



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

GORDON W. SMITH\*

## MARKETING AND ECONOMIC DEVELOPMENT: A BRAZILIAN CASE STUDY, 1930-70†

The dynamics of agricultural marketing during the development process have received little attention in developing countries. True, several recent works have explored the efficiency of contemporary marketing systems.<sup>1</sup> But economic-historical analysis of marketing structures and the forces molding them is much rarer.<sup>2</sup> The obstacles to such research are formidable. Data on the distribution sector are among the poorest in developing countries, and they get worse as one moves back in time. Compounding the problem, middlemen have not attracted many chroniclers of their activities.

This study of rice marketing over forty years in Brazil's Center-South therefore joins a small literature.<sup>3</sup> The Center-South, where economic growth and structural transformation have been extremely rapid, provides unusual opportunities for this type of research. In 1930, the region was fairly poor and predominantly rural. By 1970, a modern economic structure, urban and industrial in base, had been firmly implanted. Along the way substantial demands for marketing services were generated, while the factors shaping the marketing system were undergoing profound modifications.

As Brazil's main traditional staple *and* one of its most important growth crops, rice is a logical choice for this study. By the late 1960s, Brazilians consumed 40 to 45 kilograms of rice per capita each year,<sup>4</sup> sixteen times the United States level and one-third of China's world-leading figure (36, p. 50). In the fifty years after Brazil achieved self-sufficiency during World War I, per capita consumption of the grain tripled (25, p. 161), and total production expanded eightfold, a rate one-third again as high as that for the agricultural sector as a whole (1; 2, p. 257).

This paper, then analyzes marketing change for a traditional, but dynamic, crop in a region undergoing rapid development. Without undue distortion of

\* Assistant Professor of Economics, Department of Economics and Business Administration, Rice University.

† The author would like to thank Werner Baer, Don Huddle, G. Edward Schuh, Wayne Thirsk, and especially Nathaniel Leff and Samuel Morley for useful comments. The research in this paper was supported in part by the Program of Development Studies, Rice University.

<sup>1</sup> Among the most interesting are studies by M. O. Farruk (10), W. O. Jones (20), Uma J. Lele (23), and Charles Slater et al. (32).

<sup>2</sup> One such work is that by Cheng Siok-Hwa (6).

<sup>3</sup> It is interesting that J. R. Moore argued recently that in the United States, too, research has tended to concentrate on static efficiency to the detriment of marketing change (see 26, pp. 148-49, 158, 160).

<sup>4</sup> According to estimates made in a study by P. I. Mandell (25, p. 216).

TABLE 1.—BRAZILIAN RICE PRODUCTION BY STATES, SELECTED YEARS, 1919–68\*  
(Percent of total)

Year	São Paulo	Rio Grande do Sul	Minas Gerais	Minas Triangle	Goiás	Rest of Brazil
1919	42	14	21	3	4	19
1927/31 average	35	23	20	...	6	16
1939	31	22	18	3	6	23
1949	27	20	18	7	9	26
1959	20	18	17	...	12	33
1968	12	19	16	...	19	34

\* Data from Brazil, Ministry of Foreign Affairs, *Brazil 1937* (1938); Brazil, Diretoria Geral de Estatística, *Recenseamento Geral do Brasil Realizado em 1 Setembro de 1920: Agricultura*; and Instituto Brasileiro de Geografia e Estatística, Conselho Nacional de Estatística, *Anuario Estatístico do Brasil*, various issues.

reality, I have divided the period into three “stages.”<sup>5</sup> Stage I, 1930–50, might justly be called the age of centralization and oligopsony. It was dominated by the railroad and coastal shipping, by the merchant-moneylender system and by inflated marketing margins. Moving past 1950, road investment shifted into high gear, and the Bank of Brazil expanded its program of rural credit at a rapid pace. Stage II, fully reached by the early 1960s, was dominated by the truck and by the flexibility, decentralization, and increased competition which it made possible. Regional oligopsonies were no longer viable, as new market entrants and bank credit eliminated the bases of their power. Inevitably, marketing margins fell.

A new stage seemed well on the way by 1970 as modern merchandising methods—advertised brand names sold in prepackaged portions—were increasingly in evidence. This seems to foretell increasing attention to consumer tastes, to sales efforts and product quality.

Information on marketing, particularly before 1965, is difficult to find. Hence, a good deal of my material is based on personal interviews undertaken in 1963, 1965–66, and 1970. The interviews were structured, but informal.<sup>6</sup> In all, over sixty firms were interviewed in São Paulo, Rio Grande do Sul, Minas Gerais, Goiás, and Paraná (a list appears in the Appendix). I spoke with bankers in these areas and received the cooperation of many informed public officials, especially in São Paulo, Rio Grande do Sul, and Rio de Janeiro. A sample of “old timers” was interviewed concerning the earlier years of the period. Whenever possible, the accuracy of interviews was checked with other sources and interview information was used only when there was a consensus among those answering.

#### STAGE I: 1930–50, OLIGOPSONY AND CENTRALIZATION

##### *Background*

Rice production has expanded continually into new lands. From areas near the coast in São Paulo, Minas Gerais, and Rio Grande do Sul, the crop spread into

<sup>5</sup> The pitfalls of the “stage” methodology are well known. However, the principal exogenous forces acting upon the marketing system in Brazil have moved in spurts. Approximation of the dynamics of the system by the comparative statics of stage analysis appears valid.

<sup>6</sup> In 1963, I used an extensive formal questionnaire. However, a little experience showed that far more could be learned by not asking detailed questions about the individual firm’s operations.



the interior of these states in the 1920s and 1930s. The Minas Triangle (essentially the western projection of the state of Minas Gerais) and Goiás came to the fore in the 1940s and 1950s, while today Maranhão and Pará in the far north are Brazil's latest rice frontiers (see Table 1 and map).

From the other states, Rio Grande do Sul stands apart in its relatively advanced production and marketing techniques. There, unlike the rest of Brazil, rice is produced on irrigated lands, selected seed varieties are used, and mechanization is increasingly in evidence.<sup>7</sup> Only in Rio Grande do Sul have marketing cooperatives made much headway in rice, and only there is grading sufficiently standardized to meet the demands of the world market.

However, most Brazilians prefer the upland varieties from São Paulo, Goiás, and Minas Gerais. Because of its lower price, grain length for grain length, Rio Grande rice is consumed in greater proportions by lower income people.

<sup>7</sup> See, for example, 17, pp. 17-18, 23-33. Rice was a profitable crop in Rio Grande do Sul, requiring fairly large capital investments to be fully exploited. Prominent landowning families were attracted to it early in the century, and rice became the "coffee" of the South (see 29, pp. 20, 64).

*Marketing Channels and Activities*

In these early years, rice moved by rail, coastal shipping, and flat boats. These modes of transportation tend to concentrate trading activities at intermediate transportation breaks—larger ports and rail centers.<sup>8</sup> And so it was in this case, where rice marketing was partitioned into regional systems centering in Pôrto Alegre and São Paulo City.

Pôrto Alegre, Rio Grande do Sul's principal port and main rail center, channelled the state's large surpluses to Rio de Janeiro, and less importantly to São Paulo, the poorer states of the north and to foreign markets.<sup>9</sup> Farmers in Rio Grande do Sul sold mostly in the interior, to local mills or middlemen, or to buyers representing the larger mills in Pôrto Alegre. Although some sold in Pôrto Alegre directly or on consignment, this was uncommon. Not only was the farmer often committed to sell to the mill which had financed him, but he was sometimes swindled in the consignment transaction (27, p. 113).

Most mills were too small to integrate the farm assembly, milling, and export functions under one management. Rather, they bought from farmers and used commission brokers to sell either to "exportadores"—firms specialized in placing rice with buyers in other states—or with the larger, integrated mills.

Even the larger mills did not sell directly in other parts of Brazil. They relied instead on independent commission brokers in these areas to find buyers. Complementing this localism, employees of firms with home offices in other states were extremely rare in the Pôrto Alegre market and not found in the interior. Rio Grande do Sul was the preserve of the "gaúcho," and this probably reinforced regional oligopsony.

São Paulo was the rail hub through which produce from São Paulo State, Goiás, and much of Minas Gerais had to pass on its way to the rest of Brazil. The city had been an important milling center when rice farming was concentrated not far from the capital. But as the crop moved inland, milling went with it. By the 1940s, a clear separation had appeared between the São Paulo "cerealista" (wholesale cereals, including beans, specialist), a pure middleman, and the "maquinista," or miller, who operated in the producing zones.<sup>10</sup>

As a rule, the mills did not sell directly in São Paulo. They dealt instead with buyers from the larger cerealistas or sold on consignment in the capital. As with the Rio Grande mills, even the largest São Paulo cerealistas were quite restricted in their operations. They sold in other markets through commission brokers or on consignment, and they did not operate in producing areas outside the São Paulo region.

Marketing channels in the major cities were further fragmented by the atomistic structure of food retailing.<sup>11</sup> Rice reached consumers mainly through very small grocery stores. Since these stores bought in small quantities and usually required credit, full-line grocery wholesalers most economically served their

<sup>8</sup> For further information on the centralization of marketing in the United States, during the railroad age, see 30, pp. 38–40.

<sup>9</sup> Data on destination of shipment is found in citation 1.

<sup>10</sup> I know of only one exception to this, Labate-Sciatigno, a large cerealista in São Paulo with a large mill in Olympia, São Paulo, founded in 1943 and disbanded in 1963.

<sup>11</sup> This paragraph relies heavily upon interviews with Wanderley Bocchi, President of the Retail Trade Association in São Paulo (1963), Pedrinho Labate, a commission broker who pioneered in direct sales to retailers (1963, 1970), and Phillippe Allain, a director of Supermercados Peg-Pag (1963, 1970), which operates in São Paulo and Rio de Janeiro.

needs. Hence, cerealistas and the brokers representing the larger Rio Grande mills sold in Rio and São Paulo mainly to full-line grocery wholesalers—or to each other. Direct sales to retailers by these specialists were rare.

Thus market channels in Stage I were roundabout, involving a large number of handling and transactions activities between producer and consumer. Firms were usually quite specialized, and horizontal integration across regions was minute. As in Brazilian political and cultural life, localism was dominant. The inference is that marketing costs were fairly high.

### *Market Operation*

It was through markets rather than decisions internal to firms that the level of most marketing activities and prices were determined. The people I interviewed were nearly one in the view that markets did not function very well. They maintained that oligopsony was the rule in the interior assembly markets. Relief through spatial arbitrage was quite limited by the inadequate communications system and the meager market information available to farmers. Since roads were poor in the interior, the sporadic entry of new buyers which might have reduced the power of local oligopsony, was not very effective either.

Nothing contributed more to noncompetitive market behavior than the merchant-moneylender system of financing rice cultivation. The rural credit and banking network were poorly developed.<sup>12</sup> Rather than lend to farmers with the administrative costs this would have entailed, banks, even the (official) Bank of Brazil, preferred to finance the mills.<sup>13</sup> The mills, adding an indeterminable amount of their own funds, then financed the farmers. A normal condition of the loan was a commitment to sell to the mill soon after the harvest, sometimes at pre-contracted and heavily discounted prices. Where funds were more plentiful, direct interest charges seemed to be "reasonable,"<sup>14</sup> and the mill paid the market price at the time of loan liquidation. But here, it was maintained, oligopsonists often forced exaggerated declines in prices during the harvest months when farmers had to sell.

This picture implies that margins, already high from roundabout market channels, were further inflated by oligopsony profits. The inefficiencies of Stage I cannot be fully documented. Since the most complete data of the period cover Rio Grande do Sul, the oligopsony-merchant-moneylender model for that region during the 1930s will be tested first; evidence of the model's validity for the Minas Triangle and southern Goiás will then be presented.

### *Oligopsony in Rio Grande do Sul*

In the 1920s, one mill, Arrozzeira Brasileira,<sup>15</sup> as it was later called, dominated the rice trade in Rio Grande do Sul. At the peak of its power in the mid- and late-

<sup>12</sup> As late as 1954, experts estimated that 10 percent of total outside financing for farmers came from the Bank of Brazil, 8 percent from other banks, 20 percent from private lenders, and 62 percent from merchants (see 22, p. 75).

<sup>13</sup> According to conversations with officials of the Bank of Brazil's central office in Rio de Janeiro and with the Director of the Bank's Pôrto Alegre branch (June and August, 1963, respectively).

<sup>14</sup> By 1940, rates of about 15 percent per annum were typical in Rio Grande do Sul, while inflation reached 10 percent (see 27, p. 112). Competition also kept rates charged by mills down in Colombia (see 24, p. 255).

<sup>15</sup> All the information on the early years of Arrozzeira Brasileira was obtained from Hugo and Fernando Kessler, former directors of the firm, in an interview, July 1970.

TABLE 2.—CONCENTRATION BY FIRMS OF RICE EXPORTS FROM RIO GRANDE DO SUL, SELECTED YEARS, 1934–60\*  
(Percent of total exports)

Year	Top firm	Four top firms	Eight top firms
1934	21 (Arrozeira)	45	65
1935	26 (Arrozeira)	55	77
1936	15	41	64
1938	12 (Arrozeira)	38	58
1939	10	34	56
1946	9 (Arrozeira)	28	47
1949	8	22	38
1959	7	18	28
1960	7	19	32

\* Data from Sindicato Arrozeira do Rio Grande do Sul, *A Cultura do Arroz no Rio Grande do Sul* (Pôrto Alegre, 1935); and Associação Comercial do Pôrto Alegre, *Boletim*, various issues.

Figures are based on port embarkations. After 1960, they no longer represent an accurate picture, since overland shipment by truck became the dominant form of transportation. Data prior to 1934 are unavailable.

1920s, Arrozeira's shipments from Rio Grande do Sul reached 30,000 tons annually,<sup>16</sup> 40 to 50 percent of the state's total exports. Arrozeira received its big advantage from association with an Italian (Genoa) firm, Flugoni e Previ, which also operated La Arrozeira Argentina in Buenos Aires. As their contribution to the firm, the Italians built the state's largest mill in Pôrto Alegre and arranged ample credit through the Banco Frances e Italiano. Arrozeira's ability to finance farmers on a large scale gained it a certain competitive edge.

Taking advantage of its market power, Arrozeira is supposed to have pressured annual price declines and increases in Pôrto Alegre.<sup>17</sup> In this manner, purchases in the interior markets tied to Pôrto Alegre could be made at noncompetitively low prices. Later, sales from stocks would fetch prices more consonant with real supply and demand conditions.

Unfortunately, monthly farm price data have been collected in the state only since 1966, while recorded prices for the Pôrto Alegre market begin in 1930, after Arrozeira's market position was beginning to fade. Even so, concentration ratios through most of the 1930s were relatively high (see Table 2), and tied financing by the mills continued its sway. Did prices in the 1930s show evidence of the non-competitive behavior which was supposedly rampant a decade earlier?

To clarify this, I calculated seasonal indices of rice prices on the Pôrto Alegre Commodity Exchange for several sub-periods, 1930–68 (see Table 3). If the market behaved in the manner described above, we would expect to observe two things. Seasonal price increases after the harvest months should be larger during the thirties than in subsequent periods. And they were. Furthermore, the price increases should occur more *abruptly*. The 1930–39 index jumps nearly 7 percent from August to September, coinciding with the end of the main selling season. In the three months after August, the seasonal increases 12.4 percent and is prac-

<sup>16</sup> This, according to Hugo and Fernando Kessler. I encountered published export data by the firm beginning only in 1934.

<sup>17</sup> All informants except the Kesslers concurred in this belief. Reference to such maneuvers is also made in 28, p. 2.

TABLE 3.—SEASONAL WHOLESALE PRICE INDICES OF SHORT GRAIN RICE ("JAPONÊS ESPECIAL"), PÔRTO ALEGRE SELECTED AVERAGES, 1930-68\*

Month	1930-39	1940-49	1952-58	1964-68
April	94.8	99.6	101.5	98.0
May	94.8	99.0	99.7	95.6
June	92.5	98.1	98.6	96.0
July	94.0	98.0	100.3	97.4
August	94.4	97.7	100.5	99.5
September	100.7	97.6	100.1	102.6
October	102.8	99.6	97.0	103.6
November	106.1	100.6	98.5	100.4
December	105.3	101.3	99.8	99.5
January	107.7	103.6	101.1	101.7
February	104.9	103.2	103.4	104.6
March	102.0	101.9	99.3	101.4
Trough to peak (percentage increase)	16.4	6.1	4.9	4.8
Average:				
April-August	94.1	98.5	100.1	97.3
September-March	104.2	101.1	99.9	102.0
Percentage increase	10.7	2.6	0	4.8

\* Original data for 1930-49 from Instituto Rio Grandense do Arroz (IRGA), *Anuário Estatístico do Arroz*, No. 5 (Pôrto Alegre, 1950); for 1952-68 direct from Bôlsa de Mercadorias, Pôrto Alegre.

Seasonals are means of the ratio of prices to twelve-month, centered moving averages. Short grain rice was 80-90 percent of Rio Grande do Sul's output in the 1930s and 1940s. The years 1950-51 and 1959-63 had to be omitted because of the absence of trading in many months.

tically stable after that. The contrast with the behavior in other years is striking.

Statistically, however, the differences in seasonals between the different periods are not usually significant. The culprit is year-to-year instability in the magnitude and timing of price changes over the season.

When we look instead at rises from the seasonal trough during the harvest months to the peak in the off-season, allowing the exact timing to vary from year to year, the contrasts are more obvious and statistically significant (see Table 4). The median rise of 35.6 percent from trough to peak during the thirties is never approached in later years. Seasonals in Rio Grande do Sul changed after 1939 and in the direction predicted by the oligopsony model.

Additional evidence can be brought to bear. The São Paulo market in the 1930s was fairly competitive. Besides the Rio Grande mills, many from the São Paulo region sold there on consignment. The São Paulo cerealistas added another powerful force. Therefore, if the oligopsony model is correct, price behavior in São Paulo should differ non-trivially from that in Pôrto Alegre.

Comparison of Table 5 with Table 3 will show that the seasonal in Pôrto Alegre was perhaps half again as large in São Paulo. In contrast with the nearly 7 percent rise in Pôrto Alegre (August-September), the end of the selling season in São Paulo brought a 3 percent increase in the seasonal.

High marginal storage costs and elevated risk may also cause pronounced seasonals. There is absolutely no evidence, however, of a storage shortage in Rio Grande do Sul during the 1930s. Interviewees all claimed that physical storage



TABLE 4.—SHORT GRAIN RICE, PÔRTO ALEGRE: PERCENTAGE INCREASE IN SEASONAL PRICE INDEX FROM TROUGH MONTH, APRIL–AUGUST TO PEAK MONTH, SEPTEMBER–MARCH\*

Year	1930–39	Year	1940–48	Year	1952–57	Year	1964–67
1931	17.4	1940	18.0	1952	7.5	1964	5.2
1932	40.6	1941	21.3	1953	21.2	1965	14.9
1933	51.9	1942	11.4	1954	6.0	1966	38.7
1934	22.0	1943	6.7	1955	4.7	1967	17.6
1935	18.4	1944	10.6	1956	33.6		
1936	44.3	1945	6.0	1957	8.6		
1937	38.8	1946	7.6	Median	8.0	Median	16.3
1938	20.8	1947	12.4	Mean	13.6	Mean	19.1
1939	35.6	1948	21.5				
Median	35.6	Median	11.4				
Mean	32.2	Mean	12.8				

\* Original wholesale price indexes are from sources cited for Table 3.

Differences are significant at the 1 percent level between 1930–39 and other periods, except 1964–67 when the significance level was 10 percent. The Mann-Whitney U Test was used.

was not a problem. Risk is more difficult to evaluate, but presumably it was not much greater in Rio Grande do Sul than in São Paulo.

#### *Oligopsony in the Minas Triangle and Southern Goiás*

Another important, if less well-documented, case of merchant-moneylender oligopsony accompanied the spurt of rice production in the Minas Triangle and Southern Goiás.<sup>18</sup> Merchants and published accounts agree that in the 1940s and early 1950s perhaps two to four mills dominated the market in a manner similar to Rio Grande do Sul (19, p. 421).<sup>19</sup>

Oligopsony was facilitated by a severe transportation bottleneck which often cut this market loose from São Paulo during the harvest months, permitting very large spatial price differentials (34, p. 197). (See Table 6.) It is not surprising that São Paulo prices of this region's long grain rice show little evidence of the behavior encountered in Pôrto Alegre (34, p. 194). Seasonals in farm prices were likely much larger than in São Paulo's wholesale market.

#### *Oligopsony Is Temporary*

The market power required for grossly noncompetitive behavior was temporary. The fall in the concentration ratio in Rio Grande do Sul has already been noted. New entry was more rapid in the Minas Triangle area. By 1953, following two years of intense expansion, 127 mills were operating in the Triangle's four assembly centers (19, p. 427). Already in 1957, a group of experts described the Triangle as very competitive, yielding no more than normal profits (12). And by 1963, the two largest mills had seen their annual volume fall from 500,000 sacks

<sup>18</sup> The main published source on this oligopsony is 19. I supplemented this information with interviews in the area and São Paulo.

<sup>19</sup> Twenty percent by 1950–51 does not appear too high a market share for the two largest firms in the Triangle-Southern Goiás region (see 34, pp. 192–203).

TABLE 5.—AVERAGE SEASONAL PRICE INDEX, 1932-39, LONG GRAIN RICE ("AGULHA"), SÃO PAULO CEREALS EXCHANGE\*

Month	Index	Month	Index
February	96.3	August	101.8
March	94.0	September	102.0
April	94.8	October	103.2
May	98.5	November	104.4
June	98.1	December	102.9
July	101.2	January	102.8
Trough to peak percentage increase		11.1	
Harvest: February-June average		96.3	
Inter-harvest: July-January average		102.6	
Percentage increase		6.5	

\* Original wholesale price indexes direct from *Bolsa de Cereais de São Paulo*, not available until July 1931. "Agulha," a long grain rice, was the only variety traded regularly on the São Paulo Cereals Exchange. Seasonal indexes are computed as for Table 3.

each but a decade earlier to in the neighborhood of 100,000 to 150,000,<sup>20</sup> as the number of mills doubled.<sup>21</sup>

The predominance of a few firms was rooted in early entry with large financial resources. To maintain their market shares as production expanded, the largest mills would have required the protection of strong barriers to entry or significant scale economies. Neither was important at that time. As a result, the superior management and capital sums required for larger scale operations more than likely found higher returns in other areas. This is probably the reason, too, why larger economic groups tied to agricultural products have never been attracted to rice.<sup>22</sup>

None of this implies that noncompetitive profits were eliminated by new entry. Anemic credit, poor market information and inferior transportation-communication links still suggest that noncompetitive profits were not trivial. But entry guaranteed that large-scale oligopsony could not persist indefinitely. Interestingly, rice markets in several other developing countries seem fairly competitive for the same reason.<sup>23</sup>

#### STAGE II: 1951-67, TRUCKS, CREDIT, AND DECENTRALIZATION

In these years Brazil actively pursued an import-substitution industrialization strategy backed by massive investments in the economic infrastructure. The country's real growth averaged 6 percent, led by industry's 7.2 percent,<sup>24</sup> while urban

<sup>20</sup> According to an interview in October 1963 with the head of one of the firms, corroborated by other merchants in the region.

<sup>21</sup> According to the agency director of the Instituto Brasileiro de Geografia e Estatística (IBGE) in Uberlândia, October 1963.

<sup>22</sup> I know of only two exceptions to this. Matarazzo owned a large mill in São Paulo early in the century (see 5, p. 408), and Bunge-Born (Moinhos Santista, Sociedade Algodicra do Nordeste Brasileiro [SANBRA], etc.) operated *Brasilarroz* in *Pôrto Alegre* from 1935 until sometime in the 1950s. Neither grew exceptionally large. On Matarazzo see 5, p. 408.

<sup>23</sup> See, for example, in India (23, pp. 63-83); Colombia (24, pp. 255, 259). For a contrary conclusion on Chile, see 11, pp. 20-63.

<sup>24</sup> Calculated from indices in 9, p. 98.

TABLE 6.—PERCENTAGE INCREASE IN SEASONAL PRICE INDICES FROM TROUGH MONTH DURING HARVEST TO PEAK MONTH IN INTER-HARVEST\*

Year	São Paulo	Pôrto Alegre
1932	19.6	40.6
1933	24.8	51.9
1934	10.9	22.0
1935	1.8	18.4
1936	37.0	44.3
1937	11.9	38.8
1938	7.8	20.8
1939	34.1	35.6
Median	15.8	28.8
Mean	18.5	34.0

\* Original data as described for Tables 3 and 5.

population exploded at the rate of 5 percent per year (13). All this brought profound changes in the conditions shaping the marketing system.

### Transportation

The burgeoning demand during this period for more and better transportation was satisfied by vast road programs.<sup>25</sup> The road network more than tripled, to 940,000 kilometers in the period 1952–68, while its quality improved enormously. In São Paulo State alone, paved roads grew from a mere 64 kilometers in 1944 to 13,300 by 1968 (8, pp. 73–75; 13).

By the early 1960s the truck was able largely to supplant the train and coastal shipping in the transportation of rice. The switch brought several important changes. Competition intensified considerably. Many trucker-middlemen appeared who bought from the farmers and sold to the mills in the larger assembly centers. They most certainly increased the selling alternatives open to producers.

The truck, by making unnecessary the transportation breaks in Pôrto Alegre and São Paulo, also decentralized marketing channels. Increasingly, the mills shipped to the major consuming centers portal to portal. This spelled the demise of the exporter (“exportador”) in Pôrto Alegre and cut substantially into the business of the São Paulo cerealista. The central market function of both cities evaporated rather quickly: witness the abrupt decline in their organized spot markets.<sup>26</sup>

Raw truck rates were generally higher. But such had been the deterioration in the services provided by rail and coastal shipping that when pilferage, spoilage, and delays were added to higher handling costs, the truck rates usually came out lower except for very large lots and very long hauls.

On all counts—heightened competition, fewer transaction breaks, and usually cheaper transportation—the truck should have reduced marketing margins.

<sup>25</sup> Transportation conditions reached bottleneck proportions in the early 1950s, which led to a great flurry of investment in the next 15 years. On the bottlenecks see 18, p. 90.

<sup>26</sup> By 1963, total transactions in rice on the São Paulo Cereals Exchange had fallen to 6,250 tons from their 39,000-ton peak in the mid-1950s. By 1970, business was so low that the Exchange refused to divulge its size. Data on the Pôrto Alegre Commodity Exchange are not available. As early as 1963, the author was told by several in the trade that the Exchange ought to shut down, so little was its turnover.

*Credit*

Policymakers dimly realized that their development efforts could be frustrated by poor performance in agriculture. Among the measures taken to sidestep this potential bottleneck was one by the Bank of Brazil which expanded its loans for cultivation expenses (see 33, pp. 239-41). Rice was among the main beneficiaries, as the share of the crop financed by the Bank in all of Brazil rose from 5 percent in 1950 to 42 percent in 1963 to more than 50 percent by the late 1960s. In Rio Grande do Sul, the Bank was financing over 90 percent of the crop by the early 1960s.<sup>27</sup> This program was supplemented by funds from state banks in many areas (e.g., Minas Gerais and São Paulo).

A drastic decline in the merchant-moneylender system followed. In 1963, every miller I interviewed in Rio Grande do Sul, São Paulo, and the Minas Triangle claimed that he had greatly curtailed his loans to farmers. By 1970, I found none who engaged in this practice on a significant scale.<sup>28</sup> The alternative of bank financing must have increased the competitive position of many farmers.

*Other Developments*

Roads and bank credit were the most powerful shocks to the marketing system. There were others:

1. Chain stores, particularly in Rio de Janeiro, enjoyed continual expansion. Increasingly, the chains supplied themselves directly from the mills or brokers representing them (see 35, pp. 274, 297).

2. In São Paulo, the street fair ("feira") had become the principal retail source of rice by the early 1960s.<sup>29</sup> Feirantes who specialized in cereals often operated stalls in several locations simultaneously and bought in large enough lots to make worthwhile direct purchase from cerealistas or brokers representing the mills.<sup>30</sup>

3. Cooperatives took an ever larger share of production in Rio Grande do Sul, peaking at 50 percent of the crop in 1964 and 1965. By 1970, this share had been halved, an example of the power of the turnover tax to distort market channels.<sup>31</sup> This tax was due on each transaction and was collected at ever higher rates, reaching 6 percent in most states by the mid-1960s. But delivery of produce to cooperatives was exempt from the tax, whereas sales to the mills were not! A number of cooperatives were viable only with this exemption and closed down after a value-added tax replaced the turnover tax in 1967.

The true economic value of more direct market channels and verticle integration is clouded by the turnover tax. However, the fundamental trends persisted after the tax demise and seem to be rooted in real change. The decline in the central market transaction is permanent, while the chain store and supermarkets appear to be inevitable developments. The parallels with the trends in the United States are clear.<sup>32</sup>

<sup>27</sup> Data from Carteira de Crédito Agrícola e Industrial (CREAI), Serviço de Estatística da Produção (SEP), and 16.

<sup>28</sup> This information was corroborated by Bank of Brazil officials, warehouse officials, and other observers of the marketing scene.

<sup>29</sup> According to my interviews, later corroborated by a sample survey (see 14, pp. 152-54).

<sup>30</sup> Most millers, cerealistas, and brokers whom I interviewed in 1963 indicated a big switch in their selling away from wholesalers and to retailers both in Rio and São Paulo.

<sup>31</sup> Both figures according to the Federation of Rice Cooperatives of Rio Grande do Sul.

<sup>32</sup> On decentralization in the United States and its causes, see 26, pp. 150-52, and the works therein cited.

*Trends in Margins*

What was the impact of these structural changes upon marketing performance? The information we have points to significant declines in margins through wholesale.

Marketing costs (abstracting from processing) can be divided into two components: (a) instantaneous margins over space and through market channels and (b) changes in prices over time after the farm commodity has entered the distribution system. The first component is measured approximately by the difference between farm and wholesale prices during the harvest months; the second, by the rise between the harvest months and the beginning of the new crop.

*Trends in margins over space.*—We have reasonably accurate farm prices over the period only for Rio Grande do Sul and São Paulo. For those two states, I regressed the farm prices of rough rice on the wholesale prices of milled rice, both during the harvest months, and on a time trend. Assuming that the average quality of rice sold by farmers remained more or less constant, as it appears to have done, the trend will pick up changes in “instantaneous” margins.

The trend is significantly positive in both states (see Table 7). Its coefficient suggests that by 1968 farm prices were about 15 percent higher in both states than they would have been in 1952 for the mean wholesale price, 1952–68. In Rio Grande do Sul the constant is significant, so that the farmer’s share of the wholesale price net of the turnover tax is an appropriate measure of margins. It rose

TABLE 7.—REGRESSIONS TO DETERMINE TRENDS IN MARGINS\*

	Rio Grande do Sul	São Paulo
FACTORS		
Constant	.49	—50.15
Coefficient for		
Wholesale price	.52 (.05)	.56 (.04)
Trend	1.61 (.50)	2.22 (.80)
R <sup>2</sup>	.91	.92
RISE IN FARM PRICE DUE TO TREND (Percent of mean farm price)		
1949–68	...	16.7
1952–68	14.2	14.9

\* Equations are of the form:

$$FP_t = A_0 + A_1 P_t + A_2 YR \text{ where}$$

$FP_t$  = average farm price of 60 kilos rough rice

$P_t$  = wholesale price of 60 kilos milled rice

$YR$  = trend with 1952 = 1 for Rio Grande do Sul and with 1949 = 1 for São Paulo.

Wholesale prices are net of the turnover and value-added taxes paid on the wholesale transaction. All prices are deflated into 1953 Cr\$ by the *Conjuntura Econômica* price index No. 2. For Rio Grande do Sul, April–September wholesale prices on the Pôrto Alegre Commodity Exchange for 60 kilos of long, medium and short grain milled rice weighted by the proportion of each grain length in the state’s total production. For São Paulo April–September average wholesale price for 60 kilos of long grain (“agulha la”) milled rice.

Figures in parentheses are standard errors.

Prices for Rio Grande do Sul are from the Bôlsa de Mercadorias and the Instituto Rio Grandense do Arroz; wholesale prices for São Paulo are from Prefeitura de São Paulo; farm prices from Instituto de Economia Rural.

TABLE 8.—ROUGH RICE PRICE OF GOIÁS, AS A PERCENTAGE OF AVERAGE SÃO PAULO PRICE OF "AMARELÃO ESPECIAL," APRIL-SEPTEMBER, SPECIFIED PERIODS, 1950-68\*

Year	Percent	Year	Percent
1950-52	39.0	1960-63	56.1
1954-56	51.8	1964-66	55.7
1957-59	52.5	1967-68	61.0

\* Rough rice prices are divided by .7 to adjust for loss of weight in milling; wholesale prices are net of turnover tax and value-added tax on the wholesale transaction. Original data are from Instituto Brasileiro de Geografia e Estatística, Conselho Nacional de Estatística, *Anuário Estatístico do Brasil*, various issues, and direct from the Bólsa de Cereais, São Paulo.

from 52.3 percent in 1952-55 to 60.7 percent by 1964-68 (this does not take losses in milling into account).

Farm prices for Goiás are of more questionable accuracy, but their increase relative to prices in the São Paulo market is unmistakable (see Table 8). The sharp fall in apparent margins during the mid-1950s reflects the breaking of the transportation bottleneck and the end of the severe oligopsony in the Minas Triangle-Southern Goiás region.

Thus the evidence points to important declines in price differentials between farm regions and the central market cities serving them. Margins between central markets are also of some interest. For short and long grain rice<sup>33</sup> I regressed annual average prices in Pôrto Alegre on those of the same grade in São Paulo and a time trend.<sup>34</sup> The results are not quite conclusive (see Table 9). They suggest some decline in margins between the two cities, but in long grain rice the trend is not significant at the 5 percent level. With the short grain variety, Pôrto Alegre prices seem to have risen about 6 percent relative to the São Paulo market. The less dramatic reductions are not surprising, since marketing between the two cities was reasonably efficient in 1950. Such falls as occurred reflected lower effective transportation and transaction costs, but, of course, the truck had a more profound impact in the interior.

In the later years of Stage II, spatial margins between the principal farm centers and large urban markets were reasonably low, as is indicated by Table 10, typical of many others which could be presented (see also 7, pp. 192-206; 15; 21). Furthermore, if the United States can be taken as reasonably efficient in the marketing and milling of rice, the Brazilian system in the Center-South shows little evidence of gross inefficiency. International comparisons of margins must be qualified, because of different relative price and tax structures, milling technologies, and crop varieties. Nevertheless, Table 11 suggests that in the more developed regions of Brazil, farmers receive a larger proportion of wholesale prices in regional central market cities than their North American counterparts. Even a skeptical ob-

<sup>33</sup> Trading in Rio Grande do Sul's medium grain rice was too irregular in São Paulo to be included.

<sup>34</sup> Several years' observations had to be excluded because the markets were inactive much of the time.

TABLE 9.—REGRESSIONS OF WHOLESALE PRICES OF RICE: PÔRTO ALEGRE ON SÃO PAULO\*

	Short grain Japonês Especial 1952-69	Long grain Amarelão Especial 1956-68
Constant	-25.55	9.81
Coefficient for São Paulo price	.90 (.07)	.86 (.07)
Trend	1.21 <sup>a</sup> (.59)	1.29 (1.34)
R <sup>2</sup>	.93	.95

\* Equations are of the form:

$$PPA = A_0 + A_1 PSP + A_2 YR \text{ where}$$

PPA = wholesale price in Pôrto Alegre

PSP = wholesale price in São Paulo

YR = trend with 1952 = 1 for short grain and 1956 = 1 for long grain.

Prices are net of the turnover and value-added taxes in São Paulo but not in Pôrto Alegre; and are deflated into 1953 Cr\$ by the *Conjuntura Econômica*, Index No. 2.

Figures in parentheses are standard errors.

Prices for Pôrto Alegre are from the Bôlsa Mercadorias, for São Paulo from the Bôlsa de Cereais.

<sup>a</sup> The rise in the Pôrto Alegre price due to trend evaluated at the mean is 6 percent in 1932-68.

server would be hard pressed to argue that markets over space and vertically through wholesale were not behaving in a workably competitive fashion.

Summarizing, available evidence supports the hypothesis that the truck, the decline in the merchant-moneylender system, and the appearance of more direct marketing channels brought important reductions in marketing margins over space. Although it would be useful to decompose margin changes into their several components, the necessary data are unavailable for the earlier years.

*Margins over time or the return to storage.*—The rewards to the storage function did not fall during this period. If anything, the seasonal price indices rose slightly more in the late 1950s and 1960s than in the years immediately preceding them (see Tables 3, 5, and 12). An explanation in terms of marketing structure would be premature, although decentralization may have brought with it higher information costs and greater risk. The 1960s saw accelerating inflation (1959-64), painful stop-go stabilization programs (1963, 1964-67), and several inopportune interventions in the rice market. These external shocks probably dominated the scene.

In any case, the seasonal price rises are not large and usually yield an average real return to storage of less than 2 percent per month in the harvest period (note that the moving average removes the inflation trend). Judging by public warehouse rates, monthly storage costs during the 1960s were on the order of .5 percent of the value of milled rice at wholesale.<sup>35</sup> This would leave 1 to 1.5 percent per month for risk premium, storage losses, and interest on own working capital to the extent it was used.

#### STAGE III(?): 1968-, PRODUCT DIFFERENTIATION

Stage II brought reasonably competitive and efficient markets to the Center-South. But the traditional mill still sold an undifferentiated product in bulk form.

<sup>35</sup> Based on six months' storage in Companhia de Armazens Gerais do Estado de São Paulo (CAGESP), the General Warehousing Company of São Paulo, net of all handling expenses.

TABLE 10.—MARGINS IN LONG GRAIN RICE THROUGH WHOLESALE, ASSUMING 70 PERCENT YIELD IN MILLING, ANÁPOLIS, GOIÁS TO SÃO PAULO\*

Year <sup>a</sup>	Percentage of wholesale price			Ratio of farm price to wholesale price <sup>o</sup>
	Tax <sup>b</sup>	Truck freight	Other margin components	
1965	6	7	14	84
1966	6	6	12	86
1970	3	6	8	91.5

\* Based on prices of rough rice (yielding two whole grains for each broken) in Anápolis for 1965 and 1966 from the Instituto de Economia Rural, São Paulo, and for 1970 from millers in Goiás; and on milled rice (Amarelão Especial) in São Paulo from the Bólsa de Cereais. Truck costs for 1965 and 1966 are from Bólsa de Cereais. São Paulo *Boletim Informativo*, various issues; and for 1970 from millers in Anápolis.

<sup>a</sup> Months included are March–May 1965 and 1966, and June–July in 1970; the choice depended on availability of data.

<sup>b</sup> Turnover tax in 1965 and 1966; value-added tax in 1970.

<sup>o</sup> The ratio of the farm price to the wholesale price, net of tax and freight, has been divided by .70 to adjust for the loss of weight in milling.

Its profits were made mainly on turnover and speculation. Very little was invested in sales effort *per se* or in the quality of the product sold.

The proliferation in the late 1960s of supermarkets, creatures of a burgeoning middle-class living in ever larger urban conglomerations, made possible a new type of product: high quality, pre-packaged rice, marketed under heavily advertised brand names. Arroz Brejeiro, the pioneer in this field, brought a new outlook. It maintained minimal stocks, preferring to buy its raw material the year round, mainly from middle-man assemblers. Brejeiro concentrated on sales. It advertised heavily in the mass media and successfully differentiated its product with the urban middle class. By 1970, its sales had far surpassed the levels attained by the largest of the traditional mills of the past.<sup>86</sup> Although Brejeiro has many imitators, none has yet approached its sales volume.

The main attraction of brand names is their assurance of stable quality. But a significant price is paid. The largest firm collects an important rent on its brand name. For example, in July 1970 it was charging 10 to 14 percent more at wholesale than its principal competitors for essentially the same product.<sup>87</sup> More important, *all* the principal brands seemed overpriced. In July 1970, top-grade long grain rice sold in the São Paulo spot market at Cr \$50 to 51 per 60-kilo sack.<sup>88</sup> Packaging in 5-kilo paper bags added perhaps Cr \$3 to the cost of the same product.<sup>89</sup> Yet this same grade of rice was being sold in prepackaged form at Cr \$66 to 75 by the largest mills. Only the middle and upper-middle classes in the larger cities seemed disposed to pay this price for security. Several firms have introduced cheaper, lower quality brands; and some supermarkets are moving to poorer neighborhoods. But as long as the brand name costs much more than

<sup>86</sup> Estimates supplied by the manager of Brejeiro's warehouse put total volume in 1970 at about 1,300,000 sacks of 60 kilos of milled rice, more than double Arrozcirca Brasileira's biggest year.

<sup>87</sup> Prices supplied by Arroz Brejeiro and Arroz Delta.

<sup>88</sup> "Amarelão Extra," *Bólsa de Cereais*, São Paulo.

<sup>89</sup> Data from Agro-Beneficiadora, Goiânia, Goiás.



TABLE 11.—RATIO OF FARM ROUGH RICE PRICES TO WHOLESALE PRICES OF MILLED RICE: UNITED STATES AND BRAZIL\*

Date		Farm location	Wholesale, city	Ratio, percent
UNITED STATES				
August–October	} 1966–69	Texas	Houston <sup>a,b</sup>	} 52.5
August–June				
Season	} 1966–69	Louisiana	New Orleans <sup>a,b</sup>	} 51.5
Season				
BRAZIL				
April–September 1964–68		Rio Grande do Sul	Pôrto Alegre <sup>b,c</sup>	60.7
April–September 1960, 1961, 1963		São Paulo	São Paulo <sup>d</sup>	60.2
Harvest months, 1965, 1966, 1970 <sup>e</sup>		Anápolis Goiás	São Paulo	58.4

\* Data for United States: U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation* Mar. 1972; for Rio Grande do Sul: Instituto Rio Grandense do Arroz (IRGA), Bolsa de Mercadorias, Pôrto Alegre; for Goiás and São Paulo: Divisão de Economia Rural, São Paulo, and Bôlsa de Cereais, São Paulo.

<sup>a</sup> No. 2, U.S. grade.

<sup>b</sup> In calculating average wholesale prices, each grain length was weighted by its share in the State's total production.

<sup>c</sup> "Especial grade," net of tax on wholesale transaction.

<sup>d</sup> "Agulha Especial," net of tax on wholesale transaction.

<sup>e</sup> March–May 1965 and 1966, June–July 1970; farm 2–1; wholesale "Amarelão Especial," net of tax on wholesale transaction.

the product in bulk form, a dualism in rice marketing, corresponding to Brazil's income distribution, is likely to continue for some time.

The economies of scale in media advertising are considerable, and they should make possible permanently larger firms than had previously been possible. This trend should be facilitated by the impressive expansion and improvement in inter-urban telephone communications since 1967, which has eased the problem of coordination and control within the firm.

#### CONCLUSIONS

The performance of agricultural marketing is a function primarily of inputs supplied by other sectors, of transportation, credit, and communications facilities. Therefore, most of the marketing changes examined in this paper have derived from the almost inevitable order-of-magnitude improvements in these inputs which accompanied growth. This suggests a first generalization. (1) Marketing should, in the normal course of events, contribute positively to the development process. Growth should reduce marketing costs, which, in turn, should stimulate the food production necessary for further growth. The magnitude of these "automatic" cost reductions will vary from case to case, but with Brazilian rice they have been substantial.

A corollary, however, is that the large cost reductions will be concentrated in the earlier stages of growth, as the economy moves from a poor to reasonably adequate infrastructure and financial networks. In the Brazilian case, the "easy" phase was drawing to a close with the end of Stage II in the late 1960s. It would be surprising indeed if declines in marketing margins continued apace in the 1970s.

(2) Innovations originating within the marketing sector seem of little im-

TABLE 12.—LONG GRAIN RICE (AMARELÃO), SÃO PAULO CEREALS EXCHANGE,  
SPECIAL GRADE: QUARTERLY SEASONALS AROUND CENTERED MOVING  
AVERAGE, SPECIFIED PERIODS, 1946-68\*

Period	1946-52	1954-61	1964-68
March-May	99.5	98.9	94.6
June-August	96.4	94.8	96.7
September-November	99.8	100.8	104.6
December-February	104.3	105.5	104.1
Percentage increase March-August to September-February (six months)	7.4	6.6	9.2
Average monthly trough to peak in seasonal	13.0	12.9	14.1

\* Seasonal indexes were computed as for Table 3, with original data from the São Paulo Bólsa de Cereais.

portance during the earlier stages of development. Often these innovations short-circuit markets through vertical integration and direct contracts in order to assure sufficient quantities of quality products. Large retail chains and processors selling differentiated products, firms which can internalize the gains from product quality, have been leaders in this area. These firms become important, however, only with the higher living standards and urbanization of later growth stages, e.g., Brazil's Stage III. This suggests that marketing change centering around product quality and vertical integration will be increasingly important in the 1970s.

Finally, it seems that the private sector performs reasonably well in marketing, if the necessary infrastructure and financial inputs are available. Public policy should concentrate in these areas. Intervention in markets or direct government performance of marketing activities, e.g., state warehousing companies and marketing companies, is likely to be unnecessary at best, particularly given the scarcity of management talent in the public sector.

#### CITATIONS

- 1 Associação Comercial do Pôrto Alegre, *Boletim*, various issues.
- 2 Werner Baer, *Industrialization and Economic Development in Brazil* (Homewood, Ill., 1965).
- 3 Bólsa de Cereais, São Paulo, *Boletim Informativo*, various issues.
- 4 Brazil, Ministerio do Planejamento, Instituto de Pesquisas Economicas Aplicadas (IPEA), *Diagnóstico Preliminar de Comercialização* (Rio de Janeiro, 1966, mimeo.).
- 5 ———, Secretaria da Agricultura Commercio e Obras Publicas do Estado de São Paulo, *Boletim de Directoria de Industria e Commercio*, Sept. 1912.
- 6 Cheng Siok-Hwa, *The Rice Industry of Burma, 1852-1940* (Singapore, 1968).
- 7 Companhia Brasileira de Armazenamento (CIBRAZEM), *Pesquisa Básica Para Um Programa Global de Armazenagem Intermediária* (Rio de Janeiro, 1969).
- 8 *Conjuntura Economica* (Rio de Janeiro), July 1965.
- 9 *Ibid.*, Sept. 1971.
- 10 M. O. Farruk, *The Structure and Performance of the Rice Marketing System in East Pakistan* (Cornell Intl. Agr. Dev. Bull. No. 23, Ithaca, N.Y., 1972).
- 11 Carolos Fletschner, *Structural Patterns in the Marketing of Selected Agricultural Products in Chile: The Position of Small and Large Growers* (Land Tenure Center Res. Paper, No. 42, Madison, Wis., 1971).

- 12 Grupo Técnico de São Paulo, "Situação dos Cereais no Triângulo Mineiro Sul de Goiás" (unpub. report of the Conselho Nacional de Abastecimento July 1957).
- 13 Instituto Brasileiro de Geografia e Estatística, Conselho Nacional de Estatística, *Anuário Estatístico do Brasil, 1970* (Rio de Janeiro, 1971).
- 14 Instituto de Economia Agrícola, *Desenvolvimento da Agricultura Paulista* (São Paulo, 1972).
- 15 Instituto de Pesquisas Economicas Aplicadas, *Diagnóstico Preliminar de Comercialização* (Rio de Janeiro, 1966, mimeo.).
- 16 Instituto Rio Grandense do Arroz (IRGA), *Anuário Estatístico do Arroz* (Pôrto Alegre), various issues.
- 17 ———, *O Arroz no Mundo, O Arroz no Brasil, O Arroz no Rio Grande do Sul* (Pôrto Alegre, 1969).
- 18 Joint Brazil-United States Economic Development Commission, *The Development of Brazil* (Washington, 1953).
- 19 ———, "Warehousing and Other Factors Influencing Food Production in Certain Sections of the States of Minas Gerais and Goiás," in *Brazilian Technical Studies* (Washington, 1955).
- 20 W. O. Jones, "Measuring the Effectiveness of Agricultural Marketing in Contributing to Economic Development: Some African Examples," *Food Res. Inst. Studies*, IX, 3, 1970.
- 21 P. de C. Junqueira, E. R. de Lins, and A. A. Amaro, "Comercialização de Produtos Agrícolas no Estado de São Paulo," *Agricultura em São Paulo*, Jan./Feb. 1968.
- 22 Klein and Saks, *O Problema de Alimentação no Brasil* (Brazil, Comissão de Desenvolvimento Industrial, Rio de Janeiro, 1954).
- 23 Uma J. Lele, *Food Grain Marketing in India: Private Performance and Public Policy* (Ithaca, N.Y., 1971).
- 24 P. O. Leurquin, "Rice in Colombia: A Case Study of Agricultural Development," *Food Res. Inst. Studies*, VII, 2, 1967.
- 25 P. I. Mandell, "The Rise of the Modern Brazilian Rice Industry: Demand Expansion in a Dynamic Economy," *Food Res. Inst. Studies*, X, 2, 1971.
- 26 J. R. Moore, "The Causes and Consequences of Major Changes in the Organization of Agricultural Marketing," *Amer. J. Agr. Econ.*, Aug. 1966.
- 27 *Observador Economico e Financeiro* (Rio de Janeiro), Mar. 1940.
- 28 Alvaro Ornellas de Souza, *Alguns Aspectos da Economia Arrozeira no Rio Grande do Sul* (Pôrto Alegre, 1959).
- 29 Fortunato Pimental, *Aspectos Gerais da Cultura do Arroz no Rio Grande do Sul* (Pôrto Alegre, 1949).
- 30 Geoffrey Shepherd, *Marketing Farm Products*, 3rd ed. (Ames, Ia., 1961).
- 31 Sindicato Arrozeira do Rio Grande do Sul, *A Cultura do Arroz no Rio Grande do Sul* (Pôrto Alegre, 1935).
- 32 Charles Slater, Harold Riley, et al., *Marketing Processes in the Recife Area of Northeast Brazil* (East Lansing, Mich., 1969).
- 33 G. W. Smith, "Brazilian Agricultural Policy: 1950-1967," in *The Economy of Brazil*, ed. by H. S. Ellis (Berkeley, Calif., 1969).
- 34 ———, "Marketing and Economic Development: A Brazilian Case Study" (unpub. Ph.D. diss., Harvard Univ., 1965).
- 35 Meyer Stilman, *O Commercio Varejista e Os Supermercados na Cidade de São Paulo*, II (São Paulo, 1962).
- 36 Getúlio Vargas Foundation, *Projections of Supply and Demand for Agricultural Products of Brazil* (Rio de Janeiro, 1967).

## APPENDIX

## MERCHANTS AND OTHERS INTERVIEWED ON RICE MARKETING

Firm	Type	Person(s) interviewed	Date
<i>Pôrto Alegre</i>			
Arrozeira Brasileira	Mill	Fernando and Hugo Kessler* (former directors)	6/70
Mercantilarroz	Mill	Arthur Schaeffer* Ataliba Wolf* (Partners)	8/63, 6/70
—	Broker	Walter Schmidt*	8/63
Wolff-Kappel	Mill	Nelson Kappel*	8/63
Floresta, S.A.	Cerealista	Sr. Callefi* (Head)	6/70
Glitz, S.A.	Cerealista	Rudy Glitz (Head)	8/63
Jose Berta, S.A.	Mill	Álvaro Coelho Borges (Head)	8/63
Instituto Rio Grandense do Arroz (IRGA)	Public "Autarky"	Ary Herzog (Diretor Comercial) and others	8/63, 6/70
FEARROZ	Rice Coop. Federation	Homero Pegas Guimarães (Diretor Presidente)	8/63, 6/70
—	Author of book on rice in RGS†	Ary Burger	8/63
<i>São Paulo</i>			
—	Retired cerealista	Fortunato di Lorenzo*	11/62
—	Broker	Pedro Labate* Several times, 1963, 1967, 1970	
Labate e Sciatigno	Cerealista-mill	Jose Sciatigno* (Partner)	10/63
Noroara, S.A.	Cerealista	Pascal Labate* (Head)	9/63
Irmãos Cury	Mill	Cedinho Cury (Head)	5/63, 9/63
Cia Triângulo de representações	Broker	Celso Ferreira (Head)	9/63, 7/70
—	Broker	José Alves	9/63
Brasisul	Broker	Vitor Facciola (Head)	10/62
—	Cerealista	Júlio Tucci Several times 1962, 1963, 1966, 1967, 1970	
Ogassawara e Cia	Cerealista	Sr. Ogassawara (Head)	7/63, 6/70
Marziona e Irmão	Cerealista	The two Marziona partners	9/63
—	Cerealista	Massao Matida	7/63, 6/70
Tocantins Representações	Broker	Head	9/63
Representações Aragon	Broker	Head	9/63
Arroz Brejeiro	Mill-packager	Head of São Paulo sales office	7/70

\* In trade as early as 1930.

† Rio Grande do Sul.

## APPENDIX (Continued)

Firm	Type	Person(s) interviewed	Date
Arroz Delta	Mill-packager	Ibrahim Hajjar (President)	6/70
Cooperativa Cotia	Brazil's largest coop.	Fábia Iasuda (Director)	4/63
—	President, Sindicato do Comercio Varejista	Wanderley Bocchi	10/63
Supermercados Peg-Pag	Supermarket chain	Phillippe Allain (Director)	5/63, 7/70
<i>Triangle Zone of Minas Gerais</i>			
Vasconcellos e Cia	Mill	Sr. Vasconcellos	All inter- views, 10/63
Produtos Vitoria	Mill	Messias Pedreiro* (Head)	
Benedito Nazário	Mill	Same	
Jayme Tanus e Cia	Mill	Same	
Velasco e Cia	Cerealista	Head	
Braz e Cia	Cerealista	Head	
<i>Goiás</i>			
			All inter- views, 7/70
Produtos Vitoria	Mill	David Messias Pedreiro (Manager, Partner)	
Agro-Beneficiadora Cereais Ltda.	Mill	Mak Soud (Head)	
Name Abrão Cia Ltda.	Mill	Same (Head)	
<i>Anápolis</i>			
Arroz Delta	Mill-packager	Janna Hajjar (Partner)	
Arroz Brejeiro	Mill-packager	Sr. Cividanes (Manager)	
Combrasil	Mill-packager	Sr. Euripides (Head)	

Many banks and warehousemen were interviewed in each area.

An additional 25 firms were interviewed in São Paulo, Paraná, and the Minas Triangle concerning dry-beans marketing. Much of the information obtained in these is also applicable to rice.