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COOPERATIVE AGREEMENT ON SETTLEMENT AND RESOURCE SYSTEMS ANALYSIS

REGIONAL DEVELOPMENT AND POTATO MARKETING IN TUNGURAHUA PROVINCE, ECUADOR

by

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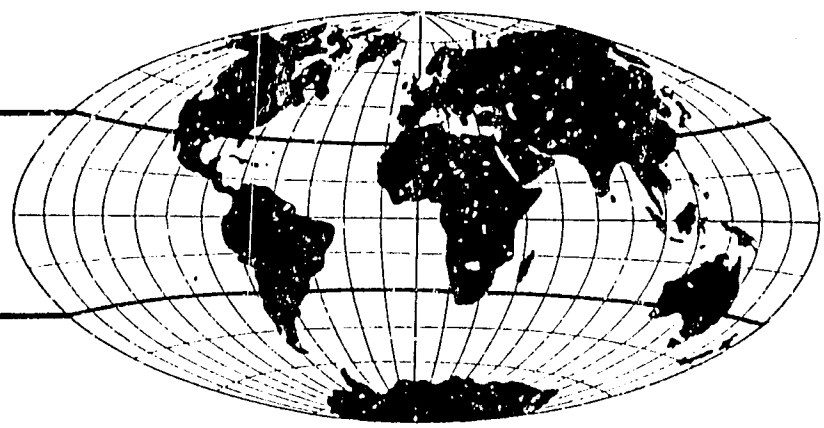

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PREFACE

Over the past six years, the Cooperative Agreement on Settlement and Resource Systems Analysis (SARSA) has experimented with approaches for analyzing the linkages between rural and urban areas. While many methodologies have been developed in the context of U.S.A.I.D. country mission projects, SARSA has also invested small amounts of its core budget in limited applied research projects. This paper reports on one such applied research project conducted in the spring of 1987 in Tungurahua, Ecuador.

In the past, SARSA had fielded other teams to Ecuador as part of projects funded jointly by the Ecuador Mission, the Government of Ecuador, and SARSA. These projects focused on the macroprocesses of urbanization in Ecuador and on the central functions provided in periodic markets in the Tungurahua and Cotopaxi provinces. The Spring 1987 project was intended to build on these previous projects by analyzing potato marketing in depth.

The goal of the Spring 1987 project was to investigate the behavioral, economic, social, and technical aspects of potato marketing in Tungurahua. The Principal Investigator of SARSA, Dr. Gerald Karaska, initiated this study under the conviction that studies of rural urban linkages, in order to be useful to planning, must focus on the specific exchange linkages most important to income generation in a region. The potato marketing system of Tungurahua, involving movements of goods and people from rural areas to many urban places in complex patterns, fits this notion of a specific exchange linkage. Potatoes in Tungurahua are a major source of regional income and a source of income, both directly and indirectly, for a broad segment of the rural and urban populations in Tungurahua.

This report examines the spatial structure of the Tungurahua potato marketing system and the behaviors and socioeconomic factors that give rise to it. The regional development implications of both spatial structure and dynamic behavior are then explicated. The report is intended both as a substantive empirical study and as an illustration of the utility of analyzing rural urban linkages from a spatial and behavioral perspective.

The author wishes to acknowledge Gerald Karaska, Thomas Carroll, and Eric Chetwynd for providing invaluable insights, advice, and support. Capable field assistance was provided by Pamela Spence de Cardenas, the U.S.A.I.D. mission, and by PRONAREG and FONAPRE. Finally, special credit must go to Benjamin Howatt who not only assisted in data collection, but in the design of the field methodology and in the analysis of the results.

Chapter I

Introduction

This report examines the potato marketing system in Tungurahua, Ecuador. Potato production and marketing are major sources of income for the population living in the province and hence play a pivitol role in the regional economy. The purposes of this report are: (1) to place this marketing system within the broader contexts of regional development and the study of rural-urban linkages; and (2) to develop policy recommendations for regional development in Tungurahua based on an analysis of the potato merketing system in the province.

This introductory chapter provides background information on Tungurahua and on the role that its settlements play in development. The utility of analyzing commodity marketing systems as an effective way of studying regional development and rural-urban linkages is discussed. Finally, the methodology employed to analyze the potato marketing system in Tungurahua is described.

Background to the Study Region

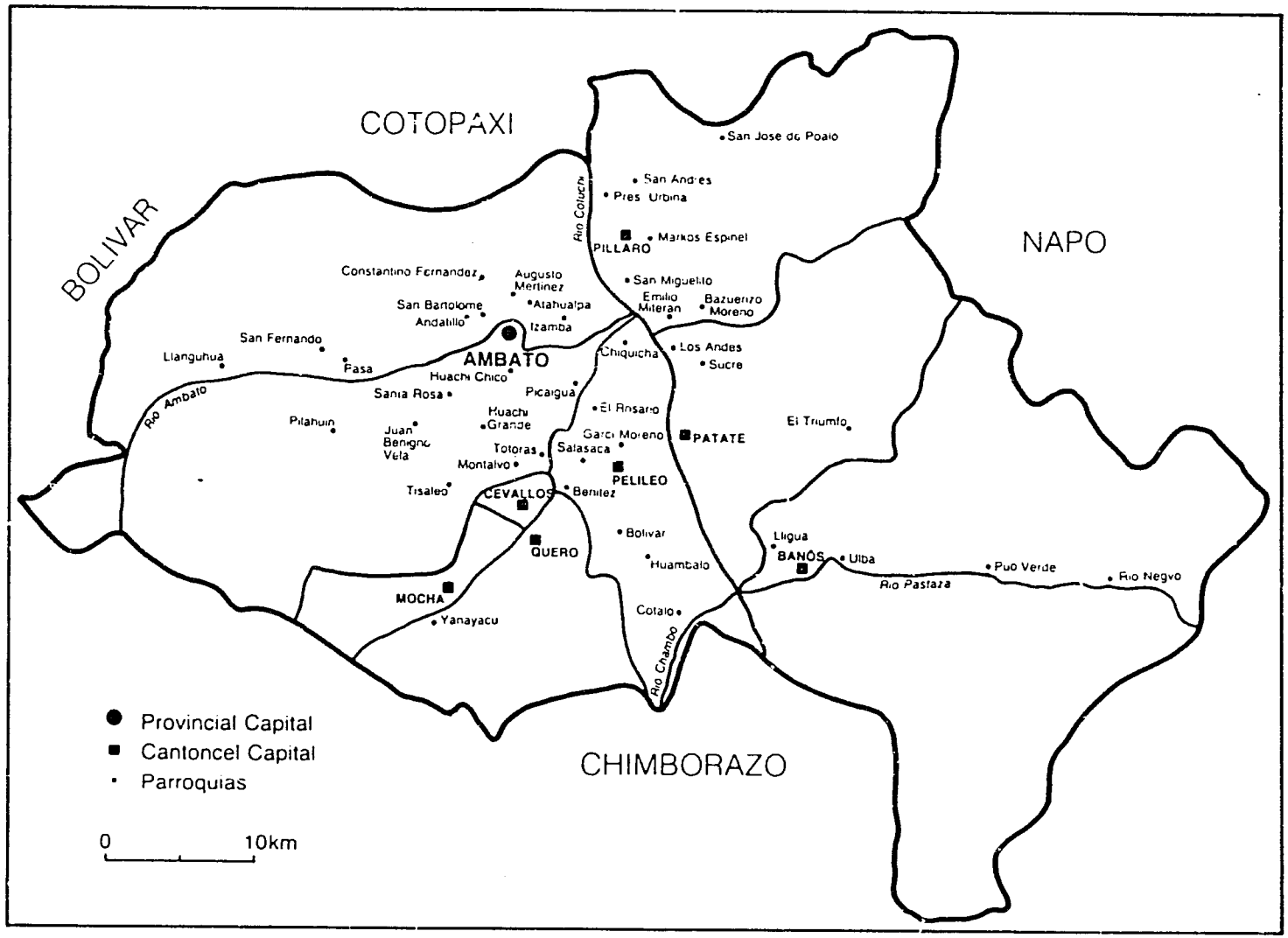
Tungurahua is a province of some 3,155 sq. km. in the central highlands of Ecuador (Maps I-1 and I-2). The population of Tungurahua lives in an inter-montane area that is bounded by the two principal ridges of the Andes to the east and west and by fault lines and volcanoes to the north and south. Settlements are concentrated on the valley floor between 2,200 and 3,200 m., with only small holder farms and isolated towns stretching up along the mountain and volcano slopes up to 3,800 m. The province is drained by the headwaters of the Pastaza River system.

Map I-1

POLITICAL MAP OF ECUADOR

Map I-2

TUNGURAHUA



Social Indicators

The population of Tungurahua is made up of diverse ethnic groups including Chibuleo Indians, Salasacan Indians, other unclearly defined Indian groups, mestizos, and ladinos. It is very difficult to estimate the relative percentages of indígenas, mestizos, and ladinos in the province. The majority of the population is either indian or of mixed indian and latin blood.

Large segments of the population are poor and are plagued by constant health problems. According to statistics compiled by the International Bank for Reconstruction and Development, 65 percent of the rural population in Ecuador in 1975 was living below the absolute poverty line (Luzuriaga and Zuvekas, 1983). The infant mortality rate in the rural areas of Tungurahua in 1977 was a tragic 84.4 per thousand live births (Luzuriaga and Zuvekas 1983). Only 19.7 percent of rural household units in Tungurahua were served by public potable water supply systems in 1974. Thus, severe intestinal and stomach disorders are widespread.

Administrative Structure and Demographics

Tungurahua is administratively divided into cantones and parroquias. Cantones are muncipalities that are entitled to collect their own tax revenues. There are eight cantones in Tungurahua: Ambato, Baños, Cevallos, Mocha, Patate, Pelileo, Píllaro, and Quero. Mocha and Cevallos became cantones within the last three years. Data collected before 1985 include Mocha and Cevallos as parts of Canton Ambato. Parroquias are smaller administrative units that have a limited number of government functions.

Ambato is the largest canton both in terms of population and land area (Table I-1). As of the last census taken in 1982, Ambato contained 62% of the total population of the province, which in 1982 was 339,024. Most of the cantonal capitals grew rapidly in population between 1974 and 1982, with Ambato

growing by one-third and Banos by over one-half (Table I-2). Each canton has an administrative center of the same name. The city of Ambato, which is also the capital of the province, dominates the demographic landscape (Table I-2). With a population of 100,605 in 1982, it had eleven times the population of Baños, the next largest settlement in the province. Píllaro and Pelileo are the only other towns of relatively significant size. Apart from these settlements, only Patate, Cevallos, and Quero have populations over one thousand.

TABLE I-1

AREA, POPULATION, AND DENSITIES OF CANTONES IN TUNGURAHUA, 1986

Canton	Area (kmq^2)	Population	Density/km^2
Ambato	952	208,330	225
Baños	913	16,769	18
Cevallos	19	6,001	324
Mocha	86	6,146	76
Patate	363	11,948	33
Pelileo	199	39,470	199
Píllaro	447	34,854	78
Quero	176	15,506	88
TOTAL	3,155	339,024	1,041

Source: ILDIS 1986

TABLE I-2

POPULATION AND CHANGE IN CANTONAL CAPITALS IN TUNGURAHUA, 1974-1982

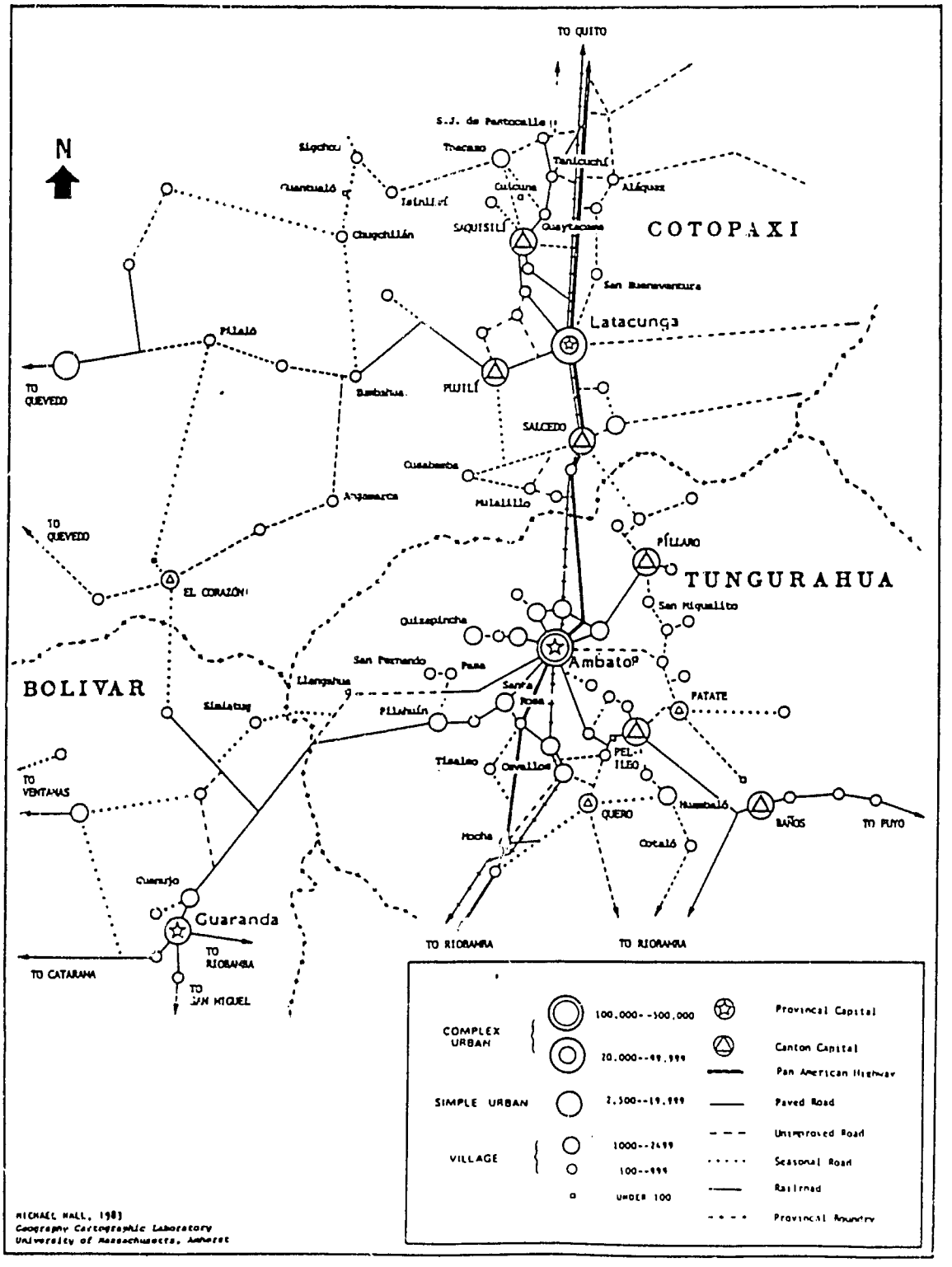
Capital	1974	1982	% Change
Ambato	77,052	100,605	+ 31
Baños	5,596	8,548	+ 53
Píllaro	4,163	4,290	+ 3
Pelielo	3,800	4,523	+ 19
Patate	1,385	1,609	+ 16
Cevallos	1,086	1,150	+ 6
Quero	919	1,267	+ 38
Mocha	798	781	- 2

Source: Censo 1982

The settlements in Tungurahua are linked with each other and to those outside the province by a relatively dense network of primary, secondary, and tertiary roads (Map I-3). The major towns in Tungurahua are connected by roads that are passable throughout the year. Though the smaller towns are linked by slower, seasonal roads, the densely compacted volcanic soils in the region make most of the seasonal roads passable even during most of the rainy season. Interregional roads are much better than those serving the smaller towns within Tungurahua. The Pan American Highway passes through Ambato and Mocha and provides quick and reliable connections with Latacunga, the provincial capital of

Map I-3

TRANSPORTATION LINKAGES
AMBATO REGION



Cotopaxi Province in the north, and with Riobamba, the provincial capital of Chimborazo Province to the south. Another major paved road runs from the Pan American highway to the west to Guaranda. A better road to the Costa emanates from Riobamba. This road can be reached by the Pan American Highway from Ambato in 45 minutes. This makes the province accessible to roads that lead to Guayaquil, the largest city in Ecuador, on the Pacific Coast. Paved roads also run to the Oriente. In short, Tungurahua is accessible to most of the major urban centers and regions of the country.

The city of Ambato dominates the settlement hierarchy in terms of the distribution of services, manufacturing, and commercial establishments. In 1982, it contained 73 percent of all hospitals in the region and 59 percent of the doctors in the cantonal capitals (Table I-3). Ambato's primacy is also apparent in the distribution of manufacturing and commercial establishments among cantonal capitals (Table I-4). Very few fixed commercial or manufacturing enterprises in Tungurahua are found below the level of cantonal capitals.

Periodic Markets and the Role of Settlements in Development

These data on fixed commercial and manufacturing establishments, however, tell only part of the story of the economic importance of the settlements in Tungurahua. In addition to the fixed economic establishments found in the settlements there are other institutions called periodic markets, which are temporary establishments which meet periodically at a settlement or rural site. These periodic markets, often ignored in the study of the role of settlements in development, serve more people in the province than do fixed stores and are more important for the economic and social lives of the rural population.

Periodic markets are the places where rural populations make most of their expenditures and where they sell most of the agricultural and non-agricultural

TABLE I-3

SERVICES IN CANTONAL CAPITALS OF TUNGURAHUA, 1982

Capital	Health Services								Schools					
	Hospitals		Health Ctrs		Beds		Drs.		Primary		Secondary		Univ	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Ambato	8	73	3	30	386	88	57	59	55	33	34	71	2	100
Baños	1	9	1	10	15	3	9	9	13	8	5	10	0	0
Cevallos	0	0	1	10	0	0	3	3	12	7	1	2	0	0
Mocha	0	0	1	10	0	0	1	1	9	5	0	0	0	0
Patate	0	0	1	10	0	0	3	3	17	10	1	2	0	0
Pelileo	1	9	1	10	18	4	17	18	22	13	3	6	0	0
Píllaro	1	9	1	10	20	5	6	6	12	7	3	6	0	0
Quero	0	0	1	10	0	0	1	1	25	15	1	2	0	0

Source: Censo Economico 1982

TABLE I-4

MANUFACTURING AND COMMERCIAL ESTABLISHMENTS IN CANTONAL CAPITALS OF TUNGURAHUA, 1980

Capital	Total Establishments		Total Employees		Manufacturing Factories		Commercial Stores	
	#	%	#	%	#	%	#	%
Ambato	6,132	80	14,599	85	1,979	81	2,809	81
Baños	451	6	762	4	81	3	180	5
Cevallos	111	1	194	1	61	2	27	1
Mocha	na	na	na	na	na	na	na	na
Patate	97	1	144	1	23	1	52	2
Pelileo	511	7	885	5	178	7	237	7
Píllaro	287	4	452	3	97	4	113	3
Quero	63	1	102	1	28	1	29	1

Source: Censo Economico 1980

products that they produce at home. Further, much of the low-income urban demand for consumer goods and much of the total urban demand for fresh foodstuffs are supplied through periodic markets. Periodic markets are characterized by markets which meet on fixed days of the week where buyers and sellers meet to exchange goods and services at stalls or predesignated spots in covered or open plazas. The range of goods and services provided at these places is elaborate, ranging from street foods, to tailoring, to barbering, to the marketing of agricultural produce, to consumer goods, to production inputs. The periodic markets of Tungurahua Province are shown on Map I-4.

The Need for A Commodity Marketing Approach

Without distinguishing between retail activities and bulking and wholesaling of locally-produced goods, it is difficult to interpret the regional and developmental importance of the periodic markets located in a settlement [1]. Yet, because the activities located in periodic markets are of such central importance to rural and urban populations, these markets are of great importance to regional development and are vital locales for rural-urban linkages.

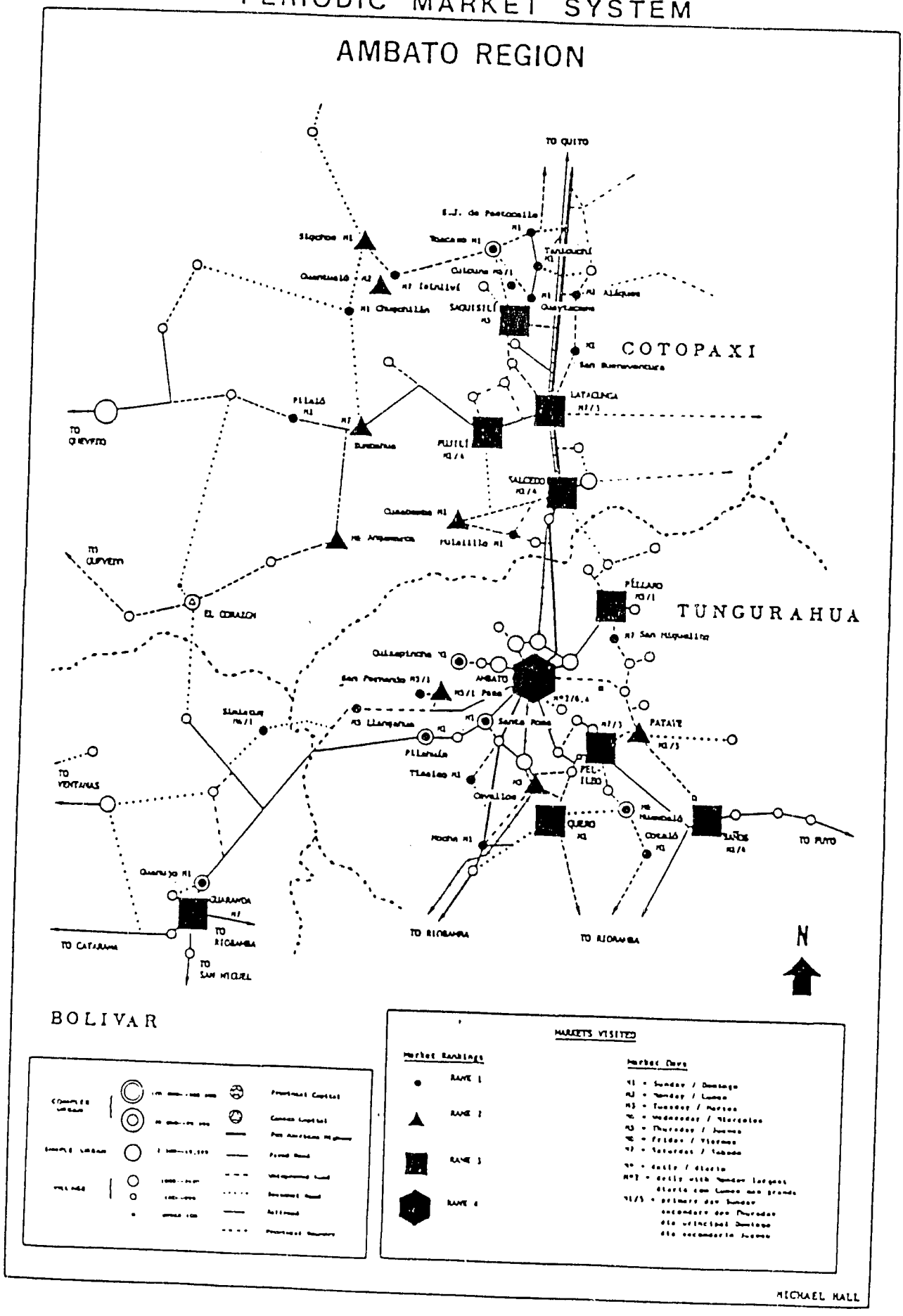
It is for this reason that this study adopts a commodity system approach to the analysis of rural-urban linkages. Rather than analyze the economic and social activities located throughout the settlement hierarchy and the way in which rural populations participate in these activities, this study chooses to treat rural-urban linkages in a disaggregated way, examining only one commodity at a time. In this case the commodity selected is the potato because it is a major source of regional and agricultural income in Tungurahua Province.

By focusing on potato marketing as a rural-urban linkage it is possible to examine the effects of this system on regional development and on the distribution of the rural and urban incomes derived from it.

Map I-4

PERIODIC MARKET SYSTEM

AMBATO REGION



The Research Methodology

The methodology utilized in this study is an extension of a commonly employed commodity marketing approach called the structure-conduct-performance approach [2]. This approach, developed largely at Michigan State University, draws on related approaches developed earlier by industrial organization theorists.

The structure-conduct-performance approach conceptualizes the marketing of commodities as a system that delivers inputs to a particular commodity production process and markets its outputs by coordinating supply and demand. The emphasis is on describing the actors in the marketing system, the locations at which market transactions are made, the interactions between participants, and the "efficiency" of the system. "Economic efficiency" is a normative concept that is drawn from a neoclassical model of free market economic competition. "Technical efficiency" is measured by how optimally the marketing system provides for storage, transport, credit, and price information. These studies, therefore, focus on assessing the extent to which a marketing system satisfies these normative criteria. Such a study has recently been completed for potato marketing in Ecuador by Simmons and Ramos (1985) under a contract with the U.S. Agency for International Development.

The methodology advanced in this report departs from this conventional methodology in important ways. First, it focuses far more on the spatial structure of the marketing system and on the spatial behavior of marketing participants than the structure-conduct-performance approach. Second, it does not compare the system against an *a priori* normative model. Instead, it is directed towards understanding the behavioral patterns that give rise to a marketing system and what accounts for these patterns. Finally, it examines the regional development implications of these behavioral patterns and assesses

"efficiency" in the simple terms of whether the system successfully coordinates areas of supply with areas of demand.

The methodology utilized in this study identifies and analyzes the behavioral patterns of groups of marketing participants. In order to understand the behavioral patterns, the patterns are first identified and described. These behavioral patterns are then analyzed and hypotheses developed as to what accounts for them. It is assumed that the two factors which account for them are: (1) the access of different social groups to economic and other resources mobilized to generate an income from marketing (their structural location within the socioeconomic stratification of the economy); and (2) the demands placed on these social groups as a result of the function (or functions) they perform in the marketing system (these demands arise from socially expected behaviors and the logical requirements needed to perform the function). Once these factors are understood, it is possible to consider how the behaviors of participants in the system, the geography of production, and the geography of settlements result in a particular spatial structure of the marketing system. Further, it is possible to examine the regional development implications of these factors and this spatial structure.

Organization of the Report

The rest of this report is organized into five chapters. Chapter II briefly describes the characteristics of potato production in Tungurahua Province and of the producers who cultivate and market them. Chapter III describes the potato marketing system and ends with a description of the spatial behaviors of the participants. In Chapter IV, the social interactions of participants in the system are described and analyzed to reveal the "rule governed nature" of the system. Further, the resources that are drawn upon

intrade are identified and profiles of behavioral patterns of social groups are developed based on their shared access to resources and their shared functions within the system. In Chapter V, the behavioral patterns of the social groups are then related to the spatial structure of the system. The chapter ends with a discussion of the regional development implications of the behavioral patterns and of the spatial structure. Finally, the policy implications of the analysis are elaborated in Chapter VI.

Field Work

The fieldwork for this study was undertaken between April and May of 1987 by a three-person team. The field team consisted of the author, Benjamin Howatt of the University of Maine at Augusta, and Pamela Spence de Cardenas of Quito, Ecuador. The project was funded by Clark University under its Cooperative Agreement with the United States Agency for International Development on the subject of Settlement and Resource Systems Analysis (SARSA). The U.S.-A.I.D. mission in Ecuador helped in locating secondary sources and provided logistical support. Finally, the staffs of FONAPRE (Fondo Nacional de Preinversion) and PRONAREG, MAG (Programma Nacional de Regionalizacion Agraria, Ministerio de Agricultura y Gananderia) were very forthcoming in providing advice and assistance.

The identification and description of the behavioral patterns of marketing participants in this study are based on interviews of a sample of forty-six potato producers in Tungurahua Province, in-depth interviews of fifteen potato intermediaries, discussions with key informants (academics and planners who have studied the system), brief interviews of forty-five intermediaries in two marketplaces, and field observations.

Notes

1. For a discussion of the rationale behind separating the study of retail from wholesale periodic market activities and for methods to accomplish this, see Smith 1985.

2. For a review of the structure-conduct-performance approach see Holtzmann, 1986.

Chapter II

Potato Production and Consumption in Ecuador[1]

Potatoes are cultivated in all the highland provinces in Ecuador (the Sierra) and are consumed as an important staple crop in urban and rural households throughout the country, including the Costa and the Oriente (Maps I-1 and II-1). At the national and the provincial levels, the area planted in potatoes and the yields per ha vary significantly from year to year (Tables II-1, II-2, and II-3).

Potato consumption in Ecuador has been estimated by Immick (1984) (Table II-4). Per capita consumption of potatoes is greater in the highland than the lowlands and is greater in urban areas than in rural areas. Per capita consumption is greatest in Quito, which has levels that are twice as high as the average per capita urban consumption in the highlands and almost eight times as high as average per capita consumption in the rural areas of the coastal areas. Simmons and Ramos (1985) have taken Immick's figures and computed the total volume of potatoes consumed by province using 1982 population census data (Table II-5). Close to 3 million qq of potatoes are consumed annually in Quito and Guayaquil alone. The number of qq consumed in each province measures in the hundred of thousands. This suggests that a tremendous quanity of potatoes are marketed in Ecuador. When interpreting these figures, however, it is important to note that much of the highland population which is classified

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[1] Volumes of potatoes are measured by the quintal (qq) throughout this report which is equivalent to 103 lbs of potatoes. This measure is used because potatoes are marketed in one quintal sacks.

Map II-1

COSTA, SIERRA, AND ORIENTE PROVINCES OF ECUADOR

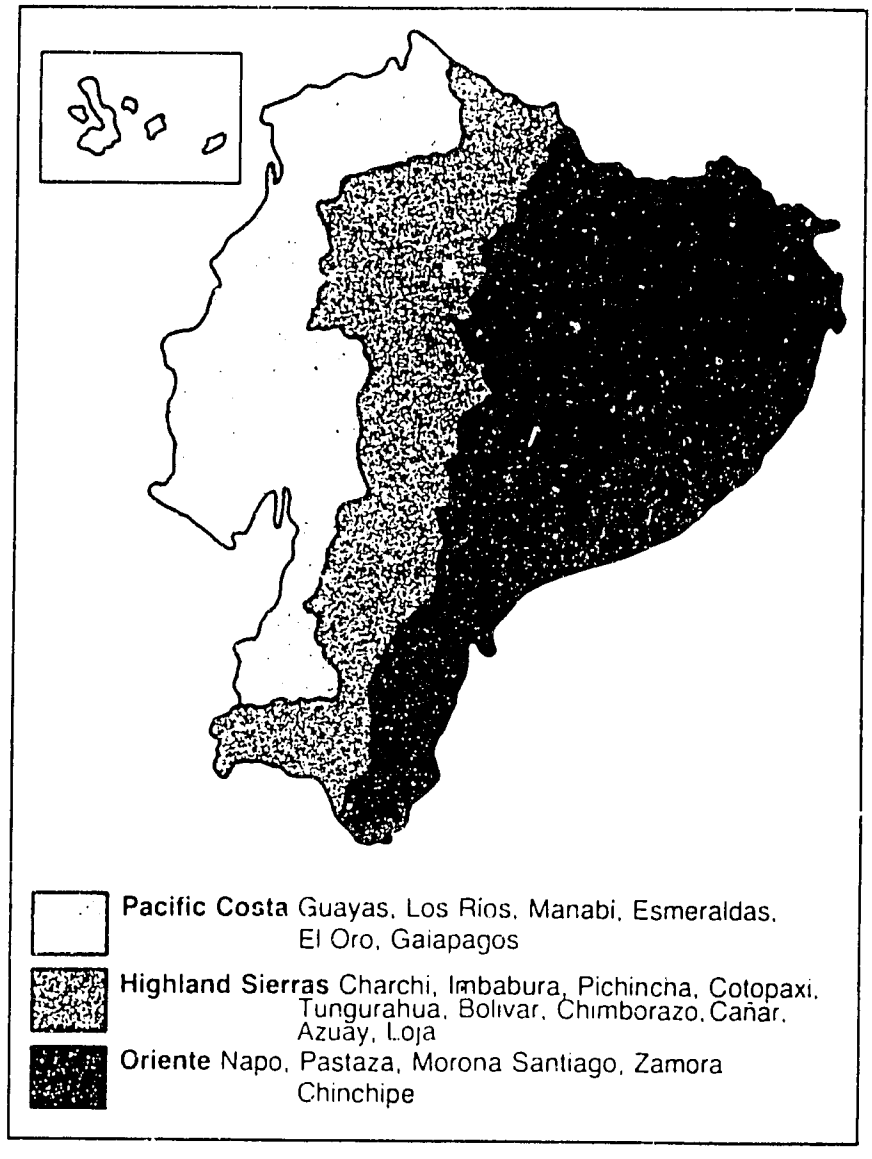

TABLE II-1

POTATO HARVESTED AREA IN HIGHLAND ECUADOR, 1974-1983
(HA)

Province	1974	1975	1976	1977	1978	1979	1980	1931	1982	1983
Carchi	7,600	7,000	6,500	4,248	3,694	3,445	3,514	5,530	5,600	5,471
Imbabura	600	900	1,300	2,780	2,009	1,430	1,800	1,600	1,000	600
Pichincha	3,550	5,384	7,100	5,057	4,582	2,625	4,800	3,966	3,900	2,788
Cotopaxi	7,000	7,850	6,000	4,362	3,983	3,298	3,910	3,572	3,900	2,602
Tungurahua	3,755	2,872	3,800	3,828	3,099	1,223	1,500	2,052	3,200	3,205
Chimborazo	6,500	5,200	5,000	3,930	3,551	4,696	6,000	5,050	8,200	5,000
Bolivar	1,500	1,500	1,500	3,389	2,442	3,831	2,500	2,500	2,500	1,869
Canar	7,000	7,100	8,000	5,900	4,809	4,270	4,500	5,700	6,500	4,000
Azuay	600	1,220	1,500	1,980	1,337	1,535	1,550	1,375	1,050	800
Loja	600	70	150	185	127	316	120	100	96	316
TOTAL	39,138	39,499	41,223	36,000	29,843	26,894	30,380	31,602	35,101	26,743

Source: Simmons and Ramos 1985, Table 1

TABLE II-2

POTATO YIELD ESTIMATES, 1974-1983
(QQ/HA)

Province	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Carchi	435	395	451	569	278	284	276	296	296	337
Imbabura	149	148	138	252	262	284	261	286	286	282
Pinchincha	257	248	243	153	214	226	217	217	197	207
Cotopaxi	287	296	321	252	272	232	247	286	286	217
Tungurahua	312	318	279	220	264	272	293	296	296	282
Chimborazo	198	217	248	321	243	155	187	247	276	276
Bolivar	178	196	163	106	258	165	217	276	276	234
Canar	250	247	293	172	240	196	239	296	211	261
Azuay	76	102	167	252	237	175	217	187	178	222
Loja	55	62	130	86	196	239	239	236	237	196

Source: Simmons and Ramos 1985, Table 2

TABLE II-3

POTATO PRODUCTION, 1974-1983
(000'S OF QQ)

Province	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Carchi	3,253	2,723	2,885	239	1,012	976	955	1,610	1,631	1,466
Imbabura	88	131	176	689	517	398	459	450	282	167
Pichincha	1,961	1,309	1,675	762	967	584	1,027	847	757	568
Cotopaxi	1,974	2,291	1,898	1,071	1,066	566	949	1,006	816	556
Tungurahua	1,158	900	1,044	831	761	328	433	598	932	891
Chimborazo	1,282	1,112	1,220	1,240	849	717	1,095	1,226	2,230	1,359
Bolivar	263	289	241	354	621	621	535	679	679	437
Canar	1,720	1,727	2,309	986	1,134	824	1,059	1,660	1,350	1,027
Azuay	45	122	247	491	311	265	332	254	183	175
Loja	32	4	19	16	25	74	28	22	22	61

Source: Simmons and Ramos 1985, Table 3

TABLE II-4

PER CAPITA CONSUMPTION OF POTATOES,
BY URBANIZATION AND REGION

City or Area	Consumption kg/cap/year	qq/cap/year
Quito	80.6	1.72
Guayaquil	34.1	0.73
Coast		
rural	10.9	0.23
urban	15.2	0.32
Highlands		
rural	35.1	0.75
urban	40.2	0.86

Source: Immick 1984.

as urban by the national census, in fact, comprises rural producers who meet much of their potato consumption demand by growing their own potatoes.

Potato Production in Tungurahua

Between 1974 and 1983, except for 1979, 1980 and 1981, Tungurahua was one of the major potato producing provinces in the country (Table II-3). Despite annual fluctuations, Tungurahua also consistently ranks among the highest of all the provinces in terms of productivities per ha (Table II-2). According to an estimate made by Simmons and Ramos (1985, p. 24), Tungurahua produces a surplus of 480,612 qq of potatoes over its consumption. Thus, Tungurahua is an important surplus producer and supplies many other provinces with potatoes.

Importance of Potato Production to Regional Economy

Potato production and marketing within Tungurahua is an important economic activity. In 1985, 25 percent of an estimated 16,577 ha of sown land in the

TABLE II-5

CONSUMPTION OF POTATOES, BY PROVINCE

Province	Rural		Urban		Total	
	MT	QQ	MT	QQ	MT	QQ
Guayaquil					48,192	1,031,791
Quito					81,845	1,752,301
Guayas[a]	6,645	142,269			6,645	142,269
Pichincha[b]	12,412	265,740			12,412	265,740
Manabi	6,901	147,751	3,832	82,093	10,733	229,794
Los Rios	3,384	72,451	2,138	45,775	5,522	118,226
Azuay	9,508	203,566	6,672	142,848	16,180	346,414
Loja	10,411	222,899	2,402	51,427	12,813	274,326
Chimborazo	8,729	186,887	3,324	71,167	12,053	258,054
Tungurahua	7,174	153,595	4,960	106,194	12,134	259,789
El Oro	1,555	33,293	2,952	63,202	4,507	96,495
Cotopaxi	7,750	165,945	2,145	45,924	9,895	211,873
Imbabura	5,594	117,733	3,686	78,917	9,185	196,650
Esmeraldas	1,594	34,143	1,544	33,042	3,138	67,185
Cañar	4,805	102,875	1,565	33,507	6,370	136,382
Bolivar	4,886	104,610	413	8,842	5,299	113,452
Carchi	3,180	68,084	5,137	109,983	8,317	178,067

[a] Excludes Guayaquil
[b] Excludes Quito

Source: Simmons 1985, Table 11.

province was planted in potatoes, 38 percent was planted in corn, 12 percent in apples, 11 percent in beans, 9 percent in onions, 4 percent in barley, 1 percent in wheat, and 1 percent in tomatoes (Alban et al., 1986). With one quarter of the area in cultivation in Tungurahua being planted in potatoes and with an average surplus of 480,612 qq of potatoes produced above consumption requirements, potato production is an important source of regional income in Tungurahua. It is also an important source of income for the 21.89 percent, 62 percent, 66 percent, and 75 percent of the economically active population that is engaged in agriculture in the cantones of Ambato, Pelileo, Píllaro, and Quero, respectively (INEC 1982).

Geography and Timing of Potato Production

Potatoes in Tungurahua are produced between 2,800 and 3,700 m.[2] The major potato production areas are concentrated in Canton Quero, Canton Píllaro, and Canton Ambato (concentrated in the area around Tisaleo) (Map II-2). Potatoes are also cultivated in Canton Mocha and in Canton Pelileo (concentrated around Huambaló and Cotaló). There is very little production in Canton Patate and in Canton Banos because of the climatic conditions there. In Canton Quero and in Canton Píllaro as much as 40 percent of the cultivated land is sown with potatoes. Between 10 and 20 percent of the cultivated land area in the other potato producing cantones, is sown in potatoes.

The major areas planted with potatoes can be divided into the low zone, which is between 2,800 and 3,200 m, and the high zone which is between 3,200

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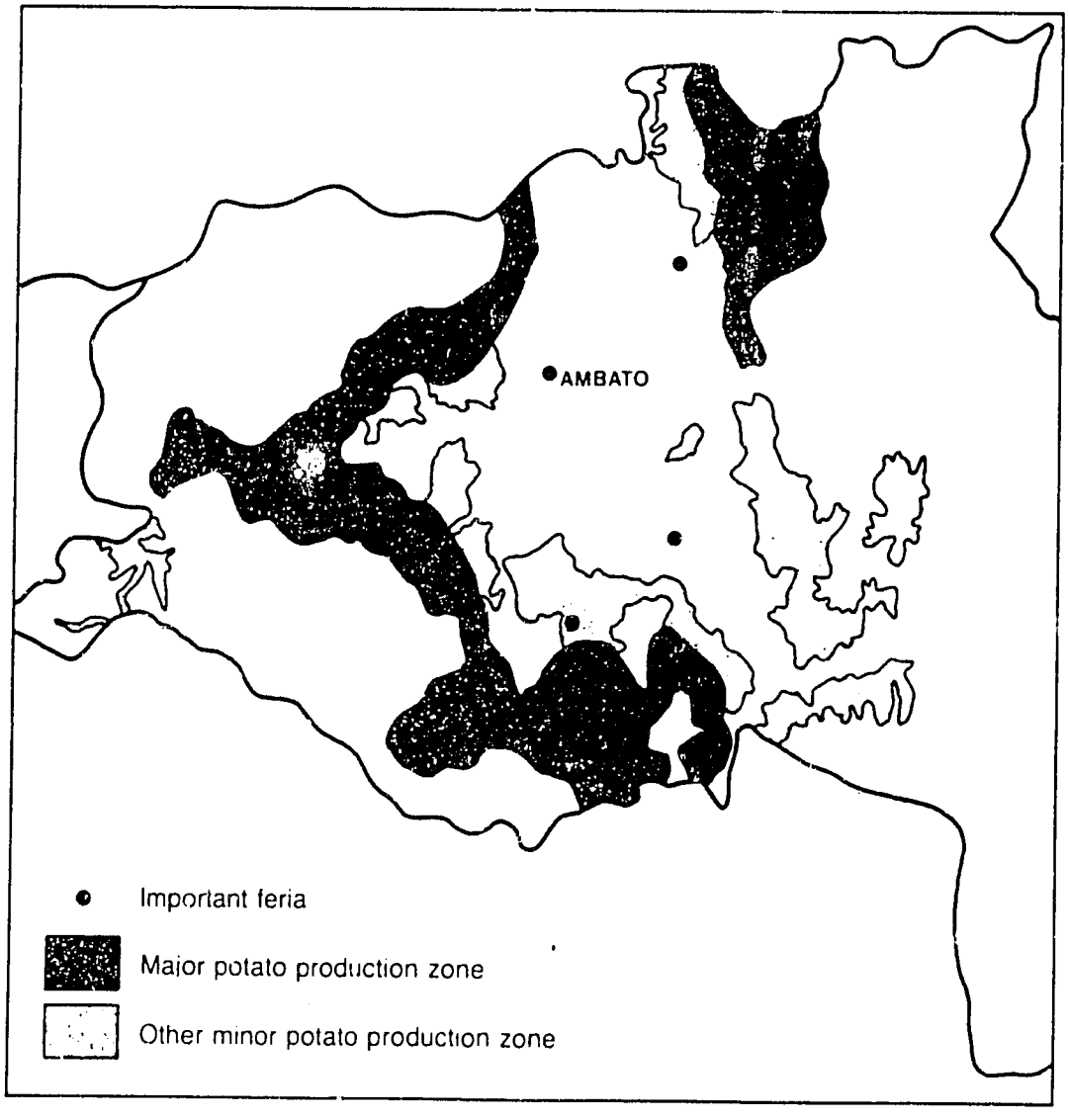
[2] The following discussion of potato production in Tungurahua is based largely on material found in a PRONAREG report (Cueva-Lopez 1985).

Map II-2

POTATO PRODUCTION AREAS OF TUNGURAHUA



and 3,700 m. The low zone is characterized by sandy, light-colored soils. These soils are most suitable for planting the Chola and Ubilla varieties of potatoes. These varieties are traditional potatoes that take nine months to mature and command a high price in the market. In the high zone the soil is volcanic. It is darker and more compact than the soil in the low zone. Volcanic soils are most suitable for cultivating Catalina, Gabriela, and Cecilia varieties. These varieties are hybrid potatoes that have only six- to seven-month growing seasons. Though these varieties are harvested biannually, all but the Cecilia command a lower price in the market. The two harvest seasons in Ambato, Mocha, Quero, and Pelileo are between November and December and between March and May. In Canton Pillaro, the two harvest seasons are between November and December and between July and August.

Potato Production and the Potato Producers

Potatoes are grown on farms of all sizes in the province. For the purposes of this study, producers are grouped into small, medium, and large holders. Small holders are defined as producers with holdings of 3 ha or less. Medium holders are defined as producers with holdings of 3.1 to 10 ha and large holders are defined as producers with holdings of 10 ha or greater. This size classification follows the criteria used to study potato producers in Ecuador by Simmons and Ramos (1985), Valderamma and Luzuriaga (1980), and Reinoso (1986). Grouping producers by size of holding is appropriate because income and capacity to accumulate capital are directly and strongly correlated with holding size.

Small and medium holders account for the majority of production units in all of the cantones in Tungurahua, but control only a small fraction of the

arable land (Table II-6). In 1974, in the principal potato producing cantones of Ambato, Pelileo, Píllaro, and Quero, large holders accounted for only 7.1 percent, 1.2 percent, 2.3 percent, and 5.0 percent of farm units in each of these cantones, respectively. Yet, respectively, they controlled 72.5 percent, 41.6 percent, 65.6 percent, and 75.6 percent of the arable land area. On average, this means that one twenty-sixth of the agricultural households in the primary potato producing areas in Tungurahua controlled over two-thirds of the arable land in the province. In the absence of any significant land reform since the last agricultural census, it is unlikely that these figures have changed in any significant way.

While all the large holders own their land, small and medium holders often do not hold title to the land they work. Tenure relations for these small and medium holders include several varieties of share-cropping (most often), landlord-tenant (rarely), and cooperatively-owned (rarer still). The cooperatives that exist in Tungurahua, most notably in the towns of Huambaló, Llanghua, and Pillahuín, are not communally owned units for production and marketing decisions. Rather, they provide a framework for organized labor exchanges between member households who own their own land. Since there are no accurate statistics on tenure relations by size of holding in Tungurahua, it is not possible to quantify the amount of land that is held in each tenure relationship.

Production and Income by Size of Holding

Large holders control the output of potatoes in Tungurahua and have a greater income generation potential than small and medium holders (Table II-7). Large holders, who in 1974 accounted for 4.1 percent of the potato producers in

TABLE II-6 (continued)

DISTRIBUTION OF LAND IN TUNGURAHUA CANTONES, BY LAND AREA AND SIZE OF HOLDING, 1974[a]

Canton	Land Area by Size of Holding (ha)						
	0-3		3.1-10		10.1+		TOTAL
	#	%	#	%	#	%	#
Ambato	12,224	19.3	5,517	8.7	45,539	72.0	63,280
Baños	898	3.1	1,592	5.4	26,851	91.5	29,341
Patate	1,169	8.4	1,797	12.9	11,011	78.7	13,977
Pelileo	4,143	46.3	1,079	12.1	3,728	41.6	8,950
Píllaro	2,833	16.1	3,222	18.3	11,550	65.6	17,605
Quero	1,969	12.5	1,871	11.9	11,880	75.6	15,720
TOTAL	23,236	15.6	15,078	10.1	110,559	74.3	148,873

Source: Censo Agropecaurio 1974

[a] Does not include landless rural households

TABLE II-6

DISTRIBUTION OF LAND IN TUNGURAHUA CANTONES, BY FARMS UNITS AND SIZE OF HOLDING, 1974[a]

Canton	Farm Units by Size of Holding (ha)						
	0-3		3.1-10		10.1+		Total
	#	%	#	%	#	%	#
Ambato	14,205	90.4	1,249	7.1	265	1.7	15,719
Baños	787	51.6	306	20.1	432	28.3	1,525
Patate	1,019	68.3	337	22.6	135	9.1	1,491
Pelileo	4,746	94.3	224	4.5	61	1.2	5,031
Píllaro	3,430	81.1	701	16.6	96	2.3	4,227
Quero	1,778	78.4	377	16.6	112	5.0	2,267
TOTAL	25,965	85.8	3,194	10.6	1,101	3.6	30,260

Source: Censo Agropecaurio 1974

[a] Does not include landless rural households

TABLE II-7

POTATO PRODUCERS AND PRODUCTION IN TUNGURAHUA, BY SIZE OF HOLDING, 1974

Size of Holding (ha)	Production Units		Production (qq)		Production Per Farm Unit (qq)
	#	%	#	%	#
0 - 3	7,977	82.1	388,389	32.6	48.6
3.1 - 10	1,332	13.7	178,455	15.0	134.0
10+	412	4.2	622,719	52.3	1,511.5
TOTAL	9,721	100.0	1,189,563	100.0	122.0

Source: Censo Agropecaurio 1974.

the province, contributed 52.3 percent to the total production of the province, while small holders, who accounted for 82.1 percent of farm enterprises growing potatoes, produced only 32.6 percent of the total production. On average, large holders produced 31 times as many potatoes (1,511.5 qq) per farm unit than small holders (48.6 qq). Medium holders produced (134 qq) three times as many potatoes per farm unit as small holders.

Since the amount of potatoes that a farmer can market is clearly one of the most important resources that determine potential income derived from the potato marketing system, large farmers have a greater income earning potential than medium farmers, and medium farmers have a significantly higher income earning potential than small farmers. One researcher has estimated that a small farmer in Ecuador producing 270 qq per ha (the average yield for small farmers using traditional methods) would receive a net income per ha that is one-fifth that of a large farmer producing 900 qq per ha (the average yield for large farmers using modern mechanized methods) (Reinoso, 1986, pp. 15-16). This indicates that when the average size of a large holder farm is considered

(Table II-7), large holders' net incomes from marketing potatoes are as much as 47 times greater than those derived by small holders [2].

These estimates correspond with 1974 figures on average income per capita by size of farm size unit reported in Tungurahua (Table II-8). According to these figures, households with over 10 ha of land earned almost 47 times as much as those having less than 2 ha of land, while those households having between 2 and 10 ha earned more than twice as much as those having less than 2 ha of land. These data suggest that large holders are in a much better position than small and medium holders to accumulate capital, to take risks, invest in increasing productivity, and improve the quality and reliability of supply.

TABLE II-8

AVERAGE INCOME AND INCOME PER CAPITA IN TUNGURAHUA, BY SIZE OF HOLDING, 1974

Size of Holding (ha)	Income per Farm Unit 1979 Dollars	Income Per Capita	People Per Farm Unit
0 - 2	995	199	5
2 - 10	2,348	398	6
10+	45,438	7,573	6

Source: Based on Luzuriaga 1983, p. 48

The Production Process

The technology for production on small and medium holder farms is traditional. Plowing, raking, and furrowing to prepare the soil for planting are done manually with locally produced hoes, rakes, and plows. Plowing is often done with the aid of oxen. The larger holders, especially those with over 100 ha, often use tractors to plow. All size holders plant by hand, placing seeds 30 to 40 cm apart within rows and leaving 80 to 120 cm between rows. On the

average, approximately 20 qq of seed potato is planted per ha. Most producers use seed that they grow on their own land. Only the largest producers in Pillaro use certified seeds. The average number of man/days it takes to cultivate a single ha is 97 (7 for the preparation of soil, 10 for planting, 40 for weeding and caring, and 40 for harvesting and sorting).

Most producers use fertilizers on their potatoes. Animal fertilizers are used abundantly in the cantones of Quero and Ambato. Two types of chemical fertilizers are available and used by producers: domestic and foreign. Domestic fertilizers are cheaper but are less efficient than foreign fertilizers. While the use of fertilizers is widespread, technical information about them is not. As a result, most producers do not use them in proper ratios. One small holder interviewed for this study, for example, was using an expensive foreign brand of fertilizer that was not even intended for use on potatoes. The farmer could not read and was unaware that the fertilizer was for other crops.

Since there are many serious blights and insect pests in the province, applications of pesticides and herbicides are required in most areas. As with fertilizers, the producers have very little technical knowledge of the chemical products they use to control blights and infestations. They are also used without any health precautions.

The need for fertilizers, pesticides, and herbicides makes potato production costly and increases the producers' dependence on commodity exchange in order to produce enough to meet household consumption needs. Most of the producers interviewed complained that it was becoming difficult to recover the costs of production inputs from marketing their potatoes because the price of fertilizers has constantly increased, while the price for potatoes paid to producers has remained roughly the same.

Chapter III

The Potato Marketing System in Tungurahua Province

The potato producers in Tungurahua Province market their potatoes in a number of ferias dispersed throughout the province. Ferias are markets which meet on a scheduled day (or days) of the week on plazas or in covered marketplaces. At these places, any of a range of locally and nonlocally produced goods are bought and sold. Though usually found in settlements, ferias are sometimes found alongside roads in rural areas.

Most potatoes in Tungurahua Province are marketed in potato ferias: (1) in which the principal product bought and sold is potatoes; and (2) in which local potato producers sell wholesale to merchants. For the purposes of this report, only potato ferias are analyzed. While some potatoes are sold retail in a number of ferias not primarily devoted to potato trading and some are sold in fixed retail establishments, the quantity of potatoes sold retail is not large. It is estimated that during the peak harvest season, approximately 7 percent of all potatoes sold in Tungurahua Province are sold to local consumers. Retail potato sales are therefore not carefully examined here.

The Potato Ferias

There are five potato ferias in the province of Tungurahua. Listed in descending order from the largest feria, in terms of volume traded to the smallest, these ferias are located in: (1) Ambato on the Plaza Urbina; (2) Quero on Plaza Juan de Alarcon; (3) Píllaro on Plaza San Juan; (4) Pelileo on Plaza 12 de Noviembre; and (5) Llangahua at a roadside junction (Map III-1). In Table III-1 the market days of each of these ferias and the estimated

Map III-1

POTATO FERIAS IN THE GREATER
AMBATO REGION

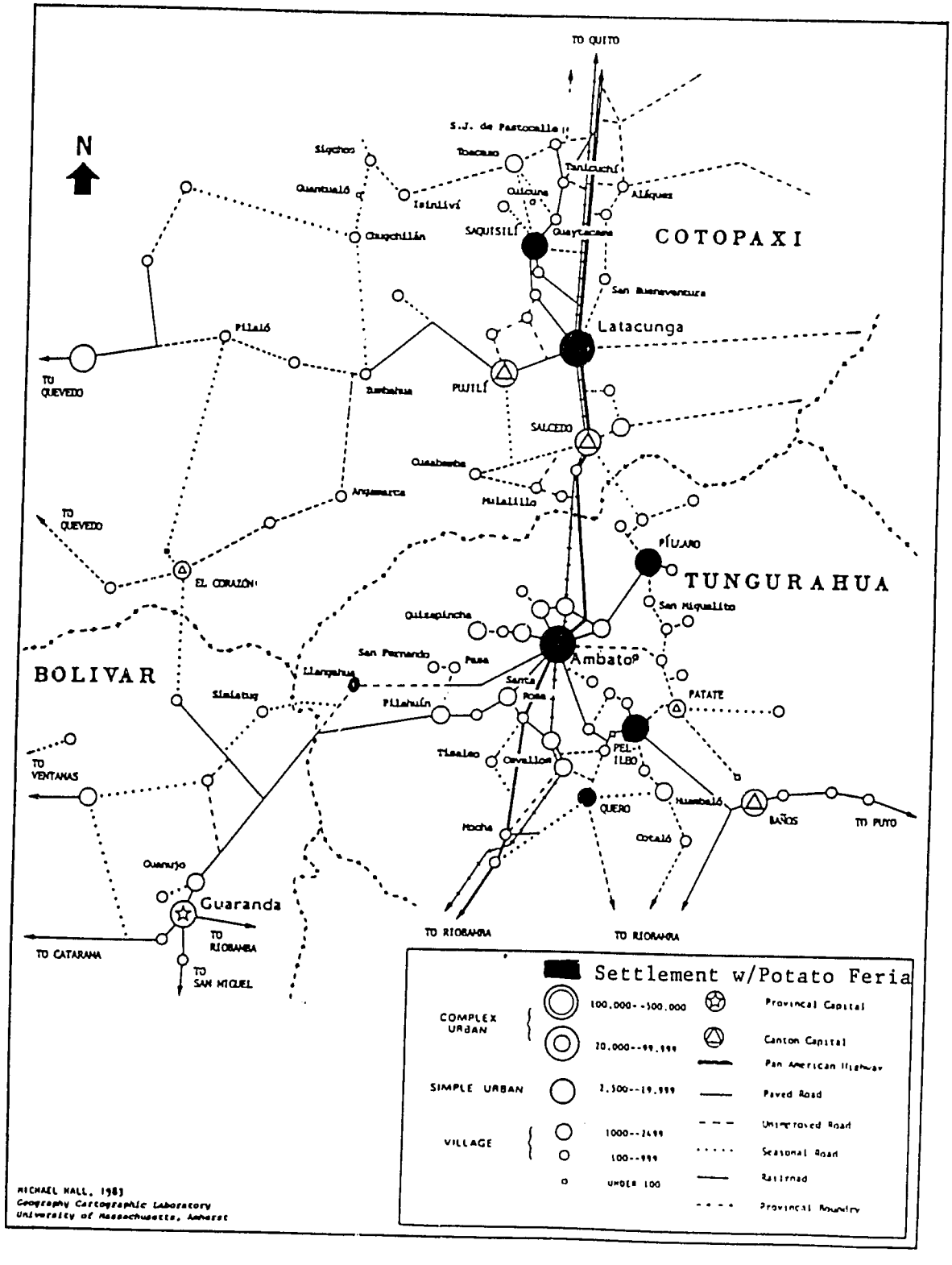


TABLE III-1

MARKET DAYS AND ESTIMATED WEEKLY VOLUME
OF THE FIVE POTATO FERIAS IN TUNGURAHUA*

	Location of Feria	Principal Markets Days	Secondary Market Days	Volume of Weekly Wholesale Activity (qq)	Volume of Weekly Retail Activity (qq)
1.	Ambato	Monday	Wednesday	13,400	1,600
2.	Quero	Thursday	_____	8,000	_____
3.	Pelileo	Saturday	-------	1,800	200
4.	Píllaro	Thursday	Sunday	same as Pelileo	
5.	Llangahua	Thursday	-------	N.A.	N.A.

* Volume estimates are averages for period of March-May 1987

average weekly volume traded in May-April 1987 are listed. In addition to these potato ferias, important potato retail activities are found in ferias and fixed stores in Ambato, Patate, Baños, and Cevallos (Cevallos has some limited bulking activities as well). For this study, the Pelileo, Quero, and Ambato potato ferias were selected for study and carefully surveyed during a peak harvest period (March-May). The principal characteristics of each of the five potato ferias are described below.

Llangahua

The potato feria in Llangahua, high in the Andes on the side of a secondary road, is small and begins before sunrise on Thursday. Small producers bring their potatoes to the feria mainly by foot or by mule. Very few ride in pickup trucks. At the feria they sell in small lots (a few sacks) to merchants who then take them to larger settlements on the valley floor for resale. There

is little if any retail marketing of potatoes in Llangahua during the potato harvest season.

Pelileo

The potato feria in Pelileo begins about 4 a.m. on Saturday morning on a plaza that is separated by about 0.5 km from the main multi-product ferias located in the town center (which also meet on Saturday). The plaza is roughly divided between potatoes and onions, though the volume of potatoes is greater. Off to one side, a few food vendors sell hot prepared foods to the market participants. Mostly small producers sell in Pelileo, and they do so either directly to consumers or to merchants. Merchants then resell the potatoes retail in the same feria or sell to truckers who transport the potatoes to another settlement. The latter of these two does not constitute an important market channel in Pelileo.

A total of 2,000 qq of potatoes are bought and sold in Pelileo during a week in peak harvest season. Two hundred of these are consumed locally. Approximately 200 more are transported to Ambato and sold there. The other 1,600 qq enters into interregional trade directly from Pelileo.

Píllaro

The potato feria in Píllaro meets on Thursday and on Sunday, each day starting well before sunrise. It shares its plaza with dozens of other products, but forms a spatially distinct zone on the plaza. Most of the potatoes sold in Píllaro are brought in by small producers from the surrounding area on Thursday morning. Some small holders sell directly to consumers on either day, but most sell to local intermediaries. Like in Pelileo, these intermediaries then sell these potatoes to consumers in Píllaro and to truckers who buy in the

feria and transport the potatoes elsewhere. Though this feria was not carefully surveyed, it does appear that it is, like Pelileo, essentially a feria in which locally produced potatoes are sold retail by merchants and producers.

Although situated in a major potato producing area, a large share of the potatoes are grown by large holders who sell directly from their farm to large-scale intermediaries. Estimates of the scale of activity in Píllaro appears to be about at the scale of Pelileo.

Quero

The potato feria in Quero begins about 4 p.m. on Wednesday evening and continues through to the afternoon on Thursday. Most of the potatoes are brought to Quero by small producers who live in the immediate hinterland of Quero. They rent space in small pickups to transport themselves and their potatoes to market. At the feria, they sell almost exclusively to a few local merchant-buyers. These merchants then either sell these potatoes to truckers who come from outside the region, or they themselves transport these potatoes to other ferias in Tungurahua Province for resale. The pace and scale of activity in Quero is greater than in either Pelileo or Píllaro, and the feria is devoted almost exclusively to bulking and wholesaling.

A total of 8,000 qq of potatoes are bought and sold in Quero each week during the peak of the harvest. Of this, 3,000 qq are transported to other ferias within the province, and 5,000 qq are transported directly from Quero to locations outside of the province. Quero, thus, accounts for 25 percent of the total of 20,000 qq that enters interregional trade each week from the three ferias studies in this report.

Ambato

Although the main market days in the potato feria in Ambato are Monday and Friday, potato trading activities in and around the Plaza Urbina continue literally round the clock, seven days a week. On Mondays and Fridays, the scale of trading is dizzying with as many as 10,000 qq of potatoes traded on any given Monday or Friday. The Plaza Urbina has a clear spatial structure according to type of commodity and scale of enterprise (Figure III-1).

A total of 15,000 qq of potatoes are bought and sold in Ambato each week of the peak harvest season, of which 13,400 qq enter into interregional trade. This accounts for 67 percent of the total amount of potatoes that are transported to other provinces from the three ferias studied. This makes Plaza Urbina the major wholesaling market in the region.

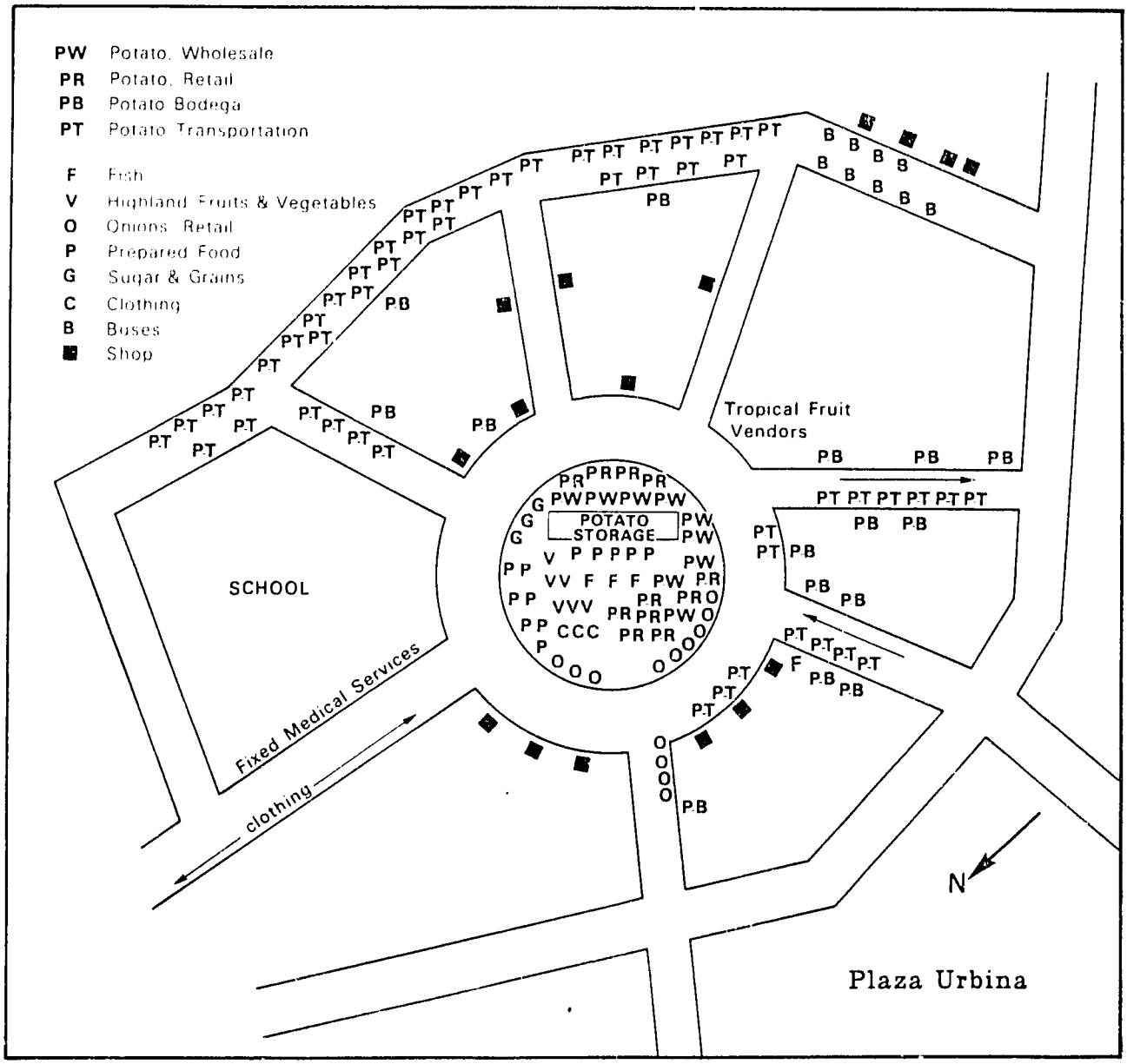
The Potato Marketing System

The potato marketing system in Tungurahua Province comprises three distinct characteristics: (1) a set of actors who interact socially but for explicitly economic purposes; (2) roles and functions performed by these actors; and (3) a pattern of flows that corresponds to the market chain traced by these actors as they move potatoes from the farmgate through ferias to their sites of final consumption.

Actors may be distinguished by the role/function that they play and include: (1) the producers who grow the potatoes; (2) the merchants who buy and sell them; (3) the truckers and manual laborers who haul potatoes within a settlement, to a settlement, or between settlements; (4) the landlords, public or private, that rent and regulate the feria and warehouse space; and (5) public officials who regulate the markets. A single actor may play more than one

Figure III-1

Spatial Structure of Plaza Urbina



of these roles. Therefore, when assessing an individual actor, he or she must be considered in any of the multiple roles.

The pattern of flows may be depicted in two ways: as the aggregate quantity of potatoes flowing into and out of the ferias in the region and the interregional destination of these flows; or (2) as flows from principal actor types in one location to principal actor types in another. Both approaches are adopted here.

Actors and Functions

The three principal groups of actors studied for this report are: potato producers, potato merchants, and potato transporters. These actors are principal in the sense that each performs some distinct function in the production and marketing of potatoes. Private landlords own buildings in Ambato, Quero, and Pillaro which they rent out as warehouses to larger potato merchants, but they do not play much of a direct role in the market. The municipal governments do very little to regulate potato trade, but in all the potato ferias, except for Quero and Llangahua, they do collect taxes for stall space. The provincial and national governments currently do not directly regulate potato marketing, although the national government is currently trying to implement a commodity market scheme (a bolsa) which has been successfully implemented for grain marketing.

Producers. The functions performed by producers include the cultivation and, except for the largest farmers, the harvesting and first-sorting, grading, and packaging of potatoes. Producers are classified into small (< 3 ha), medium 3.1 - 10 ha), and large holders (> 10.1 ha). Though the classification is based on size of holding, it is clear that holding size is closely correlated with the capacity of a household to: (1) invest in potato production

(fertilizer, pesticides, etc.); (2) plant certain varieties (as a result of different lengths of growing seasons); (3) generate income; (4) accumulate capital; and (5) maintain reserves of cash saving. It will be demonstrated in subsequent chapters that as a result of these correlated factors, large holders exhibit different marketing and production behavior than small and medium holders and also are able to generate greater per unit profits from potato sales.

Merchants. The classification scheme used here is based on terminology used by the merchants in the system, which is, in turn, based on the function, scale, and mode of operation that are associated with these terms. There are five groups of potato merchants that can be identified in Tungurahua on this basis: mayorista-consignatario, mayorista, mayorista-minorista, minorista, and transportista-comerciante.

Mayorista-consignatarios are the merchants with the largest scale operations. They are found only in the Plaza Urbina potato feria in Ambato. They are large bulking wholesalers who individually move, on average, between 1,500 and 3,000 qq of potatoes a week during peak harvest season. They obtain supplies by buying, either for direct payment or on consignment (especially during periods of oversupply), from established large-holder clients all over the country, from small bulking wholesalers, and from merchants in other local ferias. They sell mainly to large distributing wholesalers who send trucks from other provinces to collect their potatoes. They also sell to truckers who buy the potatoes themselves to sell to merchants in other provinces, and they sell a small amount to Ambato retailers.

Mayoristas are bulking and distriburing wholesalers who operate with a smaller volume than mayorista-consignatarios. They move anywhere between 100 and 1,000 qq on average each week during peak harvest season. Those who deal

with larger volumes (in the 400 to 700 qq range) routinely operate in more than one feria. In each potato feria, they buy principally from small and medium holders, though they usually have some fixed clients of larger scale. they then sell as many of the potatoes as possible to truckers who visit the feria either to buy the potatoes or to pick them up for second-party distributing wholesalers. At times, mayoristas will also sell to mayorista-consignatarios, to other mayoristas, or to local retailers. Potatoes which they are unable to sell are usually transported to another feria for sale on another day. Mayoristas who deal with small volumes (100 to 300 qq) usually buy and sell only in one feria, have regular supplying clients, and few small buyers who routinely buy from them to transport potatoes to some other location.

Mayorista-minoristas are small bulking wholesalers who also actively retain potatoes. They buy between 100 and 300 qq from small and medium holders in one feria and sell wholelsale to a few regular clients who move the potatoes to some other marketplace. Many mayorista-minoristas also sell retail in another local feria, but in these ferias they do not usually buy potatoes from producers nor do they transport potatoes to it from the feria in which they bulk. Rather, they buy the potatoes they retail from other mayoristas in the feria.

Minoristas are retailers who sell directly either to institutionsl or individual consumers. They rarely buy from producers directly, almost always buying potatoes or receiving them on consignment from mayoristas, mayorista-minoristas, or mayorista-consignatarios. Large minoristas may each sell as many as 30 qq a week, selling in quintal lots. Small minoristas sell a few quintales a week (4 or 5), breaking each quintal into smaller lots of 1 to 2 kg.

Transportista-comerciantes are merchants who own or rent a truck and use this truck to transport potatoes some distance to sell them in another feria in the region or, more frequently, outside the region. They each move anywhere from a few quintals to as much as 3,000 qq a week during peak harvest season. Those who buy and sell smaller lots (5 to 100 qq) usually buy directly from small and medium holders, while the few who deal in large quantities usually buy from other merchants.

In addition to the merchants in the system, two other actor groups are directly involved in potato marketing in Tungurahua: transportistas and cargadores. Transportistas are truckers who are paid a fee to transport potatoes either: to a feria (by producers), from one feria to another (by merchants), or to a warehouse in another settlement (by merchants). They may own their own truck, or they are hired by a trucking cooperative. There are a range of truck sizes including: light pickups (with no more than a 20 qq capacity), larger pickups (with a 40 qq capacity), small covered trucks (with an 80 to 100 qq capacity), and large trucks (with a capacity to hold from 200 to 400 qq). Potatoes are usually brought to market in pickups and are transported to other ferias in larger trucks. Mayorista-consignatarios frequently sell to 400 qq capacity trucks. Cargadores are manual laborers who are paid a fee (usually 5 sucres, or less than 4 cents, per qq) to haul potatoes either for merchants or for consumers from one place in a marketplace to another. Cargadores are usually Indians and are considered at the bottom of the social order of marketing participants.

Pattern of Flows

The potatoes produced in Tungurahua Province flow through the marketing system in distinct chains or channels. These channels are distinguished by the

type of activities that take place in each of them, by the different locations at which these activities take place, and by the actors who perform these activities.[1] Four channel types are depicted in Figure III-2, and the estimated flow of potatoes through each is listed in Table III-2. These different channel structures start at the farmgate and take one of several different paths within the region. Types I and II constitute the wholesale channels in the province and Types III and IV constitute the retail channels. Two are feria- and merchant-based (Types I and III), one is farmgate- and merchant-based (Type II), and one is feria- and nonmerchant-based (Type IV). While channel types can be divided into these four broad categories, there is a tremendous amount of variety and complexity within channel types I and III.

In analyzing market channels it is conventional to divide the activities conducted in each channel into: (1) those that involve the physical transformation of potatoes; and (2) those that involve the transfer of rights of ownership over marketed potatoes. In the diagrams of the market channels provided in Figure III-2, the only actors that are depicted are those who actually claim ownership rights over potatoes at some point in the marketing process. Thus, transportistas and cargadores are not represented because they are not involved with the negotiations over property rights to potatoes nor do they actually take possession of them during marketing. The advantage of leaving these actors out of diagrams of market channels is that it focuses attention on who actually incurs the costs of transporting and buying potatoes and which actors are negotiating with which other actors for property rights.

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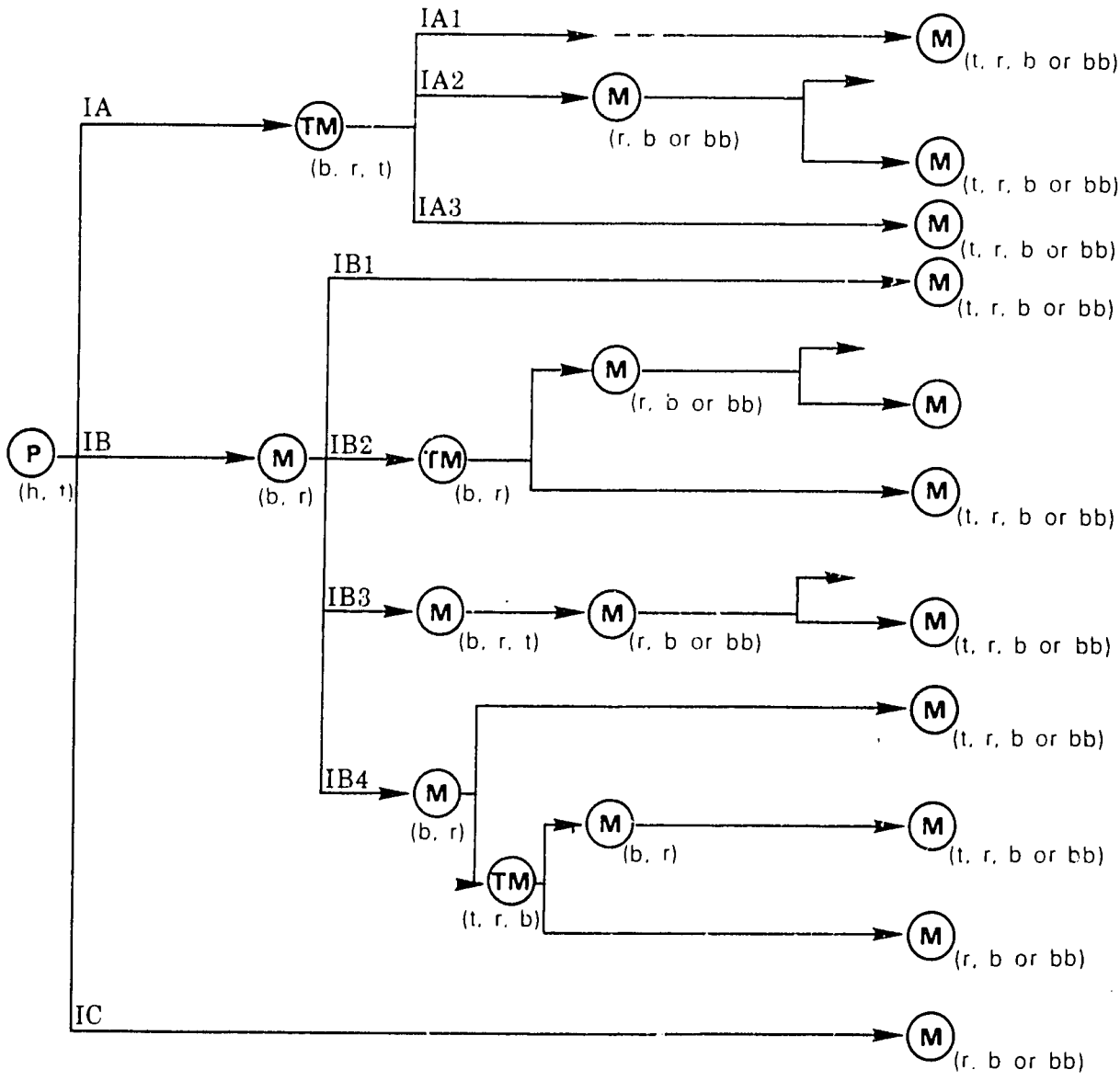
[1] Note that these channel types treat only potatoes grown in Tungurahua. Potatoes grown outside the region also enter into the marketing system in the region. These potatoes usually enter into the Ambato potato feria. During the harvest seasons they are transshipped immediately to regions to south, west, and east. During nonharvest seasons a portion of them may go to meet local demand.

Figure III-2

POTATO MARKET CHANNEL TYPES IN TUNGURAHUA

Type I:

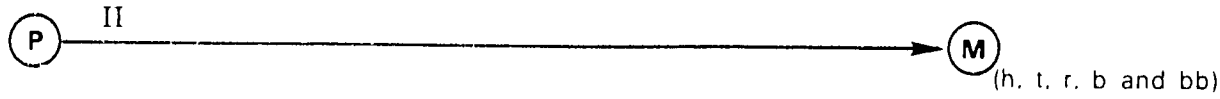
Wholesale, Merchant, and Feria-Based Channels



Type II:

Wholesale, Merchant, Non-Feria-Based Channel

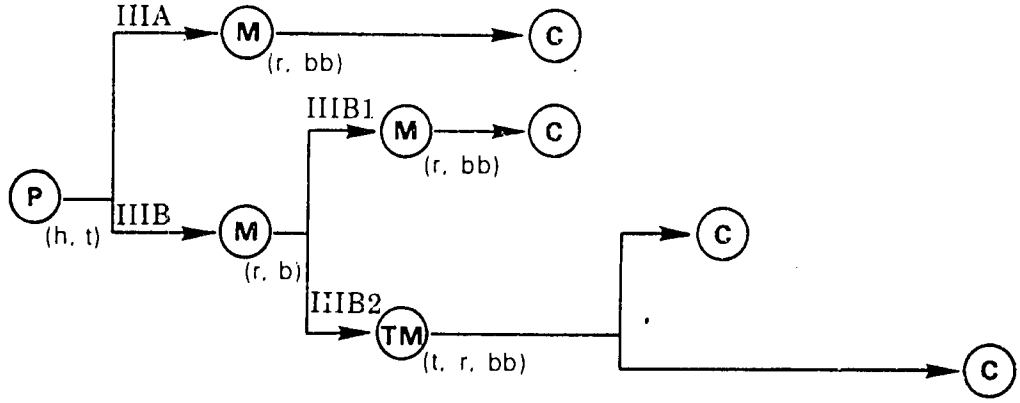
Farmgate	First-Feria	Second Feria	Outside Region (Feria, Warehouse, Store)



Type III:

Retail, Merchant, Feria-Based Channel

Farmgate	First-Feria	Second Feria	Outside Region (Feria, Warehouse, Store)



Type IV:

Retail, Feria, Not Merchant-Based

Farmgate	First-Feria	Second Feria	Outside Region (Feria, Warehouse, Store)

Actors Who Buy and/or Sell

- (P) Producers
- (M) Merchants
- (TM) Merchant Transporters
- (C) Consumer

Functions Peformed

- ( ) Functions
- h Harvest, sort, grade
- b Bulk
- bb Break of bulk
- r Buy to Resell
- t Transport

TABLE III-2

ESTIMATED VOLUME OF FLOWS
BY MARKET CHANNEL TYPE

Type	Estimated Weekley Volume (QQ)*
I	13,400
II	3,000
III	1,600
IV	200

* Estimates are weekly averages for the period March-May 1987.

Market Channels. The most common market channel type in Tungurahua is the feria-based wholesale channel. It begins with a producer who brings his or her potatoes to a feria and sells them to a local merchant or merchant transporter who then resells them wholesale. In each variant of this channel, the producer incurs the costs of harvesting, sorting, and grading his or her potatoes and in transporting them to the first feria of sale. To get their potatoes to market, producers' can use their own trucks, rent a truck, use a relative's truck, or use public transportation (if it is available). Once in the feria, they sell to a merchant. A small number of producers, principally large holders, sell directly to a merchant in a feria outside the province (Type IC) and the rest sell in ferias within Tungurahua to a local merchant. The majority sell to a merchant who performs no other functions than the bulking and resale of potatoes to other merchants (Type IB). In large measure, these merchants act simply as brokers between local producers and outside buyers. Some producers sell to a merchant who not only bulks and resells potatoes but pays to have them transported to another feria as well (Type IA). It is worth noting that except for a few cases where local merchant transporters haul potatoes outside

the province, virtually all costs of transporting potatoes to other provinces are incurred by large distributing wholesalers outside the region.

In the first variant of IB channels, the first buying merchant sells to a large wholesaling merchant from outside the province who sends a trucker or travels with a trucker to pick-up the potatoes at the site of the Tungurahua feria (IB-1). In another variant (IB-2), the first merchant buyer sells to a merchant transporter who then either transports the potatoes outside the province and sells them to a merchant there or transports the potatoes to another feria in the province and sells them to a merchant at that site. In yet another variation of a Type IB channel (IB-3), the merchant sells to another merchant who them transports the potatoes to another feria in the province and sells to yet another merchant there. In a final variant of the IB type channel (IB-4), the original merchant-buyer sells to another merchant in the feria who, in turn, sells to a merchant transporter who then either transports the potatoes and sells them to a merchant in another feria in the region or to a merchant outside the region. The final set of variations of Type I channels are when the first merchant buyers in a feria transport the potatoes to other places themselves (Type IC). The first merchant buyer either transports the potatoes he or she has bought to a merchant buyer outside the province (Type IA-3), to another feria in Tungurahua to sell to a larger wholessaling merchant (Type IA-2), or to a larger merchant buyer from outside the region who sends a trucker to pick up the potatoes (Type IA-1).

Type I channels are the most common channel type in terms of the number of producers who routinely use them. They also handle the largest volume of flow. This reflects both the importance of ferias and of interregional trade in potatoes. However, there is a difference between how large holders, on the one hand, and small and medium producers, on the other, use this channel structure.

The majority of small and medium holders only go to the nearest feria, irregardless of prices offered. Large holders go to the feria where they perceive that the highest price is available for the given characteristics of the potatoes that they wish to sell (Type IC). This can mean travelling as far as Rio Bamba in the south or to Latacunga or Saquisili in the north.

In a second type of wholesale channel (Type II), a large producer sells to a merchant en sementera at the farmgate; the merchant then sells the potatoes to settlements and cities outside Tungurahua Province. This type of wholesale channel is different from Type I channels because the producer does not perform harvest, sort, grade, or transport functions and because the potatoes marketed in this manner bypass local Tungurahua ferias all together. The merchant provides the labor for the harvesting, sorting, grading, and transporting of the large producers' potatoes. At one time many producers sold en sementera and some sold to Tungurahua-based merchants. Though the en sementera marketing channel is not very common now, the largest producers in the region exploit this channel and hence, in volume terms, the channel is still important.

There are two broad types of retail channels. One type involves merchant intermediaries (Type III) and the other does not (Type IV). In Type III channels, potatoes are brought to ferias by producers and sold to merchants just as in Type I, but are eventually sold retail to satisfy demand for potatoes in the region.[2] It is important to note that from the perspective of the producer, Type I and Type III channels may be indistinguishable, but for the merchants involved (and in terms of regional development implications) the two

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[2] During harvest seasons, these potatoes go to meet an essentially urban demand, while during the nonharvest season the demand for potatoes is both urban- and rural-based.

are very different channel types. In one variant of Type III channels (III-A), the first merchant buyer sells directly in smaller lots to consumer in the same feria in which the buyer bought the potatoes. The retail merchant thus serves principally to break bulk. Another variant is when a producer sells to one bulking merchant who then sells it to another merchant, who then sells it to consumers either in the potato feria or somewhere else in the settlement (Type IIIB-1). The final variant (Type IIIB-2) is when a producer sells to a bulking merchant in a feria who then sells to a transportista-comerciante, who then transports the potatoes to a settlement in Tungurahua or in another province and sells retail himself.

The last retail market channel (Type IV) does not involve any intermediaries. In this channel, producers bring their potatoes either to a potato feria or to some other location in a settlement and sell directly to consumers.

The flow pattern. The movement of potatoes through these market channels has distinct locational properties. In Tungurahua, social and economic factors combine with the geographic distribution of potato production units to give rise to a set of farm to settlement and settlement to settlement flows of potatoes. These flows, as estimated for a typical week in the March-May harvest season in 1987, are depicted in Map III-2 for the three markets studies and summarized in Table III-3. A total of 15,000 qq flow into Ambato to Urbina each week and 13,400 flow out of it to destinations outside the province. Of 8,000 qq of potatoes flowing into Quero from its immediate rural hinterland each week, 2,800 go to Urbina, 200 go to other local ferias, and the balance of 5,000 enters directly into interregional trade. Of the 2,000 qq of potatoes brought to Pelileo each week from its immediate hinterland, 1,300 enter directly into interregional trade and the rest circulate within the province. Only

Map III-2

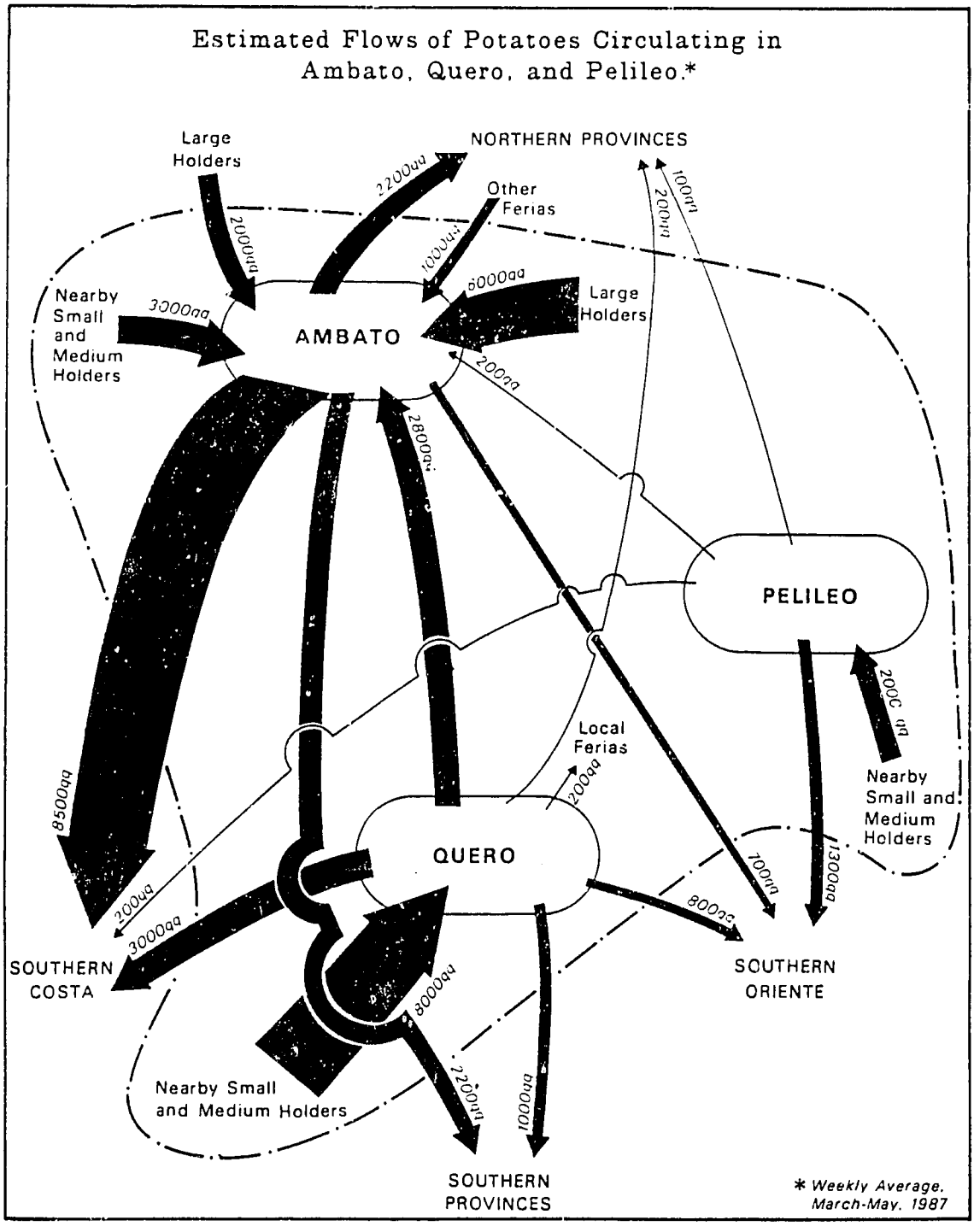
Estimated Flows of Potatoes Circulating in Ambato, Quero, and Pelileo.*
Large Holders
NORTHERN PROVINCES
Other Ferias
Nearby Small and Medium Holders
AMBATO
Large Holders
PELILEO
Local Ferias
QUERO
Nearby Small and Medium Holders
SOUTHERN COSTA
SOUTHERN ORIENTE
Nearby Small and Medium Holders
SOUTHERN PROVINCES
* Weekly Average, March-May, 1987

TABLE III-3

ESTIMATED FLOWS OF POTATOES CIRCULATING IN AMBATO, QUERO, PELILEO
(QQ)

Origins:	Ambato	Quero	Pelileo	Total	Percent
Large Holders:					
- Tungurahua	6,000				
- Other provinces	2,000				
- Subtotal	8,000	0	0	8,000	32
Small and Medium Holders: (in adjacent supply area to feria)					
- Subtotal	3,000	8,000	2,000	13,000	52
Other Ferias:					
- Quero	2,800				
- Pelileo	200				
- Cotopaxi and Chimborazo	1,000				
- Subtotal	4,000	0	0	4,000	16
TOTAL	15,000	8,000	2,000	25,000	100
Destinations:					
In Region					
Local Consumption	1,600	0	200	1,800	7
Urbina/Ambato	--	2,800	200	3,000	12
Other Tungurahua Ferias	0	200	0	200	1
Out of Region					
Southern Oriente	700	800	1,300	2,800	11
Southern Costa	8,500	3,000	200	11,700	47
Southern Provinces	2,200	1,000	0	3,200	13
Northern Provinces	2,000	200	100	2,300	9
TOTAL	15,000	8,000	2,000	25,000	100

Source: Based on field observations, intermediary interviews, and trucker surveys, March - May, 1987.

Ambato receives significant amounts of potatoes on a regular basis from sources other than its immediate hinterland. It receives approximately 3,000 qq of potatoes each week from other ferias in the region and approximately 8,000 qq from large holders located throughout Tungurahua and in other provinces.

The interregional flow of potatoes from Tungurahua during the province's peak harvest season in March through May is principally to areas of demand on the south coast, most notably the Guayaquil metropolitan area. Fifty-eight percent of the total quantity of potatoes transported out of the region a week during the peak harvest period in 1987 were destined for the Southern Costa (11,700 qq). Highland provinces to the south of Tungurahua received the second largest amount -- 3,200 qq (16 percent). Only 11.5 percent of the 20,000 qq of potatoes leaving the region were destined for provinces to the north of Tungurahua. during its peak harvest season, therefore, it can be seen that Tungurahua is a mjaor supplier to demand areas in the southern parts of Ecuador. This conclusion confirms similar findings made by Simmons and Ramos (1985).

Spatial Marketing Behavior

Groups of actors who participate in the potato marketing system in Tungurahua exhibit particular behaviors in the way they move across and use space and the conduct of their functions in the system. As a result of a set of factors that are closely related to size of holding, small, medium, and large holders exhibit demonstrably different spatial marketing behavior. Merchants also exhibit different spatial marketing behaviors. As with potato producers, spatial marketing behavior among merchants varies according to the scale of enterprise. Who markets where, how much, and to whom determines the spatial pattern of flows. It is, therefore, important to identify different

marketing behaviors as a first step to analyzing what acounts for these behaviors and thus the spatial character of the potato marketing system.

Spatial Marketing Behavior of Potato Producers

Based on sample data, it appears that the majority of small and medium holders always sell in the feria that is located closest to their farm unit (Table III-4). Of the small and medium holders in the sample, 79.3 percent and 66.7 percent, respectively, exhibit this spatial marketing behavior. This is the case regardless of how high or low the average producer price is in the feria that is the closest to the producer's farm. Though most small and medium holders in the sample are aware of the differences in prices obtained by producers between ferias, only 20.7 percent of the small holders and 33.3 percent of the medium holders go to a distant feria or to more than one feria to take advantage of these price differences. By contrast, 91 percent of the large holders interviewed market in more than one feria.

TABLE III-4

SPATIAL MARKETING BEHAVIOR OF POTATO PRODUCERS

Size of Holding (ha)	Always Sell in Nearest Feria		Go to More Distant or to More Than One Feria		Total	
	#	%	#	%	#	%
0 - 3	23	79.3	6	20.7	29	100
3.1 - 10	4	66.7	2	33.3	6	100
10.1 +	1	9.0	10	91.0	11	100

Source: Producer survey, April 1987 (N=46)

The question arises as to why there is such a dramatic difference between the spatial marketing behavior of small and medium holders on the one hand and large holders on the other. Of the 91 percent of the large holders in the sample who market at more than one feria, 80 percent stated that they sold in more than one feria to take advantage of price differences between ferias. In other words, the pursuit of the highest possible producer price motivated their decision to market in more than one feria (Table III-5). When those who always market in the feria that is closest to their farm were asked why they did so, 98 percent responded that either the feria's "closeness" or their "familarity" with it was the primary reason they chose only to sell at it (Table III-6). Only 1 of the 28 potato producers who marketed in this fashion stated a higher price was the primary reason he chose to always market at the closest feria. Not surprisingly, this one farmer was the only large farmer in the sample who markets in this way and has a farm just 4 km from Ambato.

What apparently lies behind the decision of the majority of small and medium holders to market only at the feria nearest their farmstead has less to do with voluntarism and more to do with economic determinism. While small and medium holders use the concepts of "closeness" and "familiarity" to describe their motivations for marketing at the nearest feria when asked a direct question, in more in-depth and open-ended questioning it becomes apparent that these concepts are a less painful way for them to express the actual factors that motivate their behavior. These factors are that it is too costly and risky to go to more distant ferias even though they <u>know</u> that prices are better at these ferias.

Small and medium holders have very low household incomes. For most, capital accumulation is only a remote possibility and day to day lack of cash savings is a reality. They, therefore, simply cannot afford to incur higher

TABLE III-5

PRODUCERS' REASONS FOR MARKETING POTATOES AT MORE THAN ONE FERIA OR MORE DISTANT FERIA

Size of Holding (ha)	Primary Reason								Also Quoting	
	Price		Grade of Produce		Size of Load		Total		Price	
	#	%	#	%	#	%	#	%	#	%
< 10 ha	2	25.0	1	12.5	5	62.5	8	100	8	100
> 10 ha	8	80.0	2	20.0	0	0	8	100	8	80

Source: Producer survey, April 1987 (N=46)

TABLE III-6

PRODUCERS' REASONS FOR MARKETING POTATOES IN NEAREST FERIA

Size of Holding (ha)	Primary Reason								Also Quoting	
	Closeness and Ease		Familiarity		Price		Total		Transport Costs	
	#	%	#	%	#	%	#	%	#	%
< 10	25	92.6	2	7.4	0	0	27	100	7	25.9
> 10	0	0	0	0	1	100	1	100	0	0

Source: Producer survey, April 1987 (N=46)

transport costs to bring their potatoes to a more distant feria. Nor can they afford to take the risk that the difference in the price they receive will be enough to offset additional transport costs. Most resign themselves to selling in the nearby feria, though they do not necessarily perceive this as a negative thing.

Large holders, on the other hand, have the economic strength to use differences in producer prices over space to their advantage. They have greater mobility, and they use it actively to pursue a maximum profit. Some small and medium holders appear able to incur the costs and risks of marketing at more distant ferias, but they are a minority.

As a result of the tendency for small and medium holders to market in the nearest feria, the majority of potatoes marketed by these holders are marketed in Quero because the small and medium potato producers in Tungurahua are most heavily concentrated in the areas around Quero. An estimated 3,000 qq of potatoes are brought each week during harvest season to Quero by small and medium holders. For many small and medium produceres not in Quero's immediate hinterland, however, other ferias in the region are closer to them than the feria in Quero. This is reflected in the estimated quantities of potatoes that are brought each week during peak harvest season to Ambato and Pelileo (Table III-3). Three thousand quintals of potatoes are brought by producers in Ambato's immediate hinterland to Ambato's potato feria, and approximately 2,000 qq are brought by small and medium producers in Pelileo's immediate hinterland to Pelileo's potato feria.

The pattern of the flow of potatoes created by the spatial movements of large holders are very different from the flows created by small and medium holders. Large holders sell almost exclusively in Ambato or in Riobamba (the capital of Chimborozo Province to the south). The choice of which of the two

to go to is determined by cost calculations made by the large holders. Prices in Riobamba are lower than prices in Ambato but potatoes sold in Riobamba need not be carefully sorted and graded. Large holders estimate whether the quality of their potatoes and the cost of labor warrants sorting and grading their potatoes for the higher quality and higher price wholesale market in Ambato. Most prefer to sell to established buyers in Ambato. An estimated 6,000 qq of potatoes are brought each week to the Plaza Urbina in Ambato by large holders from throughout the region for sale to the large wholesaling merchants there.

Spatial Marketing Behavior of the Intermediaries

Merchants and transporters who participate in the potato marketing system in Tungurahua exhibit a great deal of variety in the ways that they use the geography of production areas, demand areas, and the ferias around them. They express a range of spatial marketing behaviors that have direct consequences on the spatial structure of the marketing system.

Tables III-7 and III-8 list the number of merchants who buy or sell potatoes in the three potato ferias studied in Tungurahua by type of merchant and by feria location. All of the three mayorista-consignatarias in the province do virtually all of their large wholesale selling from the Plaza Urbina in Ambato and use the plaza as the principal base for their operations. All three, however, do travel to other ferias to buy potatoes. All three hire transportistas to drive them to these ferias and to haul potatoes to Urbina. One regularly buys approximately 1,000 qq in Quero each week during the peak harvest period and transports them to Urbina where she sells them to regular buyers from outside the region. Another often buys in the Latacunga and Saquisili potato ferias in the province of Cotopaxi and transports them for sale in Urbina. The largest of the three visits all of the ferias in

TABLE III-7

SCALE OF POTATO BULKING ACTIVITIES IN AMBATO, QUERO, AND PELILEO

Feria	MC		LM		SM		MM		TC		TOTAL		QQ Transported	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Urbina	3	100.0	8	100.0	0	0	25	58.1	3	14.3	39	50.0	13,400	57.5
Quero	1	33.3	5	62.5	0	0	12	27.9	1	52.3	29	37.2	8,000	34.5
Pelileo	0	0.0	1	12.5	3	100	6	14.0	7	33.3	17	21.8	1,800	7.6
Total in 3 Ferias:	3	100.0	8	100.0	3	100.0	43	100.0	21	100.0	78	100.0	23,200	100.0

Source: Field observations and in-depth intermediary interviews, March - May 1987.

MC = Mayoristas-Consignatarias
LM = Large Mayoristas
SM = Small Mayoristas
MM = Mayorista-Minoristas
TC = Transportista-Comerciantes

TABLE III-8

SCALE OF RETAIL POTATO ACTIVITIES IN AMBATO, QUERO, AND PELILEO

City	Minoristas	Mayorista-Minorista	Producer-Minoristas	Total	Percent	Estimated QQ sold/week[b]
Ambato	180	25	40	245	83.7	1,600
Quero	0	0[a]	0	0	0	0
Pelileo	30	6	12	48	16.4	200

Source: Field observations, March - May, 1987

[a] All mayorista-minoristas buying in Quero only sell retail in Urbina.

[b] Based on estimates made of potato consumption in highland urban areas made published in Immick 1984 and on field observations.

Tungurahua and Cotopaxi periodically, but she does so to renew personal contacts and estimate the supply of potatoes and only very rarely to buy. For the most part, however, all three mayorista-consignatarios do most of their buying, as well as all their selling, in Ambato. They buy principally from large holders and from other mayoristas who bring potatoes to Urbina and thus incur the cost of transporting potatoes to Ambato themselves.

Together, the three mayorista-consignatarios sell about 7,600 qq of potatoes a week during peak harvest season to buyers who sell the potatoes in provinces outside of Tungurahua. These three individuals account for 56.7 percent of the total amount of potatoes that enter interregional trade from Ambato and 38 percent of the total interregional trade from the three potato ferias in the province that were studied. They, therefore, form the nucleus around which the major hub of interregional trade in the province has developed.

The primacy of Ambato and Plaza Urbina over the interregional potato trade is reinforced by the eight large mayoristas that operate in the ferias of Tungurahua. All eight conduct some of their business in Ambato at the Plaza Urbina, and all eight live there. Six of the eight, however, buy each week in another potato feria in the province and also sell wholesale from these ferias to buyers from outside the region. The eight buy and sell approximately 7,500 qq of potatoes each week during harvest season, of which approximately a third is sold in Ambato. Five of the eight buy for bulk and sell wholesale in Quero each week, and one buys for bulk and sells wholesale in the Pelileo feria. Thus, the large mayoristas have different spatial marketing behaviors than the mayorista-consignatarios. The mayoristas conduct more of their business in ferias other than Ambato. They buy more in these other ferias (especially Quero), and, unlike the mayorista-consignatarios, they also sell to interregional traders from these other ferias.

The three small mayoristas, who buy and sell only 4 percent of the total number of potatoes traded by wholesaling merchants in the three ferias examined all operate out of Pelileo exclusively. They do not travel to other ferias to conduct their wholesale business. Rather, they buy and sell approximately 840 qq in Pelileo alone.

The 43 mayorista-minoristas that work the three ferias, like the small mayoristas, conduct their wholesale businesses exclusively in one feria. Twenty-five conduct their business in Ambato at the Plaza Urbina, 12 conduct their wholesale business in Quero, and six in Pelileo. In this role, the mayorista-minoristas limit their activities to the site of one feria. Most of the mayorista-minoristas who do not conduct their wholesale businesses in Ambato, however, do conduct retail business in Ambato. Of eighteen mayorista-minoristas interviewed in Pelileo and Quero for this study, all but one sells retail in Ambato. This is interesting because in their roles as wholesalers, the mayorista-minoristas seem to restrict themselves to one location, while many choose to conduct their retail activities to take advantage of demand in more than one location. The twenty-five mayorista-minoristas account for a total of 4,420 qq of potatoes traded during a peak harvest week in Tungurahua.

Of 16 minoristas interviewed in Pelileo for this study, half sold retail in both Ambato and Pelileo. There are 180 minoristas who work Ambato and 30 who work Pelileo. While inconclusive, it does appear that several retailers work in more than one feria in the region. They thus take advantage of demand for consumption at more than one point in space.

Twenty-one transportista-comerciantes work the Pelileo, Quero, or Ambato potato ferias. Three buy in Urbina, 11 in Quero, and seven in Pelileo. Together, they transport 1,400 qq of potatoes outside the region (seven percent of the total interregional trade emanating from the three ferias studies).

Clearly, this group of intermediaries makes a living by arbitrating between areas of supply and demand within Ecuador. One father and son-in-law team buys potatoes in Quero (where the son-in-law lives) and sells them for retail in the Costa (where the father lives).

Finally, a group of transportistas who haul potatoes to ferias for small and medium holders were studied. A sample of incoming truckers to Quero and Pelileo revealed that 98 percent of the transportistas hauling potatoes to these ferias live in Tungurahua, and that 66 percent of the trucks are privately owned (Table III-9). One transportista interviewed in depth (a small holder who lives outside Pelileo) said that most transportistas who haul produce for small and medium holders and who own their own trucks are small holders like himself who recognized the demand for rural transport and struggled to buy vehicles to meet this demand.

Conclusions

The potato marketing system in Tungurahua is the outcome of the interactions of participants who perform functions ranging from the cultivation and harvesting of potatoes, to the provision of transportation services to potato producers and merchants, to the sorting, grading, bulking, and break-of-bulking of potatoes, to the retail sale of potatoes. As different social groups of participants perform activities that require movements over space, the majority conform to discernable patterns of behavior. These behavioral patterns, in turn, give rise to particular locational properties of the system.

This chapter described the marketplaces, the actors involved in the marketing of potatoes and the market chains and pattern of flows that these actors create as an outcome of their spatial marketing behavior. In the next chapter,

TABLE III-9

HOME LOCATION OF TRANSPORTISTAS AND
OWNERSHIP Or INCOMING TRUCKS TO QUERO AND PELILEO POTATO FERIAS

	Home Location			Ownership		
	Tungurahua	Other	Total	Private	Cooperative	Subtotal
Incoming Trucks to Quero	41	1	42	37	5	42
Incoming Trucks to Pelileo	14	0	14	5	9	14
Total	65	1	66	42	14	66
Percent	98	2	100	66	34	100

Source: Trucker surveys April 22, 1987 and May 16, 1987 (N=42 [Quero], N=14 [Pelileo])

this description of the potato marketing system in Tungurahua is extended to an analysis of the social interactions that exist between participants in the system.

Chapter IV

Social Interactions in the Potato Marketing System

The most important social interactions in the potato marketing system are those between buyers and sellers. These interactions involve the negotiation of the terms under which the property rights to a quantity of potatoes will be transferred. Except for consumers, all other participants in the marketing system enter into these transactions for the express purpose of deriving an income that they can use to purchase other goods and services. These interactions are thus of vital importance to the producers and merchants who enter into them.

In Tungurahua, the terms by which property rights over potatoes are transferred are individually negotiated by a process of bargaining. The government does not regulate prices, nor does it post a daily schedule of prices. While a certain etiquette is followed in price negotiations, the essential character of the bargaining process is competitive. The buyer and the seller both struggle to achieve an outcome that maximizes their personal gain. In this struggle, buyers and sellers try to mobilize the resources at their disposal to their best advantage. Whether the resource is knowledge of supply and demand, personal contacts, or capital, the command of resources that can be used in bargaining is of central importance.

Rules Governing Buyer-Seller Relations

Before examining the resources that are mobilized by participants in the marketing system in their social interactions, however, it is first necessary to understand the set of rules that govern these interactions. One set of

rules governs bargaining etiquette. This set of rules serves to place socially accepted norms of behavior on interactions which are inherently conflict-producing. Another set of rules governs decisions as to when forming reciprocal buyer-seller relations are warranted and when establishing regular trading partners are desirable. Unlike bargaining etiquette, which may be considered a social convention, this set of rules is a necessary outcome of the social and economic functions performed by the marketing system.

Bargaining Etiquette

The process of bargaining is central to price setting in Tungurahua's potato marketing system. Generally, the bargaining process conforms to a rule-governed pattern observed by Cassady (1968) in peasant retail marketplaces in Mexico.

The normal bargaining procedure between merchants and producers is for the merchant (the buyer) to initiate the interaction with the producer (the seller) by offering a price for the producer's potatoes. This price is always lower than what the merchant expects to actually pay, but is not so low so that the merchant will lose credibility by demanding an unrealistically low price. The producer responds by offering a price higher than he/she expects to receive. The merchant and the producer continue to exchange offers in this manner. Three or four offers are usually made before one or the other of the participants breaks off the negotiations and takes them up with other individuals. In most instances these exchanges are conducted with a great deal of congeniality. The merchants and producers smile and joke with each other, belying the significance and competitiveness of the interaction.

After they have conducted a number of such exchanges (the purpose of which is apparently to estimate the relationships among supply, demand, and price

which are emerging on a given day in the market), the exchanges become longer and more serious. The merchant begins by offering a price only slightly lower than the limit he or she is willing to accept. The producer responds by demanding a higher price. The haggling intensifies and merchants frequently dig into the sacks of potatoes to find one or more potatoes that are damaged or of poor quality and confront the producer with it in an attempt to convince the producer to accept the lowest possible price. At this point, whether or not the transaction will end with a sale depends on the intensity of the seller's desire to sell in relation to the buyer's desire to acquire it, conditioned by alternative opportunities of sellers to sell and buyers to buy.

These rules governing bargaining provide a flexible and socially acceptable way to estimate prices and reduce the likelihood of extreme differences in individual prices in a given marketplace (note that because this form of estimating prices is limited to a single marketplace, individual prices between markets may vary significantly regardless of this set of rules). These rules also leave room for those who are particularly skilled at bargaining, or who have a particular resource that they can use strategically in bargaining, so as to use their transformative capacity to achieve a higher than average income from bargaining.

This bargaining process best characterizes the interactions of small and medium holders with mayoristas, mayorista-minoristas, and consumers in the Quero, Pelileo, and Ambato potato ferias. While this process is also followed approximately in the price negotiations between merchants and other merchants and between large holders and merchants, there are important differences between how small and medium holders trade with merchants on the one hand, and how merchants trade with each other and large holders trade with merchants on the other.

Small and medium holders choose to deal with "known" individuals. This does not mean that they sell to the same person regularly or that they are friendly with, or related to, the other. In fact, none of the producers or intermediaries interviewed for this study traded with relatives. It does mean that small and medium holders choose to work within a known social universe. Becoming a member of this universe, as all fifteen intermediaries interviewed in depth alluded to, takes time and involves conforming to the rules outlined above. Because of this, it is highly unusual for merchants and truckers who live outside of Tungurahua to buy directly from small and medium holders who live in Tungurahua Province. These outsiders do not have the time to develop their reputations and thus must buy from merchants who live in Tungurahua and who have developed the trust of small and medium holders.

Large holders and merchants tend to deal not only with "known" trading partners but with regular trading partners as well. This is because the social interactions between buyers and sellers are governed by more than just rules of bargaining etiquette. They are also governed by exigencies arising from the very function that the marketing system serves.

Rules of Reciprocity and Regular Trading Partners

The marketing system is nothing more than the material expression of the actions and interactions of individuals who mediate between areas of supply and areas of demand and between producers and consumers. Each participant forms a vital link in the chain that stretches from producer and consumer and is governed by the function required for that link to work.

The ultimate function that merchants perform is the provision of a regular, reliable, and steady flow of potatoes to other buyers, be they other merchants or consumers. To be successful or even to continue to function as a

merchant, a merchant must at least be able to effectively provide this service. While this may not be a particularly deep insight, its implications for the way that merchants conduct their social interactions with other merchants and with producers are critical. The necessary performance of their function places certain demands on merchants. Those that meet these demands are successful and have the potential, if they have not already done so, to expand the scale of their operations. Those who do not are likely to fail.

In order to meet these demands, merchants must develop regular, reliable, and reasonably fixed trading partners. In other words, merchants must try to bind both their suppliers and their buyers so that they can ensure a steady and reliable supply of potatoes and a steady and reliable outlet for the potatoes that they buy. The larger the buyer that a merchant wishes to bind (for instance, a distributing wholesaler in a major urban center like Quito or Guayaquil), the greater is the need to bind suppliers who can reliably deliver large quantities of potatoes.

It is this demand placed on the larger merchants (the mayoristas and mayorista-consignatarios) that drives them to establish regular and reciprocal ties with large holders. Small and medium holders do not produce enough potatoes to warrant large merchants to develop relations with them which require the large merchants to make any concessions to them in the form of beneficial reciprocities. Large holders do, however. Seventy-three percent of the large holders in the sample taken for this study sell in lots of 50 or more, while none of the small and medium holders do (Table IV-1). It is therefore not surprising that when asked whether or not they sell to a preferred merchant, 72 percent of large holders in the sample taken for this study responded yes, while none of the small or medium holders in the sample did (Table IV-2). Because large holders can be counted on to provide large supplies of potatoes,

Table IV-1

SIZE OF MARKETED LOTS BY SIZE OF HOLDING

Size of Holding (ha)	Size of Lot (qq) 0 - 10		10 - 30		30 - 50		>50		Total	
	#	%	#	%	#	%	#	%	#	%
0 - 3	20	69	6	21	3	10	0	0	29	100
3.1 - 10	2	33	3	50	1	17	0	0	6	100
10.1+	0	0	0	0	3	27	8	73	11	100

Source: Producer Survey, April 1987 (N = 46)

Table IV-2

NUMBER AND PERCENT OF FARMERS WHO SELL TO PREFERRED MERCHANTS

Size of Holding (ha)	Yes		No	
	#	%	#	%
0 - 3	0	0	29	100
3.1 - 10	0	0	6	100
10.1+	8	73	3	27

Source: Producer Survey, April 1987 (N=46)

they are permitted to enter the privileged world of merchant-merchant reciprocities.

To reiterate, as a result of the need to ensure regular supplies and established buyers, the bargaining between merchants and between large holders and merchants involves reciprocity. A typical and common form of reciprocity is for large holders to sell their potatoes on consignment to mayoristas and mayorista-consignatarios during peak harvest season for a delayed payment of up to a week. Large producers are confronted with a situation in which supplies are so great that it is difficult for them to find an outlet for all their potatoes. They understand this and are willing to receive a delayed payment in

return for a guaranteed outlet. The merchants who enter into these consignment relations do so because they know that while it may be difficult to sell all the potatoes a large producer brings to market, they must sell them to maintain their reputations as the intermediaries who can always absorb supplies and meet demands. Of the large holders sampled for this study, 55 percent said that they sometimes sell on consignment while 100 percent of the small and medium holders stated that they always sell their potatoes for direct payment (Table IV-3). Another example of reciprocity is when client-producers receive high prices from their merchant trading partners even when supply is high and prices low in return for providing these same merchants with large supplies of potatoes when prices are high (supplies low).

Table IV-3

NUMBER AND PERCENT OF FARMERS
WHO SELL ON CONSIGNMENT

Size of Holding (ha)	Always Sell for Direct Payment		Sometimes Sell on Consignment	
	#	%	#	%
0 - 3.0	29	100	0	0
3.1 - 10.0	6	100	0	0
10.1+	5	45	6	55

Source: Producer Survey, April 1987 (N=46)

Resources Mobilized in Marketing

Clearly, the effect of large supplies of potatoes on the social interactions between large holders and mayoristas and mayorista-consignatarios is to color the character of the social interactions between actors in the system. But supplies are only one of many resources that critically affect both marketing behavior and social interactions.

The following resources are drawn upon by participants in the potato marketing system in Tungurahua in their interactions: (1) capital; (2) savings; (3) accessibility to other markets; (4) information on supply and demand; (5) technical knowledge; (6) quality and supply reliability of potatoes; (7) personal contacts; (8) time; and (9) locale of the marketplace.

Capital

The possession of capital as a resource is perhaps the most critical factor determining the power of and the access that producers, merchants, and transporters have to other resources.

Merchants use a number of capital inputs. In order to store potatoes for any length of time, merchants must either own or rent bodegas (warehouses). Owning a bodega allows merchants greater flexibility to store potato supplies, and hence, enhances their ability to control the coordination of supply and demand. A truck is also an essential capital good that can be used as a resource. Use of a truck permits a merchant to expand the areas in which they can buy or sell and to gather information on supply and demand in various production areas and marketplaces. The most significant form of capital used by merchants is finance capital. Finance capital can be used to buy larger supplies, and hence, can be used to control more supply and have a lower per unit price on stocks of potatoes turned over. Further, finance capital can be used to offer credit to suppliers or buyers. It can be transformed into a mechanism to bind trading partners and gain an advantage in negotiating prices. The largest scale operations are run by those merchants who have enough finance capital to buy produce from large farmers en sementera. This allows single merchants to control major portions of total supply.

Capital is equally important for producers. Land is perhaps a producer's most important capital resource. It determines an individual producer's power to attain the highest possible price and the highest profit from the marketing system. Those with large land holdings are able to produce enough quantities of potatoes to make a profit large enough to: (1) support the expanded reproduction of the household unit; (2) generate capital that can be reinvested in production or in marketing; (3) produce higher than average rates of productivity; (4) produce high quality crops; (5) take greater risks in timing, planting, and harvesting of the potato crop. In addition, the amount of physical capital already in potatoes and the amount of finance capital that can be applied to production determines a producer's ability to lower per unit production costs by investing in more efficient production technologies. The amount of capital assets a producer has largely determines his or her access to commercial credit and thus is an important determinant of who can mobilize credit to improve their production. Finally, the availability of capital, either to absorb greater transport charges from truckers or to buy a truck outright, determines the mobility of producers and their ability to seek markets with the highest price.

Savings

Personal savings is another important resource used by merchants and producers. Producers who have a comfortable margin of accumulated cash have the power to hold their potatoes until prices are higher. Potatoes in the region can be held in the soil for up to two months after they are first ready to be harvested, though storing potatoes involves a certain amount of weight loss and decay. Those who have no savings are compelled to sell immediately to obtain cash to meet immediate needs. This is a liability because they are

unable to hold onto their potatoes when prices are low. Moreover, the level of producer savings also influence their risk-taking ability. Those with savings sufficient to cover losses will be more likely to assume risks having greater potential payoffs, such as planting later than the regular season and harvesting when supplies are low and prices are higher. Similarly, the savings accumulated by merchants will also determine their ability to take risks in the market system and sustain short-term losses for long-term gains.

Access and Mobility

The ability of producers and merchants to operate in more than one marketplace is a tremendous advantage in seeking the most favorable price. As a resource, access to various marketplaces gives producers and merchants the power to move to marketplaces where prices may be higher and to avoid those where prices are lower. It also permits them to obtain more accurate information on supply and demand conditions at a given time. Of course, to use access and mobility as a resource, the possession of other resources is required, such as time to get to the market (physical access), personal contacts (social access), and capital to bear the transport costs of getting to the market (economic access).

Information on Supply and Demand

The primary rule governing price-setting in the system indicates that, for both merchants and producers, the possession of accurate knowledge on supply and demand can be used as a source of power in bargaining. Knowing what prices the market can bear and the extent to which the partner in a trading transaction is aware of these prices define who has the advantage in an individual price negotiation. When one knows and the other does not, one can bargain

boldly and manipulate the other. When knowledge is shared, neither can use the access to this knowledge as a source of power. Again, the possession of this resource depends on a range of other factors, such as time to collect the information.

Locale of the Marketplace

The locale of the marketplace, used as a resource, is closely related to information on supply and demand as a resource. Hanssen-Bauer (1982, pp. 219-222) has pointed out that the proximity of buyers and sellers dealing in similar quantities and qualities of potatoes can be used by either producers or merchants as a resouce to gain access to the precious resource of supply and demand information. By either participating in many direct price negotiations before selling or buying or by observing the price negotiations of others, participants can gather better estimates of supply and demand than if produce were not sold at a central, open, plaza.

Technical Knowledge

There are several kinds of technical knowledge that increase the ability of participants in the potato marketing system to derive larger incomes from the marketing of potatoes. Among these are: (1) at what time during the day, in a given feria, prices are likely to be highest (when, for the producers, demand or the merchant's intensity of desire to buy is likely to be highest relative to supply and when, for the merchants, supply or the producer's intensity of desire to sell is likely to be highest relative to demand); (2) which ferias are likely to yield the best price from either the producer's or merchant's point of view; (3) which merchants or producers are likely to offer the best prices; and (4) at what time during the year it is best to be selling

potatoes. To act on the above knowledge requires other resources to transform them into power.

Reliability and Quality of Supply

Another resource that gives additional power to certain participants in the marketing system is possession of high quality potatoes and a reliable supply. Producers who are able to produce consistently high quality potatoes are more likely to receive favorable treatment from merchants, many of whom place a high value on quality produce. This often prompts merchants to want to bind high-quality producers as regular clients. Producers can, thus, use quality to gain an advantage in their relations with merchants. Similarly, those producers without quality supplies cannot easily bind merchants or favorable prices.

As noted above, for merchants, the ability to ensure a minimum level of supply, is vital to their ability to bind regular buyers, who need to ensure that they have a minimum level of supply. Those merchants who can ensure a reliable supply have greater power to bind other merchants on favorable terms. Similarly, many merchants seek quality potatoes, and since these are harder to come by, those dealing in high quality potatoes can charge more and bind buying partners more easily. From producer to the merchant who retails to consumers, those involved with reliable and quality potato marketing chains have the advantage of more secure and more carefully developed relations.

The ability to use this resource as a vehicle for power requires the possession of others, including capital and technical knowledge.

Personal Contacts

One of the most important resources imparting power to merchants, truckers, and producers in the system (especially to the merchants) are personal contacts. In many respects, the scale of a merchant's enterprise is determined by the extent of his or her personal contacts and ability to bind clients. The merchant's principal function is the coordination of supply with demand. In order to function, a merchant must be ensured of a regular supply and of sufficient outlets to sell this supply either to other merchants or to consumers. Those with large, regular, and reliable supply networks and buyer-clients are in a postion to control supply and demand, to move large quantities of produce, offer better prices, minimize risks, and generate capital. Truckers, too, depend on personal contacts for the scale of their enterprise. They must develop relations with producers, if they are in business to transport producers to markets, and with merchants, if they are in business to transport potatoes between markets.

For producers, especially those with large harvests, it is important to be assured of outlets for their potatoes even when supply levels are high. If they develop regular contacts with regular buyers, they can use these contacts to unload large amounts of potatoes even when supplies are great and prices are depressed.

For all participants, the use of personal contacts and reliable social networks as resources gives rise to a set of more specific rules and tendencies of conduct that define social expectations. These expectations must be met for personal contacts to be developed.

Time

As a resource used to gain power in interaction, time is essential to the acquisition and mobilization of many of the resources listed above. The ability to collect supply and demand information requires time, the ability to act on knowledge about where and when prices are best requires time, the ability to get to different ferias requires time, and the use of the locale of the market to reveal supply and demand information also requires time.

Social Interactions and Marketing Behavior Summarized

There are a large number of resources that are used by actors in their interactions in the potato marketing system and there are a large number of ways in which they can be used. It is possible, however, to reduce this apparent complexity to a manageable scale. Resources, and the way they are used, cluster in discrete ways around the general groups of participants described in this study. In practice, the options that participants have in making marketing decisions are largely determined by a set of factors that relate to their structural position within the economy. It is therefore possible to develop profiles of the social interactions and marketing behavior of small- and large-scale merchants and small-, medium-, and large-scale potato producers as they relate to access to resources.

The Producers

Small and medium holders, as explained above, have difficulties in accumulating capital and have little if any cash savings. Hence, they have limited mobility, a limited ability to invest in improving their production, and lack the size of holding to produce large quantities of potatoes. They are, for the

most part, limited to selling in the feria which is closest to their farm. Further, they lack the quantity and quality of potatoes that are required to trade with certain types of merchants. They cannot trade with mayoristas-consignatarios and cannot bind mayoristas or mayorista-minorsita on favorable terms because they lack the quantity and quality of potatoes to do so. When they go to the closest feria they are subject to whatever supply and demand conditions are prevailing in it on that day. They lack the power to refuse low prices in a bargaining transaction by threatening to go to another feria where prices are higher because it is clear that they cannot afford to transport their potatoes to a second location. They are in a far less favorable position to accurately estimate supply and demand conditions because they cannot travel to other ferias. As a result, small and medium holders have the least power to negotiate and bargain in the system. Further, because many small and medium holders are concentrated around Quero, which has no consumer demand to speak of during peak harvest season, many of these small- and medium-scale producers end up in a market that is long on producers and short on buyers. Those small and medium holders that live near Pelileo are more fortunate because they are fewer in number and because Pelileo does have a modest consumer demand. When they go to market there are fewer suppliers and more buyers. Those living near Ambato are luckier still because of a large consumer demand for potatoes in the city and their proximity to the largest potato feria in the province.

Large holders are in a far better position to negotiate for, seek out, and exploit higher prices for their potatoes. They can (and do) seek out higher producer prices by travelling to whichever feria has the highest price. They can negotiate a higher price for their potatoes because they can deliver to large wholesaling merchants the quantity and quality of potatoes that these merchants need to maintain a network of large distributing wholesale buyers

outside of Tungurahua. Merchants are willing to forego some per unit profit in order to ensure that they can turn over large volumes to established distributors. Large holders also have the capacity to collect accurate information on supply and demand. Trading partners, therefore, cannot use such information against them. Large holders can exploit these higher prices more effectively than could a small or medium holder because they have greater volumes of potatoes to market. They are in a position to generate enough income from the sale of their potatoes to accumulate capital. They can use this capital to expand or intensify their production or to invest in nonfarm activities.

The Merchants

Small-scale merchants (smaller mayoristas, mayorista-minoristas, and minoristas) are in a position to generate an income from buying and selling potatoes. They are, however, currently in a weak position to expand their activities. They lack the capital to purchase large quantities of potatoes and, if they are interested in courting large-scale buyers from outside of the region, they find that these buyers are bound to the larger scale merchants in the region. The minoristas and mayorista-minoristas appear to sustain themselves, therefore, by selling retail in more than one feria each week and, for the smaller mayoristas and the mayorista-minoristas, by carefully maintaining their few larger and regular buyers, and by buying at a low price from small and medium holders.

The mayoristas and the mayorista-consignatarios have great power in the system. They have finance capital and they control the established personal trading networks with the large buyers outside the region. In fact, a small number of these merchants handle the majority of the flows (see Table IV-4). They are in excellent positions to collect supply and demand information and to

TABLE IV-4

ESTIMATED CAPITAL REQUIREMENTS AND VOLUME OF POTATOES INTRODUCED TO AMBATO, PELILEO, AND QUERO FERIAS BY TYPE OF MERCHANT

Merchants			Volume[a] (qq)		Volume per person (qq)	Estimated Capital Requirements Per Person	
Type	#	%	#	%	#	sucres[d]	$[e]
Mayorista-Consignatarios	3	4	7,600[b]	35	2,533	1,013,200	6,333
Large Mayoristas	8	10	7,500	34	936	374,000	2,340
Small Mayoristas	3	4	850	4	283	113,200	706
Mayorista-Minoristas	43	55	4,420	20	103	41,200	258
Transportista-Comerciantes	21	27	1,400	7	67	26,800	168
TOTAL	78	100	21,770[c]	100			

Source: Field observations and in-depth intermediary interviews, March - May, 1987

[a] These figures are estimates based on observed volume during peak harvest season in March, April, and May.

[b] The actual volume handled by mayoristas and consignatarios may be higher because they also buy from mayoristas. However, this is not factored in to avoid double counting.

[c] An estimated total of 22,000 qq flow into the Ambato, Pelileo, and Quero markets. Approximately 300 qq are sold directly by producers to consumers and do not pass through merchants.

[d] Using an average producer's price of 400 sucres.

[e] 1987 dollars using an exchange rate of 160 sucres/$.

set the terms of negotiation for their smaller scale merchant suppliers. They tend to deal in a privileged world of large quantities of high quality potatoes that command a high price. The mayorista-consignatarios, who handle the greatest volume of potatoes, remain mostly stationery in Ambato. They may travel to collect information, but they do most all their buying and selling on the site of the Plaza Urbina. They spend a great deal of time developing and maintaining contacts with smaller scale merchants, large holders, and outside large-scale buyers. Most of the larger mayoristas, on the other hand, use the differences in price that exist between ferias in the province to increase their profits. They travel to Quero or Pelileo to do some of their buying from small and medium holders at prices below what larger holders will sell at or even small and medium holders will sell at in Ambato.

All these behavioral and interactional patterns have spatial and regional development implications. These implications are explored in the next chapter.

Chapter V

Spatial and Regional Development Implications of Behavioral Patterns in the System

The behavioral patterns that have developed in the Tungurahua potato marketing system are the result of each participant's position in the broader socioeconomic stratification of society and of the demands placed on them by the functions they perform in the marketing system. These behavioral patterns have definite spatial and regional development implications.

Implications for Spatial Structure

The behavioral patterns of participants determine the location of size of, as well as the average producers prices in, the potato ferias of Tungurahua Province.

Explaining the Location of Potato Ferias

Potato ferias are located in settlements which are either: (1) close to a large potato producing region; or (2) have a set of wholesaling merchants who choose to operate out of it; or (3) are large enough to support a major retail market for potatoes. If any of these conditions hold, it is highly probable that a potato feria, which is spatially and/or temporally distinct from other ferias in the town, will develop. The Llangahua, Quero, Píllaro, and Pelileo potato ferias have developed largely for the first reason and the potato feria in Ambato developed for this reason and also for the second and third reasons. It should be noted that precisely which settlement will be the site of a potato feria in a potato producing region cannot be mechanistically predicted from a theory or model. This point is brought home by a seven-year battle between the

towns of Quero and Cevallos over which town would have the potato feria for serving the production hinterland that stretches down the valleys and up the slopes to the southwest of the two towns. Quero has only recently won this battle, largely as a result of its closer proximity to the potato producing areas, but also because it recently achieved administrative status as a cantonal capital and also because it chose not to impose municipal taxes on participants for use of the market plaza.

Explaining the Size of Potato Ferias

What is more interesting than where ferias are located is why they reach a certain size. this is related to the behavioral patterns of the participants involved in the system. We can understand the size of a potato feria in Tungurahua as a reflection of the behavioral patterns of the participants set in the context of the geography of potato production and of settlements in the region.

Small and medium producers and the size of the feria. Because the overwhelming majority of small and medium holders always sell in the feria closest to them, ferias which are situated in major production areas, where small and medium holders account for most of the production, will grow large. If the production areas in Tungurahua are ranked according to levels of potato production alone, the area to the south of Quero would be ranked highest, the areas to the west and north of Ambato would be ranked second highest, the areas around Pillaro would be ranked third, and the areas around Pelileo would be ranked fourth. If this were the only criteria determining the size of the potato feria in a town, Quero would have the largest feria, Ambato the second largest, Píllaro the third largest, Pelileo the fourth, and Llangahua the fifth (serving

only a remote highland tributary of Ambato's hinterland). Yet, we find that Ambato actually has the largest one and that Pelileo and Pillaro have roughly the same-sized potato ferias.

The equal size of the Píllaro and Pelileo ferias can be explained by the fact that much of the land in potato production around Pillaro is in the hands of large holders. Unlike the small and medium holders that dominate in Pelileo Canton, most of whom market their potatoes in Pelileo, most of the large holders around Pillaro sell either en sementera or in Ambato. The amount of potatoes marketed by small and medium holders around Píllaro and Pelileo are roughly equivalent, and hence the scale of their potato ferias are roughly equivalent.

Thus, the behavior of small and medium holders can be used to explain the scale of all the ferias in Tungurahua except Ambato's. The scale of the potato feria in Ambato, however, must be explained by the behavioral patterns of large holders and of the largest wholesaling merchants in Tungurahua.

Large producers, merchants, and the size of potato ferias. Ambato's potato feria is the largest in the province for the simple reason that the largest wholesaling merchants, the mayorista-consignatarios and the mayoristas, choose to locate there. While the fact that Ambato has a large retail demand for potatoes accounts for some of its disproportionately large size in comparison to the level of potato production in its immediate hinterland, the estimated 1,600 qq. retailed in Ambato each week are only a fraction of the total 15,000 qq. that flow through Ambato each week during peak harvest. The tremendous size of Ambato's potato feria is caused by the control exercised by the largest merchants over interregional trade networks in Tungurahua. Together, the largest merchants turnover almost all of the 13,200 qq. of potatoes that left the province from Ambato each week during March through April of 1987.

Most of these potatoes were bought from large holders and from merchants bringing potatoes from other ferias in Tungurahua and Cotopaxi (see Table III-3). Large holders seek the highest possible producer prices, dependable supply outlets, and beneficial reciprocal relations with merchants. Large holders therefore choose to sell where the largest merchants locate because only these merchants can provide the favorable trading relations that the large holders seek. Large holders in Tungurahua sold 6,000 qq. to these merchants each week during April through May of 1987 and large holders from other provinces sold an additional 2,000 qq. to them.

There are apparently several reasons why the mayoristas and mayorista-consignatarios have choosen to operate out of Plaza Urbina. The most important of these are the urban amenities and facilities for storage available in Ambato. Historically, Ambato, as the provincial capital, has always received the most public and private funds for development and has long been the most desirable settlement in Tungurahua in which to live. It is also situated on the Pan American Highway and other major roads in the province and thus is ideally suited for being the hub of interregional trade.

To summarize, the size of potato ferias in Tungurahua are principally determined by the geographic location of small and medium holder production areas and by where the largest merchants in the region choose to establish their bases of operations. Given the marketing behavior of small and medium holders, they will largely market at ferias close to them. Given the marketing behavior of large holders, they will market their considerable sums of potatoes wherever the largest wholesaling merchants choose to operate. These largest merchants are likely to settle in whichever settlement in a province has the greatest amenities and a favorable position relative to roads and rail. Size of local retail demand has some influence on the total size of a feria but is not a major

factor determining size

Explaining the Variations in Price Among Potato Ferias

Beyond explaining the size and location of potato ferias the behavioral patterns of participants in the system also explains why prices vary among potato ferias despite the fact that in most cases they are only 10 to 15 km. apart. Prices in a potato feria reflect the supply and demand conditions that prevail in that particular feria on a particular day. Prices are not equalized over space because of the lack of mobility of small and medium holders in the system. They do not have the cash savings to travel with their potatoes to distant markets, and even those who do are loathe to do so because of the risks involved.

As a result of this, small and medium holders are largely forced to accept whatever conditions prevail at the market nearest them. For this study, average producer prices paid to small and medium holders were observed for similar grades and varieties of potatoes in Quero, Pelileo, and Ambato. The lowest producer prices for a given variety and grade of potatoes were consistently found in Quero. This is probably the case because Quero lacks a retail market of any size, has only a few merchant buyers, and yet is flooded by small and medium holders trekking in 8,000 qq. of potatoes each week during the peak harvest. By comparison, only 2,000 qq. of potatoes were brought to the feria in Pelileo, while there were minoristas anxious to purchase potatoes and resell them locally. Prices were consequently usually 50 to 100 sucres higher per qq. in Pelileo than the prices paid to producers in Quero. Producer prices paid to small holders in Ambato were usually 20 to 50 sucres more per qq. than the prices paid in Pelileo. This reflects the tremendous number of buyers in the Plaza Urbina and the great demand for potatoes for interregional trade there. Prices paid to large holders in Ambato were in all cases greater than those paid

to any other producers in the system. Comparison between different size holders is difficult, however, because large holders usually sold qualities and varieties of potatoes that command a higher price in the market.

Regional Development Implications

The foregoing analysis of the potato marketing system has several regional development implications. These implications may usefully be divided into those that affect how the value-added in the marketing of potatoes is distributed among participants in the system and those that affect the level and distribution of value-added between regions generated by interregional trade.

The Interregional Distribution of Value

The merchants in the Tungurahua potato marketing system (especially the largest ones based in Ambato) have been remarkably successful in developing personal trading networks which guarantee that all the potatoes which are produced in the province beyond local consumption needs can be sold to areas of demand outside the province. They have used the social rules governing the system that arise logically and inevitably out of the functions performed by participants in the system to establish cohesive and enduring interregional market channels. In so doing, they have created a marketing system that makes a regional specialization in potato production viable in Tungurahua. In other parts of the world, and most likely in other regions in Ecuador, such well organized and reliable marketing systems do not exist. Without this system, small and medium holders in Tungurahua would likely have even lower incomes than they already do.

But the production of export crops is certainly not always the best possible use of agricultural resources in a region. This is because large portions

of the value of a region's commodities can "leak" from the region. "Leakages" can occur if: (1) the commodity exported exchanges against imported commodities on unfavorable terms of trade; or (2) most of the value-added created beyond the farmgate in the marketing system is captured by interests who live and or invest in activities outside the region. While it is beyond the scope of this study to consider the first of these sources of "regional leakage" in the case of potato marketing in Tungurahua, something can be said about the second [1].

The share of value-added of potatoes grown in Tungurahua that is captured by merchants, truckers, and producers who live in Tungurahua, given the social rules which currently govern the system, is quite high. Except for a small fraction of potatoes that are processed into potato chips and french fries, value is not added by grading, sorting, transporting, and distributing potatoes. Most of the potatoes that are marketed by small, medium, and large holders in Tungurahua pass through the hands of a local intermediary before they enter interregional trade. Even in the case of Quero, where significant numbers of buyers or buyer-representatives from outside the region come to purchase relatively small lots, these lots pass first through the hands of a Tungurahua-based merchant who may serve no other function than to act as a buffer between the world of largely unknown outsiders and the world of known insiders (this is similar to the role played by "brokers" in Indian grain markets -- see Lele, 1971). Also, the fact that nearly all of the transportistas who haul potatoes to market for producers live in the same canton as the feria to which they haul potatoes means that an additional portion of the value-added that may be lost by the producer is at least retained in rural areas of the province (see Table III-9). Finally, the merchants of Tungurahua have been so successful in establishing Tungurahua as the major supply system for the south and the Guayaquil area that these merchants have been able to capture the value-added of the potatoes of

large holders from outside the province who come from as far away as the Columbian border to sell their potatoes in Tungurahua Province.

There is little information on whether the considerable amount of value-added that is retained by Tungurahuans is or isn't invested locally. It does appear that most of the large holders in the province invest some of their incomes in agricultural production or town-based activities in the province (one interviewed owned a hardware store and onw owned a car dealership). Both the large-scale merchants and the large-scale producers apparently spend some of their income on consumer goods and services that, if not produced in Tungurahua, are at least sold there. Small and medium holders, smaller-scale merchants and transportistas, spend most if not all of their money locally and in large measure on locally produced goods and services.

Overall, the available information suggests that the interregional transfer of value-added created by the potato marketing system in Tungurahua favors Tungurahua. Again, this is not to say that the terms of trade for potatoes are in favor of Tungurahua or that value captured is invested locally. These issues require further study.

Intraregional Distribution of Value

The distribution of value-added on potatoes among participants in the region is stratified. The large holders, mayorista-consignatarios and mayoristas, are in a position to capture the greatest share of the value of potatoes produced in Tungurahua, while small and medium producers are in a position to capture the least.

Large holders have the capital to produce large proportions of the total provincial potato production and the ability to negotiate for high prices for these potatoes by seeking out high prices whereever they exist over space, by

binding trading partners on favorable terms, and by adopting risky production and marketing strategies. They relinquish as portion of the retail value of their potatoes to the larger, Ambato-based merchants or to larger merchants based in ferias outside the region in return for the services of these merchants (as do the largest farmers who sell en sementera to Quito-based merchants).

Small and medium holders who market potatoes are clearly in the least favorable position to capture a share of the value of their potato. They cannot negotiate with merchants from a position of power, they are limited in their ability to travel to other ferias where prices are higher, and they lack the capital or land necessary to produce enough potatoes to accumulate capital. In the case of most of the small holders, they are unable to derive enough profits from the sale of their potatoes to maintain a minimal subsistence level.

From the perspective of regional development, this means that small and medium producers, and the areas in which they farm, are not likely to experience substantial growth on the basis of potato production alone. Small and medium producers are unable to generate enough income to create substantial local consumption multipliers and are unable to plow much money back into improving production. While small and medium producers benefit from a marketing system which is able to absorb virtually any quantity of potatoes they produce by coordinating these supplies with locations throughout the country, the capacity of a regional specialization in potato production to provide a viable solution to the development problems of these holders is limited.

Small and medium producers may receive the lowest per unit profit on the sale of their potatoes, but even among small and medium holders, the ability to obtain a favorable producer price varies considerably. One important way in which they vary is in accordance with which feria these producers are located the closest to. Those who live near Ambato receive the highest. This creates

opportunities for merchants to reap excess profits by simply buying in Quero or Pelileo and selling wholesale in Ambato or retail in some other local feria. This means that the lack of mobility of small and medium holders, and its consequent effect on spatial variations in price, creates a situation where an additional onerous burden of receiving low producer prices is placed on some of these holders such that other merchants can and do take advantage of. In fact, during the period studied for this report, an average of 2,000 qq. of potatoes a week were bought in Quero to be sold at higher prices in Ambato; 200 qq of potatoes a week were bought in Pelileo to be sold at higher prices in Ambato; and 200 qq. of potatoes a week were bought in Quero to be sold at higher prices in other local retail ferias in Tungurahua (see Table III-3). Again, from a regional development perspective, this suggests that value which might easily be captured by small and medium producers, if they could travel to more than one potato feria, is captured by merchants instead.

The distribution of value added among intermediaries depends on their function, scale, and location. The mayorista-consignatarios and mayoristas capture the largest share of the value added in the region because of the quantity and the quality of potatoes in which they deal. Those mayoristas, mayorista-minoristas, and transportista-comerciantes who buy in quero are in the best position to capture the value of the potatoes produced by small and medium holders. Because of their small scale, the amount of value-added that minoristas in the region can capture is generally limited. All but the minoristas are in a position to accumulate capital as a result of their participation in the system. Again, an issue which must be addressed, but which was beyond the scope of this study, is what those who accumulate capital from the system do with this capital. Without this information it is impossible to describe the total set of impacts of the potato marketing system on regional development in Tungurahua.

Notes

1. Readers interested in learning more about the concept of "regional leakages" are referred to Stohr and Taylor 1981.

Chapter VI

Policy Conclusions

Several policy conclusions can be drawn from the analysis presented in this report. These policies conclusions are enumerated below.

The Interregional Trade Network

The potato marketing system in Tungurahua appears to be a stable and complely structured system that is governed by a set of social rules. These rules and the entrepreneurial use of them by the merchants of the system has led to the establishment of interregional trade networks that are lasting and probably provide maximum benefit to the region. Effective use by Tungurahua merchants of the rules and rationales for establishing regular and reciprocal ties between trading partners has largely ensured that all the potatoes grown in the region can be marketed and hence regional income maximized. Further, the need for personal knowledge of trading partners, which is keenly felt by all participants of the system, results in the insertion of a Tungurahuan merchant between producers and outside merchants in all but a few cases. This, in turn, increases the value added retained in the region.

It can be concluded from this assessment that policy makers seeking to modify the existing marketing system either to increase the retention of value in Tungurahua or to make potato marketing more technically efficient should evaluate proposed interventions in terms of how they may effect already existing and working social rules and patterned behaviors. Interventions must be carefully tailored to bring about desired improvements without the disrupting the system. The best intervention to accomplish either of these two goals may well be <u>not</u> to intervene.

Pursuing Equity Goals in the Intraregional Distribution of Value

Not all participants in the potato marketing system in Tungurahua have an equal ability to negotiate a fair price for their potatoes. Small and medium holders are forced to sell at lower prices than are large holders. How low a price a small or medium holder must accept depends on which feria he or she has to sell in.

The key factors that leave small and medium holders at a disadvantage in the marketing system are: (1) their limited mobility; (2) their inability to produce large volumes of potatoes; and (3) their inability to raise their productivity. Lack of precise knowledge of supply and demand information may also be a drawback. It was found, however, that the main problem is not lack of knowledge on supply and demand conditions in other ferias, as measured by differences in prices between ferias but rather an inability to act on this knowledge.

From a policy point of view, the position of small and medium holders could be improved by a number of interventions. The government could:

1. Undertake further land reform in the region.
2. Provide credit and technical assistance to farmers to increase their productivity and quality of produce.
3. Provide subsidized government transportation on the four main feria market days: Monday, Thursday, Friday, and Saturday.
4. Establish producers' retail markets.

Of the four suggestions, the last two are perhaps the simplest, the least costly to implement, and the most directly related to marketing. The first two lie in the realm of production and are policies that have been pursued with varying degrees of success and vigor in Tungurahua for many years (Simmons and Ramos, 1985; Cueva-Lopez, 1985).

Implementing a government subsidized transportation system in the rural areas on key market days would increase the small and medium producers' ability to travel to ferias where prices are higher. This could have the effect of averaging out supply and demand conditions in each marketplace. It would also increase small and medium molders' power in bargaining, since merchants could not be sure whether small and medium holders would choose to sell in that feria that day. This intervention would, however, undermine an important source of income for many small transportistas who currently transport producers to their nearest feria.

If implemented in tandem with the provision of subsidized transportation argued for above, the creation or retail ferias in Ambato and Pelileo, and the promotion of these ferias among consumers and small and medium holders, might create an opportunity for many of these holders to bypass merchants altogether and sell directly to consumers. Since producers always receive a higher price from consumers than they receive from merchants, this plan would enable small and medium holders to capture more of the market value of their potatoes. Of course, this would also sacrifice the jobs of many minoristas in the region: a definite social trade-off. However, the findings of the producer sample (and of a sample of producers interviewed by Simmons and Ramos, 1985) suggests that implementing this kind of program would possibly be difficult because few producers currently choose to sell directly to consumers. Nevertheless, 66 percent of the small holders and 83 percent of the medium holders interviewed for this study stated that they would prefer to sell to consumers because consumers pay higher prices (Table VI-1).

Additional studies would need to be undertaken to determine why this is the case. The producers interviewed for this study quoted "ease" as the reason motivation for their behavior is not known.

TABLE VI-1

Number and Percent of Farmers Who State That They Prefer to Sell to Consumers Because of Higher Prices Offered

Size of Holding (ha.)	Number	Percent
0 - 3	19	66
3.1 - 10.0	5	83
10.1 +	2*	18

Source: Producer Survey, April 1987 (N=42)

*The two large holders who stated that they would prefer to sell to consumers both had holdings only slightly larger than 10 ha.

As far as the distribution of value among merchants is concerned, the critical factors structuring this distribution are the level of capital each merchant has, and the control over supply and demand each can exert by mobilizing regularized ties with suppliers and buyers. To intervene in this distribution would require, at a minimum, providing capital to the smaller buyers so that they can afford to buy larger supplies. However, this alone is unlikely to be effective because the development of regular trading partners is based on more than the simple possession of capital. Development of partners is based on years of involvement in the marketing system. The distribution of value among merchants in the region, therefore, is not very amenable to policy intervention.

Regulations to require that cargadores be paid a higher fee per qq. of potatoes is one important step that could be taken to redistribute value in the potato marketing system away from the larger merchants to those intermediaries who work physically the hardest and receive the least social and economic remuneration for the role they play in the market.

Production and Marketing of Potatoes as a Regional Development Strategy

In order to assess the role that improvements in the production and marketing of potatoes should play in the development of Tungurahua, it is necessary to candidly assess the contributions which potato marketing in Tungurahua can and cannot make to regional development.

The production and marketing of potatoes on a regional basis provides Tungurahua with many benefits. It provides Tungurahua with a source of export earnings, much of which is circulated in the local economy and spent on locally-produced goods. It provides large holders and the larger-scale potato merchants with substantial incomes. It provides small and medium holders with more limited, but nevertheless critical, incomes. Finally, it provides opportunities for some small and medium holders to increase their incomes by engaging in off-farm employment as minoristas, transportistas, or transportista-comerciantes. Small and medium holders who become transportistas or transportista-comerciantes are a particularly interesting entrepreneurial class who have the potential to generate substantial incomes from the potato trade.

While opportunities to promote a more equitable distribution of value among participants in the marketing system could help to ameliorate some of the problems of small and medium holders, improvements in production and marketing of potatoes alone, however, is not a sufficient development strategy for the rural areas of Tungurahua. The amount of land that small and medium holders have severely restricts their ability to increase their productivity and it is unlikely that holders of these sizes will ever be able to significantly improve their condition based on their agricultural activities alone.

For this reason, it is necessary to promote non-farm employment opportunities in Tungurahua. As in most regions of Latin America, employment in non-farm and small-and medium-scale enterprises in Tungurahua contributes to the income of many small and medium holders (Alban et al., 1986). The existence of a strong potato marketing system opens up the possibility of combining the promotion of non-farm employment with the promotion of agricultural production to develop a coordinated regional development strategy for rural Tungurahua.

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