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ALTERNATIVE WHOLESALE FACILITY ARRANGEMENTS FOR FRESH FRUITS AND VEGETABLES IN THE BUENOS AIRES METROPOLITAN REGION

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ALTERNATIVE WHOLESALE FACILITY ARRANGEMENTS FOR FRESH FRUITS AND VEGETABLES IN THE BUENOS AIRES METROPOLITAN REGION

presented by

Norberto Frigerio

has been accepted towards fulfillment
of the requirements for

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Harold M. Riley

Major professor

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ABSTRACT

ALTERNATIVE WHOLESALE FACILITY ARRANGEMENTS
FOR FRESH FRUITS AND VEGETABLES IN THE
BUENOS AIRES METROPOLITAN REGION

By

Norberto Frigerio

Buenos Aires is a large urban conglomerate of more than eight million inhabitants that extends over a land area having an average diameter of thirty-seven miles. The wholesale produce distribution system that serves such an extensive and populated region is very complex. The operation of large wholesale produce markets, particularly the main one, in the inner city has imposed increased economic and social costs on market and nonmarket participants. Moreover, the existing wholesale produce distribution system probably uses more resources than would be necessary to employ a better organized distribution system.

The Buenos Aires Central Market Corporation, an autonomous agency having the responsibility of building a new central wholesale market in the Buenos Aires Metropolitan Region, has planned the concentration of all wholesale transactions of fresh fruits and vegetables in a single wholesale market. This project has been questioned by the business community.

This study has been centered around three main objectives:

1. To describe and analyze the urban distribution system for fresh fruits and vegetables in the Buenos Aires Metropolitan Area;

2. To make a preliminary estimation of how the projected new central wholesale market and an alternative wholesale facility arrangement would affect product marketing costs; and

3. To identify issues and needs for future analyses in order to provide relevant information for more refined public decisions on fresh fruit and vegetable marketing policies.

The description and analysis of the existing distribution system for fresh fruits and vegetables was largely based on secondary data. A survey of broad product line wholesale markets was undertaken with the objective of assessing pricing efficiency and measuring wholesalers' marketing margins in apple and pear trade. Cost comparisons of different wholesale facility arrangements were made by simple budgeting procedures based on the information produced by several consulting firms under contract with the Buenos Aires Central Market Corporation, by different government offices and by a private firm in the real estate business.

A cost comparison of the Existing System with the Project and a decentralized wholesale facility arrangement of either four or five produce wholesale markets, assessing direct market facility costs and produce retailers' transportation costs, has led to the following conclusions:

1. The estimated operational costs for the proposed Project system are considerably higher than they are in the Existing System. The difference in operational costs between the Project and the Existing System is so large that it suggests that even when adding other indirect and social costs to the Existing System, the Project either will be a higher cost wholesale facility arrangement or at best will not offer a clear operational cost advantage over the Existing System. Such an outlook makes it difficult to justify a $42,800,000 investment without further analysis of the cost effects.

2. A decentralized wholesale facility arrangement appears to be a lower cost alternative to the Existing System than the Project's single market proposal.

3. A four wholesale market distribution system appears as a lower cost wholesale facility arrangement than a five market wholesale arrangement.

4. A more comprehensive, long-term marketing program would be required to achieve the objectives set up by the Buenos Aires Central Market Corporation of improving efficiency in fresh fruit and vegetable distribution and of reducing produce retail prices. The construction and operation of a new wholesale facility should be complemented with other projects or programs having the common goal of reducing marketing costs through improved market coordination. Experience shows that marketing facilities alone do not provide the changes that lead to an improved marketing system.

ALTERNATIVE WHOLESALE FACILITY ARRANGEMENTS FOR FRESH FRUITS AND VEGETABLES IN THE BUENOS AIRES METROPOLITAN REGION

By

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CHAPTER I

INTRODUCTION

Problem Situation

Each year the Buenos Aires Metropolitan Region receives over two million tons of fresh fruits and vegetables. Most of the supply comes from producing regions throughout the country but some tropical and off-season crops are imported from neighboring countries. This tonnage is received and distributed by twenty-three wholesale markets. Over eight million consumers in the metropolitan area as well as many interior cities and towns are served by this wholesaling system. Some of the wholesale markets have been recently built, but most of them were established many years ago and operate in old facilities unsuited for modern produce handling. Important wholesale markets, including the largest one, the Abasto Proveedor Market, are located in the center of the city in heavily congested areas which lack the necessary parking facilities.

Problems of urban development and traffic congestion developed with the growth of population, which passed from 700,000 inhabitants in 1891 (date of inauguration of the Abasto Proveedor Market) to more than eight million in 1970. The problems of traffic congestion became more acute during the 1960s because of the very rapid expansion

of private car transportation and of bus services. Since most of the wholesale markets located in populated urban areas lacked space for expansion, many wholesalers have converted old residences into warehouses where they carry on their business. Logistical inefficiencies and aesthetic problems developed in and around the markets. Bars, restaurants and warehouses for different market-related activities spread into the surrounding areas. Since retailers' vehicles have to be loaded and unloaded adjacent to the wholesale facilities, product wastage accumulates in the streets during the periods of market operation.

One of the main features of the food distribution system in the Buenos Aires Metropolitan Area is that the number of retail outlets has apparently increased at the same pace as population while historical trends show a relative reduction in the number of retail stores in other countries. The great number of middlemen plus the widespread feeling that wholesalers and retailers were taking advantage of spatial oligopolistic positions has generated an anti-middleman mentality. Spatial oligopolistic positions were brought about by the lack of space for expansion in old wholesale facilities and by the slow rate of growth of building construction due to legislation freezing urban housing rents. The leaders of the community claimed that middlemen were taking advantage of both consumers and producers whenever retail prices rose or farm prices declined without paying due attention to supply and demand conditions. Thus, middlemen became the scapegoat for the deteriorating income position of wage earners after 1955, that had actually been brought about by contractionary government policies attempting to drastically reduce the annual rate of inflation and to improve the balance of payments. Several attempts by the government



to control retail prices or to enforce fixed marketing margins failed to improve the situation not only because the government lacked the means to enforce it effectively but also because this legislation left the structure of the industry unchanged and did nothing to help producers to get organized in order to increase their bargaining power.[1]

The structure of produce retailing and wholesaling forces a large number of low volume transactions between retailers and wholesalers and a substantial volume of transactions between primary and secondary wholesale operators. On the average, each of about 23,000 retailers is serving only 300 people in the Federal District and 400 people in the rest of the Metropolitan Region. This small-scale structure of retailing is associated with a fragmented wholesale system which includes several layers of wholesalers (receivers, jobbers, truckers) along the marketing channels. Produce wholesaling is characterized by a complex structure: there are four specialized wholesale market facilities, two auction markets where fresh fruits and vegetables are sold by description and nineteen broad line produce wholesale markets. However, most of the largest receivers who present a high degree of commodity specialization, are located outside wholesale market areas. This structure has brought about other undesirable consequences: a difficult price formation process, because of the large number of transactions taking place in different

---

[1] D. K. C. Comercialización, "Un Modelo de Competencia Intertipo para la Comercialización Masiva de Alimentos en el Area Metropolitana de Buenos Aires," Buenos Aires, 1968.

places at different times and little price transparency of transactions for most products.

Though the government has recurrently resorted to different forms of control on food market operations, two attempts to influence the structural characteristics of the food business were made during the 1960s. First, several pieces of legislation to promote the development of supermarkets were enacted.[1] Second, the decision to build a new central wholesale market for the whole Buenos Aires Metropolitan Region was taken upon recommendation of a French technical consulting mission.

However, the convenience of this last decision has been greatly questioned by the business community who has raised two main questions. First, will this new market reduce marketing costs? Second, if distribution costs are actually reduced, will the benefits be passed on to consumers and farmers?

Fresh fruits and vegetables are important items in the Argentine diet. A survey made by the National Development Council (CONADE)[2] in 1965 showed that food expenditures represented 61.1 percent of the family income for the lowest socio-economic group[3]

---

[1]See Eduardo Trigo, "Structural Changes in the Food Retailing Market in the Buenos Aires Metropolitan Region of Argentina During the 1960-1970 Decade" (unpublished Ph.D. dissertation, University of Wisconsin, 1972), pp. 77-85.

[2]Consejo Nacional de Desarrollo (CONADE), "Encuesta de Consumo de Alimentos en la Capital Federal y Gran Buenos Aires," Buenos Aires, 1968.

[3]Socio-economic levels were determined by considering income and occupational and educational levels of the family head.

and 16.9 percent for the highest socio-economic group. Expenditures for fresh fruits and vegetables represented 15.2 percent of total food expenditures for the lowest socio-economic group and 22.0 percent for the highest socio-economic group. This gives a clear indication of the potential beneficial impact of a reduction in food retail prices on low income consumers. However, both low and high income consumers will benefit from a reduction in produce prices. High income groups, who already allocate a large proportion of their food expenditures to fresh fruits and vegetables, will mainly benefit from the price decline without significantly increasing the quantity demanded. Low income groups will benefit both from a lower level of prices and a higher level of consumption.

Alternative Strategies to Solve the Problem

Different and conflicting approaches to solve the problem have been advanced: one position, supported by the Buenos Aires Central Market Corporation (CMCBA) claims that one new central wholesale market substituting for the present twenty-three wholesale facilities would solve the overall problem and achieve several economic objectives, namely, price transparency of transactions, reduced prices to consumers and higher prices to producers. There is also the claim that the New Central Market would increase agricultural productivity and would benefit international trade.[1] Price transparency of transactions would be achieved by physically concentrating

[1] Corporación del Mercado Central de Buenos Aires (CMCBA), Descripción del Proyecto del Mercado Central de Buenos Aires, Buenos Aires, Mayo 1970.

buyers and sellers in one place. Under this scheme, it is claimed that cost reductions would be obtained by the elimination of a significant number of wholesalers and the adoption of more efficient handling methods.

Another position, supported by people in the trade and by some professionals, is that wholesale distribution markets cannot be eliminated without causing a major disruption of the distribution system. They argue that elimination by law of distribution markets would lead to more undesirable distribution procedures (truck jobbers), unless either the structure of retailing or the procurement practices of retailers were modified. It is their view that price transparency of transactions could not be achieved without grading, package standardization and an efficient communication system. To the extent that a new central market would reduce marketing costs, they observe that the difference between lower costs and prices would be internalized by distributors without being passed on to consumers and/or producers. They believe that distribution markets fulfill an economic function under the present structure of retailing, and priority should be given to grading, package standardization and market information as a means of improving market performance. While this group does not deny the need to build new central markets, they stress the need of concurrent and complementary changes throughout the marketing system. They also call attention to the importance of studies that should be undertaken before making decisions and on the

lack of personnel trained to carry out research in the field of agricultural marketing.[1]

Objectives of the Study

The main questions raised by the decision to build a new central wholesale market serving the whole Buenos Aires Metropolitan Region are the following:

Will the new wholesale facility reduce marketing costs?

Will the projected new central wholesale market be the least-cost solution to the existing problems?

If the wholesale facility actually helps to reduce distribution costs, who is going to capture those benefits?

Moreover, how is the operation of the projected New Central Market (or any other wholesale facility arrangement that can be devised) going to affect the different market participants?

Is the new wholesale market going to be built solely as a solution to the problems brought about by the evolution of the commercial structure, or is it intended to serve as a policy instrument within a broader, longer-term marketing program attempting to influence the direction of change of the commercial structure to achieve some development goals?

In trying to give answers to some of these questions, this research effort has been centered around three main objectives:

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[1]Asociación Productores de Frutas Argentinas, Letter to the Secretary of Agriculture, Dr. Lorenzo Raggio, dated in Buenos Aires on November 28, 1969; also Jorge A. Bovino, Member of the Citrus National Advisory Committee, Letter to the President of that Committee, Dr. Lorenzo A. Raggio, dated in Buenos Aires on November 1969.

1. To describe and analyze the urban distribution system for fresh fruits and vegetables in the Buenos Aires Metropolitan Area;
2. To make a preliminary estimation of how the projected new central wholesale market and an alternative wholesale facility arrangement would affect produce marketing costs; and
3. To identify issues and needs for future analyses in order to provide relevant information for more refined public decisions on fresh fruit and vegetable marketing policies.

A Framework of Analysis and Reference

This study attempts to make a preliminary assessment of how urban distribution costs for fresh fruits and vegetables (Cd) would be affected by the operation of a single central wholesale market and by an alternative wholesale facility arrangement. A framework of analysis showing the basic functional relationship between the different variables that directly or indirectly affect produce distribution costs is presented below. It will also serve as a framework of reference for the reader to place the descriptive analysis of different variables within the broader context of the study. Urban produce distribution costs, the cost of marketing fruits and vegetables from their arrival to wholesale market facilities until they are delivered to the retail shops, are broadly defined to include direct market facility costs (Od), the indirect operational costs (Oi) that are influenced by the structural characteristics of produce wholesaling and the social costs (Cs) brought about by the

locational characteristics of produce wholesale market facilities (Equation 1).

$$Cd = f(Od, Oi, Cs) \quad (1)$$

Direct market facility costs (Od) are made up of rents and other overhead costs and are a function of the size of the investment committed to wholesale market facilities (I) and the rate of interest reflecting the social value of capital (i) (Equation 2).

$$Od = f(I, i) \quad (2)$$

The size of the investment in wholesale market facilities will depend on the volume of fresh fruits and vegetables flowing through wholesale markets (V) and the degree of technological development in the design, construction and operation of wholesale market facilities (Z) (Equation 3).

$$I = f(V, Z) \quad (3)$$

The volume of fresh fruits and vegetables flowing through wholesale markets depends on the per capita consumption of fresh fruits and vegetables (C/N), the size of population in the area served by the wholesale distribution system (N) and the structural characteristics of produce retailing (Rs) (Equation 4).

$$V = f(C/N, N, Rs) \quad (4)$$

The per capita consumption of fresh fruits and vegetables is a function of the price of fresh fruits and vegetables relative to the price of other food items (Pfv), the per capita income (Y/N) and the structure of employment in the Region (E) (Equation 5).

$$C/N = f(Pfv, Y/N, E) \quad (5)$$

The size of indirect operational costs depends on how the design of wholesale facilities and the organization of produce wholesale distribution affects retailers' procurement costs (Rp), handling costs (Ch), the cost imputed to the time spent by truckers to off-load (Tu) and intra-urban transportation costs brought about by transactions between wholesale operators (Ti) (Equation 6).

$$Oi = f(Rp, Ch, Tu, Ti) \quad (6)$$

Retailers' transportation costs depend on the structural characteristics of produce retailing (Rs), the number of wholesale market facilities (Wnm), the locational and traffic suitability of wholesale markets (Wlt)[1] and the mode of transportation of produce purchases made by retailers (Tm) (Equation 7).

$$Rp = f(Rs, Wnm, Wlt, Tm) \quad (7)$$

Handling costs are a function of the completeness and flexibility of wholesale market facilities (Wcf),[2] that may constitute a restriction on the use of some handling techniques, and on the wage and interest rates (w and i, respectively) that should be taken into account to adopt handling techniques using production factors in

---

[1]The locational and traffic suitability will depend on: (1) the accessibility to highways and the availability of rail connections and (2) the easiness of access to the wholesale stalls and exits from the wholesale facility.

[2]The criterion of completeness and flexibility of physical facilities takes into account the availability of space for parking, display, unloading of vehicles, product storage and for expansion of wholesale facilities.

proportions that reflect their relative costs, subject to the constraints imposed by the design of wholesale facilities (Equation 8).

$$Ch = f(Wcf, w, i) \tag{8}$$

The cost imputed to the time that truckers bringing produce into the Region must spend to off-load depends on the locational and traffic convenience of wholesale market facilities (Wlt), that influences the amount of time spent by truckers to reach and get into wholesale market facilities; and on the completeness and flexibility of wholesale market facilities (Wcf), that affects the time spent by truckers to off-load directly through the availability of space and facilities to unload produce, and indirectly acting as a restriction on the handling techniques that can be adopted (Equation 9).

$$Tu = f(Wlt, Wcf) \tag{9}$$

Intra-urban transportation costs brought about by transactions between produce wholesalers is a function of the number of wholesale market facilities (Wnm) and the locational and traffic convenience of wholesale markets (Wlt) (Equation 10).

$$Ti = f(Wnm, Wlt) \tag{10}$$

The number of wholesale markets (Wnm) depends on the size of area (A), the locational characteristics of the population in the area (Nl) and the structural characteristics of produce retailing (Rs) (Equation 11).

$$Wnm = f(A, Nl, Rs) \tag{11}$$

Social costs are a function of the number of wholesale market facilities (Wnm), that will affect the process of price formation and of their locational and traffic convenience (Wlt) that will affect both market and non-market participants (Equation 12).

$$Cs = f(Wnm, Wlt) \tag{12}$$

Finally, an equation summarizing the variables that affect urban produce distribution costs is presented below:

$$Cd = f(Pfv, Y/N, E, N, Nl, A, Rs, Tm, Wnm, Wlt, Wcf, Z, w, i) \tag{13}$$

Most of these independent variables are predetermined variables. We will be concerned in assessing their value at present and the expected future changes. Some of the variables that can be used as policy instruments to influence distribution costs and the evolution of the commercial structure are the structural characteristics of produce retailing (Rs), the mode of transportation of produce purchases made by retailers (Tm), the number of wholesale market facilities (Wnm), the locational and traffic suitability of wholesale markets (Wlt) and the completeness and flexibility of the wholesale market facilities (Wcf). Different combination of these variables can be used to affect the organization of produce distribution depending on the policy objectives, the scope of the program and the longer-run underlying goals of society.

Organization of the Research

The description and analysis of the existing distribution system for fresh fruits and vegetables is largely based on secondary

data. The bulk of such information has been produced by several consulting firms under contract with the Buenos Aires Central Market Corporation.

A survey of produce retailers by Guillermo Bravo and Associates[1] produced very valuable information. The process of entry into the food retailing business of the larger-scale, broad product line self-service stores was analyzed and evaluated by Eduardo Trigo.[2] The information generated by the Bravo survey was supplemented by twenty-seven in-depth interviews with produce retailers and series of informal interviews with wholesalers and retailers in order to obtain a first-hand feeling on the procurement problems faced by retailers handling fresh fruits and vegetables.

Though this study certainly enjoyed the advantage of having a substantial amount of readily available secondary information on produce wholesalers, there were two main problems: First, a census and several surveys of produce wholesalers, made before this study started, precluded a new survey of wholesale handlers in fresh fruits and vegetables having any chance of success. Second, a problem of inconsistency between different sources of information had to be overcome.

An additional problem appeared during the development of the research. A study of broad product line wholesale markets having

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[1]Guillermo Bravo y Asociados, "Encuesta a Comerciantes Minoristas de Frutas y Hortalizas," Buenos Aires, Enero-Febrero, 1971.

[2]Trigo, op. cit.

the objective of assessing pricing efficiency and measuring wholesalers' marketing margins in apple and pear trade, had to be interrupted when the government established fixed marketing margins by decree. However, the limited data that were gathered proved to be very useful in evaluating price relationships among and within markets.

Cost comparisons of different wholesale facility arrangements were made by simple budgeting procedures based on the information produced by several consulting firms under contract with the Buenos Aires Central Market Corporation, by different government offices and by a private firm in the real estate business.

The thesis has been organized in the following manner:

Chapter II presents a general description of conditions external to the urban food distribution system with some assessment of changes that will affect the future organization and operation of the system. This chapter provides information on the size of area (A), the per capita consumption of fresh fruits and vegetables (C/N), the size and location of population (N and Nl, respectively), alternative projections of population growth and of the volume of fresh fruits and vegetables flowing through wholesalers (V), and per capita income (Y/N) and employment (E) in the Buenos Aires Metropolitan Area.

Chapter III is a description and analysis of food retailing with a more detailed treatment of the structural characteristics of produce retailing (Rs) and related procurement costs (Rp), practices (Tm) and problems.

Chapter IV contains a description and analysis of fresh fruit and vegetable wholesaling, with particular attention to the number of wholesale market facilities (Wnm), their locational and traffic suitability (Wlt) and the related institutional complex, product flow patterns, the organizational characteristics of private sector wholesalers and some aspects of market performance.

Chapter V presents a more detailed discussion of the issues raised by the decision to build a new central wholesale market, anticipating how indirect operational costs (Oi) and social costs (Cs) could be affected by different wholesale facility arrangements.

Chapter VI summarizes a cost comparison of different wholesale facility arrangements, trying to give answers to some of the issues raised in the previous chapters through the estimation of direct market facility costs (Od), produce retailers' transportation costs (Rp) and the size of the investment (I) in the different wholesale facility arrangements.

Chapter VII constitutes an attempt to put the conclusions of Chapter VI in perspective, analyzing the role of the new wholesale facility in the context of a more comprehensive marketing program and suggesting the studies that may be needed for more informed public decisions affecting the organization and performance of produce markets.

CHAPTER II

SOME ECONOMIC CHARACTERISTICS OF THE BUENOS AIRES METROPOLITAN AREA AND ITS PRODUCE SUPPLYING REGIONS

The objectives of this chapter are: first, to identify the levels of per capita consumption of fresh fruits and vegetables in the Buenos Aires Metropolitan Area; second, to describe the economic characteristics of the Buenos Aires Metropolitan Area that will influence the future demand for fresh fruits and vegetables and the volume of produce that will flow through wholesale markets; and third, to present the main characteristics of the produce supplying regions that may affect the organization of fresh fruit and vegetable distribution in the Buenos Aires Metropolitan Area.

The Buenos Aires Metropolitan Area[1] is composed of two main areas:

1. The Federal District, the central core of the urbanized area and the site of the national government; and

[1]Only the information that is considered to be relevant for the purposes of the study is presented. For a more detailed description of the Buenos Aires Metropolitan Area see Trigo, op. cit.

2. Greater Buenos Aires, a suburban area constituted by nineteen "partidos"[1] from the Province of Buenos Aires[2] (Figure II-1).

The Buenos Aires Metropolitan Area, with a population of 8,350,000 inhabitants in 1970, ranks fourth by its size among the cities of the world behind New York, Tokyo and Paris. Since colonial times, Buenos Aires has been the cultural and political capital of Argentina. As the City has increased in absolute size and relative importance there has tended to be growing concentration of wealth and income flows to the Buenos Aires urban-industrial complex. Buenos Aires has become a large and dominating part of the Argentine economy with 53 percent of the people employed, 38 percent of the industrial firms and 56 percent of the value of production. This has led to increasing pressures for government policies to improve the relative economic and social positions of other regions of the country. However, improvements in the Buenos Aires food supply system could favorably affect a sizable percentage of the total national population.

Food Expenditures and Consumption Patterns

The levels of consumption of fresh fruits and vegetables must be considered within the framework of the level and composition of total consumer expenditures. Food expenditures of a typical industrial worker family, composed of the parents and two children,

[1]A "partido" is an administrative unit whose municipal government is located in the main city or town of the unit. This unit of government closely corresponds to a county in the United States.

[2]The National Planning System has defined a new economic unit, the Buenos Aires Metropolitan Region, by incorporating six more "partidos" from the Province of Buenos Aires to the Buenos Aires Metropolitan Area.

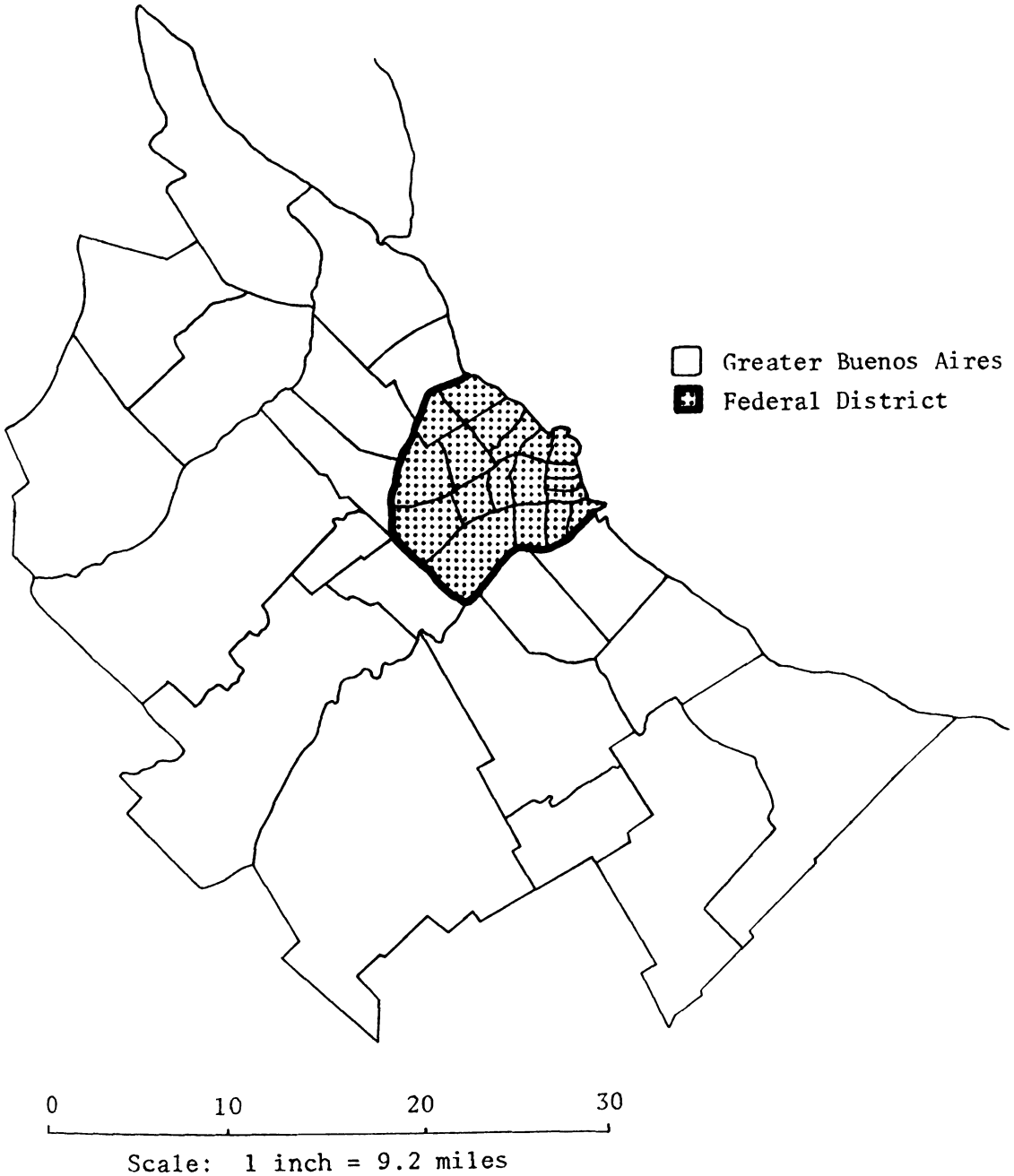


Figure II-1.--The Buenos Aires Metropolitan Region Showing the Federal and Greater Buenos Aires Districts.

represented 59.20 percent of total expenditures in 1960 according to the cost of living survey undertaken by the National Institute of Statistics and Census (INEC) (Table II-1). This figure, however, reflects the level of expenditures of the low income segment of the population. A survey on consumption done by CONADE in 1965 provides information on the percentage of income spent on food by different socio-economic levels (Table II-2). The distribution of food expenditures between food products by socio-economic levels is presented in Table II-3.

Families in the lowest socio-economic level spend 61 percent of their income on food. According to what could be expected, the consumption of bread and cereals declines and that of fresh fruits and vegetables increases, respectively, as a function of increasing income.

Consumption of Fresh Fruits and Vegetables

There are three main sources of information with regard to the per capita consumption of fresh fruits and vegetables: (1) The survey made by the National Institute of Statistics and Census (INEC) during the whole year of 1960 covering 1,419 families living in the Federal District. (2) The survey undertaken by CONADE during the period September 25-December 5, 1965, covered about 1,200 families of the Federal District and Greater Buenos Aires. Answers were classified by socio-economic levels taking into account the income level of the family and cultural and occupational position of the head of the family. The values produced by this survey were adjusted

TABLE II-1.--Distribution of Expenditures by a Typical Industrial Worker Family in 1960.

Expenditure Items	Percentage of Total
Food	59.20
Clothing	18.70
Housing	5.10
Transportation	2.51
Recreation	2.00
Medical Services	1.49
Education	1.46
Other	9.54

Source: INEC, Cost of Living in the Federal District, 1960.

TABLE II-2.--Percentage of Income Spent on Food by Different Socio-economic Levels in the Federal District and Greater Buenos Aires in 1965.

	Socio-economic Levels[a]						
	1	2	3	4	5	6	Average
% of Income Spent on food	61.1	49.7	36.3	31.0	24.1	16.9	39.6

Source: CONADE, "Encuesta de Consumo de Alimentos en la Capital Federal y Gran Buenos Aires," Buenos Aires, 1968.

[a]Socio-economic levels are ordered from lower to higher levels.

TABLE II-3.--Percentage Distribution of the Food Expenditures by Socio-economic Level of Families in the Buenos Aires Metropolitan Region of Argentina, 1965.

Product Grouping	Socio-economic Levels[a]						Average
	1	2	3	4	5	6	
Bread and Cereals	13.6	11.4	10.4	9.3	10.3	7.3	11.0
Meat, Fish and Sausages	33.5	37.6	37.4	37.7	35.1	39.5	36.7
Milk and Dairy Products	11.1	11.2	11.9	12.2	12.4	10.5	11.7
Fruits and Vegetables	15.2	16.2	17.5	17.4	18.1	22.0	16.9
Beverages	11.1	10.0	8.8	7.9	7.1	5.8	9.2
Other	13.5	13.6	14.0	15.5	17.0	14.9	14.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Trigo, op. cit.

[a]Socio-economic levels are ordered from lower to higher levels.

by the Central Market Corporation technical staff in order to avoid the seasonality bias. (3) The apparent consumption of vegetables in the Buenos Aires Metropolitan Area was estimated by researchers of the Agronomy School of the University of Buenos Aires. The method employed consisted first, in taking the records of the volume of produce arriving in the specialized markets (potatoes, garlic and onions) and in one of the main full-line concentration markets in the Federal District (the Dorrego Market) during the period January-December, 1970; second, in estimating the share of the Dorrego Market in the total volume of produce introduced into the area and calculation of total volume introduced; third, estimation of the population in the area of influence of the concentration markets in the Buenos Aires Metropolitan Area; finally, the per capita consumption figures were calculated.[1] The figures produced by the above-mentioned sources of information are reproduced in Tables II-4, II-5 and II-6.

The figures produced by the National Institute of Statistics and Census survey in 1960 were used by the Central Market Corporation to make projections of future consumption. Several reasons were advanced to explain this decision. First, use of these figures that were low would avoid overexpansion of a new market facility. Second, the figures of the CONADE survey were adjusted to avoid seasonality with data from only one market and were considered less reliable. Thirdly, the structure of consumption emerging from both sources is similar in the sense that different groups of products have similar

[1] M. Barreiro y J. C. Limongelli, "Análisis de Aprovisionamiento Hortícola de la Ciudad de Buenos Aires," Tecnología Alimentaria, Nos. 28-29, July-October 1971; and 30, November-December 1971.

TABLE II-4.--Annual per Capita Consumption of Fresh Fruits in the Buenos Aires Metropolitan Area.

Product	Sources		
	CONADE 1965		INEC 1960
	Original	Adjusted[a]	
	kilograms/capita		
Bananas	18.1	19.3	17.0
Apples and pears	23.6	27.0	19.5
Apples	23.2	24.1	16.1
Pears	0.4	2.9	3.5
Citric Fruits	49.7	37.0	22.4
Oranges	31.2	19.8	12.5
Grapefruits	9.4	6.8	1.3
Tangerines	2.3	5.0	7.2
Lemon	6.8	5.4	1.4
Drupaceous Fruits	1.6	1.3	4.1
Apricots	0.8	0.4	0.3
Peaches	0.3	0.3	2.4
Prunes	0.5	0.6	1.4
Grapes	--	0.7	6.3
Pineapples	3.7	1.8	0.7
Other	0.7	0.7	3.1
Total	97.4	87.8	73.1

Source: SCET COOP-MERCASA, "Evaluación del Consumo de la Zona de Influencia del Mercado Central," Documento BH, Unpublished Report, Buenos Aires, April, 1970.

[a]Adjusted by the Buenos Aires Central Market Corporation to avoid seasonality bias.

TABLE II-5.--Annual per Capita Consumption of Fresh Vegetables in the Buenos Aires Metropolitan Area.

Product	Sources			
	CONADE 1965		INEC 1960	FAV-UNBA 1970
	Original	Adjusted[a]		
	kilograms/capita			
Potatoes	77.9	63.7	73.5	50.4
Sweet potatoes	7.7	7.7	8.9	6.2
Onions	14.7	8.3	8.7	13.3
Garlic	0.2	0.4	0.2	2.0
Leek	1.4	0.9	0.7	2.3
Tomatoes	13.7	11.1	14.9	21.6
Peppers	2.0	5.4	2.6	3.0
Carrots	7.4	5.6	3.6	11.4
Garden beets	2.2	1.6	1.2	2.6
Summer squash	5.4	3.4	3.0	6.1
Squash pumpkin	5.0	5.6	5.1	3.5
Lettuce	14.3	12.4	8.7	20.4
Chard	10.3	8.8	10.2	11.9
Spinach	3.7	2.2	1.6	1.1
Cabbage	0.9	0.7	1.6	2.6
Cauliflower	1.2	1.8	1.0	1.5
Celery	0.9	1.2	0.7	0.8
Fennel	0.4	0.2	0.6	0.3
Parsley	2.4	2.4	2.7	
Green peas	7.7	7.7	8.9	6.2
Beans	1.3	0.4	1.6	4.1
Artichokes	4.7	0.9	0.9	0.7
Sweet corn	1.3	0.4	1.6	4.1
Radishes	2.1	1.5	0.8	1.4
Eggplant	0.7	2.6	1.3	1.9
Others	29.7	29.7	15.0	
Total	216.6	183.8	173.7	172.4

Sources: CONADE, "Encuesta de Consumo de Alimentos en la Capital Federal y Gran Buenos Aires," Buenos Aires, April 1968; CMCBA, El Consumo de Frutas, Hortalizas y Pescado en el Area Metropolitana, Buenos Aires, 1970; M. Barreiro y J. C. Limongelli, "Análisis del Aprovisionamiento Hortícola de la Ciudad de Buenos Aires," Tecnología Alimentaria, 28-29, Julio-Octubre 1971; SCET COOP-MERCASA, "Evaluación del Consumo de la Zona de Influencia del Mercado Central," Documento BH, Unpublished Report, April 1970.

[a]Adjusted by the Buenos Aires Central Market Corporation to avoid seasonality bias.

TABLE II-6.--Annual per Capita Consumption of Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area.

Product	Sources				
	CONADE 1965			INEC 1960	
	Original	Adjusted[a]			
	Kgs/capita	Kgs/capita	%	Kgs/capita	%
Fruits	97.4	87.8	32.3	73.1	29.6
Vegetables	216.6	183.8	67.7	173.7	70.4
Total	314.0	271.6	100.0	246.8	100.0

Source: SCET COOP-MERCASA, "Evaluation del Consumo de la Zona de Influencia del Mercado Central," Documento BH, Unpublished Report, Buenos Aires, April 1970.

[a]Adjusted by the Buenos Aires Central Market Corporation to avoid seasonality bias.

weight in total consumption. Also, though the fresh fruit and vegetable per capita consumption figures for the Federal District estimated by the INEC in 1960 may overestimate the actual consumption of the lower income population of Greater Buenos Aires, it was assumed that the differences in per capita consumption of fresh fruits and vegetables between the Federal District and Greater Buenos Aires would fade by 1970. Finally, projections of future consumption made on the basis of the INEC sample would be considered to be provisional until data of a 1970 INEC survey including 2,290 families living in Greater Buenos Aires became available to revise them.[1] However, differences for some product groups are important and deserve comment. The percentage corresponding to each group of products in total per capita consumption is presented in Table II-7. The difference between the INEC and the adjusted CONADE surveys are fairly important for potatoes, tomatoes, citric fruits, apples, pears and grapes. Both 1960 and 1965 were years of oversupply of potatoes, so that lower relative prices for potatoes may have stimulated the quantity demanded. Furthermore, the lower income INEC sample would probably consume more potatoes than higher income residents and with rising incomes there may be some shift from potatoes to other foods. This would help explain the exaggerated weight of potato consumption in the INEC survey. Figures for citric fruits seem to be too low in the INEC survey, since they are lower than the apparent national

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[1] CMCBA, El Consumo de Frutas, Hortalizas y Pescado en el Area Metropolitana, Buenos Aires, 1970 and SCET COOP-MERCASA, "Evaluación del Consumo de la Zona de Influencia del Mercado Central," Documento BH, Unpublished Report, Buenos Aires, 1970.

TABLE II-7.--Percentage and Total Annual per Capita Consumption of Major Product Grouping of Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area.

Product	Sources			
	CONADE 1965 (Adjusted)[a]		INEC 1960	
	Total	%	Total	%
	kgs		kgs	
Potatoes and sweet potatoes	71.4	26.3	82.4	33.4
Garlic and onions	8.6	3.7	8.9	3.6
Tomatoes	11.1	4.1	14.8	6.0
Lettuce, chard and spinach	23.4	8.6	20.5	8.3
Other vegetables	69.5	25.6	47.2	19.1
ALL VEGETABLES	184.0	67.8	173.8	70.4
Bananas	19.3	7.1	17.0	6.9
Citric fruits	37.0	13.7	22.3	9.0
Apples and pears	27.0	10.0	19.5	7.9
Grapes			6.3	2.5
Other fruits	3.8	1.4	8.0	3.3
ALL FRUITS	87.1	32.2	73.1	29.6
ALL FRUITS AND VEGETABLES	271.2	100.0	246.9	100.0

Sources: CONADE, "Encuesta de Consumo de Alimentos en la Capital Federal y Gran Buenos Aires," Buenos Aires, 1968; INEC 1960 Survey of 1,419 families living in the Federal District.

[a]Adjusted by the Buenos Aires Central Market Corporation to avoid seasonality bias.

consumption.[1] On the other hand, figures of per capita consumption of apples and pears seems to be too high in the adjusted CONADE survey.[2] However, the adjusted CONADE figures may constitute a better basis to make projections of future consumption than the 1960 INEC figures, not only because the CONADE figures are estimates of consumption in a more recent date, but also because the INEC samples has generated information on the consumption levels of a relatively low income segment of the population of the Buenos Aires Metropolitan Area and may understate the actual average per capita levels of consumption of the whole population.

It is also convenient to emphasize the limitations of the available information. The figures presented account for levels of consumption of fresh fruits and vegetables during short periods of time. Changes in supply affect prices of individual commodities and through the substitution effect bring about changes in demand for other commodities. More research is badly needed in this area of food consumption. In any case, the levels of per capita consumption of fresh fruits and vegetables are fairly high and exceed consumption levels in the United States, even when adding the higher consumption of processed fruits and vegetables to the latter. Annual per capita consumption of fruits and vegetables in the United States has been estimated as 83.8 and 98.2 pounds of fresh fruits and fresh

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[1] 40.5 kgs. per capita and per year according to the Argentine Fruit Producers' Association.

[2] National apparent consumption would be 13.5 kgs. per capita and per year according to the figures provided by the Argentine Fruit Producers' Association.

vegetables, respectively, and 97.5 and 106.1 fresh-equivalent pounds of processed[1] fruits and processed vegetables, respectively, in 1966, adding up to 385.6 pounds or 175 kilograms.[2] This compares with 250 to 270 kilograms per capita in the Buenos Aires Metropolitan Area.

Factors Affecting Trends in Demand for Food and Marketing Services

Population Characteristics

The Federal District and Greater Buenos Aires present substantial differences with respect to their urban characteristics. The Federal District, with an area of 79 square miles and 3 million inhabitants, is characterized by a high density of population and a predominance of multi-family housing units. The urbanization response to population pressures is by expanding vertically, since not only are new lands not available but there is also a felt need for more green space. Greater Buenos Aires, with a much larger area (631 square miles) and 5.4 million inhabitants, shows a much lower population density and expands horizontally, single family housing units being the dominant element of the suburban configuration.

The concentration of population in the Buenos Aires Metropolitan Area has been steadily increasing during the last century, passing from 13.4 percent of the total national population in 1869 to 35.7 percent in 1970. This trend must be given particular consideration because population is the variable that together with the

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[1] All forms--canned, frozen and dried.

[2] OECD, Food Marketing and Economic Growth, Paris, 1970, p. 39.

structural changes taking place in food consumption and distribution must be taken into account to estimate the volume of fresh fruits and vegetables that will flow through wholesale markets.

The rapid growth of the Buenos Aires Metropolitan Area has been due in part to internal migration. During the period 1914-1947, the Argentinian Provinces showed a rate of population growth that was consistent with the birth and death rates, but the rate of growth of Greater Buenos Aires already showed a trend for concentration around the Federal District. During the period 1947-1960 spatial redistribution of population constitutes the dominant feature in Argentine demography. The average rate of growth was 2 percent for the country as a whole and 3 percent for the Buenos Aires Metropolitan Area. But while population in the Federal District remained stable, population in Greater Buenos Aires showed a phenomenal annual average rate of growth of 5.53 percent (Table II-8). The annual average rate of growth of population in Greater Buenos Aires declined to 3.51 percent in the 1960-1970 period, which is still relatively high. The increase of population in Greater Buenos Aires in absolute terms in the 1960-1970 period is by far the highest among the Argentine Provinces and ranks second in percentage terms to the Province of Santa Cruz, which is the least populated province in Argentina.

Thus, Greater Buenos Aires constitutes the main growing point in Argentina and is able to attract important flows of domestic migrants, while the Federal District shows a stabilized population. If these trends are sustained we can expect that the overall increase

TABLE II-8.--Total Population of Argentina and Population by District in Selected Census Years.

District	Census Years				Average rate of growth of population between census years (%o)		
	1970	1960	1947	1914	1960-70	1947-60	1914-47
	Thousands						
TOTAL	23,364	20,013	15,893	7,885	15.4	17.2	20.4
Federal District	2,972	2,967	2,981	1,576	2.0	0.4	18.7
Buenos Aires	8,775	6,766	4,274	2,067	25.8	33.9	21.1
Greater Buenos Aires	5,380	3,772	1,741	458	35.1	55.3	35.4
All other "partidos"	3,394	2,994	2,533	1,609	12.6	12.5	13.5
Catamarca	172	168	147	101	2.4	10.0	11.4
Cordoba	2,060	1,754	1,498	735	16.1	11.8	20.7
Corrientes	564	533	525	347	5.6	1.1	12.4
Chaco	567	543	430	46	4.2	17.4	48.8
Chubut	190	142	92	23	28.6	31.9	36.4
Entre Rios	812	805	787	425	0.8	1.7	18.1
Formosa	234	179	114	19	26.9	33.3	43.0
Jujuy	302	242	167	78	22.4	27.5	22.1
La Pampa	172	159	170	101	8.0	4.9	15.2
La Rioja	136	128	111	80	6.1	11.2	9.9
Mendoza	973	824	588	278	16.6	25.1	21.7
Misiones	443	361	246	54	20.3	28.4	39.0
Neuquen	155	110	87	29	33.8	17.6	30.4
Rio Negro	263	193	134	42	30.4	27.0	31.6
Salta	510	413	291	142	21.0	26.0	20.8
San Juan	384	352	261	119	8.7	22.3	22.6
San Luis	183	174	166	116	5.1	3.9	10.6
Santa Cruz	84	53	43	10	45.9	15.7	37.8
Santa Fe	2,136	1,885	1,703	900	12.5	7.6	18.7
Santiago del Estero	495	477	479	262	3.9	0.5	17.8
Tucuman	766	774	593	333	1.0	19.8	17.0
Tierra del Fuego Antartida e islas del Antlantico Sur[a]	16	11	5	2	33.1	56.9	20.4

Source: INEC, 1970 National Census on Population, Families and Housing.

[a]Martin García Island included in this district.

of population in the Buenos Aires Metropolitan Area will take place in Greater Buenos Aires in the future.

Two projections have been made with respect to population growth: one, taking the historical rate of growth ("natural" rate of growth hypothesis), the other assuming state intervention to foster economic growth in the rest of the country in order to slow down the rate of internal migration from the rest of the country to the Buenos Aires Metropolitan Area (contrived growth hypothesis). Projections for both hypotheses are shown in Table II-9.

TABLE II-9.--Alternative Projections of Population Growth in the Buenos Aires Metropolitan Area.

Year	Natural Growth Hypothesis (Inhabitants)	Contrived Growth Hypothesis (Inhabitants)
1970	8,350,000	8,350,000
1980	10,420,000	9,820,000
1990	12,730,000	11,540,000
2000	15,700,000	13,410,000

Sources: National Census 1960 and 1970; CONADE, Organización del Espacio de la Región Metropolitana Esquema Director Año 2000, Buenos Aires, 1969; CMCBA, El Consumo de Frutas, Hortalizas y Pescado en el Area Metropolitana, Buenos Aires, 1970.

The natural growth hypothesis shows that population would almost double in the Buenos Aires Metropolitan Area during the period 1970-2000. However, as mentioned before, structural changes representing important modifications in incomes, employment, transportation and food retailing will also affect the future demand for fresh

fruits and vegetables and the organization of produce distribution. The structural changes taking place in food retailing that may influence the volume of produce that will flow through wholesale markets will be discussed in Chapter III. We will now consider how changes in income, employment and transportation can influence the patterns of fresh fruit and vegetable consumption and distribution in the Buenos Aires Metropolitan Area.

Income, Employment and Transportation

A cross-section of per capita income levels among families within the Metropolitan Area was estimated in March 1970 by the Highway Planning Department of the Public Works Ministry. The survey included 9,000 families. The Metropolitan Area was divided in 40 different sub-areas: The Federal District in 19 and Greater Buenos Aires in 21. Though the data may not be a good indicator of income levels because responses were not as complete as expected, it can nevertheless be used to show income differentials among the areas.[1] The Buenos Aires Metropolitan Area does not constitute a homogeneous region with respect to income (Table II-10). The central city is an area of middle to high incomes, while in the suburban areas middle and low income families constitute the majority. We can expect that future increases in consumption of fresh fruits and vegetables due to rising per capita incomes will mainly take place in Greater Buenos Aires. Though the total consumption of fruits and vegetables may

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[1] Argentina's national per capita income was estimated by the Central Bank of Argentina as $751.12 in 1969 (constant U.S. $ of 1960).

TABLE II-10.--Income per Family[a] and Percentages of Population Living in Low, Medium and High Income Areas in the Buenos Aires Metropolitan Area of Argentina in 1970.

Income Areas	Average Income	Federal District	Greater Buenos Aires	Whole BAMA
	U$S	- - - - - Percentages - - - - -		
Low	1,942.22	8.78	31.71	23.40
Medium	1,287.04	50.71	60.23	56.78
High	2,849.34	40.51	8.06	19.82
		U$S	U$S	U$S
Average	2,355.69	2,475.23	2,247.53	2,355.69

Source: Ministerio de Obras Publicas de la Nación, Dirección Nacional de Programación y Control, "Estudio Preliminar del Transporte del Area Metropolitana," Buenos Aires, Argentina, 1970, as reported by Trigo, op. cit., pp. 27-28 and 236-37.

[a]In U$S, March 1970.

also increase in the Federal District with rising levels of income, we can anticipate a process of substitution of processed fruits and vegetables for fresh fruits and vegetables, so that the consumption of fresh fruits and vegetables, being already high, may even decline. We conclude that the expected changes in demand due to rising levels of living also suggest that the future increase in total consumption of fresh fruits and vegetables will largely take place in Greater Buenos Aires.

An increase in the demand for processed fruits and vegetables such as dehydrated and frozen potatoes, frozen vegetables and canned fruits and vegetables can also be anticipated with the increasing participation of women in the labor force and rising per capita incomes. While in 1960 the active labor force in the Buenos Aires Metropolitan Region was composed of 26 percent women and 74 percent men; in 1969 these figures were 34.1 percent and 65.9 percent, respectively.[1] Marketing channels for processed fruits and vegetables are likely to by-pass produce wholesale markets, since these are standardized products that can be bought by description. The expected changes in income and employment will increase the demand for convenience foods mainly in the Federal District, tending to reduce the per capita consumption of fresh fruits and vegetables in that area.

The Buenos Aires Metropolitan Region is characterized by an underdeveloped highway infrastructure. Except for a few miles of freeway type highways, the most important traffic arteries are

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[1]Trigo, op. cit., pp. 14-18.

avenues that have been converted to one direction traffic and suffer traffic jams at peak hours. Most streets are narrow and overloaded with motor traffic as a consequence of the spectacular increase in private auto transportation. The number of cars in the Buenos Aires Metropolitan Region increased from 203,752 in 1960 to 639,416 in 1970, an increase of 214 percent. The number of cars in the 1960-1970 period less than doubled in the Federal District, while car numbers increased more than six times in Greater Buenos Aires. In 1970 the number of families per car was 3.7 in the Federal District, 3.9 in Greater Buenos Aires and 3.8 in the Buenos Aires Metropolitan Region.[1]

The suburban railroads, the subways and the bus system make up the public transportation system in the Buenos Aires Metropolitan Area. The bus system is the most important mode of public transportation and is used by 1,333.5 million passengers annually or 64 percent of the total. This percentage may be closer to 70 percent at present since buses substituted for tramways and trolley buses that disappeared from the city.[2] The expansion of the bus system has also contributed to increased traffic congestion.

The implications for our study of the data presented above are two-fold: First, the increased traffic congestion resulting from the car boom and the expansion of the bus service makes more difficult the operation of the central wholesale market facilities

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[1] Ibid., pp. 21-22.

[2] Ibid., p. 25.

located in the inner city. The main market, located close to downtown Buenos Aires, has been forced to rearrange its working schedule to meet the parking regulations of the city and to avoid active market operation at commuting hours. Second, the greater availability of private cars certainly facilitates the expansion of large scale, broad product line retail stores, that necessarily need a larger area of influence than the traditional retail stores to constitute a viable business activity.

Projections of Consumption of Fresh Fruits and Vegetables

On the basis of the INEC figures on per capita consumption of fresh fruits and vegetables in the Federal District in 1960, projections of consumption were made by the Buenos Aires Central Market Corporation considering two different rates of growth of income and of population. The four different projections that result from combining the rates of growth and population were averaged providing single estimates of consumptions for 1975, 1980 and 1990 (Table II-11). With respect to 1970, the total consumption of fresh fruits and vegetables would increase 19 percent by 1975, 32 percent by 1980 and 66 percent by 1990.

Main Characteristics of the Producing Regions Supplying the Buenos Aires Metropolitan Area

Argentina has an extensive land area and wide range of climates and soils, combined with a low population density. Consequently, Argentina produces nearly all its food needs and exports the surplus. Except for some tropical and off-season crops that are imported from

TABLE II-11.--Projected Consumption of Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area in Selected Years.

Product	Projected consumption (tons/year)		
	1975	1980	1990
Potatoes and sweet potatoes	754,000	804,000	974,000
Garlic and onion	88,000	99,000	124,000
Tomatoes	148,000	165,000	204,000
Other vegetables	669,000	749,000	949,000
All vegetables	1,659,000	1,817,000	2,251,000
Banana	174,000	197,000	252,000
Citric fruits	232,000	264,000	340,000
Apples and pears	202,000	231,000	295,000
Other fruits	149,000	169,000	220,000
All fruits	757,000	861,000	1,167,000
All fruits and vegetables	2,416,000	2,678,000	3,358,000

Source: CMCBA, El Consumo de Frutas, Hortalizas y Pescado en el Area Metropolitana, Buenos Aires, 1970.

neighboring countries, most fresh fruits and vegetables come from commercial farms located in specialized producing regions within the country.

The main vegetable supply region for the Buenos Aires Metropolitan Area is the Province of Buenos Aires[1] (Figure II-2), which provides the bulk of the leafy vegetables, 74 percent of the potatoes, 87 percent of the garlic, 21 percent of the tomatoes and 7 percent of the onions.[2] In addition to some other crops (Table II-12), 57 percent of the tonnage of vegetables introduced into the metropolitan market comes from the Province of Buenos Aires. The second main supplier of fresh vegetables is the Province of Santa Fe (Figure II-2), with 12 percent of the total volume received in the Buenos Aires Metropolitan Area.

The proximity of these provinces to the market and the highly perishable nature of many of these products, such as leafy vegetables, are the most important reasons explaining why the provinces of Buenos Aires and Santa Fe are the main suppliers of fresh vegetables for the Buenos Aires Metropolitan Region. It is worth noting that in spite of this nearness to the market whatever sorting (there is no product grading) and packaging is made takes place almost exclusively at the farm level.

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[1]To some extent these districts overlap because of one being an economic unit and the other, a political unit.

[2]Corporación del Mercado Central de Buenos Aires, "Análisis de la Producción de Frutas, Hortalizas y Pescado con Destino al Mercado Central," Unpublished Preliminar Report, Buenos Aires, 1971.

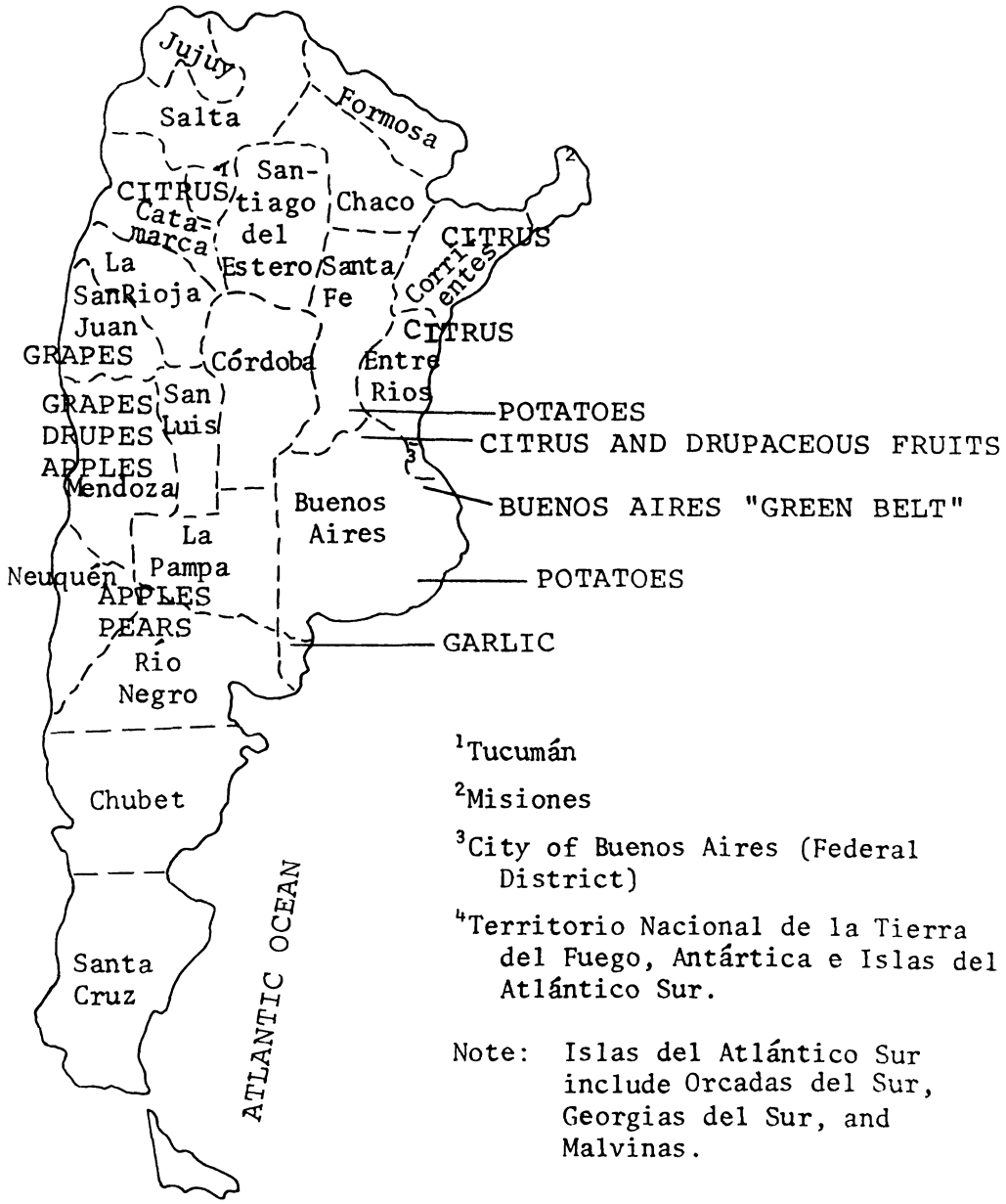


Figure II-2.--Main-Produce Supplying Regions of the Buenos Aires Metropolitan Area.

TABLE II-12.--Market Share of the Province of Buenos Aires as a Supplier of Fresh Vegetables for the Buenos Aires Metropolitan Area.

Product	%	Product	%	Product	%
Cauliflower	97	Garlic	87	Celery	65
Radish	97	Garden beet	87	Green peas	51
Artichoke	95	Sweet corn	87	Summer squash	48
Cabbage	93	Leek	83	Tomatoes	21
Spinach	93	Lettuce	74	Squash pumpkin	17
Fennel	92	Potatoes	74	Sweet potatoes	17
Chard	90	Carrots	69	Pepper	8
				Onions	7

Source: CMCBA, "Análisis de la Producción de Frutas, Hortalizas y Pescado con Destino al Mercado Central," Unpublished Preliminar Report, Buenos Aires, 1971.

The production of fresh vegetables is not scattered throughout the provinces of Buenos Aires and Santa Fe but it is concentrated in locations particularly well suited for the production of each crop when taking into account soils and climatic conditions (Figure II-2). However, regional specialization in the production of fresh vegetables does not make a significant contribution to reduce assembling costs because vegetables are produced in fairly large commercial farms and most producers send their production to wholesale markets on consignment. Sales to rural assemblers are of importance for crops such as onions, garlic, tomatoes, squash and potatoes. Seventy percent of onion sales, half of garlic and tomato sales and one-fourth of potato and squash sales are made to assemblers.[1]

The production of potatoes is concentrated in the southeast of the Buenos Aires Province and the Rosario region in the province of Santa Fe, located 250 and 180 miles, respectively, from the Federal District. Garlic production takes place under irrigation in the south of the province of Buenos Aires, 400 miles from the Federal District. One-fourth of the tomatoes supplied by this province is also produced in the south, while one-third is harvested in the Buenos Aires "green belt" and the rest in other regions of the province (Figure II-2).

Transportation of vegetables is usually made by truck. Rail transportation accounts for 25 percent of the volume of squash supplied in the Buenos Aires Metropolitan Area, 20 percent of the onions and

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[1] CMCBA, "Análisis de la Producción de Frutas, Hortalizas y Pescado con Destino al Mercado Central," Unpublished Preliminar Report, Buenos Aires, 1971.

15, 10 and 5 percent of the sweet potatoes, tomatoes and potatoes, respectively. The leafy vegetables are transported exclusively by truck; all important producers of leafy vegetables own trucks and transport their own production to wholesale markets.

Fruit production is also regionally specialized. Apples and pears are mainly produced in the Rio Negro Valley and in Mendoza. Grapes in the Cuyo region (Mendoza and San Juan), citrus fruits in the Litoral region (Entre Rios, Corrientes and Misiones) and in the North of the country (Tucumán, Salta and Jujuy), peaches, prunes and apricots in the North east of the province of Buenos Aires and in Mendoza and bananas consumed in the Buenos Aires Metropolitan Area are almost exclusively imported (Figure II-2). The specialized fruit producing regions are relatively far from the Federal District. When weighing distances by the market share of each region as a fruit supplier of the Buenos Aires Metropolitan Area, the average distance is close to 600 miles. Fruit transportation is largely made by truck. The share of railroads in fruit transportation is only significant for citrus fruits produced in the northeast region of the country, ranging from 40 to 80 percent of the traffic.

Farms producing fresh fruits and vegetables show a high rate of adoption of new technology when compared with traditional export crops and the "industrial" crops (i.e., sunflower, tobacco and cotton). The most important fruits and vegetables by the levels of production and consumption have had high average annual increases in yields, while the traditional export and extensive crops show more stable yields, during the period 1940/41-1970/71 (Table II-13).

TABLE II-13.--Current Yield Levels and Average Annual Increases in Yields of Selected Fruits, Vegetables, Export and Industrial Crops Taking Place in Argentina During the Period 1940/41-1970/71.

Crop	Current Yield Level Five Years Average 1966/67-1970/71	Average Annual Increases in Yields 1940/41-1970/71	
	(kgs/ha)	(kgs)	%
Oranges	15,416	338	3.83
Grapefruits	13,128	184	2.10
Tangerines	10,074	134	1.36
Lemon	13,302	112	1.12
Apples	12,670	207	1.74
Pears	8,600	- 41	-0.49
Peaches	8,264	107	1.81
Prunes	5,690	63	1.33
Potatoes	11,161	197	2.48
Artichokes	19,040	253	1.93
Common Beans	7,418	195	3.88
Tomatoes	16,980	107	0.70
Garlic	4,896	34	0.78
Onions	14,480	- 57	-0.35
Wheat	1,214	9	0.72
Maize	2,222	14	0.77
Sunflower	802	4	0.54
Tobacco	1,021	1	0.09
Cotton	864	4	0.53

Source: MAG, Dirección Nacional de Economía y Sociología Rural, Series Estadistícas Retrospectivas de las Especies Agrícolas Cultivadas en la República Argentina, Período 1940/41-1970/71.

Fruits are subjected to greater quality classification and standardization than vegetables. Grading and some degree of package standardization exists for apples and pears, thus complying with the quality requirements of the international market.[1] Grading regulations are also available for citrus fruits but not yet enforced. However, large firms have been practicing quality selection for some years and using different commercial brands to make a distinction between different qualities. Selection by size is a common practice and large firms have also resorted to a higher degree of processing in citrus fruits including washing, coloring and waxing of fruit for fresh consumption, and juice production.

The rate of adoption of new technology in the marketing of fresh fruits and vegetables in the producing region level has been slow.

The major innovations have been:

1. The adoption of bin boxes in harvesting which has permitted reduction of harvesting costs. About half of apple producers and packers have adopted this system, but the process of adoption is just starting in citrus production.

2. The important increase in refrigerated warehouses capacity that took place in the period 1965-1970 was mainly concentrated in the producing regions of Río Negro, Neuquén and Mendoza (Table II-14). This has made it possible to store and cool apples and pears immediately after harvesting,

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[1] Fifty percent of the apple production moves into the export market.

TABLE II-14.--Distribution of the Increase in Refrigerated Warehousing Capacity During the Period 1965-1970 Among Selected Argentine Provinces.

Area	Share (%) of Total Refrigerated Warehouse Capacity		Increase 1965-1970
	1965	1970	%
Whole country	100	100	58.6
Río Negro	25	39.2	152
Federal District	32.1	20.4	2
Buenos Aires	19.3	14.6	22
Mendoza	13.7	15.2	78
Neuquén	2.8	5.5	196

Source: Alberto M. Arizu et al., Comercialización de Manzana y su Abastecimiento en la Capital Federal y Gran Buenos Aires, Unpublished Report, Facultad de Agronomía y Veterinaria de Buenos Aires, Buenos Aires, 1971.

contributing to increases in product quality. Also, packing plants can operate during longer periods of time, whereby selection and packing can be postponed, avoiding in this way to pass to the buyer the losses that usually take place when the product is stored already packed.

3. The most modern packing plants are being constructed by the citrus industry. The National Bank will probably make a line of credit available to buy imported processing equipment. There is the perspective that some plants could be operated by small producers on a cooperative basis.

4. The initial adoption of one-way cardboard boxes may have a major impact on the operational efficiency of produce

wholesale markets. Storage of two-way wooden boxes takes a large amount of space that might otherwise be available for product display, selling and storage[1] and makes more difficult the operation of already congested produce wholesale markets. Therefore, the adoption of one-way cardboard boxes may increase the capacity of the existing markets or reduce the space required to move a given volume of fresh fruits and vegetables to a new market.

Summary and Conclusions

The Buenos Aires Metropolitan Area, one of the largest urban conglomerates in the world, is a large and dominating part of the Argentine economy. This had led to increasing pressures for government policies to improve the relative economic and social positions of other regions of the country. However, data on population and per capita consumption of fresh fruits and vegetables indicate that improvements in the Buenos Aires produce supply system could favorably affect a sizable percentage of the total national population.

The location and size of a new produce wholesale facility will be related to existing marketing conditions and expected changes in the commercial structure. Traffic congestion already makes difficult the operation of wholesale markets in the inner city. Expected changes in population, incomes and employment affecting future consumption of fresh fruits and vegetables and demand for convenience, suggest that the future increase in demand for fresh fruits and

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[1] Estimated as 30 percent of the commercial space at the Dorrego Market.

vegetables will largely take place in Greater Buenos Aires. Since the Buenos Aires Metropolitan Region is an extensive land area having an average diameter of 37 miles, the locational problem deserves particular consideration.

The size of a new produce wholesale facility will also depend on the changes that may occur in food retailers' procurement practices as a consequence of the structural changes taking place in food retailing. The structural characteristics of food retailing and the procurement practices of produce retailers will be analyzed in the next chapter.

Fruit and vegetable production takes place in large specialized commercial farms. Growers producing fruits and vegetables show a higher rate of adoption of new technology than traditional export and extensive crop producers. A large proportion of fresh vegetables are produced close to the market in the Provinces of Buenos Aires and Santa Fe. However, whatever sorting is made takes place in the producing zones. Fruit production takes place far away from the Buenos Aires Metropolitan Area. The average distance between fruit producing regions and the Federal District is 600 miles. The transportation of fresh fruits and vegetables is largely made by truck. These characteristics of fruit and vegetable production and transportation may be conditioning to some extent the structural characteristics of produce wholesale distribution that will be discussed in Chapter IV.

The initial adoption of one-way boxes if rapidly diffused could make a major contribution to increase the capacity of existing produce wholesale markets by making available for alternative uses

the space that is devoted to box storage at present. The size of new market facilities required to handle a given volume of fresh fruits and vegetables could be reduced by the rapid adoption of one-way cardboard boxes.

CHAPTER III

RETAILING

In the first part of this chapter a brief description of the food retailing system in the Buenos Aires Metropolitan Area, including recent changes, is presented in order to provide a background for later examination of the wholesaling system. In the last part of the chapter the main characteristics of fruit and vegetable retailing will be described and the procurement practices of produce retailers and the retailer-wholesaler relationship will be discussed.

The Buenos Aires Food Retailing System[1]

Food retailing in the Buenos Aires Metropolitan Region is characterized by a large number of retail outlets. There were 34,025 food and beverage retail shops in 1963 according to the Commerce Census. These retail stores can be classified into three main categories: small independent stores, stalls in plaza type retail markets and self-service stores. It is possible to distinguish different types of stores within each of the above mentioned categories:

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[1]This subsection draws primarily from Trigo, op. cit.

1. Small independent stores
   a) "Almacenes" ("corner" grocery stores)
   b) "Carnicerías" and "mercaditos" (butcher shops)
   c) "Fruterías" and "verdulerías" (produce shops)
   d) Bakeries
   e) Fish shops
   f) Specialty and delicatessen stores
2. Retailers operating stalls in plaza type retail markets
   a) Ferias (roadside or street markets)
   b) Mercados (retail markets)
3. Self-service food retailers
   a) Superettes
   b) Independent supermarkets
   c) Chain stores
   d) Large discount stores.

Small independent stores and stalls in plaza type retail markets are traditional retail outlets, while self-service stores constitute the modern retail sector that entered the retail business during the 1960s.

The main characteristics of independent corner stores have been summarized by Trigo:[1]

1. They sell a narrow line of products.
2. The size of the stores run from 300 square feet in the smaller stores to about 1,500 square feet in the larger ones.

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[1]Trigo, op. cit.

3. In general they are located in buildings that were not designed for business purposes; in many cases garages or simply front rooms of homes.

4. Their equipment requirements are small. In general they consist of services or service display counters, racks of shelves to store and display the goods and, when the type of products sold requires it, scales and some cooling facilities. With the exception of larger stores, cash registers are not common.

5. Storage facilities are usually very small given the low volume of operation. They are reduced in most cases to a small back room, and for many products the display shelves also serve as storage.

6. In most of the cases the procurement is at the intermediate wholesale level. Manufactured food stuffs are the exception, moving directly from manufacturers to retailers by way of manufacturer-owned wholesale operations, for about 50 percent of the total.

The relative importance of the different types of traditional stores is shown in Table III-1. With the exception of produce shops, average sales per type of store were much higher in the Federal District than in Greater Buenos Aires in 1963. Produce shops were the smallest retail stores as measured by the annual volume of sales. They ranked fourth after specialty and delicatessen stores, "almacenes" and "carnicerías y mercaditos" by the share of the total

TABLE III-1.--Comparison of Store Population,[a] Average Annual Sales per Store and Distribution of Total Area Sales by Type of Store and Location in the Buenos Aires Metropolitan Region of Argentina in 1963.

Type of Store	Federal District			Greater Buenos Aires			Whole Metropolitan Area		
	Number of Stores	Sales per Store	Percent of Total Area Sales	Number of Stores	Sales per Store	Percent of Total Area Sales	Number of Stores	Sales per Store	Percent of Total Area Sales
		US $			US $			US $	
Almacenes	7,074	9,064	31	19,895	4,593	45	26,969	6,305	38
Carnicerías y Mercaditos	5,240	10,902	28	8,246	5,997	24	13,486	8,337	26
Produce Shops Shops	4,047	4,920	10	5,800	4,218	12	9,847	4,506	11
Fish Shops	311	7,465	1	183	3,998	b	494	6,166	b
Bakeries	1,707	6,236	5	2,301	4,145	5	4,008	5,036	5
Specialty & Delicatessen	4,736	11,553	25	4,749	6,115	14	9,485	8,831	20
All Stores	23,115	9,479	100	41,174	4,911	100	64,289	6,552	100

Source: Censo Nacional de Comercio y Prestación de Servicios, 1964, as reported by Trigo, op. cit., pp. 54, 58, 61.

[a]The store population corresponds to the Census year 1964. [b]Less than 1 percent.

Note: An exchange rate of 137.50 Argentine pesos per dollar was used to convert the peso value of sales in US $.

value of sales in the Buenos Aires Metropolitan Area. However, since 1963 many "carnicerías" have evolved into "mercaditos," a type of retail outlet that sells fruits and vegetables in addition to meats.

"Ferias" and "mercados" constitute an attempt to move towards a one-stop pattern of shopping. Retailers located in plaza type retail markets present a much higher degree of product specialization than the independent corner stores. The average "feria" has between 15 and 25 stalls, while "mercados" are larger having up to 50 stalls. The difference between them is that "mercados" operate daily in permanent retail facilities, while "feria" stands are set up on the street at selected places and the location changes every day following a weekly schedule that is repeated every week. However, an increasing number of "ferias" have been moving to sites provided by the City of Buenos Aires and operate daily in permanent or semipermanent retail facilities as "mercados."

Table III-2 shows the composition of "ferias" and "mercados" by type of product specialized stalls in operation at the Federal District in 1963. Fruit and vegetable stands constitute the largest group in retail food markets, with 34.9 percent of the combined total of "ferias" and "mercados."

The most important changes undergone by the traditional food retailing system have been: First, the number of stores has risen at about the same pace as population between 1954 and 1964 (Table III-3). This trend is somewhat surprising, because the experience of Western Europeans and North American countries indicates that the number of food stores has declined relative to population during the process of

TABLE III-2.--Composition of the Retailer Population of Ferias and Mercados in Operation During 1963 in the Federal District.

Stand Selling:	"FERIAS"		"MERCADOS"	
	Number	% of Total	Number	% of Total
Grocery and dry goods	201	4.3	831	11.4
Meat	1,355	28.8	2,591	36.0
Fruits and vegetables	1,791	38.0	2,369	33.2
Fish	185	3.9	195	2.7
Bakeries	320	6.8	122	1.7
Specialty and delicatessen	853	18.2	1,097	15.0
Total	4,705	100.0	7,205	100.0

Source: Municipalidad de Buenos Aires, Organización del Plan Regulador de Buenos Aires, Buenos Aires, 1965, as reported by Trigo, op. cit.

TABLE III-3.--A Comparison of the Average Number of Persons per Food Retailer by Area for the Census Years 1954 and 1964, Buenos Aires, Argentina.

Year	Capital Federal	Gran Buenos Aires	Whole Metropolitan Area
1954	122.74	110.47	116.80
1964	128.44	104.26	112.95

Source: Censos Nacionales de Comercio y Prestación de Servicos 1947-1954-1964--Rep. Argentina; population data: Intercensal projections done on the basis of 1960 and 1970 census data, as reported by Trigo, op. cit.

economic development. For example, the population per food store increased from 424 to 655 inhabitants in the United States and from 123 to 158 inhabitants in France between 1954 and 1966, while in the Netherlands, the increase was from 120 to 162 inhabitants between 1955 and 1965.[1] Also, the trend toward "mercaditos," superettes and supermarkets and away from street "ferias" and small highly product-specialized stores, that will be presently discussed, suggests that the number of retail food outlets may have been falling relative to the population of the Region during the recent years. Second, a trend to move towards a broader product mix that, coupled with the increase in the number of stores, has had the effect of significantly increasing the resources devoted to physical distribution.[2]

Recent Changes in Food Retailing

The entry of self-service stores into the food retail industry took place during the 1960s due to the existence of some facilitating conditions and to strong government incentives. On one hand, the steadily increasing number of new food items made it difficult for the traditional grocery stores to present a product mix satisfying consumers preferences. Also, the broader availability of television sets[3] created better conditions for mass advertising and the increase in the number of cars made possible for the new retail outlets to

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[1] OECD, Food Marketing and Economic Growth, op. cit.

[2] D. K. C. Comercialización, op. cit.

[3] The percentage of families having television sets reached the figure of 60.2 ty 1964 and 82.3 in 1968.

have a broader area of influence. Furthermore, several pieces of legislation during the 1960s generated strong incentives, mainly in the form of tax concessions and rapid equipment and building depreciation, for the introduction of new self-service food stores. The government objectives were to reduce final food prices to consumers and to force the improvement of the overall food distribution system. Four different types of self-service stores can be distinguished by considering the store size, the extent of the product line handled and the organizational form: superettes, independent supermarkets, chain stores and discount stores.

Superettes have sales space ranging from 140 to 400 m^2, averaging 211 m^2. These retail outlets do not have a complete product line. In general, they are old grocery stores, "almacenes" that have been transformed to self-service stores in order to increase sales volume, but have the same type of traditional management. Most stores are operated by the owners and family labor is employed, though hired labor is more important in this type of store than in the traditional one. In some cases superettes do not have a produce section and when they do the produce business is sometimes done by an individual who rents the produce section space.

Independent supermarkets are larger and have a broader product line than the superettes. They are also independent and unincorporated from the point of view of their legal form of organization but may achieve some degree of vertical integration in dry groceries and even perform the wholesale function for other retailers. The average sales space is about 700 m^2. In addition to a complete food product line

they also include household hardware and health and beauty products in their product mix offering.

Chain stores operate stores of different sizes and product mixes. Individual stores do not have independent management but respond to centralized pricing, purchasing and merchandising policies. Selling space averages 742 m^2 in these stores. Only two firms operate more than ten stores, and five firms operate more than five stores. There is a total of fifteen firms in this group.

Discount stores are the largest stores in the modern retail sector, being similar to the North American discount stores, though they are organized in a different way in Argentina. While for superettes, independent supermarkets and chain stores food sales represent 90 percent of their total sales, for the discount stores food sales represent only 50 percent of total sales, the rest being drawn from clothing, hardware, household appliances, etc. Average sales space is 8,500 square meters in these stores.

The growth of the modern segment of the food retail industry can be appraised by the number of store openings and by the market share of self-service stores in total food sales in the Buenos Aires Metropolitan Area before 1960. Entry was slow until 1966 when the accumulated number of self-service stores reached 27 and increased suddenly after that date to reach a total of 184 by 1970. However, the rate of expansion slowed in 1969-1970.

According to Trigo, the total self-service share of food sales reached almost 24 percent in 1970. The 184 self-service stores, operated by 105 firms, represented less than half of 1 percent of the

total number of retailers. Of the total number of firms operating self-service stores, 31 were independent supermarkets, 17 were multi-store operations, 7 discount stores and the rest were independent superettes. The four largest firms would have almost 12 percent of total food sales in the Area and the 8 largest firms almost 16 percent.[1] Even though the large self-service stores make up about 10 percent of the total number of self-service retail outlets, the 24 percent market share of these stores on total food sales reported by Trigo appears to be too high and should be taken with some reservations. The share of self-service stores in total food sales in the Buenos Aires Metropolitan Area is, according to the data provided by Trigo, proportionally much greater than that of self-service stores in the OECD European countries, where 8.5 percent of the total number of food retail outlets had a market share of 40 to 50 percent of total food sales in 1968.[2]

Fruit and Vegetable Retailing[3]

The number and market share of different types of retail produce outlets is presented in Table III-4. Independent produce shops constitute the largest group, selling three-fourths of the total tonnage of fresh fruits and vegetables marketed at retail level in the area. Stalls in "mercados" rank second in importance with

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[1] Trigo, op. cit., pp. 118-20.

[2] OECD, Food Marketing and Economic Growth, op. cit., pp. 64-65.

[3] This subsection draws primarily on the information generated by the Bravo Survey of produce retailers, op. cit.

TABLE III-4.--Number and Market Share of Different Types of Produce Retail Shops in the Buenos Aires Metropolitan Area of Argentina in 1971.

	Number of Stores	Percentage of Stores	Percentage of Total Tonnage Sold
Independent shops	18,729	81	75.3
Stalls in "mercados"	2,717	12	13.3
Stalls in "ferias"	886	4	8.0
Other types	699	3	3.4
Total	23,031	100	100.0

Source: Guillermo Bravo y Asociados, Encuesta a Comerciantes Minoristas de Frutas y Hortalizas, Buenos Aires, Enero-Febrero 1971.

12 percent of the total number of produce retailers and 13.3 percent of the tonnage sold. "Ferias" rank third with only 4 percent of the number of stores and 3.4 percent of the tonnage of fresh fruits and vegetables sold in the area. The other category is a heterogeneous group of different types of stores, including eighty-three self-service stores. The figures presented show that independent shops constitute the majority of produce retailers and, having also a substantial market share, must have an important influence on the performance of produce retailing. Independent shops include "fruterías," "verdulerías" and "mercaditos."

"Fruterías" and "verdulerías" are produce shops. They present the main features of traditional stores, operating in buildings that have not been designed for retail operations, usually the front room of a building or garage, where there is a service or display counter

and racks of shelves supporting fruit boxes where the produce is displayed and stored. The same boxes in which produce is delivered are often employed for display and storage without racks at all. Usually an extra room in the back is used for product and package storage. Scales are usually present, but cooling facilities are seldom used for produce conservation.

The "mercadito" is a previously specialized butcher shop that has broadened its product mix by including fresh fruits and vegetables and, following the trend towards product mix diversification, may include other items such as eggs and wine. "Mercaditos" can be either owned and operated by a single owner or two retailers may share the physical facilities, one of them being the butcher and the other operating the produce shop.

Though independent produce shops constitute the majority of retailers selling fresh fruits and vegetables, they rank fourth by the average daily volume of produce sold. Stalls in "ferias" have average daily fruit sales of 366 kilograms of produce; that is twice the volume sold by stalls in "mercados" and more than three times that of independent shops, in the Federal District. Sales of vegetables by type of store follow the same pattern. However, when looking at total average daily sales of fresh fruits and vegetables, the differences are somewhat reduced (Table III-5). The reason is the higher degree of product specialization prevailing mainly in "ferias" but also in "mercados." A similar situation exists in greater Buenos Aires (Table III-6).

TABLE III-5.--Average Daily Volume Sold of Fresh Fruits and Vegetables by Type of Store in the Federal District.

	Average Daily Volume Sold (kgs)		
	Fruits	Vegetables	Total
Independent stores	102	86	182
Stalls in mercados	177	160	225
Stalls in ferias	366	331	354
Other types	108	103	205

Sources: Bravo, op. cit.; SCET-MERCASA-INTECSA-SIE, "Estudio de la Mecánica de la Formación del Precio," Unpublished Report, Buenos Aires, 1971.

TABLE III-6.--Average Daily Volume of Fresh Fruits and Vegetables Sold in Greater Buenos Aires by Type of Retail Store.

	Average Daily Volume Sold (kgs)		
	Fruits	Vegetables	Total
Independent stores	79	89	164
Stalls in mercados	133	101	107
Stalls in ferias	375	408	418
Other types	116	101	215

Source: Idem, Table III-5.

The higher sale volumes of stalls in "ferias" are due to a much higher degree of product specialization and lower and more stable prices.[1] Since independent produce shops having the lowest average daily sales make up 81 percent of the total number of produce retailers, typical average daily sales must be low. On the basis of the Bravo survey, 56 percent of retailers would have daily fruit sales of less than 61 kilograms and only 9 percent would have average daily sales of more than 200 kgs. of fruits. Fifty-one percent of produce retailers would have average daily vegetable sales of less than 61 kgs. and only 9 percent would have daily sales of more than 200 kilograms of vegetables.[2]

Operating Characteristics

The owner and his family provided 95 percent of the labor requirements of independent produce shops in 1963, of which 78 percent was provided by the owner and 18 percent by the owner's relatives. The supply of labor by the owner and his family was higher than the average in Greater Buenos Aires and lower than the average in the Federal District (Table III-7). The average number of persons employed is similar to the different types of stores, ranging from one and a half to two persons per store (Table III-8).

When looking at the distribution of stores by number of persons employed it can be seen that 54 percent of the stores employ

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[1]Refer to pp. 66-71.

[2]SCET-MERCASA-INTECSA-SIE, "Estudio de la Mecánica de la Formación del Precio," Vol. II, Unpublished Report, Buenos Aires, June 1971, p. 8.

TABLE III-7.--Composition of the Labor Used by Produce Stores in the Buenos Aires Metropolitan Region in 1963.

	% of Store Owner	% of Relatives of Store Owner	Family as % of Total
Federal District	78.4	14.3	92.6
Greater Buenos Aires	77.6	20.1	97.7
Whole Metropolitan Area	77.9	17.7	95.5

Source: Trigo, op. cit.

TABLE III-8.--Comparison of the Number of Persons Employed per Type of Produce Retailer in the Federal District and Greater Buenos Aires.

	Number of Persons per Type of Store			
	Independent Stores	Stalls in Mercados	Stalls in Ferias	Other
Federal District	1.8	1.6	1.7	2.0
Greater Buenos Aires	1.5	1.5	1.9	1.5

Source: Bravo, op. cit.

only one person: the owner, while 36 percent of the stores employ two persons (Table III-9). Briefly, 90 percent of the stores employ no more than two persons and this figure includes the labor supplied by the owner and his family. Three percent of the stores employ four or more persons.

TABLE III-9.--Distribution of Produce Stores by the Number of Persons Working at Them.

Number of Persons Working at the Store	Number of Stores	Percentage of Stores
One	12,332	54
Two	8,347	36
Three	1,689	7
Four	363	2
More than four	300	1
Weighted/Ave. 1.6 person/Store	23,031	100

Source: Bravo, op. cit.

These figures lend support to the belief that disguised unemployment in food retailing is important, being facilitated by easy entry into the industry and fostered by the high rates of inflation that have recurrently deteriorated the income position of people living on salaries.

Though there is no specific data concerning the legal forms of organization of traditional produce shops, it probably does not significantly differ from that of independent traditional retailers. The greater majority of traditional food retailers are of the

unincorporated form of business ownership. Incorporated businesses represent only 2 percent of the universe of food retail stores in the Federal District and 0.4 percent in Greater Buenos Aires.[1] The importance of the incorporated form is much greater for the self-service sector of the industry. Eighteen percent of the superette type stores, 58 percent of independent supermarkets and chain stores and 83 percent of the large discount stores are incorporated businesses.[2] Thus, the existing information on the legal form of organization of food retailers provide further indication that most retail produce outlets are small business operations with the exception of a reduced number of large self-service stores and food retailing chains.

Comparative Prices and Margins

The price structure of the food retailing market and the impact on food retail prices of the rapid entry of self-service stores after 1966 has been studied by Trigo.[3]

The available information consisted of time series of weekly average prices for forty-four products for four different types of retail outlets: self-service stores (s), independent traditional retailers (p), "mercados" (m) and "ferias" (f).[4]

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[1] Trigo, op. cit., p. 67.

[2] Ibid., p. 130.

[3] Ibid., Chapter VI.

[4] This information is normally compiled by the National Institute of Statistics and Census (INEC).

Rather than using prices of individual products, expenditures for a representative food basket were considered. The market basket can be viewed as a composite commodity, its price being the sum of the price of the food items included in the basket weighted by the quantity consumed of each product. Food items were selected on the basis of the importance they had in the consumers' food budget. Indexes were calculated for a complete food basket and four more specific baskets composed of similar food items such as fresh fruits and vegetables. Different sets of weights were derived from the consumption pattern of different socio-economic groups in the Buenos Aires Metropolitan Region to test whether the selection of weights (different income levels) affected the results.

The rate of change of average food prices for the different types of traditional food stores relative to self-service stores during the period January 1967-December 1969 was finally estimated by simple trend equations of the form $E_{hk} = \alpha + \beta t$ (where E stands for expenditures, h for type of retailers and k for product group), since previous more sophisticated estimations made by the same researcher had shown that differences between low, medium and high income areas were non-significant.

The magnitude of the coefficient indicates the strength of the change. A positive coefficient implies that food prices at a given type of store have increased relative to food prices at self-service stores, while a negative coefficient implies the opposite. The results for all food products and for the group of fresh fruits and vegetables are presented in Table III-10.

TABLE III-10.--Trend Equation Results for Relative Differences in Weekly Calculated Expenditures Between Different Types of Traditional Retail Outlets and Self-Service Stores in the Buenos Aires Metropolitan Market During 1967-1969.

Relative to Self-service Stores	Product Group	Intercept	Trend Value	"t" value	"r" Coefficient	"F" Value
Independent shops	Produce	.17374	.000564	3.803	.289	14.46
Independent shops	All products	.04364	.000513	13.176	.723	173.62
Mercados	Produce[a]	-.16744	.000263	- .565	.044	.32
Mercados	All products[a]	.06000	.000005	.498	.089	.25
Ferias	Produce	-.14994	.000863	7.488	.512	56.08
Ferias	All products	-.10919	.000519	15.241	.771	232.30

Source: Trigo, op. cit.

[a]Nonsignificant equation.

Trend coefficients show that when considering all the food products, self-service stores have improved their position with respect to independent shops and feria stalls, price differences moving in favor of self-service stores at a rate of .05 percent per week. This means that the cost of the full market basket increased 8 percent at independent shops and feria stalls in relation to the cost of the same food basket at self-service stores during the period under consideration. Market basket cost differences between mercado and self-service stores were non-significant over the period.

Both "feria" stalls and independent shops were increasing produce prices at a higher rate than self-service stores. However, "ferias" were increasing produce prices at a much higher rate than the other types of stores relative to the price charged by self-service stores. The trend coefficients for fresh fruits and vegetables indicates that the produce basket increased at "feria" stalls almost 14 percent and at independent shops 9 percent relative to the cost of the same produce basket at self-service stores during the period under consideration. Produce basket cost differences between "mercados" and self-service stores were non-significant over the period.

Food prices at "feria" stalls were lower than food prices at the other types of stores, even though they were rising at a higher rate than those charged by self-service stores during the period 1967-1969 (Table III-11). Self-service stores have lower prices, both for the group of fresh fruits and vegetables and for all food products, than independent shops and "mercados," but "feria" stalls

TABLE III-11.--Average Relative Differences in Weekly Expenditures for all Food Products and for Fresh Fruits and Vegetables in a Typical Market Basket, Between Different Types of Traditional Stores and Self-Service Stores in the Buenos Aires Metropolitan Market Between 1967 and 1969.

	Produce	All Food Products
	- - - - - - Percentages - - - - - -	
$\frac{Ep - Es}{Es}$	21.9	8.5
$\frac{Em - Es}{Es}$	14.6	6.5
$\frac{Ef - Es}{Es}$	- 9.8	-6.7

Source: Trigo, op. cit.

Note: Es = Expenditures at self-service stores.

Ep = Expenditures at independent shops.

Em = Expenditures at mercados.

Ef = Expenditures at ferias.

represent the lowest cost choice for consumers in the Buenos Aires Metropolitan Area. In addition, "ferias" present the more stable produce prices.[1] Even though appearing as the best alternative, the future competitive position of "ferias" has been questioned on the basis of the poor sanitary conditions under which they operate, the increasing managerial problems brought about the broader product mixes and lines, and the expected greater acceptance by consumers of prepacked meats and produce, these food groups being precisely those in which "feria" stalls clearly have lower prices than self-service stores. However, "ferias" may constitute the best alternative in the low-income areas where prices may be more important than sanitation (particularly in fresh fruits and vegetables), packaging and store image. The authorization to sell fresh fruits and vegetables from truck-bed in predetermined sites of the City of Buenos Aires in the spring of 1972 shows that a low price alternative for low-income consumers is an urgent social, as well as a political, problem.

Gross margins were analyzed with the information generated by Guillermo Bravo y Asociados under contract with the Buenos Aires Central Market Corporation and by Trigo, the latter covering the self-service segment of the industry. In-depth interviews with retailers and a survey of wholesale market prices simultaneously conducted for this study made it possible to check realized gross margins for apples and pears; those products being well identified by size, quality and commercial brands.

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[1]Trigo, op. cit., pp. 183-90.

Gross margins of independent produce retailers selling about 90 kilograms of fresh fruits daily and a similar volume of fresh vegetables have been estimated as 36 percent.[1] This margin is in line with those estimated for apples and pears. It must be stressed that this figure is only a rough average. In fact, the most common pricing practice of produce retailers is a fixed peso mark-up per kilogram sold. Therefore, percentage margins would not only change from product to product but also with price variations, increasing with price declines and decreasing with price increases.

The monthly income statement for the average independent produce retailer is presented in Table III-12. Salaries and fringe benefits include an imputed return to the labor of the owner and his family, who supply most of the labor used at the store. It can be seen that the imputed value of labor[2] is more important than net profits. This constitutes further indication of the existence of disguised unemployment in food retailing. Other expenses represent cash outlays. The incidence of transportation and handling costs on total expenditures is low.

Self-service stores have lower gross margins both for the produce section and for the whole store than the traditional stores (Table III-13).

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[1] SCET-MERCASA-INTECSA-SIE, "Estudio de la Formación del Precio," op. cit., pp. 72-74.

[2] The average monthly salary of sales employees, equivalent to U.S. $70.50 was used to impute labor and fringe benefit values.

TABLE III-12.--Monthly Income Statement--Average Independent Produce Retailer, January and February, 1971.

		- - Total U$S - -		- - Percentage - -
Sales		978.31		100.0
Fruits	698.75		71.4	
Vegetables	279.56		28.6	
Purchases		622.57		63.6
Fruits	422.50		43.2	
Vegetables	200.07		20.4	
Gross Margins		355.74		36.4
Expenses		281.32		28.8
Rent	59.99		6.1	
Salaries and fringe benefits	112.98		11.6	
Transportation	32.24		3.3	
Handling	20.21		2.1	
Utilities	42.51		4.3	
Other	13.39		1.4	
Net Profits		74.42		7.6

Source: SCET-MERCASA-INTECSA-SIE, "Estudio de la Formación del Precio," op. cit.

TABLE III-13.--Produce and Overall Gross Margins for the Different Types of Self-Service Food Retailers Operating in the Buenos Aires Metropolitan Area of Argentina.

	Produce Section	Overall Gross Margin
Superettes	21.7	14.3
Independent supermarkets	8.1	15.8
Chain stores	17.7	14.9
Discount stores	21.0	13.5

Source: Trigo's survey of self-service retailers, May-June 1971.

Independent supermarkets have the lowest gross margins for the produce section and discount stores the lowest overall gross margin. However, these gross margins should be analyzed by taking into consideration the product mix of the different self-service retailers. Discount stores may get almost all their profits from high margin nonfood items, while the independent supermarkets may be charging higher gross margins in other food items. However, the gross margins made at the produce sections of independent supermarkets are very low, raising doubts on whether they have been accurately reported. But in any case, the gross margins of the produce sections of self-service food retailers were reportedly much lower than that estimated for independent traditional produce shops.

Overall gross margins of self-service stores would also be lower than the overall gross margin of traditional stores estimated as 20.9 percent.[1]

[1]Figure obtained from the Commerce Census of 1964.

Procurement Practices[1]

About two-thirds of the retailers in fresh fruits and vegetables purchase all the products they sell from a single supply source, either a particular wholesale market or a wholesaler, while one-third of them have different wholesale sources for different products. In the first case, 87 percent of the retailers either personally make the purchases or send somebody in the firm; 9 percent buy from a wholesaler that delivers the produce at the store and only 2 percent have the purchases made by another retailer. In the second case, the greatest majority of retailers personally purchase fruits and most vegetables, with the exception of potatoes and onions. Eighty-six and 39 percent of these retailers buy potatoes and onions, respectively, from wholesalers that deliver to their stores. One percent of the retailers buy potatoes by phone and only a non-significant number of them buy other fresh fruits and vegetables by phone.

We conclude that except for potatoes and onions, retailers prefer to buy by personal inspection and negotiation. These procurement practices are explained by the high degree of perishability of most products, the fact that there is little product grading and no information on market conditions.

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[1]The information presented in this subsection is based on the results of 1,797 interviews reported by Bravo, op. cit.

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Location of Purchases

Most produce retailers buy in produce wholesale markets. Two main categories of produce wholesale markets can be differentiated: specialized concentration markets and broad product line markets. Produce retailers seldom make purchases at the specialized concentration markets, where wholesale operators constitute the regular customers. Most retailers (71 percent) buy in the wholesale market located the closest to his store. The most important markets by the number of retailers shopping at them are the Abasto and the Dorrego.[1]

Those retailers that do not make purchases in wholesale markets usually buy from wholesalers located in facilities adjacent to wholesale markets. Purchases of potatoes, garlic and onions again constitute the exception: 85 and 40 percent of retailers buy potatoes and garlic and onions, respectively, from truck-jobbers or from wholesale operators who deliver the merchandise and are not located in wholesale market areas or with locations not known (Table III-14).

Frequency of Purchases

Of those retailers having the same wholesale sources for every product, more than one-third make purchases daily and about a third make purchases three times a week, the rest having different frequencies (Table III-15). Most of the retailers having different wholesale sources for different products show higher frequencies on

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[1]Detailed information on produce wholesale markets is presented in Chapter IV.

TABLE III-14.--Place Where the Supplier of the Retailer is Located.

Location of Supplier	Retailers With Same Wholesale Sources for All Products	Retailers With Different Wholesale Sources for Different Products					
		Bananas	Citrus Fruits	Other Fruits	Potatoes & Sweet Potatoes	Garlic & Onions	Other Vegetables
	%	Percentage of Retailers Supplied by					
A stall in wholesale market	89	87	89	90	11	56	95
A stall adjacent to wholesale market	2	10	8.5	8	4	4	2
Truck-jobbers or wholesalers who usually deliver the merchandise not located in wholesale markets or with location not known	9	3	2.5	2	85	40	3
Total	100	100	100	100	100	100	100

Source: Guillermo Bravo et al., op. cit.

TABLE III-15.--Frequency of Purchases by Produce Retailers in the Buenos Aires Metropolitan Area.

Frequency of Purchasing	Retailers With Same Supply Sources for Every Produce	Retailers With Different Supply Sources for Different Products						
	%	Bananas	Citrus Fruits	Other Fruits	Potatoes & Sweet Potatoes	Tomatoes	Garlic & Onions	Other Vegetables
		Percentage of Retailers Making Purchases						
Less than once a week		1			2		9	
Once a week	3	7	7	3	14	3	23	2
Twice a week	13	20	20	13	29	15	26	11
Three times a week	34	33	34	29	32	31	27	24
Four times a week	7	10	9	10	5	11	3	11
Five times a week	7	6	5	9	4	7	2	9
Six or more times a week	36	23	25	36	14	33	10	43
Total		100	100	100	100	100	100	100

Source: Bravo, op. cit.

a six, three and two days a week pattern of shopping, except for potatoes, garlic and onion. For these products a once, twice or three times a week pattern of purchases is more frequent. To some extent this purchasing frequency may be related to the distribution schedules of truck-jobbers and wholesalers or distributors that go by their stores. It is interesting to note that 9 percent of these retailers buy onions and garlic less than once a week. This is made possible by the lower degree of perishability of these products. On the other hand, 43 percent of these retailers buy other vegetables, including the highly perishable leaf vegetables, on a six or more times a week pattern of shopping.

Modes of Transportation

More than half of produce retailers (59 percent) employ the same vehicle to travel to the wholesale facilities and to transport the merchandise from the market to the retail store. More than one-third use pick-ups and about a fifth use trucks. Retailers using these vehicles usually travel alone and only about one-tenth of them go shopping with another retailer and in only 4 percent of the cases do three or more retailers go to the market in the same vehicle. Almost one-third of produce retailers use the public system of transportation to travel to the wholesale facilities (Table III-16) and they have the merchandise taken to the retail store by a hired transporter. In about 10 percent of the cases the merchandise is delivered by the seller.

TABLE III-16.--Different Modes of Transportation of Produce Retailers in the Buenos Aires Metropolitan Area.

	Number	Percentage
Retailers using motor vehicle to travel and to transport the merchandise	12,421	59
Using pick-ups	7,502	36
Using trucks	3,919	19
Using private cars	887	4
Other	113	a
Retailers using motor vehicle only to travel	8,400	34
Using public transportation	6,218	30
Using private cars	348	2
Using taxis or rented cars	378	2
Using pick-ups	36	b
Using trucks	32	b
Retailers not using a motor vehicle	1,388	7
Total	20,821	100

Source: Bravo, op. cit.

[a]Less than 1 percent.

[b]Less than a half of 1 percent.

Other Purchasing Practices of Produce Retailers

Thirty-nine percent of the retailers make their purchases between 2 and 6 a.m. and 43 percent between 2 and 10 p.m.[1] About two-thirds spend between one and two-and-a-half hours only to make purchases and spend between one-and-a-half and three-and-a-half hours when traveling time is included in the purchasing activities. Most of the rest, between one-fifth and one-fourth of produce retailers, spend even more time making produce purchases.

Procurement Practices of the Modern Retail Industry

Large self-service stores and chains, contrary to what could be expected, follow the same procurement practices of traditional retailers in fresh fruits and vegetables. They usually buy in produce wholesale markets or in some cases from specialized wholesalers located outside of the markets (potatoes and bananas). The amount of produce bought directly from producers in the supplying regions is not significant. These large food outlets bought in total about 69,000 tons in 1970, of which 59,000 tons were purchased in central wholesale facilities, 7,000 tons in stalls located outside of these markets and only 4,000 tons in producing areas.[2] Two-thirds of the purchases were made at the Abasto Market. It is important to note that even though food retail chains get their supplies mainly at the

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[1] Wholesale markets have different selling hours because of the lack of a common supervising authority. Refer to Chapter IV.

[2] Corporación del Mercado Central de Buenos Aires, "Estudios del Nivel Comprador," and "Síntesis del Nivel Comprador," Unpublished Reports, 1971.

Abasto Market, independent supermarkets usually make their purchases at the closest wholesale facility. Even the Cooperative "El Hogar Obrero," being a chain, makes its purchases at the Turdera Market, which is located close to their purchasing warehouse and larger stores.

Two main reasons have been advanced to explain why large food retailers follow the traditional procurement practices of small produce retailers: (1) producers are afraid to sell directly to large retailers because they might suffer retaliation by established wholesalers and lose the traditional link with the final market; and (2) according to wholesalers, large retailers would not be ready to be supplied by producers on a regular basis at a previously established price, preferring to keep the flexibility to buy at wholesale markets whenever a price decline makes this more attractive. However, high costs of direct purchases at farms by retailers and the inability of one or a few farmers to regularly fill their needs seems to be a more logical explanation.

Self-service chains have centralized procurement procedures. Independent supermarkets may have the produce section under the general manager or have it leased to another retailer. Almost all superettes are single unit operations; only three of them constitute a three superettes chain and another three are part of other chains. Most superettes make produce purchases six times a week using a pick-up for traveling and product hauling. Average daily purchases are 10 to 12 packages. A few make purchases two or three times a week, buying between 30 and 40 packages each time. Usually potatoes are

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delivered to the store by the seller. Thus, their procurement practices do not significantly differ from that of traditional retailers.

The Retailer-Wholesaler Relationships

The retailer-wholesaler relationship is a crucial element of a food distribution system. The aggregate retailer procurement costs are to some extent a function of the width of the product line and services provided by wholesalers, which, in turn, are a function of the scale prevailing in both retailing and wholesaling. In consequence, the atomistic structure of food retailing may be to some extent causing the atomization and specialization of produce wholesaling. At the same time, the structure of wholesaling may constitute a barrier for the development or successful operation of large scale, broad product line retail stores. Therefore, retail-wholesale coordination must be given particular attention in a program of modernization of food distribution.

Produce Retailers' Purchasing Problems

Studies with produce retailers have uncovered some of the major problems they face in purchasing (Table III-17). A group of twenty-seven retailers were interviewed by the author in January and February, 1972. The group included seven "fruterías y verdulerías," six "mercaditos," four "feria" stalls operating in street locations, three "feria" stalls operating as "mercado" stalls in permanent or semipermanent facilities, one "mercado" stall and six superettes. The main problems faced by those retailers were price variations, excessive number of wholesalers, lack of credit and lack of

TABLE III-17.--Most Important Procurement Problems of Different Types of Produce Retailers in the Buenos Aires Metropolitan Area in 1972.

TABLE III-17.--Most Important Procurement Problems of Different Types of Produce Retailers in the Buenos Aires Metropolitan Area in 1972.

	Superettes	Independent Stores	Feria and Mercado Stalls
	- - - Percentage of Retailers - - -		
Price variations	25.0	28.0	16.7
(a) Between wholesalers	12.5	4.0	16.7
(b) Because of inflation	12.5	24.0	-
Quality variations	12.5	4.0	-
Shortage of supplies	-	12.0	-
Lack of credit	12.5	12.0	33.3
Excessive number of wholesalers	18.8	24.0	25.0
Lack of parking space	6.2	-	16.7
Lack of information on market conditions	25.0	12.0	-
None	-	8.0	8.3
Total	100.0	100.0	100.0

Source: In-depth interviews with 27 produce retailers, January-February, 1972.

information on market conditions. However, these problems affect differently the various types of retailers. A distinction has been made between price variations due to inflation and price variations between supplying wholesalers. Annual rates of inflation were 35-40 percent in the period January-February, 1972. Therefore, it is not surprising that price variations because of inflation is one of the main problems faced by produce retailers. This problem is particularly important for independent shops, since 28 percent of their responses related to this problem. Price differences between wholesalers are important for "feria" and "mercado" operators and for superettes. "Feria" operators are very price conscious since their selling prices are subject to control by the city authority. Superettes particularly resent the time and effort they must spend in purchasing: while price variations are also a problem for them, the problem more frequently mentioned by superettes is the lack of information on market conditions.

Excessive number of wholesalers is an important problem for every type of produce retailer. Resale between wholesalers is only an aspect of the problem. More important is the excessive number of transactions that retailers must make because of the narrow produce line handled by each produce wholesaler. Retailers must make about seven transactions at different locations within a wholesale market area to buy a complete produce line. Since the average purchasing frequency is 4.4 days a week, they must make on the average thirty transactions per week to buy fresh fruits and vegetables. However, this figure is understating the effort and time

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that retailers must put in making purchases, since they may contact several wholesalers before buying an item.

The other main problem faced by retailers is credit shortage. The inflation and the high risk inherent to this type of operation have greatly curtailed the amount of credit received by retailers. Since commercial credit is usually not available for working capital, retailers must rely on the deferred payments arrangements that wholesalers are willing and able to make with them.

Shortages of supplies and quality variations were considered minor problems, the latter affecting mainly the superettes. "Feria" operators enjoy the advantages of a higher degree of product specialization when making produce purchases and in some cases have resorted to cooperative purchasing. In addition, quality is not so important for them since they cater to the relatively lower income segment of the market in the income areas where they sell. Superettes face more problems because the produce section, being just one section among others in the store, is more demanding because of the high degree of perishability of these products and because of the lack of full-product line wholesalers being able to provide consistent quality, assortment, delivery and market information.

Retailer's Attitude Towards the Existing Wholesale Arrangement

Traditional retailers complain about the excessive number of wholesalers but they are not ready yet to modify their procurement practices. When informed about the operation of cooperative and

voluntary chains and asked whether they would join them, only one of twenty-one traditional retailers showed interest.

The reaction of superette store owners was completely different. Every superette owner interviewed showed interest in joining a voluntary or cooperative chain. The perishables sections are important for the self-service type of store because consumers allocate one-half of their food expenditures to meat products and produce. More progressive stores are giving particular attention to these sections. However, the produce section generates more difficult procurement problems than other food items. Even when monitoring purchases, they would prefer to be supplied by a full-line wholesaler being able to provide more services.

Summary and Conclusions

Food retailing in the Buenos Aires Metropolitan Area is characterized by a large number of stores that have traditionally specialized in a narrow product line. Produce retailing does not constitute an exception; there are more than 23,000 produce retailers, most of them having very low daily sales. The owner and his family provide most of the labor needs of the traditional produce shop.

The wholesale produce distribution system that will be described in the next chapter has developed to serve the procurement needs of traditional produce retailers. In time, the procurement practices of these retailers must have had an important influence on the evolving structure of produce wholesaling and on the commercial practices of produce wholesalers. Most produce retailers make small purchases of fresh fruits and vegetables several days a week at the

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closest produce wholesale market. Many retailers travel to the wholesale facility in their own pick-ups and haul the product purchased to the retail shop. Also, a large number of retailers prefer to have high volume bulky items such as potatoes and onions, delivered to the produce shop.

Important changes in food retailing took place during the 1960s. The traditional food retail sector showed a trend towards broader product mixes and lines that had the effect of increasing physical distribution costs because of the absence of centralized procurement practices. A new self-service food retailing sector rapidly developed under strong government incentives and by 1970 it had an important share of total food sales in the Buenos Aires Metropolitan Area.

Self-service stores followed competitive pricing policies and increased their food prices at a lower rate than the traditional food retail stores during the period 1967-1969. Only feria stalls offered lower prices than those charged by self-service stores during that period. Gross margins of the produce sections of different types of self-service stores were lower than the average gross margin of independent produce retailers in 1971. However, self-service stores faced important problems in their produce sections. Many superettes chose not to have a produce section. Some superettes and supermarkets preferred to lease the produce section to a traditional produce retailer. The procurement problems posed by the produce section loom large in their decision. The large self-service stores have also followed traditional procurement practices for fresh

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fruits and vegetables probably because their volume of purchases is not large enough yet to justify the cost of direct purchases at farm level.

The existing wholesale produce distribution system does not adequately serve self-service stores. Traditional produce retailers also face procurement problems, the most important being credit shortage, lack of information on market conditions and excessive number of wholesalers.

The retailer-wholesaler relationship is a crucial element of a food distribution system. The aggregate retailer procurement costs are to some extent a function of the width of the product line and services provided by wholesalers, which, in turn, are a function of the scale prevailing in both retailing and wholesaling. The procurement needs of traditional produce retailers and of the larger-scale, broad product line, self-service stores must be taken into account, focusing on how to improve the retailer-wholesaler coordination, when a new wholesale produce distribution system is organized. It must also be kept in mind that the wholesaler may have a strategic role in that he also can be coordinating the system backward to the production level.

We have presented the main features of the food retail distribution system in the Buenos Aires Metropolitan Area, with a more detailed treatment of fresh fruit and vegetable retailing and related procurement practices and problems. We now turn to consider the main characteristics of produce wholesaling.

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CHAPTER IV

PRODUCE WHOLESALING

The objectives of this chapter are: (1) to describe and analyze the existing physical wholesale facilities for fresh fruit and vegetable distribution in the Buenos Aires Metropolitan Region, and (2) to describe and analyze the organization of produce wholesaling and the operational characteristics of wholesale firms.

Description and Analysis of the Existing Physical Wholesale Market Facilities

The objectives of this subsection is to describe the existing wholesale market facilities trying to assess what are their present operational conditions and to provide a basis for appraising, in Chapter VI, whether improvement of the operations can be achieved through marginal investments. The criteria used to make such an appraisal were:

1. The locational and traffic suitability that will depend on: (a) the accessibility to highways and the availability of rail connections, and (b) the readiness of access to the wholesale stalls and of exit from the wholesale facility;

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2. The completeness and flexibility of physical facilities, taking into account the availability of space for parking, display, unloading of vehicles, product storage and for expansion of wholesale market facilities; and
3. The availability of support facilities including services such as public restrooms, restaurants, bank offices and facilities for motor vehicle servicing.

The distribution of fresh fruits and vegetables in the Buenos Aires Metropolitan Area is dominated by wholesalers operating in twenty-three wholesale markets and in other buildings poorly suited for modern food handling located outside the wholesale markets. Eight wholesale markets are located in the Federal District and the rest (15) in Greater Buenos Aires (Figure IV-1).

Wholesale markets can be classified in the following way:

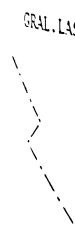
1. Broad product line markets
   a) Large-size markets (more than 250,000 tons of produce sold per year)
   b) Medium-size markets (between 15,000 and 130,000 tons of produce sold per year)[1]
   c) Small-size markets (less than 15,000 tons of produce sold per year)
2. Specialized concentration markets
   a) Product specialization

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[1]There are no wholesale markets selling between 131,000 and 250,000 tons of produce per year.







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Source:

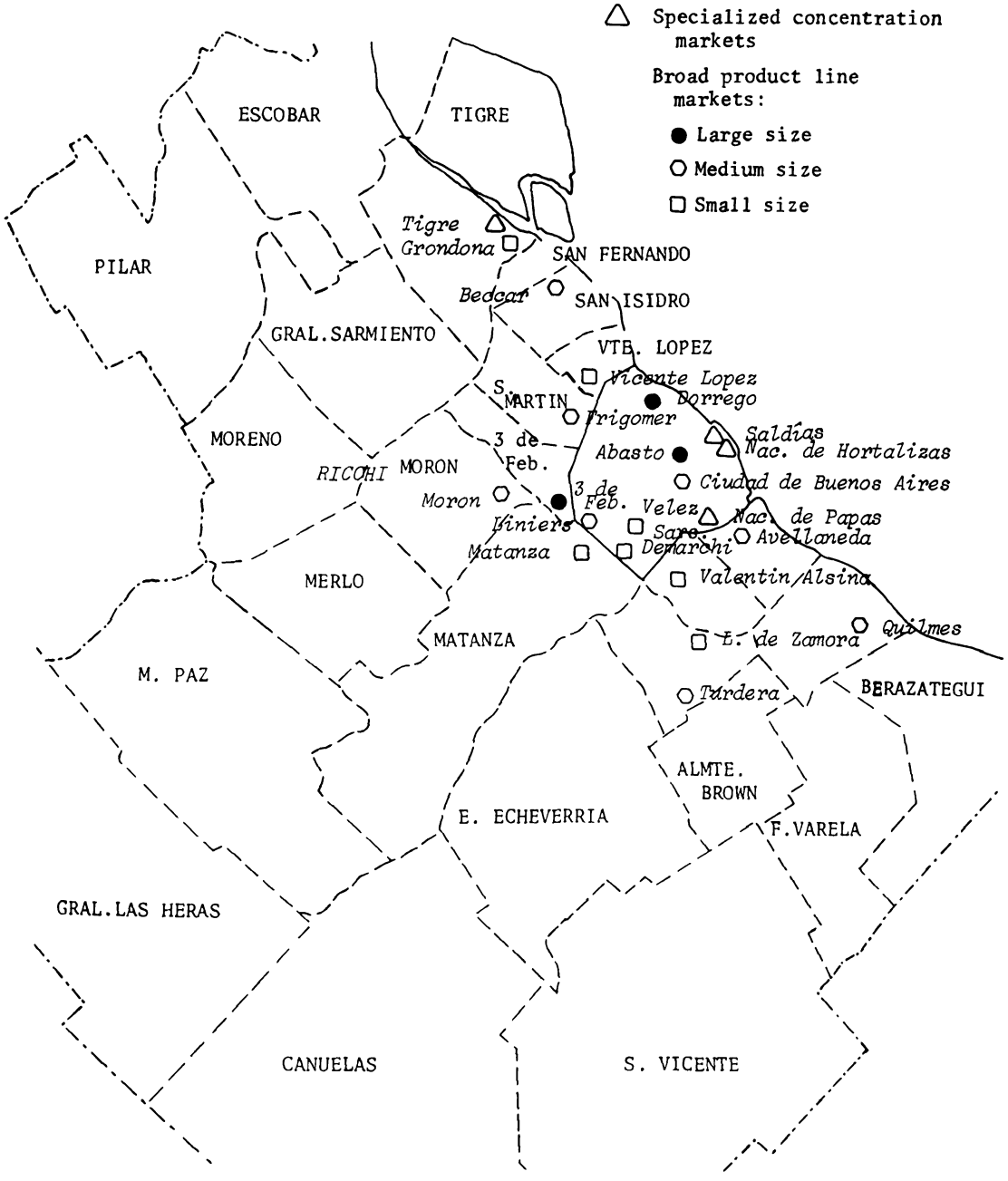


Figure IV-1.--Location of Wholesale Produce Markets in the Buenos Aires Metropolitan Region.

Source: CMCBA, Los Mercados Mayoristas de Frutas y Hortalizas del Area Metropolitana, Buenos Aires, 1971.

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b) Supplying region specialization

c) Auction markets

Large-size, broad product line markets selling annually more than 250,000 tons include the Abasto Proveedor Market, the Dorrego Market and the recently built 3 de Febrero Market. The Abasto Proveedor is the major produce wholesale market in the city and deserves to be described in some detail.

The Abasto Market Area

The Abasto Market is a private development with the operators renting the wholesale stalls. It was constructed in 1891.[1] At that time the population of the Federal District was less than 700,000 inhabitants. The market was close to a railroad station where fruits and vegetables coming from the north of the country were unloaded. The area covered by the market was 14,000 m^2. There were about 211 stalls of 50 m^2 each. Also, there was a 4,000 m^2 basement for produce and package storage. About 1936, when the population had increased to 2,500,000 inhabitants, the market was expanded with the construction of a new concrete building having a main floor for wholesaling, a second floor for retailing, first basement for meat sales, and a second basement for banana ripening and package storage. The main new floor was devoted to vegetables and the old facilities to fruits. The Abasto Market is located on 21,000 m^2 of land.

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[1]This description draws heavily on CONADE, "Informe sobre las Condiciones de Comercialización de Productos Alimenticios en la Capital Federal y Gran Buenos Aires," Buenos Aires, 1965.

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Usable floor space within the building is about 50,000 m^2. Fruit wholesale facilities occupy 9,200 m^2. Vegetable wholesale facilities, 10,500 m^2. Thus, the space left for the traffic of vehicles and pedestrians in the main floor is extremely low (1,000 m^2). A meat auction takes place on 8,000 m^2 in the basement. The retail section on the second floor covers 10,000 m^2. The access to this section takes place by rolling stairs. On this floor, office space is rented to wholesalers. Another 6,000 m^2 section, an annex to the Abasto Market for auction sales, was vacated and operations transferred to the Saldías Market on May 6, 1963. This section is used as a public parking facility at present. Another annexed refrigerated warehouse covers 8,000 m^2.

As volume increased, the market gradually spread into the surrounding area. It is estimated that eighteen important wholesalers operate outside the market independently of the Abasto Market and have floor space totaling about 7,000 m^2. The area has a number of bars, restaurants, another refrigerated warehouse, banana-ripening facilities, warehouses for produce storage, as well as storage of packing materials. A number of warehouses are used for receiving, sorting and reshipping produce to other parts of the country.

This market is characterized by severe traffic congestion. The streets serving the area are narrow and were not designed or constructed to carry the number and volume of vehicles using the market. Corrientes Avenue, the southern boundary of the market, which is the most important access to it, is also one of the most important avenues running east and is naturally congested not only during

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commuting hours but also most of the day. Parking of trucks and pick-ups has taken place as far as 500 meters from the market. Though initially the market was served by underground rail tracks, there is no direct rail access at present and all products are moved in and out by truck.

There are also problems for the movement of vehicles within the market. All loading and unloading is done by hand as there is no mechanical equipment. Public parking areas are not provided in the market and parking space is very inadequate. Farmers bringing fruits and vegetables into the market have no selling facilities and must deal directly with the commission merchants or sell to wholesalers.

The regulation governing the hours of the day during which trucks may unload has lengthened the hours of market operation. Eighty-five percent of fruit sales take place between 2:00 A.M. and noon. However, it must be noted that fruit purchases by retailers are made from 2:00 A.M. until 8:00 A.M., while purchases by wholesalers from other markets and reshippers take place from 9:00 A.M. till noon. Days of main activity for local buyers are Mondays, Wednesdays and Fridays; Sundays are also busy because of sales to out-of-town operators and reshippers. Vegetable sales take place twenty-four hours per day. Retailers buy from 2:00 A.M. to 8:00 A.M. and wholesalers from other markets and reshippers from 9:00 A.M. until noon and from 6:00 P.M. till 10:00 P.M. This working schedule and the problem of traffic congestion give a clear indication that the operation of the Abasto Market imposes significant social costs on an important area of the city.

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The volumes of fresh fruits and vegetables handled at this market have been declining during recent years because of several reasons: (1) marketing of produce coming from the northwest region of the country by a producers' association at the Saldías Market; (2) direct marketing of products to other large- and medium-size central wholesale facilities; and (3) increasing volume of fruit sales by description in auction markets.

Auction sales by description of fruits take place in the Abasto Market. The Argentine Fruits Producers Association has auctions on Tuesdays, Thursdays and Saturdays. The bulk of these sales are citrus fruits, but apples and pears are also sold. This auction functions in the first basement of the Abasto Market. Another auction, organized by the Argentine Fruit Corporation, takes place on Anchorena Street, outside of the Abasto Market but still in the heart of the market area, on Mondays, Wednesdays and Fridays. Apples and pears have constituted the bulk of sales, but sales of peaches and prunes are increasing. Sellers operating in these auction markets are committed, because of the association regulations, to either sell all or a very high proportion of their output in them.

The Dorrego Market

The Dorrego Market is the second major produce wholesale market in the Federal District. This is a city-owned and administered market. Operations started in 1930. The area covered by the market is 54,132 m^2 of which 41,216 m^2 corresponds to the area in operation and 12,916 m^2 to a recently built section that has remained unoccupied because the announced plans for the New Central Market would

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close all other produce wholesale facilities. Fruit wholesale facilities occupy 6,158 m^2, vegetable wholesale facilities, 7,256 m^2; administration offices and bank, 915 m^2; parking space, 4,859 m^2; and 22,028 m^2 are left for vehicle circulation.

This market has a refrigerated warehouse managed by the market authorities which is only slightly used because of administrative problems. It has been suggested that a wholesalers' association could improve management and increase the use of this facility. There also are scales for trucks that are not employed because their slow mechanical operation would retard market traffic and delay trading.

The Dorrego Market has no direct rail access. However, the market is adjacent to an important piece of land that is owned by the National Railroads and close to the Colegiales Railroad station and to a terminal railway siding. The city has asked to have the privilege of using the neighboring piece of land for market expansion. However, this property, where a slum has developed, was transferred to a private university.

The Dorrego Market does not face any serious problem of traffic congestion. Wholesalers are willing to finance expansion of the market. The decision has been taken to occupy the recently built section.

The Salón Mayorista 3 de Febrero Market

This market is owned and operated by a cooperative society. It started operating in May, 1971 and has become the main market in Greater Buenos Aires and one of the most important in the Buenos Aires

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Metropolitan Area. The annual volume sold has been estimated as 344,000 tons, though this figure may not be reliable since this market has been in operation for little more than one year. In any case, it can be compared with the Dorrego Market by the volume sold and would rank second to the Abasto Market. The usable floor space within the building is 52,000 m^2. Located in the 3 de Febrero County, traffic access to the market is not very good though it can be improved. However, access to the wholesale stalls is fairly good so that trucks can comfortably get into the market to load and unload. The land area is 36,000 m^2. The market operates in a new concrete building which has four naves corresponding to four internal streets being 270 m long and 12 m wide. Along the street sides there are sidewalks and display and selling space for 240 wholesale units of 49 m^2 each. There are a few phone lines for the whole market, public restroom facilities for men and women, two bar-restaurants and offices for the Cooperative Bank of Caseros and for the wholesalers are under construction in the second floor as well as a cafeteria and restaurant.

The arrangement of the wholesale stalls is poor in the sense that wholesalers selling the same products are scattered throughout the market. The facilities include twenty-four banana-ripening rooms of 80 m^2 each. Outside the market there are 3,000 m^2 for vehicle parking. An estimated 1,000 vehicles come into the market daily. There is no direct rail access to the market and no farmers' market facilities have been provided. Handling of merchandise has not been mechanized. About 600 men are employed in unloading operations.

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There is a project to build a refrigerated warehouse in a neighboring piece of land that is occupied by a slum at present.

Other Produce Wholesale Market Facilities

Medium-size, broad product line markets have average annual sales ranging from 15,000 to 130,000 tons. The Avellaneda, Quilmes, Turdera, Liniers, Morón, Frigomer and Beccar markets form a belt around the Federal District (Figure IV-1). The Ciudad de Buenos Aires Market, located in downtown Buenos Aires, is also included in this group but this facility is more and more evolving towards a retail market. The Avellaneda and the Ciudad de Buenos Aires markets are the more important medium-size broad product line markets.

The Abasto Avellaneda Market has been the main market in Greater Buenos Aires until the 3 de Febrero started operations. This is an old market built in brick and inaugurated in 1930. The area covered is only 6,000 m^2 but the annual volume sold is 120,000 tons. Though the market is close to two important avenues which serve as accesses to the Federal District, streets surrounding the market are narrow and usually crowded with vehicles. There is no parking space. Two internal streets cross in the market and there are some internal passageways for buyers to have access to the different wholesale units. There are farmers' market facilities. The facilities are owned by the Avellaneda District and operated by a private firm under lease until 1979. There is no direct railroad access to this market.

The Ciudad de Buenos Aires Market is located in downtown Buenos Aires. The annual volume sold has been estimated at

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132,000 tons in 1970 but may be substantially lower at present. This market was inaugurated in 1894. At present, retail sales take place in more than 50 percent of an estimated area of 10,000 m^2. The hours of operation are from 2:00 A.M. to 9:00 A.M. to avoid regular city traffic congestion. This is a private market.

Small-size markets sell less than 15,000 tons of produce annually. They have only a local influence. The Demarchi, Ricceri, Abasto La Matanza, Abasto Lomas de Zamora, Abasto Vicente López, Vélez Sarsfield, Intendente Grondona and Valentín Alsina markets are included in this category (Figure IV-1). Broad product line wholesale markets are private operations with the exception of the city-owned Dorrego and Intendente Grondona (San Fernando) markets.

The specialized concentration markets include the two commodity-specialized markets that are owned and administered by the nation: the Nacional de Papas and the Nacional de Hortalizas, where concentration of first wholesale transactions in the Federal District in potatoes, and in garlic and onions, respectively, is legally required. The Provincial de Frutas (Tigre) is a wholesale market facility owned by the Province of Buenos Aires where farmers of the nearby Paraná River Delta sell the fruit produced in that region. The Saldías Market is located at the Saldías railroad station of the Belgrano National Railroad. A producers' association sells by auction fruit and vegetable production (mostly tomatoes, peppers and citrus fruits) from the northwest of the country arriving at Buenos Aires by rail. There are two auction markets located in the Abasto Market area where producers' associations sell fruit by description.

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Produce retailers seldom make purchases at the specialized concentration market because they prefer to buy where they find a complete line of fresh fruits and vegetables and also because sales are made in large lots in auction markets. Therefore, these wholesale facilities do not suffer the problems of traffic congestion that are brought about by the convergence of a large number of produce retailers on a wholesale market facility. A significant part of the information concerning wholesale produce facilities is condensed in Table IV-1.

Recent Changes in Produce Wholesaling Facilities

The existing wholesale facility arrangement has recently undergone some important changes. Two new wholesale markets, Valentín Alsina and the 3 de Febrero markets started operating in 1971. The 3 de Febrero has become one of the main wholesale markets in the Buenos Aires Metropolitan Region. Its location, not by chance, in Greater Buenos Aires makes it possible for potato and onion supplies to bypass the Nacional de Papas and Nacional de Hortalizas markets, where physical concentration of first wholesale transactions on these products in the Federal District takes place because of a legal requirement. As a consequence of the operation of the 3 de Febrero Market, other wholesale markets face declining volumes of operation. This in turn implies that the problem of traffic congestion may temporarily be relieved but may become more serious with rising levels of consumption of fresh fruits and vegetables.

TABLE IV-1.--Central Wholes
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Type and Name	
I. Specialized concentrat markets	
Nacional de Papas	
Nacional de Hortalizas	
Saldías	
Provincial de Frutas (Tigre)	
II. Broad product line mar	
1. Large size	
Abasto Proveedor	
Concentración Dorre	
Salón Mayorista 3 Febrero	
2. Medium size	
Ciudad de Buenos A	
Abasto Avellaneda	
Abasto Morón	
Liniers	
Abasto Turdera	
Abasto Norte (Becc	
Frigomer (San Mart	
Abasto Quilmes	
3. Small size	
Ricchi (Morón)	
Abasto La Matanza del Mirador)	
Denarchi	
Abasto Lomas de Z	
Abasto Vicente Lo (Florida)	
Vélez Sarsfield	
Intendente Grondo (San Fernando)	
Valentín Alsina	

Sources: CNCBA, Los Mer
Buenos Aires,
Hortalizas en

[a]Excludes 106,0

TABLE IV-1.--Central Wholesale Markets Selling Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Region of Buenos Aires in 1972.

Type and Name	Location	Date of Inauguration	Annual Tonnage Sold in 1970	Land Area m^2	No. of Wholesalers	Selling Hours
I. Specialized concentration markets						
Nacional de Papas	F.D.	1933	209,000	17,000	67	7 a.m.-noon
Nacional de Hortalizas	F.D.	1950	58,000	12,000	66	7 a.m.-noon
Saldías	F.D.	1962	112,000	15,000	35	8 a.m.-noon
Provincial de Frutas (Tigre)	G.B.A.	1929	15,000	130,000	120	8 a.m.-noon
II. Broad product line markets						
1. Large size						
Abasto Proveedor	F.D.	1891	624,000[a]	22,200	540	2 a.m.-noon
Concentración Dorrego	F.D.	1930	263,000	53,217	247	3 a.m.-12 p.m.
Salón Mayorista 3 de Febrero	G.B.A.	1971	n.a.	36,000	170	2 p.m.-10 p.m.
2. Medium size						
Ciudad de Buenos Aires	F.D.	1894	132,000	13,000	150	2 a.m.-9 a.m.
Abasto Avellaneda	G.B.A.	1930	120,000	6,000	150	2 p.m.-9 p.m.
Abasto Morón	G.B.A.	1961	80,000	5,000	57	2 p.m.-9 p.m.
Liniers	F.D.	1923	28,000	6,000	80	2 a.m.-9 a.m.
Abasto Turdera	G.B.A.	1962	25,000	6,000	80	2 p.m.-9 p.m.
Abasto Norte (Beccar)	G.B.A.	1965	23,000	15,000	58	2 p.m.-11 p.m.
Frigomer (San Martín)	G.B.A.	1959	16,000	2,500	56	2 a.m.-9 a.m.
Abasto Quilmes	G.B.A.	n.a.	15,000	4,000	80	2 p.m.-9 p.m.
3. Small size						
Ricchi (Morón)	G.B.A.	n.a.	9,000	n.a.	16	n.a.
Abasto La Matanza (Lomas del Mirador)	G.B.A.	1962	5,000	8,000	80	n.a.
Demarchi	F.D.	1937	4,000	2,500	20	n.a.
Abasto Lomas de Zamora	G.B.A.	1958	3,000	1,200	12	n.a.
Abasto Vicente Lopez (Florida)	G.B.A.	1959	2,000	2,700	18	n.a.
Vélez Sarsfield	G.B.A.	n.a.	1,000	2,700	7	3 a.m.-9 a.m.
Intendente Grondona (San Fernando)	G.B.A.	1939	n.a.	n.a.	90	n.a.
Valentín Alsina	G.B.A.	1971	n.a.	13,500	40	2 a.m.-10 p.m.

Sources: CMCBA, Los Mercados Mayoristas de Frutas y Hortalizas del Area Metropolitana, Buenos Aires, 1971; CMCBA, Informe Preliminar sobre Comercialización de Frutas y Hortalizas en Pública Subasta, Buenos Aires, 1971.

[a]Excludes 106,000 tons sold by description in auction market.

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No new investment in wholesale market facilities by private firms can be expected in the short run because the economic feasibility of the new wholesale market to be built by the Buenos Aires Central Market Corporation requires the enforcement of a 1971 law on (wholesale) markets of national interest. This law would make wholesale transactions illegal outside the projected New Central Market. The issues raised by this decision to have a single produce wholesale market serving the entire Buenos Aires Region will be discussed in the next chapter.

Organization and Operation of the Wholesale Produce System

The organization of the wholesale produce distribution system in the Buenos Aires Metropolitan Area is a complex one. Produce market flows will be described before presenting the structural and operational characteristics of produce wholesalers in order to more easily visualize the operation of the wholesale distribution system for fresh fruits and vegetables.

Produce Market Flows

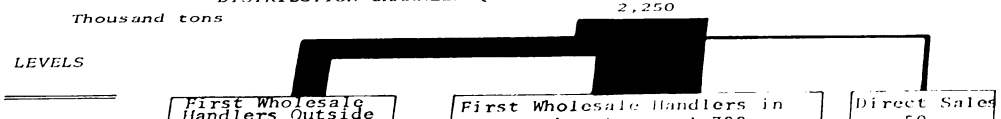
The importance of the product flows handled by different types of wholesalers, the importance of transactions between different wholesale operators and between wholesale facilities, and the related structural characteristics of produce wholesaling can be more easily understood with the aid of the diagram presented in Figure IV-2.[1]

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[1] A similar figure was kindly forwarded to the author by Dieter Link, FAO consultant to the Buenos Aires Central Market Corporation. However, modifications were introduced in the structure of wholesaling that are the sole responsibility of the author.

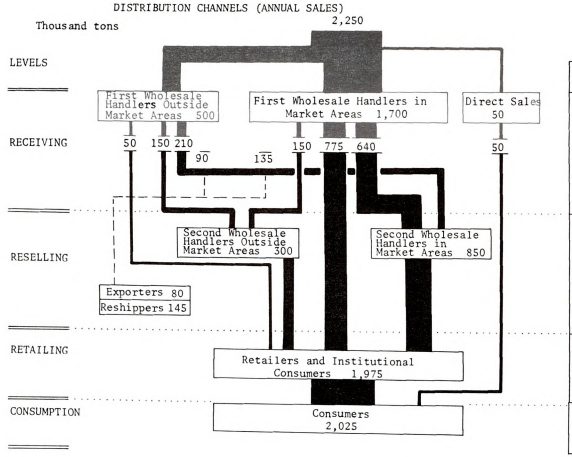
DISTRIBUTION CHANNELS (ANNUAL SALES)

Thousand tons



MARKET STRUCTURE

Number and Type of Firms	Annual Sales (Tons)	
	Total	Per Firm
RECEIVING		
70 Dry Receivers	850,000	12,150



MARKET STRUCTURE

Number and Type of Firms	Annual Sales (Tons) Total	Per Firm
RECEIVING		
70 Pure Receivers	850,000	12,150
500 Small Producers	190,000	380
800 Receiver-Jobbers	1,160,000	1,450
Total	2,200,000	
RESELLING		
900 Jobber-Receivers	750,000	833
1,000 Jobbers	400,000	400
Total	1,150,000	
RETAILING		
23,000 Traditional Retailers	1,850,000	80
Self-service Stores & Institutional Consum.	125,000	
CONSUMPTION		
8,350,000 Consumers	2,025,000	0.242

Figure IV-2.--Market Flows of Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area and Related Market Structure in 1970.

Source: Tables IV-2-3-4.

Note: Product losses in channel included.

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tons (26 percent)

The total volume of fresh fruits and vegetables reaching the Buenos Aires Metropolitan Area amounted to 2,250,000 tons in 1970, of which only 50,000 tons was estimated to bypass wholesale operators. The level of consumption in the region has been estimated at 2,025,000 tons, leaving 225,000 tons, of which 145,000 tons are reshipped to other cities and towns in the country and 80,000 tons are exported. The volume sold for consumption in the Buenos Aires Metropolitan Area (BAMA) by wholesalers amounts to 1,975,000 tons, of which 1,850,000 tons are sold to traditional retailers, 75,000 tons to self-service stores, 20,000 tons to restaurants, 10,000 tons to hospitals and 20,000 tons to other institutional consumers (Table IV-2).

However, a simple summation of the annual volumes handled by wholesale operators, 3,350,000 tons, is much greater than the 2,200,000 tons introduced and distributed by produce wholesalers. The difference is brought about by a number of transactions taking place between primary and secondary wholesale handlers.

The volume of transactions between wholesale operators, 1,150,000 tons in 1970, is important, representing 52 percent of the volume introduced by wholesalers. Particular attention must be devoted to transactions between wholesale operators, since the solution proposed by the CMCBA is precisely to eliminate secondary handlers in order to reduce distribution costs. From the total volume of transactions between wholesalers, in the second wholesale level, 850,000 tons are handled in wholesale market areas and 300,000 tons (26 percent) in stalls located outside wholesale market

TABLE IV-2.--Annu
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Tonnage that bypa

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Total Tonnage

Source: Corpora
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TABLE IV-2.--Annual Tonnage of Fresh Fruits and Vegetables Marketed in the Buenos Aires Metropolitan Area in 1970.

Tonnage that bypass wholesale operators		50,000
Tonnage moving through the wholesalers		2,200,000
Reshipped to the rest of the country		145,000
Exports		80,000
For BAMA consumption		1,975,000
Purchased by:		
Traditional retailers	1,850,000	
Self-service stores	75,000	
Restaurants	20,000	
Hospitals	10,000	
Other institutional consumers	20,000	
Total Tonnage		2,250,000

Source: Corporación del Mercado Central de Buenos Aires, "Estudios del Nivel Mayorista" (1970/71), Unpublished Report.

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areas.[1] Since receivers located outside wholesale market areas introduced 500,000 tons in 1970, the total volume handled by wholesalers who were not located in wholesale market areas add up to 800,000 tons (Table IV-3). Therefore, we conclude that the volume introduced and handled by wholesalers located outside wholesale market areas is significant and may be considered one of the factors generating transactions between wholesalers.

Another important cause of resale between wholesalers is the existence of specialized concentration markets. Table IV-4 presents the volume handled in wholesale market areas. The volume handled by stores located adjacent to wholesale markets has been isolated from the volumes handled within wholesale market facilities. The distribution of sales between retailers and other operators is presented. It is worth noting:

1. Sales by specialized concentration markets add up to 430,000 tons of which 410,000 tons would be bought by operators other than traditional retailers, mainly wholesalers located in broad product line markets and wholesalers outside wholesale market areas. Adding to that figure other sales to secondary wholesale handlers, including 106,000 tons sold in auction by description in the Abasto Market by a producers' association and 360,000 out of 500,000 tons introduced into the area by receivers located outside wholesale market areas, there would be a total of 876,000 tons subject to resale

[1] Wholesalers operating in stalls adjacent to wholesale markets have been considered wholesalers in wholesale market areas.

TABLE IV-3.--Tonnage of Fresh Fruits and Vegetables Marketed in the Buenos Aires Metropolitan Area of Argentina by Place of Transaction and Shipping Region (Tons).

Place of	Shipping Region

TABLE IV-3.--Tonnage of Fresh Fruits and Vegetables Marketed in the Buenos Aires Metropolitan Area of Argentina by Place of Transaction and Shipping Region (Tons).

Place of Transaction	Shipping Region					
	Rest of the Country		The Buenos Aires Metropolitan Region		Total	
	Tonnage	%	Tonnage	%	Tonnage	%
In wholesale market areas	1,700,000	77.5	850,000	73.9	2,550,000	76.1
Outside wholesale market areas	500,000	22.5	300,000	26.1	800,000	23.9
Total	2,200,000	100.0	1,150,000	100.0	3,350,000	100.0

Source: Corporación del Mercado Central de Buenos Aires, "Estudios del Nivel Mayorista" (1970/71), Unpublished Report.

TABLE IV-4.--Tonnage of Fresh Fruits and Vegetables Handled in Wholesale Market Areas Located in the Buenos Aires Metropolitan Area in 1970 and Sales Distribution Between Retailers and Other Operators (1,000 Tons).

Wholesale Markets	Tonnage Handled				Sales to				Total
	In Wholesale Market	%	Adjacent to Wholesale Market	%	Retailers	%	Other Operators	%	

Tonnage of Fresh Fruits and Vegetables Handled in Wholesale Market Areas Located in the Buenos Aires Metropolitan Area in 1970 and Sales Distribution Between Retailers and Other Operators (1,000 Tons).

Wholesale Markets	Tonnage Handled				Sales to				Total
	In Wholesale Market	%	Adjacent to Wholesale Market	%	Retailers	%	Other Operators	%	
Specialized concentration markets									
Nacional de Papas	250	100	-	-	20	8	230	92	250
Nacional de Hortalizas	60	100	-	-	-	-	60	100	60
Nacional de Frutas[a]	15	100	-	-	-	-	15	100	15
Saldías	90	100	-	-	-	-	90	100	90
Tigre	15	100	-	-	-	-	15	100	15
Broad product line markets									
Abasto	730	97.3	20	2.6	310	41.3	440	58.6	750
Dorrego	260	68.5	120	31.5	300	78.9	80	21.1	380
Avellaneda	140	71.7	55	28.3	170	87.1	25	12.9	195
Liniers	105	55.2	85	44.8	150	78.9	40	21.1	190
Ciudad de Buenos Aires	120	100.0	-	-	75	62.5	45	37.5	120
Morón	60	75.0	20	25.0	70	87.5	10	12.5	80
Beccar	50	66.6	25	33.3	75	100.0	-	-	75
Frigomer	60	85.7	10	14.2	70	100.0	-	-	70
Quilmes	55	100.0	-	-	55	100.0	-	-	55
Turdera	60	100.0	-	-	60	100.0	-	-	60
Abasto La Matanza	60	100.0	-	-	60	100.0	-	-	60
Ricchieri	25	100.0	-	-	25	100.0	-	-	25
Other	60	100.0	-	-	60	100.0	-	-	60
Total	2,215	86.8	335	13.1	1,500	58.8	1,050	41.1	2,550

Sources: CMCBA, Estudios del Nivel Comprador (1971), Unpublished Report; CMCBA, Encuestas y Observaciones sobre los Mercados (1970, 1971), Unpublished Report.

[a]Ceased operations in 1971.

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between wholesale operators because of this particular structure of distribution. Therefore, one of the market's characteristics is that 1,036,000 tons or 47 percent of the volume introduced by wholesale operators is received either by commodity-specialized wholesalers located outside wholesale market areas or in specialized concentration markets. Other important characteristics of this distribution system are the atomistic structure of retailing and the traditional procurement practices of retailers. Given those characteristics it is understandable that 85 percent of the volume introduced in that way be sold to broad product line markets where traditional retailers can find in one place a complete produce line.

2. The volume sold to operators other than traditional retailers by broad product line markets total 640,000 tons. However, the figure presented for the Abasto Market includes 106,000 tons sold in auction and by description by the Argentine Fruit Producers Association. This tonnage moves from refrigerated warehouses to various broad product line markets and operators located outside wholesale market areas. Therefore, this volume should be deducted from the previous figure, leaving 534,000 tons sold by broad product line markets to operators other than traditional retailers. Since 135,000 tons are sold to reshippers and exporters and 125,000 tons to supermarkets and institutional consumers, the actual volume subject to resale between broad product line markets

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would be 274,000 tons. Adding up to this figure the 876,000 tons sold by receivers located in specialized concentration markets and outside wholesale markets to other wholesale operators located in the region we get the total annual volume subject to resale or 1,150,000 tons.

Only a half of the Abasto Market sales are made to traditional retailers. It is usually considered that many retailers are discouraged from making purchases in this market because of the difficulties in getting parking space and to get close enough to the market to load their vehicles. However, this fact does not deny the importance of the volume physically moving through the market sold to operators other than traditional retailers, 331,000 tons,[1] representing 29 percent of the volume subject to resale. The Dorrego Market sells 80,000 tons or about 20 percent of the volume traded in the market area to operators other than retailers. The Liniers Market selling 40,000 tons to operators other than retailers. The Liniers Market selling 40,000 tons to operators other than retailers in 1970, may have been substituted in this function by the recently built 3 de Febrero Market, whose present sales to other wholesale operators may turn to be much more important than the 40,000 tons quoted for the Liniers Market.

Medium-size broad product line markets make sales to operators other than retailers, totaling 120,000 tons.

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[1]This figure excludes the 109,000 tons sold by description by entine Fruit Producers Association.

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It is also possible to appraise from the study of the figures
ded in Table IV-4 that 2,550,000 tons are traded in wholesale
t areas, of which 2,215,000 tons are sold in wholesale markets
35,000 tons or 13 percent of the volume is sold in stalls located
ent to those markets. One-and-a-half million tons is purchased
aditional retailers and 1,050,000 tons, 41 percent of the volume,
ner operators, including 640,000 tons purchased by second whole-
handlers in markets, 150,000 tons by second wholesale handlers
d outside wholesale market areas, 85,000 tons by reshippers,
tons by exporters and 125,000 tons by self-service stores and
utional consumers. Adding up the 125,000 tons purchased in
s by self-service stores and institutional consumers to the
d-a-half million tons purchased by traditional retailers, pur-
in wholesale markets by operators other than wholesalers would
to 1,625,000 tons, of which 850,000 tons or 52 percent would be
from secondary handlers and the difference 775,000 tons, from
handlers (Figure IV-2).

The study of product flows shows that the produce wholesale
ution system in the Buenos Aires Metropolitan Area is very
. Its main features are: (1) Forty-seven percent of the
introduced in the area by wholesale operators is received
by commodity-specialized wholesalers located outside wholesale
areas or in product- or regionally-specialized concentration
This is the main cause of transactions between produce
ers. (2) The total annual volume subject to resale through
ous broad product line markets can be estimated as 274,000

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, this figure representing 8 percent of the volume handled in
area and 24 percent of the total volume subject to resale, and
Large-size broad product line (concentration) markets are dis-
uished from medium- and small-size broad product line (distribu-
markets not only by their larger volume of operation but also
e large volume of sales to large retailers, reshippers and out-
wn buyers. The volume of direct receipts from country shipping
s is much larger in concentration than in distribution markets
he information available is not sufficiently detailed as to make
timation of those volumes by type of broad product line market.

Finally, it is worth noting that the product flow diagram
onceal substantial differences in distribution channels by
dities. Fresh vegetables produced in the nearby Buenos Aires
belt may tend to move directly from farms to final wholesalers,
fruits coming from long distances may tend to go through a
age wholesale system.

Form of Organization of
aling Firms

The distribution of fresh fruit and vegetable wholesaling
by legal form of business ownership is presented in Table IV-5.
incorporated firm prevails in all groups as defined by broad
ity specialization and constitutes the clearly dominant legal
f business ownership in fresh vegetable wholesaling. Other
f legal organization have been adopted by 26 percent of firms
fruits and by the 28 percent of firms selling both fresh
and vegetables, but by only 7 percent of the firms dealing in

TABLE IV-5.--Di
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| Legal Form
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| Unincorporated |
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| Partnership |
| Other forms of
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LE IV-5.--Distribution of Fresh Fruit and Vegetable Wholesaling Firms by Legal Form of Business Ownership.

Legal Form of iness Ownership	Commodity Group Specialization		
	Only Fruits	Only Vegetables	Both Fruits and Vegetables
	- - - - Percentage - - - -		
corporated	74	93	72
ngle owner oprietorship	(54)	(70)	(36)
rtnership	(20)	(23)	(36)
r forms of legal ganization	26	7	28
Total	100	100	100

ce: Corporación del Mercado Central de Buenos Aires, El Censo Mayorista, Buenos Aires, 1971.

vegetables. These forms include incorporated societies, ratives and a form called the "Sociedad en Comandita por nes," that defines the relationships between members supplying al having limited liabilities and members supplying management ll as some capital having unlimited liabilities. This consti- an indication that the larger firms are those dealing in fresh s, since they have adopted a form of organization that is r suited to operate in the import and export business.

of Wholesaling Firms

Wholesale operators can be characterized by considering he volume they handle and their supply sources. On that basis llowing classification, that is summarily presented in

Figure IV-2 and c

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[1]Sources:
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CMCBA, "Estudio d
SCET COOP-MERCASA
de Frutas y Horta
1970.

[2]Sales by
Market Area.

re IV-2 and can be better conceptualized with the aid of the
uct flows diagram, has been devised as a general guide:[1]

1. Primary handlers. Direct receipts from country shipping points account for at least 50 percent of their supplies.

   a) Receivers. Direct receipts from country shipping points in full carlots or trucklots account for almost the total of the volume they handle. There are seventy important handlers, one-third of them receiving more than 10,000 tons annually and the rest between 5,000 and 10,000 tons per year. They have a high degree of commodity specialization. Their sales distribution is the following: 59 percent to secondary handlers in the Buenos Aires Metropolitan Area, 34 percent to buyers from the rest of the country or importers from other countries, and 7 percent to retailers. Sales by auction in the Saldías and Abasto markets[2] would amount to 250,000 tons and sales in stalls and warehouses in and outside wholesale market areas would add up to 600,000 tons making a total of 850,000 tons. Average annual sales per receiver are 12,150 tons.

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[1]Sources: CMCBA, "Estudios del Nivel Mayorista," Unpublished
; CMCBA, "Sintesis del Nivel Mayorista," Unpublished Report;
"Estudio de los Mayoristas de Reventa," Unpublished Report;
OOP-MERCASA, "Resultado de una Encuesta Parcial a los Mayoristas
tas y Hortalizas," Documento BK, Unpublished Report, June 15,

[2]Sales by description take place in two auctions in the Abasto
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b) Receiver-jobbers. This type of wholesale handler receives about one-half of their supplies from producing regions, purchase 30 percent of the volume handled from receivers located in or outside wholesale market areas and the remaining 20 percent is purchased from other receiver-jobbers located in or outside wholesale market areas. They sell to other receiver-jobbers, to different jobbers, and to retailers. There are about 800 receiver-jobbers, with total annual sales of 1,160,000 tons, or average annual sales per firm of 1,450 tons. They seldom handle more than 5,000 tons per year.

2. Secondary handlers. Wholesalers buying more than 50 percent of their supplies from other wholesale operators located in the Buenos Aires Metropolitan Region:

a) Jobber-receivers. These wholesalers receive only 20 percent of their supplies from country shipping points. For the rest, they buy about 40 percent in specialized concentration markets and from other first handlers located in or outside wholesale market areas, and another 40 percent of the volume handled constitute purchases from other jobber-receivers. There are about 900 jobber-receivers with annual sales ranging between 700,000 and 800,000 tons, or average annual sales per firm of 833 tons per jobber-receiver. Most sales are made to retailers.

b) Jobbers. Wholesale handlers getting their supplies exclusively from within the Buenos Aires Metropolitan Area.

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This type of wholesaler makes purchases from receiver-jobbers and jobber-receivers, located either in or outside wholesale market areas and sometimes from receivers and in some cases from producing areas. There are about 1,000 jobbers, with average annual sales of 400 tons per jobber. Most sales are made to retailers. Several categories of wholesale handlers can be distinguished within this type:

(1) Small wholesale operators with market stalls, usually highly specialized by commodity.

(2) Wholesalers operating in facilities outside wholesale market areas, selling a narrow vegetable line including potatoes, and sometimes garlic and onions. Some also handle sweet potatoes.

(3) Truck jobbers, with no stalls.

Wholesale firms can also be characterized by whether or not
ake title to the merchandise they handle. Traders are whole-
other than producers taking title to the merchandise they
, while commission wholesalers are operators that handle pro-
n consignment and charge a fixed commission for their services.
s significantly outweigh other types of wholesalers in the fresh
business and are as important as the commission wholesalers in
esh vegetable business (Table IV-6). Commission wholesalers
mmission traders follow in importance. However, the importance
different groups change from market to market. Some markets
lusively producers' markets. The Saldías Market is operated
oducers' corporation and the Tigre Market, owned by the

TABLE IV-6.--Impo
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Type of Firm
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IV-6.--Importance of Different Types of Wholesale Firms Dealing in Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area by Product Group.

ype of Firm	Commodity Group Specialization		
	Only Fruits	Only Vegetables	Both Fruits and Vegetables
	- - - - Percentage of Firms - - - -		
ers	6	7	9
s[a]	60	34	34
sion wholesalers[b]	8	36	18
ers, commission esalers and traders	2	2	7
ers and traders	10	3	10
sion wholesalers roducers	1	3	6
sion wholesalers raders	13	15	16
al	100	100	100

Corporación del Mercado Central de Buenos Aires, El Censo Mayorista, Buenos Aires, 1971.

[a]Wholesalers other than producers taking title to the mer- e they handle.

[b]Wholesale operators that handle produce on consignment and a fixed commission for their services.

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vince of Buenos Aires, is the place where fruit growers of the
rby Parana River Delta take their production for sale. Other
kets are dominated by producers and commission wholesalers such as
Liniers and 3 de Febrero markets. Most wholesale operators in
Dorrego and Nacional de Papas markets are commission wholesalers.
re is no information on the volume handled by each type of firm.

e of Firms and Degrees Concentration

It is important to appraise the degree of concentration in
duce wholesaling because of the relationship that may exist between
uctural characteristics and market performance. In order to pro-
le meaningful figures on the degree of concentration prevailing in
duce wholesaling, the relative firm sizes by product or commodity
up will be analyzed. Table IV-7 shows the relative size of opera-
ns and the degree of seller concentration for specialized firms
ling with six types of products: bananas, citrus fruits, apples
pears, potatoes and sweet potatoes, tomatoes and peppers, and
lic and onions. The information presented in Table IV-7 has been
erated by the study of a group of 240 first wholesale handlers in
sh fruits and vegetables interviewed in 1970, including the popula-
of firms selling 10,000 or more tons per year and samples[1] of
firms in the strata selling less than 10,000 per year.[2]

[1]The samples included 90 percent of the firms annually
ing from 5,000 to 9,999 tons, 60 percent of firms handling from
0 to 4,999 tons per year, 20 percent of firms annually selling
1,000 to 2,499 tons and 10 percent of the firms selling less
1,000 tons per year.

[2]SCET-COOP/MERCASA, "Resultado de una Encuesta Parcial a los
ristas de Frutas y Hortalizas," op. cit.

TABLE IV-7.--*Structure of Wholesaling in Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Region for Selected Commodity Specialized Firms Being Totally or Partially Supplied from Outside the Region (1969).*

	Bananas	Citrus Fruits	Apples & Pears	Potatoes & Sweet Potatoes	Tomatoes & Pepper	Garlic and Onions

TABLE IV-7.--Structure of Wholesaling in Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Region for Selected Commodity Specialized Firms Being Totally or Partially Supplied from Outside the Region (1969).

Size of the Firm's Annual Sales (Tons)	Bananas		Citrus Fruits		Apples & Pears		Potatoes & Sweet Potatoes		Tomatoes & Pepper		Garlic and Onions	
	Number of Firms	Tonnage Handled	Number of Firms	Tonnage Handled	Number of Firms	Tonnage Handled	Number of Firms	Tonnage Handled	Number of Firms	Tonnage Handled	Number of Firms	Tonnage Handled
More than 50,000	1	84,240	1	52,800	-	-	-	-	-	-	-	-
From 25,000 to 50,000	1	29,288	-	-	-	-	2	56,880	-	-	-	-
From 10,000 to 24,999	3	50,400	2	31,712	3	39,456	7	104,100	1	11,280	-	-
From 5,000 to 9,999	1	8,832	6	41,392	9	67,976	13	92,234	5	43,980	-	-
From 2,500 to 4,999	1	4,320	7	26,380	10	35,680	16	58,600	7	26,706	2	6,080
From 1,000 to 2,499	3	5,069	11	17,948	13	24,956	9	16,168	6	11,092	10	18,444
From 500 to 999	1	780	-	-	6	4,176	3	2,120	4	3,204	3	2,750
Less than 500	2	544	-	-	2	680	1	168	4	1,608	-	-
Total	13	183,473	27	170,232	43	172,924	51	330,270	27	97,870	15	27,274

Source: SCET COOP-MERCASA, "Resultado de una Encuesta Parcial a los Mayoristas de Frutas y Hortalizas," Documento BK, Unpublished Report, June 15, 1970.

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Inc., 1968).

There is a high degree of seller concentration[1] in banana
esaling, where the five largest firms have a combined market
e of 89 percent. The most important firm sells 84,240 tons or
alf of the volume of bananas. This volume exceeds the consump-
needs of the region, leaving about 30,000 tons to be reshipped
ie central zone of the country.

We find a medium degree of concentration in the citrus
t. The eight largest firms handle 39 percent of the market
ie for the region. Ten firms, including the most important one,
ocated outside wholesale market areas and handle 95,000 tons
ear. About half of the volume traded in the region is sold
gh auction markets. Sales by description take place in the
tine Producers' Association, located in the first basement of
basto Market and with the physical presence of the merchandise
e Saldías Market.

A medium degree of seller concentration also exists in the
and pear market. The twelve largest firms have a market share
percent and the eight largest firms have a market share of
cent.

The degree of seller concentration in the potatoes and sweet
es market would range between low and medium depending on the
of consumption one selects as being representative of the size

[1]Following Bain's criteria, concentration is considered high
ie eight largest firms in the industry have a market share
r greater than 70 percent; medium when it ranges from 33 to
ent and low when it is less than 33 percent. See J. Bain,
ial Organization (2nd ed.; New York: John Wiley & Sons,
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the market. The eight largest sellers have 38 percent of the ional market based on a "low" consumption estimate of only 50 kgs. capita per year. However, on a higher annual per capita consumption estimate of 60 kgs., the eight main sellers would only have a percent share of the market, resulting in a low degree of seller centration. Two-thirds of the specialized wholesalers are located the Mercado Nacional de Papas. Of the two wholesalers selling e than 25,000 tons per year, one is outside the wholesale markets Florida) and the other is in the Abasto Morón Market.

A medium degree of seller concentration also prevails in the atoes and peppers market, where the eight largest sellers have ercent of the market of the region. One-third of the twenty-seven cialized firms are located in the Saldías Market and handle 44,000 s. The market for garlic and onion shows a low degree of seller centration with the eight main firms having a market share of t 24 percent.

In summary, 176 firms out of 240 first wholesale handlers rviewed are specialized in either one product or one type of uct. The firms selling more than 25,000 tons per year and 50 of 57 firms selling from 5,000 to 25,000 tons per year are dity-specialized firms. The less commodity-sepcialized firms to be smaller in size. These smaller broader line firms are ed in wholesale markets, while an important number of more ct-specialized firms are located outside wholesale market areas. wholesalers who sell directly to retailers tend to handle a

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broader product line and are smaller in size than those who deal with other wholesalers and tend to specialize in particular commodities.

Medium degrees of concentration prevail in produce wholesaling when the main products or group of products are considered. The banana market, dominated by importers, shows a high degree of concentration and the onion market, a low degree of concentration. However, Bain's criteria on measures of seller concentration may not adequately fit into the characteristics of the fresh fruit and vegetable business. The information presented in Table IV-7 gives indication that a few firms within each product or commodity group market are large enough to be aware of their mutual interdependence.

Other organizational and operational characteristics of produce wholesalers also give indication of the existence of a reduced number of large better organized firms and a large number of small business operations of the family type.

Table IV-8 describes the composition of the personnel employed by produce wholesalers in the Buenos Aires Metropolitan Area. It is interesting to note that the total number of employees is less than the total number of firms, given an average of less than one employee per firm. This figure lends additional support to the assertion that most firms in the industry are small, of the family type of business operation. A distinction can be made between wholesalers specialized in fruits and those specialized in vegetables. The family type firm clearly predominates in fresh vegetables. Only 3 percent of them have administrative employees and only 6 percent have sales employees. One-sixth of the fruit

TABLE IV-8.--Number and Distribution of Employees Working in Produce Wholesaling Firms in the Buenos Aires Metropolitan Area.

	Commodity Group Specialization							
	Total	%	Only Fruits	%	Only Vegetables	%	Both Fruits and Vegetables	%

	Commodity Group Specialization							
	Total	%	Only Fruits	%	Only Vegetables	%	Both Fruits and Vegetables	%
Total number of firms	1,713	100	681	100	879	100	153	100
Total number of employees	1,370	100	879	100	232	100	259	100
Number of firms:								
With administrative personnel	168	10	107	16	26	33	35	23
Total number of administrative employees	510	37	378	43	40	17	92	36
Average number of administrative employees	3	-	4	-	2	-	3	-
With sales personnel	192	11	108	16	55	6	29	19
Total number of sales employees	365	27	214	24	70	30	81	31
Average number of sales employees	2	-	2	-	1	-	3	-
With stevedores	193	11	97	14	67	8	29	19
Total number of stevedores employed	495	36	287	33	122	53	86	33
Average number of stevedores employed	3	-	3	-	2	-	3	-

Source: CMCBA, 1969 Census on Wholesalers.

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TABLE IV-9.--

Space Occu (m^2)	
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200 and more	

Source: CMCB

wholesalers are large firms having on the average four administrative employees, two sales employees and three stevedores.

The space occupied by produce wholesalers is presented in Table IV-9. One-third of wholesalers in fresh fruits and vegetables, one-half of fruit wholesalers and two-thirds of vegetable wholesalers operate in areas of less than 50 square meters. By looking at the broad commodity groups, again wholesale firms dealing in fresh fruits and in both fresh fruits and vegetables are larger than those handling only vegetables. Twenty-two percent of firms dealing in both fresh fruits and vegetables and 14 percent of firms selling fresh fruits operate in areas of more than 100 square meters against only 4 percent of the firms selling only fresh vegetables.

After having discussed the structural and some operational characteristics of produce wholesaling, we will now consider pricing practices and margins.

TABLE IV-9.--Space Occupied by Produce Wholesalers in Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area by Broad Commodity Specialization.

Space Occupied (m^2)	Fresh Fruit Wholesalers	Fresh Vegetable Wholesalers	Wholesalers in Both Fresh Fruit and Vegetables
	- - - - Percentage - - - -		
) space reported	14	22	16
-49	54	65	39
-99	18	9	23
0-199	10	3	10
0 and more	4	1	12

urce: CMCBA, El Censo Mayorista, op. cit.

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Since fresh fruits and vegetables are distributed in the nos Aires Metropolitan Area by twenty-three wholesale markets, it considered important from the very start of the study to know ther there were significant price differences between wholesale kets. Consultant firms to the Buenos Aires Central Market Corporan when estimating distribution costs for the existing system inded the cost of moving products through a second wholesale stage hout raising the question of whether this process resulted in ce differentials between the first and the second wholesale dis-bution levels.[1] Therefore, a main research task was to determine existence of price differentials among wholesale markets. A ond area of research was to determine whether there were signifi- price differences within wholesale markets. Since the price of transaction is established by bargaining between buyers and ers and there are no market reports on prices, it was considered rtant to determine whether one or several prices for the same handise are determined in the same physical space where the sactions take place, namely a wholesale market.

A survey of wholesale markets was personally undertaken by author during January and February 1972. The survey was intered in early March because the government, in an effort to curb tion, established fixed marketing margins by decree. Thus, the

[1] SCET-INTERNATIONAL/MERCASA/INTECSA/SIE, "Estudio de los s de Desabastecimiento," Unpublished Report, Julio de 1971.

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unt of information produced was less than that originally planned. survey covered three large broad product line produce markets ually considered to be concentration markets--the Abasto, Dorrego 3 de Febrero markets and four medium-size broad product line kets, usually considered distribution markets--the Avellaneda, dad de Buenos Aires, Liniers and Beccar markets.

These markets were surveyed every other day in two alterna- e weeks per month. The starting week was selected to avoid weeks h holidays. This turned out to be the right procedure because idays proved to be strong demand shifters during these summer ths, generating strong population migrations out of Buenos Aires ard summer resorts. Auction prices were first recorded at the entine Fruit Corporation for apples and pears on Monday, Wednesday Friday mornings. These were considered to be base prices for the nsactions taking place during the following twenty-four hours. es were recorded during the afternoon for the Dorrego, Avellaneda 3 de Febrero markets selecting the hours of greater activity, ding to record prices during the starting and closing hours. The procedure was followed with the rest of the markets, recording es during the first hours of the night at the Beccar Market that ted operations at 7:00 P.M. (summer time schedule) and during early hours of the following day, between 4:00 and 7:00 A.M. at Abasto, Ciudad de Buenos Aires and Liniers markets that were in ation during the night. Most prices recorded were those of es and pears that were the most suitable merchandise for compar- prices because of being graded and subject to a greater package

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standardization. Prices for apples and pears were recorded for case lots specifying variety, brand, quality, type of box and fruit size. Prices of peaches and prunes were initially recorded but the lack of grading and the great number of varieties and brands and the fact that the sizes showed on the boxes did not necessarily represent the same actual size for different packers made it impossible to have relevant comparisons.

Price differences between markets.--The main objective was to test the null hypothesis that there were no significant price differences between concentration and distribution markets. Average daily prices for each different fruit size of a given quality, brand, box, variety and market, were pooled by type of market and subject to a two-way analysis of variance. Ten tests were made, five using apple prices and another five using pear prices. An example of test results is presented in Table IV-10.

The null hypothesis of no significant price differences between concentration and distribution markets was not rejected. In only two cases (using apple prices) could the null hypothesis be rejected at the 0.10 level of confidence. However, it must be noted that the average price was slightly lower in distribution markets than in concentration markets.

There are two main reasons to explain why no significant price differences were found between different market types. One reason is that concentration markets perform to some extent as part of a distribution system. A significative volume of apples and pears come from the producing areas to refrigerated warehouses in the

TABLE IV-10.--

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BLE IV-10.--Average Prices in Argentine Pesos Paid for the Box by Produce Retailers for Different Sizes of Apples of the Red Delicious Variety, Brand "A", "Commercial" Quality, by Type of Broad Product Line Market.

Average Prices by Type of Market and Fruit Size

Fruit Size	Market Type: Large Size ("Concentration")	Market Type: Medium Size ("Distribution")	Average
88	27.33	27.72	27.52
100	30.00	29.67	29.83
113	36.50	34.25	35.37
125	34.00	40.00	37.00
163	32.00	34.50	33.25
Average	31.97	33.23	32.60

Analysis of Variance Results

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between markets	1	3.98160	3.98160	0.80415
Between sizes	4	121.76788	30.44197	6.14830*
Error	4	19.80513	4.95128	
Total		145.55462		

e: Survey of the Abasto, Dorrego, 3 de Febrero, Avellaneda, Ciudad de Buenos Aires, Liniers and Beccar markets conducted for this study, January and February, 1971.

*Significant at the 0.10 level of confidence.

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markets.

Buenos Aires Metropolitan Area are sold by description in auction markets[1] and bought by wholesalers in all markets. Also, some important producers not selling through the auction markets send apples and pears to commission wholesalers in several markets. The other main reason is that secondary wholesale handlers get important price discounts when buying in large lots. Price discounts may be large enough to permit secondary handlers to pay for intra-urban handling and transportation costs and other secondary wholesale handler's costs and still sell at prices that are about the same as those charged for small case lots in the large produce markets.

We conclude that the pricing system for apples and pears is reasonably efficient in the sense that retailers are able to distinguish between different combinations of sizes and qualities and that the results of the statistical tests show that in most cases there are no significant price differences between concentration and distribution markets for narrowly defined products when quoting prices paid for small single case purchases.

However, given the limitations imposed on the analysis by the reduced amount of information gathered and by the small size of the sets for which prices were quoted, these preliminary results using apple and pear prices were supplemented by the study of price differences between wholesale markets for citrus fruits. This study was based on information provided by an important citrus producer who

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[1]About half of the volume of apples and pears consumed in Buenos Aires Metropolitan Area is sold by description in auction markets.

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stributed his production among several broad product line markets.[1] same merchandise was delivered to one commission wholesaler in h market. The different fruit sizes were sent to the various mar- s in exactly the same proportion and the prices were reported daily variety and type of box. These prices were pooled by type of ket because shipments were not delivered to each market every day. rage daily prices by type of market were subjected to a two-way lysis of variance. The information covered a four-month period m September 2, 1971 until December 30, 1971. Each variety covers ferent periods of time. Price variations between shipments were lyzed to test the existence of daily or weekly price fluctuations. ever, given the nominal prices used, this test was restricted to se varieties coming to the market during the months of October and tember that showed a stable general price level.

Analysis of variance results for citrus fruits are summarized able IV-11. Only two out of seventeen cases studied showed signi- nt price differences between concentration and distribution ets at the 0.01 level of confidence and none is significant at the level of confidence. Four cases or about 23 percent of the cases yzed are significant at the 0.10 level of confidence and the rest esenting 65 percent of the total, show nonsignificant price dif- nces between concentration and distribution markets. Average

[1]The three large-size markets--Abasto, Dorrego and 3 de ro--were included as well as the medium-size--Liniers, Turdera, r and San Martín--and the small size--Valentín Alsina and Villa lli--making a total of nine markets.

TABLE IV-11.--

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Total

Source: Pric

BLE IV-11.--Summary of Significant Price Differences Between Markets and Between Shipments for Citrus Fruits.

Level of Significance	Number of Cases				
	Oranges	Grapefruits	Tangerines, Bergamots	Lemons	Total
Between Markets					
0.01	2	-	-	-	2
0.05	-	-	-	-	-
0.10	2	1	1	-	4
significant at .10	3	3	3	2	11
Total	7	4	4	2	17
Between Shipments					
0.01	-	-	1	-	1
0.05	-	-	1	-	1
0.10	-	-	-	1	1
ignificant at 10	4	2	1	-	-
Total	4	2	3	1	10

ce: Price data provided by an important citrus-producing firm.

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prices are higher in distribution markets in the two cases where significant price differences at the 0.01 level of confidence were found. Thus, when citrus fruits are selected to test the null hypothesis of no significant price differences between concentration and distribution markets we get further empirical evidence that prevents rejection of the null hypothesis.

With respect to price differences between shipments that reflect price fluctuations for periods ranging from a few days to several weeks during the months of September and October of 1971, only one case out of ten was significant at the 0.01 level of confidence while another was significant at the 0.05 level of confidence.

It is worth noting that when narrowly defining apples, pears and citrus fruits by varieties, brands, qualities, sizes and type of box, we are in fact generating a large number of different products. From twenty-seven analyses of variance corresponding to those products, only two or 7.4 percent of the tests, permitted rejection of the null hypothesis of no price differences between concentration and distribution markets at the 0.01 level of confidence. In these cases average prices were higher in distribution markets. There were no additional statistically significant price differences at the 0.05 level of confidence and in only six cases differences were significant at the 0.10 level of confidence. In these six cases average prices turned out to be higher in concentration than in distribution markets.

Results of the analysis of variance tests show that, in spite of some volume subject to resale, price differences between

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concentration and distribution markets are not significant for the fruits selected for the study. Apples, pears and citrus fruits account for about 20 percent of the total consumption of fresh fruits and vegetables. Therefore, these results are also significant in the sense that they are valid for an important section of the market. The fact that the merchandise has been so narrowly defined as to generate twenty-seven different products, that the market sample included all the broad product line concentration markets and eight distribution markets, and that in general no significant price differentials between the different types of markets are found, leads us to conclude that the pricing efficiency is in this respect remarkable and that, in spite of having so many wholesale market facilities, there is in fact only one broad market for these products.

The question remains of whether these results can be extended to all fresh fruits and vegetables. The answer is that they probably cannot because there is no information to support a statement in that sense. Moreover, other fresh fruits and vegetables do not enjoy the particular characteristics that distinguish the apple, pear and citrus markets, namely, grading, some degree of package standardization and auction markets where large volumes are sold by description in large lots, providing in this way some degree of price transparency of transactions.

However, the degree of pricing efficiency found in the apple, pear and citrus fruit markets suggests that it would be possible to have pricing efficiency extended to other produce markets

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Price variations within markets.--A second objective of the urvey of wholesale markets was to observe whether there were price ifferences within markets. Again the fact that the survey had to be nterrupted reduced the amount of information available. Average per ox price differences for apples ranged between A$1.15 at the 3 de ebrero Market and A$3.00 at the Avellaneda and Beccar markets able IV-12), with prices per box of apples more frequently ranging tween A$35 and 45. Average price differences for pears ranged tween A$0.57 at the Ciudad de Buenos Aires Market and A$2.40 at e Dorrego Market, with prices commonly fluctuating between A$28 d 38.

Average price differences within each market were tested ainst the null hypothesis of no price differences within each rket. The results of the "t" tests are presented in Table IV-12. can be seen that for some markets the number of observations is remely low. Price differences within wholesale markets were nd to be nonsignificant at the 0.10 level of confidence, except apples at the Dorrego Market where price differences were signi- ant at the 0.02 level of confidence. The tests presented provide e empirical evidence of a reasonable pricing efficiency for the e standardized product markets.

Gross Margins.--Price spread margins were determined for es and pears. These products, in addition to the advantage of

TABLE IV-12.-

Market
Abasto
Dorrego
3 de Febrero
Avellaneda
Beccar
Ciudad de Bue Aires

Source: Surv Ciud for

Note: Number in the

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BLE IV-12.--Average Price Variations in Argentine Pesos and "t" Values Obtained When Testing Price Differences for Apples and Pears Within Wholesale Markets.

Market	Apples "A" Brand		Pears All Brands	
	Average Price Variation	"t"	Average Price Variation	"t"
	$A		$A	
sto	1.25	0.642 (8)	1.57	1.332 (7)
rego	2.00	3.463* (6)	2.40	1.153 (14)
e Febrero	1.15	0.930 (20)	0.86	1.476 (10)
llaneda	3.00	1.473 (6)	1.17	0.867 (6)
car	3.00	2.000 (4)	--	--
ad de Buenos res	2.19	1.164 (16)	0.57	1.152 (7)

ce: Survey of the Abasto, Dorrego, 3 de Febrero, Avellaneda, Ciudad de Buenos Aires, Liniers and Beccar markets conducted for this study, January and February, 1971.

: Number in brackets corresponds to the number of observations in the sample.

*Significant at the 0.02 level of confidence.

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esenting a higher degree of standardization than other fresh fruits
d vegetables, are sold by description in two auction markets. Large
ceivers channel the bulk of their apple and pear sales in the Buenos
res Metropolitan Area through the Argentine Fruit Corporation Auction
rket, where sales take place in lots of 50 to 200 boxes. A propor-
on of their sales, not greater than 30 percent, is sold by the same
ms in stalls located in wholesale markets.

The basic data to estimate price spread margins were records of
le and pear prices at the Argentine Fruit Corporation Auction
ket during the period of January-February 1972 and the average
ces for small sales to retailers in wholesale markets of the same
rowly defined merchandise. These average prices were estimated
ing the survey of wholesale markets that took place during the same
iod.[1] The price spread margins estimated in that way overstate
ual gross margins because, even when most sales are made to small
ilers, a proportion of the sales is made to larger retailers and
of-town buyers who get price discounts on those larger purchases.
, an account has not been taken of produce losses and spoilage.
oportion of pear sales is made at marked-down prices because of
d ripening and deterioration.

Price spread margins by quality and size are presented in
es IV-13 and IV-14 for apples and pears, respectively. A two-way
ysis of variance showed that price differences between qualities
ize were significant at the 0.01 and 0.05 levels of confidence
pples and nonsignificant for pears at the same level of

[1]Refer to page 126.

TABLE IV-13.--

Quality
"Elegido"
"Comercial"
"Comun"
Average

TABLE IV-14.-

Quality
"Elegido"
"Comercial"
"Comun"
Average

Source: Pr
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ABLE IV-13.--Average Price Spread Margin Between Auction Prices and Prices Made by Wholesale Operators Selling Fresh Apples, Variety Red Delicious, Brand "A" in the Buenos Aires Metropolitan Area.

Gross Margins

Quality	Size			
	Large	Medium	Small	Average
legido"	18.05	12.13	19.95	15.08
omercial"	27.89	24.04	32.58	27.77
omun"	24.18	18.59	25.95	22.51
erage	21.29	15.32	26.22	19.57

BLE IV-14.--Average Price Spread Margins Between Auction Prices and Prices Made by Wholesale Operators Selling Fresh Pears, Variety Williams, Brand "A" in the Buenos Aires Metropolitan Area.

Gross Margins and Economies of Mass Buying

Quality	Size			
	Large	Medium	Small	Average
egido"	17.58	11.93	12.66	13.27
nercial"	20.00	12.39	9.75	11.55
nun"	9.77	11.55	15.40	11.91
rage	13.92	11.92	11.89	12.29

ce: Price records of sales by description at the Argentine Fruit Corporation Auction Market for apples and pears and survey of wholesale market facilities (January-February, 1971).

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confidence. These results suggest that wholesalers and retailers make distinction between different combinations of qualities and sizes for apples but do not make such differences for pears. In-depth interviews with wholesalers confirmed that differences in quality and size were not so important in pears as in apples.

Summary and Conclusions

The description and analysis of the existing wholesale physical facilities shows that even though most wholesale market facilities are obsolete by the criteria of locational and traffic suitability, the completeness and flexibility of physical facilities and the availability of support facilities, the operational conditions of some of them could be improved with additional investments. However, the operation of some wholesale markets in highly populated central neighborhoods is imposing increasing external diseconomies on market and nonmarket participants. These operations should be transferred to another location. In this way, valuable pieces of land would also be freed for alternative uses that might have a higher social value.

One of the alleged major flows of the existing wholesale distribution system for fresh fruits and vegetables is the excessive number of transactions between wholesale operators. This is largely brought about by a structure of distribution whose main feature is that 47 percent of the volumes introduced in the Buenos Aires Metropolitan Area is received either in commodity-specialized concentration markets or by large receivers who are located outside wholesale market areas. These large firms also present a high degree of product specialization. This structure forces a degree of commodity

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specialization by secondary wholesale handlers, who do not find in one place a group of large receivers selling a broad product line. Also, large retailers or out-of-town buyers looking for a complete product line must make purchases at the large-size broad product line markets, finding it impossible because of lack of sufficient time or inconvenient because of higher procurement costs to directly deal with the larger receivers.

The structural and some operational characteristics of produce wholesaling indicate that there is a large number of small wholesale firms of the family type of business operation and a small number of large, highly organized firms within each major product or commodity group. These large receivers, who may have a sizable market share, must be aware of their mutual interdependence.

Auction sales by description of the more standardized fruits provide some price transparency of transactions. Furthermore, non-significant price differences between broad product line markets and within those markets were found to be the predominant situation for apples, pears and citrus fruits, showing a reasonably satisfactory pricing efficiency. Though these results probably cannot be readily extended to other fresh fruit and vegetable markets, they suggest that other product markets could be better organized and have a more workable pricing efficiency once product grading and packaging standardization are adopted and an effective communication system is instituted. The case study of apples and pears and the analysis of

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price data for citrus fruits also indicate that it is possible to have pricing efficiency in a decentralized wholesale facility arrangement.

The information presented in the last two chapters points out that there may be important external economies in having the large primary receivers operating in one or a few wholesale markets. The procurement practices of large retailers and out-of-town buyers and the development of broader product line wholesalers could be facilitated in this way.

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CHAPTER V

ISSUES CONCERNING THE JUSTIFICATIONS

FOR THE PROJECT

The main characteristics of the marketing system for fresh ruits and vegetables in the Buenos Aires Metropolitan Region have een presented in the preceding chapters. Buenos Aires is one of ne largest urban conglomerates in the world. The population, 350,000 inhabitants in 1970, has grown very rapidly, particularly nce 1947, due to the natural rate of growth of population in the gion combined with domestic migratory flows that tended to concen- ate in and around the Federal capital. The city expanded vertically the Federal District, where a dense urban structure developed, and rizontally in Greater Buenos Aires.

The increase in the demand for food and for food marketing rvices brought about by a fast growing population, rising levels of r capita income and expanding market area required the addition of significant number of food retail outlets. This created a need r new wholesale produce markets that, following the pattern of pulation settlements, were built in Greater Buenos Aires, making a own of wholesale market facilities around the Federal District.

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However, the wholesale markets located in the inner city lacked space for an orderly, planned expansion of market activities to satisfy the increased demand for fresh fruits and vegetables in the Federal District. Thus, market and market-related activities spread into the area surrounding these wholesale facilities, which became highly congested. This problem was made worse during the 1960s when private car transportation rapidly expanded while the urban highway network remained underdeveloped. As a consequence, substantial social costs are imposed by the operation of wholesale produce markets in highly populated central city neighborhoods. Also, as the operational costs of wholesale market facilities increase, the cost of marketing fresh fruits and vegetables in the Buenos Aires Metropolitan Area will be rising over time.

Produce retailing is characterized by a large number of small retailers who make produce purchases several days a week at the closest broad line produce wholesale market. Many retailers use their own vehicles to haul the merchandise they buy to the retail ship. There is also a small number of self-service retail food stores facing difficult procurement problems in their produce sections.

The wholesale distribution system for fresh fruits and vegetables is a complex one. There are four specialized concentration markets and mineteen broad product line markets. There is a small number of large produce receivers, most of them located outside wholesale market areas, and a large number of small wholesalers carrying on business in wholesale market stalls and in old residences

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djacent to wholesale markets. These structural characteristics have rought about two undesirable consequences: (1) there is a substantial olume of transactions between primary and secondary wholesale handlers hat allegedly results in high distribution costs which could be reatly reduced in a better organized distribution system; and (2) here is little price transparency of transactions for most products.

The Buenos Aires Central Market Corporation's Project of ncentrating in one location all wholesale transactions in fresh uits and vegetables implies that the structural and locational aracteristics of produce wholesaling, namely, the number of whole- le markets (Wnm), the locational and traffic suitability of whole- le market facilities (Wlt) and their completeness and flexibility design (Wcf) are the policy instruments that would be used to lve the above-mentioned problems. This solution assumes that ructural changes in produce retailing would take place independently the changes to be introduced in produce wholesaling and that the les of transportation of produce purchases made by retailers would ust spontaneously to the new situation.

This chapter will discuss several issues concerning the justi- ation of the project. One issue is how broadly the costs and efits associated of the project are going to be considered in essing its economic feasibility. A second issue is whether the ectives set up to justify the project can be achieved solely by construction and operation of a central wholesale market. ally, it is necessary to consider alternative solutions to the

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same problems to find out whether the project constitutes a lower cost alternative.

The Project

The Buenos Aires Central Market Corporation, an autonomous public agency created in 1967 by joint action of the national government, the Province of Buenos Aires and the Municipality of the city of Buenos Aires, has the responsibility of building a new central wholesale market to serve the Buenos Aires Metropolitan Region. The new wholesale facility will be located in Greater Buenos Aires close to the border with the Federal District (Figure VI-1). The total land area is 549 hectares, of which 210 will be devoted to the wholesale market and the rest, 339 hectares, will be kept in reserve for future expansion of the market and the market-related activities.

In the first stage of development, the wholesale facility would have a fresh fruit and vegetable market area (18.5 hectares), a fish market (0.9 hectares), an administrative center (2 hectares) and annexed support facilities. Parking lots would cover 39 hectares; streets, 24 hectares; and railroad sidings, 30 hectares. In a second stage of development, a refrigerated warehouse, banana-ripening facilities, flower and egg market facilities would be added.

The main direct costs of the new wholesale facility are capital costs (investment in land, new facilities and equipment) and operating costs. The main direct benefits are the income flows generated by rents and fees and the reduction in product losses and spoilage that new handling methods and storage facilities will make possible.

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The main income sources of the projected new central market would be: (1) rents charged on 1,200 produce wholesale stalls and 50 fish wholesale stalls, estimated at $4.3 million per year; and license rights on banks, parking lots, restaurants and cafeterias, gas and service stations and other business, estimated as one million dollars per year; (2) fees on general services of perfect divisibility (such as product storage); and (3) a fee on general services of imperfect divisibility, mainly the expenditures in general services, utilities and the salaries paid to the board of directors, the market manager and his staff and the personnel for several market departments.[1]

The operation of the new wholesale facility would permit, according to the Buenos Aires Central Market Corporation, the achievement of several objectives including a reduction in retail produce prices, an increase in farm prices of fruits and vegetables and a greater price transparency of transactions.[2] These objectives show that holding food prices down and improving the income position of farmers continue to be, as in the past, a matter of concern for the government. However, the decision to build a new wholesale market reveals that after previous failures trying to directly regulate market performance,[3] the attempt will now be made to influence prices

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[1]Adolfo E. Buscaglia, "Análisis de la Factibilidad Financiera, Projecto Mercado Central de Buenos Aires," Informe Preliminar, Buenos Aires, Marzo 1969.

[2]Corporación del Mercado Central de Buenos Aires, Projecto del Mercado Central de Buenos Aires, Mayo 1970.

[3]L. J. Chiodo et al., op. cit.

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and costs by modifying the structure of produce wholesaling. However, the conceptualization of the project reveals both an anti-middleman mentality and some particular beliefs on how the marketing system works. Under the new central market scheme, it is argued that cost reductions will be brought about by the elimination of most secondary wholesalers in fresh fruits and vegetables and by the adoption of more capital intensive handling techniques, which would make it possible to significantly reduce the number of porters. The project approach to the problem assumes that the services of secondary wholesale handlers are unnecessary costs to the distribution process. The project also tends to disregard unemployment problems. The project rationale also anticipates that price transparency of transactions would be achieved by physically concentrating products, buyers and sellers in one wholesale facility. Such concentration of wholesale transactions in the new central market would be expected through new legislation[1] that would make wholesale transactions outside a new central market illegal. This rule would apply to wholesaling in an area defined by the "perimeter of defense" of the new wholesale facility.

The decision to build and operate a single wholesale market for fresh fruits and vegetables and the implicit beliefs on how the marketing system performs raises several economic and policy issues.

The Economic Feasibility of the Project

The assessment of the economic feasibility of the project can be approached in two ways: (1) by a simple profitability

[1] Ley de Mercados de Interés Nacional, 1971.

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analysis, comparing the internal costs and revenues of the project without making any attempt to quantify the effects of the new facility on market and nonmarket participants; and (2) by expanding the analysis of internal costs and revenues to include also the indirect and social costs and benefits brought about by the project.

Using the first approach, the rents and fees on general services paid by produce wholesalers constitute the expected benefits of the project when its feasibility is assessed. However, rents and fees to cover other overhead costs may become higher in the project than they are in the existing system. If this is the case, when using the second approach the difference becomes a cost to be borne by wholesalers in the first place, but that can easily be passed onto retailers and consumers as higher produce prices charged to them. Alternatively, the higher direct market facility costs can be passed onto producers by paying them lower produce prices. Therefore, this difference would constitute a marginal cost that is imposed on the distribution system and would be finally borne either by consumers or producers or both.

The possibility that overhead costs become higher in the project than they are in the existing system may be one of the more critical issues. Since produce wholesale operations will be illegal outside the Buenos Aires Central Market in an area including most of the Buenos Aires Metropolitan Region, the Buenos Aires Central Market administration will be in a position to monopolistically fix rents and fees to cover even an inefficient market administration.

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However, even if rents and other overhead costs are higher in the New Central Market than they are in the existing system, under the broader criterion of economic feasibility, the new wholesale facility may still constitute a lower cost alternative if it helps to reduce indirect operational costs and social costs. Thus, the broader criterion of economic feasibility takes into account the external effects that the project would bring about, making some market participants better off and some others worse off. The indirect operational costs to be considered are: (1) handling costs; (2) intra-urban transportation costs brought about by transactions between produce wholesalers; (3) transport costs for retailers making produce purchases in the new wholesale facility; and (4) transport costs for truckers arriving at the market to off-load.

The substitution of capital intensive handling techniques for labor intensive methods is both an economic and social issue raised by the project. Although the new wholesale facility has been designed to employ capital intensive produce handling techniques their adoption may not reduce handling costs because factor prices in the Buenos Aires Metropolitan Area differ from factor prices in the countries where these techniques are now being used. Since there is a broad range of alternatives to improve handling efficiency, studies should be undertaken to determine which handling techniques give the optimum factor proportion given the factor prices in the area. Unless this is done, a significant number of porters would lose their jobs and would be made worse off, without providing an economic justification for such a decision.

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An important volume of fresh fruits and vegetables, estimated as 1,150,000 in 1970, moves through a two-stage wholesale distribution system. It was found that 876,000 tons, or 40 percent of the volume introduced in the Buenos Aires Metropolitan Region, was subject to resale because of being received in either specialized concentration markets or by large commodity-specialized receivers who are located outside wholesale market areas, having as regular customers other wholesale operators.[1] The structural solution proposed by the Buenos Aires Central Market Corporation is based not only on the drastic reduction of wholesale markets but also in the elimination of second-stage wholesale handlers.[2] This point of view can be analyzed focusing alternatively on first and second wholesale handlers. The business of large receivers, producers, packers and importers, is dealing in large lots. They provide a ready market for producers and shippers and devote their economic, financial and commercial capacity to backward, vertical coordination of the produce distribution system. Selling in small lots to a large number of retailers will change the character of their operations, may increase their operating costs and handicap their role as market coordinators. However, the crucial issue is whether secondary wholesale operators can be eliminated at all. There are 1,900 secondary wholesale firms, representing 68 percent of the total number of produce wholesaling firms. The average

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[1]Refer to Chapter IV, pp. 103-13.

[2]SCET INTERNATIONAL/MERCASA/INTECSA/SIE, "Estudio de los Costos de Dasabastecimiento," Unpublished Report, Buenos Aires, Julio 1971.

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secondary wholesale firm is composed of two owners and 0.6 employees. There is a question as to whether such an important group of wholesale firms can be eliminated at once without creating a social or a political problem. But focusing solely on economic analysis, even when secondary wholesalers could perhaps be eliminated in their traditional way of operation, somebody in the market will have to take over their functions and provide the services that they are supplying at present. Their main functions are bulk-breaking and bringing produce closer to the retail shop, and since large receivers may be unable without major changes in operation to take over the functions of secondary wholesalers, it is highly probable that some secondary wholesalers would continue to provide those functions as truck-jobbers. They may make produce purchases on behalf of licensed retailers and bill for their services as freight charges. Therefore, though many secondary wholesalers could be put out of business (and thereby made worse off), secondary wholesale handlers would not be completely eliminated because, given the size of the Buenos Aires Metropolitan Area and the structure of produce retailing, their services would be required by those retailers who are located far away from the new wholesale facility and purchase a relatively low volume of fresh fruits and vegetables. Many retailers may find out that it is less expensive to be supplied by truck-jobbers than be forced to travel farther and deal with large specialized wholesalers to purchase a few produce bundles. Actually, how retailers' procurement costs are going to be affected by the reduction in the number of wholesale markets is one of the main issues to be considered.

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It is very likely that produce retailers will have higher ransportation costs and will spend more time traveling in a single holesale market system than in the existing system because of having o make purchases at a more distant market. The increase in transortation costs may be substantial. Most of the 23,000 produce reailers go shopping 4.4 times per week (on the average) at the nearest f nineteen broad line produce wholesale markets. Even if retailers' verage weekly purchasing frequency decreases in a single wholesale acility system and even when the time retailers spend in getting into ie market, finding parking space and getting out of the market may be ignificantly reduced in the new wholesale facility, the drastic reuction in the number of wholesale markets from nineteen to only one ill have a major impact in retailers' procurement costs. In addition, o the extent that retailers' average weekly purchasing frequency deeases in the project, other costs must increase: retailers will ed more storage space, larger transportation vehicles and more rking capital. Also, they might be more willing to be supplied by uck-jobbers, whose operating costs must also be included in any mprehensive assessment of the project costs.

Thus, a large number of small retailers may be made worse off cause either their procurement costs would rise or they would have rely on truck-jobbers to get produce supplies. However, large tailers may be better off because of finding in the same place a oup of large wholesalers being able to provide more variety and sistent product quality.

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Truckers bringing produce into the Buenos Aires Metropolitan Area would also be made better off, because of having reduced transportation costs due to less congestion and waiting to off-load.[1]

Social benefits that would make better off a significant number of market and nonmarket participants include: (1) reduced traffic congestion and littering of the streets surrounding the wholesale market facilities that would cease operating; (2) improved sanitary conditions; and (3) greater price transparency of transactions. Social benefits would also arise if the objectives of the project are achieved and produce prices become lower in a single wholesale facility produce distribution system. However, there is a question on whether the objectives set up to justify the project can be achieved solely by the construction of a new central wholesale market and whether the legislation that would force the concentration of produce wholesale transactions in the new wholesale facility can actually be enforced.

The Attainment of the Objectives of the Project

The objectives of the project were restated in 1972 in the following way: (1) to benefit consumers by facilitating competition; (2) to make it possible for producers to directly supply the Buenos

[1]Truckers' waiting time was reduced by 50 percent in the new Elms Market in the London Metropolitan Area compared with the time they spent in the old Covent Garden Market area. See J. H. Clark, "The Economics of Moving Covent Garden: A Reply," Journal of Agricultural Economics, XXIII, No. 2 (1972).

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Aires Metropolitan Region; and (3) to bring about a more efficient distribution and price formation system.[1]

However, these objectives cannot be achieved solely by the construction of a new central market. Investment in complementary programs will become necessary to attain the stated objectives. The cost of these complementary programs should be included as costs of the project or, more properly, the analysis should be expanded to include the costs and benefits of the whole marketing program.

On the supply side, producers will probably find it advantageous to better organize the assembly and shipping of their product and should receive special assistance if they are to take over marketing functions so to effectively coordinate their production and marketing activities with the Buenos Aires Metropolitan Region wholesale market. A program of this type could start when the time comes to promote product grading and additional marketing services in the producing regions such as hydrocooling, washing, brushing and waxing. Also, supply diversion to processing and alternative uses other than fresh consumption could be considered for some products. However, this would become a national program by its scope, going far beyond what can be achieved by the construction of a new central wholesale market in Buenos Aires.

On the demand side, consumers can benefit from improved produce distribution either in the form of lower retail prices or a more desired set of services being provided to them. Though a small

[1]Corporación del Mercado Central, Consurso de Antecedentes y Propuestas de Evaluación Económica y Programación Financiera, Buenos Aires, 1972.

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segment of the market for fresh fruits and vegetables may require home delivery and an increasing segment may be willing to pay for additional services such as washing of potatoes, the greatest need is for lower product prices. The necessary conditions for the project to bring about a reduction in the prices consumers pay for fresh fruits and vegetables are: (1) to reduce intra-urban distribution costs, and (2) to foster price competition both at wholesale and retail levels so that reduced distribution costs are not internalized by wholesalers or retailers but are passed on to consumers in the form of lower prices.

Thus, the achievement of the objective of reducing produce retail prices imposes on the project an important constraint. It must reduce the direct and indirect operational costs of marketing fresh fruits and vegetables in the Buenos Aires Metropolitan Region. This would be a necessary but not sufficient condition to reduce produce retail prices. Therefore, the economic feasibility of the project should not be assessed by the simple internal profitability analysis.

However, when all external effects are taken into account, it is possible that the direct and indirect costs of marketing fresh fruits and vegetables remain the same or may even increase slightly in the short run and the project still be feasible. In this case, the main benefit would arise from a reduction of the social costs imposed on nonmarket participants by the operation of wholesale markets in highly populated urban neighborhoods. Moreover, taking a longer-run view, marketing costs in the new distribution system

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Another issue concerns the means and the cost of enforcing legislation making compulsory that all wholesaling of fresh fruits and vegetables take place at the New Central Market. Even though produce wholesalers, retailers and transporters would have to operate under public license, it may be extremely difficult to control some 23,000 produce retailers to find out where and from whom they are making produce purchases. But even if it were possible to prevent wholesale transactions in fresh fruits and vegetables outside the New Central Market (within the market perimeter of defense), the cost of enforcing a law that has been enacted to meet these particular circumstances must be added to the cost of the project.

Alternative Wholesale Facility Arrangements

A study of the economic feasibility of the project should include a comparison with alternative wholesale facility arrangements. Such a feasibility assessment of the project is highly recommendable because of the size of the investment, almost $43 million, that would be committed to the construction and operation of the New Central Market.

The project would use the number of wholesale markets (Wnm), the locational and traffic suitability of wholesale market facilities (Wlt) and their completeness and design flexibility (Wcf) as decision variables to achieve its objectives. However, even within the range of potential solutions provided by these variables, only one

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alternative, a single wholesale market facility, has been considered. A large number of different wholesale arrangements can be devised to provide a solution to the problems that have developed in the past and to meet future demand for produce wholesale services. Such potential solutions can be included in one of the following wholesale distribution systems:

1. Centralized concentration and distribution, as it has been planned in the project;
2. Centralized concentration in one main wholesale market (such as the one in the project) and decentralized distribution through several wholesale markets;
3. Decentralized concentration and distribution in a system of several markets both receiving and distributing fresh fruits and vegetables.

Several alternatives can be considered within the decentralized wholesale facility arrangement:

1. To continue without a new wholesale facility and to expand and improve the operation of the existing wholesale markets;
2. To close the Abasto and the commodity-specialized concentration markets in the Federal District and to build a new wholesale market, leaving the other existing markets in operation;
3. Same as #2, except for the additional requirement that produce wholesalers be located within designated wholesale markets;

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4. To close most wholesale markets, build a new one and leave only a few of the existing markets in operation.

The main factors that must be taken into account in order to select the alternative wholesale facility arrangements to be compared with the project and the existing system are: (1) The characteristics of the Buenos Aires Metropolitan Region, namely, the size of the area (A), the size of population (N) and its locational distribution (N1), and the factors external to the food distribution system that will affect the future demand for fresh fruits and vegetables. The expected changes in population (N) and population location (N1), in levels of per capita income (Y/N) and in the structure of employment (E) must be considered. (2) The structure of produce retailing (Rs), retailers' transportation costs (Rp) and the mode of transportation of produce purchases made by retailers (Tm); 3) The size of investment (I); and (4) Social costs brought about by the problems of price formation and price transparency of transactions (Cs).

Projections show that the population of the Buenos Aires Metropolitan Region, that was 8,350,000 inhabitants in 1970, would almost double during the period 1970-2000, unless the government designs and enforces policies to prevent such population concentration. Trends in population growth and expected changes in income and employment suggest that the future increase in the demand for fresh fruits and vegetables will largely take place in Greater Buenos Aires rather than in the Federal District.

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The Buenos Aires Metropolitan Region constitutes an extensive land area: its diameter averages thirty-seven miles. Traffic congestion resulting from a tremendous expansion of private car transportation and from expansion of the bus services makes difficult the operation of large wholesale markets in the inner city and increases traveling time and vehicles operating costs of produce retailers and market suppliers.

Produce retailers constitute the bulk of customers making produce purchases in wholesale markets. Therefore, how the different wholesale facility arrangements would affect their procurement costs must be given particular consideration. Retailers' procurement costs per unit purchased will be a direct function of the distance traveled to shop in a given wholesale market and an inverse function of the volume purchased. There is a large number of produce retailers that make small produce purchases per trip. Even when a single concentration market may have the advantages of somewhat lower produce prices and of offering a wider produce line, those advantages would not offset the increase in the procurement costs of many retailers that would have to make purchases at a more distant wholesale market, even their small volume of purchases and the high transportation costs imposed by traffic congestion.

Taking into consideration the size of the region, the expected increase in demand for fresh fruits and vegetables in Greater Buenos Aires, the structure of produce retailing and the high transportation costs that result from traffic congestion, the reader may be prone to conclude that, within reasonable bounds,

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produce distribution costs must be an inverse function of the number of wholesale markets. However, the number of wholesale markets must be kept within limits because concentration of transactions also have advantages. The number of wholesale markets must be reduced to meet the procurement needs of large retailers and out-of-town buyers, to eliminate or significantly reduce the social costs imposed on non-market participants by the operation of wholesale markets in highly populated neighborhoods, to facilitate the process of price formation and reduce the cost of instituting an effective communication network.

The size of the investment and the potential impact on retailers' procurement costs of different wholesale facility arrangements may be the most important criteria for selecting alternatives to be compared with the project and the existing system when the number of wholesale markets (Wnm), the locational and traffic suitability of wholesale market facilities (Wlt) and their completeness and flexibility of design (Wcf) are the only variables taken into consideration as policy instruments. Some wholesale markets that do not face major problems of traffic congestion and whose operation can be improved by marginal investments could continue to play a role in a decentralized wholesale facility arrangement. This solution would make it possible to significantly reduce the investment in a new wholesale facility.

Chapter VI will present a comparison of some operational costs between the existing system, the project and an alternative wholesale facility arrangement that will keep some of the existing wholesale markets in operation.

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CHAPTER VI

A PRELIMINARY COST COMPARISON OF ALTERNATIVE WHOLESALE FACILITY ARRANGEMENTS

A preliminary assessment of the investment and operational sts of two new wholesale facility arrangements as compared with the sting System will be presented in this chapter. One alternative rangement is the Buenos Aires Central Market Corporation's Project[1] building a new central wholesale market that would substitute for e twenty-three produce wholesale markets that are in operation at sent. The other wholesale facility arrangement is a decentralized duce wholesale distribution system of either four or five wholesale kets.

The reasons for considering a decentralized system have al-dy been discussed (Chapter V, pp. 157-61). The selection of whole-e markets to be included in this arrangement was approached on the lowing basis: (1) An appraisal was made of the existing wholesale kets to decide whether some of them could be selected for continued ration; (2) It was assumed that a new wholesale market would be

[1]Refer to Chapter V, p. 145, for an explanation of the main racteristics of the Project.

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built to satisfy the demand that exceeds the combined capacity of those produce wholesale markets that would continue in operation and to serve as a specialized primary receiving market; and (3) It was reasoned that as a first approximation to determine the "optimum" number of wholesale markets, a four vs. five market systems could be examined to test the sensitivity of the direct and indirect costs estimated for changes in the number of wholesale markets.

An Appraisal of the Existing Wholesale Public Market Facilities

Some wholesale markets have been selected for continued operation because they either meet minimum requirements of operational efficiency or their operating conditions can be improved by marginal investments, according to the following criteria:

1. The locational and traffic suitability (Wlt) that will depend on: (a) the accessibility to highways and the availability of rail connections, and (b) the readiness of access to the wholesale stalls and of exit from the wholesale facility;
2. The completeness and flexibility of physical facilities (Wcf), taking into account the availability of space for parking, display, unloading of vehicles, product storage and for expansion of wholesale facilities; and
3. The availability of support facilities including some services such as public restrooms, restaurants, bank offices and facilities for motor vehicle servicing.

When all the twenty-three produce wholesale markets are examined, most of them are obsolete by the criteria selected to judge

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heir operating conditions. Access to most markets is poor and no road product line market has rail access. Access to the wholesale talls is, in general, extremely difficult. There is no space for xpansion and storage for empty boxes is a serious problem. Only a ew markets have parking lots. Wholesale stalls have room only for imited product storage and display. A very low proportion of stalls ave a phone line. Some markets have separated sections for fruits nd for vegetables but in most cases wholesalers selling similar pro-ucts are scattered throughout the markets. Loading and unloading of otor vehicles usually interferes with the flow of traffic in the rket area.

All of the above-mentioned problems result in lost time and sulting high costs. Excessive time in reaching the markets, getting to the markets, unloading and loading, getting out of the markets, a common element of cost both for suppliers and buyers. The poor rangement of the wholesale stalls increases the time that retailers d other buyers must spend in making purchases.

The problems of produce handling deserve special emphasis. ere are no elevated platforms at truck-bed level and no mechanical ndling of the merchandise. However, in this case it is not possible say that the lack of mechanical handling results in a higher cost. r is it possible to suggest the adoption of modern technology thout considering the factor endowment and the factor costs in the gion. Unemployment is a continuing problem in the area reaching ost 8 percent in July, 1972. To some extent this is a transitory uation; however, capital is and will continue to be for some time

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scarce resource and adoption of labor-saving technology should not e advocated without a careful consideration of its impact on costs nd employment.

On the basis of a very limited investigation, it appears that ne operation of two out of three large-size broad product line arkets in the BAMA could be improved by marginal investments: these re the recently built 3 de Febrero Market and the Dorrego Market.[1] ough access to these markets is not ideal, it does not result in rious traffic congestion and it can be improved by the pavement of important avenue in the case of the 3 de Febrero Market. Access the wholesale stalls is fairly good and loading and unloading of tor vehicles can take place without excessively interfering with rket traffic. Both have parking space and expansion can take ace by removing the neighboring slums. The Dorrego Market has a cently built section that is vacant and there is available space and llingness by the wholesalers to build another new section. The main oblem of the 3 de Febrero Market could be to rearrange the location wholesalers within the market so as to minimize purchasing time retailers and to stimulate price competition.

Other wholesale facilities that could be kept in use for some ne in an evolving distribution system are the Beccar and the días markets. The Beccar Market is particularly well located, far ugh from the projected New Central Market so as to provide an ortant service to the retailers in its area of influence by

[1]Refer to Chapter IV, pp. 96-99 for a more detailed cription of these wholesale markets.

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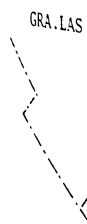
ringing the merchandise much closer to them. Access to the market s fairly good but access to the inner wholesale stalls is narrow nd the merchandise has to be hauled to retailers' vehicles in small arts. The Saldías Market, being located on a national railroad roperty does not face the traffic problems that characterize down- own Buenos Aires. Access to the market is good since the market is lose to two main avenues that border the River Plate. Access into ne market does not present problems. Both the Beccar and the Saldías arkets have reasonably adequate parking facilities.

A Comparison of Operational Costs of Alternative Wholesale Facility Arrangements

Two decentralized wholesale facility arrangements including ne wholesale markets of the Existing System selected for continued peration were designed. Alternative I includes the Dorrego, 3 de brero and Beccar markets and a new wholesale market, whose capacity s been estimated to be about one-half of the capacity of the rket projected by the Buenos Aires Central Market Corporation (the oject). Alternative II includes, in addition to those four whole- le markets, the Saldías Market that would be converted from a ecialized concentration market into a broad product line market. e location of these markets is presented in Figure VI-1. Assessing erational costs for two alternatives of four and five produce whole- e markets in the decentralized wholesale facility scheme had the vantage of providing a measure of the sensitivity of this wholesale ility arrangement to the addition or subtraction of a wholesale ket. Because of the low capacity of the Saldías Market (140,000







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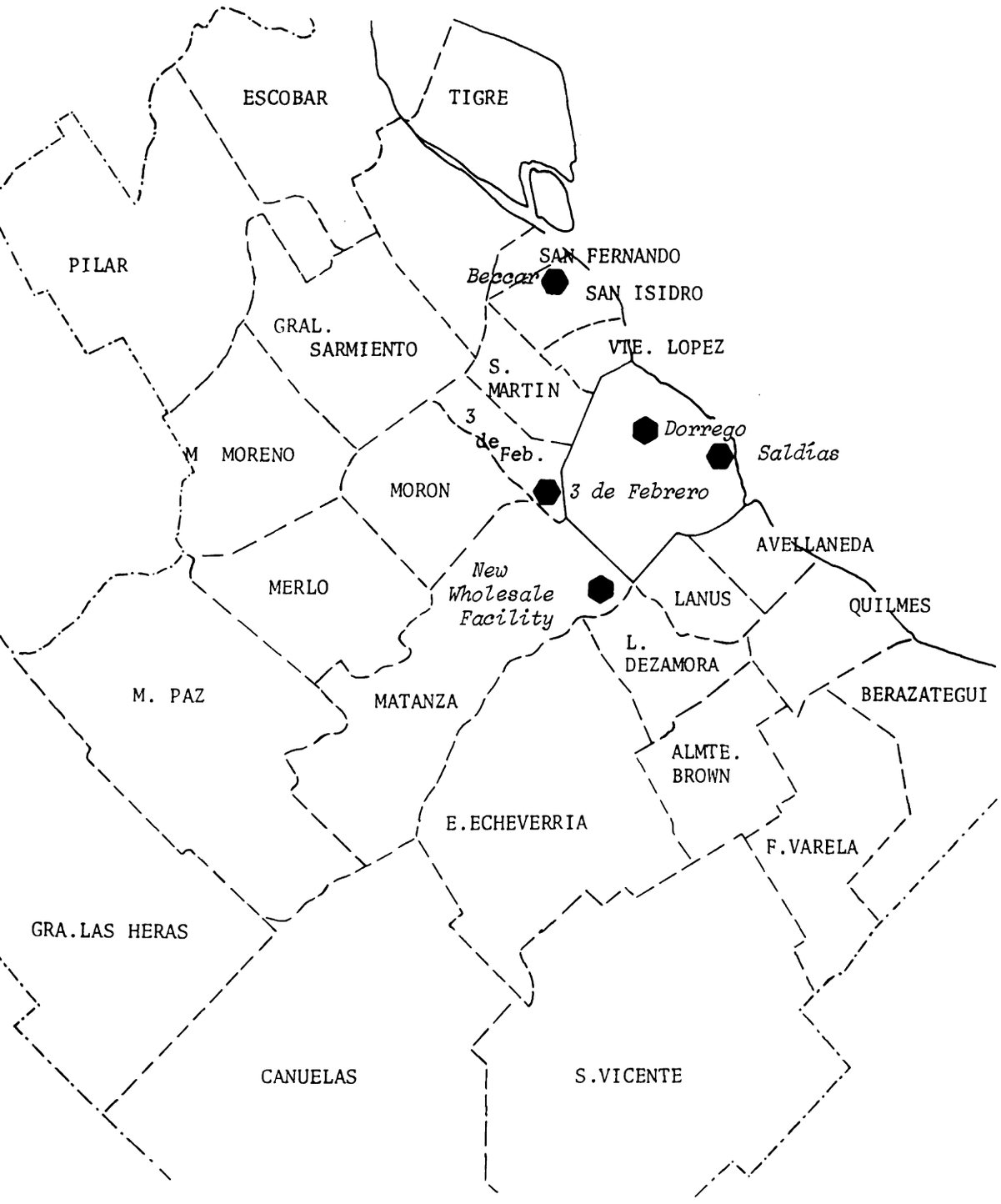


Figure VI-1.--Location of Produce Wholesale Markets in Alternatives and II.

ource: CMCBA, Los Mercados Mayoristas de Frutas y Hortalizas del Area Metropolitana, Buenos Aires, 1971.

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tons per year) and of its nearness to the Dorrego Market, operational costs differences between Alternative I and II were not found to be significant. For that reason and to facilitate the comparison between the different wholesale facility arrangements, the operational costs of Alternative II will be omitted from the forthcoming discussion and presented below when considering the sensitivity of investment and operational costs to changes in the number of wholesale markets in a decentralized wholesale facility arrangement.

Cost comparisons of different wholesale facility arrangements will also include the Existing System, since one of the constraints imposed on the Project (and as well on the Alternative) is to reduce distribution costs with respect to the Existing System.

It has not been possible to make a comprehensive estimation of distribution costs so as to give answers to all the issues raised in the preceding chapter. However, direct and some indirect costs have been estimated making it possible to assess how the Project would affect market facility costs, produce retailers' transportation costs and the time produce retailers spend traveling to make purchases of fresh fruits and vegetables. The estimation of those costs will be presented and then discussed as a means of gaining some perspective of the cost implications of alternative wholesale facility arrangements.

Direct Market Facility Costs

Direct market facility costs include rents and other overhead expenses (utilities, maintenance, watchmen, etc.). It has not been possible to isolate rents from other overhead costs for most of the

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existing markets.[1] The national markets (potatoes and garlic and onion) pay a fee per "bulto."[2] The Abasto Market is owned by a private corporation that charges a rent covering all market overhead costs. The 3 de Febrero Market is a wholesaler cooperative charging a daily fee per stall. The Dorrego wholesalers pay a fee per square meter to the Municipality of Buenos Aires[3] imputed to the rent of the wholesale stall and another fee per "bulto" to a wholesalers' association to cover other overhead costs.

A survey of second wholesale handlers undertaken by the Buenos Aires Central Market Corporation generated information making it possible to estimate average rental costs in distribution markets as $31.25 per square meter of commercial area.[4] This figure was multiplied by the aggregate commercial area to estimate total rental costs of distribution markets. Rents and other overhead costs of the Existing System add up to $4,784,691 (Table VI-1).

Rents have been estimated as $4,285,714 in the Project.[5] However, this figure includes rents from fish wholesalers. These

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[1] Location of existing wholesale markets is shown in Figure IV-1.

[2] A box or bag, independent of its size and weight.

[3] The Dorrego Market is a city-owned and administered market.

[4] By commercial area is meant space for display, selling and stocking of the merchandise within the wholesale stall.

[5] Adolfo E. Buscaglia et al., "Mercado Central de Buenos Aires, Análisis Económico y Programación Financiera de la Inversión," Vol. I, Buenos Aires, Enero 1970, p. 80.

TABLE VI-1

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ABLE VI-1.--Estimated Annual Rents and Other Overhead Costs of the Existing Wholesale System.

Concentration Markets	Direct Market Facility Costs (U$S)	Distribution Markets	Commercial Area (m^2)
acional de Papas	73,250	Ciudad de Buenos Aires[a]	2,500
acional de Hortalizas	57,295	Avellaneda	2,500
aldías	125,000	Liniers[b]	2,760
basto Proveedor S.A.	1,576,000	Beccar	8,500
orrego	333,466	Abasto Morón	2,600
de Febrero	814,680	Turdera	2,000
	2,979,691	Frigomer	1,300
istribution Markets		Quilmes	2,500
7,760 m^2 x 31.25 $/m^2$	1,805,000	Abasto La Matanza	7,250
Total $	4,784,691	Demarchi[b]	1,150
		Lomas de Zamora[b]	1,380
		Vicente López[b]	1,240
		Vélez Sarsfield[b]	1,240
		Valentín Alsina[b]	6,210
		Ricci[c]	2,815
		Intendente Grondona[c]	2,815
		Tigre[d]	9,000
		Total	57,760

urce: SCET-INTERNATIONAL-MERCASA-INTECSA-SIE, "Estudio de los Costos de Desabastecimiento, op. cit.; CMCBA, Los Mercados Mayoristas de Frutas y Hortalizas del Area Metropolitana, op. cit.; Municipality of the City of Buenos Aires, CMCBA and concentration market administrators.

[a]Retail area previously deducted.

[b]Estimated as 46 percent of total area. This was the average tio found for the Avellaneda, Morón, Turdera, Frigomer and Quilmes kets.

[c]Estimated as the average commercial area of small-size tribution markets.

[d]This is a producers' market that has been included within the tribution markets only because of common estimation procedures.

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rents have been deducted from the previous figure that has been adjusted to $4 million in order to make valid comparisons with other wholesale facility arrangements which do not include fish wholesaling. Other overhead costs of the Project will be covered by a fee of 1 to 1.5 percent of the value of final transactions in the market. These costs were estimated as $1,333,000.[1]

Market facility costs for Alternatives I and II, a four and five wholesale markets system, respectively, were estimated assuming that the construction of a new wholesale market would require half of the investment committed to the construction of a wholesale facility being able to supply the whole Metropolitan Region.[2] Volumes traded by those markets of the Existing System remaining in operation were recalculated. The capacity of the Dorrego Market was increased by incorporating the new section already built and an expanded parking area. Restrictions on the volume that these markets could trade were introduced, considering that reasonable levels of operating efficiency could be reached up to a physical annual productivity of twenty tons per square meter of commercial area in the Dorrego, Beccar and Saldías

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[1] Adolfo E. Buscaglia, "Análisis de la Factibilidad Financiera. Proyecto Mercado Central de Buenos Aires," op. cit. An exchange rate of 350 old Argentine pesos per dollar has been used for 1968 and 1969 values.

[2] It was assumed that investment in a new wholesale facility smaller than the market projected by the CMCBA would be in the same proportion as the wholesale facility capacities, since there are no significant economies of scale within the size range usually considered. See J. R. Lasuén, "Criterios Generales de Planeación de los Nuevos Mercados Mayoristas," trabajo presentado en la Conferencia Técnica sobre Planeamiento y Operación de Mercados de Concentración, Brasilia, Octubre 18-22, 1971, p. 9.

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markets and thirty tons per square meter of commercial area in the 3 de Febrero Market.[1] It was assumed that the new market would start to operate with a physical annual productivity ranging between fifteen and twenty tons per square meter of commercial area.

Volumes were reallocated among these markets assuming that retailers would minimize traveling time. However, when a market becomes crowded, some retailers having a second best alternative would make purchases in another wholesale market. It has been assumed that wholesalers at the Dorrego Market will continue to pay the same fee per square meter and other overhead costs will increase proportionally to the increase in the annual volume traded which has been projected to rise from 263,000 tons to 456,444 tons. Rental costs would not change at the 3 de Febrero Market, while overhead costs other than rent will increase 50 percent at the Beccar Market. Market facility costs for the new wholesale market would be 50 percent of those estimated for the Project. Market facility costs for a four-market system is presented in Table VI-2. Rents amount to $3,387,873 and other overhead costs amount to $1,397,609.

Market facility costs for the different wholesale distribution systems considered are presented in Table VI-3. It can be observed that the Existing System and the four market (Alternative I) system have about the same total overhead costs and both are lower cost alternatives than the Project, either in absolute terms or taking

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[1] The higher annual productivity of the 3 de Febrero Market is based on the assumption of a higher rate of turnover of merchandise and higher coefficient of space used because of having more space for customer attention and vehicle circulation.

TABLE VI·

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TABLE VI-2.--Rents and Other Overhead Costs of a Four Wholesale Markets System (Alternative I).

Market	Rents U$S	Other Overhead Costs U$S
Dorrego	550,597	185,205
3 de Febrero	570,276[a]	244,404[b]
Beccar	267,000	135,000
New Central Market	2,000,000	833,000
Total	3,387,873	1,397,609

Source: Municipality of the City of Buenos Aires; Beccar and 3 de Febrero Market Administrations; own estimations for the New Central Market taking as a basis rents and other overhead costs in the CMCBA's Project as reported by Adolfo E. Buscaglia, "Analisis de la Factibilidad Financiera. Projecto Mercado Central de Buenos Aires," op. cit.

[a]Estimated as 70 percent of total market facility costs.

[b]Estimated as 30 percent of total market facility costs.

TABLE VI-3 --Direct Market Facility Costs of Different Wholesale Arrangements for Fresh Fruits

TABLE VI-3.--Direct Market Facility Costs of Different Wholesale Arrangements for Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area.

		Existing System (23 Wholesale Markets)	The Project (A Single Wholesale Market)	Alternative I (4 Wholesale Markets)
Rental costs	(U$S)		4,000,000	3,387,873
Other overhead costs	(U$S)		1,333,029	1,397,609
Total overhead costs	(U$S)	4,784,691	5,333,029	4,785,482
Commercial area	(m^2)	114,388	107,152	103,390
Overhead cost per square meter	(U$S)	41.8	49.8	46.2

Source: Idem, Tables VI-1 and VI-2.

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otal overhead costs per square meter. Total overhead costs of the roject are 11 percent higher than total overhead costs of either the xisting System or Alternative I.

etailers' Transportation Costs

Retailers' transportation costs in the Existing System and in he Project have been estimated by the Buenos Aires Central Market orporation.[1] These estimations are to be compared with retailers' ransportation costs in a decentralized system of four wholesale arkets (Alternative I).

While retailers' average purchasing frequency was reduced rom 4.4 times a week to only three times a week in the Project situa- ion, it has been assumed a four times a week average purchasing requency in Alternative I. The rationale of such assumption is that etailers would reduce the average weekly number of trips they do to ake produce purchases in order to compensate the increase in trans- ortation costs brought about by the increased traveling distance to hop in a more distant wholesale market. Moreover, it is assumed hat there is an inverse relationship between the increase in the istance traveled to a wholesale facility and the average weekly rchasing frequency of produce retailers.

ransportation Costs of Produce tailers in Alternative I

Reallocation of produce volumes purchased at different rkets.--It was necessary to reallocate retailers' produce purchases

[1] SCET-INTERNATIONAL-MERCASA-INTECSA-SIE, "Estudio de los stos de Desabastecimiento," op. cit.

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among the four markets of Alternative I. A homogeneous average annual consumption of 250 kgs.[1] per capita was assumed for the region. On the basis of this assumption and data on population, number of retailers and number and type of vehicle by district,[2] the volumes to be purchased at each market were estimated assuming that retailers would minimize traveling time, and, in case one market became crowded, they would move to the second best alternative. It was also assumed that some of the retailers located at the Quilmes district and all the retailers located at the Florencio Varela and Berazategui districts would make purchases at the new La Plata Market. This market was not explicitly included in the Alternative because of being located outside the Buenos Aires Metropolitan Region. Traveling times were estimated by the National Development Council (Office for the Metropolitan Region). This agency produced a map of isocrone lines to downtown Buenos Aires. The distribution between the various markets of the volumes of fresh fruits and vegetables purchased by retailers is presented in Table A1.

Weekly distance traveled by type of vehicle.--The distance to be traveled by retailers from each district to each market was estimated on a 1:40,000 scale map and multiplied by a 1.4 correction

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[1]This figure is based on the INEC estimations presented in Table II-6.

[2]Data on the number and type of vehicles by district within the Federal District could not be found and was assumed to be proportional to the number of retailers located at each district.

factor to convert straight line distances into "real" distances.[1] The number and type of vehicle by district being known, they were assigned to each market taking into account the proportion of retailers making purchases to each market (Table A2). The "real" distance between each district and each market was multiplied by four, the weekly average purchasing frequency, to estimate weekly distances traveled and the figures obtained multiplied by the number of each type of vehicle located in a given district and making purchases at a given market. One-way weekly distances by type of vehicle and location of purchases were in this way determined. On the basis of these figures, total annual distances traveled by type of vehicle and average distance traveled by type of vehicle were estimated (Table A3).

Average transportation costs by type of vehicle.--The average variable costs by type of vehicle estimated by the CMCBA were retained. However, average fixed costs were recalculated taking into account the different annual distances traveled. Average total costs by type of vehicle were estimated by adding average fixed costs and average variable costs. Results are presented in Table A4.

Total retailers' transportation costs.--The distance traveled by each type of vehicle was multiplied by the corresponding

[1]This correction factor, usually estimated by transport engineers, had been employed by the Buenos Aires Central Market Corporation to estimate distances traveled by produce retailers in the Existing System and in the Project and was also employed in Alternative I in order to make valid comparisons.

average total cost to determine total transportation costs by type of vehicle. Adding up the values obtained the total transportation cost for the alternative was determined (Table A3). Retailers' transportation costs emerging from the different wholesale distribution systems are presented in Table VI-4 below.

TABLE VI-4.--Retailers' Annual Transportation Costs Generated by Different Wholesale Distribution Systems for Fresh Fruits and Vegetables in the Buenos Aires Metropolitan Area.

Existing System (23 Wholesale Markets)	The Project (A Single Wholesale Market)	Alternative I (4 Wholesale Markets)
$10,530,000	$23,816,000	$16,605,840

Retailers' transportation costs generated by the different wholesale systems are an inverse function of the number of markets. Transportation costs generated by the Existing System are the lowest and those generated by the Project the highest. Differences in retailers' transportation costs are substantial.[1] The values found suggest that retailers' transportation costs have an important weight in total distribution costs. This serves to remind us that the most important function of second wholesale handlers located in distribution markets has been to bring the merchandise close to the retail operator.

[1]The increase in retailers' transportation costs in the Project and the Alternative with respect to the Existing System is the following: the Project: +116.2 percent and Alternative I: +57.7 percent.

Cost Imputed to the Time Spent by Retailers When Traveling to Make Purchases of Fresh Fruits and Vegetables

Traveling time between the center of each district and the wholesale markets where retailers make their purchases was determined by using a map of isocrone lines.[1] The estimated traveling times were multiplied by the number of retailers located in a given district and making purchases at a given market. The figures thus obtained were added up and multiplied by two, to account for a two-way travel. The figure thus produced is an estimation of the total traveling time spent by retailers in each round trip. This figure was multiplied by four, the retailers' average weekly purchasing frequency, so as to obtain total weekly traveling time.

The total weekly traveling time, specified in hours, was multiplied by the hourly salary of a sales employee ($0.30, April, 1970) on the assumption that retailers have or would have to pay an employee to keep the store open while they were making purchases.[2] The figure produced, representing a weekly value, was multiplied by fifty-two to estimate the annual cost imputed to the time spent by retailers traveling to and from central wholesale facilities when making purchases of fresh fruits and vegetables. Values obtained are presented in Table VI-5.

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[1]Times shown on the map of isocrone lines were estimated by vehicles sampling actual traveling times from different city locations to downtown Buenos Aires.

[2]However, this must be taken as an average value, since the opportunity costs may be higher than that on one hand and unpaid family labor may fill in at a lower cost on the other hand.

TABLE VI-5.--Costs Imputed to the Time Spent by Produce Retailers in Traveling to and from Wholesale Markets When Making Purchases in Selected Wholesale Facility Arrangements.

Costs Imputed to	Existing System (23 Wholesale Markets)	The Project (A Single Wholesale Market)	Alternative I (4 Wholesale Markets)
Traveling time	$1,225,876	$1,729,689	$1,513,148

The figures presented in Table VI-5 show that costs imputed to retailers' traveling time are an inverse function of the number of wholesale markets. The increase in such costs brought about by the Project and the Alternative with respect to the Existing System are the following: the Project: +41.1 percent and Alternative I: +23.5 percent.

Discussion and Qualification of the Operational Costs Estimated

Once the operational costs just estimated are added up, cost differences between the different wholesale facility arrangements become sizable (Table VI-6). The Existing System appears to be the least cost wholesale distribution system and the Project the most expensive one. The different alternatives considered imply an increase in distribution costs with respect to the Existing System of the following size: the Project: +87 percent and Alternative I: +38 percent.

However, we must acknowledge that we have measured only selected operational costs. The design of new wholesale facilities

TABLE VI-6.--Comparison of Operational Costs of Selected Wholesale Facility Arrangements.

	Existing System U$S	The Project U$S	Alternative I U$S
Market Facility Costs	4,784,691	5,333,029	4,785,482
Retailers' Transportation Costs	10,530,000[a]	23,816,000[b]	16,605,841[c]
Retailers' Traveling Time	1,225,876	1,729,689	11,513,148
Total	16,540,567	30,878,718	22,904,471

Source: Idem, Tables VI-1 and VI-2 for market facility costs; SCET INTERNATIONAL-MERCASA-INTECSA-SIE, "Estudio de los Costos de Desabastecimiento," op. cit. for retailers' transportation costs in the Existing System and in the Project; own estimates of retailers' transportation costs in Alternative I as reported in the text and in the Appendix; own estimates of the costs imputed to retailers' traveling time. Traveling times within the Buenos Aires Metropolitan Region estimated by the Ministerio de Obras Públicas de la Nación.

[a]Purchasing frequency estimated as 4.4 times per week.

[b]Purchasing frequency estimated as 3.0 times per week.

[c]Purchasing frequency estimated as 4.0 times per week.

ıay make possible both the adoption of cost-reducing handling techıiques and a reduction of the time spent by truckers to off-load and ›y produce retailers to shop and load their vehicles. Therefore, ıdirect operational costs may significantly affect total distribuion costs. Although handling costs have not been estimated for the roject and for the Alternative because a special study is required to elect the least cost handling techniques given the factor prices in he area, the importance of handling costs may be partially appraised y estimating handling costs in the Existing System.

Handling costs to unload produce have been estimated at $0.03 er "bulto" and $0.075 per 50 kilogram potato bag.[1] On the basis of n annual trade volume of 550,000 tons of potatoes and 1,650,000 tons f produce,[2] annual handling costs to unload fresh fruits and vegeables have been estimated as $3,112,500. Handling costs incurred by etailers to load their vehicles has been estimated at $0.07 per bulto."[3] The total number of retailers being 23,000 and average eekly purchases estimated as seventh "bultos" per retailer,[4] handling osts to load retailers' vehicles are $5,850,000 per year. Therefore, he annual handling costs of $8,962,500 ($3,112,500 + $5,850,000) are

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[1]SCET INTERNATIONAL-MERCASA-INTECSA-SIE, "Estudio de los ›stos de Desabastecimiento," op. cit.

[2]Handling costs to load and unload vehicles brought about by ransactions between wholesalers are not included.

[3]SCET INTERNATIONAL/MERCASA/INTECSA/SIE, "Estudio de los stos de Desabastecimiento," op. cit.

[4]Ibid.

almost double the direct market facility costs in the Existing System, giving an indication that if the handling techniques that the new wholesale facility design might make possible to adopt are in fact cost reducing, then overall market facility costs may turn out to be lower for the Project or the Alternative than they are for the Existing System. Moreover, the reduced congestion of the new wholesale facility should significantly reduce the time spent by truckers supplying the market to off-load and avoid the cost of having expensive equipment tied up. Unfortunately, information on such costs is not readily available.

The difference in retailers' transportation costs when comparing the Existing System and the Project is substantial. Even so, it may have been underestimated. The drastic reduction in retailers' weekly average purchasing frequency from 4.4 times a week in the Existing System to 3 times a week in the Project may have two undesirable consequences: First, it would force produce retailers to incur other costs. They may have to increase the storage capacity within their stores, transport capacity and working capital. Second, it might give rise to a much greater activity of truck-jobbers, whose operating costs should be added to the operating costs of the Project.

Retailers' traveling time has probably been underestimated in the Existing System because of the excess time spent by retailers in finding parking space and getting their vehicles close enough to the wholesale facility to load them does not show up when using a map of isocrone lines to make such estimation. Therefore, a new estimation

of the cost imputed to the time produce retailers spend traveling to make purchases has been made on the basis of the information generated by the survey of produce retailers.[1] The new estimation, $1,872,352, based on retailers' assertion of the actual time spent making purchases, shows an increase of 53 percent above the previous estimation making the Existing System the most expensive in terms of the time retailers must spend traveling to make produce purchases (Table VI-7).

TABLE VI-7.--Costs Imputed to the Time Spent by Produce Retailers in Traveling to and from Wholesale Markets When Making Purchases in Selected Wholesale Facility Arrangements Including the Cost Imputed to the Congestion of Wholesale Markets in the Existing System.

Costs Imputed to	Existing System (23 Wholesale Markets)	The Project (A Single Wholesale Market)	Alternative I (4 Wholesale Markets)
Traveling time of retailers	$1,872,352	$1,729,689	$1,513,148

We will make a comparison of the required investment on the Project and the Alternative before drawing conclusions from the information on operational costs just presented.

Capital Requirements of the Project and the Alternatives

A distinction has been made between the new investment required by each of the proposed solutions and the net investment, estimated as the difference between new investment and the value of

[1] Guillermo Bravo et al., "Encuesta a Comerciantes Minoristas de Frutas y Hortalizas," op. cit.

the produce wholesale markets that would be freed for alternative uses. The Project would free all of the existing wholesale markets for other uses and the Alternative would free almost all wholesale markets excepting those that would continue in operation.

The value of land occupied by existing markets has been assessed on the basis of information produced by the Municipality of Buenos Aires for the Federal District and by a private firm dealing in land transactions for Greater Buenos Aires. It has been assumed that the plots of land where produce wholesale markets are presently located, most of them in highly populated areas, will be sold in small plots. On this basis, the total value of the land has estimated to be $23,104,060 (Table A5). Buildings have been depreciated assuming a useful life of forty years. The current value of buildings amounts to $5,568,770 (Table A6). These values were estimated on the basis of a construction cost of $44 per square meter in 1971.[1] The total value of the resources freed by the Project and the Alternative is presented in Table VI-8.

The value of land plus the residual value of wholesale market buildings made available for other uses is significantly greater in the Project than in the Alternative. However, since new investment is 75 percent greater in the Project than in the

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[1] Estimated on the basis of the cost of building the 3 de Febrero Market. This way of assessing the values of wholesale building has been employed with the objective of providing a rough estimate of the total value of existing wholesale facilities and may conceal significant differences between the estimated and the actual value of some wholesale facilities. A more accurate estimation would require a detailed assessment of the value of each of the existing facilities taking into account its potential profitability in alternative uses.

TABLE VI-8.--Value of the Land and Salvage Value of Wholesale Facilities Freed by the Project and the Alternative.

		Freed by Project	Freed by Alternative I
Value of freed land	U$S	23,104,060	17,723,500
Depreciated value of wholesale facilities	U$S	5,568,770	2,075,645
Total	U$S	28,672,830	19,799,145

Source: Own estimations on the basis of land values in the Federal District assessed by the Municipality of Buenos Aires and in Greater Buenos Aires by a private firm in the real estate business. Depreciated value of wholesale facilities estimated taking as a basis the construction costs of the 3 de Febrero Market in 1971.

Alternative, the net investment is much lower in Alternative I than in the Project (Table VI-9). Net investment in Alternative I is only $4,600,855 while in the Project it is $14,127,170, a difference of $9.5 million.

Sensitivity of the Decentralized Wholesale Facility Arrangement to the Addition or Subtraction of a Wholesale Market

A comparison of selected operational costs and investment between the four wholesale market (Alternative I) distribution system and a five wholesale market (Alternative II) system which includes the Saldías Market (Figure VI-1) is presented in this subsection. The objective is to appraise how the direct and the indirect costs estimated and investment in the decentralized wholesale facility

TABLE VI-9.--New and Net Investment Required by the Project and the Alternative.

	Project	Alternative I
	- - - US Dollars - - -	
New investment	42,800,000	24,400,000
Value of land plus depreciated value of central wholesale facilities made available for other uses	28,672,830	19,799,145
Net investment	14,127,170	4,600,855

Source: Idem, Table VI-8. New investment in the Project as reported by Adolfo E. Buscaglia et al., "Mercado Central de Buenos Aires. Análisis Económico y Programación Financiera de la Inversión," op. cit. Own estimation of new investment in Alternative I as reported on page 171.

arrangement are affected by the addition (or subtraction) of a wholesale market.

Table VI-10 presents estimates of selected operational costs and investments for both Alternatives I and II. Increasing the number of wholesale markets from four in Alternative I to five in Alternative II increases net new investment by 40 percent ($1,822,050) and reduces the operational costs estimated by only 1 percent ($239,197). Thus, a four wholesale market distribution system appears as a lower cost wholesale facility arrangement than the five market arrangement since adding one market to the system significantly increases net new investment without significantly reducing operational costs.

TABLE VI-10.--A Comparison of Operational Costs and Investment in Selected Decentralized Wholesale Facility Arrangements.

	Alternative I (4 Wholesale Markets)	Alternative II (5 Wholesale Markets)
	U$S	U$S
Market facility costs	4,785,482	4,950,082
Retailers' transportation costs	16,605,841	16,232,672
Retailers' traveling time	1,513,148	1,482,520
Total Operational Costs Estimated	22,904,471	22,665,274
New investment	24,400,000	24,400,000
Value of land plus depreciated value of central wholesale facilities made available for other uses	19,799,145	17,977,095
Net New Investment	4,600,855	6,422,905

Source: Idem, Tables VI-6 and VI-8. Own estimation of investment in Alternatives I and II as reported on page 171.

Conclusions

On the basis of the estimation of selected operational costs, the investment required by the different wholesale facilities that have been compared (summarized in Table VI-11) and the qualification of those estimations, the following conclusions have been reached:

1. The Existing System appears to be the least cost produce distribution system when taking into consideration only direct market facility costs and produce retailers' transportation costs, including the cost imputed to the time retailers spend traveling. However, produce distribution costs in the Existing System are higher than the operational costs estimated. The following indirect and social costs must also be taken into account in a more comprehensive assessment of produce distribution costs:

   a) Traffic congestion in produce wholesale market areas constitute a social cost since traffic delays affect other nonmarket participants.

   b) Handling costs in the Existing System are probably higher than those that can be attained in new and remodeled facilities with improved handling techniques that combine factors in optimum proportion given factor prices in the region, with a better layout of wholesale facilities and with the organization of traffic flows. The design of the existing wholesale markets restricts the adoption of even low capital intensive handling techniques.

TABLE VI-11.--A Comparison of Some Operational Costs and the Investment Required by Selected Wholesale Facility Arrangements.

	Existing System U$S	The Project U$S	Alternative I U$S
Market Facility Costs	4,784,691	5,333,029	4,785,482
Retailers' Transportation Costs	10,530,000[a]	23,816,000[b]	16,605,841[c]
Retailers' Traveling Time	1,872,352	1,729,689	1,513,148
Total Operational Costs	17,187,043	30,878,718	22,904,471
Gross Investment	28,672,832	42,800,000	33,273,685
New Investment	-------	42,800,000	24,400,000
Net New Investment	-------	14,127,170	4,600,855

Source: Idem, Tables VI-6, VI-8 and VI-9.

[a]Purchasing frequency estimated as 4.4 times per week.

[b]Purchasing frequency estimated as 3.0 times per week.

[c]Purchasing frequency estimated as 4.0 times per week.

c) Product losses and wastage brought about by poor handling methods.

d) The social cost of having produce wholesale markets in densely populated urban areas, precluding the use of the land where wholesale markets are built for other uses having a higher social value.

e) There is a substantial volume of fresh fruits and vegetables that moves through a two-stage wholesale marketing channel, giving rise to additional handling and intra-urban transportation costs. Some of these costs may be passed onto retailers and producers in the form of higher and lower produce prices, respectively. However, until a study determines what proportion of these costs are actually passed onto retailers and producers, it is impossible to know what is the net cost of transactions between wholesale operators.

2. The difference in operational costs between the Project and the Existing System is so large that it suggests that even when adding other indirect and social costs to the Existing System, the Project either will be a higher cost wholesale facility arrangement or at best will not offer a clear operational cost advantage over the Existing System. Such an outlook makes it difficult to justify a $42,800,000 investment without further analysis of cost effects.

3. A decentralized wholesale facility arrangement should be given serious consideration because of the following reasons:

a) Retailers' transportation costs increase much less in the Alternative than in the Project, even when retailers' purchasing frequency has been assumed to be four times a week in Alternative I and only three times a week in the Project.

Retailers' transportation costs will account for a sizable proportion of total distribution costs in any wholesale facility arrangement that drastically reduces the number of produce wholesale markets while taking present transportation modes as given.

b) Retailers' traveling time to make produce purchases is lower in the proposed four-market decentralized wholesale facility arrangement than in either the Project or the Existing System.

c) Direct market facility costs in Alternative I is about the same as in the Existing System and lower than in the Project.

d) New investment and net new investments are substantially lower for the Alternative I decentralized wholesale arrangement that keeps some of the existing wholesale markets in operation as compared with the Project.

e) Even if there should be some volume of fresh fruits and vegetables subject to a two-stage wholesaling process, the resale costs in a decentralized system of a few wholesale markets that both introduce and distribute produce would probably be much lower than they are in the Existing System.

f) When the estimated operational costs of the three market facility alternatives are more fully analyzed and the net cost of resale and the indirect and social costs are taken into account for the Existing System, it appears that a decentralized produce concentration system of a few wholesale markets might be the least cost produce wholesale facility arrangement.

g) Although the new wholesale facility in the decentralized wholesale facility arrangement will be smaller than the New Central Market projected by the Buenos Aires Central Market Corporation, it will be large enough to meet the procurement needs of out-of-town buyers, secondary wholesale handlers and the growing larger scale food retailing sector and as well the needs of large producers selling in auction markets and of small producers selling in producers' market facilities.

h) A four wholesale market distribution system appears as a lower cost wholesale facility arrangement than a five market arrangement since adding one more wholesale

market to the system increases the net new investment without significantly reducing operational costs.

i) The new wholesale facility should be looked at as an opportunity to generate a flow of innovations concerning not only technical change, i.e., improved storage and handling techniques and traffic conditions, but also and even more important to introduce institutional and organizational-managerial changes having the final effect of bringing about a greater market coordination. We will discuss this opportunity in the next chapter.

CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The Abasto Market, which still is the main produce wholesale market in the Buenos Aires Metropolitan Area, was inaugurated in 1891, when the population of the City of Buenos Aires was 700,000 inhabitants. Since then, the population of Buenos Aires increased very rapidly and by 1970 it had passed the eight million figure. The city expanded vertically in the Federal District, where a dense urban structure of multi-family housing units developed, and horizontally in Greater Buenos Aires. This urban conglomerate now covers an extensive land area, having an average diameter of thirty-seven miles.

The high rate of growth of population and the rapid expansion of the urban area called for the construction of new wholesale markets. The largest wholesale facilities were located in the inner city. Distribution needs imposed the addition of new produce wholesale markets which, following the pattern of population settlements, were built in Greater Buenos Aires, making a crown of produce distributing facilities around the Federal District.

The operation of large wholesale produce markets, particularly the main one in the inner city, has imposed increasing social costs on market and nonmarket participants. Problems of urban development became more acute as the increase of population, rising per capita incomes and the development of the motor vehicle industry during the 1960s, resulted in a tremendous expansion of private car transportation, greater demand for fresh fruits and vegetables and a more dense urban structure. Traffic congestion prevails within wholesale market facilities and in wholesale market areas. Produce wholesaler operations using old residences as warehouses and market-related logistical services (bars, restaurants and warehouses for several purposes) spread into the areas surrounding wholesale market facilities. Loading of retailers' vehicles outside the wholesale markets not only contributes to increased traffic congestion but also brings about the littering of streets with product wastage.

Other problems have developed because of the structural characteristics of produce wholesaling. There are twenty-three wholesale markets and some of them specialize in the trade of one or a reduced number of commodities. Also, there is a large number of produce wholesalers, most of them carrying on business in stalls located within or adjacent to wholesale markets, but the largest receivers are located outside wholesale market areas and present a high degree of commodity specialization. These structural characteristics have brought about two undesirable consequences: First, produce distribution probably uses more resources than it would be necessary to employ in a better

organized distribution system. Second, there is little price transparency of transactions for most products.

The Buenos Aires Central Market Corporation, an autonomous government agency, has been charged with the responsibility of building a New Central Market in the Buenos Aires Metropolitan Region. The Corporation's program calls for the concentration of all wholesale transactions of fresh fruits and vegetables in a single central wholesale market. Fresh fruit and vegetable wholesale transactions would be made illegal outside the New Central Market.

The wisdom of the solution proposed by the Buenos Aires Central Market Corporation has been questioned by the business community. It has been alleged that the elimination of the existing wholesale markets would disrupt the distribution system for fresh fruits and vegetables without reducing produce distribution costs. Moreover, the compulsory concentration of wholesale transactions in a single central wholesale market is considered an unacceptable trade restriction.

This study has been centered around three main objectives:

1. To describe and analyze the urban distribution system for fresh fruits and vegetables in the Buenos Aires Metropolitan Area;
2. To make a preliminary estimation of how the projected new central wholesale market and an alternative wholesale facility arrangement would affect produce marketing costs; and

3. To identify issues and needs for future analyses in order to provide relevant information for more refined public decisions on fresh fruit and vegetable marketing policies.

The description and analysis of the existing distribution system for fresh fruits and vegetables was largely based on secondary data. The bulk of such information has been produced by several consulting firms under contract with the Buenos Aires Central Market Corporation.

A survey of broad product line wholesale markets having the objective of assessing pricing efficiency and measuring wholesalers' marketing margins in apple and pear trade was undertaken in January 1972. This study had to be interrupted in March 1972 when the government, in an effort to curb inflation, established fixed marketing margins by decree. However, the limited data that was gathered proved to be very useful in evaluating price relationships among and within markets.

Cost comparisons of different wholesale facility arrangements were made by simple budgeting procedures based on the information produced by several consulting firms under contract with the Buenos Aires Central Market Corporation, by different government offices and by a private firm in the real estate business.

Conclusions of the Cost Comparison of Alternative Wholesale Facility Arrangements

According to the Buenos Aires Central Market Corporation, the concentration of all wholesale transactions of fresh fruits and vegetables in a single central wholesale market would permit the

achievement of several objectives including a reduction in retail produce prices, an increase in farm prices of fresh fruits and vegetables and a greater price transparency of transactions. Since fresh fruit and vegetable wholesale transactions would be made illegal outside the New Central Market, the external diseconomies imposed upon highly populated neighborhoods by the operation of wholesale produce markets would cease and valuable pieces of land and the existing wholesale market facilities would be made available for alternative uses. Moreover, the new legislation forcing the concentration of wholesale produce transactions at the New Central Market would constitute an opportunity to eliminate from the business a large number of secondary wholesale operators whose economic contribution to the market process is implicitly assumed to be very little. Supporters of the Central Market Project believe that distribution costs would be reduced in this way. It is also expected that price formation will be facilitated and the collection and dissemination of information on produce prices and volumes of trade would be easier, less costly and more accurate.

However, taking into account the size of the Buenos Aires Metropolitan Region, retailers' high weekly average purchasing frequency and low produce volume purchased per trip, and the high transportation costs imposed by traffic congestion in most of the Buenos Aires Metropolitan Area, it is apparent that secondary wholesale handlers and produce distribution markets are fulfilling an economic function. Moreover, taking into consideration: (1) the size of region; (2) the future increase in demand for fresh fruits and

vegetables; and (3) the procurement practices of small produce retailers who constitute the bulk of buyers in wholesale markets, there is a high likelihood that a decentralized wholesale arrangement of a few wholesale markets would be a lower cost produce distribution alternative than the Project. A decentralized wholesale distribution system would also avoid problems in dealing with displaced wholesalers and affected market workers.

A cost comparison of the Existing System with the Project and a decentralized wholesale facility arrangement of either four or five produce wholesale markets, assessing direct market facility costs and produce retailers' transportation costs, has led to the following conclusions:

1. The estimated operational costs for the proposed Project system are considerably higher than they are in the Existing System. The difference in operational costs between the Project and the Existing System is so large that it suggests that even when adding other indirect and social costs to the Existing System, the Project either will be a higher cost wholesaling arrangement or at best will not offer a clear operational cost advantage over the Existing System. Such an outlook makes it difficult to justify a $42,800,000 investment without further analysis of the cost effects.

2. A decentralized wholesale facility arrangement appears to be a lower cost alternative to the Existing System than the Project's single market proposal. The main advantages of a

decentralized wholesale facility arrangement that keeps some of the existing wholesale markets in operation are a much lower capital investment and much lower procurement costs for retailers as compared to the Project. Its main disadvantage with respect to the Project would be a more difficult price formation process. An effective communication network would be required to have an integrated market operation, overcoming in that way the physical discontinuity of the different wholesale facilities. A more complete analysis, including all indirect and social costs, should be made to further determine if a decentralized wholesale facility arrangement of a few wholesale markets has lower distribution costs than the Existing System.

3. When the number of broad line produce wholesale markets is reduced from nineteen in the Existing System to only one in the Project situation, there is a substantial increase in retailers' transportation costs, even when the average purchasing frequency of produce retailers has been assumed to decline from 4.4 times a week in the Existing System to only three times a week for the single central wholesale market proposal.

4. A four wholesale market distribution system appears as a lower cost wholesale facility arrangement than a five market wholesale arrangement since adding one more wholesale market to the system significantly increases the net new investment without significantly reducing operational costs.

Reassessing the Scope of the Project in the Light of the Objectives Stated by the Buenos Aires Central Market Corporation

The objectives set up by the Buenos Aires Central Market ›rporation take into account both the goals of efficiency and income .stribution. These are common goals in the development process, ince in addition to a sustained increase in per capita income, a less kewed income distribution is also considered to be a prime objective.

Market processes, when viewed as the main mechanism to co-rdinate and stimulate production and consumption, are a suitable tool o increase economic productivity and bring about a desirable income edistribution. By reducing food prices, there would be a shift of he relative flow of income towards low income families who have igher propensities to consume and lower propensities to save.[1]

Improved marketing performance during the process of develop-ent seems to arise from the mutual interaction of innovative changes n technology, institutional environment and in the organization and anagement of marketing firms.[2] In this context, the construction

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[1] See, for example, Charles Slater, Harold Riley et al., arket Processes in the Recife Area of Northeast Brazil (East Lansing, ich.: Michigan State University, 1966), Chapter 1; Harold Riley, elly Harrison et al., Market Coordination in the Development of he Cauca Valley Region--Colombia (East Lansing, Mich: Michigan tate University, 1970), Chapter 1; Harold Riley, "Improving Internal arketing Systems as Part of National Development Programs" (paper resented at the First Interamerican Conference on Marketing and ocial Economic Development in Latin America, Cali, Colombia, ay 2-5, 1972).

[2] Kelly Harrison, "Development, Unemployment and Marketing Latin America" (paper presented at the Agricultural Development uncil Workshop, Palo Alto, California, April 13-15, 1972).

and operation of a new wholesale facility should be complemented with other projects or programs having the common goal of reducing marketing costs through improved market coordination. Experience shows that marketing facilities alone do not provide the changes that lead to an improved marketing system.[3]

In the first place, public action should create a favorable environment so that producers, wholesalers and retailers can plan the introduction of innovations to take advantage of market opportunities. To facilitate this, it will be necessary to further develop standards for product grading and to increase the degree of package standardization. An effective communication network should also be instituted. A market reporting service that rapidly disseminates accurate information could make an important contribution to reduce market uncertainty, a common element that adds to costs in poorly coordinated marketing systems. Also, produce grading, package standardization and market information programs are highly desirable and deserve priority because their benefits will accrue to market participants throughout the country and not only to the Buenos Aires Metropolitan Region.

Secondly, it is extremely important to understand that the new wholesale market, more than a physical facility, should be a market-coordinating institution and will require, for its success as such, the involvement of market participants. If a favorable

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[3]Michigan State University, Fomenting Improvements in Food Marketing in Costa Rica (East Lansing, Mich.: Research Report No. 10, Latin American Studies Center, Michigan State University, 1973), p. 2.

climate of cooperation is to prevail, present legislation making it compulsory that produce wholesale activities take place in the New Central Market should be repealed or at least not enforced. Rather, incentives should be created so that wholesalers develop a sense of participation and belonging and find it desirable to move to the new market. Moreover, if important modifications in the organization and operation of wholesale firms are to be introduced and a greater wholesale-retail coordination is to be achieved, publicly supported programs for providing credit, managerial training and technical assistance will be required.[1] These programs will not succeed unless in environment of understanding and cooperation between public officials and market participants is developed and sustained.

Finally, public action should help to bring about those changes in the organization and managerial operation of private marketing firms that appear to be desirable. The potential development of voluntary chains, retailers' cooperatives and corporate food retailing chains and the extent to which these retail organizations could bypass produce wholesale markets deserves special study. Voluntary chains not only may bring about more rational practices of food wholesale distribution but also may constitute the type of retail organization best suited to consumers' shopping patterns and more able to meet the constraints imposed by the high urban density of the city of Buenos Aires and the underdevelopment of the urban highway

[1]See, for example, Corporación de Abastos de Bogotá, S.A., Plan de Ejucución de la Corporación de Abastos de Bogotá, S.A. Período Enero 1971-Julio 1972," Bogotá D.E., Colombia, pp. 31-35.

network. It has been claimed that a rather long time would elapse before voluntary chains engage in centralized procurement practices for fresh fruits and vegetables because wholesale firms would find it more profitable to devote more effort to gain patronage in the early stages of voluntary chain development than dealing with produce procurement problems.[1] However, it would be possible to promote the location of the wholesale warehouses of the food retailing chains adjacent to the New Central Market, which would be part of a Regional Food Distribution Center. This may have important external effects. The nearness between the produce wholesale market and the wholesale warehouses of food retailing chains on one hand, and transactions in fresh fruits and vegetables made easier by product grading, package standardization and probably more stable prices (because of more storage capacity at the new wholesale market) on the other hand, would constitute important stimuli for voluntary chains to engage in centralized procurement practices for fresh fruits and vegetables. Also, to the extent that the new wholesale market will trade in other perishable foods, the incentives to have the wholesale warehouse located in the Buenos Aires Food Distribution Center would be greater.

The more progressive wholesale firms may fulfill a critical role as market-coordinating firms by transmitting the right information and incentives so that the combination of foods and services that best reflect consumers' preferences are produced. The impact of much better coordinated retailer-wholesaler relationship on

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[1] Dieter Link, "Repuesta a la Nota de Análisis de Proyectos Metra-Sudconsult," Unpublished Report, Buenos Aires, 1973.

istribution costs deserves special consideration. Broad product ine wholesalers being able to provide delivery, among other services, ill drastically reduce retailers' transportation costs and the time hat retailers spend making produce purchases. The improved retailer-holesaler relationship will certainly contribute to reduce produce astage and losses and will probably transfer the bulk of those losses rom the retail shop to the wholesale warehouse where more produce ortage and packaging would take place.

More comprehensive, long-term marketing planning is necessary o avoid the problems brought about by a marketing network that volves spontaneously and to create a favorable environment so that arketing firms can plan to take advantage of available market opportunities. The discussion of several economic issues in Chapter V nd the preliminary cost comparison of different wholesale arrangements in Chapter VI give some indication of the advantages of a more mprehensive analysis of marketing problems. Moreover, they give affirmative answer to Hyde's question[1] on the potentially greater nvenience of considering a new central market not as the solution t rather as a tool, among others, to improve food distribution fficiency within a broader marketing program. Finally, the expernce of many national and international agencies shows that marketg systems improvement will proceed slowly unless public action ovides sustained, long-term support to facilitate diagnostic

[1]Martin Hyde, "Análisis Económico y Financiero para Estudios Factibilidad de Proyectos de Mercados Mayoristas" (trabajo esentado en la Conferencia Técnica sobre Planeamiento y Operación Mercados de Concentración, Brasilia, Octubre 18-22, 1971), . 15-16.

studies of market systems, the planning and implementation of market reforms and the evaluation of the emerging market performances.

However, such a program, because of its broader scope and longer-term objectives would require the cooperation of several different public agencies and private firm associations. The coordination of their efforts towards the achievement of a common goal would be a major task if such a program is to be successful. The Buenos Aires Central Market Corporation, representing the commitment to joint action by the Ministries of Agriculture and Domestic Trade, the Province of Buenos Aires and the Municipality of the City of Buenos Aires, appears to be an institution initially well-suited to fulfill that role. However, the private interests of producers and marketing firms should also be given representation for a more democratic process of decision making.

Recommendations

Due to the broad scope of this study, it has probably raised more questions than it has answered. Perhaps its main contribution may be to point out those aspects related to the construction of a new wholesale facility that are relevant for more refined public decision making and that require further research. With that in mind, the following recommendations are made:

1. A wholesale facility arrangement of a few wholesale markets should be given particular consideration as an alternative to the Project. One of its main advantages over the Project is that it avoids a major increase in retailers' procurement costs. In addition, if those of the existing produce wholesale

markets that can meet minimum requirements of operational efficiency are allowed to continue in operation, then the required investment in a new wholesale facility will be greatly reduced.

2. The anticipated future volume of products to be moved through the new wholesale facility should be carefully estimated. For example, a 20 percent excess capacity in the single market distribution system would unnecessarily increase direct market facility costs due to an $8.5 million over-investment. Even in the lower investment four market alternative, a 20 percent excess capacity would unnecessarily commit almost $5 million to excess physical facilities. The size of the investment and the potential cost of miscalculations call for a detailed justification of the projected capacity for the new wholesale facility.

The additional studies required for a more accurate estimation of the capacity of the new wholesale market would be aimed towards assessing the potential evolution of the commercial structure and should include:

a) Accurate estimations of present levels of per capita consumption of fresh fruits and vegetables for different socio-economic groups and of income consumption relationships.

b) Projections of future consumption of fresh fruits and vegetables in different income areas of the Buenos Aires Metropolitan Region.

c) Estimation of the probable evolution of the consumption of processed fruits and vegetables by resorting to a

cross-country comparison. The correlation between the degree of processing of fruits and vegetables and levels of per capita income can be estimated. A higher correlation seems to exist between the degree of substitution of processed fruits and vegetables and the following variables:[1]

1) the degree of participation of women in the labor force;
2) the relative levels of domestic employment;
3) the degree of availability of household durable goods.

d) An analysis of the potential development of corporate food retailing chains, voluntary chains and retailers' cooperatives and of the extent to which they can bypass produce wholesale markets. The main variables to take into account would be:

1) the trend towards a broader product mix;
2) the trend towards retailers' association;
3) the nature and importance of the support they may receive from the government;
4) the ability and willingness of growers to fulfill long-term production contracts with a high degree of product specification.

e) Projection of the total volume of fresh fruits and vegetables that would flow through wholesale markets and partial volumes to be consumed by the different income

[1] J. R. Lasuén, "Criterios Generales de Planeación de los Mercados Mayoristas" op. cit., p. 5.

areas of the Buenos Aires Metropolitan Region. This information will make it possible to assess the locational advantages or disadvantages of the different wholesale markets.

3. The potential impact on wholesale facility capacity of a rapid adoption of one-way cardboard boxes should be estimated, since storage of empty, two-way wooden boxes may require about 30 percent of the commercial space.

4. The operational costs and price margins for wholesaling services for different products handled through various markets channel arrangements such as one-stage vs. two-stage wholesaling, auction selling vs. sale by inspection of the entire lot, should be assessed in order to provide information for a more accurate estimation of produce distribution costs.

5. Studies should be made of wholesale facility and equipment combinations that best fit current and anticipated future capital labor price relationships.

6. The types of wholesale services to be provided at the new wholesale market should be carefully examined, particularly if it is to be a balancing factor in a four or five market wholesale facility arrangement. The new market might not only serve traditional produce retailers, but also could be the location of auction facilities, a receiving market for long-haul shipments that can be diverted to other

distribution markets in and around the Buenos Aires Metropolitan Region[1] and broken down for distribution (first-stage wholesaling) to large chain-store buyers, reshippers and exporters.

7. Studies should determine the types of food retail outlets best suited to the shopping patterns of the Buenos Aires consumers. This study should also assess the extent to which shopping patterns are determined by the urban structure and by the socio-economic characteristics of the population. The objective would be to provide information for public decision on the types of retail outlets that would be promoted to have a more desired mix of food retailing services.

. An information program to promote marketing changes, to encourage effective participation of private firms and public agencies, to broadly inform consumers of the nature of the changes being made and the anticipated benefits to them, should be carefully planned and executed.

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[1]For instance the new La Plata Market which is closely ed to Buenos Aires.

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APPENDIX

TABLE A1.--Distribution of Retailers' Annual Purchases of Fresh Fruits and Vegetables Between the Four Central Wholesale Markets of Alternative I.

A. Retailers Located in the Federal District

Districts	Total		New Central Market		Dorrego Market		3 de Febrero Market		Abasto Norte Market	
	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)
1	1,728	124,883	1,227	88,675.30	53	3,830.31	447	32,304.70	-	-
2	288	20,962	108	7,860.24	170	12,372.60	20	727.80	-	-
3	348	22,377	113	7,266.00	223	14,339.00	12	771.60	-	-
4	228	15,423	40	2,705.60	175	11,837.00	13	879.32	-	-
5	384	37,688	227	22,277.78	122	11,973.00	35	3,434.90	-	-
6	468	29,132	146	9,087.00	316	19,667.84	6	373.44	-	-
7	348	28,160	32	2,346.56	276	20,239.00	40	2,933.20	-	-
8	192	16,076	30	2,511.60	142	11,888.24	20	1,674.40	-	-
9	276	21,836	36	2,847.96	220	17,404.20	20	1,582.20	-	-
10	168	11,619	23	1,590.68	123	8,506.68	22	1,521.52	-	-
11	180	14,495	23	1,852.19	135	10,871.55	22	1,771.66	-	-
12	252	17,696	29	2,036.38	203	14,254.66	20	1,404.40	-	-
13	240	17,463	35	2,546.60	190	13,824.40	15	1,091.40	-	-
14	216	14,508	34	2,283.44	170	11,417.20	12	805.92	-	-
15	1,740	114,850	197	13,002.00	1,068	70,488.00	475	31,350.00	-	-
16	1,068	79,519	50	3,722.50	898	66,856.10	120	8,934.00	-	-
17	468	42,304	40	3,615.60	378	34,167.42	50	4,519.50	-	-
18	612	41,893	40	2,738.00	522	35,730.90	50	3,422.50	-	-
19	456	43,737	70	6,713.70	326	31,266.66	60	5,754.60	-	-
20	276	28,482	34	3,508.46	202	20,844.38	40	4,127.60	-	-
Total	9,936	743,103	2,534	189,187.59	5,912	441,779.14	1,499	109,384.66	-	-

B. Retailers Located in Greater Buenos Aires

"Partidos"	Total		New Central Market		Dorrego Market		3 de Febrero Market		Abasto Norte Market	
	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)	No. of Retailers	Volume Purchased (tons)
Avellaneda	1,008	84,385	890	74,501.90	46	3,850.66	72	6,027.12	-	-
E. Echeverría	326	27,788	326	27,788.00	-	-	-	-	-	-
G. San Martín	1,400	90,143	852	54,857.72	26	1,674.00	452	29,102.24	70	4,507
G. Sarmiento	720	78,864	238	26,068.14	14	1,533.42	414	45,345.42	54	5,914.62
Lanús	1,092	112,456	1,092	112,456.00	-	-	-	-	-	-
Lomas de Zamora	1,032	102,702	1,032	102,702.00	-	-	-	-	-	-
Matanza	1,390	164,798	1,390	164,798.00	-	-	-	-	-	-
Merlo	438	47,217	350	38,592.40	-	-	88	9,486.40	-	-
Moreno	301	28,510	183	17,333.76	-	-	118	11,177.00	-	-
Morón	1,112	123,996	780	86,975.50	-	-	332	37,020.00	-	-
San Fernando	380	29,891	25	1,966.50	2	157.32	138	10,855.00	215	16,912.00
San Isidro	500	62,502	20	2,500.00	14	1,750.00	146	18,250.00	320	40,000.00
Tigre	350	38,084	27	2,937.87	5	544.00	178	19,368.18	140	15,233.40
Tres de Febrero	550	78,365	140	19,947.20	-	-	410	58,416.80	-	-
Vicente López	800	71,295	43	3,832.16	65	5,792.80	412	36,717.44	280	24,953.60
Almirante Brown	330	61,254	330	61,254.00	-	-	-	-	-	-
Quilmes	495	59,731	492	59,369.64	3	362.25	-	-	-	-
Berazategui	364[a]	31,935	-	-	-	-	-	-	-	-
Florencio Varela	170[a]	24,612	-	-	-	-	-	-	-	-
Quilmes	241[a]	29,101	-	-	-	-	-	-	-	-
Total Greater Buenos Aires	12,999	1,347,629	8,210	857,880.79	175	15,664.45	2,760	281,765.60	1,079	107,520.62
Total Whole Region	22,935	2,090,732	10,744	1,047,068.38	6,087	457,443.59	4,259	391,150.26	1,079	107,520.62

Source: Number of retailers as reported by Guillermo Bravo y Asociados, "Encuesta a Comerciantes Minoristas de Frutas y Hortalizas," op. cit. Volumes purchased by district estimated as a function of consumption. Calculated from the 1970 Census population figures and average per capita consumption of fresh fruits and vegetables estimated by the INEC, reported in Table II-6.

[a]Retailers making purchases at the new La Plata Market.

TABLE A2.--Number and Type of Vehicles Traveling From the Different Districts Where Retailers are Located to the Four Wholesale Markets Where Retailers Make Purchases in Alternative I.

A. Retailer Located in the Federal District

Districts	Type of Vehicle											
	Cars			Pick-ups			1.5-3 Ton Trucks			More than 3 Ton Trucks		
	Wholesale Markets			Wholesale Markets			Wholesale Markets			Wholesale Markets		
	New Central	Dorrego	3 de Febrero	New Central	Dorrego	3 de Febrero	New Central	Dorrego	3 de Febrero	New Central	Dorrego	3 de Febrero
1	56.64	2.44	20.63	543.20	23.46	197.89	147.85	6.38	53.86	109.85	4.74	40.02
2	5.00	7.84	0.46	47.81	75.26	4.43	13.01	20.48	1.21	9.67	15.22	0.89
3	5.21	10.30	0.55	50.02	98.72	5.32	13.61	26.87	1.45	10.12	19.96	1.07
4	1.84	8.08	0.60	17.71	77.47	5.76	4.82	21.09	1.56	3.58	15.67	1.16
5	10.47	5.63	1.61	100.50	54.01	15.50	27.35	14.70	4.21	20.32	10.92	3.13
6	6.74	14.58	0.27	64.63	139.89	2.66	17.59	38.08	0.72	13.07	28.29	0.53
7	1.47	12.74	1.84	14.17	122.18	17.71	3.85	33.26	4.82	2.86	24.71	3.58
8	1.38	6.55	0.92	13.28	62.86	8.85	3.61	17.11	2.41	2.68	12.71	1.79
9	1.66	10.16	0.92	15.94	97.39	8.85	4.34	26.51	2.41	3.22	19.70	1.79
10	1.06	5.67	1.02	10.18	54.45	9.74	2.77	14.82	2.65	2.06	11.01	1.97
11	1.06	6.23	1.02	10.18	59.76	9.74	2.77	16.26	2.65	2.06	12.08	1.97
12	1.34	9.37	0.92	12.84	89.87	8.85	3.49	24.46	2.41	2.59	18.17	1.79
13	1.61	8.77	0.69	15.49	84.11	6.64	4.22	22.89	1.80	3.13	17.01	1.34
14	1.57	7.84	0.55	15.05	75.26	5.31	4.10	20.48	1.44	3.04	15.22	1.07
15	9.09	49.30	21.92	87.21	472.80	210.28	23.84	128.69	57.24	17.65	95.62	42.52
16	2.31	41.45	5.54	22.13	397.54	53.12	6.02	108.21	14.46	4.47	80.40	10.74
17	1.84	17.45	2.31	17.71	167.34	22.14	4.82	45.55	6.02	3.58	33.84	4.47
18	1.84	24.09	2.31	17.71	231.10	22.14	4.82	62.90	6.02	3.58	46.73	4.47
19	3.23	15.05	2.77	30.99	144.32	26.56	8.43	39.28	7.23	6.26	29.19	5.37
20	1.57	9.32	1.84	15.05	89.42	17.71	4.10	24.34	4.82	3.04	18.08	3.58

TABLE A2.--Continued

B. Retailers Located in Greater Buenos Aires

"Partidos"	Type of Vehicle									
	Cars					Pick-ups				
	Wholesale Markets					Wholesale Markets				
	New Central	Dorrego	3 de Febrero	Beccar	La Plata	New Central	Dorrego	3 de Febrero	Beccar	La Plata
Avellaneda	44.50	2.30	3.60	-		467.25	24.15	37.80	-	
E. Echeverría	13.00	-	-	-		112.4	-	-	-	
G. San Martín	68.77	2.10	36.48	5.65		385.65	11.77	204.60	31.68	
G. Sarmiento	1.98	0.12	3.45	0.45		81.05	4.77	140.99	18.39	
Lanús	43.00	-	-	-		522.7	-	-	-	
Lomas de Zamora	119.20	-	-	-		432.8	-	-	-	
Matanza	207.5	-	-	-		497.0	-	-	-	
Merlo	10.15	-	2.55	-		106.04	-	26.66	-	
Moreno	-	-	-	-		44.87	-	28.93	-	
Morón	36.26	-	15.44	-		343.00	-	146	-	
San Fernando	2.93	0.23	16.16	25.18		8.34	0.67	46.01	71.66	
San Isidro	3.89	2.72	28.41	62.27		7.59	5.31	55.39	121.41	
Tigre	2.00	0.37	13.17	10.36		14.55	2.69	95.92	75.44	
Tres de Febrero	7.79	-	22.81	-		55.31	-	161.99	-	
Vicente López	2.74	4.14	26.21	17.81		21.99	33.25	210.74	143.22	
Almirante Brown	10.40	-	-	-		185.50	-	-	-	
Quilmes	48.36	0.30	-	-	23.69	200.69	1.22	-	-	98.30
Berazategui	-	-	-	-	25.95	-	-	-	-	107.69
Florencio Varela	-	-	-	-		-	-	-	-	109.40

TABLE A2.--Continued

B. Retailers Located in Greater Buenos Aires (Continued)

"Partidos"	Type of Vehicle									
	1.5-3 Ton Trucks					More than 3 Ton Trucks				
	Wholesale Markets					Wholesale Markets				
	New Central	Dorrego	3 de Febrero	Beccar	La Plata	New Central	Dorrego	3 de Febrero	Beccar	La Plata
Avellaneda	63.57	3.29	5.14	-		30.37	1.57	2.46	-	
E. Echeverría	28.2	-	-	-		38.20	-	-	-	
G. San Martín	147.52	4.50	78.26	12.12		50.63	1.55	26.86	4.16	
G. Sarmiento	15.57	0.92	27.08	3.53		22.97	1.35	39.96	5.21	
Lanús	153.9	-	-	-		127.4	-	-	-	
Lomas de Zamora	87.1	-	-	-		141.2	-	-	-	
Matanza	126.5	-	-	-		77.1	-	-	-	
Merlo	24.37	-	6.13	-		37.08	-	9.32	-	
Moreno	25.60	-	16.50	-		19.33	-	12.47	-	
Morón	74.84	-	31.86	-		86.98	-	37.02	-	
San Fernando	2.27	0.18	12.53	19.52		1.76	0.14	9.70	15.11	
San Isidro	1.40	0.98	10.22	22.40		2.88	2.02	21.02	46.08	
Tigre	3.50	0.65	23.04	18.12		1.50	0.28	9.87	7.76	
Tres de Febrero	19.22	-	56.28	-		12.47	-	36.53	-	
Vicente Lopez	6.51	9.84	62.37	42.38		3.12	4.71	29.87	20.30	
Almirante Brown	24	-	-	-		34.4	-	-	-	
Quilmes	44.33	0.27	-	-	21.71	22.98	0.14	-	-	11.25
Berazategui	-	-	-	-	23.79	-	-	-	-	12.33
Florencio Varela					4.40					4.59

Source: Calculated from data on the number and type of vehicles as reported by SCET-MERCASA-INTECSA-SIE, "Estudio de los Costos de Desabastecimiento," op. cit.; and "Mecánica de la Formación del Precio. El Impacto de la Creación del CMCBA Sobre los Precios de Distribución Hortifrutícola," Unpublished Report, June 30, 1971.

TABLE A3.--Total and Average Distances Traveled, Average Total and Total Costs by Type of Vehicle and Total Transportation Costs in a Four Produce Wholesale Markets Distribution System (Alternative I) in the Buenos Aires Metropolitan Region.

Type of Vehicle	One Way Weekly Distance	Two Way Weekly Distance	Annual Distance	Number of Vehicles	Average Annual Distance	Average Total Cost	Total Cost
	km	km	km		km	A$	A$
Cars	84,760	169,520	8,815,040	1,433	6.151	0.55	4,848,272
Pick-ups	572,744	1,145,488	59,565,433	9,896	6,019	0.65	38,717,531
1.5-3 ton trucks	141,565	283,130	14,722,807	2,564	5,742	0.81	11,925,474
More than 3 ton trucks	118,108	236,216	12,283,250	2,035	6,036	0.89	10,932,092
Total transportation costs							66,423,369

Source: Idem, Table A2. Average total cost estimates are presented in Table A4.

TABLE A4.--Influence of the Distance Traveled on Average Transportation Costs, by Type of Vehicle, for Selected Produce Distribution Systems.

	Annual Distance Traveled (km)				Average Fixed Cost Per Km. (A$)				Average Variable Cost (A$)	Average Total Cost (A$)			
	E.S.	Alt. II	Alt. I	Project	E.S.	Alt. II	Alt. I	Project		E.S.	Alt. II	Alt. I	Project
Car	2,020	6,250	6,766	8,452	0.50	0.45	0.45	0.43	0.10	0.60	0.55	0.55	0.53
Pick-up	3,315	6,482	6,621	9,607	0.58	0.48	0.48	0.39	0.17	0.75	0.65	0.65	0.56
1.5-3 ton truck	3,580	6,181	6,316	9,423	0.60	0.56	0.56	0.51	0.25	0.85	0.81	0.81	0.76
More than 3 ton truck	4,247	6,532	6,640	9,996	0.60	0.60	0.59	0.58	0.30	0.90	0.90	0.89	0.88

Source: SCET INTERNATIONAL-MERCASA-INTECSA-SIE, "Estudio de los Costos de Desabastecimiento," op. cit. Average fixed costs were recalculated for Alternatives I and II taking into account the different distances traveled.

TABLE A5.--Value of the Land Devoted to Wholesale Produce Markets.

	Land Value (A$/m^2)	Land Area of the Market (m^2)	Land Value (A$)
Abasto Proveedor S.A.	850	22,200	18,870,000
Demarchi	220	2,500	550,000
Frigorífico Liniers	250	6,000	1,500,000
Ciudad de Buenos Aires	450	13,000	5,850,000
Saldías	400	15,000	6,000,000
Vélez Sarsfield	750	2,700	2,025,000
Nacional Hortalizas	450	12,000	5,400,000
Nacional de Papas	350	17,000	5,950,000
Dorrego	325	53,217	17,322,240
Mcdo. Prov. de Frutos	100	130,000	13,000,000
Abasto Lomas de Zamora	850	1,200	1,020,000
Abasto La Matanza	250	8,000	2,000,000
Abasto Norte	100	15,000	1,500,000
Abasto Morón	170	5,000	850,000
Abasto Turdera	90	6,000	540,000
Abasto Vicente López	110	2,700	297,000
Frigomer	250	2,500	625,000
Abasto Avellaneda	250	6,000	1,500,000
Ricci	200	n.a.[a]	1,020,000
Abasto Quilmes	150	4,000	600,000
Tres de Febrero	75	36,000	2,700,000
Valentín Alsina	180	13,500	2,430,000
Intendente Grondona	170	n.a.[a]	867,000
Total		384,632	92,416,240

Source: Estimates of land values from Municipality of the City of Buenos Aires for the Federal District and from a private firm in the real estate business for Greater Buenos Aires. Land area of wholesale markets as reported in Table IV-1 above.

[a]Estimated as the average land area of small-size distribution markets (5,100 m^2).

TABLE A6.--Depreciated Value of Wholesale Facilities.

Central Markets	Built Area (m^2)	Future Life Span (years)	Depreciated Value (U$S)
Abasto Proveedor	40,000	5	220,000
Dorrego[a]	7,256	0	0
Dorrego[b]	6,158	20	135,476
Dorrego[c]	12,916	38	539,889
3 de Febrero	52,000	39	2,219,360
Saldías	9,500	31	322,050
Tigre	13,000	0	0
Ciudad de Buenos Aires	9,500	0	0
Avellaneda	5,000	0	0
Morón	5,000	30	165,000
Liniers	5,000	0	0
Turdera	6,000	31	203,400
Beccar	16,000	34	598,400
Frigomer	2,500	28	77,000
Quilmes	4,000	0	0
La Matanza	8,000	31	271,200
Demarchi	2,500	6	16,500
Lomas de Zamora	1,200	27	35,640
Vélez Sarsfield	n.a.	n.a.	n.a.
Valentín Alsina	13,500	40	594,000
Vicente López	2,700	28	83,160
Nacional de Papas	4,861	1	5,347
Nacional de Hortalizas	4,159	18	82,348
Total			5,568,770

Source: Calculated on the basis of a construction cost of $44 per square meter in 1971 as reported by the 3 de Febrero Market administration and of a wholesale facility useful life period of 40 years.

[a]Area built in 1930. [b]Area built in 1951.

[c]Area built in 1969.




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