods and tools that will enable us to become more aware and adept at working within a network perspective.

6. EACs transmit market signals

EACs are set up with the explicit purpose of providing an organizational platform for small farmers to reach more dynamic and profitable markets. Almost always this means that they will be subject to more, not less, intense competition. A peasant selling his or her raspberries to the traditional middlemen, may not make as much money as he or she could, but he or she will almost always manage to sell the crop, no questions asked; but if the EAC wants to get into the export market, then it better be prepared to do what it takes to avoid being torn apart by much tougher competitors. EACs cannot have it both ways, then cannot have their cake and eat it too!

Understandably, public programs which support small farmers want to somehow protect them from the adverse consequences of getting into these fiercely competitive markets. This is not the issue. It would be foolhardy to design a public policy that does not contain mechanisms to ease the transition. The question is how do we do it? Until now, the knee-jerk reaction has been to make use of subsidized loans and direct grants that decouple EACs from market signals. I think that this study provides abundant evidence that, as many farmers told me, this is "*pan para hoy, hambre para mañana*" (bread for today, hunger tomorrow).

We need to develop more appropriate, conducive and, above all, *sustainable* instruments for easing small farmers' transition into more competitive markets. What are the insurance systems, the risk-sharing public-private contracts, the financial instruments, the forms of technical support, the training programs, the government regulations, the fiscal incentives, the legal frameworks, that can simultaneously help small farmers and their EACs learn their way around the new markets, whilst not creating artificial 'bubbles' which burst the day external funding stops? I don't have the answer to this question, but it is one that we need to address seriously and urgently.

If we do not find good answers to this question, all our calls for government agencies and intermediate support organizations to stop behaving paternalistically towards small farmers, will fall on deaf ears.

13.5 Final thought

To reiterate, the greatest asset we have for improving the public policies which support small-scale agriculture is the experience of the thousands of farmers, their organizations and their public and

private advisors and supporters. The results have not been as good as we expected in the mid-90s when we were just getting started, but they rarely are when the changes introduced are meaningful and depart from well-travelled paths. But if we dare to take a hard, critical look at what has been done, and *to think and act with freedom*, then I am sure that many Chilean small farmers and rural communities will be able to secure a place in their society, one of which they will be proud of. To those who think that this is naive, I can only say: they have done it before.

REFERENCES

Amat, O. 1998. *Comprender la Contabilidad y las Finanzas*. Ediciones Gestión 2000. Barcelona, Spain.

Argyris, C. 1992. *On Organizational Learning*. Oxford, Blackwell. 450pp.

Axelrod, R. and Cohen, MD. 1999. *Harnessing Complexity. Organizational implications of a scientific frontier.* The Free Press. New York.

Bardhan, P. 1993. Analytics of the institutions of informal cooperation in rural development. *World Development* 21 (4): 633-639.

Bardhan, P. 1989a. Alternative approaches to the theory of institutions in economic development. In: P. Bardhan (Ed.). *The Economic Theory of Agrarian Institutions*. Clarendon Press, Oxford, UK.

Bardhan, P. (Ed.)1989b. *The Economic Theory of Agrarian Institutions*. Clarendon Press, Oxford, UK.

Bates, RH. 1987. *Essays on the Political Economy of Rural Africa*. Berkeley, University of California Press.

Bebbington, A. 2001. Globalized Andes? Landscapes and livelihoods in the Andes. *Ecumene: A journal of cultural geography* 8 (4): 414-436.

Bebbington, A. 1999. Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty in the Andes. *World Development* 27 (12): 2021-2044.

Bebbington, A. 1997. Social capital and rural intensification: local organizations and islands of sustainability in the rural Andes. *Geographical Journal* 163 (2): 189-197.

Bebbington, A. 1996. Organizations and intensifications: small farmer federations, rural livelihoods and agricultural technology in the Andes and Amazonia. *World Development* 24 (7): 1161-1178.

Berdegué, JA. 1999. Documento de síntesis de la VI Conferencia Electrónica de FIDAMERICA *"De cara a la globalización: Organizaciones Económicas Rurales en América Latina y el Caribe"*. www.fidamerica.cl/actividades/conferencias/oec/finaloec.html

Berdegué JA. 1998. Organisation of agricultural extension and advisory services for small farmers in selected Latin American countries. In: F. Dolberg and Poul Henning Petersen (eds.) *Maximizing the Influence of the User: Alternatives to the Training and Visit system.* Tune, Denmark: The Danish Agricultural and Rural Development Advisers Forum.

Berdegué, JA., Ramírez, E., Reardon, T., and Escobar, G. 2001. Rural nonfarm employment and income in Chile. *World Development* 29 (3): 411-425.

Berdegué JA., and Marchant C. 2000. *Chile's Agricultural Advisory Services for Small Farmers, 1978-2000.* Unpublished manuscript.

Berdegué, JA. and Escobar, G. 1997. Markets and modernisation: new directions for Latin American peasant agriculture. *Gatekeeper Series* N° 67. International Institute for Environment and Development, London.

Buck, SJ. 1998. *The Global Commons. An Introduction*. Island Press. Washington, D.C.

Calas, M. and Smircich, L. 1991. Voicing sedition to silence leadership. *Organization Studies* 12(4): 567-601.

Carletto, C., de Janvry, A., and Sadoulet, E. 1999. Sustainability in the diffusion of innovations: smallholder nontraditional agro-exports in Guatemala. *Economic Development and Cultural Change* 47 (2) 345-369.

CEPAL. 1984. *Economía Campesina y Agricultura Empresarial.* Editorial Siglo XXI. México. Comisión Económica de las Naciones Unidas Para América Latina (CEPAL), Santiago.

CIOEC-B. 2000. *Agenda para el Desarrollo Estratégico de las Organizaciones Económicas Campesinas.* Unpublished manuscript. Comité Integrador de Organizaciones Económicas Campesinas de Bolivia (CIOEC-B), La Paz, Bolivia.

Cochrane, W. 1979. *The Development of American Agriculture: A Historical Analysis.* University of Minnesota Press, Minneapolis.

Cochrane, W. 1958. *Farm Prices, Myth and Reality.* University of Minnesota Press, Minneapolis.

Cohen, D., and Prusak, L. 2001. *In Good Company. How social capital makes organizations work.* Harvard Business School Press. Boston.

Coleman, J. 1988. Social capital in the creation of human capital. *American Journal of Sociology* 94 (Supplement): S95 - S120.

Dawes, R.M. 1973. The commons dilemma game: an n-person mixed-motive game with a dominating strategy for defection. *ORI Research Bulletin* 13: 1-12

De Janvry, A. and Sadoulet, E. 2001. Pobreza rural y diseño de estrategias efectivas de desarrollo rural. In: Clemens, H., and Ruben, R. 2001. (Eds). *Nueva Ruralidad y Política Agraria. Nueva Sociedad,* Caracas, Venezuela.

De Janvry, A., and Sadoulet, E. 1998. Smallholder integration into markets: determinants of entry and supply response. Paper presented at the Tercer Simposio Latinoamericano sobre Investigación y Extensión en Sistemas Agropecuarios (IESA.AL III), *Nuevos Enfoques para la Superación de la Pobreza Rural y para el Desarrollo de las Capacidades Locales.*, Lima, Peru.

De Janvry, A, Fafchamps, M. and Sadoulet, E. 1991. Peasant household behavior with missing markets. Some paradoxes explained. *The Economic Journal* 101(409).

De Janvry, A., Sadoulet, E. and Fafchamps, M. 1989. Agrarian structure, technological innovations and the State. In: Bardhan, P. 1989. (Ed.). *The Economic Theory of Agrarian Institutions.* Clarendon Press, Oxford, UK

Echenique, J. 2000. Análisis prospectivo de la agricultura chilena. In: ODEPA. 2000. *La Agricultura Chilena del 2010.* Office of Agrarian Studies and Policies, Ministry of Agriculture (ODEPA), Santiago, Chile.

Escobar, G. and Berdegué, JA. (Eds). 1990. *Tipificación de Sistemas Agrícolas.* RIMISP. Santiago.

Evans, P. 1996. Government action, social capital and development: reviewing the evidence on synergy. *World Development* 24 (6): 1033-1037.

Fafchamps, M. 1992. Solidarity networks in preindustrial societies: rational peasants with a moral economy. *Economic Development and Cultural Change* 41 (1): 147-174.

Fox, J. 1996. How does civil society thicken? The political construction of social capital in rural Mexico. *World Development* 24 (6) 1089-1103.

FUNDES. 2001. *Evaluación del Estado Económico-Financiero de Empresas Asociativas Campesinas (EAC).* Informe Final. Unpublished manuscript. FUNDES, Chile.

Gómez, S. 2001. *Organización Campesina en Chile: Reflexiones sobre su debilidad actual.* Unpublished manuscript.

Gordillo, G. 1999. Social mobilisation as means of production. Paper presented at the VI FIDAMERICA Electronic Conference: *De cara a la globalización: Organizaciones Económicas Rurales en América Latina y el Caribe.* http://www.fidamerica.cl/actividades/conferencias/oec/gording.html

Hardin G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.

Hardin R. 1982. *Collective Action.* The John Hopkins University Press, Baltimore. 248 pp.

Heckman, J. 1979. Sample selection bias as a specification error. *Econometrica* 47 (1): 153-162Hirschman A. 1984. *Getting Ahead Collectively: Grassroots experiences in Latin America.* New York: Pergamon Press.

Holloway, G., Nicholson, C., Delgado, C., Staal, S., and Ehui, S. 2000. Agroindustrialization through institutional innovation. Transaction costs, cooperatives and milk market development in the east African highlands. *Agricultural Economics* 23: 279-288.

Hubert, B., Ison, RL., and Röling, N. 2000. The 'problematique' with respect to industrialised-country agricultures. In: LEARN Group (editors). *Cow Up a Tree. Knowing and learning for change in agriculture. Case studies from industrialised countries.* INRA, Paris.

IFCN. 2000. *La Competitividad en Producción Lechero de los Países de Chile, Argentina, Uruguay y Brasil. Reporte final.* Unpublished manuscript. International Farm Comparison Network.

INDAP. 1995. *Memoria Anual 1995.* Agricultural Development Institute (INDAP), Santiago, Chile.

INDAP. 1994. *Memoria Anual 1994.* Agricultural Development Institute (INDAP), Santiago, Chile.

INDAP. 1992. *Memoria Anual 1992.* Agricultural Development Institute (INDAP), Santiago, Chile.

Jofré, H. and Monje, R. 2001. *Informe a un Año y Medio de Funcionamiento del Programa de Aseguramiento de la Calidad Higiénica de Leche Cruda.* INDAP X Región, Puerto Montt, Chile. Unpublished manuscript.

LEARN Group (Editors). 2000. *Cow Up a Tree. Knowing and learning for change in agriculture. Case studies from industrialised countries.* INRA Editions, Paris.

Levi, M. 1988. *Of Rule and Revenue.* Berkeley, University of California Press.

López, R. 1996. Determinantes de la pobreza rural en Chile: Programas públicos de extensión y crédito, y otros factores. *Cuadernos de Economía* 33 (100) pp: 321-343.

Lyon, F. 2000. Trust, networks and norms: the creation of social capital in agricultural economies in Ghana. *World Development* 28 (4): 663-681.

MIDEPLAN, 1999. Pobreza Rural en Chile. Documentos Regionales N° 48. Ministry of Planning and Cooperation (MIDEPLAN), Santiago, Chile. Nagengast, C. and Kearney, M. 1990. Mixed ethnicity: social identity, political consciousness and political activism. *Latin American Research Review* 25 (2): 61-91.

Ministerio de Economía and Ministerio de Agricultura. 1998. *Evaluación de Instrumentos de Fomento Productivo. Programa de Transferencia Tecnológica del Instituto de Desarrollo Agropecuario. Informe Final.* Comité Interministerial de Desarrollo Productivo, Santiago, Chile.

Nestlé Chile S.A, 1999. El proveedor de hoy. *Boletín Nestlé* 19 (57): 3-4.

Nonaka, I., and Takeuchi, H. 1995. *The Knowledge Creating Organization*. Oxford University Press. New York.

North, DC. 1996. Economic performance through time. Prize Lecture in Economic Science in Memory of Alfred Nobel, December 9, 1993. In: Alston, L. Eggertsson, T., and North, DC. (Eds.). *Empirical Studies in Institutional Change*. Cambridge University Press, Cambridge.

North, D. 1990. *Institutions, Institutional Change and Economic Performance.* New York, Cambridge University Press.

Nugent, JB. 1993. Between state, markets and households: a neoinstitutional analysis of local organizations and institutions. *World Development* 21(4): 623-632

ODEPA. 2001. *Boletín de la Leche, Año 2000*. Office of Agrarian Studies and Policies, Ministry of Agriculture (ODEPA), Santiago, Chile.

ODEPA. 2000. Clasificación de las explotaciones agrícolas del VI Censo Nacional Agropecuario según tipo de productor y localización geográfica. *Documento de Trabajo* N° 5. Office of Agrarian Studies and Policies, Ministry of Agriculture (ODEPA), Santiago, Chile.

Olson, M. 1965. *The Logic of Collective Action. Public goods and the theory of groups*. Cambridge, Mass., Harvard University Press.

Ostrom, E. 1999. Design principles and threat to sustainable organizations that manage commons. Paper presented at the VI FIDAMERICA Electronic Conference *De Cara a la Globalización: Organizaciones económicas rurales en América Latina y el Caribe.*
http://www.fidamerica.cl/actividades/conferencias/oec/ostroing.html.

Ostrom, E. 1996. Crossing the great divide: coproduction, synergy, and development. *World Development* 24 (6) 1073-1087.

Ostrom, E. 1992. Community and the endogenous solution of common problems. *Journal of Theoretical Politics* 4 (3): 343-352

Ostrom, E. 1990. *Governing the Commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

Ostrom, E., Gardner, R. and Walker, J. 1994a. *Rules, Games and Common-pool resources.* Ann Arbor MI, University of Michigan Press.

Ostrom, E, Wai Fung Lam and Myunsguk Lee, 1994b. The performance of self-governing irrigation systems in Nepal. Human Systems Management 13 (3): 197-207.

Ostrom, E., Schroeder, L., and Wynne, S. 1993. *Institutional Incentives and Sustainable Development. Infrastructure Policies in Perspective.* Westview Press. Boulder, Colorado.

Petit, M. 2000. Cow Up a Tree. A critical assessment. In: LEARN Group (Eds.). *Cow Up a Tree. Knowing and learning for change in agriculture. Case studies from industrialised countries.* INRA Editions, Paris.

Portes, A., and Landolt. 1996. The downsize of social capital. *The American Prospect* 26: 18-21.

Putnam, R. 1993. The prosperous community: Social capital and public life. *The American Prospect* 13: 35-42.

Ramírez, E., Berdegué, JA., Caro, JC. and Frigolet, D. 2001. *Estrategias de Generación de Ingresos de Hogares Rurales en Zonas de Concentración de Pobreza Entre 1996 y 2000*. Unpublished manuscript.

Reardon, T., Berdegué JA., and Escobar, G. 2001. Rural nonfarm employment and income in Latin America. Overview and policy implications. *World Development* 29 (3): 395-409.

Röling, N. 2000. *Gateway to The Global Garden: Beta/Gamma science for dealing with ecological rationality.* Eighth Annual Hopper Lecture, October 24, 2000, University of Guelph, Guelph, Ontario, Canada.

Röling, N. 1988. *Extension Science.* Cambridge University Press, Cambridge.

Röling N., and Engel P. 1991. The development of the concept of Agricultural Knowledge and Information Systems (AKIS): implications for extension. In: Rivera W., and Gustafson, D. (Eds.). *Agricultural Extension: Worldwide evolution and forces for change.* Amsterdam, Elsevier Science Publishers.

Röling, N., Jiggins, J., and Leeuwis, C. 1998. *Treadmill Success and Failure: The challenge for FSR/E.* Proceedings of the 15th International Symposium of the Association for Farming Systems Research and Extension (AFSRE), Volume 2, p. 860-66. AFSRE, Pretoria, South Africa.

Röling, N., and Jiggins, J. 1998. The ecological knowledge system. In: Röling, N. and Wagemakers, MAE. (Eds.). *Facilitating Sustainable Agriculture.* Cambridge University Press. Cambridge, UK.

Ruben, R. 1997. *Making Cooperatives Work. Contact Choice and Resource Management within Land Reform Cooperatives in Honduras.* PhD Thesis, Vrije Universiteit, The Netherlands.

Rubio, M. 1997. Perverse social capital: some evidence from Colombia. *Journal of Economic Issues* 31 (3): 805-816.

Sexton, R. and Iskow, J. 1988. Factors critical to the success or failure of emerging agricultural cooperatives. *Giannini Foundation Information Series* N° 88-3. Giannini Foundation of Agricultural Economics, University of California, Berkeley.

Stake, RE. 1994. Case studies. In: Denzin, NK. and Lincoln, YS. 1994. *Handbook of Qualitative Research.* SAGE Publications, Thousand Oaks, California.

Stiglitz, JE. 1989. Rational peasants, efficient institutions and a theory of rural organizations: methodological remarks for development economics. In: P. Bardhan (Ed.) *The Economic Theory of Agrarian Institutions.* Clarendon Press, Oxford, UK.

Stiglitz, JE. 1986. The new development economics. *World Development* 14: 257-65.

Stoneman, P. and Ireland, N. 1983. Technological diffusion, expectations and welfare. *Oxford Economic Papers* 38: 283-304.

Sugden R. 1984. Reciprocity: The supply of public goods through voluntary contributions. *The Economic Journal* 94: 772-787.

Sunding D. and Zilberman, D. 2001. The agricultural innovation process: research and technology adoption in a changing agricultural sector. In: Gardener BL. and Rausser, GC. (Eds). *Handbook of Agricultural Economics, Volume 1A: Agricultural Production.* North-Holland.

Tarrow, S. 1994. *Power in Movement: Social movements, collective action and politics.* Cambridge, Cambridge University Press.

Taylor, M. 1982. *Community, Anarchy and Liberty.* New York, Cambridge University Press.

Tendler, J. 1993. *New Lessons From Old Projects: The workings of rural development in Northeast Brazil.* A World Bank Operations Evaluation Study. Washington DC: The World Bank.

Tendler, J. 1993. Tales of dissemination in small-farm agriculture: Lessons for institution builders. *World Development* 21 (19) 1567-1582.

Universidad Austral. 1999. *Competitividad de la Producción Lechera Nacional. Tomos I y II.* Universidad Austral, Valdivia, Chile.

Uphoff, N. 1999. Understanding social capital: learning from analysis and experience of participation. In: Partha, D. and Serageldin, I. (Eds.) *Social Capital: A Multifaceted Perspective.* The World Bank, Washington, D.C.

Uphoff, N. 1993. Grassroots organizations and NGOs in rural development. Opportunities with diminishing states and expanding markets. *World Development* 21 (4) 607-622.

Uphoff, N. and Wijayaratna, CM. 2000. Demonstrated benefits from social capital: the productivity of farmer organizations in Gal Oya, Sri Lanka. *World Development* 28 (11): 1875-1890.

Vargas, G. and Foster, W. 2000. *Concentración y Coordinación Vertical en la Agricultura Chilena.* Paper presented at the Workshop *"Concentración de los segmentos de transformación y mercadeo del sistema agroalimentario y sus efectos sobre los pobres rurales"*, Santiago de Chile, 27-28 de Noviembre de 2000, RIMISP.

Walters, BB., Cadelina, A., Cardano, A., and Visitacion, E. 1999. Community history and rural development: why some farmers participate more readily than others. *Agricultural Systems* 59: 193-214.

White TA. and Runge, FC. 1995. The emergence and evolution of collective action: lessons from watershed management in Haiti. *World Development* 23(10): 1683-1698.

Williamson, O. 1985. *The Economic Institutions of Capitalism.* Free Press, New York.

Woolcock, M. and Narayan, D. 2000. Social capital: implications for development theory, research and policy. *The World Bank Research Observer* 15 (2): 225-249.

Samenvatting

Context en achtergrond van het onderzoek

Vanaf 1990 heeft de Chileense overheid veel moeite genomen om de deelname van kleinschalige landbouw te bevorderen in een van de meest geliberaliseerde en competitieve economieën van de ontwikkelingswereld. In het bijzonder heeft het Landbouwontwikkelingsinstituut (INDAP), een afdeling van het ministerie van Landbouw, bijna 1,5 miljoen US $ besteed aan technische assistentie en investeringsprogramma's. Dit met het doel de capaciteiten en kwalitatieve mogelijkheden van kleine boeren te versterken en ze te verbinden met meer dynamische en winstgevende markten. Een van de sleutelelementen in deze inspanning was de oprichting en ontwikkeling van *Empresas Asociativas Campesinas* (EAC's, associatieve bedrijven van kleine producenten).

EAC's zijn wettelijk gevormde organisaties. De leden of eigenaars zijn bijna alleen kleine boeren die het beslissingsproces van de organisatie in handen hebben. Dit soort organisaties voeren marketing en waarde-toevoegende activiteiten uit, direct verbonden aan de primaire productie van hun leden (voorwaarts en achterwaarts in de keten). Het belangrijkste doel van de EAC's is het verbeteren van de prestaties van de deelnemende bedrijven die als economische eenheden betrokken zijn in markttransacties.

In het laatste decennium zijn ongeveer 780 van deze EAC's opgericht met een totaal aantal leden van ongeveer 58.000 kleine boeren (ongeveer een vijfde van alle kleine boeren-bedrijven in het land). Hun brutoverkoop bedroeg in 1998 ongeveer 100 miljoen US $.

Dit programma behelst een nieuwe benadering om de economische prestatie van kleine boerenbedrijven te verbeteren alsmede het welzijn van de boerenhuishoudens. Het is een belangrijke trendbreuk met de traditionele strategie van technologieoverdracht van landbouwinnovaties met de nadruk op het verhogen van de opbrengsten van bulkproducten. Deze nieuwe benadering, die sinds 1990 langzaam is ontwikkeld, beoogt daarentegen: (a) vorming van kleinschalige marktgerichte bedrijven te bevorderen (wat in Chili een verandering van traditionele bedrijven betekent en een nieuwe waarde toevoegt), (b) de lineaire verhoudingen van onderzoek-voorlichting-boer te vervangen door meer complexe en diverse privaatpublieke netwerken en allianties, (c) de EAC's te erkennen als de primaire vertegenwoordigers van de kleine boeren in het ontwikkelingstraject van de landbouw, (d) nieuwe facilitatie processen te ontwikkelen om de nieuwe strategie te ondersteunen.

De onderzoeksvragen

Het onderzoek richtte zich op de volgende vragen: (a) Hebben EAC's hun doel bereikt om de prestaties van de bedrijven van hun leden en het huishoudinkomen te verbeteren? (b) Zijn EAC's duurzaam als economische organisaties? (c) Wat is de relatie tussen de institutionele en economische prestaties van deze EAC's? en (d) Welke veranderingen in publiek beleid zijn nodig om effect en duurzaamheid van deze EAC's te bevorderen?

Conceptueel kader en methoden

In dit onderzoek is een multidisciplinaire benadering gehanteerd, gebruikmakend van diverse theoretische perspectieven waaronder: de concepten van landbouwkundige kennis- en informatiesystemen en van innovatie als het resultaat van maatschappelijke leerprocessen (*social learning*) binnen *multi-agent* netwerken; het concept van transactiekosten zoals gebruikt in de neoninstitutionele economie; de theorie van maatschappelijk kapitaal en het concept van ontwerpprincipes voor de institutioneel sterke organisaties voor gemeenschappelijke acties, zoals voorgesteld door vergelijkende institutionele analyse.

Het onderzoek combineert beschrijvende en analytische kwantitatieve methoden toegepast op grote gegevensbestanden uit nationaal onderzoek naar boerenhuishoudens, kleine boerenbedrijven en

EAC's, met 14 kwalitatieve verdiepende studies van specifieke organisaties betrokken bij de productie, marketing en waarde-toevoeging aan melk, aardappels, groenten en frambozen.

Resultaten

De belangrijkste resultaten zijn als volgt:

1. De deelname van kleine boeren in EAC's is meer afhankelijk van markt- en beleidsprikkels dan van de hen ter beschikking staande middelen. De armste lagen van de boerenhuishoudens vormen hierop een uitzondering. Zij neigen niet naar deelname in deze organisaties. Marktprikkels zijn nauw verbonden aan de transactiekosten van de boeren. EAC lidmaatschap is daarom hoger onder kleine boeren die werken in productmarkten met hoge transactiekosten.
2. Maatschappelijke groepen en organisaties faciliteren de vorming van EAC's, omdat zij voorzien in een initieel forum waar alternatieven worden bediscussieerd, afgewogen en besloten. Deze locale groepen 'incuberen' EAC's. De locale traditie van plattelandsorganisaties op zichzelf lijkt echter geen beslissende invloed te hebben, omdat veel regio's met een hoge graad van burgerorganisatie een laag ledenaantal in EAC's hebben, en *vice versa*.
3. De steun van externe vertegenwoordigers (zoals NGO's, private voorlichtingsbedrijven etc.) is essentieel voor de opkomst van EAC's. Terwijl lokale leiders werken aan de bereidheid van boeren om de status-quo ter discussie te stellen en om actie te ondernemen, voorzien externen de EAC's in zowel een 'wegenkaart' voor gezamenlijke actie als de netwerken die nodig zijn om informatie, expertise en financiering te verkrijgen.
4. EAC's ontstaan daarom door de interactie tussen al deze actoren: individuele boeren, plattelandsgemeenschappen, externe facilitatoren, overheden en markten. De aard van deze initiële interactie en het saldo van de bijdrage van iedere vertegenwoordiger heeft een bepalende invloed op de eigenschappen en toekomstige prestaties van de EAC's.
5. EAC lidmaatschap heeft alleen een significante positieve effect op de netto winstmarges van de leden, wanneer ze opereren in markten met hoge transactiekosten, zoals de melkveehouderij. Een EAC heeft geen voordelen voor kleine boeren die in markten met lage transactiekosten opereren, zoals de 'spot markets' voor bulkproducten van o.a. tarwe of aardappelen.
6. EAC deelname heeft geen aanmerkelijk effect op het totale inkomen van de leden, zelfs niet wanneer het gaat om markten met hoge transactiekosten. Inkomsten uit de agrarische activiteiten, worden ondermijnd door het corresponderende verlies van niet agrarische activiteiten en inkomstmogelijkheden.
7. Een grote meerderheid van EAC's zou niet levensvatbaar zijn zonder overheidssubsidies. Slechts 20% van de EAC's zouden waarschijnlijk overleven als de huidige overheidsprogramma's plotseling werden afgebroken; een extra 15 % zouden hun positie relatief snel kunnen handhaven als zij hun manier van werken zouden veranderen.
8. EAC's die voornamelijk opgezet zijn om bulkproducten te verhandelen in 'spot' of 'wholesale' markets neigen te falen. Dat gebeurt wanneer hun leden hun afspraken over het gezamenlijk vermarkten van hun productie niet nakomen. De betrokkenheid van de leden vermindert wanneer zij zich realiseren dat, onder deze marktomstandigheden, de EAC geen voordeel in marktprijzen of andere marktvoordelen kan bewerkstelligen, terwijl het lidmaatschap wel een aantal aanvullende kosten en risico's met zich meebrengt in vergelijking tot individuele verkoop alleen. Bovendien onttrekken de leden zich selectief: soms vermarkten ze zelf hun producten maar doen nog wel hun voordeel met andere diensten van de EAC's zoals toegang krijgen tot overheidsprogramma's en -subsidies. Onder deze omstandigheden worden EAC's snel ondermijnd.
9. Aan de andere kant kunnen EAC's succesvol zijn wanneer hun kernactiviteiten gericht worden op: (a.) het veredelen van de ruwe grondstofproducten van de leden; (b.) het voorzien in prijs- en marktinformatie als het kostbaar is om die te verkrijgen en het moeilijk is om zonder die informatie een goede prijs te maken; (c) het overwinnen van hindernissen bij de toegang tot de

markt op het gebied van investeringen, technologie, of kennis en management ; en (d) het ontwikkelen van de portfolio van hun cliënten, in het bijzonder als het om snel bederfelijke goederen gaat.

10. Effectieve EAC's zijn onderdeel van effectieve multi-agent netwerken. Verbindingen naar actoren buiten de plattelandgemeenschappen zijn doorslaggevend bij het ondernemen in dynamische en competitieve markten.

11. Wanneer EAC's ingebed zijn in plattelandgemeenschappen, zijn hun interne regels en beslissingsprocessen effectiever en goedkoper vanwege de sociale en geografische nabijheid van de leden. Bijvoorbeeld wordt het monitoren goedkoper van het aangaan van overeenkomsten en verplichtingen door de leden, reduceert het de heterogeniteit van de leden en draagt op zijn beurt bij aan het formuleren van voor iedereen acceptabele regels; verhoogt het de maatschappelijke kosten en consequenties voor leden die zich niet aansluiten aan afspraken en verplichtingen, verzekert het een rechtvaardige en passende sanctie van diegenen die de regels breken, (dankzij betere locale informatie over de context waarin de schending plaatsvindt), en het voorziet in hogere en betere deelname aan organisaties. Een sociale en geografische nabijheid kan de operationele regels van de EAC's echter ook ondermijnen, bijvoorbeeld wanneer de handhaving van de overeenkomsten wordt belemmerd door familieverplichtingen, of wanneer diegenen met meer macht in de gemeenschap een te grote invloed uitoefenen binnen de EAC.

12. Een EAC zal uiteindelijk mislukken wanneer het systeem van regels de leden afschermt van marktsignalen. Effectieve interne regelsystemen moeten zich niet alleen richten op de verdeling van kosten en baten tussen de individuele leden ('profiteurs' uitsluiten), maar ook op de distributie van kosten en baten tussen de leden als individuele en onafhankelijke boeren en de EAC als een zakelijk georiënteerde organisatie. De balans tussen de economische en financiële prestaties en de duurzaamheid van de EAC's aan de ene kant, en de impact van de gezamenlijke inspanning op individuele bedrijven en huishoudens aan de andere kant, hangt af hoe dit tweevoudige verdelingsprobleem wordt opgelost. Alleen wanneer de regels duidelijke marktsignalen aan de individuele leden doorgeven, *en* wanneer deze regels de transactiekosten van onderhandelen, monitoring, en het dwingen van overeenkomsten tussen de EAC en haar leden effectief vermeerderen, kan dit probleem worden opgelost.

Denken aan de toekomst

Het beleid en de programma's die ontworpen zijn gedurende het laatste decennium hebben hun beslag gehad. Tientallen EAC's verkeren in crisis, hetgeen een noodzaak aantoont van een strategiewijziging teneinde de kwaliteit van de huidige EAC's te verbeteren. Zulke EAC's moeten: (a) effectiever zijn in het verbeteren van prestaties van hun leden als onafhankelijke boeren in een markteconomie, (b) steeds meer duurzaam en autonoom handelen als bedrijven en (c) institutioneel sterk zijn als maatschappelijk platform voor gezamenlijk handelen. Om deze doelen te bereiken, zou gewijzigd beleid:

1. alternatieven moeten ontwikkelen voor de duizenden kleine boeren die traditionele landbouwprodukten produceren en die geen kennis of mogelijkheden hebben met betrekking tot vernieuwing van producten en markten. Voor velen kunnen deze alternatieven gevonden worden in nieuwe rurale niet-agrarische activiteiten. Als de opties voor plattelandsontwikkeling beperkt zullen blijven tot alleen landbouw, dan zal politieke druk om EAC's op te zetten die ineffectief zullen zijn onweerstaanbaar zijn.

2. niet moeten aannemen dat het vormen van een EAC altijd het goede antwoord is. EAC's zijn alleen effectief onder bepaalde condities en kunnen een kleiner aantal doelen bereiken dan 10 jaar geleden gedacht was. EAC's zijn geen panacees voor het ontwikkelen van 'sociaal kapitaal' en van participatie van burgers op het platteland. Dit is ook waar voor die politiek en programma's die ontworpen zijn om de productieve, technologische en economische ontwikkeling van kleine boeren te verbeteren. Om zulke beleidsdoelen te bereiken moeten overheidsprogramma's werken met een ruimer kader van plattelandsorganisaties en –groepen, en niet alleen maar steunen op

EAC's.

3. sociaal leren moeten bevorderen als deel van de ontwikkeling van EAC's. Hoewel er significante vooruitgang geboekt is in het afstand nemen van de lineaire technologie overdracht benadering, is het nog niet voldoende. Grotendeels blijven velen de ontwikkeling van EAC's als een uitkomst van vooronderstelde sociale sturingsinitiatieven zien. Deze studie toont aan dat succesvolle EAC's het resultaat zijn van geleidelijke en complexe vernieuwingsprocessen waar diverse disciplines met verschillende perspectieven bij betrokken zijn. We moeten meer investeren in het vinden van benaderingen en methodes om sociale leerprocessen in EAC-vorming en ontwikkeling te vergemakkelijken.
4. moeten investeren in menselijk kapitaal. De inspanning om menselijk kapitaal te ontwikkelen in relatie tot EAC's is verwaarloosbaar in vergelijking met de honderden miljoenen dollars die geïnvesteerd worden in infrastructuurprojecten. We moeten dringend beslissen hoe alle actoren voorzien kunnen worden van kennis, capaciteiten en vaardigheden, die onmisbaar zijn in hun nieuwe aandachtsgebieden.
5. moeten denken en handelen in termen van netwerken. Effectieve EAC's zijn deel van effectieve multi-agent netwerken. We moeten uitvinden hoe we met EAC's werken in de context van deze uitgebreidere netwerken. We hebben nieuwe concepten, methoden en gereedschappen, instrumenten nodig om dit werk te ondersteunen.
6. moeten begrijpen dat EAC's alleen dan slagen als ze duidelijke marktsignalen doorgeven. EAC's bieden een organisatorisch platform om kleine boeren meer toegang te geven tot dynamische en winstgevende markten. Dit betekent vrijwel altijd dat zij onderhevig zijn aan meer en niet minder intense concurrentie. Begrijpelijkerwijs, willen publieke programma's die kleine boeren ondersteunen hen enigszins beschermen tegen de nadelige consequenties van het zich begeven in hevig concurrerende markten. Niemand zal de noodzaak voor mechanismen om deze overgang te vergemakkelijken ter discussie stellen, maar de vraag is wel hoe dat te doen. Tot nu toe hebben we vrijwel uitsluitend gesteund op directe subsidies en gesubsidieerde leningen, die heel vaak de EAC's ontkoppelen van de marktsignalen waar ze op zouden moeten reageren. Hoe zien de verzekeringssystemen, de risicodelende privaatpublieke contracten, de trainingsprogramma's, de regels van de overheid en de wettelijke kaders eruit, die kleine boeren kunnen helpen en de EAC's hun weg leren vinden in de nieuwe markten, maar die geen kunstmatige luchtbellen creëren die knappen wanneer de externe financiering stopt? Met deze vraag in het achterhoofd moeten we institutionele experimenten stimuleren en ondersteunen.

CURRICULUM VITAE

Julio A. Berdegué Sacristán was born in Mexico in 1957. Since 1984, he has lived in Santiago, Chile. He is married to Rossana Pellizzari, a rural communications specialist, and they have five children: Fabio, Antonieta, Javier, Julio and Daniela.

Julio started his professional education at the former National School of Agriculture, Chapingo, Mexico (now Universidad Autónoma Chapingo), but was "expelled for life" (so read the decree) in 1976 after the military entered the campus to repress a student movement. After such a propitious start, in 1980 he completed his bachelor's degree in Agricultural Sciences at the University of Arizona, Tucson, USA. He went on to get his Master of Science degree in Agronomy at the University of California, at Davis (1982). He started working on his Ph.D. in Genetics at the same school, but after having counted several thousand germinated and un-germinated seeds as part of his thesis research on the inheritance of barley tolerance to saline soils, he decided that crop improvement was not his calling.

He worked (1984-1989) on peasant farming systems research and development projects for a Chilean NGO (the Agrarian Research Group). After a brief stay (1991-1992) with the Inter-American Institute for Cooperation on Agriculture (IICA) working on research-extension linkages, he was asked to head the Department of Agricultural Development of INDAP (Agricultural Development Institute), the agency of Chile's Ministry of Agriculture charged with supporting small scale agriculture (1992-1995); here he was responsible for the extension, credit, agroindustry and marketing, and irrigation programs. During his stay in INDAP, Julio was part of the group of people who designed and implemented many of the new strategies discussed in this dissertation. Since he left INDAP, he has headed the International Farming Systems Research Methodology Network (RIMISP), a Latin American organization working on new approaches in rural and peasant agricultural development. He has worked in most of the Latin American countries in the research, development, training, networking and consultancy projects in which he has participated.

Julio has published over 30 peer-reviewed articles and book chapters, and is co-editor of six books and special editions of international professional journals.

In 1989 and after much preaching about how to get ahead in the world of farming, Julio decided to see if he had what it takes, and he bought a 9 ha farm, which by now has grown quite a bit. Julio loses the money he makes as a researcher and development worker, producing vegetables under contract with agroindustries and for the fresh market, vegetable seeds, and potatoes.