AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

1. SUBJECT CLASSIFICATION

A. PRIMARY
Agriculture — AE70-0000-G516

B. SECONDARY
Distribution and marketing--Chile

2. TITLE AND SUBTITLE
Structural patterns in the marketing of selected agricultural products in Chile,the position of small and large growers

3. AUTHOR(S)
Fletschner,Carlos

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1971	199p.	ARC CI658.80963

7. REFERENCE ORGANIZATION NAME AND ADDRESS
Wis.

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*
(In Research paper no.42)

9. ABSTRACT

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-RAA-487	

12. DESCRIPTORS
Chile
Farms
Farms,small
Potatoes
Rice
Tomatoes

13. PROJECT NUMBER

14. CONTRACT NUMBER
Repas-3 Res,

15. TYPE OF DOCUMENT

AID 590-1 (4-74)

February 1971

RP No. 42

STRUCTURAL PATTERNS IN THE MARKETING OF SELECTED AGRICULTURAL PRODUCTS IN CHILE: THE POSITION OF SMALL AND LARGE GROWERS

by

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A Research Paper

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This paper is an abbreviated version of the author's Ph. D. thesis of the same title.

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I. INTRODUCTION

The Problem

During the last several decades Chile has been unable to produce sufficient food and other agricultural products for her needs. Total agricultural production has increased more slowly than population, resulting in decreased per-capita food production. Furthermore, as national per capita income increased, a rise in per capita demand has widened the gap between effective demand and domestic agricultural production. Shortages have been met by increasing imports, resulting in a greater dependence on international sources and a heavy burden on the balance of payments.

There seems little doubt that the agricultural sector has enough capacity to expand output to meet the country's needs. An adequate marketing system, for instance, could provide considerable economic incentives to the agricultural sector, stimulating production and yielding marketable surpluses in the short run, and possibly aiding recovery from the present stagnation in the long run. In addition, with increased marketing efficiency (providing the same services at lower cost) and savings transferred to the agricultural producer through better prices, consumer prices could remain constant or even be reduced without placing additional burdens on other sectors of the economy.

To improve the functioning of the marketing system and establish the necessary corrective measures, a deeper understanding of how the system functions and how different variables affect the agricultural producers in various situations is needed.

Each product market contains small and large sellers, some market their products individually, others, in groups. Large independent growers, large co-ops, and large marketing associations usually sell in quantity; small producers market only small quantities or trade only occasionally; sharecroppers, cash renters, and medium size farmers lie somewhere in between. Each seller or certainly each group has distinctive features, but in general larger producers are more market oriented than the more traditional small growers.[1]

These producers have considerably different degrees of power, and in addition, the groups may differ among themselves, both in control of the productive resources and in share of the economic product.

Hypotheses to be Tested

This study analyzes the behavior of small and large producers when confronting the markets, as well as the different market environments in which these growers operate when they sell their products.

It is hypothesized that small producers confront more difficulties and stand at a disadvantage when they market their products. Specifically, the study will try to test the validity of the following hypotheses:

1. Relative to large producers, small producers operate under several disadvantages:

   - more limited access to markets

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[1]Roberto Echeverría, El efecto de las políticas de precios agrícolas en las transferencias intersectoriales de ingresos, Documento de Discusión No. 12 (Santiago, Chile: Instituto de Economía, Universidad de Chile, 1963), pp. 96, 100.

- lower prices for their products
- less access to technical assistance and market information
- less access to credit

2. Relative to large producers, small producers have a lesser chance of benefitting from the general agricultural policies of the government and usually suffer the negative impacts of government policies.

3. The structure of the market accentuates the relative differences between small and large producers.

In order to provide specific details, this study examines the structure of selected agricultural product markets, noting geographic and economic differences, and at the same time presents an explanation of the most important marketing problems of small and large producers in each area. The study also analyzes the administrative and institutional barriers that condition access to and exit from the markets for each group.

II. METHODOLOGY

Theoretical Framework

Because of population increases, increased rural to urban migration, rising per capita purchasing power, and high income elasticity for marketing services (as compared with unprocessed food and raw material), marketing plays a crucial role in the development process. As soon as a community rises above subsistence level, the study of the marketing system becomes important;[2] yet only in recent decades can any significant interest in appraising the role of marketing in development be noted, and even now not enough is known about the subject.

Most of the analytical tools and procedures were designed to study more developed markets in advanced countries, although several methods[3] have been adapted to study marketing in developing economies:

1. Static distribution cost and efficiency proposes improvement programs and emphasizes reduction of costs in performing the different marketing functions.

2. Distribution, production, and consumption interrelationships studies the dynamic interconnections between activities of the individuals and enterprises in the production, distribution, and consumption sectors.

3. Market structure considers the organizational characteristics of the market and the behavior of the various participants.

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[2]Willard F. Mueller, "Some Market Structure Considerations in Economic Development," Journal of Farm Economics (December 1959), p. 415.

[3]J. T. Bonnen, C. K. Eicher, and A. A. Schmid, "Marketing in Economic Development," in Vernon L. Sorenson (ed.), Agricultural Market Analysis (Michigan: Michigan State University, 1964), p. 42.

These methods are not mutually exclusive, and marketing studies frequently combine elements from one or more of them.

Market structure analysis, essentially a problem-oriented approach, has been adapted with relative success to detect imperfections in marketing systems at different levels of development.[4] "Market structure" in this context is understood as the organizational characteristics

> which determine the relations of sellers in the market to each other, of buyers in the market to each other, of the sellers to the buyers, and of sellers established in the market to other actual or potential suppliers of goods, including potential new firms which might enter the market. In other words, market structure for practical purposes means these characteristics of the organization of a market which seem to influence strategically the nature of competition and pricing within the market.[5]

When analyzing market structure problems, major emphasis is generally placed on the following strategic aspects:

1. degree of seller concentration (number and size of sellers);
2. degree of buyer concentration (number and size of buyers);

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[4] Joe S. Bain, Industrial Organization (New York: John Wiley and Sons, 1959), p. 7. This approach has also been adapted with relative success to detect imperfections in the marketing systems of different underdeveloped countries. See: Hugh L. Cook, "Market Structure and Economic Development in the Philippines," Journal of Farm Economics (December 1959); Alice Dewey, Peasant Marketing in Java (New York: The Free Press of Glencoe, 1962); Anne Martin, The Marketing of Minor Crops in Uganda (London: Her Majesty's Stationary Office, 1963); Mueller, op. cit. For different viewpoints see: Ruy M. Paiva, "The Improvements of Markets and Marketing in Low-Income Economies," Paper presented at 13th International Conference of Agricultural Economists, Sidney, Australia, 1967; Frank J. Smith and Dale C. Dahl, "Market Structure Research--How and for What," Journal of Farm Economics (May 1965); Willard F. Williams, "Toward Performance in Agricultural Marketing Research," Journal of Farm Economics (August 1966).

[5] Robert L. Clodius and Willard F. Mueller, "Market Structure Analysis as an Orientation for Research in Agricultural Economics," Journal of Farm Economics (August 1961), p. 513.

3. degree of product differentiation (from buyers' viewpoint, considering the available market information);

4. conditions of entering and leaving the market (barriers, advantages, and costs).

The conventional market structure approach was modified in this study in the following ways:

1. Several aspects external to the market, such as government policies and institutional factors that relate individuals to the market, are included, since all these behavioral variables can be seen in terms of decisions, policies, and tactics that affect the performance of the economic activity.

2. Some dynamic aspects are included since such aspects are basic and essential to countries in the process of economic development.[6] Marketing can and should play an active role by changing the demand and cost functions in such a way as to encourage development.

3. Analysis of the physical flow of products and general descriptions of the product markets are added to complement the structure analysis.

In addition, traditional models of pure competition were replaced by other models of workable or effective competition, considering that in most economies the operation of agricultural markets usually reflects transactions between unequals. This inequality is very evident in underdeveloped economies, where each grower is confined to operations in local or regional markets in which the buying power

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[6] Paiva, "The Improvements of Markets and Marketing in Low-Income Economies."

is highly concentrated. Moreover, given certain differences in the structure of the various agricultural product markets, it is advantageous to determine whether producers of different "bargaining power" hold the same relative positions and advantages in the different markets.

Bargaining power is defined as the ability of a seller or a buyer to influence the market. Each participant in the market has goals that may or may not coincide with the goals of other participants; each strives for certain positions or advantages according to his goals, and usually every participant gets his share of the operation according to his relative bargaining power.

Bargaining power, however, is difficult to quantify. In addition to the "size" of the seller given by the quantity of a specific product that he takes to the market, for instance, a series of interrelated dimensions must be considered in order to classify sellers' power. Among the most important factors are total production of the economic unit, economic and social status as well as political power of the operator, and economic distance from the market.[7]

Regardless of their individual power, market participants may group themselves into cooperatives or other types of organizations, or integrate their operations, in order to acquire bargaining power, increase it, and use it more effectively in the market. The successful

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[7]Some authors have also suggested the inclusion of regional land distribution and tenure, density of rural population, technological level, predominant type of agriculture, etc. See for example Solon Barraclough and Edmundo Flores, "Estructura agraria de América Latina," Curso de Capacitación en Reforma Agraria, Tomo I (Santiago, Chile: FAO-ESCOLATINA-BID-CORFO, 1963), p. 245.

groups are usually those which also have improved their operational efficiency by either lowering their operating costs or producing better products at the same price through better organization.

General Procedure of the Study

Since natural limitations prevent adequate investigation of all variables that affect small and large producers, this study has been limited in several dimensions:

1. Only three agricultural products are analyzed, each one a different type of crop.

2. Only three case studies were conducted for each product. Each case study constitutes one production area, selected because it represented an important production center and exhibited distinctive characteristics.

3. In each case study the small and large producers are classified only in relation to the current production of the crop studied.

These restrictions limit the validity of the conclusions to the markets studied; thus the findings do not necessarily hold true for other markets.

Methods Used

Since one of the purposes of this study is to establish an adequate methodology for further research on the role of marketing in development, the procedures followed in the analysis are here detailed at some length.

Once the three agricultural products were selected, a review of related literature and an analysis of available statistical data were

made. With this information a work plan was prepared, taking into consideration the opinions of people related to the production and marketing of the products.

Each geographic area selected for a case study was visited during the marketing period of the product to be analyzed or in the following months (but always before the next crop season). General details about the operations of local producers were collected by interviewing:

1. local public servants (SAG, INDAP, CORA, ECA, etc.);

2. commercial marketing agents (buyers, assembly men, truckers, local representatives for various market organizations, etc.);

3. local professionals interested in one of the three products.

In these preliminary interviews, besides collecting information related to the product itself, a list was made of producers' names mentioned in the interview. Later, this list was extended by asking informants for names of other well-informed producers. Interestingly, the names of producers suggested as the most knowledgeable ones in production and marketing problems were almost always large producers (even if the person asked was working with or was directly connected to small farmers' activities). Small farmers usually had very limited information about the final destination of their products, the market prices, or the unit prices received for their products.

Next, producers that appeared on the list were interviewed. In the same areas or their vicinity, other interviews were conducted, always trying to reach an equal number of "small" and "large" producers (according to what was locally understood as small and large producers).

The first series of interviews with producers obtained information for the agricultural year 1966-67. A second series was later conducted in some of the same areas in order to check the previously obtained information and to note any substantial change which had occurred in the 1967-68 crop year. At least 70 growers were interviewed for each product analyzed. At the same time, details about the different markets were obtained by collecting published information, and by contacting marketing agents (truckers, commission men, brokers, wholesalers, retailers; managers of co-ops, supermarkets, mills, canning factories) as well as government and private offices related to the product.

Justification of the Method

The case study method was used, given the following factors:

1. very little general information about the problem was available;

2. the statistical data available were very limited and not fully reliable;

3. no specific information about the marketing process was available;

4. the important variables were not well identified;

5. the interrelationships of variables were unknown;

6. the statistical universe was not well defined.

With these limitations, it was not possible to obtain a representative statistical sample.

Most of the relationships of interest for this analysis are more clearly manifested at the level of the economic unit, at which level the decisions about what and how to produce and where and when to sell are made. The existing institutions directly affect the development and the operation of these units, since most decisions are made directly by the operator, who is subject to the mandates of these institutions.[8]

The fundamental objective of this study is to identify the relevant variables and to obtain a better understanding of the existing relationships. The case study method can provide detailed information that permits the identification of the subjects and gives details about their behavior and motivations. Specifically this method can answer the following questions:

1. What are the outstanding features of producers, middlemen, and consumers--such as number, size, organization, information?

2. Why do they act and operate in the way they do?

3. What constraints on their motivation and operations affect the result that they obtain?

4. What influence does each of these elements have over the others?

Limitations of the Data

Quantitative information needed in this study was admittedly

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[8] Institution is used here in a broad definition, meaning "collective action in restraint, liberation, and expansion of individual action," according to John R. Commons, Institutional Economics (Madison: University of Wisconsin Press, 1961), p. 73

difficult to obtain, and it was often impossible to determine the reliability of secondary and even primary data.

Too often, offices that collect and distribute agricultural data do not use consistent definitions and methods, and sometimes present aggregate data without listing the characteristics and limitations of the data. Besides, different sources present different numbers for the same "fact;" indexes are not comparable because they often use different base periods, products, and weights; censuses do not always use the same basic units, and often change their definitions or the presentation of the results.

Primary data can also be incorrect or biased, notoriously so in the case of marketing research. Producers are frequently not very communicative; they suspect and distrust strangers, and usually try to avoid talking about costs, prices, income, or names. Often they do not know their own yields per hectare or the final destination of their products, and do not recall--or were never told--unit prices of inputs and products (as in the case of some small producers, who received only a lump sum as the result of all the buying and selling operations of a season).

Middlemen are even less communicative, and usually will not supply quantitative information about their operations. In most cases only general information was obtained from middlemen, and details about their operations had to be collected indirectly from people who deal with them.

Even though information about retail prices and consumer preferences and habits appears to be easy to obtain, the large number of

consumers and their heterogeneity complicate the generalization of consumer behavior and prices paid in different situations.

Within the limitations of the data, however, an attempt is made to generalize some findings from the case studies to the market of specific agricultural products in the country as a whole. Since each case study usually includes a significant percentage of the total production of the analyzed crop, this attempt is rendered somewhat easier.

Concept Used

Several of the variables considered in this study also affect the decision-making process about what and how much to produce, and these decisions will in time influence the marketing conditions. For these reasons it is important to identify and group the economic units that are going to be analyzed in the study.

Economic Units. "Economic unit" is not a precise term when used in connection with agriculture; the term is often identified with the idea of the decision-making unit.[9] For this analysis, however, the economic unit--besides being an independent decision-making unit--presented the following characteristics:

1. ability to survive economically even when prices, risk, and agricultural conditions are not favorable;

2. possession of a marketable surplus that enters regular marketing channels;

[9]Barraclough and Flores, op. cit., p. 240.

3. a size and organization adaptable to changes stemming from development, from factor price variations, from new technology, etc.;

4. reasonably satisfactory tenure conditions which can provide enough security, opportunity, and incentive to growers so that continuity in the production process is assured.

Small and Large Producers. For the purposes of this study, a pragmatic and relatively objective classification of size was adopted, grouping the units into small and large producers according to the following criteria:

A. Small producer. The producer having a surplus production (of the product analyzed) which is marketed independently using regular marketing channels, and whose economic unit at the present level of exploitation is not able to absorb more than the normal labor capacity of the operator family. This capacity equals two adults working during most of the year (although the farmer may not be fully employed during part of the year, he may hire labor to meet seasonal requirements).

B. Large producer. The producer having a surplus production (of the product analyzed) which is marketed independently using regular marketing channels, and whose economic unit at the present level of exploitation is able to absorb more than the normal capacity of two adult workers, as defined above.

Selection of Products

The following criteria were applied in the selection of the three products studied:

1. Each product should belong to a different group of agricultural commodities.

2. The product should be used mainly for human consumption and should have economic importance in agricultural production.

3. The product should be grown by a large number of producers.

4. Each product should flow through different marketing channels.

5. The product should not have been studied in detail previously.

The first step was the selection of three main groups of agricultural commodities from the most recent and complete source of information, the Agricultural Census of 1964-65: cereals and grains, general crops (chacra), and vegetables (fresh produce).

Rice was selected from the group of grains and cereals because it has many of the marketing characteristics of wheat, which is the main cereal but has been studied extensively before. Rice was preferred over corn because the latter is mostly used for animal feed. In addition, rice production operates with a private credit system that creates a special type of dependency between growers and rice mills.

Within the group of general crops, potatoes are the most important; among all agricultural products of the country, potatoes are second only to wheat in area grown, production, and value of production. Potatoes are marketed at various levels and through different marketing channels, depending on the production area and the season of the year.

Tomatoes were selected from the vegetables. Even though two other vegetables had larger crop surfaces (fresh corn and beans),

tomatoes were preferred because their production employs a higher technology, has better defined varieties, and utilizes more regular channels for both fresh consumption and industry. Furthermore, the volume of tomato production has grown very rapidly during recent years, so the crop is becoming economically more important.

Selection of Case Studies

Three geographical areas of study were selected for each product according to the following criteria:

1. Each area should be an important producer of the crop (in physical volume).

2. Each area should be separated geographically from other areas of study of the same product.

3. Each area should be different from the other areas of study of the same product in: a) the use of marketing channels, b) the production season, c) the product itself (in the eyes of buyers or sellers), or d) production or marketing costs.

Even though these criteria for the selection of the areas were predetermined, they had to be adapted to the special characteristics of each product.

Rice. Chile produces rice only once a year, during the summer months, and the production season is basically the same for the whole country. Since there is no difference in the production season, producing areas were grouped according to climatic and ecological characteristics. The following areas were selected from north to south:

Case No. 1, O'Higgins-Colchagua. This area produces only six percent of the domestic production, but has excellent production conditions and obtains good yields; the product is marketed in the area of Santiago, where it has a comparative transport advantage.

Case No. 2, Curicó-Talca-Linares. This area includes the typical rice producing provinces, and contributes more than 60 percent of the domestic production. It has relatively favorable production conditions; the rough rice is usually marketed only in the area.

Case No. 3, Ñuble-Maule. This area contributes about 30 percent of domestic production, and constitutes the southernmost rice producing region in Chile (and possibly in the world). The soil conditions are relatively poor, the climate is severe, and the yields are low; there are few production alternatives and most of the rice is marketed in the area.

Potatoes. Potatoes are produced practically all over Chile. There are marked differences in varieties, season of production, and grades of potatoes; diverse areas specialize in the production of certain potatoes, and compete with or complement the production of other areas. The study areas were chosen according to their relative advantage in the production of a certain kind of potato. The following areas were selected from north to south:

Case No. 1, Coquimbo. This area produces around four percent of the domestic production, but this production is very important because it consists mainly of a type of early potato with low yields but high market prices. These early potatoes sell mostly in the

Santiago markets, where they compete with stored potatoes from other areas.

Case No. 2, Santiago. This area has certain production advantages in soil and climatic conditions, but its main comparative advantage is the proximity of the market, giving the area greater production flexibility and lower costs. The area produces potatoes during most of the year, but the mid-season production is perhaps most important.

Case No. 3, Llanquihue-Chiloe. This area includes the potato producing provinces and contributes some 30 percent of total domestic production (primarily late potatoes). The yields are the highest in the country and the product is of good quality, but because of the area's long distance from the market it has little flexibility and a high transportation cost, which counteract its other advantages.

Tomatoes. Tomato production demands water and special climatic conditions; the fruits are highly perishable. For those reasons, and because of the year-round demand, the production of tomatoes is localized in different areas during diverse seasons of the year. Production costs and yields vary substantially in relation to the producing area and season, giving comparative economic advantages to certain areas in different months of the year. For this analysis the following areas were selected from north to south:

Case No. 1, Coquimbo-Atacama. This area includes the three major production centers of early tomatoes. The whole region has no more than 20 percent of total crop surface and a considerably smaller proportion of the domestic production, but these tomatoes

receive high prices in the Santiago market, which absorbs nearly all the production.

Case No. 2, Valparaíso. This area provides most of the mid-season tomatoes, with a considerable volume of production and reasonable yields. These tomatoes supply the markets of Santiago and most other cities for several weeks of the year. The products are sold in the Santiago central auction market, and a considerable portion of the surplus production is sold to the canning industry.

Case No. 3, Santiago. The largest proportion of national production comes from different parts of Santiago. This production is the most economical considering both cost and yield, and it floods the markets during the peak of the season, displacing competitors. It also provides the greater part of the production used in tomato canning.

III. RICE

Although rice is not among the main crops of Chile from the point of either production or consumption, its commercial importance cannot be denied. About 2,000 economic units produce rice, a number of mills are involved in processing, and rice is consumed by all segments of the population.

The main characteristics of rice production and marketing observed in this study are.

1. The problems of rice production and marketing are fairly similar for the whole country, varying only in intensity.

2. The marketing channels utilized by the rough rice, from the farms where it is grown to the mills, are clear and fairly well organized.

3. There is a high degree of concentration in the milling industry. Mills have and exercise superior bargaining power, and often present characteristics of monopolistic competition typical of many agricultural industries.

4. Growers are dissatisfied with the treatment received from the mills. Although the complaints seem justified, it was not possible to determine whether lower prices were due primarily to arbitrary penalties or to differences in the quality of the product.

5. Small producers hold comparatively less bargaining power, and have less access to market opportunities and services in comparison to larger producers. There seems to be substantial differences in the profitability of their operations.

6. The government has been active in rice production and marketing problems through its different branches. However, only short run programs are in force, and these are not always consistent; there are several conflicting goals and the final result of these policies and programs has not always been favorable to growers.

Production

Rice is an exacting plant with regard to climatic conditions and water, and around the world different varieties are grown with or without irrigation. However, only irrigated rice is found in Chile and its cultivation is usually carried out on flooded land, either by sowing seed directly or by transplanting seedlings. A large proportion of the land has few alternative uses.

Although rice is a very specialized crop, production takes place on both small and large farms. Production units range in size from as little as one-half hectare up to more than 400 hectares, but most cover from five to fifty hectares. The national average of cultivated area devoted to rice per production unit is approximately sixteen hectares.[10]

Yields per hectare in Chile are quite low and have been diminishing since the end of the 1940's.[11] This decrease can be attributed to:

1. degeneration of the varieties presently in use;

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[10] Chile; Dirección de Estadísticas y Censos, IV Censo Nacional Agropecuario Año Agrícola 1964-65, Resumen del País (Santiago, Chile, 1963) Agropecuario Añ

[11] Emilio Williams, "Algunos problemas del cultivo del arroz en Chile, "Paper presented at Jornadas Agronómicas de Linares, Chile, 1967.

2. lack of varieties with the resistant characteristics required by the various zones;

3. repeated sowings on the same land without suitable fertilizing to replace the elements extracted from the soil;

4. lack of appropriate soil conservation practices;

5. increasing numbers of weeds and blights;

6. ignorance about the use of water (temperature, level, etc.);

7. ignorance of practices and techniques adapted to each type of soil.

Table III-1 summarizes the existing aggregate statistical data for rice availability in Chile from 1951-1965. Average per capita rice consumption for the country is calculated at seven to eight kilograms of rice per year (each kilo of paddy rice yields roughly two-thirds kilo of polished rice).[12]

Chilean rice production is concentrated in a zone not longer than 200 miles; production is carried out at approximately the same time in all parts of this zone, utilizing the same basic technology and inputs. However, agricultural yields (physical quantity of rough rice produced per hectare) differ considerably. Table III-2 presents yields in each producing province, arranged in North to South order.

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[12]Guillermo Sims and Roberto Alvarado, "Futuro próximo de la producción de arroz en Chile," Paper presented at Jornadas Agronómicas de Linares. Chile. 1967.

Table III-1. Rice Availability in Chile

Year	Production (thousands of Qqm)	Exports (thousands of Qqm)	Imports (thousands of Qqm)	Total availability (millions of Qqm)	Population (millions of inhabitants)	Per capita availability (Kg)
1951	403	27	1	377	6.2	6.1
1952	797	-	64	861	6.3	13.7
1953	962	55	89	961	6.4	15.0
1954	803	28	1	776	6.6	11.8
1955	912	-	5	916	6.8	13.4
1956	584	-		584	6.9	8.5
1957	724	-	6	730	7.1	10.2
1958	918	-	52	970	7.3	13.2
1959	942	3	131	1,069	7.5	14.2
1960	1,104	2	231	1,334	7.6	17.3
1961	1,087	94	133	1,127	7.9	14.3
1962	829	250	96	675	8.0	8.4
1963	843	1	159	1,001	8.2	12.2
1964	861	-	267	1,129	8.4	13.5
1965	916	-	158	1,074	8.8	12.2

Source: Emilio Williams, "Algunos problemas del cultivo del arroz en Chile," Paper presented at Jornadas Agronómicas de Linares, Chile, 1967.

Table III-2. Cultivated Area in Rice ("C," thousand Has.), Production ("P," thousand Qqm), and Yield ("Y," Qqm per Ha.)

		1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966
Santiago	C	2.4	2.0	0.8	0.5	0.3	0.3
	P	85.4	69.2	24.0	23.4	14.0	3.5
	Y	35.6	34.6	30.0	46.7	46.7	11.8
O'Higgins	C	2.6	2.0	1.9	2.1	2.1	2.0
	P	87.4	66.2	56.1	64.5	77.1	45.8
	Y	33.1	33.1	29.5	30.7	36.7	22.9
Colchagua	C	4.9	3.9	4.3	4.1	3.6	4.4
	P	177.7	145.9	120.8	161.1	155.9	171.6
	Y	35.9	37.4	28.1	39.3	43.3	39.0
Curicó	C	3.4	1.2	1.4	0.9	0.9	1.2
	P	100.4	38.6	35.8	28.1	22.7	23.4
	Y	29.8	32.2	25.6	31.2	25.2	19.5
Talca	C	12.3	8.9	11.0	10.6	10.2	9.9
	P	300.4	225.2	293.7	245.9	264.2	190.1
	Y	24.4	25.3	26.7	23.2	25.9	19.2
Linares	C	11.1	9.2	11.4	11.9	11.6	11.0
	P	260.1	233.7	270.2	295.1	338.7	232.1
	Y	23.5	25.4	23.7	24.8	29.2	21.1
Maule	C	0.3	0.1	0.1	0.1	0.1	0.1
	P	6.5	2.2	2.5	2.3	2.3	2.5
	Y	21.6	21.6	25.0	23.3	23.3	24.7
Ñuble	C	2.9	1.9	1.9	2.5	2.2	2.5
	P	67.5	47.9	24.5	40.8	41.8	41.5
	Y	23.6	25.2	12.9	16.3	19.0	16.6
Totals	C	39.9	29.2	32.8	32.7	31.0	31.4
	P	1,085.4	828.9	827.6	861.2	916.7	710.5
	Y	27.2	28.4	25.2	26.3	29.6	22.6

Source: Consejo de Coordinación de Estadísticas Agropecuarias Continuas, Informaciones Agropecuarias (Occasional publication).

The average costs of production per hectare do not seem to differ much between the different producing zones of the country;[13] local differences in costs do occur, however, depending on ecological conditions and topography, with costs lowest on the most level land. Individual costs of different producers also vary according to the type and quality of the soil, and the quantity and quality of the inputs used.

The basic rice production technology used by most growers is rather uniform. However, the small producers seem to have less access to technical information and are also more restricted for economic reasons. These factors may contribute to further variations in yield per hectare between small and large producers, especially because of differences in the quantity and quality of inputs used.

The bulk of domestic rice production comes from economic units managed by the landowner. Share cropping occurred in some localities, more commonly in the case of transplanted rice. Other types of tenure arrangements are less frequent in rice production.

Marketing

Practically all rough rice production enters regular marketing channels, as rice is not a subsistence crop in Chile. Moreover, the paddy is not fit for consumption until it has been milled, and rice milling is not adapted to home industry.

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[13] Luis Sendra, Antecedentes sobre costos de producción y comercialización del arroz paddy para 1964-65 en la cuenca del Maule (Linares, Chile: Asociación Central de Productores de Arroz, 1965).

All the national production of rough rice is bought and processed by a small number of mills. These mills also complete the processing of the brown rice imported by ECA, the government agency principally responsible for agricultural marketing.

Rice is harvested in March and April and threshed immediately or in the next few days. The threshing and marketing periods usually coincide, because the price is uniform for the entire agricultural year--thus it is uneconomical for the farmer to store the paddy and sell it later.

Growers usually sell rice directly to the mills, and both parties customarily sign a written contract before production is undertaken. All contracts follow a uniform pattern; in practice, however, operations vary considerably, changing the conditions and net return that different growers receive.

Every year since 1948 the government has established minimum prices for rough rice at the producer level. At present, the cost of inputs, profit margins at various levels as well as several social and political factors are considered in determination of the prices of rice in its different forms.

The price that the producer receives, however, is usually considerably lower than the established legal minimum, since the mills penalize excess moisture content and impurities according to certain flexible norms established by the milling industry itself. There is an administrative provision that regulates rough rice transactions.[14]

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[14]Resolution No. 601 of June 14, 1955, of the Subsecretaría de Industrias, Ministerio de Economía.

This regulation was considered specifically favorable to the small and medium size farmer (it allows greater moisture tolerances and reduces other penalties) but the industry has opposed its application and continued with the established practices.[15]

Rice transactions are usually made between the individual producer and a mill, but often middlemen (commission men, brokers, subcontractors, local traders) intervene; less frequently the cooperatives participate in marketing. Diagram III-1 presents a flow chart for rice in Chile.

When selling the paddy producers pay transportation costs (from zero to 100 percent, depending on the contract), a commission to the broker and/or cooperative (1 to 2 percent if he uses this service), costs of drying the grain (if necessary), sales tax, revenue stamps, interest, and sometimes other charges.

The mills are the main source of credit for rice growing, and they grant advances in cash or in draft. Other sources of credit are the Banco del Estado, and INDAP for small farmers.

Polished rice is sold by the mills to wholesalers and retailers, either directly or through one or more regional distributors in closed packages of 1 and 5 kilograms. The mills are authorized to sell three qualities of rice with certain limitations.[16] The government fixes the maximum wholesale price, uniform for all mills.

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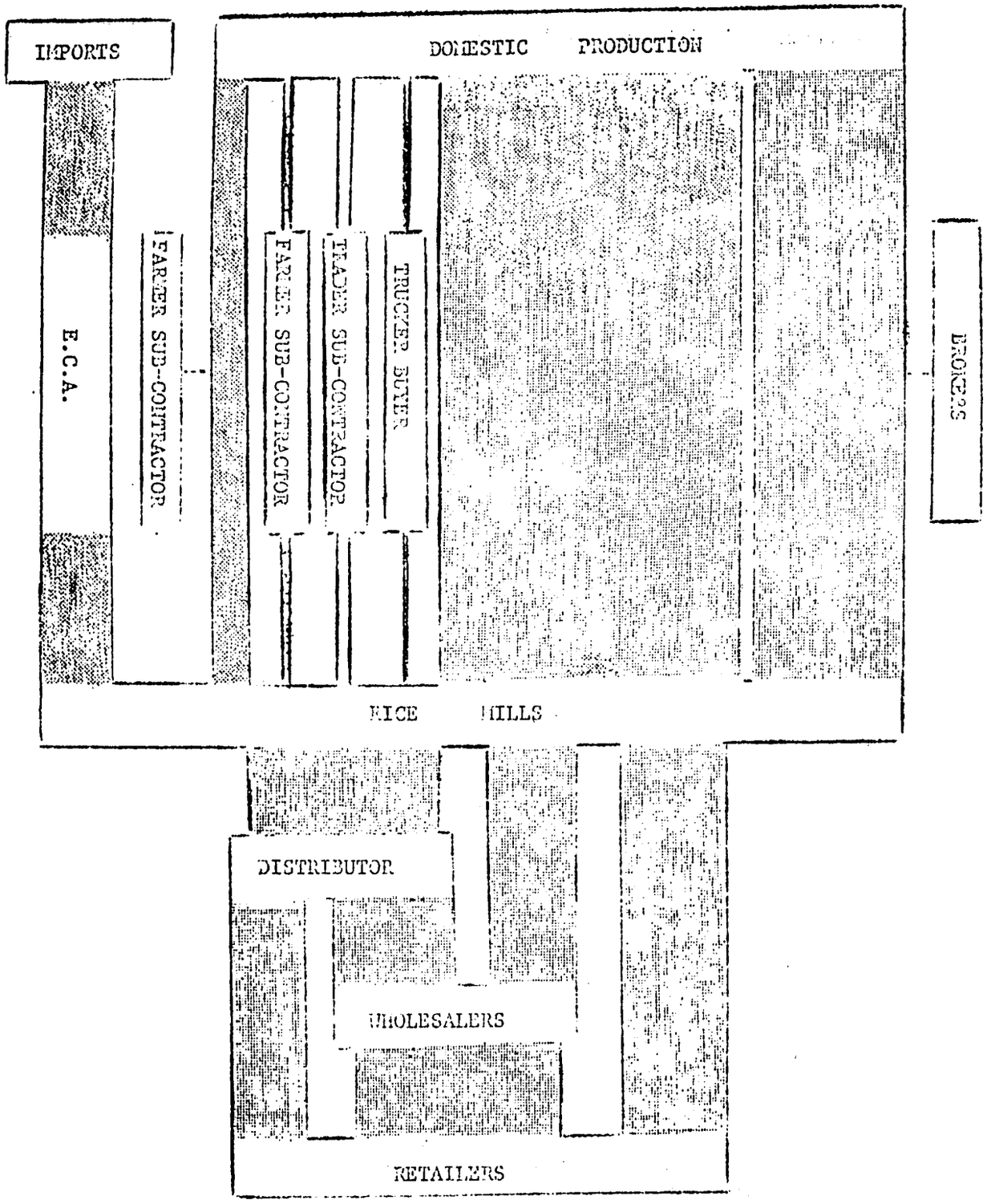
[15]Emilio Williams, op. cit.

[16]Resolution No. 2811 of May 6, 1967, of the Subsecretaria de Economía, Promoción y Reconstrucción. In 1968 the sale of one single quality of rice was established (to penalize mills for not complying with quality specifications).

Diagram III-1: Rice - Pattern of Marketing Flow in Chile.[a]



[a]Width of the shaded columns represents an estimate of the percentage of total volume flowing through each channel in a typical year.

Maximum retail prices are fixed on the basis of wholesale prices plus a profit margin and transportation cost. Polished rice is sold in practically any type of retail business (e.g., supermarkets, grocery stores, markets), and with rare exceptions, the allowed maximum price is considered the fixed selling price.

Case Studies

Although the three cases studied constitute well defined geographic and economic regions, the problems of rice marketing are similar in every situation. In consequence it cannot be asserted that the characteristics listed for any one region occur only within such limits--the country seems to present continuous and common problems rather than clearly different cases.

Case No. 1: O'Higgins-Colchagua. This region of study includes part of the provinces of O'Higgins and Colchagua, especially the plains located between the pre-cordillera and the coast. This zone has produced rice since the time commercial production was initiated in Chile.

The region is not very important from a production volume viewpoint, accounting for only six-percent of the nation's production. Rather, its outstanding features are a favorable location with respect to the markets of Santiago and the good yields obtained in the zone. Yields in this region are the highest in the country because of a suitable climate, good quality land, and a high technological level. Yields fluctuate considerably from year to year without presenting a definite tendency (see Table III-2).

The zone's rice is either sold to nearby mills in San Fernando, Curicó, or Talca, or shipped to mills in Santiago, as far as 200 kilometers away. Frequently, even when there were mills in the proximity, many producers sent their paddy to other more distant mills which offered them better terms.

Although most rice transactions are made by direct contract between a grower and a mill, the following exceptions were noted in this zone:

1. Direct buyers, who were active in a few cases (truck operators or traders established in producing zones, usually operating with small volume).

2. Brokers or middlemen, who operate on a large scale, represent a number of growers, and utilize their bargaining power to protect growers and get better terms from the mill.

3. Commercial cooperatives, which generally supply inputs to their members and facilitate the marketing of their rice, operate with considerable volume, and usually negotiate with only one mill.

4. Peasant cooperatives and similar organizations, which usually are backed by promotional institutions (i.e., INDAP) which provide technical advice and inputs and facilitate rice marketing for small growers. These co-ops, however, were not very active among rice growers of this zone.

5. The agrarian reform settlements (asentamientos) of the zone, which negotiate their production jointly through a regional office.

Growers in this zone generally signed contracts including the same clauses as those in other parts of the country, but many large

producers and some medium size growers were allowed considerably better terms. On the other extreme, three small growers reported that they had not even received a copy of the contract they signed, and were not aware of the amount of the penalties, receiving only a balance which the mills pay them some time after delivery has been completed.

Penalties in this zone are applied as usual. Moisture content tolerance ranged from 14 to 18 percent, and although a large proportion of the paddy is delivered with 15 percent or less, the mills never pay a premium for the lower moisture content. In rainy years the moisture content usually increases, but the mills penalize all the rice be it wet or dry.

Although official prices for rough rice are uniform for all farmers, prices actually received do vary considerably according to the number and type of middlemen that handle the operation and, above all, according to the penalties applied by the mills. Frequently growers mentioned that many mills apply excessive and arbitrary penalties.

Most of the producers consulted in this zone favored the minimum price policy for rough rice. Although the prices were considered low, this zone's good yields keep rice comparatively more profitable than other crops that could be produced on most of the land presently devoted to rice. Notwithstanding, the zone's production has shown a slight tendency to decline in recent years, probably because of increasing weeds, uncertainty about the availability of water, and the high costs and risks connected with rice production. In addition,

growers and millers alike almost invariably complained that the prices are fixed very late, generally when the rough rice is already delivered to the mills' warehouses.

Case No. 2: Curicó - Talca - Linares. This zone includes the typical rice growing provinces, and accounts for over 60 percent of the country's total rice production. As in other parts of the country, production in this zone has been declining in recent years, although no smooth trend can be observed (see Table III-2). The most frequently mentioned causes of this decline were instability of and uncertainty about the minimum price, insufficient credit facilities, and lack of varieties and suitable techniques that would make it possible to increase the zone's yields.

The zone's average yields are less than those in the O'Higgins-Colchagua zone (which has a warmer climate) but higher than those in the Ñuble-Maule zone (which is colder). Rice crop area ranges from less than one hectare (in the case of land granted to resident farm workers as partial wage payments) up to farms of over 500 hectares.

The zone has a commercial experimental station devoted mainly to the multiplication and sale of improved and certified seed. However, most of the rice production is still carried out with seed supplied by the mills, usually selected for exterior appearance of the grain only. Furthermore, improved production techniques, as well as the use of fertilizers, weed-killers, and insecticides, are still in an experimental stage, and their results are the subject of frequent controversies.

Rice production is financed by credit granted by the milling industry, banking institutions, and, to a lesser extent, by other credit institutions, as in the O'Higgins-Colchagua area. The producers' most frequent complaint was the difficulty of discounting drafts issued by the mills. Such credit is prejudicial mainly to small and medium producers, especially when the high rate of interest on business loans is considered.

In the past the paddy crop tended to be sold to mills located near the place of production. Currently, as a result of better transportation facilities and aggressive expansion policies on the part of many mills, growers are shipping their paddy to mills in more distant places where they hope to obtain more advantages.

In this zone some cooperatives and other similar production and marketing organizations (i.e., asentamientos) operate as representatives of their members, although most of them operated only on a relatively small scale. These organizations usually employ one of the following marketing channels:

1. Direct transaction with the mill, in which case the organization signs a single contract for the members' total production, receives a percentage on the volume of the operation from the mill and charges the members a like percentage. The Agrarian Reform Corporation markets the settlements' production in a similar manner.

2. Operation through a federation of marketing cooperatives (or central organization), which groups the contracts of several local cooperatives and negotiates the entire volume with one or more mills.

As a rule the central cooperative receives a larger percentage return from the mills, and transfers part of these commissions to the local cooperative.[17]

Producers also contracted rice production directly with the mill or through middlemen. Middlemen or brokers are fairly common in this zone, and nearly all of the mills operate with them. Each broker usually negotiates his contracted volume with one or two mills.

Many small farmers are practically forced to use the services of middlemen because of the small size of their production (most mills do not deal with productions of less than five to ten hectares). Other producers (small and large) who do have direct access to the mills prefer to seek the services of brokers because they find them more profitable--as a rule the economic advantages that the producers obtain through operating with brokers exceed the cost of the commissions they pay for these services.

Marketing problems in this zone are similar to those set forth in the previous case, and the most frequent complaint refers to excessive, arbitrarily applied penalties.

Case No. 3: Ñuble - Maule. This study zone includes the provinces of Ñuble and Maule (and Parral, a district south of Linares) and forms

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[17] In this zone at least one cooperative was engaged in the production and marketing of rice. The local cooperative deals through a central cooperative for which rice constituted only a small part of the operation. The central cooperative makes a contract with the mill like any producer, but in this case the mill grants no advances and pays the central cooperative a percentage on the sale by way of commission. The producer-member receives advances from his local cooperative which in turn charges him a percentage on the value of the sale. Payments are made on a cash basis.

the southernmost rice producing zone in Chile (and possibly in the world). The region is fairly homogeneous in production conditions. At present it produces one-third of Chile's rice, and some believe it will become still more important in the future, considering certain irrigation projects now in progress.

The region's soil is generally poor for farming, and the land devoted to rice is suitable only for this purpose or for certain types of forage production. The climate is relatively cold, and calls for early maturing varieties of rice that will complete the ripening period within the short warm season that corresponds to summer.

Average yields per hectare in the zone are very low and decrease gradually with every repeated crop (see Table III-2). So far no suitable crop rotation program has been developed for this zone. The mills prefer the paddy of this zone because of its greater industrial yield, and it is believed that its agricultural yields could be increased considerably by using faster-maturing varieties of rice.

As in the other cases, the region's main source of credit is the milling industry. Some larger growers obtain additional inputs from the Banco del Estado, and the smallest ones from INDAP, but frequently complaints are heard about these programs' lack of flexibility and adaptability to local needs.

Although the zone includes not more than 10 percent of the country's milling capacity, it produces 30 percent of the rough rice and buys paddy from growers and mills located in other zones. This situation indicates that milling capacity is more intensively used in this zone, a factor that could contribute to greater efficiency and lower costs.

The mills in this zone, like all of those in the country, make individual contracts with the producers, with the following observed exceptions:

1. Collective contracts with agrarian reform settlements and cooperatives, where the mill grants a certain percentage on sales to the organization.

2. Common contract with several small farmers, in which one grower acts as head of the group, signing a single contract for all the production of the group without receiving special conditions.

3. Without contract in the case of some small producers who are able to operate without advances of the mill, thus allowing them to sell their rice to the mill that offers the best terms. Furthermore, some small mills (not associated with the national millers' association) operate in the zone almost entirely without contracts.

Brokers acting as middlemen operate less frequently in this zone than in the other two rice zones, and attempts to group producers into associations or cooperatives have not been successful, due perhaps to the lack of communications media in the zone and to mistrust on the producers' part.

In this zone the rice is reaped, sheaved, threshed, sacked and delivered to the mill as in the other cases. However, this region receives more rainfall during harvest season, so these tasks must be performed in quicker succession in order to avoid greater penalties for moisture content. Although harvest and delivery of the paddy are a few days earlier in this zone, the difference does not cause

any variation in the subsequent transactions--generally the mills do not begin to process paddy until the selling price of rice has been fixed.

Marketing expenses for the grower show little difference throughout the country, no matter which of the associated mills he deals with. However, some small mills in the zone do not belong to the millers' association, and operate with different methods. In many cases they operate without contracts, grant fewer or no advances, pay cash, are more flexible and tolerant about penalties, and even pay higher prices for rough rice in order to attract growers.

Rice Mills

Rice mills became important to the national economy in the 1930s and 1940s. Most mills were established in the rice producing regions or surrounding commercial centers, and some in Santiago, the major consuming center.

Characteristics. Chile has more than twenty rice mills, not all active, with a processing capacity of some 800 tons of rough rice per day. However, at the present considerably less than 50 percent of the installed capacity is used. The high concentration of the milling industry is shown in Table III-3. Some mills, especially some large ones, have bought considerable quantities of rough rice from smaller mills, making the concentration even higher. Such purchases permitted at least one of the large mills to operate at full capacity, while some others operate at minimum capacity, and still others have ceased to operate.

Table III-3. Concentration in the Rice Milling Industry (1967-68)[a]

	The largest	4 largest	8 largest
Installed milling capacity	16%	48%	72%
Purchase of rough rice from domestic producers	23%	48%	78%

[a]It should be noted that some enterprises own or operate more than one mill.

Source: ECA, "Arroz," (Unpublished) Informe del Departamento de Trigo y Cereales (Santiago: 1967).

Most of the mills belong to a millers' association, which controls about 90 percent of the country's milling capacity.

Functions. The rice mills carry out many functions, especially the following:

1. supplying the farmer with "selected" rice seed;
2. assuring purchase of the rough rice production;
3. granting advances to finance rice growing;
4. facilitating credits in inputs (directly or indirectly);
5. supplying sacks for transporting the paddy;
6. taking delivery of the paddy and weighing it at the receiving stations;

7. taking samples and analyzing them in their own laboratories;

8. drying the paddy that arrives with excessive moisture (on the producer's account;

9. storing the rough rice until it is processed;

10. milling the paddy (clean, de-hull, polish, and grade it);

11. completing the milling of the imported rice;

12. selecting, grading, packing, and distributing the polished rice;

13. selling the finished product, with or without credit.

All of these functions add to the industry's costs and they add considerable risk to the operation. However, many are not necessarily proper functions of the milling industry and the mills perform them because no other agency does.

Rice Contracts. Most paddy transactions are formalized with a purchase-sale contract, usually signed between one mill and one producer, although some collective contracts are made with growers associated in formal groups (co-ops, asentamientos) or informal groups (a few small farmers living in the same neighborhood or working for the same landowner). The contract is signed on the basis of the area to be sown or planted, with a total production estimate for the area contracted. These contracts are always signed before the Ministerio de Economía establishes official prices later in the season.

The contract usually stipulates that the mill will receive the entire production. To cover itself against the risks of noncompliance with the contract, the mill obtains a lien against the contracted crop, requires a third party's guarantee on the contract, and finally

exacts a draft of payment signed in blank from the producer. With all these guarantees it is hard to believe the high percentage of bad debts claimed by some mills. Other mills admit that their losses are no more, or even less, than in other similar business operations.

In accord with the contract stipulations, the mills render the grower several services to facilitate production and marketing.

First, seed may be requested by the farmer, who then receives a certain amount of "selected" paddy and has to pay the mill its value in the year of its return plus 33 percent. If the mill supplies improved seed acquired from other sources, it charges the corresponding value plus interest.

Second, advances are divided into three more or less equal quotas, subject to prior confirmation that the grower has satisfactorily complied with pertinent stipulations--upon signing the contract, after completion of sowing, and prior to harvesting. Advances are granted in drafts negotiable at 120 to 180 days, in cash, or using a combination of both. Drafts must be discounted by the grower, whose only alternatives are to discount in a bank (an uncertain and slow process), to release to pay for business operations (drafts often meet limited acceptance among local businesses), or to fall back on a money lender (generally too onerous). All interest costs and discount expenses are met by the producer. From the date on which the draft falls due, or from the date when the credit was granted if it was given in cash, the mills charge the producer interest until thirty days after the last part of the paddy has been delivered. Although normally the mill becomes the producer's debtor instead of his creditor long before

delivery has been completed, it still charges him interest.

Third, a few mills sometimes offer free technical advice to farmers who ask for it, but most mills have no intention of doing so. In all cases the mills stated that they make no great effort in this direction, with a view to avoiding responsibility. According to the mills, the farmer holds his counselor responsible for any setback or loss suffered in production.

Fourth, the mills usually lend to the farmer the sacks needed to transport the paddy. This service is either free or costs a very small sum for wear and tear, plus the value of any lost sacks.

Fifth, transportation arrangements--fright payments--are agreed upon separately in every case.

Sixth, the mills run analyses on each paddy shipment received. The truck loaded with paddy sacks is weighed when it arrives at the mills, and samples of the product are sent to the mill's own laboratory for analysis. The analysis usually takes only a few minutes, but during the peak marketing period, when many deliveries and large volumes are arriving, the analysis may be delayed from some hours to several days. The contract stipulates that the seller must be present at the moment when the analysis is made, and establishes a deadline for him to file a written claim against differences in weight or analysis results. Because of the delay and the complexity of the matter, this claim recourse has little application in practice.

Finally, payment of balances in the producer's favor are also made in cash, drafts, or a variable proportion of each. In this case the mills pay the interest and expenses incurred in discounting the

drafts, the term of which fluctuates, usually between 60 and 180 days.

Penalties. According to the standard contracts, rough rice shipments must be a white variety, of good quality, undamaged, dry, mature with well developed kernels, unbroken, and clean. It must not exceed a certain percentage of moisture content, red grains, impurities, or split, green, underweight, small, hulled, and stained kernels. Any excess of these characteristics is penalized by the mills through lower prices.

In addition to penalties for excess moisture, grain that exceeds the allowed moisture content is subject to heavy discounts to cover any cost of artificial drying of the paddy. The mills even reserve the right to reject shipments containing too much moisture. However, mills grant no bonus whatsoever for paddy that arrives with less moisture content than that established.

Discrimination in the Contracts. Although the contracts of different mills are printed and establish relatively similar tolerance, the elastic and almost arbitrary application of penalties, a frequent practice in the milling industry, results in considerable variation in prices actually received by farmers. The most direct discrimination takes the form of additional clauses in the contracts which broaden the tolerances and grant better terms to favored producers. By way of illustration, the chart below compares the tolerances established in the official regulations[18] with the conditions that the mills stipulate in their regular contracts, as well as with those established

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[18]Resolución No. 501, of June 14, 1955, of the Subsecretaría de Comercio e Industrias, Ministerio de Economía.

in preferential contracts (these usually vary in every case, but the most frequent modifications are considered here).

	Official regulations	Usual contract	Privileged contract
Type of seed delivered by mills	---	Regular rough rice	Better or certified seed
Price of seed	---	Price in year of return plus 33 percent	Price plus a variable interest percentage
Advance per hectare (E$/1967)	---	400-700	700-1,000
Form of advance	---	Most in drafts Some in cash	Less in drafts, more in cash
Interest charged on advances	---	Bank rate	Bank rate or 10%
Duration of interest of advances	---	Until date of liquidation	Until deliveries cover amount of advances
Transportation cost	FOB railroad (later FOB mill)	FOB mill	FOB farm or subsidized transportation
Tolerances:			
Impurities	2%		
Green kernel	5%	3%*	6%*
Broken Kernel	2%		
Red kernel	8%		
Moisture	17%	15%	18%
Drying of	Established tariff	High %over total value	Lower % over total value

*Mills often grant a predetermined percent tolerance for impurities and red, green, malformed, hollow, and skinned kernals taken all together.

	Official regulations	Usual contract	Privileged contract
Date of liquidation	20 days after	30-60 days after last delivery or date of price fixation	15-60 days after last delivery or date of price fixation
Date of payment	After liquidation	After liquidation	After liquidation (but advances are granted)
Form of payment	Cash	Mostly in drafts	Less in drafts

Other Operations Carried Out by Mills. The mills receive the entire volume of paddy in the course of three months (about 70 percent in April), which is then stored and processed as the market demands. The long storage period requires costly installations and also represents idle capital for several months.

The mills, however, have an option to use and generally do use warrants credits (commodity loans guaranteed by products in storage) up to 50 percent of the full value of their total stock. Later when a mill needs grain for its milling operation it takes paddy and cancels the corresponding part of the credit.

To fill the gap between increasing total demand and decreasing domestic production, ECA (the agricultural trade enterprise) imports rice in varying quantities. Rice arrives from several South American countries, both as brown rice and as unpolished rice, and the milling is completed in Chile.

The polished rice is distributed in one or five kilogram bags, either directly by the mills or through distributors (exclusive or

otherwise) to both wholesalers and retailers. The distributors usually have branches in different parts of the country, and they sell, distribute, and bill on the mill's account, acting in accord with the mill's instructions with regard to discounts, the length of credit terms, etc. The distributor is responsible for collections and receives a commission of three to eight percent. He may also transfer part of his commissions to preferred customers in order to stimulate the sale of certain brands.

The mills generally reserve the right to sell directly to old customers or to those who handle large volumes, such as supermarkets or regional wholesalers, granting them discounts sometimes comparable to the distributors' commissions plus a bonus for transportation.

The mills located further north and further south have comparative advantages over the other mills in supplying polished rice to wholesalers and retailers of the northern and southern part of the country. Selling prices (wholesale and retail) are fixed by the government on the basis of prices FOB mill for localities with mills, and this amount plus a determined transportation cost from the nearest mill for localities that have no rice mills.[19]

The retailers buy, in turn, from the wholesalers, receiving a certain discount in keeping with the quantity purchased.

Discounts at wholesale are usually increased when the demand is weak, but these price reductions are seldom passed on to the customers.

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[19] Resolutions Nos. 2811 and 4301 of 1967 and 1968 of the Subsecretaría de Economía, Fomento y Reconstrucción.

Industrial Yield. The percentage of unbroken grain rice obtained once the milling has been completed is very important, since the Ministerio de Economía establishes the maximum percentages of broken rice that each quality sold in the market can contain (see Table III-4), and this implies considerable price differences.

Table III-4. Authorized Qualities and Prices of Polished Rice

Processed rice	Authorized % of total production	Allowed % of broken grain	Wholesale price per Kg. E°		Retail price per Kg. E°	
			1967	1968	1967	1968
Extra selected	37.8 or less	10	1.41	1.70	1.55	1.90
Extra	50 or more	20	0.99	1.19	1.09	1.30
Broken grain (packed)	50% of total broken grain	100	0.44	0.64	0.49	0.70
Broken grain (loose)	--	100	--	0.53	--	0.59
Chosen[a]	82% or less	15	--	1.32	--	1.45[a]

[a]Resolution No. 6982, of July 19, 1968, prohibited processing of the Extra and Extra Selected types of rice, but allowed processing of the Chosen type.

Source: Resolutions Nos. 2811 of May 6, 1967, and 4301 of April 11, 1968, of the Subsecretaria de Economía, Fomento y Reconstrucción.

The quality and price of polished rice therefore depend on both the characteristics of the paddy and the way in which it is milled.[20] Chile's present industrial yields are low, and since this yield is perhaps one of the principal factors determining the economic costs and benefits of the milling operation, not enough attention is devoted to the matter. The industrial yield test is usually not performed by the mills when the loads of paddy are delivered. Moreover, they do not reward high industrial yields in order to stimulate improved handling methods among growers.

Structure of the Rice Market

Buyers and Sellers. It is estimated that about 2,000 farmers produce rice more or less regularly in a zone that stretches from Santiago to Ñuble. In spite of differences among growers, most produce basically the same product, and since rice occurs in many agricultural markets, sellers operate under conditions that often resemble the characteristics of perfect competition.

Elements of imperfect competition can be observed on the buyer side of the market, both in number and form of operation. In recent years, only a few mills of differing physical and economic capacity have operated varying from some small ones that mill considerably less than one percent of the total, to one that accounts for 25 percent of the total processed. In addition, the majority of the mills face the

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[20] Industrial yields can be improved by using better suited rice varieties, and more adequate harvest and milling procedures. Moreover, some mills also stated that they cannot find profitable markets for the by-products and residuals of rice processing, and this situation also implies higher cost for the polished rice production.

growers in coordinated fashion, increasing the rigidity of the buyer market.

Middlemen. From the time the paddy leaves the farm until the processed rice reaches the consumer, several middlemen intervene, although only a few take physical possession of the product. The most frequently observed types of middlemen are:

1. Farmer-sub-contractor. This individual is usually a rice grower who also represents or works for one or more mills. He contracts several small producers' rice production either in his own or the mill's name, gives technical advice and checks on the process, and may serve as guarantor of the operation in the event of default. He receives a commission from the mill and charges the farmer a commission of one to two percent on the gross value of the sale, depending on the risk involved in the operation, its financing, and other factors.

2. Trader-sub-contractor. This individual is usually a local trader or assembly man who operates on his own account. He sells inputs and consumer goods, and generally makes advances either in inputs or cash, varying the method and cost of the operation to suit the occasion. In return, the grower must agree to sell to him a certain amount of rice which he will re-sell to a mill.

3. Grain broker. These intermediaries are usually large firms established in Santiago with branches or agents in strategic localities (sometimes smaller enterprises established within the producing zones also operate as brokers). These agents negotiate a considerable volume of rice; hence they are in a position to obtain better terms and conditions for the people they represent. They charge both

the producer and the mill one to two percent on the value of the operation. Although it is traditionally believed that they operate with small producers, the present study detected many large producers marketing their rice through these brokers, whose services they consider necessary.

4. Trucker-buyer. Truck operators who buy paddy, usually already contracted by some mill, appear on the farms at harvest time offering cash payment. Their prices are similar to those of the mills, including possible discounts or penalties. These buyers operate on their own account or on some mill's account. Although they are constantly mentioned by growers, almost no farmer admits having operated with them. The mills complain that these middlemen "steal the contracted production," but again no mill admitted dealing with these truck operators.

5. Associated mills. The majority of the rice mills have grouped together in a trade association which establishes the general norms of operation and the terms of the contracts. These contracts are directly and strictly applied in the small farmers' case, but the large farmers (or those who operate through brokers) usually obtain more favorable terms included in addition to the contract.

6. Independent mills. A few small mills operate independently, processing rather small amounts according to their physical and economic capabilities. A closer contact is noticeable between these independent mills and the producers, and the terms and conditions of the transaction are generally better adapted to the producer's needs. However, net prices apparently do not differ markedly from those of the associated mills.

Relations Among Market Participants. The relations between growers and middlemen or between growers and buyers, as the case may be, vary considerably among the various-sized producers, and may even vary in each operation. However, some characteristic relations are frequently repeated.

The sub-contractors operate exclusively with small groups, who usually have very little bargaining power. The grower has a direct dependency on the farmer-sub-contractor who provides information, inputs and advances, and who closely controls the operation, especially at harvest time.

The trader-sub-contractor does not actually supervise the operation itself, but keeps a strict check on the grower, who has pending credit obligations to him.

The grain broker, on the other hand, operates with growers of all sizes. Their business is conducted on a level of greater equality, since these brokers depend more on the grower's goodwill for their patronage.

Trucker-buyers have only quick occasional contacts with growers. Their relations seem cordial, as might be expected considering the mutual convenience and somewhat obscure nature of the operation (the transacted paddy has often already been contracted by some mill).

The associated mills have great bargaining power and do not act on equal terms with the grower; for example, contract clauses definitely favor the industry. Application of the contract and other relations between the parties are also favorable to the mill. The producer depends on the mill's goodwill to obtain larger advances, reduced penalties,

and prompt liquidation and payment for shipments delivered. In case of disagreement the grower's only alternative is to stop operating with one mill and deal with another that offers him practically the same monetary and non-monetary conditions. Hence the grower's bargaining position is very weak.

For their part, independent mills must offer certain incentives, such as special treatment, in order to attract customers, since these mills' economic limitations prevent them from competing with the large associated mills in the net price area.

Group action. Rather than analyzing specific organizations, the study observed the characteristics of the most common forms of group action undertaken by growers, middlemen and mills.

In the past, rice growers have tried to unite their actions for the primary purposes of presenting their viewpoints about government rice policy and of influencing the level at which minimum prices are fixed. There were several regional growers' associations, but although some still exist on paper, none are really active at the present time.

Local growers have sometimes formed cooperative enterprises (either commercial type or peasant type) with different degrees of success depending largely on the proportional economic benefits to each member and the quality of the management. Additionally, small growers often group themselves and sign a single contract with one mill in order to meet minimum volume requirements of this mill.

Sub-contractors (farmers or traders) usually operate independently and only with producers who face special limitations, adhere to tradition, and/or live in isolated areas. Grain brokers are associated, but their

association apparently did not influence competition in rice trade, a line of lesser importance within their group of operations.

The railroad, once the major transporter of the agricultural production, has little importance today since only small volumes are moved by rail and then only for short distances. The trucking industry is increasing in importance. Although many trucks belong to large enterprises, most of them operate independently, and no union activity has affected competition noticeably. Freight rates are negotiated in each case, according to distance, volume, type of road, competition, etc. When the mill pays for transportation, it contracts with certain truckers and pays uniform rates for a given area, considerably lower than the rate individual producers would pay.

The millers' trade association controls about 88 percent of the country's total rice milling capacity.[21] There seems to be strong cooperation among members for strengthening joint action; although in the past some large mills tried to dominate both the association and the industry, at the present all of them act on a more equal basis.

The association is quite effective in unifying the mill's action with regard to third parties. Recently, the union attempted, but failed to establish a monopolistic zone of influence for each mill by forcing growers to pay freight charges to the mills. Insufficient production obliged the mills to pay part of the freight charges of producers in different zones, thus neutralizing the change in the price system. Business ethics among members, when competing with each other,

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[21] ECA, "Arroz," (Unpublished) Informe del Departamento de Trigo y Cereales (Santiago: 1967).

are not so well defined. There are frequent complaints against mills that buy paddy already pledged to other mills.

The independent mills have a smaller volume of operation, and a large part of the rough rice that they process comes from their own farms. These mills also distribute the milled rice directly.

Although the milling industry is frequently presented as separate from production, in practice there is a considerable degree of integration. Over half of the mills--including a large section of the independent mills--produce part of the rough rice that they mill.

Product Differentiation. The number of rice varieties produced in Chile is limited and each yields basically the same type of rough rice. However, some regional and local differences can be observed in the product, resulting mainly from variations in climatic and ecological conditions.

From the producer's point of view, some zones hold considerable comparative advantages. Although production costs per hectare are practically the same in the different zones of the country (in the North land value and rent are higher, while in the South greater amounts of inputs, especially fertilizers, are required), the agricultural yields vary considerably, becoming larger northward. Hence the farmers located farthest north have marked advantages in rice production.

From the mills' viewpoint, only small differences exist in the industrial yield per ton of paddy; excluding these differences, the industry considers the grain from any region of the country to be alike.

Despite the mills' preference for rice coming from certain zones and particular producers, and although there are differences in production

costs, these factors do not constitute product differentiation as currently understood in market analysis. Rather, they seem to be matters of difference in the type or the intrinsic quality of the product, or even of miller-grower personal relationships, which often originate and justify price differences from the buyer's viewpoint.

Prices and Margins. Although the government calculates marketing charges for rough rice at a flat five percent,[22] two studies have indicated that charges range from 6.5 percent to 13 percent,[23] and these do not include all marketing expenses or any allowance for penalties applied by the mills.

Marketing charges for each grower usually vary according to the quantity sold and the marketing channel utilized. Although a grower can utilize many combinations to market his rice, he will usually sell to the following types of buyers:

1. The trucker-buyers, who operate only on a cash basis, paying somewhat less than the official price and discounting whatever penalties they think the shipment will deserve.

2. The associated mills, which pay net prices that sometimes go as high as the official price (in a few cases some mills have even paid a small premium). However, most of the operations are subject to severe penalties that often amount to as much as 20 percent of the value of the product. In practically all the cases studied, small producers were receiving net prices considerably lower than the average for all producers.

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[22] See Appendix 3, Table A-2.

[23] See Sendra, op. cit., for an analysis of the factors affecting marketing charges.

3. The non-associated mills, which generally operate only with small and medium farmers, pay prices similar to those of the associated mills.

Although it is frequently mentioned that mills' profit rates are very high,[24] it appears that if the mills would apply strictly and equitably the authorized penalties only, the profit rate of mills would not be higher than in other industrial activities.

Production and Marketing Policies

Even though it holds a secondary place in the agricultural production of Chile, rice production has received continuous attention from growers, millers, and government.

Growers have usually been active only when they considered the rice policy unfavorable to themselves, particularly when prices were fixed at excessively low levels. Although growers have sometimes used regular administrative channels to make their voices heard, usually they operate by contacting directly influential government policy makers or key people in the milling industry.

The milling industry has been interested in increasing rough rice production. Their actions, however, have been restrained because more production would demand additional economic means to finance more advances for production, to purchase larger quantities, to provide larger storage facilities, and to make other changes in the organization of their operation. Thus mills have acted more in the direction of

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[24]Rosa Bravo, Alcances teóricos y prácticos en una investigación de comercialización de productos agropecuarios, thesis (Santiago: Universidad de Chile, 1966).

sustaining industry goals and at the same time trying to influence government policies in their favor.

Normally there has been considerable government intervention in Chilean agriculture, especially in the determination of farm prices. Although the government's policy with regard to rice production presents no clear and defined tendencies, several governmental organizations have been active in various fields related to rice, particularly credit, mechanization, and general research. Rice is included in the new agricultural plan for 1965-80, and although only general aspects are mentioned, between 1965 and 1971 yield per hectare is expected to increase 33 percent and area under cultivation 17 percent.

Price Policies. Government has fixed minimum prices for rough rice for the past two decades.[25] Practically all of the interviewed growers and mill operators agreed that the price fixing policy should continue in the future; the most serious complaint, however, was that prices are fixed very late, when cultivation is in progress and frequently when the paddy has already been harvested and delivered to the mills. The late fixing of prices implies: 1) uncertainty for the grower, who at sowing time does not know what the price is going to be, which prevents him from making rational decisions; 2) delayed payments (the purchase-sale contracts do not establish the price and no liquidations are made until the prices are fixed); and 3) idle capital

[25] Notwithstanding, the agricultural development plan for 1965-80 does not include rice among the products whose prices will be fixed by the government in the future, according to Ministerio de Agricultura. Oficina de Planificación Agrícola (ODEPA), Plan de desarrollo agropecuario 1965-1980 (Preliminary version).

(the mills do not process the new paddy stocks until the new prices are officially announced).

Credit Policy. Rice is a high cost crop and rice growers in Chile depend almost entirely on credit to carry out their production. In past years, the main source of credit for rice cultivation has been the milling industry. The mills grant advances in cash and in drafts for a value that normally represents 40 to 80 percent of the total expenditure on production. On the other hand, lack of capital obliges the mills to pay growers for their rough rice over periods that range up to six months, and during this period growers are granting credit to the mills.

The milling industry thus needs a large amount of money to finance the considerable volume of production, purchasing, and storage of rice that they mill later, without receiving adequate credit in turn, except from the warrants credit line. Warrants credit is a low interest government credit that requires grain in storage as collateral. Although this credit was intended for use by small and medium size growers, practically the whole amount assigned to rice has always been used by the mills.[26]

Another less important source of credit for rice growers is the State Bank, which provides inputs and sometimes cash advances of up to 20 percent of the grower's expenditure on production.

[26]Programa de cooperación técnica Chile-California, "La comercialización de productos agropecuarios en Chile," Anexo 2, p. 126 (Santiago, Chile: 1965).

Finally, INDAP grants supervised credit in the form of inputs to certain small farmers organized in committees or cooperatives. However, a lack of coordination and complementarity among the institutions that grant agricultural credit is often noted.

It should be noted that some farmers grow rice even though they do not consider it their best alternative, bscause the available credit enables them to complete production without large outlays, and in some cases the credit may even be enough to cover certain operation expenses for other crops. However, all growers find serious, often impossible, problems in discounting drafts for either credit or payment in the commercial banks.

Small and Large Producers

Characteristics. The size of operation for each class of producer was roughly determined as follows: small producers were defined as those who grow less than 15 hectares (10 cuadras) of rice, and large producers those who grow more. The definition was based on observations made in all of the zones studied. However, the opinions consulted were not uniform--various definitions of "small producers" included those producing not more than five hectares, and ranged up to those producing less than 40 hectares. In practically all cases it was pointed out that it is difficult to define a producer's "size" on the basis of a single product isolated from his whole farming enterprise and any other economic activities he may have.

The small producer generally works personally on his own farm activities, but he faces economic restrictions and has limited know-how.

His production is not mechanized and he must hire special machinery for threshing and other chores. The quality of the rice he produces is relatively inferior because he lacks technical knowledge and adequate resources for the normal development of his operation.

The large producer is often an agricultural entrepreneur who devotes considerable time to the general organization of his production and related management tasks, while the guidance of the technical details, as well as labor supervision, are usually delegated to other people. These producers specialize in rice and are usually well informed about technological improvements and price movements in the market.

The majority of rice producers are landowners. Cash renting is infrequent because of the risk involved in the operation, and because the profitability of rice is not always large for the renter (especially if all costs are considered). Landowners often do not want to rent their land for rice production because it leaves the soil uneven and exhausted. There are, however, a variable number of sharecroppers and a few "inquilinos" (resident farm workers who are granted land use privileges as partial wage payment) that grow rice regularly.

Incentives Received. Rice production can be very remunerative under favorable conditions. Besides its profitability and the certainty of a market, rice production also offers the incentive of credit in money and seed which is normally granted when a contract with a mill is signed.

The small grower finds himself in a less favorable position with regard to advances of money. He receives a smaller amount of advance per hectare and also faces bigger problems in discounting the drafts

with which mills finance production and pay for the product. On the other hand, rice production demands constant attention and work, which allows the small grower to use his family labor continuously--generally this labor has few alternative uses. Furthermore, many rice growers often have land for which production alternatives are few and not very profitable in the short run (e.g., cattle grazing).

The large producer usually concentrates large amounts of resources on rice, and seeks to improve his production and marketing methods. This specialization allows him to use a more efficient technology and take advantage of some production and marketing economies of scale, besides obtaining better terms and conditions from the mills. Thus he increases his economic yields considerably.

Access to Markets and Services. Technical information related to rice can be obtained from the mills, business firms, the Ministry of Agriculture (SAG, INDAP), and the State Bank. Small farmers as a rule have less access to this information because of economic limitations or institutional factors:

1. Mills are not eager to give technical advice, especially in the small growers' case, because it demands more personnel.

2. Business firms advise and promote the use of their products, but small farmers use few modern inputs; thus their contacts with salesmen are minimal and not always adequate.

3. The State Bank advises customers upon request, but small growers are not usually customers of the bank.

4. Experimental stations and other governmental services are open to all farmers that seek the information, but these centers are

not always located in producing zones, and usually small farmers have less opportunity to travel to these agencies--such travel requires a considerable amount of time and money.

5. In practice small growers can use only the services of INDAP, but in the case of rice this organization's services are limited because it does not cover the entire rice zone. INDAP has little interest in rice because of high production costs and the need for improved technology, and because the crop does not seem well suited to very small scale operations, at least in Chile.

Large producers currently use better production and marketing methods. However, the greatest differences exist in the use of new inputs and adequate equipment, in the timely execution of the work, and in the flexibility of operation to adapt to necessary changes.

The official minimum price of rough rice is fixed uniformly for all mills in the country and is maintained during one agricultural year. Given this situation, the individual producer would apparently have no need to obtain market information, especially considering that there is an unsatisfied demand for rice.

However, the minimum official price is only a yardstick, and is not always directly related to the net prices received by growers. On the contrary, real prices are modified by monetary and non-monetary factors, and there are obstacles that limit certain producers' access to the market. Among these factors the following are outstanding:

1. Most mills require that the customer have a minimum number of hectares in rice in order to sign a contract, so that the small producer finds few buyers or has to fall back on middlemen.

2. The mills accept small customers (having more than the prescribed minimum area available) only within a certain geographic area near the mill, for which reason the small producer is obliged to operate with the mill nearest his operation.

3. The mills offer advances under extremely varied conditions of quantity, payment date, form of payment, and interest rate, and these conditions normally favor larger growers.

4. The mills usually allow different tolerances and apply penalties on the product in an arbitrary manner. The small grower has less chance to check on penalties or make claims against deductions (which often reach up to 20 percent of crop value).

5. The date of contract liquidation and payment is also discriminatory and varies from mill to mill; the form of payment also differs (in cash or drafts).

6. Small growers encounter serious difficulties in discounting drafts and often must await their due date or discount them with third parties, with heavy deductions.

7. Some producers (all large ones) stated that they receive special bonuses of 2 to 10 percent for delivering paddy for seed (as per certain specifications), and for not requesting advances, etc.

All of the foregoing indicate that the fixed minimum price is only one of many factors that the grower considers before deciding whether it will pay him to produce rice.

Changes Occurring in Rice Marketing

Relatively few changes can be observed in the marketing of rice. The number of buyers remains stable and although the price and purchase

policies have had minor alterations, the methods used in marketing are also still unchanged. The most notable changes occurring in recent years are:

1. Transaction of standing rice before maturity (en verde) has practically disappeared because of improved transportation and communication media.

2. Quotations on paddy are now fixed FOB mill, but in practice this has caused no changes in the price policies.

3. A larger number of mills have facilities that enable the producer to check the grounds for penalties, but in practice only a very few farmers can verify the reasons for the discounts imposed.

4. A large number of producers use the services of brokers, but these middlemen's functions have changed. They now operate in the market without becoming owners of the product, and endeavor to obtain better terms from the mills for their customers by using their greater bargaining power.

IV. POTATOES

Potatoes are one of the most important crops in Chile in terms of the high level of per capita consumption and the large number of growers. Consequently, any important change in the potato market usually becomes an important socio-economic and often a political problem. Hence the government and the public usually watch the potato markets very closely.

The main characteristics of potato production and marketing observed in this study are:

1. Problems of potato production and marketing are quite different throughout the country.

2. Potato production and consumption vary in different ways in different parts of the country, and in various seasons, creating regional supply and demand imbalances.

3. There are many different types of potatoes, so that it is ambiguous to speak of "potatoes" or "the potato market."

4. Potato marketing is considerably more involved than marketing of the other products studied because of regional variations throughout the year, the large number of persons involved, and the complicated pattern of transactions.

5. Many potato sellers and final buyers operate in the market, lending some characteristics of a competitive market.

6. Many middlemen deal in potatoes. In any market, however, their number is so small that they present a concentrated buying power and usually possess the means to effectively control the regular flow of potatoes in those markets.

7. Large growers usually have much better access to market opportunities and frequently obtain higher prices for their potatoes than small growers.

8. The government sometimes participates in the potato market, primarily by fixing maximum prices or controlling the market supply.

9. Price support policies applied in several regions, although intended to help the small grower, benefit only large producers and other growers located close to the buying stations.

10. Government policies as a rule are short run and directed toward specific problems. Because of conflicting goals, government interest in potatoes has mostly centered on consumer protection, while growers--especially small growers--suffer the negative effects of these policies.

Production

Potatoes, grown practically throughout Chile, constitute one of the country's most important agricultural products. In 1961-63 they accounted for 15 percent of the value of total crop production.[27]

Crop area devoted to potato production has been rising rapidly, but total production has increased only moderately because of a decline in yields. This decline results from an increasing incidence of blight, a lack of adequate technology, and a lack of appropriate varieties adapted to the various regional ecological and climatic conditions.

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[27]Raul Parada and Alfonso Sanchez, Comercialización de la papa en Chile (Santiago, Chile: Ministerio de Agricultura, 1966), p. 2.

Per capita production has also decreased during recent decades, reflecting an annual population growth of roughly 2.4 percent while potato production rose only 1.2 percent per year.[23] The consensus is that slow growth has been caused by the lack of a favorable and consistent price policy.

The gap between domestic production and demand has usually been covered by ECA imports, which have tended to keep the yearly per capita availability of potatoes relatively uniform, as shown in Table IV-1.

Potato consumption in Chile amounts to some ninety kilograms per inhabitant per year, supplying 6.5 percent of total calorie intake. Average consumption is below the 123 kilos recommended by the National Health Service (SNS).

Besides human consumption, a considerable portion of the potato production is used for stock feed, especially small potatoes and those damaged during harvest. A smaller percentage goes for industrial uses, mainly starch production.

Commonly, the following criteria are used to distinguish among potato types in the markets:

1. According to the physical characteristics: red potato (with red skin and white or yellow flesh), and white potato (with brownish skin and white or yellow flesh).

2. According to the season of production: early potato (produced during August-December), mid-season potato (produced during January-March), and late potato (produced in March-July).

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[23] Ibid., p. 23.

Table IV-1. Availability of Potatoes in Chile (1951-65)

Year	Domestic availability (millions Qqm)	Exports (thousands Qqm)	Imports (thousands Qqm)	Total availability (millions Qqm)	Population (millions)	Per capita availability (Kg)
1951	4.7	-	58.9	4.7	6.2	76
1952	5.1	-	118.6	5.2	6.3	82
1953	5.9	-	13.6	5.9	6.4	91
1954	6.7	-	-	6.7	6.6	102
1955	6.0	-	-	6.0	6.8	89
1956	6.3	-	-	6.3	6.9	91
1957	6.2	-	19.6	6.2	7.1	87
1958	7.5	-	10.9	7.5	7.3	103
1959	4.8	-	2.1	4.8	7.5	65
1960	5.3	-	117.9	5.3	7.6	70
1961	6.8	-	40.9	6.8	7.9	87
1962	6.0	10.0	5.2	6.0	8.0	75
1963	6.8	9.4	0.1	6.8	8.2	83
1964	6.5	4.1	2.4	6.5	8.4	77
1965	6.1	-	71.5	6.1	8.8	70

Source: Parada and Sanchez, Comercialización de la papa en Chile (Santiago, Chile: Ministerio de Agricultura, 1966).

3. According to the quality: first grade potato (large, uniform, and sound), large seed potato (medium size), seed potato (small size), and stock-feed potato (very small, damaged, or split).

4. According to the variety: each of the above groups includes several varieties which usually differ in yield and market acceptance.

The yearly potato production cycle begins in the North, then gradually moves to the South of the country. Some regions produce more than one crop a year, while other regions plant by stages within the season; thus it is difficult to assign clear boundaries to the main

production of each zone.

Early potatoes (primores) are usually produced by input intensive operations in the mild-to-cold winter months, and the harvest season extends from August to November (before the harvest occurs potatoes are fully grown and mature). Consequently yields of early potatoes are considerably lower, and their production costs much higher, than those of late potatoes. Furthermore, early potatoes are delicate and perishable products which become skinned easily and must be sold quickly. Therefore their marketing involves a considerable risk, although they usually command good prices in the market.

Late potatoes (de guarda), which constitute about 70 percent of total production, are harvested from March to June, when the potatoes are mature and the vegetation period is completed. Late potato production gives the highest physical yields and costs of their production are usually the lowest. Under favorable conditions late potatoes can be stored for a period of six to eight months, permitting sales according to demand from March to November. These potatoes usually command only average to low prices in the market, and not infrequently producers or middlemen find no convenient market for them.

Mid-season potatoes (media estación) usually enter the market in November, overlapping with early production from the North and the remaining stored potatoes, and continue selling in the market until March when the late production enters. The price of mid-season potatoes depends heavily upon the supply of both early and late potatoes, but as a rule they command good prices in the market.

Production timing and volume in different zones vary considerably according to yearly climatic conditions--on the one hand production may be advanced or retarded for several weeks, and on the other a larger or smaller than normal production may result. For these reasons it is not always possible to avoid regional production surpluses or deficits in relation to a fairly stable demand, which is largely price inelastic.

Cost of production per hectare varies according to the season of production and input use intensity. Usually production costs are much higher in the North, where a relatively advanced technology is used, and are lower toward the South, where production is less intensive and occurs during a warmer season. Table IV-2 presents census data aggregated at the provincial level for the production of potatoes. In the aggregation, however, different products are mixed, reducing the value of the information since changes in yields and seasonal distribution of production are lost or diffused

Production is carried out by small, medium, and large growers, although well over half of the crop is supplied by large producers. Often potatoes are a subsistence crop on many smaller units, and only a part of the country's total production reaches the market, while the rest is used on the farm.

Table IV-2. Crop Area in Potatoes ("C," thousands of hectares), Production ("P," thousands of Qqm.), Yields ("Y," Qqm. per hectare)

		1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966
Tarapacá	C	0.2	0.2	0.1	0.1	0.1	0.1
	P	5.0	3.5	2.7	1.8	0.9	1.3
	Y	25.2	17.4	26.9	17.8	8.6	12.9
Antofagasta	C	-	-	-	-	-	-
	P	-	-	-	-	-	-
	Y	-	-	-	-	-	23.3
Atacama	C	0.1	0.1	0.1	0.1	0.1	-
	P	7.9	7.6	6.5	8.1	5.0	-
	Y	79.2	75.6	64.7	81.2	49.5	11.3
Coquimbo	C	3.5	3.5	3.5	3.2	3.4	3.4
	P	274.4	341.2	357.4	297.6	289.3	289.7
	Y	78.4	97.5	102.1	93.0	85.1	85.2
Aconcagua	C	2.0	2.1	1.8	2.0	1.8	1.7
	P	187.6	211.8	190.3	188.0	185.2	103.2
	Y	93.8	105.6	105.7	94.0	102.9	60.7
Valparaiso	C	2.1	1.7	1.4	1.5	1.3	1.0
	P	168.4	167.8	135.9	148.2	76.4	106.1
	Y	80.2	98.7	97.1	98.8	58.8	106.1
Santiago	C	6.3	5.9	5.4	4.9	5.0	5.1
	P	682.9	706.8	724.1	598.8	603.0	658.9
	Y	108.4	119.8	134.1	122.8	120.6	129.2
O'Higgins	C	6.0	6.1	5.7	5.4	5.7	4.9
	P	699.6	846.7	775.8	773.3	822.5	699.2
	Y	116.6	138.8	136.1	143.2	144.3	142.7
Colchagua	C	3.0	3.0	2.8	2.9	3.5	3.2
	P	398.7	427.8	404.6	472.7	466.2	408.3
	Y	132.9	142.6	144.5	163.0	133.2	127.6
Curicó	C	1.6	1.5	1.5	1.3	1.4	1.3
	P	161.3	173.4	199.7	139.8	161.0	124.3
	Y	100.8	115.6	133.1	107.5	115.0	95.6
Talca	C	3.6	3.3	3.4	3.2	3.1	2.9
	P	443.9	428.0	484.5	489.6	392.5	445.4
	Y	123.3	129.7	142.5	153.0	126.6	153.6

Table IV-2. (Continued)

		1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966
Maule	C	1.8	0.9	0.9	0.8	0.7	0.7
	P	59.4	27.0	17.4	16.4	19.1	13.2
	Y	33.0	30.0	19.3	20.5	27.3	18.8
Linares	C	2.4	2.0	1.9	1.8	2.2	2.3
	P	154.1	144.4	122.6	140.0	200.6	168.8
	Y	64.2	72.2	64.5	77.8	91.2	73.4
Ñuble	C	5.1	5.2	5.2	4.5	4.3	3.8
	P	308.6	281.3	192.4	259.2	254.6	260.3
	Y	60.5	54.1	37.0	57.6	59.2	68.5
Concepción	C	3.4	3.1	3.2	3.1	2.9	3.1
	P	124.8	91.4	83.5	91.8	74.0	54.3
	Y	41.6	29.5	26.1	29.6	25.5	17.5
Arauco	C	2.5	2.4	2.3	2.2	2.2	1.9
	P	122.8	113.5	114.8	111.1	78.3	74.9
	Y	49.1	47.3	49.9	50.5	35.6	39.4
Bío-Bío	C	1.4	1.4	1.5	1.1	1.1	1.2
	P	70.3	65.8	78.0	43.6	69.2	83.5
	Y	50.2	47.0	52.0	44.2	62.9	69.6
Malleco	C	3.8	3.6	3.8	2.8	2.9	2.4
	P	239.8	169.2	206.3	162.4	135.1	113.8
	Y	63.1	47.0	54.3	58.0	46.6	47.4
Cautín	C	11.3	11.1	10.7	10.9	12.2	9.8
	P	598.9	401.8	615.3	482.9	359.9	403.8
	Y	53.0	36.2	57.5	44.3	29.5	41.2
Valdivia	C	6.7	6.5	5.8	5.9	6.5	5.0
	P	547.4	491.4	674.5	617.1	481.0	383.5
	Y	81.7	75.6	116.3	104.6	74.0	76.7
Osorno	C	5.4	4.9	4.5	4.5	4.9	5.0
	P	608.6	374.8	446.4	561.5	553.2	462.0
	Y	112.7	76.5	99.2	124.8	112.9	92.4
Llanquihue	C	11.6	10.4	10.4	9.6	10.8	8.8
	P	1,723.8	1,310.4	1,669.2	1,457.3	1,508.8	1,481.0
	Y	148.6	126.0	160.5	151.8	139.7	168.3

Table IV-2. (Continued)

		1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966
Chiloé	C	8.4	7.7	7.7	7.2	8.7	8.3
	P	474.6	465.1	502.8	550.1	531.6	618.4
	Y	56.5	60.4	65.3	76.4	61.1	74.5
Aysén	C	-	-	-	0.7	0.7	0.8
	P	-	-	-	98.0	98.0	217.9
	Y	-	-	-	140.0	140.0	260.0
Magallanes	C	-	-	-	0.4	-	-
	P	-	-	-	26.2	-	-
	Y	-	-	-	63.1	-	-
TOTALS	C	91.8	86.6	83.6	80.1	85.5	76.7
	P	8,062.8	7,260.7	8,004.7	7,740.6	7,365.4	7,171.8
	Y	87.8	83.8	95.8	96.6	86.1	93.5

Source: Informaciones Agropecuarias (Occasional publication, Santiago). Consejo de Coordinación de Estadísticas Agropecuarias Continuas.

Marketing

Although potatoes are produced and consumed throughout the country, supply and demand within regions are seldom in equilibrium. Consequently considerable quantities of potatoes must be transported from one region of the country to another. The pattern of inter-regional flow is not regular, but depends on the interaction of regional and seasonal variations in production as well as on year to year production changes.

Different regions have comparative advantages for supplying certain types of potatoes during certain seasons (early, mid-season,

or late). Consumers in different parts of the country have strong consumption preferences (white potatoes are preferred in the North, and red potatoes are preferred in Santiago, the central, and the southern parts of the country). Demand also varies with the consumer's economic status; early potatoes are considerably more expensive than stored potatoes and are principally bought by higher income groups.

Major regional production is concentrated in the southern part of the country, while consumption is concentrated in the Santiago area because of its large population. Santiago, the most important market in the country, has Central Market auctions throughout the year, and market news from this and other markets is diffused over the whole country.

This study focuses on the Santiago markets. The yearly flow of potatoes into these markets is presented in Diagram IV-1 and Table IV-3.

The monthly distribution of wholesale potato sales in Santiago, as a percent of yearly sales, is shown in Table IV-4. Late potatoes amount to slightly over half of total sales, but the data do not distinguish between early and mid-season potatoes.

The various types of domestic potatoes follow the same marketing channels through the year, and imported potatoes also use these same channels. The main channels are:

1. The Central Market auction "La Vega," which handles about 60 percent of the potatoes sold in Santiago.[29] The auctions are conducted daily in the morning.

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[29] Data refer to 1967.

Diagram IV-1

Potatoes - Marketing periods in Chile

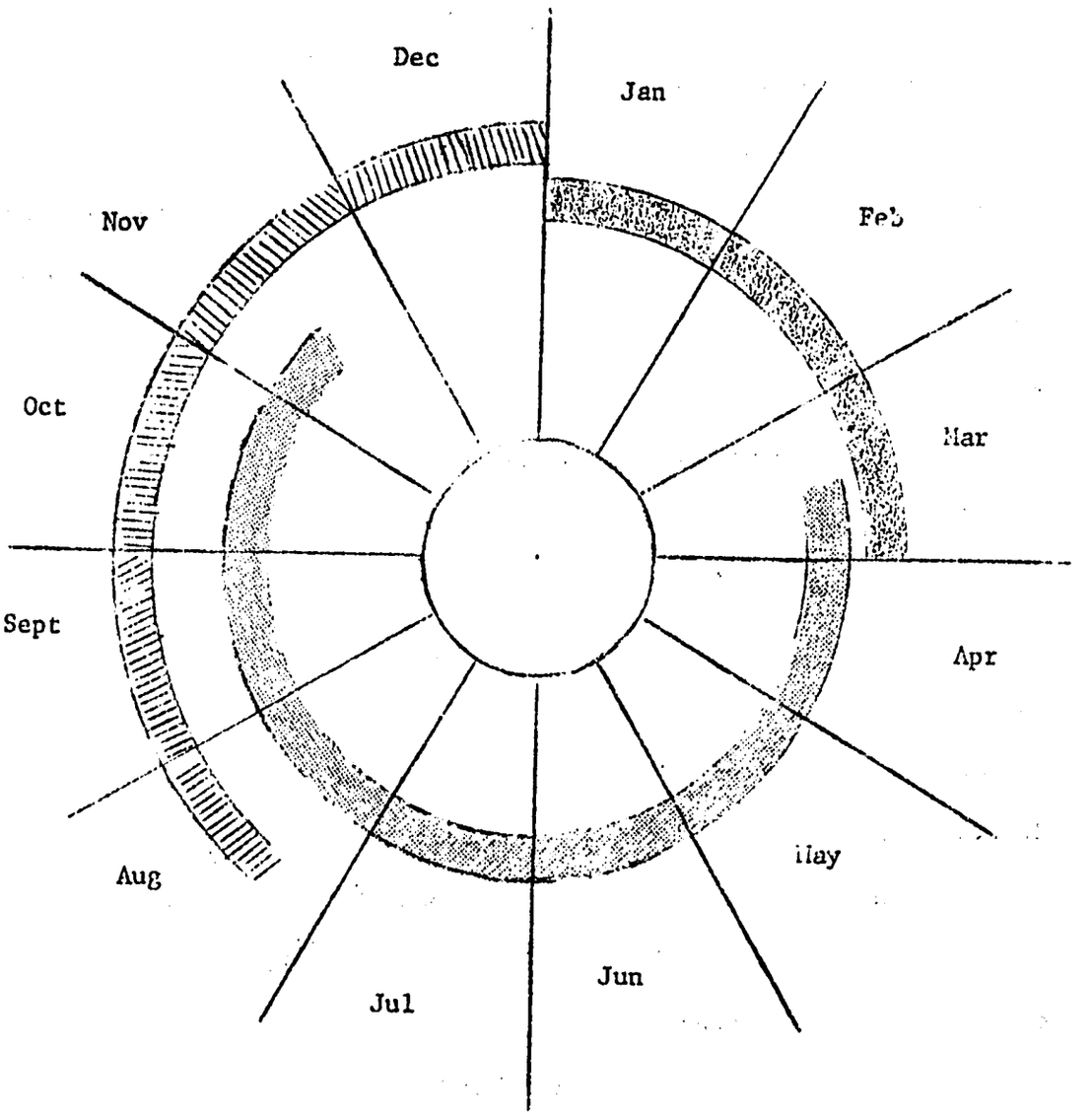


Table IV-3. Potato Marketing Season in Santiago's Markets

Production region	Months	Type of potato
Northern provinces	September-mid December	early
Santiago	mid November-March	early, mid-season
O'Higgins	mid January-February	mid-season
Colchagua, Curicó, Talca	February-April	mid-season, late
Southern provinces	mid March-November	late

Table IV-4. Monthly Distribution of Potatoes Sold in Santiago (1967)

Month	Percentage
January	12%
February	8%
March	8%
April	5%
May	5%
June	3%
July	3%
August	6%
September	8%
October	14%
November	15%
December	13%

Source: Data from ECA, Servicio Noticias de Mercado.

2. A private auction market, which operates in the afternoons in the same fashion as the Central Market, but handles approximately one-third the volume of the Central Market.

3. Several other wholesale markets, operating in Santiago under different arrangements with a relatively small volume of operation.

Prices at both auction markets, as well as at other wholesale markets, usually exhibit only minor variations in relation to each other. Direct comparisons are difficult, however, since products may differ--grades are quite subjectively employed, and markets react differently according to the volume offered and the number of buyers present at any moment. In most parts of the country the prices in the two Santiago auction markets are taken as indicators of potato prices.

Even though daily price movements and other short run price variations are constantly present in potato wholesale markets, the following seasonal price pattern can be observed:

1. High prices for early potatoes as production starts, followed by a decline when early potatoes from nearby regions come in, the actual price level depending on the volume of early production and the quantity and quality of stored potatoes.

2. Declining prices as the early potato season ends and mid-season production enters the market (but if mid-season production is insufficient, as it often is, prices may rise again).

3. Lower prices as the large production of late potatoes reaches the market. Prices start rising again as supply diminishes, but before the supply of stored potatoes is sold out prices weaken again because of quality deterioration. At this time, early potatoes from the next season appear and compete in the market.

Diagram IV-2 illustrates the typical seasonal cycles of quantity sold and wholesale prices for potatoes in Santiago (the curves group all grades and types of potatoes sold in the auction markets).

Wholesale potato prices fluctuate freely during most of the year, but in recent years the government has sometimes controlled prices in two ways:

1. by fixing a maximum wholesale and auction price for early potatoes in cases where prices did not decline by mid-November;

2. by dumping onto the market large quantities of stored potatoes from ECA stocks, at low prices or even at considerable loss.

The often contradictory position of these government policies is reflected in the two main potato programs of ECA:

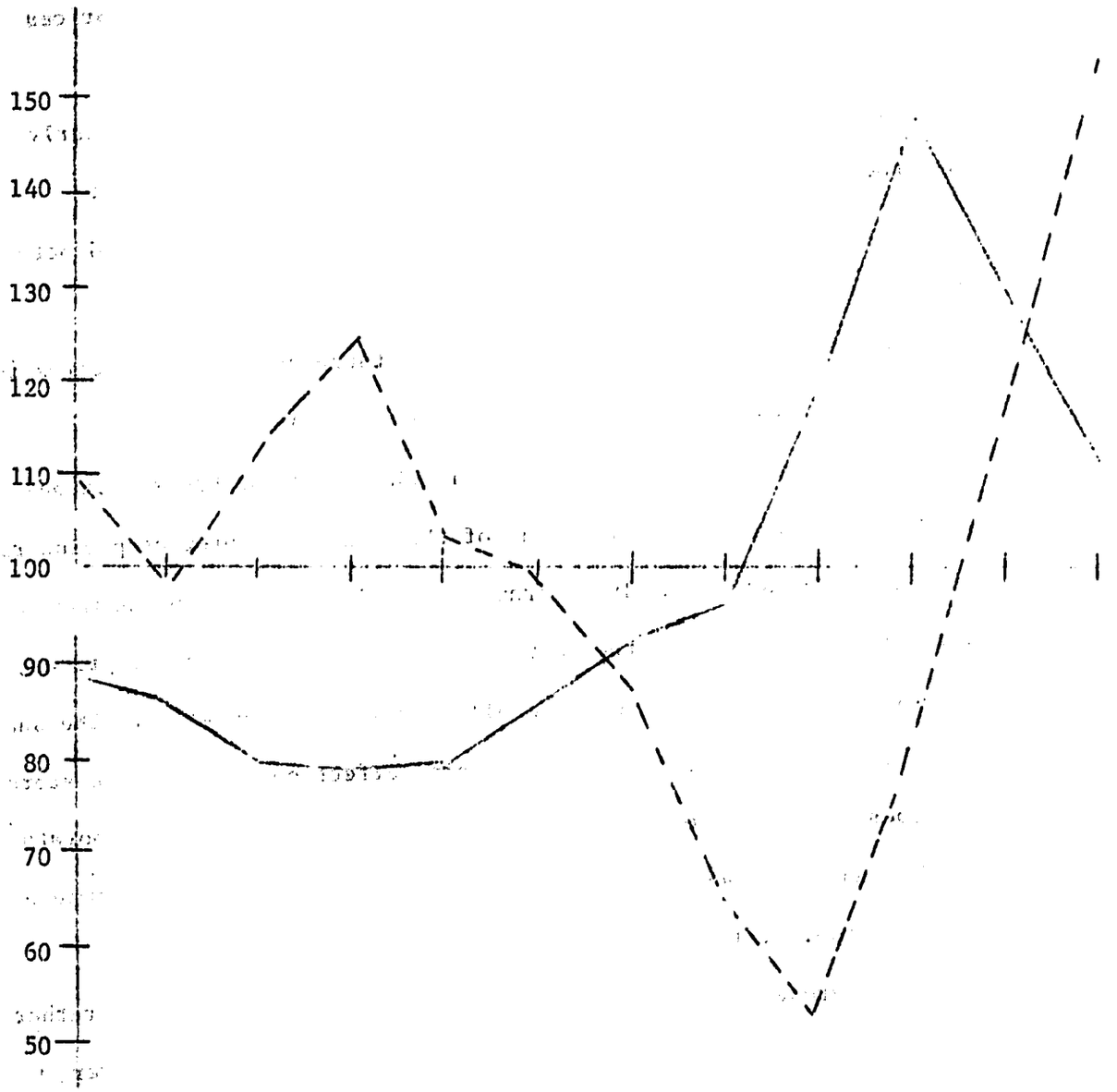
1. the price support program, in which ECA purchases potatoes at a fixed price in certain areas of the country to protect producers;

2. the market supply program, in which ECA dumps on the market large quantities of potatoes which were purchased to support prices, as well as others procured especially for supply regulation. The sharp price reduction tends to have an adverse effect on traders that store potatoes, on many growers who still retain part of their late potato stocks, and on producers of early potatoes who can no longer compete in the market at the reduced prices.

Most growers market their potatoes on an individual basis rather than through some type of group organization. There are, however, many organizations, such as local cooperatives, that foster potato production by supplying inputs and technical information to growers.

Diagram IV-2 Potatoes - Supply and price fluctuations

In Santiago Markets 1959-63[a]



The cost of marketing potatoes varies according to the market, the place of production, the volume marketed, and the number and type of middlemen that intervene in the operation. Typical marketing charges paid by growers in 1967-68 are presented in Table IV-5. Only charges for auction markets are presented, since the wholesale market operates with very diversified charges.

Table IV-5. Marketing Charges for Potatoes in Santiago (1967-68).

Charge	Central Market auction	Private auction
Unloading	E° 0.22 per sack	E° 0.19 per sack
Broker commission	2%	3%
Auction fees	2%	
Tax on commissions paid	15% (on 2%)	15% (on 3% plus total unloading fees)

Potatoes are sold wholesale in 80 kilogram sacks, but it is frequently mentioned that this size is inappropriate for adequate handling and not suited for proper sale to retailers. Losses due to rough treatment have been estimated at eight percent, but in many cases the percentage of loss observed has been considerably higher.[30]

[30] Parada and Sanchez, op. cit., p. 73.

At wholesale there are certain traditional quality grades that, although usually accepted, are not always uniform or objective.[31] Many growers explain that when market prices are relatively firm they deliver the potatoes unsorted (mixed) because this permits them to sell the entire production. When supply increases and prices decline, growers sort and grade the potatoes because this enables them to obtain higher prices for their best potatoes, leaving the smaller ones for stock feed.

Diagram IV-3 shows the potato supply and price fluctuations in Santiago. Potato growers as a rule market all their first grade potatoes, but as supply increases (and prices fall) a higher proportion of specified second grade potatoes are marketed. A reversal of this relation prevails when market supplies are lower.

Potato storage is an important marketing function in several regions of the country, primarily in the southern provinces. Most of the southern provinces produce late potatoes, suitable for storage, and do have adequate climatic conditions for successful storage. Potatoes are stored by growers and middlemen on one hand, and by government agencies on the other. Present storage facilities are mostly inadequate in capacity, location, size, and facilities.[32] No precise information about storage capacity is available, and potatoes are often stored in any type of facility.

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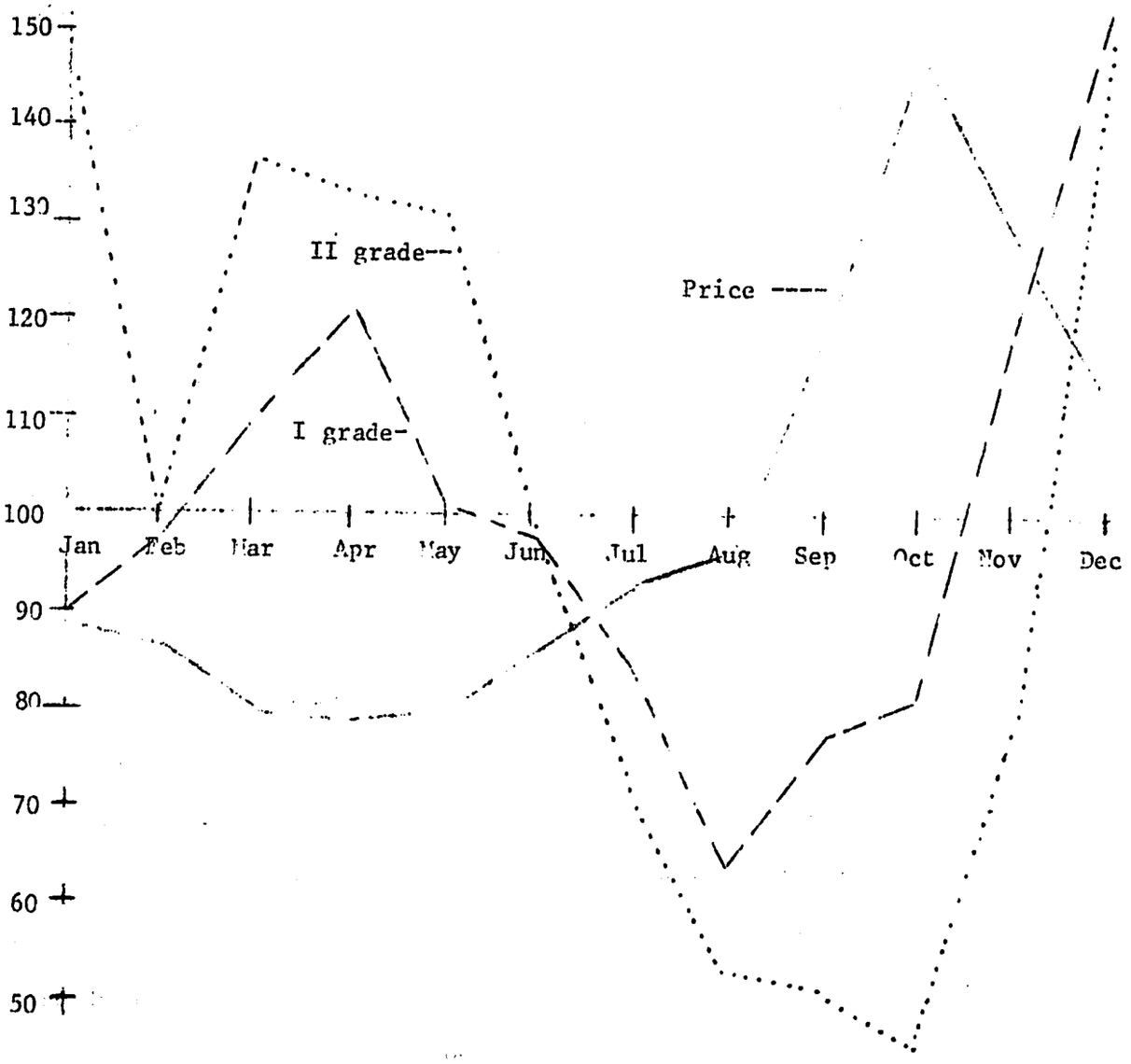
[31]Potatoes were formerly graded at the retail level, too, but to prevent price increases the government abolished the grading. ODEPA, Plan Hortícola, Vol. II (Santiago, Chile, 1967), p. 7.

[32]Ibid., p. 75.

Diagram IV-3 Potatoes - Fluctuations of supply of I and II grade Potatoes and of Prices in Santiago[a]



[a] Index number of supply 1959-61; average prices for all grades 1959-63. Source: Programa Chile-California

Credit is important for both production and marketing. At present, however, there are no special credits for potatoes and regular agricultural credit does not cover storage needs and other requirements particular to this crop. Although many sources of credit exist, both private and public, many potato growers and especially the small ones do not have access to these sources of financing.

On the average, less than one percent of total potato production is utilized to produce starch, potato chips, mashed potatoes, etc. Most of these industries are located in the southern provinces and operate only in years of plentiful supply.

Export should be considered an important outlet for potatoes in years of surplus. Although most neighboring countries produce potatoes, there are always seasonal deficiencies and Chilean potatoes could compete in price and quality.

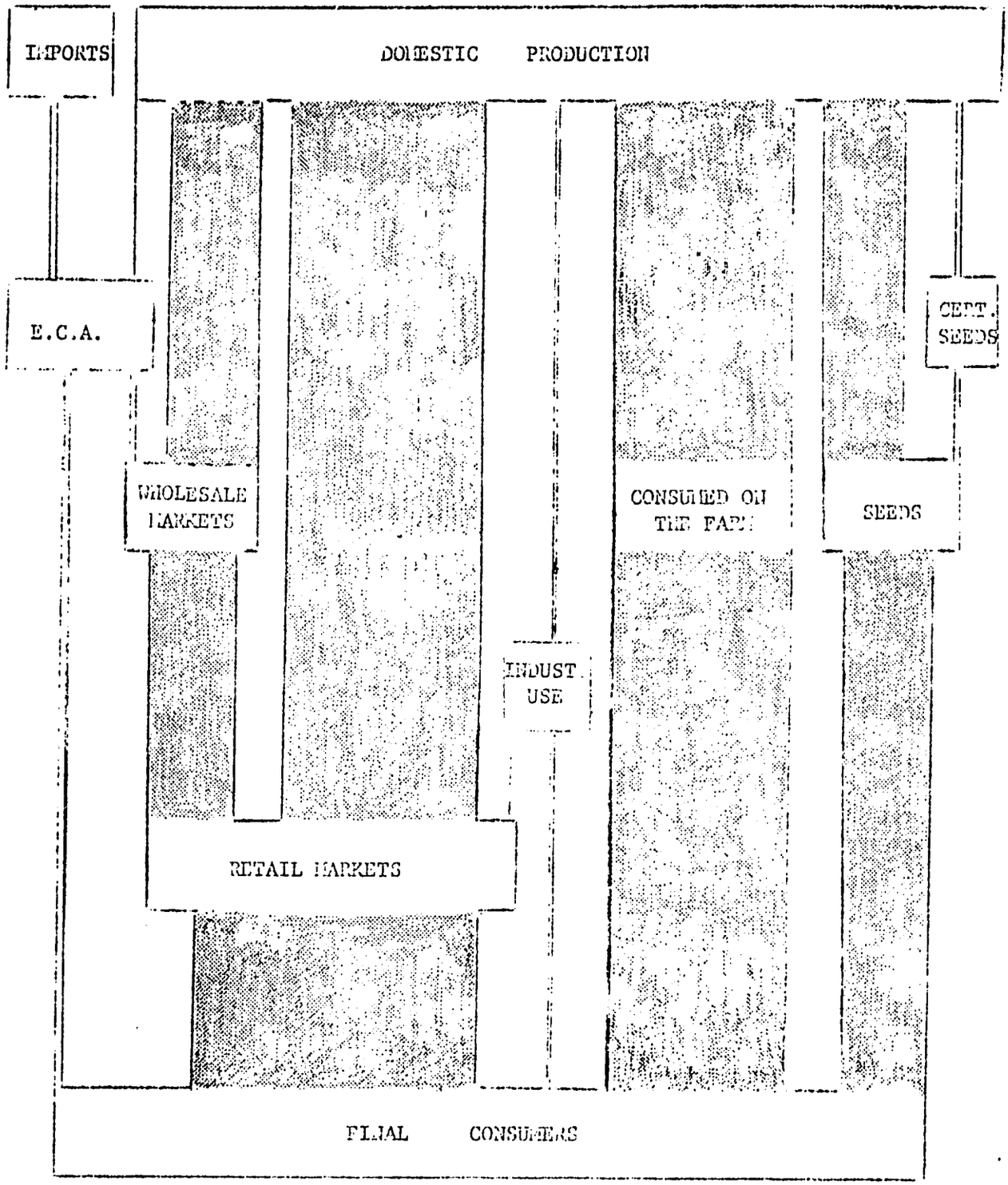
Diagram IV-4 presents a flow chart for a typical year's potato marketing in Chile.

Case Studies

Potato production and marketing vary considerably among and within different regions. The cases analyzed here present substantial diversity; however, only those characteristics which differ from the general procedure already explained are described in each case.

Case No. 1: Coquimbo. Potatoes, perhaps the most important crop in this zone, are harvested practically all year, although only the early production has economic importance at the national level. Early potatoes tend to level the fluctuations of the market supply at

Diagram IV-4
Potatoes - Pattern of Marketing Flow in Chile.[a]



[a]Width of the shaded columns represents an estimate of the percentage of total volume flowing through each channel in a typical year.

a time of relative seasonal shortages.[33]

The production of early potatoes involves considerable expense, since modern inputs and many technical improvements are used. Potato production costs per hectare in all of this zone are comparatively high, both in relation to costs of other crops and costs of potato crops in other zones. Nevertheless, the potato cropping practices of this zone are among the best in the country.

Coquimbo has two markets for its early potatoes: a) the North, which absorbs only a small percentage of total production and demands almost exclusively "white" potatoes; and b) Santiago, which is the main market for early potatoes and demands almost exclusively "red" potatoes.

Potatoes for the North are sold in two ways: a) sale from the field to truckers who buy and resell on their own account or on the account of some trader established in the North, and who pay good prices in cash but operate irregularly with small volume; and b) sale in the locality to traders or assembling men who have business connections or branches in the North, and who usually pay in cash and operate with considerable volume, but pay somewhat lower prices.

Potatoes for Santiago are also sold in two ways: a) sale from the field to truckers who buy and resell on their own account or on the account of traders established in Santiago, and who pay in cash with prices related to the previous day's auction price; and b) sales at auction through brokers in the Central Market or in the

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[33]Parada and Sanchez, op. cit., p. 19.

private auction. This channel is by far the most important even though prices fluctuate considerably and payments are made only weekly or bi-weekly in cash.

Case No. 2: Santiago. Melipilla and Mallarauco are the main potato producing centers in the Province of Santiago, a traditional producer of early, mid-season, and late potatoes. During recent times, however, the zone has produced mainly early potatoes. Similar to the northern product, these appear some months later, with higher yields and in greater volume.

Small and large production units operate side by side in the area. Although most of the production comes from units operating under direct management of the owner, potato sharecropping is relatively frequent in this region, as compared to the other case study regions.

Use of production technology is on an average with the rest of the country. Although experimental stations and commercial centers for the distribution of inputs exist in the vicinity, many growers in the zone have not taken advantage of the technical developments available to them.

Production costs per hectare in this zone are slightly lower than those in the Coquimbo zone, and its main comparative advantages are lower transportation costs and proximity to market, which together permit a high flexibility for timely delivery to the market.

Most of the zone's potatoes are sold in the city of Santiago. Often even local traders buy potatoes in the Santiago markets and take the product back to the producing area for retail sale. It was not possible to quantify the importance of this reverse flow.

Growers have the option of selling locally to truckers or assembling men, or sending the potatoes to the auction market. Most transactions are made individually by the grower, although some small cooperatives and the Agrarian Reform Settlements either utilize the same channels or sell directly to ECA.[34]

Case No. 3: Llanquihue-Chiloé. The Provinces of Llanquihue and Chiloé together produce nearly 30 percent of the country's total potato production. Potatoes have been grown in these areas for a very long time, and the crop is so common that most farmers cultivate it.

Llanquihue is the most important potato producing province in the country. The land devoted to potatoes is usually of good quality and the technological level of production, such as fertilizer use, is relatively high. Yields per hectare in this province are the highest in the country, and although the region includes only 8 percent of the country's growers, it produces some 20 percent of all potatoes, mainly late potatoes.

Production is usually carried out under direct management of the owner. Area devoted to potato production per farm ranges from less than one hectare up to more than eighty hectares, with the bulk of the marketed production coming from medium and large producers.

On the island of Chiloé practically every farmer grows some potatoes, a subsistence staple. The land is of poor quality and climatic conditions are severe. Except for application of fertilizer the technology used with potatoes is quite primitive. As a result yields are low,

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[34] In 1967-68 ECA signed a production contract for the entire output of these organizations at a fixed price, which, as it turned out, was four to six times higher than the going market price.

and although 12 percent of the nation's growers are located in the area, they produce only 9 percent of total production. The bulk of production comes from owner-operated small units. The whole region can be considered a minifundia area, since agricultural units usually are under five hectares.[35] In some parts of the island farmers grow more than one crop a year.

Llanquihue sells large quantities of potatoes for consumption and for seed. Others (small and damaged) are used for stock feed, and some potatoes (small and large) are used by the starch factories. Chiloé has basically the same outlets, although the markets are somewhat more restricted because of higher transportation costs and lower quality of the product.

The starch factories operate only in years when potato production is high and the volume they use varies according to the demand for their output. These factories buy potatoes of all sizes and pay according to the starch content of each lot.

Seed potatoes from these provinces (regular, selected, or certified) meet excellent acceptance for their quality and are distributed all over the country by commercial outlets and institutions related to agricultural development, such as INDAP, CORA, banks, and cooperatives.

Potatoes for fresh consumption are sold on a regular basis, primarily in regional markets for local consumption. Some important sales,

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[35]According to information from INDAP, over 80 percent of some 3,000 farmer units registered are under five hectares, and only a few large units are known. About 80 percent of the operators are landowners, while the rest include occupants, squatters, operators with uncertain ownership rights, and renters.

however, are made to other zones: a) the southern provinces, which provide regular but limited demand; b) Santiago, which demands large quantities of late potatoes, but only when there is no competition from other zones; and c) export markets, which are very attractive but have often been restricted.

ECA has been active in the zone; its purchases ranged 7 percent of the production of Llanquihue and 3 percent of the production of Chiloé in 1967-68. Having operated for about five years in the zone, ECA has succeeded in stabilizing prices in the market through a price support policy.

Structure of the Potato Market

As pointed out, any reference to "the potato market" constitutes an over-simplification because many classes and varieties of potatoes are produced at different times of the year, in various zones, and by diverse types of producers. Furthermore, these potatoes are sold through various channels, routed to different places, and receive treatments and prices that differ substantially. Some types of potatoes compete directly with each other, while others are sold in different markets. In most cases, however, the lots marketed cannot be categorized in rigid and well defined frameworks.

The situation is rather complex since each market presents a particular combination of variables which influences in different ways the result for the grower. Thus, no number of separate markets can be precisely specified, since their volume and content will change depending on how the situation is approached.

Moreover, there are a large number of problems in this field, few of which are common to all or even to a considerable proportion of markets. Given this situation, the following sections attempt to discuss some of the general characteristics of the structure of the potato market in Chile.

Buyers and Sellers. Potato growers, though located throughout the country from Tarapacá to Magallanes, are concentrated in two major zones: the more important one stretches from Cautín to Chiloé (including 45 percent of all producers), the second from Santiago to Colchagua (including 20 percent of the producers). Small production units are distributed all over the country, but the larger ones are usually concentrated in various specialized production zones.

The composition of the buyer's market is complex, since a large number of buyers operate at all levels and with different capacities. The size of operation ranges from a few sacks for retailers or institutions to many thousand sacks for government purchasing agencies. In turn, some buyers resell part or all of the quantity purchased with a variable amount of services added.

Middlemen. In various regions of the country and at diverse times of the year, different types of middlemen are present. The most outstanding are:

1. Local assembling men (either farmers or traders, who operate an agricultural or non-agricultural product store, or specialized traders who deal only with certain agricultural products) usually buy potatoes in small lots and ship them to the different markets when they complete a truckload. Payment is usually in cash, but often the prices paid are low.

2. Regional assembling men usually operate only with agricultural products, and often specialize in potatoes. These middlemen operate in the main producing zones, and generally have appropriate facilities for storing the product. They deal in large volumes, shipping to different markets of the country, especially to the auctions in Santiago, and occasionally handling exports of potatoes. They pay the grower a price related to the auction prices, even though payments are sometimes delayed.

3. Government purchasing agencies, particularly ECA, purchase potatoes from the growers in quantities that vary from a few sacks to large lots (within an established maximum). Payments are in cash and the potatoes are stored for later sale or reshipment. The buying season lasts only a few months every year, and the agencies function intermittently during that period.

4. Trucker-buyers operate only occasionally and constitute a low volume channel for potatoes. Usually truckers buy only small lots and pay a good price in cash, often merely seeking to cover their expenses.

5. Auction brokers, perhaps the most important middlemen, handle the largest volume of potatoes in the country. They operate directly with growers, representing them in the municipal auction (the private auction corporation also acts as a broker). Brokers may provide such services as granting monetary advances, paying for transportation and other expenses for the producer's account, and "defending" (guaranteeing) the lot in the event of a price drop. Some brokers have agents in the main potato producing zones in the country and provide market

information to the grower.

6. Wholesale traders generally operate with considerable volume in the urban centers, purchasing potatoes in fairly large quantities both at auction and directly from the growers. They resell to smaller merchants, retailers, or institutions, usually by the sack.

7. Retailers procure potatoes from wholesalers, directly from neighboring growers, or sometimes from the auction market. There are many types of retailers operating with different volumes, ranging from the large supermarkets to the small merchant with a stall in a market place or those retailing on the streets.

Relations Among Market Participants. Local assembling men usually deal only with small growers, face no competition from other buyers, operate with small volumes and suspend purchases when prospects of sales on the market worsen.

Regional assembling men deal with all types of growers, although they prefer to operate with medium and large producers because of the opportunity to obtain fairly large lots of a more uniform product, and also because these producers may be willing to accept some delays in payment. On the other hand, it is usually more profitable for the middlemen to deal with small growers, who must usually accept whatever conditions are imposed on them. Large growers usually have the alternative of shipping the potatoes directly to the Santiago markets or dealing with other middlemen in the zone.

While growers can send potatoes to any auction broker at either of the auctions in Santiago, the real choice is limited since both

auctions operate in parallel fashion and have similar characteristics. In addition, the growers are in a weak bargaining position because brokers control the access to these markets.

Group Action. Not many groups have been organized and few are active, probably because of the large size of the production and consumption markets, their geographical dispersion, and/or the diversity of interests among the market participants.

Many local cooperatives and growers' associations foster potato production by providing technical assistance or supplying inputs. Very few of these groups, however, engage in potato marketing and their influence on the market was found to be minimal.

Several regional farmers' associations have often expressed their concern in response to a specific problem, such as prices or permits to export, and did not present continuity over time. Early potato growers have an association which speaks for most of them at times, but again without engaging in other actions.[36]

Buyers do not appear to coordinate their actions in order to restrict competition. However, most of them usually follow closely the price movements of the auction in Santiago, and adjust their operations accordingly.

Local assembling men seem to act in competition with other area buyers. However, they paid very similar prices, differing instead in non-monetary aspects such as credit, friendship, and kinship.

Regional assembling men usually work alone in a region, and if more than one do work in the same region, sell in different markets and

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[36]For example, the Comité de Paperos del Centro y Norte-Chico.

consequently operate with different products. Prices paid to the growers generally were related to the prices of the market in which the middlemen operated. As a rule the growers dealt with the same middlemen throughout the entire season.

Railroad transportation still continues to operate with the characteristics of a monopoly, and currently does not adjust its freight rates quickly in response to changes imposed by other competitive transporters. However, the railroad apparently does take the level of competition into consideration when it establishes its freight rates.

Truckers, because of their greater flexibility, currently transport most of the potatoes. Freight rates charged in the same zones are fairly uniform, and even though most truckers are not unionized, any change of rate is promptly adopted by all of them, as if there were some type of prior agreement. Growers usually deal with any trucker found in the locality, without marked preferences.

All auction brokers are grouped into an association which determines the common action and policy that its members should follow. No more than five of about forty brokers handle potatoes on a regular basis. Moreover, brokers usually operate with growers of certain geographic areas rather than competing directly for customers. This situation explains their strong bargaining position.

Product Differentiation. The different types of potatoes on the market do not really constitute differentiated products as normally defined in market analysis. The competition and markedly different prices are usually due to consumers' preferences, based either on real or subjective factors imposed by tradition and custom, rather than to a

differentiation imposed by growers or middlemen.

At the consumer level, however, some differentiation exists since potatoes are sometimes named according to origin, type, or variety in order to raise their price, although the description given may not always agree with the true situation.

Prices and Margins. Wholesale prices for potatoes fluctuate constantly, principally because of changes in market supply concurrent with a fairly stable demand. Market supply is affected by climate, season of the year, speculation by growers or middlemen, market information, or transportation bottlenecks. Different types of potatoes in the markets present price fluctuations which are not related to each other and vary according to variety, grade, and season of production--i.e., late potato seasonal price variations reach 95 percent; early potato variations 146 percent.[37]

Potato growers operate in an atomistic market and thus have no ability to influence market prices by control of supply. Once the potatoes leave the farm the grower has little or no control over prices or the marketing of the product. Prices at wholesale fluctuate considerably in different markets, but as a rule these fluctuations do not coincide with day to day variations at retail level. Wholesale prices influence net prices received by growers, but these net prices are also influenced by which market he uses and by the number and type of middlemen used.

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[37]Programa de cooperación Técnica Chile-California, La comercialización de productos agropecuarios en Chile, Anexo I (Santiago, Chile: 1965), p. 55.

Different sources have attempted to estimate the percentage of potato retail price that growers receive, but the figures differ considerably.[38] ECA analyzed several marketing channels in 1965 and the estimated margins are presented in Table IV-6. The most important channels considered in potato marketing were:

channel A: Producer - Auction - Wholesaler - Produce stores (some 2,000 in Santiago);

channel B: Producer - Auction - Street markets (some 25 markets with around 300 stalls handling potatoes);

channel C: Producer - Auction - Wholesaler - Municipal markets (some 10 markets with a large number of potato retailers).

Table IV-6. Percentage Distribution of Consumer Expenditures for First Grade Potatoes in Santiago (1962)

	Channel A	Channel B	Channel C
Growers' share	49.9	65.1	52.5
Auction market margin	2.4	3.9	2.8
Wholesale margin	28.9	-	30.3
Retail margin	23.8	-	-
Street markets	-	31.0	-
Municipal markets	-	-	16.4

Source: ECA, Costos, márgenes y otras consideraciones de interés en la distribución de hortalizas en el Gran Santiago, Anexo I (Santiago, Chile: 1966).

[38] ODEPA--60 percent of wholesale price; Parada and Sanchez--94.7 percent of auction price; ECA--50 to 65 percent of retail price.

Because a number of variables go into price determination, it is hard to establish comparative price scales at one moment for the various markets. However, regional markets often presented price differences which usually level off more or less rapidly depending on the existing communications as well as the regional availability of potatoes.

Prices received by different growers in each region varied according to the location of the production unit, type of potato produced, channel utilized, etc.

The assembling man usually pays the grower a minimum price. Although margins vary in every case, local middlemen usually make a high margin per unit, while regional assembling men usually pay higher prices, which may indicate their preference for a large volume of operation at lower margins.

Auction brokers charge a fixed percentage commission on total sales for their services, and consequently are interested in obtaining high market prices for the products. However, brokers are also interested in dumping the largest possible volume of potatoes on the market, and these actions usually lead to conflicting effects, resulting in considerably price fluctuations.

Production and Marketing Policies

Potato growing is widespread among all types of farmers, and basic production technology is well known to all growers. The orientation of the developmental agencies therefore is twofold: to improve the cultural practices used and to encourage the substitution of new varieties for certain varieties which, although popular among growers

and preferred on the market, have low yields and little resistance to blights (i.e., "corahila" variety).

Various commercial firms, as well as the agricultural branches of the government, have made considerable progress in supplying improved inputs to the grower. Fertilizer and chemical products (insecticides, etc.) are easy to obtain anywhere. The use of certified and improved seeds is now increasing, although the quantities used amount to only a low percentage of the total used--certified seed less than 5 percent, improved seed less than 20 percent according to available estimates.

Several government agencies have acted to facilitate the marketing of potatoes.

1. CORFO has aided programs for construction of cold storage facilities for potatoes and other infrastructural work.

2. ECA operates purchasing offices on a seasonal basis to support prices in some southern provinces.

3. ECA operates a market news service that provides information on prices and quantities transacted in Santiago, but diffusion of its information is still restricted.

4. The Ministry of Agriculture started a service for planting and production information, and a forecasting service which intended to supply periodical data to growers, but the services did not evolve as expected.

In general, however, coordinated medium and long range policies are lacking. Government actions have usually been limited to short run problems--building up stocks to ensure supply, providing markets for some regions with socio-economic problems, and establishing support

prices to help certain types of growers or producers in certain areas. These policies have not always been consistent and have often contradicted long range goals. Moreover, the benefits of these policies usually have not reached the small growers whom the policies are often intended to protect.

Price Policies. The price of potatoes is basically determined by market conditions and so tends to fluctuate violently. The government often acts to influence prices, mostly in the following cases:

1. Support prices. In various areas of the country, support prices have been established through purchases made by ECA, with the object of guaranteeing a minimum income for producers in certain zones and thus ensuring continuity of production.

2. Maximum prices. In recent years the government has fixed maximum prices at wholesale and retail levels in Santiago when market prices have exceeded certain limits. These measures are intended to prevent a rise in the cost of living.[39] On other occasions the government has controlled potato prices by dumping large quantities stored by ECA onto the market, or by importing potatoes.

Government plans for the future indicate that the price of late potatoes will be permitted to fluctuate freely so long as it remains between the target limits established.

Credit Policy. Potato production uses no special credit lines, but several private and government sources facilitate the production and marketing of potatoes.

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[39]Potatoes account for more than 4 percent of the official cost of living index, carrying more weight than any other agricultural crop.

General figures on credit for potatoes were not available since many agencies and individuals are involved and statistics on agricultural credit usually do not discriminate among crops. A survey conducted in some provinces close to Santiago, including 17 percent of the potato growers in those areas, indicated that 80 percent of them regularly receive credit for potatoes from different sources (see Table IV-7).

Table IV-7. Distribution of Credit for Potato Growing (1967)

Source	Percentage of Total
BANKS	
State Bank	32.4
Private Banks	2.6
DEVELOPMENT AGENCIES	
INDAP	13.4
CORA	6.7
CORFO	2.9
ECA	0.2
PRIVATE SOURCES	
Brokers	1.8
Traders	10.7
Landlords	21.3
Moneylenders	.3
Friends and family members	1.7
OTHERS	6.0

Source: Ministerio de Agricultura, ODEPA, Consulta Agrícola (unpublished), April 1967.

Banks grant credit to their customers in money and inputs for several crops, including potatoes. Although banks seem to be the main source of credit for potatoes, the amount granted is small and the

number of customers limited since they usually operate with medium and large growers.[40] The amount of credit granted to small growers by some development agencies (e.g., INDAP) is increasing, and ECA has granted credit to finance contracted production among some co-ops or agrarian reform settlements, but has usually reached only a small number of privileged growers. Private credit continues to be very important to potato growers, and many growers of diverse capacity utilize this source regularly.[41]

Only about one-quarter of the loans considered in the survey were granted in money; the rest were in inputs and other goods. The cost of these loans varies considerably according to the source. Roughly three-quarters of all the credit for potato growers was received by growers who had two hectares or less in potatoes.

Small and Large Producers

According to the criteria previously established, only growers who have a marketable surplus are considered in the analysis, thus excluding from the analysis the large number of farmers who grow potatoes as a subsistence crop.

Characteristics. It is difficult to determine a size of operation classification that will be equally valid for potato growers in different regions of the country and for various types of potatoes. As an approximation, small producers have been defined here as those who

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[40] One exception was found on the island of Chiloé, where the State Bank operated with all growers, including small ones.

[41] The figures for private credit presented in Table IV-7 may not be representative of the whole country, since the region surveyed has comparatively more sharecroppers and "inquilinos."

normally devote less than ten hectares to potatoes during the year.[42] This classification should be applied with caution, since production and marketing change substantially--some regions have yields ten or more times higher than others; in some regions it is possible to raise more than one crop a year; and prices fluctuate during the year and according to type of potato on the market. Most of the medium and large growers observed in this study were landowners, although potato production is common among those with any type of tenure.

Small growers usually are more traditional in that they use routine methods, apply few commercial inputs, and cultivate low yield varieties. These producers perform most of the production work themselves, sell most of the potatoes right after harvest, and usually sell only to local buyers or middlemen who visit the region.

Large growers often tend to specialize in potato production, and these commercial operations usually have adequate equipment and facilities, use considerable quantities of improved inputs, store the potatoes when the price is low and sell them at the right moment, and reach the most important markets in the country.

Incentives Received. For the small producer, potatoes constitute a popular and necessary crop, with a part of the production being consumed on the farm. Moreover, potato growing is attractive because traditional technology is simple and well known, little monetary outlay is required, and only family labor is needed. Finally, in years when potato prices are low, small growers can use large quantities for both

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[42] On the Island of Chiloé, however, a farmer who grows two hectares of potatoes is considered a large producer.

family consumption and stock feed.

Large growers also consider potato production very attractive because the crop allows great latitude in climatic conditions, shows good response to modern inputs, gives some flexibility in the date of marketing (especially late potatoes), and displays a fairly constant demand over time. They, too, have the alternative of using part of the production for stock feed. Notwithstanding, large growers usually face higher production costs per hectare because their operations are more commercial in the sense that they purchase a larger quantity of non-traditional inputs, which implies more monetary risk in the operation.

Access to Markets and Services. Small growers have been and still are slow to accept the use of improved and certified seeds, despite their availability in most production centers, the existence of some credit facilities for their purchase, and their high yields when properly used. It should be noted, however, that use of these seeds also calls for other additional inputs and a more advanced production technology.

The commercial firms that produce or sell inputs such as certified seeds, fertilizers, and chemical products usually demonstrate the use of their products and advise the grower on the best way to use them in specific situations. Small growers, however, are not usually visited by the salesmen and so continue to use only traditional inputs. The State Banks supplies inputs on credit and often subsidizes the cost of fertilizer to make its use more attractive, but even though these benefits are available to all farmers, only large growers use them regularly. INDAP provides extension services, supervised credit, and improved inputs to small growers, but coverage is still limited and presently unavailable to many growers.

No potato grower can directly influence market prices, but a grower can obtain better prices with adequate information on market conditions. Availability of information varies among regions and among growers, influencing their incomes.

Small and large producers of early potatoes operate in similar ways, trying to speed up production and sell their products quickly before prices decline with increased supply later in the season. Although early potatoes are perishable, growers can postpone harvest and sale for some days, and can profit by using adequate information on the volume received and prices paid in the Santiago markets. Market information currently available in the producing centers is furnished by agents of auction brokers or other related concerns, and includes information obtained directly from the auctions or from the market bulletin of ECA. Even though this type of information serves an important function, the institutionalization of the service--direct and rapid diffusion of ECA's bulletin--will help improve the supply, reduce price variations, and increase the small producer's income.

Large producers in the central zone generally have good market information and use it adequately. Small growers, however, usually operate through middlemen and therefore depend only on the local demand, which is not always directly related to daily variations in the Central Market.

Growers in the South watch closely the tendencies of the Santiago markets, since they can enter these markets only when the supply declines and prices increase enough to cover the high costs of transportation from this zone. However, only the large producers and the

middlemen can operate in the Santiago markets since large shipments are required in order to reduce marketing costs. Small producers in the South supply only the local markets or sell to middlemen or to ECA. Great variation in availability of information was observed among southern growers, including regional information, which implies considerable price differences for many small growers in the zone.

ECA price support programs are designed to protect the small grower from falling prices, but often these producers are unable to benefit from these programs. Given the small volume of their production, it is not economical for small growers to transport their potatoes to ECA purchasing stations. Consequently, they deal with traders or middlemen who pay them lower prices.

A similar problem arises with seed potatoes. Commercial buyers prefer to deal with growers who can supply large quantities of uniform potatoes, and the various institutions purchase seed potatoes in large lots by closed public bids--in both cases the small grower is excluded.

Changes Occurring in Potato Marketing

Only minor changes are observable in potato marketing and the structure of potato markets appears to be fairly static. Although no substantial changes have so far occurred in potato marketing, some changes are developing and may improve marketing in the future:

1. The existence of two auctions and several wholesale markets has improved market competition, resulting in better organized marketing channels.

2. Improved transportation systems are shortening the economic distances between markets and the various producing regions.

3. Adequate market information and forecast systems may help guide producers as to prospective prices and the best marketing period.

4. New warehouses and cold storage plants are likely to facilitate a better distribution of supply through the entire year.

5. Although traditional grades continue in force, new quality standards are being studied and tested.

6. Wholesale transactions are beginning to be made by 50 kilogram sacks, which are more practical for many purposes than the traditional 80 kilogram sacks.

7. Increasingly, supermarkets are retailing potatoes prepacked in three and five kilogram plastic bags.

V. TOMATOES

Tomatoes are the main horticultural crop in Chile as measured by several standards. Some 5,000 units grow them on a commercial scale; a large number of people are employed in their marketing; their processing is the most important activity of the processing industry and holds export potential; tomatoes are consumed by a large segment of the population.

The main characteristics of tomato production and marketing observed in this study are:

1. The problems of tomato production and marketing are different in the various parts of the country and in different times of the year.

2. There are two separate markets for tomatoes in Chile, fresh consumption and the processing industry.

3. The marketing channels utilized in all tomato markets are clearly defined and fairly well organized.

4. The market for fresh consumption exhibits very large price variations, both seasonally and in the short run, such as a week or even a day.

5. Small producers generally receive lower prices for their products, but the difference seems at least partly caused by differences in the product and by the quality and quantity of marketing services added.

6. The tomato processing industry is highly concentrated, operates in the season of excess tomato production, and pays very low prices.

7. Small producers who operate independently have a weak bargaining position and less access to market opportunities and services in relation to larger growers and cooperatives. There seem to be substantial differences in the profitability of the operations of small and large growers.

Production

In different periods of the year the tomato supply on the market varies considerably with regard to region of production, volume, type, and price. Several regions of the country having different climatic conditions supply the market in different parts of the year.

1. The yearly production cycle starts with the small quantity from the northernmost region "norte grande" (Arica), often as early as July or August.

2. Next come relatively large quantities of production from the north "norte chico" (Vallenar, Vicuña-Elqui, and Ovalle) during September-December.

3. The tomatoes of the North are displaced from the market by the production of the province of Valparaiso (Limache and Quillota) beginning in mid-December and extending through January.

4. The preceding zones can no longer compete in price or quality when the production of the province of Santiago floods the market, mainly in the period February to April.

Tomato production costs vary considerably according to the zone of production--they are highest in the North, decrease gradually closer to the Central zone, and reach their minimum to the south of Santiago.

Within a specific zone, production costs differ considerably from one unit to another since ecologic and climatic conditions are often different within short distances. Individual production costs per hectare generally vary directly with the quantity and type of resources employed--situation and quality of the land as well as other traditional and modern inputs--and with the form of administration.

The primary production problem is the lack of adequate varieties adapted to the different production zones and to the different uses of the product. At present the bulk of the production occurs in a short period of time, and yields as well as quality are comparatively low.[43]

Tomatoes are produced on all types of economic units and there are many types of tenure arrangements in horticultural production. Often production on the same unit is carried out under a combination of arrangements. Table V-1, which considers Chile's main horticultural region, indicates this tenure situation.

There is little available information related to tomato production and marketing in Chile, and practically the only source of statistical data is the Agricultural Census. The information, however, is very general and usually refers only to the area devoted to tomatoes at the provincial level, without indicating volume produced and season of production, or providing less aggregate figures. The usability of general aggregate information is quite limited, since there are considerable regional differences in physical yield and substantial seasonal price changes. The distribution of cultivated area by province is presented

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[43] Maria Lazo, La horticultura en el desarrollo agrícola de Chile, comparación con el caso holandes, Thesis, Universidad de Chile, Facultad de Ciencias Económicas, Santiago, 1967, p. 31.

in Table V-2.

Table V-1. Tenure Arrangements in Horticultural Production in the Provinces of Aconcagua, Valparaiso, and Santiago

Tenure arrangement	Average crop size (hectare)	% of units	% of land
a) Workers with land use privileges	0.5	36	8
b) Rented land	3.7	10	17
c) Sharecropping	3.9	13	22
d) Owner managed	3.2	29	40
e) Operations under mixed forms a and c	2.1	7	7
f) Operations under mixed forms d and b	4.1	2	3
g) Operations under mixed forms d and c	2.5	2	2
h) Operations under mixed forms b and c	2.2	1	1
	2.3	100%	100%

Source: Dirección de Estadística y Censos and ECA, presented in ODEPA, Plan hortícola, 1967, Volume I, Table 12.

Total production in 1965 was estimated at close to 10 million boxes of fourteen kilograms each, and although the tomato crop area increased 84 percent between 1955 and 1965, its relative importance decreased from 9 to 8 percent of total horticultural crop area.[44]

[44] Ibid., pp. 31 and 21. Lazo utilizes Census data, but other sources present different figures, even when the information usually comes from the Census.

Table V-2. Tomato Production in Chile (1964-65)

Provinces[a]	Number of Informants	Hectares Planted
Tarapacá	245	223
Antofagasta	2	11
Atacama	340	437
Coquimbo	648	329
Aconcagua	215	269
Valparaíso	1,009	1,450
Santiago	1,178	1,504
O'Higgins	235	163
Colchagua	40	11
Curicó	64	34
Talca	224	170
Linares	43	15
Ñuble	59	36
Concepción	75	43
Census Total	4,451	5,230

[a]Provinces with less than ten hectares in tomatoes are not included in this table.

Source. Dirección de Estadísticas y Censos. IV Censo Nacional Agropecuario Año Agrícola 1964-65. Resumen del País (Santiago, Chile: 1963).

Marketing

Tomatoes for both fresh consumption and processing, usually of the same variety and similar type, are analyzed separately, since each follows different marketing channels and, hence, is subject to different conditions.

Santiago is the central point in tomato marketing, and it constitutes by far the largest market for fresh tomato consumption in the country. (In addition, a large proportion of the processing industry also operates in this area.)

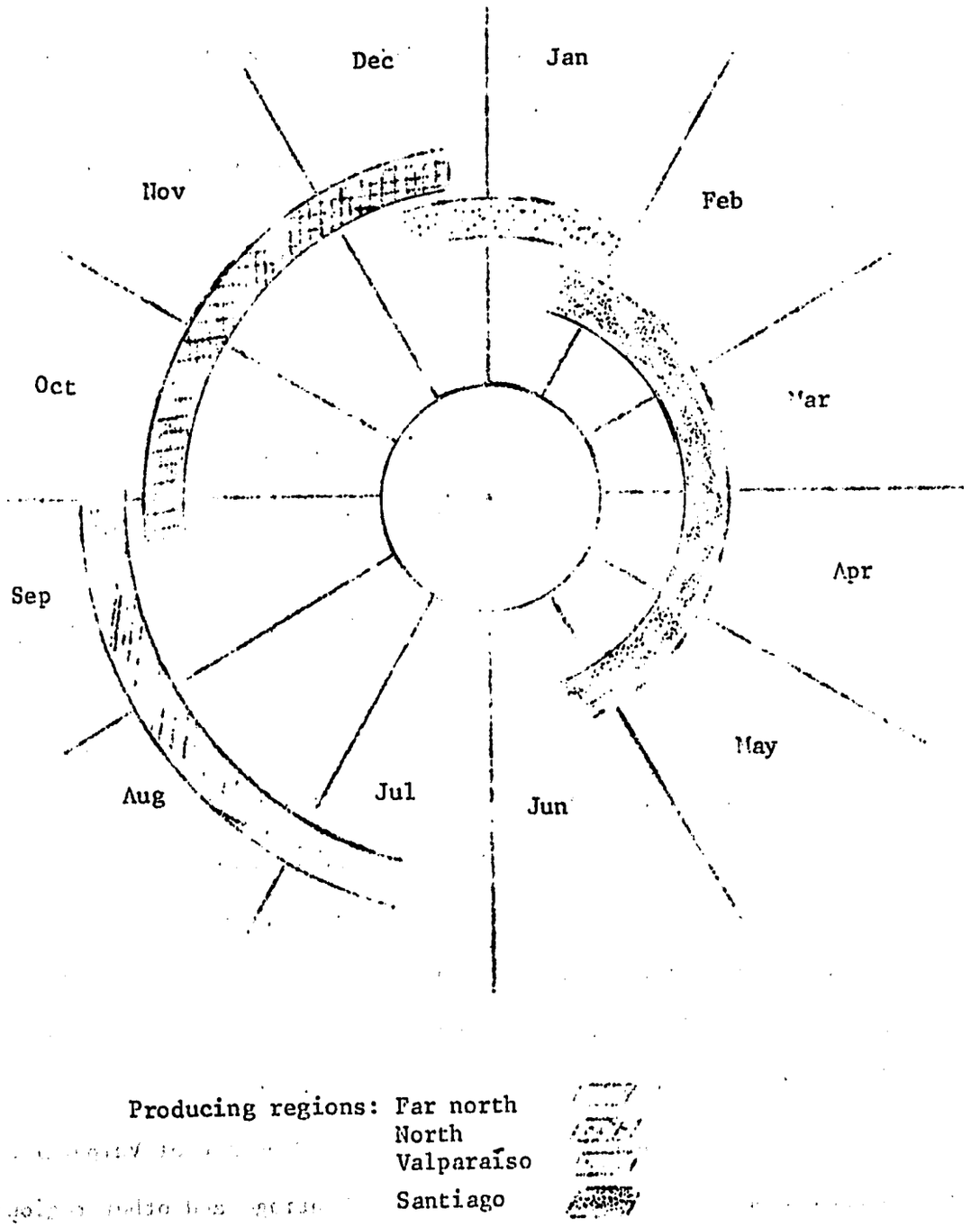
In different periods of the year the tomato supply comes from various regions of the country (Diagram V-1), according to which region has more favorable seasonal climatic conditions and comparative advantages in marketing at that time. The characteristics of the bulk of each regional production marketed are:

1. In July-September the far north ships by air almost exclusively to Santiago, over 2,000 kilometers away. The product is sold through commission agents who are usually located near the Central Market. These tomatoes arrive in small quantities, face little or no competition in the market, and receive quite high prices.

2. In October-December tomatoes from the north are shipped more than 600 kilometers by truck, mainly to Santiago but also to other big cities. The product is also sold through commission agents located near the Central Market. These tomatoes arrive in larger quantities; their prices are usually stable and often quite high.

3. In December-January tomatoes from the Province of Valparaíso are shipped some 150 kilometers by truck to Santiago and other regional

Diagram V-1. Tomatoes - Marketing periods in Chile



markets. In Santiago these tomatoes are sold in the central market auction in considerable volume. These tomatoes command only average prices which usually fluctuate considerably.

4. In January-May the Province of Santiago ships the country's main production, supplying all markets. In Santiago the products are sold through brokers in the central market auction. The large quantity produced reduces market prices, and prices remain quite low during the peak of the production season. Later, as production diminishes in volume, prices again increase slowly.

Tomatoes are shipped to the market in wooden boxes or trays with distinctive labels of the grower, of a cooperative or a producer's association, or of the broker or commission agent. The boxes vary in size and type but usually growers of the same region use similar containers during most or all of the season.

The weight held by each box differs not only according to the size of the container but also according to the degree of ripeness (greener tomatoes are heavier), the size of the fruit (larger fruits result in less total weight), and above all the way in which the tomatoes are packed (loosely or tightly). Different boxes in the market may contain from eight to fifteen kilograms.

Each producer selects, grades, and packs his own tomatoes according to his interpretation of the standards commonly accepted in the market at wholesale level, but these standards are highly subjective and not very uniform.[45]

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[45]ODEPA, Plan Hortícola, Volume II (Santiago, Chile: 1967), p. 91.

Wholesale buyers demand and prefer to buy boxes containing tomatoes which are uniform in size (extra, first, second, third) and in ripeness (ripe, ripening, mature green, or immature green) according to the final use and geographic destination that the fruits will have.

The grades used in wholesale marketing are usually not applied at retail level, where the transaction is made on a still more subjective basis. However, some quality standards for tomato retailing have been developed by the government and are presently used on a trial basis in Santiago's supermarkets.

Tomatoes are sold at the wholesale level in Santiago following one of these main channels:[46]

1. The producer sends the tomatoes to a commission agent's warehouse, and tomatoes are there sold by the box directly to middlemen shippers, institutions, wholesalers, and retailers. Almost all the production of the north is sold through this channel.

2. The producer sends the tomatoes to the auction market at "La Vega," Santiago's main central market, and the operation proceeds with the help of a commercial broker. Tomatoes are sold in lots of several boxes to middlemen, shippers, institutions, wholesalers, and different retailers. This channel is by far the most important one handling the bulk of the production of Valparaíso and Santiago.

3. The producer sells the tomatoes directly to wholesale buyers in the central markets or other locations. The transaction usually is

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[46]For further details on the operation of the central market and tomato retailing see Appendix I.

carried out either in the field or in a buyer's warehouse. Only production of nearby zones utilizes this channel, which has many alternative ways of operation and does not handle more than a small portion of total production.

In most cases tomatoes are sold directly by the individual producer, although a few cooperatives have been operating, either fostering tomato production, providing technical assistance in production or marketing, or undertaking the marketing directly. Two basic forms of cooperative organizations frequently operate in the field of production and marketing:

1. Small-growers' cooperatives. Many cooperatives and similar organizations have been formed by small landowners, landless workers, share croppers, or renters. The small growers usually operate under precarious economic conditions because of the high risk of the operation and their limited access to market facilities.[47] These cooperatives are usually organized by and operate with direct support or with supervised credit programs of development agencies (e.g., INDAP, INPROA).

2. Commercial-growers' cooperatives. A few production and marketing cooperatives deal with tomatoes, usually on a fairly large scale. Some of these organizations have been quite successful because they provide technical assistance and cheaper inputs to the members, but mainly because they are able to influence the members' incomes through better organization. Cooperatives usually provide a higher

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[47] Cooperativa Agrícola Limache Ltda. "Memorandum sobre los graves problemas crediticios que afectan a los medianos y pequeños agricultores de Limache." Unpublished (Chile: 1965).

degree of efficiency, better supervision of marketing operations, and more bargaining power.

Marketing cost varies according to many factors, and Table V-3 presents some typical charges encountered in the study of the wholesale markets of Santiago.

Table V-3. Typical Wholesale Marketing Charges, by Box of Tomatoes Marketed in Santiago (1967-68)[a]

	Direct sale through commission agents	Direct sale through commission agents with co-op assistance	Auction sale	Auction sale with co-op assistance
Transportation cost[b]	0.10 E? to 1.50 E?	0-25% lower	0.10 E? to 1.50 E?	0-25% lower
Unloading the boxes	---	---	0.07	0.07
Guarding the boxes	---	---	0.07	0.07
Commission agents' charges	8-12% normal 10%	10%	---	---
Brokers' charges	---	---	7.5%	6%
Municipal auction fee	---	---	2.5%	1.25%[c]
Tax on fees[d]	±1.5%	---	1.1%	0.45%[c]
Return to the co-op	---	2%	---	1-2.75%

[a]Tomatoes sold for processing usually pay only transportation.

[b]Only regions included in the case studies are considered, but there are others with higher transportation cost.

[c]By law co-ops pay only 50% of most commercial taxes.

[d]There is a 15% tax on commissions paid.

Usually tomato prices are subject to wide and rapid variations. Prices change not only during the season as supply increases, but differences between high and low quotations on the same market the same day are also usually very wide. The typical price cycle for tomatoes of various zones as they came into the markets, for a relevant part of the 1966-67 crop year, is presented in Diagram V-2. Only weekly averages for the first class of tomatoes are plotted. After leveling off in January, prices then vary only slightly until a slow upward trend sets in around April because of the reduction in supply, as presented in Diagram V-3.

Retail prices tend to be more stable than wholesale prices and usually do not reflect daily variations of wholesale prices, changing only in response to more definitive wholesale price changes.

Tomatoes are also an important item for the processing industry, which uses over 20,000 tons yearly,[48] even though the processing of tomatoes is highly seasonal in Chile and most of it occurs in just a few weeks. A recent industry policy change in purchasing tomatoes was reflected by the initiation of commercial cultivation of tomatoes for processing in the 1967-68 season. Also, some processors started to contract production and to pay differential prices according to quality. Diagram V-4 presents a flow chart for tomato marketing in Santiago.

Case Studies

The case studies for tomatoes include three geographic zones. These zones are distinctive not only in the organization of production,

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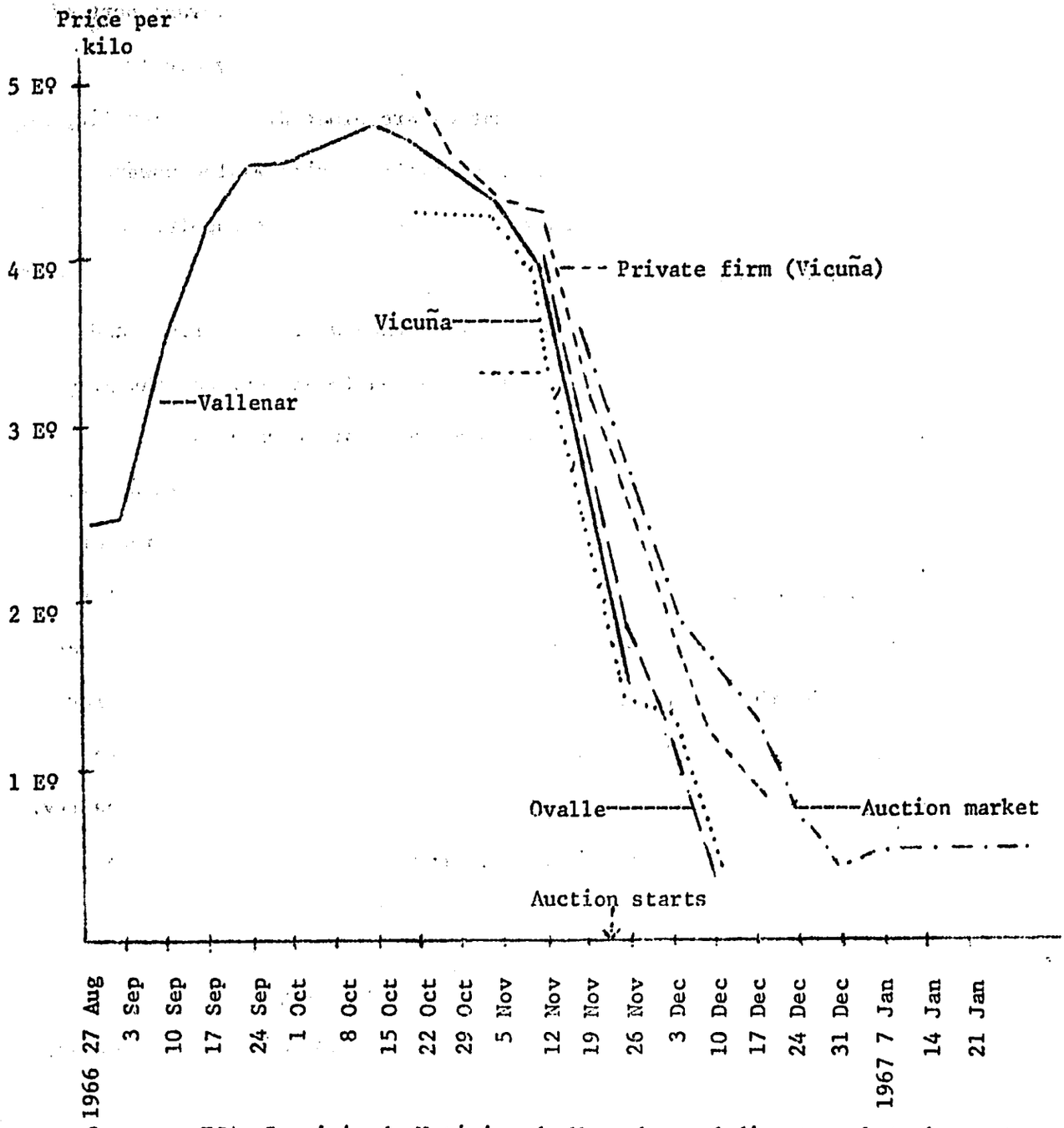
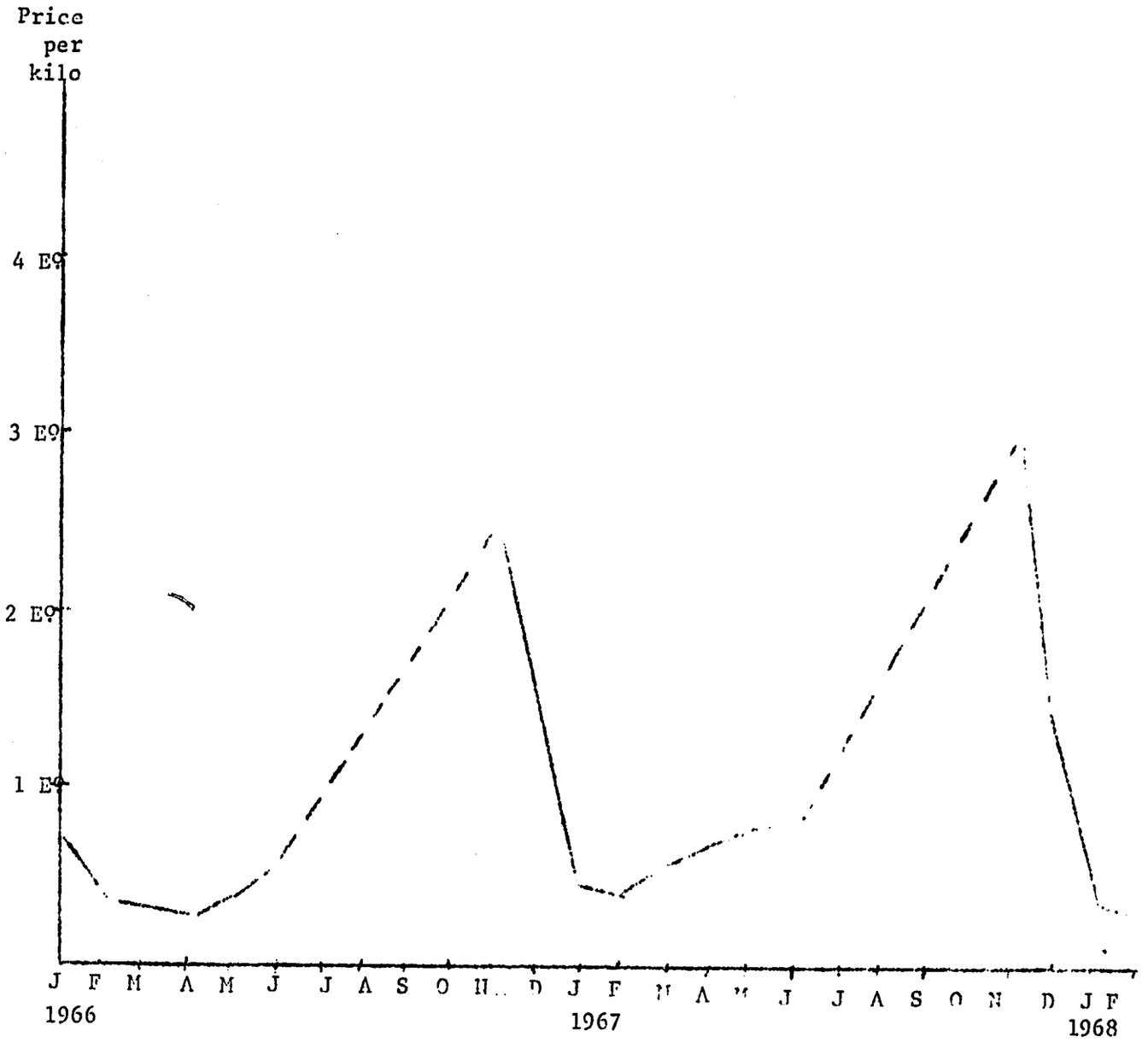
[48] ODEPA, op. cit., p. 92.

Diagram V-2 Tomatoes - Wholesale Prices in Santiago by Producing Regions (Northern Zone)



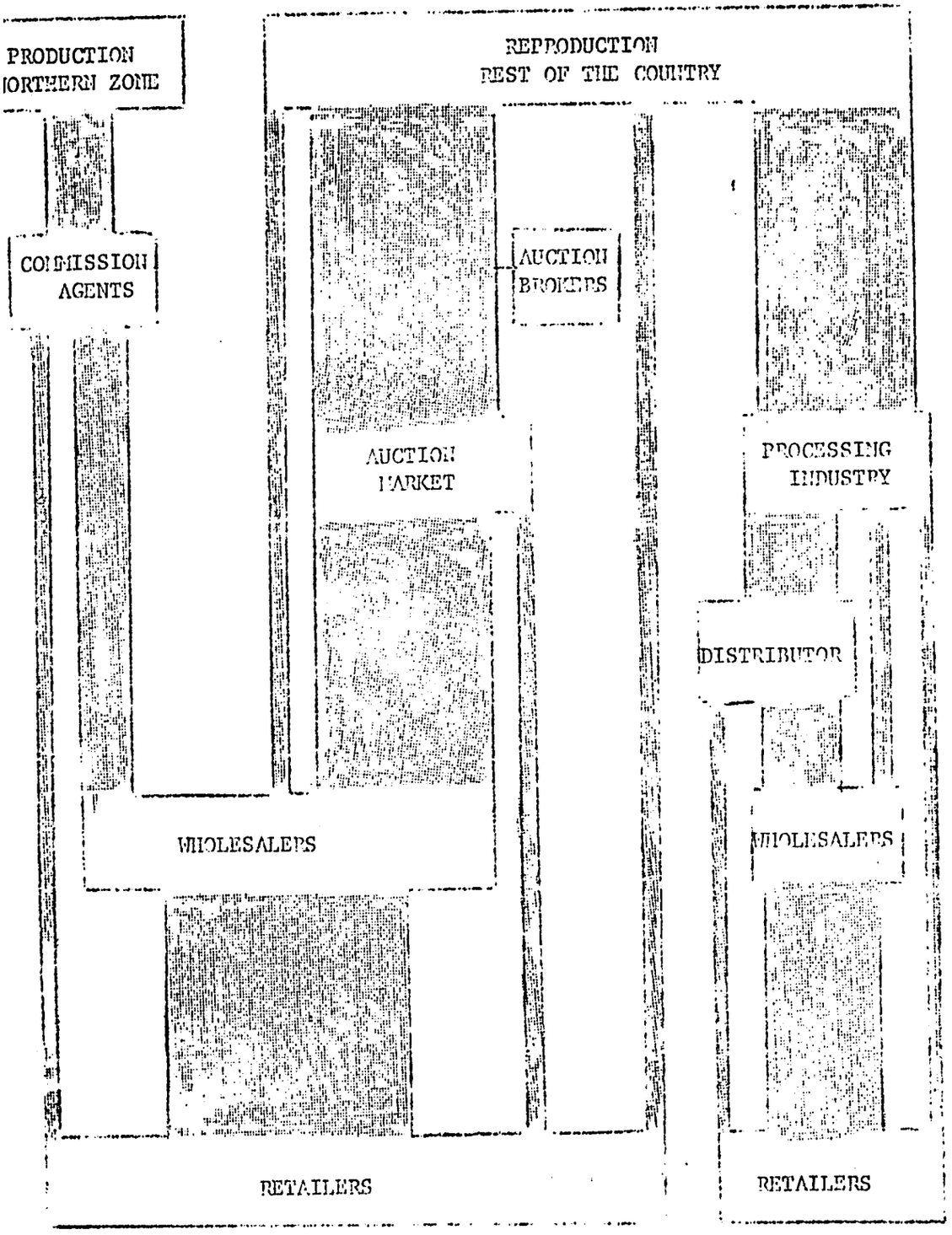
Source: ECA, Servicio de Noticias de Mercado; and direct market observations

Diagram V-3. Tomatoes - Typical Fluctuations of Average Wholesale Prices in Santiago



Source: ECA, Servicio de Noticias de Mercado.

Diagram V-4. Tomatoes - Pattern of Marketing Flow in Chile.[a]



[a] Width of the shaded columns represents an estimate of the percentage of total volume flowing through each channel in a typical year.

technology used, yields, and production costs, but also differ in volume produced, seasons of production, prices received, and marketing channels used. Although many variations occur in each producer's situation, this section focuses on major regional differences with respect to the already presented production and marketing process.

Case No. 1: Coquimbo-Atacama. Three main production centers of "early" tomatoes in the North are Vallenar, Vicuña-Elqui, and Ovalle. The characteristics of the zone can be summarized as in Table V-4.

Table V-4. Characteristics of Coquimbo-Atacama Tomato Production

Center	Production cost per hectare (1,000 E° 1967)	Yield per hectare (tons)	Total production (10 kg. boxes)
Vallenar	14 - 17	15	250,000
Vicuña-Elqui	13 - 16	18	350,000
Ovalle	12 - 16	20	600,000
			1,200,000

Production technology used by different growers in this zone is fairly uniform but individual yields vary greatly, depending mainly on climate (which presents quite different characteristics within relatively short distances), quality and situation of the land, and inputs used according to the economic means of the grower.

The tomato marketing period of the zone corresponds to the time when the bulk of Chile's production is marketed in an average year.

The basic marketing characteristics of tomatoes from the North are presented in Table V-5.

Table V-5. Marketing Characteristics of Coquimbo-Atacama Tomatoes

	Marketing period	Distance from Santiago markets	Transportation cost per box (E° 1967)
Vallenar	end Sept. to end Dec.	660 km.	1.40 - 1.50
Vicuña-Elqui	end Oct. to end Dec.	520 km.	0.90 - 1.40
Ovalle	November to end Dec.	410 km.	0.90 - 1.30

Almost all tomato production of the North is shipped to Santiago for fresh consumption; other markets absorb only a small percentage of total production. Tomatoes that are not sold quickly are all wasted, since no processing facilities exist in the region.

All sales in Santiago are made through commission agents, who charge a sales commission that varies both above and below the normal rate of 10 percent on total sale value. Some agents return a percentage to the cooperatives or accept lower commissions from some preferred customers, while others apply a surcharge of up to two percent on the season's total production as interest on advances.

Usually sales are conducted between an individual grower and a commission man. There are, however, some variations, mainly in the region of Vicuña-Elqui as follows:

1. A private firm--perhaps the largest tomato producing operation in the zone and the best organized in the country--grades tomatoes mechanically by weight, complemented by manual selection for ripeness and firmness. The marketing is done as in other cases.

2. At least two cooperatives were active in the zone, one serving sharecroppers and small and medium size growers; the second, producing only one-tenth the volume of the former, served only resident workers and sharecroppers working on one farm. Both operated with the help of the development agency INPROA.

Net prices received vary among the several producers in the zone owing to the way in which they select and pack their tomatoes. Buyers believe that they pay according to quality, making allowances for risk factors when purchasing from some growers whose product is not always uniform. The products of the above mentioned firm, for example, consistently commanded higher prices--one to three Escudos per box--than those of similar products.[49] The difference is attributed to the firm's reputation for careful grading and packing.

In 1966-67 the government was active in the tomato market; ECA signed a production contract at fixed prices with the above mentioned cooperatives and sold the product in the Santiago market through regular commission men at market prices.[50] ECA received the market price minus 10 percent sales commission for the agent.

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[49]See Diagram V-2.

[50]In 1965-66 and 1967-68 the co-ops operated with technical and financial assistance from INPROA.

Case No. 2: Valparaíso. The communes of Limache and Quillota grow the major proportion of total tomato production of the Province of Valparaíso. The Province includes approximately one-third of total tomato crop area in the country and further increases are planned.[51] Table V-6 presents some production characteristics of Valparaíso as observed in the field.

Table V-6. Characteristics of Valparaíso Tomato Production

	Production cost per hectare (1,000 E° 1967)	Yield per hectare (tons)	Total production for fresh market (14 Kg. boxes)
Limache	13 - 18	25 - 50	1,500,000
Quillota	11 - 17	25 - 50 40 - 60[a]	1,500,000

[a]Tomatoes for processing.

Limache and Quillota enjoy favorable micro-climatic conditions that enable them to reach the market with a mid-season tomato at a time of relatively low supply. Though not very big, the areas under cultivation are larger than those in the northern zone and the fairly flat ground allows a better planned production, giving this zone certain comparative advantages. Costs of production are lower here because of higher yields per hectare. Most growers in the zone use the same basic production methods, even though some utilize more and better

[51]ODEPA, op. cit., Table 2.

inputs according to their economic resources.

The marketing period depends on the climatic conditions of this zone as well as climate in other competing zones, with the proportion entering different marketing channels changing accordingly. Table V-7 presents a summary of the typical situation in this zone.

Table V-7. Marketing Characteristics of Valparaíso Tomatoes

	Marketing period	Distance from Santiago	Transportation cost per box E° 1967	% sold to processors
Limache	Dec.[a] to Feb.	140 km.	0.45 - 0.65	40
Quillota	Dec. to Feb.	130 km.	0.50 - 0.65	50

[a]Some growers produce some "covered" tomatoes (protected with plastic sheets) which are marketed in October-November; these tomatoes have high production costs and lower yields, but command high prices in the market.

Portions of the harvest are shipped throughout the country, but most of the production from Limache-Quillota is shipped to Santiago where it starts the tomato auction season in the Central Market in December. In February, however, prices drop in the Central Market because of production from the Province of Santiago, and the tomatoes are sold to the processing industry for lack of better markets.

Sales in Santiago are usually made in the auction market with the intervention of a broker, who represents the grower at the auction and may provide such services as credit, market information, and labels.

Brokers normally charge a flat commission rate of 10 percent on sales (they in turn pay 2.5 percent auction fee to the Municipal Office), sometimes returning a certain percentage to marketing organizations.

Although a large number of growers sell their product individually, some growers' organizations were active as follows:

1. Commercial-growers' cooperative. The members produce, grade, and pack the tomatoes individually, but market them as a group. The cooperative provides the following services: a) inputs at low prices and suitable credits; b) discounts of up to 25 percent in freight rates (the cooperative has broken the power of a truckers' union); c) brokers who charge the grower the normal commission but return 2.0 to 2.75 percent on the value of the sales of its members to the cooperative; d) direct supervision of the auctions by the cooperative, with checks on losses and penalties applied, and provision of market information within a few hours; e) technical advice on production and marketing which has succeeded in improving the selection of tomatoes, although differences of presentation and quality, and consequently of price, still persist.

2. Small growers' cooperatives, operating with technical and financial assistance from INDAP, that operate as already described.

3. Agrarian reform settlements, operating on a smaller scale and selling through a central organization marketing cooperative in Santiago. This central organization markets the production of agrarian reform settlements, some cooperatives, and some individual producers, selling directly to public institutions.

Sales to the processing industry are carried out between individual growers and processor. Although some cooperatives negotiate a uniform price for all members, they do not participate in other marketing activities.

Case No. 3: Santiago. The communes of Quilicura, Renca, Barrancas, Maipú, Las Condes, and Conchalí are all within a radius of 20 kilometers from the Santiago market. The area devoted to tomatoes in the Province of Santiago is roughly equal to that in the Province of Valparaíso, although Santiago has a larger production per hectare. High yields and lower production costs per hectare make the Santiago tomatoes the cheapest to produce in the whole country. The characteristics of tomato production in this region are summarized in Table V-8.

Table V-8. Characteristics of Santiago Tomato Production

	Production cost per hectare (1,000 E° 1967)	Yield per hectare (tons)	Total production for fresh market (15 Kg. boxes)
Santiago	3 - 8	30 - 60 40 - 70[a]	4,000,000

[a] Tomatoes for processing.

Planting by stages is common in Santiago, and although the largest production occurs in February-March, some growers start producing in January and others continue until May and even June. The marketing

characteristics are presented in Table V-9.

Table V-9. Marketing Characteristics of Santiago Tomatoes

Center	Marketing period	Distances from Santiago markets	Transportation cost per box (E° 1967)
Santiago	Mid Jan.-April	5 - 25 Km.	0.10 - 0.30

Tomatoes from Santiago compete with those of Valparaíso in the auction market, and soon saturate the market, bringing prices down and displacing tomatoes from other regions. Aside from auction, Santiago's tomatoes are sold using the following channels:

1. Direct sale to middlemen--wholesalers, retailers, supermarkets, or middlemen shippers that move the product to other cities. Sale may be made by the box, by lot, or by area (furrow, hectares).

2. Sale to the processing industry. Although some growers specialize in one type of production, most supply both the fresh market and the processing market.

Two forms of cooperatives were outstanding in this zone:

1. Small-growers' cooperatives operating with the help of development institutions. One such cooperative has operated for several years with some success, supplying its members with inputs, credits, and a shed in the Central Market where some members can sell horticultural products.

2. A commercial-growers' cooperative whose members produce individually but sell together through brokers at the auction market. The brokers return part of the commission to the cooperative. The most outstanding action of this cooperative, however, was the contract, the first of its kind, between the co-op and one packer for a large quantity of processing tomatoes, subcontracted in turn to its individual members.

Table V.-10 presents a comparative summary of the operating conditions in the three case studies of tomato production.

Table V-10. Summary of the Three Cases (1967-68)

	Vallenar	Vicuna-Elqui	Ovalle	Limache	Quillota	Santiago
Plants per hectare (thousands)	18-30	18-30	18-30	20-35	15-35	10-18
Yield per hectare (tons)						
Fresh consumption	12-16	15-19	18-25	25-50	25-50	30-60
Processing industry	---	---	---	---	40.60	40-70
Estimated total production (thousands of boxes)	250	350	600	1.500	1.500	
Box capacity (kilograms)	8-11	8-11	8-11	13-14	13-14	14-15
Production cost per hectare (thousands of E° 1967)	14-17	13-16	12-16	13-18	12-17	3-8
Transportation cost		0.90	1	0.45	0.50	0.10
(E° 1967/box)	1.50	1.40	1.30	0.65	0.65	0.30
Sales in commission agents' warehouse	yes	yes	yes	little	little	little
Central sale at auction market	no	no	little	yes	yes	yes

Table V-10 Continued

	Vallenar	Vicuna-Elqui	Ovalle	Limache	Quillota	Santiago
Direct sale to shippers	no	yes	yes	little	yes	yes
Direct sale to wholesalers and retailers	no	no	no	little	yes	yes
Direct sale to supermarkets	no	no	no	no	no	yes
Sale to processing industry	no	no	no	yes	yes	yes
Sale to processing industry (% of total volume)	0	0	0	40	50	60
Date of production	June-Dec.	Sept Jan.	Oct-Jan.	Nov-Apr.	Nov-Apr.	Dec-June
Date of shipment to Santiago	Oct.-Dec.	Nov.-Dec.	Nov.-Dec.	Dec.-Jan.	Dec.-Jan.	Jan.-May

The Tomato Processing Industry

Using mostly surplus tomatoes as raw materials, the tomato processing industry operates only about 90 days (February-April) each year.[10] The total daily capacity of the industry is estimated at roughly 70 to 80 tons, but factories almost never operate at more than 60 to 70 percent of capacity. The processing plants are near the large centers producing tomatoes for fresh consumption (see Table V-11).

[10]Servicio de Cooperación Técnica and Instituto Chileno del Acero, Programa de desarrollo conservero frutas y hortalizas, Vol. II Análisis del abastecimiento de frutas y hortalizas (Santiago, Chile: 1965).

Table V-11. Location of the Tomato Processing Capacity in 1962-63

Province	Percent of total capacity
Santiago	54
Valparaíso	36
Aconcagua	8
O'Higgins	2

Source: Servicio de Cooperación Técnica and Instituto Chileno del Acero, Programa de desarrollo conservero frutas y hortalizas, Vol.I, El Mercado Nacional (Santiago, Chile: December, 1965).

Only around thirteen processing firms operate regularly with tomatoes and most factories purchase directly from the grower without written contract or previous commitment. The few contracts with individual growers usually only specify the volume to be delivered, without indicating prices or other conditions. One exception, a 1967-68 contract between a cooperative and a factory, included clauses on prices, delivery dates, conditions, special treatment, and related matters.

When harvest time approaches, several processors agree on the prices to be paid for tomatoes during the season, and the rest of the industry merely follows. Price setting is unilateral and arbitrary. Different processors pay a few cents more or less than the average price depending on their bargaining position, geographic location of the plant, local supply of tomatoes, proximity to other packers, and potential demand for their processed tomatoes.

The processors frequently delay payments for as much as 8 to 10 months until the product is sold; most growers say they do not consider sale to the processing industry a good business, and use this outlet only when faced with the alternative of letting the production spoil in the field.[11]

Table V-12 gives an example of the low and declining prices in the industry. The data come from direct field observation.

Table V-12. Prices Commonly Paid by One Packer Per Kilo of Tomatoes, FOB Plant, 1966-68

Year	Current price	Real price index[a]
1966	0.100 E°	(100)
1967	0.085 E°	(69)
1968	0.105 E°	(53)

[a]Current price deflated by the Wholesale Price Index for the month of March, with March 1966 equal to 100 (most of the tomatoes for processing are transacted during the month of March).

Tomatoes for the industry are delivered FOB factory. Receiving delays at the plant of as much as 24 hours and more hurt the grower given the higher transportation cost and the product's lower yield--during the long delay the fruit loses much liquid and weight--since these tomatoes should be delivered when quite ripe. In addition,

[11]The industry clearly tends to pay lower prices for vegetables and fruits for processing, in comparison with Central Market prices. Ministerio de Agricultura, "Abastecimiento de productos hortícolas del gran Santiago," Agricultura y Ganadería No. 24 (Santiago, Chile: 1961).

complete shipments are often rejected when they reach the delivery platform because the tomatoes are in poor condition caused by the delay and the rough treatment received.

Although the industry continues to use surplus and low quality tomatoes, several packers have started to partially operate with a special processing type of fruit. With the adoption of these industrial tomatoes, the following modifications have occurred or are on the way to being achieved:

1. Higher yields of concentrate per kilogram of tomato could bring better prices for raw material.[12]

2. This tomato is more suitable for processing than for consumption; thus processors can expect to receive the entire production and not just surplus tomatoes, a situation which implies raw material of better quality.

3. The processing industry will be able to import seed of the varieties that best adapt themselves to their requirements, and to give technical assistance to growers in order to obtain better and more uniform tomatoes.

4. The tomato production season and the industry's operation season can be lengthened.[13]

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[12]Sixteen percent higher yields and a 15 percent cost reduction are expected with the new varieties. CORFO, op. cit., p. 211.

[13]Harvest periods of 80 to 90 days have been observed; CORFO, loc. cit.

5. New areas with higher yields per hectare can help spread the processing industry through a larger geographic area.[14]

6. Classification of tomatoes according to their different uses (whole tomatoes, tomato paste, etc.) should permit the industry to offer the grower differential price incentives.

7. The quality of the final product can be improved to raise it to the standards of the domestic and foreign markets. (The present quality of processed tomatoes is very low, and not appropriate for export markets.)[15]

8. The Chilean processor will be able to compete in foreign markets once the problems of hygiene and quality have been overcome.[16]

Table V-13 summarizes the sales of finished products; the sale of semi-finished products to other packers or industrial users is also common.

Sales to the consumer are presented in Table V-14. Only recently have some processors started canning under private labels of wholesale or retail chains.

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[14]Rengo and Rancagua are the zones with the best prospects of developing a tomato concentrate industry. Convenio CORFO-ICTA, Estudio de la calidad industrial de nuevas variedades de tomates (Santiago, Chile: 1967). Yields up to 120 tons per hectare have been achieved in experimental plots with industrial varieties, and an average yield of 50 tons per hectare is expected. CORFO, op. cit., pp. 115 and 211.

[15]Convenio ASFACO-Universidad Católica, Estudio de calidad y problemas de industrialización de concentrados de tomate (Santiago, Chile: 1967).

[16]The present cost of production in Chile is 12 to 27 percent less than that of Portugal, a great producing center. CORFO, op. cit., p. 212.

Table V-13. Sale of Processed Tomatoes by the Processing Industry

Sales through distributors	77%
Sales directly to wholesalers	9%
Sales directly to retailers	14%

Source: Servicio de Cooperación Técnica and Instituto Chileno del Acero, Programa de desarrollo conservero frutas y hortalizas, Vol. I, El Mercado Nacional (Santiago, Chile: December, 1965).

Table V-14. Sales of the Processing Industry

Processors with one trademark	71%
Processors with two trademarks	24%
Processors with three trademarks	5%

Source: Servicio de Cooperación Técnica and Instituto Chileno del Acero, Programa de desarrollo conservero frutas y hortalizas, Vol. I, El Mercado Nacional (Santiago, Chile: December, 1965).

The prices of the processed tomato products are determined by the packers, who also set the price of the raw material. There often appears to be no direct relation between the two prices, however, and this situation may indicate the power of the industry to control the markets.

Structure of the Tomato Market

Buyers and Sellers. The Agricultural Census indicates that less than 4,500 growers are engaged in tomato production, with individual operations varying from a fraction of a hectare to about 15 hectares. A few producers exceed that size.

Individual growers, especially those producing in the same season, sell in the same markets and compete with each other. With the exception of some organizations that coordinate the action of their member-growers, the majority of sellers operate in an atomistic market with competitive characteristics.

On the buying side, however, elements of imperfect competition are present in both fresh consumption and processing markets for tomatoes. In addition, the middlemen are few in number, and usually coordinate their actions (they either belong to a trade association or simply follow the same basic lines).

Only a few firms process tomatoes, and all of them belong to a trade association. Furthermore, some of the larger firms agree upon prices and conditions of operation and the rest adjust accordingly to these measures.

Middlemen. From the time the tomato leaves the farm until it reaches the final consumer, the product may follow different channels and a number of different middlemen may be involved. The most frequently observed middlemen are:

1. Processing firms, which usually buy unclassified tomatoes and pay for them by weight, with or without penalties, within a period that varies from a few days up to eight to ten months after delivery.

2. Middlemen shippers, who buy tomatoes to supply the wholesale markets of the interior of the country. Although they generally procure tomatoes from either the auction or the warehouses, many buy directly from the producers, especially during the peak of the production season. They operate on a cash basis and pay prices closely related to those of the central market.

3. Supermarket chains, which usually purchase directly from the grower by previously negotiated contracts for the whole season. As a rule, supermarkets are reliable buyers but they demand more services, buy a relatively small volume, and pay relatively low prices. Other retailers, or groups of them, purchase directly from growers located near Santiago, but these operations have neither the volume nor the continuity necessary to make the business important.

4. Commission agents, who operate in the central markets and other nearby trading centers, selling tomatoes by the box on the grower's account and charging him eight to twelve percent commission. These agents handle the bulk of the volume of early tomatoes marketed fresh in the country.

5. Brokers, agents who represent the growers in the Santiago auction market, charging them 6 to 7.5 percent commission. They

handle most of the mid-season and late tomatoes marketed fresh, providing some services to both buyers and sellers.

6. Cooperatives, both small growers' and commercial growers' which bring together producers of equivalent capacity, represent their members' joint production, and supervise the marketing operations. These actions have increased the growers' bargaining power and often result in better treatment and other economic advantages in the market.

7. Central marketing cooperatives--at present there is one--market tomatoes of individual producers, groups of producers, and other local cooperatives, selling directly to different institutions at previously established prices. This cooperative usually operates with government agencies and enjoys protection of several kinds.

8. Porters, including a unionized labor group which unloads the arriving boxes from the truck, and a second group which guards the product until it is sold, belong to a powerful union, and charge the grower a fixed rate per box which is established by the union, even though some shipments in practice do not use these services.

Relations Among Market Participants. Relations between the growers and the various middlemen differ considerably. The processing firms operate in a period of time when tomatoes are plentiful. Because of this, and also because tomatoes are perishable, they have a stronger bargaining position than the growers who face them. The factories are well informed about the volume of production and pay prices established by the industry itself, with the grower having no alternative but to

accept these prices. Some enterprises credit the producer with sometimes only 60 to 70 percent of the original weight (these penalties are arbitrary and are applied under any pretext, or even without explanation). Growers have the option of reclaiming the load, but rarely do so, since other factories will usually receive tomatoes only from their regular suppliers.

The supermarket chains contract with individual producers and extablish their own standards of quality, classification, services to be added, price, etc.

Middlemen shippers and retailers operate under more equal conditions with the producer, but the volume of their purchases is small and the operations are not very regular.

Commission agents generally deal only with regular customers to whom they frequently advance money. There are only a few commission agents and they all operate in a similar way, so the producer has little alternative.

Brokers, limited in number with only a few operating with tomatoes, operate in a manner similar to commission agents.

Group Action. Most participants in the tomato market have recognized the advantage of group action. Individual growers or small organizations, measured either in number of growers or volume controlled, have only limited power to control prices or influence the market. These organizations have, however, made some progress in providing technical assistance in production and marketing, supplying inputs at

a better price, and providing some services to their members.

Cooperatives that include the larger commercial growers, providing technical assistance and inputs at low price, obtain better prices in the market (by making their products more uniform and regulating their shipment) and reduce charges for services (from truckers and brokers) by exercising their power.

The different groups of buyers, theoretically in competition, actually restrict competition in many ways. Processors may compete in selling their finished product, but they adopt a different policy when procuring raw material. The packers belong to a trade association, ASFACO, that usually speaks for the industry, and there is good communication as well as some exchange of basic information among members. In addition, some firms regularly agree on basic prices and other operational guidelines for the season, which the others adapt to their particular requirements.

Supermarket chains hold an advantageous bargaining position by negotiating at one time the joint demand of all stores in the chain for the entire season. Most other retailers and shippers who buy from growers operate individually with the various growers.

Of the middlemen, brokers belong to an organization that establishes the rates to be charged and the basic operating practices. In addition, they usually operate only with growers of certain areas. Thus the degree of competition among them is limited and their bargaining position is strong.

Commission agents operate more independently, since they usually have more diversified interests. However, they all charge the same basic rates, employ similar operating procedures, and as a rule maintain the established rates and conditions for all customers. Nevertheless, both brokers and commission agents have finally made considerable concessions to some larger and stronger cooperatives.

Truckers transport most of the tomatoes in Chile. Truckers usually operate independently, although they coordinate their operating conditions and charge relatively uniform freight rates for each zone. In certain localities, however, strong truckers' unions have partially succeeded in raising freight rates. Some growers' cooperatives and other similar groups have frequently broken the power of these unions, or have negotiated special freight rates and conditions for their grower-members.

Porters in the Central Market of Santiago belong to a powerful union that handles all products sold at auction. The union usually establishes high rates for their services.

Product Differentiation. A certain degree of product differentiation is found at wholesale level, where the origin of the product is well identified. However, the usual basis for differentiation is that the product, although similar in quality to others on the market, is more carefully selected and packed. Hence the extra prices often obtained correspond to real services added and consequently to reduced

risk involved for the buyer, and not to a fictitious differentiation created in the mind of buyers.

Processed tomatoes are sold to the public under different trademarks, and here processors compete using different types of advertisement to differentiate their production (the only type of product differentiation commonly considered in market analysis).

Prices and Margins. Growers have little or no ability to influence market prices, and usually confront participants who possess a stronger bargaining position. When operating in the market for fresh consumption, growers on the average receive 79.5 percent of prices paid at wholesale.[17] Relating this percentage to other published data, the distribution of consumer expenditures presented in Table V-15 is obtained.

Table V-15. Average Percent Distribution of Consumer Expenditures For Fresh Tomatoes in Santiago, 1962

	Percent of retail prices (without considering physical losses)
Growers' share	32
Auction market margins	8
Wholesale margins	24
Retail margins	36

Source: Ninfa Crespo, Márgenes de comercialización y recargos de hortalizas en el Gran Santiago (Santiago, Chile: Servicio de Cooperación Técnica, November, 1962).

[17]According to official estimates. See Appendix 3, Table A-2.

The percentages change for the various growers according to the location of the production unit, place of sale, channel utilized, and quantity sold. When tomatoes are sold to the processing industry, growers usually do not face marketing costs other than transportation.

The processing factories unilaterally fix the prices that they will pay for raw material. The supermarkets usually pay lower prices than the wholesale market, but producers accept this disadvantage since assured and regular sales mean less risk for them. Middlemen shippers and retailers who deal directly with the grower pay somewhat less than the wholesale market prices, but they save the grower some money and time, which means higher net prices to him. The margins of these agents vary depending on the level of their operation and their volume of sales.

Production and Marketing Policies

There has been no direct government intervention in tomato production, except perhaps the encouraging of massive horticultural production in the agrarian reform settlements. The latter policy often seems to conflict with INDAP assistance programs to small growers, since excessive supply may depress prices, in turn preventing many small growers from continuing to operate in those markets.

Initiative in developing new varieties and in experimental work on the control of blights and diseases has been in the hands of the

experimental stations. Also, several branches of the Ministry of Agriculture and the universities have contributed to these efforts. The results are interesting, but in practice reach only a limited number of potential users.

The most serious effort in tomato research in recent years has been made by CORFO (the production development corporation) in collaboration with a few national and foreign institutions, with an eye to the possibility of exporting processed tomatoes, especially in paste form. The research has evaluated different processing varieties in various geographic zones in order to determine their comparative advantages. The studies have not been completed.

The processing industry has made some sporadic efforts to improve the quality of its raw material, importing seeds and providing technical advice to producers in a few cases, but as a general rule these efforts lacked continuity and were insufficient.

Price Policies. Government interest in the control of tomato prices is minimum. Tomato prices have never been fixed at the wholesale level, and the government has intervened in the marketing of tomatoes on only one occasion, and then by contracting production. In the future the government may intervene in the horticultural market by contracting production with growers in order to insure and regulate the supply, and may influence wholesale prices by fixing marketing margins.[18]

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[18]Ministerio de Agricultura, ODEPA, Plan de desarrollo agropecuario 1965-1980, Preliminary version.

Retail prices of tomatoes are fixed several times a week by the Ministerio de Economía, which considers the "average" auction price of the previous day, some marketing expenses (not all, among those ignored are physical losses), and a profit margin for the retailer.

Credit Policies. Horticultural credit in Chile usually includes both production and marketing credit, and credit policy for tomatoes is similar to that for other horticultural products.

Several institutions grant credit to tomato growers. A general picture of the horticultural credit for some provinces close to Santiago is presented in Table V-16.

The government considers horticultural credit an efficient instrument for modifying the cultivated area, and for increasing yields by fostering the adoption of technological improvements.[20] However, up to the present several agencies have been granting this type of credit, apparently without direct coordination.

INDAP grants development and investment credit to small farmers' groups, or to small cooperatives that do not have regular access to other credit sources. CORFO furnishes mainly operating and investment credit to large growers (individuals or groups) in order to foster

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[19]ODEPA, op. cit., Volume I, p. 16.

the development of improved production operations. CORFO action also includes the processing industry.

Table V-16. Distribution of Horticultural Credit in 1967

Source	Percentage of Total
Banks	
State Bank	27.4
Private Banks	2.1
Development Agencies	
INDAP	12.7
CORA	0.5
CORFO	2.6
Private Sources	
Brokers	5.8
Traders	2.0
Landlords	39.8
Moneylenders	0.3
Friends and family members	2.0
Others	4.8

Source: Ministerio de Agricultura, ODEPA, "Consulta agrícola, 1967" (unpublished).

Banks grant short and longer term credit to medium and large sized growers, but as a rule have relatively little contact with small growers.

The large proportion granted by landlords of course includes much of the credit going to share croppers, who quite frequently operate in horticultural production.

About half of the loans considered above were granted in cash, the rest in goods and inputs. The cost of the credit to the grower differs considerably from case to case, both in monetary and non-monetary terms, ranging from very low interest rates (negative interest if inflation is considered) with no other obligation in the case of some development institutions, up to high interest rates or even a percentage on total product sales that may exceed the amount of the credit, including certain binding agreements to operate with the lender in the case of some brokers and commission agents.

Small and Large Producers

Characteristics. The small producer in the several zones was roughly defined as one who grew not more than 3/5 hectare in the North, one hectare in Valparaíso, or 1.5 hectares in Santiago. Although the small producer usually operates in a zone that is appropriate for the marketing of his products, his production technology is quite traditional and he often uses only traditional inputs and seed from local varieties, because he lacks the economic means and often the know-how to use modern technology and inputs. Neither his selection nor his marketing methods are very adequate, and consequently he generally obtains rather low prices for his product.

The large producer often specializes in tomatoes, and as a rule has good technical and market information (though many of the large operations use the same methods and procedures as the small units on a

larger scale). The most advanced producers and some cooperatives are introducing some new steps in the production and marketing of tomatoes, and the improved methods are slowly being assimilated by other growers as they observe higher economic returns to these practices.

A major portion of tomato production is carried out under share cropping arrangements because of the high labor requirements and the intensity of the operation. There are very few tomato producing units of more than 10 hectares in the country, and usually share cropping arrangements are preferred (with one or several share croppers) when the operation exceeds five hectares. Although some share croppers market their production independently, usually the production of the entire share cropping operation is marketed by the landlord.

Incentives Received. Tomatoes are an attractive crop offering the grower two possible markets, and although production is costly and often involves high risk, it usually produces good economic returns for the grower.

Small producers who have the necessary economic resources usually grow tomatoes because the input intensive operation allows them to utilize family labor, for which there is usually little alternative use. Landlords and brokers usually grant the required advances in money or inputs; this practice also makes the operation quite attractive. Moreover, tomatoes yield higher economic returns than most other products, and the market for them is regular. Although prices

do not always come up to expectations, there is always the alternative of delivering the product to the processing industry, thereby increasing the probability of covering production expenses and getting a reasonable profit.

Large producers have good business contacts and ample knowledge of the markets, a situation which gives them a better chance of selling their production at more profitable prices. These large growers enjoy the same credit facilities as the small producers and in addition have access to other credit sources. They generally have specialized personnel and equipment for the production, selection, and shipment of their product to market. As a result large producers usually obtain higher prices in the market because of their business reputation for more uniform and better-presented products.

Access to Markets and Services. Several experimental stations are working on horticultural production in different parts of the country and their findings are available upon request. In practice, however, only a few small growers and most large growers use this information regularly. Geographic distances and the lack of an efficient extension service prevent adequate diffusion of findings.

Many small producers receive assistance from INDAP, which favors horticultural production on small farms and usually supplies technical advice and supervised credit to small farmers grouped into committees or cooperatives. The State Bank grants its customers credit in inputs and money, but its capacity for offering technical advice is limited, and usually it operates only with larger growers.

Brokers and commission men often supply credit and inputs (money, seeds, boxes, labels) for tomato production and marketing to the growers that deal with them. Their assistance, however, obliges the use of their services in marketing.

ECA operates a market news service that distributes market information to some producers and many intermediaries. However, the market information that growers possess is usually quite poor, and most farmers have only a rough idea of daily market prices. This ignorance increases with geographic distance. Producers generally obtain information on price tendencies from truckers, and it is not unusual for a producer to learn what prices his products received in the market only through the weekly statement from the broker.

In most cases the large producer was better informed than the small one. This information provides large producers comparative advantages, and furthermore they usually have greater flexibility in the matter of adapting themselves to market requirements. Some larger cooperatives provide adequate market information to their members, and in some cases advise them how to market tomatoes (method of selection, date of shipment, type in demand, retention or prompt shipment of the lot).

Changes Occurring in Tomato Marketing

Although some progress has been made lately in tomato production, no substantial changes are observed in marketing. However, some

indications suggest that the following changes in the functioning of the marketing systems could be expected in the near future:

1. Some new varieties better suited for market handling are presently being introduced.

2. Better selection and more meaningful grading is slowly being accepted at wholesale and retail levels.

3. Cooperatives are assuming a more active role in checking prices, providing advice and information, and controlling market operations.

4. Some cooperatives have contracted with the industry under more favorable conditions because of their greater bargaining power.

5. The processing industry is starting to use tomatoes better suited for this use, and higher yields permit better compensation to the grower.

6. Better raw material and higher quality control in processing will permit considerable export of processed tomatoes.

7. In view of these developments the industry is expanding and modernizing. This change should permit better products at lower cost.

VI. SUMMARY AND CONCLUSIONS

Even though agricultural marketing plays an important role in the development process of Chile, little is known about it. Therefore it seems desirable to include in this chapter some general features which arose during the study. Although directly related to the problem, these do not necessarily form part of the hypotheses originally set forth. This information may be useful for future work in related areas in Chile or elsewhere.

The analysis focused on two main aspects of marketing: the overall economic performance of the system and the distribution of the proceeds among participants. With the research completed, the following considerations appeared in retrospect:

The Method

The study basically followed the approach of market structure analysis, although the field of observation was extended and some basic changes introduced in the approach.

Special consideration was given in this analysis to distributive aspects, and major emphasis was placed on the position of growers (both small and large) within the market system, their forms of operation, and their ways of seeing problems.

The study, taken as a whole, presents some of the main advantages and the main limitations of these methods as a research tool for analyzing marketing in development.

Production Regions as Case Studies

Regional analysis proved appropriate because production and marketing varies within the country, making generalizations difficult. Although the most important aspects of the problem are covered, the study does not claim coverage of all regional differences. In addition, it would seem appropriate in future works to assign research resources to each region according to the relative socio-economic importance of the crop studied.

In the rice studies, the zones showed uniform characteristics of production, times, methods, and varieties, although they differed in climatic conditions and yields. Marketing problems were also relatively uniform. The three regional cases actually constitute one geographic continuum, since local conditions are often more important than regional differences.

In the potato studies, growers in the various zones operated under very different conditions, technological and seasonal, and produced various types of potatoes. The zones displayed great differences in costs and yields. Potato marketing also differed considerably between case studies in channels used, volume marketed, prices received, degree of competition with other types of potatoes or potatoes from other zones, and even economic access to the market.

In the tomato studies, different zones produced at different seasons, competing only briefly in the market until one zone's tomatoes were displaced by the more abundant and lower-cost production of other

zones. Tomato marketing differed by zone in time of production, volume marketed, marketing costs, degree of competition, and prices received. Some zones also supply the processing industry, which constitutes a separate market.

Small and Large Producers as a Meaningful Group Separation

Growers were divided into "small" and "large" producers by adopting a pragmatic classification--"small" being those units with capacity to provide full time employment for two adults or less; and "large" being those above this standard. In further studies, however, the universe could be divided into more groups, and the division could be based on particular features of different product markets in order to obtain more precise measures of market shares.

In addition, the bargaining position of growers in specific markets is conditioned not only by their capacity to produce a certain product, but is also affected by the group actions of growers and by the degree of competition for business that middlemen and final buyers present. The market share of an individual grower is usually related to his economic distance from the market, the availability of information and other local conditions, and the personal ability of the grower.

The Data

Perhaps one of the most difficult problems in the study was that of obtaining meaningful data. Although some problems in securing

adequate statistical information were anticipated, the practical situation turned out to be even more difficult than expected.

Secondary information from different sources frequently was inconsistent. Although aggregate production figures were usually available, the data on which they are based were obtained by different procedures and very often were substantially adjusted. Marketing data are still less precise, since the volume marketed is based only upon different estimates, the average prices are obtained on the basis of consumer prices, and farmer prices are calculated by subtracting a fixed margin from average wholesale prices, with no consideration for special situations and changes that occur in the sector. All these factors limit the value of most of the available aggregate data--often the only existing data. With such data, farmers' responses to various policy measures (or to market variations) must be studied with special care and results must be cautiously interpreted. Many institutional barriers (legal, administrative, social, political, economical) may prevent the grower from receiving market prices or may impose strong rigidities on his operation.

The Sample

Although the sample used consists of a uniform number of interviews for each of the nine case studies, it represents a different percentage of each universe.[1] The procedure used was justified because adequate

[1]The sample included over three percent of rice growers, around one

statistical information was not available, the important variables were not identified, and the composition of the universe and its overall distribution could not be determined.

The sample did permit the detection of existing problems and the empirical verification of some general hypotheses. However, the sample is not large enough to allow quantification of the different variables that affect the problem and this situation limits the possibilities of making any generalizations.

In order to derive conclusions of general validity, a further breakdown of zones, a more extensive coverage of the universe, and samples proportional to the importance of the case studied are required--tasks for subsequent research work.

The Findings

In this study some important aspects of the marketing of agricultural products are analyzed. Besides outlining clearly defined problems and sometimes indicating specific solutions, the study also alludes to some of the many unanswered questions in this field. These possibilities should indicate problem areas and direction for future research.

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percent of tomato growers, and less than 0.1 percent of potato growers. The proportion of buyers and middlemen interviewed could not be determined because their total number is unknown.

The analysis concentrated on two aspects: 1) the overall efficiency of the system, and 2) the relative share of the various participants. Although the two aspects represent different dimensions of the same problem, both require adequate analytical attention in order to foster development. In practice, however, these often contradictory aspects are not always clearly separated, causing considerable confusion in the handling of marketing problems.

In most market operations studied here the resulting proceeds were not distributed according to the relative contributions of the participants. Rather the relative shares were obtained according to bargaining position and ability to use existing opportunities, since market operations are usually carried out between parties of unequal means and power.

The analysis encountered problems of two types: 1) those related to the infrastructure needed for a better performance: and 2) those related to the institutional aspects that hinder the changes required to improve the system. However, since both problems are closely related and usually difficult to isolate, their general implications for the system are presented together.

Transportation. Because of Chile's geographical location and particular shape, improvement of the transportation system should be seriously considered in long range planning. The majority of the agricultural production moves by truck, because railroads and water

transportation are less flexible, and were usually developed to serve economic sectors other than crop transport. As trucks increase in number, routes are spreading through many regions of the country, but secondary and farm-to-market roads in many areas are still in very poor condition or even non-existent. These difficulties in the road system present a considerable problem to many growers and often severely limit access to markets.

An improved transportation system would not only provide a better equalization between different markets in the country, but might help to incorporate a considerable number of peasant farmers into the commercial sector by providing them economic access to new markets. In addition, international transportation is insufficiently developed and frequently poses a problem for agricultural exports.

Almost all rice production is presently shipped by truck, with railroads utilized only occasionally to move large lots from big producers or from some collection points to mills located along the rail, mainly in Santiago. Small and large rice growers confront practically the same transportation problems, with the major difference being the proportion of the cost covered by the grower and the mill respectively. This difference, however, is mostly a bargaining problem.

Potatoes are usually moved by truck, except for late potatoes from the South which are often transported by rail and sometimes by ship. As long as they are located close to economical transportation, and are able to supply the minimum load required in each case, small

growers face the same potato transport conditions as large growers. However, very frequently small growers cannot meet these conditions and are either unable to use these means of transportation, or have to pay considerably more for transportation.

Tomatoes are moved principally by truck, although air transport is sometimes used for tomatoes from the North and others occasionally are shipped by rail. Also, small growers move their tomatoes by cart if located close to the market. If they can supply a full load small growers receive the same treatment from truckers as do large growers. Occasionally, however, large growers can negotiate agreements for lower transport rates.

Storage

Many different government facilities are scattered over the country, some little used while others do not have enough capacity to satisfy immediate requirements. Besides, storage is not adequately utilized because of physical factors (location, type of installations), economic factors (high cost), and competition for space (many different crops are produced in the same season). Moreover, policies related to the use of these facilities lack consistency, and thus some products or persons are assigned a large part of the facilities, while others do not have access to them.

Commercial storage facilities of various types are spread among production, consumption and trade centers, but their distribution is

not optimal. Physical installations are not always adequate nor used at capacity, a situation which contributes to increased costs and reduced usefulness of the facilities.

A large proportion of agricultural products are stored right at the farm, and this storage should be encouraged by providing technical assistance for the construction of facilities, plus adequate credit and market information to facilitate storage. The capacity of on-the-farm storage facilities is unknown, but it is estimated to be considerable. Existing farm facilities are usually built for diverse types of storage; and as a consequence they are not very efficient. Accordingly, they should be increasingly supplemented by regional large-scale public facilities capable of holding products under better conditions and for longer periods.

These steps should help to stabilize supply over the year, smoothing sharp seasonal variations in supply and market prices.

Rice growers usually do not store the grain, since rice prices are fixed for the entire agricultural year and no additional profits are realized from holding the rice. Mills do store rice in order to assure raw material for year-round operation.

Potatoes are stored at the farm, in commercial storage facilities, and in government warehouses and cold storage facilities. Storage is especially important for late potatoes, the sale of which spreads over a period of some eight months. On-the-farm storage is also very important, occurring mostly among large growers who have better facilities

and the necessary economic means to maintain such a stock for a considerable length of time. Government policy with respect to potato storage has changed in the past and is subject to much criticism and controversy.

Tomatoes are very perishable and presently are not stored. Adequate cold storage facilities at market places would make it possible to store tomatoes for short periods, and this could help level violent day to day fluctuations in market supply and price.

Grading. Several agricultural products are regularly sold in the markets on the basis of some grading, although grades are used only at a certain level of the marketing process, and often show no relation to the final use intended for each product. As a result, transactions are still carried out by inspection, even in the case of products sent to the market already sorted and graded.

An observed lack of uniformity among the products in each grade implied that buyers and sellers do not "speak the same language," that quality price differentials are non-existent or diffused, and that growers are not rewarded for the particular quality standards demanded by the buyers.

Objective quality standards are presently under study for several products and should become mandatory in the future. Moreover, besides meaningful and operational grading standards, the system should also have facilities for selection, cleaning, grading, and packing in the markets or producing regions. In addition, technical facilities to

verify quality and resolve market claims are needed for all agricultural products.

The practice of pricing products by quality or by yields (in the case of products for processing) should be strongly encouraged. This practice is equitable for both buyers and sellers, and would induce growers to adopt better handling procedures and varieties more suitable for specific uses. At the same time it is important to control penalties--they should bear no relation to the bargaining power of the participants. The control of penalties should be the responsibility of the participants (e.g., marketing groups) or independent agencies (government agencies that offer product analyses free of charge).

Rice quality is determined by grain analyses made by the mills in their own laboratories. Although the government has set quality standards, mills usually apply their own specifications--these vary for different clients, and it is frequently mentioned that mills apply arbitrary quality penalties. When negotiating the grades and when discussing penalties, large growers usually hold considerable advantage in relation to small growers.

Potatoes are sold at wholesale either unsorted (mixed) or graded according to traditional standards. Although there have been some efforts to standardize potato grades, no significant changes have been achieved. Some standards at retail level existed in the past,

but these have been suppressed to avoid price increases. Small and large potato growers generally face similar problems in relation to grading.

Tomatoes are sold graded at the wholesale level. Although standards are traditional, the grading system is improving considerabl Usually tomatoes are also graded at retail level since the government fixes prices by grades. However, grades at retail do not necessarily correspond to those at wholesale. More objective grades are presently being tried at retail level and standards will probably be set in the near future. Processors have traditionally operated without quality considerations; only recently have some packers started to reward quality. Small and large growers confront similar problems in tomato grading.

Market Information.

A few years ago the government started a market news service (ECA), that, together with a forecasting service (ODEPA), was supposed to inform growers about present and future market conditions. The market news service covers mainly Santiago markets and is presently operating adequately, but diffusion of its information is still very limited. The forecasting service was restricted even before it was perfected. Consequently, market information for most growers continues to be relatively inadequate.

The services presently available should be continued and intensified. The diffusion of information could be easily improved by utilizing national as well as local newspapers in various regions of the country, and by expanding the use of radio.

Since rice prices are fixed by the government, market information is static in this field. However, all mills operate somewhat differently and growers need information about the conditions offered and the methods used by individual mills, since this knowledge may yield a better net price. Large growers nearly always are better informed than small growers, the latter generally getting only local information.

Potato growers usually obtain market information from the market news service, from auction markets, from brokers, or from truckers. However, the information is still limited in many areas, especially the southern provinces. Small growers usually have considerably less information than large growers, and were normally able to operate only with middlemen or in local markets. Middlemen were always better informed than growers.

Tomato market information is compiled by ECA, but market news reaches only middlemen and those growers--usually large ones--located close to the source of information. Small growers usually get market information from truckers, while large growers and some cooperatives not only have good information, but as a rule are able to operate accordingly, increasing considerably their net market prices.

Financing.

Very little marketing credit is available to the Chilean farmer; rather agricultural credit is only for production purposes, and is unevenly distributed. Even though several institutions deal with agricultural credit, each one operates under different conditions with little or no coordination--banks with larger commercial growers, development agencies with smaller peasant farmers, etc. Private credit also plays an important role, but is granted only for very special purposes by the mills, brokers, traders, etc.

A newer development is a full year operation credit for agricultural enterprises, where the farmers or corporations withdraw the money as needed according to a budget plan. Still in an experimental stage, this type of financing may become a useful tool for orderly farming operations.

Several institutional problems prevent the smooth flow of agricultural credit in Chile. For example, warrant credits were supposed to aid marketing by growers, but almost all are presently utilized by the milling industry; small and medium cooperatives need the collateral of a few members to obtain credit, which means a disproportionate risk for these members; high inflation rates result in government lending at negative interest rates, while commercial sources often lend at very high interest rates.

Rice producers may obtain financing from the State Bank which grants some credit to its regular clients, but most of the credit for

rice is actually extended by the milling industry. A large proportion of the mills' credit and their payments for rough rice is given in business drafts which growers must discount in banks or in trade. These procedures, and others related to financing, mean that small growers are at a considerable disadvantage in relation to larger growers.

In general there are no credit facilities specifically oriented to potato production or marketing, and potato growers use whatever agricultural credit is available. Marketing credit for potatoes is granted by a few brokers and landlords (in the case of share cropping), or by ECA (in the case of production contracts). These credits benefit only a limited number of growers: small growers, with few exceptions, do not have access to these sources of financing.

Tomato credit comes mainly from private sources, and generally covers both production and marketing. Although most farmers except very small ones have access to these sources, this form of financing is often quite expensive. Some development agencies grant credit to small farmers who belong to cooperatives or associations, but this action is limited.

The tomato processing industry and the rice mills sometimes grant credit to growers. However, these enterprises often delay payments for the product received, so that growers, both small and large, are actually financing part of the processing instead of being financed by the industry.

Technical Assistance.

Some government agencies are studying ways to innovate and improve efficiency in marketing, and are examining the barriers that prevent the adequate evolution of the system. These barriers include both physical and institutional aspects of the process, but so far these efforts have been insufficient and lacking in continuity.

The most important problem, however, is the existing gap between the source of information and the grower who is supposed to employ the developments. Because of inadequate information, lack of extension services, distrust, ignorance, and/or traditionalism, the findings of the specialized agencies often are not applied.

Some experimental work related to rice has produced important findings which could help improve production and marketing of this crop. However, growers must search out this information for themselves, and consequently most small growers are not able to benefit from these findings because of time and other limitations.

Experiments with potatoes most frequently involve the search for new varieties with higher yields and more resistance to common diseases. Diffusion of the findings in this field proceed through input salesmen and some development agencies. The efforts appear insufficient considering the technological level presently employed in potato production and marketing by many growers, especially small growers.

Experiments with tomato varieties and responses to modern inputs have been made under various programs in experimental stations and similar organizations. The lack of an extension service for production and marketing is noticeable here too. However, because tomato production is input intensive and because tomato growers are usually located near commercial centers, they are at least partially informed of developments. Small growers lag considerably behind the average in knowledge about these developments, and thus need extension services even more than large growers do.

Group Action Among Growers.

Many existing groups have increased efficiency by purchasing inputs for all members, by performing jointly some production or marketing operations, and by eliminating some middlemen in the process. It appears, however, that excessive hopes are often placed on the role of these organizations in improving efficiency. Even if some middlemen can be eliminated someone must perform their duties. Although organizations can achieve some economies, after a certain point these organizations become less flexible and more costly to operate.

Groups have often successfully moved to a better bargaining position by countervailing the power of middlemen and industrial buyers. As direct results, members have benefitted from lower freight rates or have paid less commission to middlemen; in other cases the associations were refunded part of the fees paid by their members. So far, however,

no group has been powerful enough to directly directly influence supply or control prices, and growers' operations still present many characteristics of a competitive market. The higher net prices obtained by some groups are often a matter of convenience for the buyer--he is assured a constant flow of products of uniform quality, which means less risk for him. Thus higher prices usually were not a direct result of market power.

In practice only a few groups have become an economic success without government protection. Organizations that group small growers confront more economic constraints than larger groups and are less likely to be successful economically. However, these organizations should not be judged solely from the economic point of view since they also serve as extension services for better operational procedures, teaching their members how to progress together and fulfilling other social functions. The most progressive organizations found in the survey were those organized by the members themselves (usually medium and large growers), those able to offer economic advantages to their members, and those having full time management hired by the organization.

Collective bargaining through auction groups, such as marketing boards or growers' marketing associations, is either unknown or did not play a meaningful role in marketing in the past.

Group action in rice production and marketing has not been effective in past years. There are some growers' associations but

these have not been active lately. The few cooperatives that have operated in this field dealt mostly with inputs and handled only a small part of the rough rice production. Growers could greatly improve their bargaining positions if they formed regional organizations. However, small growers usually confront different problems and more numerous limitations than large growers; hence they might not be able to benefit significantly from such regional organizations until some of the restraints they face are corrected.

Although many agricultural cooperatives assist their members in crop production, no one group was specifically concerned with potato production or marketing. Such organizations, if developed, could give special service to small growers who presently operate with a traditional technology, have no market information, and lack the capacity to use other than local markets.

Several organizations assist tomato growers in production and marketing, but the most successful cooperatives have been those of medium and large commercial growers. These growers confront fewer economic restrictions and are usually able to negotiate large volumes of uniform products. It was observed that large organizations generally have a better access to technical and market information, and more importantly, can usually use it to their benefit.

Structure of Markets.

Middlemen usually constitute powerful groups because they are better informed, confront fewer constraints, and possess greater

economic means than growers. Although there may be a considerable number of any type of middlemen on the national level, in each market their number is small enough to encourage monopolistic behavior even when there is no direct collusion among them. By restricting competition, these middlemen may obtain monopoly profits by exacting them from growers, from buyers, or from both.

Industrial buyers are also few in number, and usually all of them closely follow the same practices and pay similar prices. Middlemen and industrial buyers in rice, potatoes, and tomatoes have not increased in number but do handle a growing volume of operations.

Such imperfect competition seems more or less characteristic of many agricultural markets, but these factors lead to questions about the appropriate degree of competition in a particular market. In developing economies marketing often employs a large number of participants, a situation which under other circumstances would be considered inefficient. However, in these instances marketing-related activities may be the only available source of employment. Even in this case, a large number of participants does not necessarily assure competitive behavior, since many sources of unequal power may co-exist in the market.

On the other hand, the existence of strong groups in the market is not necessarily wrong if these groups countervail the power of other groups, rather than exercise their bargaining position to obtain monopoly profits. Both the tomato and rice processing industries

presented a high degree of concentration, employed very similar tactics within the industry, and exhibited a very strong bargaining position. In these cases, growers were subject to their dictates and had no recourse since the industry systematically opposed any measure or regulation that would limit their power or their profits.

Consequently each situation within the market system merits careful analysis. This circumstance is important for policy considerations since the market structure may affect prices significantly, and until some causes of monopolistic competition are eliminated, efficient marketing is often nearly impossible.

Rice growers confront a powerful structure in the mills, which are the sole buyers of rough rice. Few in number, and possessing considerable economic strength, the mills often dictate the rules in rice trade. This structure has affected the performance of the industry (even the less efficient mills continue in operation), has lowered the net prices received by growers in general, and has placed the small growers in a comparatively disadvantageous position.

Although there are many potato buyers in the country, their number is often small in regional and local markets. In addition, middlemen control the operations in many markets, coordinating their actions and presenting a rigid structure to the grower. Small growers are more affected by this structure since they have less chance to operate in distant markets and must usually sell right after harvest.

Tomato growers operate in markets which are controlled by parties with strong bargaining positions. In the wholesale markets, middlemen often control the flow of products and may influence net prices received by growers. The processing industry dictates operational norms and sets prices unilaterally. In both cases small growers, especially those operating individually, are considerably more vulnerable than larger growers.

Government Policies.

The Chilean government has been increasingly concerned with production and marketing of agricultural products. The actions taken have varied but have included close observation of price movements; establishment of general marketing guidelines; provision of services; control, more or less directly, of supply and demand; and price fixation.

The results of the government measures are not always clear, since the government may pursue many goals simultaneously, several of which may conflict. However, the usual result of different social and economic pressures has been the adoption of protective measures, price controls, or business regulations. The establishment of governmental regulations, however, does not necessarily mean that they will be carried out in practice, or that the outcome will meet the purposes of the measure. The institutional rigidities of the system may prevent, distort, or delay the attainment of the final goals.

During the past years government price regulations have usually favored consumers at the growers' expense. Besides, price support and

other protectionist measures designed to favor small growers have in practice benefitted mostly large growers and middlemen, since small growers face many constraints which frequently prevent them from taking advantage of market opportunities (often small growers actually receive the negative impact of these policies). In addition, imperfect competition prevails in certain sectors of the market, and some participants react against price controls (deferring payments, increasing quality penalties, etc.), reducing or neutralizing the effect of these policies.

When policies to influence production are designed it is important to consider only prices that effectively reach the grower. This intent also calls for a reevaluation of the redistributive impacts of these policies, including their long range effects on production and demand as well as on the efficiency of the marketing system. More realistic measures should be adopted--price support and controls, trade conditions, quality grades, taxes, etc.--and then strictly implemented. Arbitrary or unrealistic regulations are usually self-defeating.

Government action in relation to rice usually involved short run programs applied to immediate supply problems. Several programs of credit, subsidy, price fixing, and importation have been frequently used, but a lack of consistency is often noticeable. Most policies were intended to avoid increases in cost of living expenses, thus protecting consumers at the growers' expense. This position contradicts long run goals of production increase, and often affects more directly

the smaller growers, who face more rigidities in their operation.

Policies with respect to potatoes are among the most criticized. The government interest in limiting cost of living increases is very strong in the case of potatoes. Consequently the government fixes price ceilings for potatoes when prices rise, or dumps potatoes on the market to bring prices down. However, if prices fall the government does not intervene. The programs of contracting production for supply regulation, and of regional purchasing for price support, benefitted only a limited number of growers while those not included in the programs received lower prices for their production. The impact of these policies was particularly negative for small growers who have less flexibility and usually depend on local markets.

In the case of tomatoes government action has been minimal, since it has not intervened by fixing prices. Rather the government is trying to create marketing cooperatives, provide market information, and foster large scale production. Up to the present these actions have been insufficient and have lacked the necessary continuity to solve the real problems. Because of their special limitations, small growers are more vulnerable to price and production fluctuations and thus feel a greater negative impact from these programs.

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In all the above the special problems and disadvantages of the small growers are evident. Thus both infrastructure and services need to be carefully designed and implemented in order to serve not only the large growers, but also must be modified and adapted especially for the small grower.

All this does not happen automatically. It takes very special efforts, special plans, and understanding of the particular issues to solve the problems. Solutions are not easy, but an improved distribution of benefits may not only serve social goals in the short run, but also may contribute effectively toward overcoming production problems in the long run.

APPENDIX 1

MARKETING OF HORTICULTURAL PRODUCTS

Although this appendix specifically discusses the market for horticultural products in Santiago, its scope is really much wider because:

1. A very high percentage of the nation's supply of horticultural products moves through the Santiago market.

2. Santiago, as the country's largest market, establishes the standards for the marketing of horticultural products in the entire country.

3. Wholesale prices throughout the country usually move in relation to the Santiago prices--especially those of auction market--because of the volume of operation in Santiago and because of the diffusion of information about its markets through the market news program.

THE CENTRAL MARKET

The Municipal Central Market of Santiago, better known as "La Vega," began operating in 1880 and its buildings have been in use for over 50 years. Although the city's population has increased tenfold since 1880 and the volume of operation in the market has grown constantly, no important changes in its facilities have occurred in recent years.[1]

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[1]Programa de Cooperación Técnica Chile-California, La comercialización de productos agropecuarios en Chile, Anexo 1 (Santiago, Chile: 1965), p. 20.

The congestion and disorder presently found in this market are indescribable, undoubtedly have a negative effect on operational efficiency, and consequently increase marketing costs.[2] In the same space transactions at the wholesale level through auctions, business at the intermediate level through warehouses and stalls, and sales to the public through municipal posts, all take place simultaneously. It is estimated that the wholesalers and retailers number more than 3,000.[3]

Although the Central Market performs several functions, this analysis concentrates on the auction operations at the wholesale level. Aside from other limitations, it is evident that the present physical installations are insufficient and inadequate for a wholesale horticultural product market. For example, there are no loading and unloading platforms, parking lots, refrigerating plants, warehouse facilities, or other necessary adjuncts. Sanitary conditions are deplorable since not even the elementary rules of hygiene are observed. The existing public utility services are few and generally do not perform the functions for which they were established. Moreover, hundreds of motorized vehicles and horse drawn carts loaded with products arrive

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[2]Ministerio de Agricultura, "Abastecimiento de productos hortícolas del Gran Santiago," Agricultura y Ganadería No. 24 (Santiago, Chile: 1961), p. 4.

[3]Zoltan Arvay, Un mercado mayorista de productos agropecuarios para el area del Gran Santiago, Thesis, Facultad de Agronomía, Universidad de Chile, Santiago, 1963, p. 45.

all night long and during the morning, forming long queues and obstructing the traffic of other vehicles and even that of pedestrians. Traffic congestion inside and outside of the market is critical. These and other serious problems have become more acute in recent years.

Seventy percent of Chile's total fruit and horticultural production is marketed in Santiago, and despite its limitations, the Central Market continues to be the country's main marketing center, receiving over two-thirds of the horticultural products that reach Santiago.[4] Of the horticultural products marketed wholesale at the Central Market, 97 percent (by volume) are sold at auction.

The auctions go on throughout the entire year, but the products auctioned and the level of operations show marked seasonal variations; maximum volume is transacted in January and minimum level occurs in June. Approximately 70 percent of the total annual volume of horticultural production that reaches Santiago arrives in the period from October to March.

The congestion and disorder slow the transaction, a situation which increases the cost of operation. Furthermore, the delays and excessive exposure to the sun worsen the condition of the products, which have already been roughly treated at the inadequate existing facilities. Physical products losses suffered through excessive

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[4]CORFO, "Proyectos del gran mercado mayorista de Santiago," Mimeograph (Santiago, Chile: no date).

handling, natural fermentation, deterioration, etc. are estimated at about 20 percent.[5]

Operation of the Market

Only sales by public auction can be made within the Municipal Market, private sales being strictly prohibited, and producers who bring their products in cannot withdraw any part or all of them unless they have gone through the auction. Auctions can be effected only through the Municipal Consignments Office, and may take place only in the Market yard in the sections that the management allots for each product, and at the specified time.

Several groups of horticultural products are auctioned simultaneously, but not all the auctions necessarily start at the same time. For example, auctions of horticultural products such as tomatoes, string beans, and fruit begin at 6 a.m., whereas potatoes, onions, squash, and lettuce are sold beginning at 10 a.m. One cannot, therefore, speak of one auction or a centralized market, but rather must consider a series of more or less interrelated markets.[6]

In order to sell their products, the growers must either be represented at auction by a commercial broker or use the services of

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[5] Ibid., pp. 2-3.

[6] ODEPA, Plan hortícola, Volume II (Santiago, Chile: 1967), p. 36.

the Consignments Office which are furnished by the Municipal Market.

The details of all auction sales are recorded in the Municipal Register, but contain only the broker's name (not the grower's), a method which makes it difficult to check these operations later. The buyers must pay cash for their purchases, and the merchandise cannot be delivered unless the value has been covered. Buyers must remove the goods from the auction yard once the selling price has been paid, but removal often becomes complicated since buyers usually find no space in which to park their trucks and carts, and often vehicles already in the yard must deliver the auctioned products to buyers' vehicles parked in nearby streets.[7]

When the grower auctions his product using the Municipal Consignments Office, the buyer pays for the product at the Municipal cashiers' windows, where he is given a stamped invoice. Later the Office pays the grower the amount due him after deducting the corresponding fees and taxes. If a commercial broker intervenes in the operation, he issues the invoice and then makes one general payment to the Office for all of the municipal taxes he has collected on all the transactions he has handled that day. This practice also makes it difficult for the grower to make any subsequent check.

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[7]Programa de Cooperación Técnica Chile-California, La comercialización de productos agropecuarios en Chile (Santiago, Chile, 1965), p. 62.

As an auction proceeds, if no one is interested or if the highes bid fails to satisfy the seller, the broker can "defend" the goods once, withdrawing them from the auction upon payment of the fees and expenses. The withdrawn lot can be sold directly either inside or outside the market.

The buyers usually have no preference for any single broker and buy from any of them (except when they buy on credit). The brokers deal with any grower, although some brokers prefer certain products (i.e., horticultural products in general or specific horticultural products) or certain geographic zones.

The auction price is largely determined by the total quantity brought to market and the number of interested buyers rather than solely by the product's characteristics. The auction prices set the price ranges for other markets, both in Santiago and elsewhere.

Resales are not allowed within the Municipal Market, and retail sales can be made only at established outlets which are rented for that purpose. In practice, however, compliance with these provisior is rendered difficult by the congestion and disorder and by the lack of any clear physical separation of the various markets.

Many institutions, processing firms, wholesalers, and retailers procure the fresh produce they require directly or indirectly from the Central Market auction. The auction supplies the needs of the following intermediaries:

1. Intermediary shippers, who buy approximately 25 percent of all horticultural products and send them to the markets in the south of the country for resale to the retail trade.[8]

2. Wholesale traders in other markets, who also receive products directly from the growers or from middlemen and sell to other wholesalers and retailers.

3. Periodic street markets, which operate in several sections of Santiago and consist of a number of stands which sell once or twice a week at the same place on scheduled days.[9]

4. Retail market traders who operate in rented stalls at different market sites.

5. Produce stands, produce stores, supermarkets, and other retailers who specialize in some or all horticultural products of the season, devoting part of their business to fresh produce.

6. Door-to-door and stationary vendors who sell horticultural products on the streets, the former carrying them in baskets or carts, the latter displaying them in fixed stalls.

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[8]Ministerio de Agricultura, op. cit., p. 9.

[9]It was originally thought that only growers would sell in the street markets, thus eliminating middlemen, but at the present rather few growers participate directly.

TATO TRANSACTIONS

Potato auctions are held during the entire year, in both the municipal and the private market in Santiago. The methods of operation at both auctions are similar.

During the winter months, only late (stored) potatoes reach the auctions, but later they compete with early potatoes when these come in. Still later early potatoes compete with mid-season potatoes, while mid-season may compete with new production of late potatoes. Potatoes of many different geographic origins, colors, varieties, and grades can be found in the market at any time.

Potatoes are auctioned in 80 Kg. sacks, and a sack is opened in front of each lot so that the product may be inspected by prospective buyers. Depending on the abundance of the supply, the potato transactions in the market are made either in unsorted lots (mixed), or selected lots in accordance with traditional grades.

The grower must pay the unloading expenses even though the product may be auctioned from trucks, even though the buyer may use the same transportation to take the product away, and even though the seller may withdraw the product from the auction (defend). In addition, the grower pays three to four percent on the value of the sale for commission to the broker, tax on fees paid, and other expenses.[10]

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[10]In the municipal market growers pay four percent commission (two percent broker's commission and two percent auction fee); in the private market the total commission is three percent.

TOMATO TRANSACTIONS

The tomato auction starts with the arrival of the product from the Province of Valparaíso in December, and continues until it ends with tomatoes from the Province of Santiago in May.

The trucks with boxed tomatoes enter the market and unload in a given section, which expands as the quantity reaching the market increases. The boxes are placed in rows in the open, and each grower's product is separated into piles according to the broker to which they are consigned, each pile being subdivided by grade.[11]

Tomatoes are unloaded by a group of 16 to 20 porters.[12] When the auction begins, responsibility for the lot shifts to another group which is in charge of the product until it is delivered to the buyer (this delivery does not imply physical movement, loading, or transfer of the product). These groups are responsible for shortages and losses, which occur frequently from pilferage, errors, or mixing of different lots. Control is difficult owing to the widespread and disorderly placement of the lots.

The grower must pay unloading and delivery expenses, 10 percent on the sale value as the broker's commission (which includes the auction fee of 2 1/2 percent), a tax on commission paid, and other expenses.

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[11] One producer may deal with more than one broker at the same time.

[12] When many trucks are waiting their turn, some truckers prefer to unload with their own helpers rather than suffer long delays, but even so the unloading group has to be paid although none of its members have taken physical part in the work.

APPENDIX 2

ECA--THE AGRICULTURAL TRADE ENTERPRISE

The first forerunner of the Empresa de Comercio Agrícola (ECA) was the Agricultural Export Board, created in 1930 to encourage national production and exports of agricultural products.[1] The organization was modified and transformed into the Institute of Agricultural Economics in 1942, into the National Institute of Trade in 1953, and into the present ECA in 1960.

The law that created ECA assigned to it, among other functions, that of participating in the domestic and foreign trade of agricultural products to the extent that might be necessary to assure a stable buying power and an adequate supply of the products.

ECA is an autonomous government enterprise under the Ministerio de Economía, which determines ECA's general policy. However, ECA must operate in accordance with the plans of ODEPLAN (National Planning Office) which assigns its budget, and must also consider the recommendations of the Ministry of Agriculture, which sets general policies for the agricultural sector.

ECA'S FUNCTIONS

The main goal of ECA's present policy is to maintain an adequate supply of agricultural products that will tend to limit increases in th

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[1]ECA, Departamento de Información y Difusión: "ECA, historia, organización y funciones," Mimeograph (Santiago, Chile: 1967).

cost of living.[2] ECA's principal functions can be classified in three groups:

1. Regulate the supply of essential farm products (in defense of the consumer).

2. Create the necessary purchasing power to support the official prices (in defense of the grower).

3. Make the marketing system for farm products more rational.

In order to ensure an adequate supply of farm products, ECA buys in both the domestic and the foreign markets[3] until they are delivered to the market, the products are stored in cold storage plants, silos, and warehouses which ECA maintains all over the country.

In order to maintain support prices, ECA buys from the growers at the minimum official prices the surplus of those products that cannot be opportunely sold. These products are stored and are generally used later to meet the country's needs.

In order to rationalize the marketing system, ECA must study the market problems, organize the indispensable services, program and finance the infrastructure, set quality standards, create sales outlets to the public, and operate price support programs.

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[2]Official evaluations indicate that each point (%) of increase in the cost of living index directly costs the government some E$ 44,000,000 (E$ of 1967) in higher salaries, additional spending, etc.

[3]ECA has imported 1/3 of the volume of butter consumed in the country, 1/4 of that of milk, 1/4 that of rice, 1/6 of that of lentils and chick-peas, and 1/2 of that of wheat, with total ECA imports having a value of 75 million dollars in 1966. ECA, op. cit., p. 3.

SOME MEASURES TO FACILITATE MARKETING

To attain its objectives, ECA performs several functions detailed below.

Establishment of Grading Standards

ECA assumed responsibility for establishing and promoting the application of a system of grades for horticultural products for domestic consumption. It has completed a preliminary proposal for quality norms adapted to local conditions, the application of which in some cases is already in the experimental stage. Certain horticultural products are currently being graded before shipping to a chain of supermarkets. These grades will be revised later, and the legal provisions making them obligatory will be formulated and set.

Market News Services

For the past two years ECA has given the interested public daily information, and weekly, monthly, and yearly summaries regarding the transactions effected in the Santiago Central Market and other wholesale markets, including volume, quality, and price information on horticultural products, fruit, livestock, etc.[4]

Regulation of the Supply of Perishable Products

ECA also prevents shortages or surpluses in the production of

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[4]In 1967 some 200 copies of daily market news reports were distributed free of charge in Santiago or mailed to some point in the interior.

perishable horticultural products. For that purpose ECA contracts with the growers for the planting of a certain number of hectares, to be harvested in months when the supply of horticultural products is critically low (especially those products included in the Consumer Price Index). The product contracted should be marketed normally, but may be destroyed if market prices deviate from established target prices.

ECA POLICY REGARDING RICE, POTATOES, AND TOMATOES

To a greater or lesser extent, ECA intervenes in the production and marketing of all three products considered in this study.

Rice

ECA policy is to assure short term supply by importing rice to complement domestic production up to the point needed for consumption. Many criticisms have arisen regarding the volume imported, but apparently a large part of the error can be attributed to ECA's poor information, generally furnished by the mills and the growers themselves.

Inasmuch as ECA must sell at the official prices, considerable losses can be anticipated if the cost of the imported product plus processing and marketing expenses come to more than the maximum prices set by the government for national rice.

Potatoes

ECA has followed short term policies for assuring both the supply of potatoes and minimum price support to growers.

In order to ensure supply, ECA has built up a regulatory stock pile of national potatoes in certain years, and has imported in other years. These operations were severly criticized, since volume was excessive and quality was inadequate, but ECA advances two reasons to justify its imprecise procedure:

1. Adequate statistics and trustworthy crop forecasts are not available, a situation which makes impossible any precise calculation.

2. It is preferable for the country to have a surplus supply which would keep market prices down but would not increase the cost of living (however, the surplus may also depress growers' incomes). These effects mean a saving for the national budget (inasmuch as many government expenses are directly related to this index).

In order to ensure that certain price levels will be respected, ECA has purchasing agencies paying support prices in operation at several points in the country (it also operates other posts for the purpose of providing markets for growers in isolated parts of the country). Potato purchases have generally been less than 10 percent of the total production. Growers often say there are not enough reception agencies, and sometimes complain that the purchasing season is too short.

The goals of both policies (price support and market supply) have frequently been a matter of confusion inside and outside of the

organization, usually resulting in surplus stocks of potatoes (not always fit for storing and subsequent use). ECA generally favors purchases from the Agrarian Reform Corporation's settlements and certain cooperatives.

Considerable losses can be anticipated in these ECA operations, given the nature of the market supply and price support programs, which pay higher prices to growers and sell at lower prices to consumers.

Tomatoes

ECA has sometimes followed a short term policy for ensuring the supply of early tomatoes, as in 1966-67. In other years ECA action has been limited.

In 1966-67 it purchased only from certain cooperatives and sold at a loss in the market. Although tomatoes are not included in the price index, a near substitute in Chile--lettuce--is represented, and the operation in question was intended to avoid an excessive increase in the price of lettuce. By throwing large quantities of tomatoes into the market, ECA succeeded in lowering prices, but this also implied lower incomes for all producers not included in the contract.

APPENDIX 3

Table A-1: Indexes of Agricultural Prices at Producer Level in Relation to the Price of Wheat

(Wheat price = 100)

Products	Price relations per 100 Kg.									Price target for 1971
	1935 1939	1940 1944	1945 1949	1950 1954	1955 1959	1960 1964	1965	1966	1967	
Wheat	100	100	100	100	100	100	100	100	100	100
Corn	78	82	96	107	100	101	94	98	99	90
Barley (beer)	81	77	96	105	95	103	93	100	97	95
Barley (feed)	--	--	--	95	89	98	89	97	95	90
Oats	50	55	72	75	71	86	84	103	100	85
Rice	--	87	100	112	118	125	132	126	130	135
Potatoes	25	29	35	48	43	65	59	53	49	45
Beans	137	176	230	221	237	244	318	257	277	260
Lentils	193	130	164	204	248	267	154	278	273	260
Sun-flowers	--	--	--	130	134	151	176	157	162	160
Raps	--	--	--	--	173	171	183	178	165	180
Beets	--	--	--	--	20	21	22	23	25	22

Source: ODEPA

Table A-2. Source of Information, Marketing Period, and Place of Price Quotation Utilized by ODEPA to Calculate Wholesale Prices, and Fixed Percentages Used to Calculate Prices at Producer Level

Product	Marketing Period	Place of price quotation	Source of information	Unit	Growers' share of wholesale price
Wheat (white)	January - July	Alameda	Dirección de Estad. y Censo	100 Kg.	91.0%
Rice (paddy)	Date of price fixation	Molino	Government decrees	100 Kg.	95.0%
Potatoes (yellow)	January-June	Santiago	Dirección de Estad. y Censo	100 Kg.	60.0%
Tomatoes	January - May	Feria Municipal de Santiago	Servicio de Noticias de Mercado (ECA)	100 Kg.	70.5%

Source: ODEPA