

THE BEHAVIOUR OF PRICES OF GROUNDNUT PODS  
IN  
SOME REGULATED MARKETS IN MAHARASHTRA

A. P. KULKARNI

**THE BEHAVIOUR OF PRICES OF GROUNDNUT PODS  
IN  
SOME REGULATED MARKETS IN MAHARASHTRA**

**Arun Prabhakar Kulkarni**

**A Thesis  
Submitted to the University of Poona  
for the Degree of  
Doctor of Philosophy  
1962**

## ACKNOWLEDGEMENTS

The present study was conducted under the guidance of Prof. D. R. Gadgil, Director, Gokhale Institute of Politics and Economics, Poona. I take this opportunity of recording my deep sense of gratitude to him for going through many drafts patiently and making valuable suggestions. To work under him was, indeed, a privilege and everything good in this thesis is due to his exacting standard and critical comments.

It was because of a research fellowship awarded by the Institute that this study could be completed in such a short time. With the fellowship came all the advantages: good library facilities, computing machines, ideal atmosphere and opportunities of discussing with many scholars. For all these I am indebted to the authorities and the staff of the Institute. In particular, I am grateful to Prof. P. N. Mathur and Dr. (Mrs.) Vatsala Mukherji for guiding me in the statistical part of the thesis.

The task of collecting data involved visiting various Market Committees and meeting many people. I am thankful to the staff of the offices of the Chief Marketing Officer, Poona, Marketing Research Officer, Bombay and the Bombay Oilseeds and Oils Exchange, Bombay. Thanks are also due to the staff of the Market Committees visited and to the local oilmillers, traders and other people for not only bearing with me but also showing keen interest in this project.

I am also thankful to Shri N.G. Phadke who typed the thesis and to Shri Sudame and Shri Sevekari who helped me in drawing the charts.

Gokhale Institute of  
Politics and Economics  
Poona 4

12th November, 1962.

A. P. Kulkarni

## CONTENTS

	Pages
<b>ACKNOWLEDGEMENTS</b>	
<b>LIST OF TABLES.</b>	
<b>LIST OF CHARTS.</b>	
<b>ABBREVIATIONS.</b>	
<b>I</b>	<b>INTRODUCTION ... .. 1 - 22</b>
	1. Statement of the Problem .. 1
	2. Review of the Research in Agricultural Prices ... 4
	3. The Present Thesis and its objectives ... 8
	4. Regulated Markets in Maha- rashtra ... 10
	5. Selection of the commodity, the Markets, and the Period of Analysis ... 11
	6. Scope and contents of the Thesis ... 13
	7. Sources of Data ... 18
	8. Statistical Methods Used 20
<b>II</b>	<b>GROUNDNUT - ITS IMPORTANCE, CULTIVATION, UTILIZATION AND TRADE IN INDIA ... 23 - 36</b>
	1. Cultivation ... 23
	2. Utilization ... 27
	3. Exports ... 30
<b>III</b>	<b>THE MOVEMENT OF PRICES OF GROUNDNUT IN BOMBAY ... .. 37 - 57</b>
	1. Factors Governing Prices in India. ... 37
	2. Review of Prices in Bombay During September 1949 - August 1959. ... 42
<b>IV</b>	<b>MARKETING OF GROUNDNUT IN THE REGULATED MARKETS : I 58 - 83</b>
	1. Nature and Limitations of the Data ... 58

	2. Importance of Groundnut in the Three Markets ...	64	
	3. Yearly Marketing in the Regulated Markets ...	68	
	4. Seasonality in Marketing..	79	
V	MARKETING OF GROUNDNUT IN THE REGULATED MARKETS : II ...		84 - 117
	1. General Marketing Tendencies	86	
	2. Quantities Marketed and Marketing Tendencies ...	101	
	3. Prices and Marketing Tendencies ...	111	
VI	DEMAND FOR GROUNDNUT IN THE REGULATED MARKETS ...		118 - 163
	1. Demand By Oilmills ...	120	
	2. Demand by Traders ...	132	
	3. The 'Parity' Prices and the Extent of Competition Among the Buyers ...	135	
	4. Behaviour of Oilmillers and Traders in the Dhulia Market ...	151	
VII	PRICE DETERMINATION : I ...		164 - 202
	1. Methods of sale and Market Practices ...	164	
	2. Factors Determining Local Prices ...	168	
	3. Nature of Price Data ...	171	
	4. Summary : A Model for Further Analysis ...	182	
VIII	PRICE DETERMINATION : II ...		203 - 249
	1. Annual Prices ...	203	
	2. Weekly Maximum Prices ...	210	
	3. Weekly Average and Minimum Prices ...	230	
IX	SUMMARY AND CONCLUSIONS ...		250 - 257
	SELECT BIBLIOGRAPHY ...		258 - 262

LIST OF TABLES

Table No.		Page
2.1	Area Under and Production of Groundnut in Different States During 1957-58.	24
2.2	Varieties of Groundnut Grown in India	26
2.3	Utilisation of Groundnut (Nuts in Shell) in India.	28
2.4	Utilisation of Groundnut Oil in India During 1955-56 and 1957-58.	31
2.5	Net Exports of Groundnuts and Groundnut Oil from Principal Primary Producing Countries During 1949 and 1958.	32
2.6	Composition of Groundnut Exports from India During 1949-50 and 1958-59.	35
4.1	Yearly Arrivals and Sales of Groundnut Pods in the Karad Market.	63
4.2	Amount of Cess Received by the Market Committees on Different Commodities During 1958-59.	65
4.3	Quantities of Groundnut Sold in the Three Regulated Markets.	66
4.4	Acreage Under and Estimated Production of Groundnut in the Three Talukas and Quantities Marketed in the Three Regulated Markets	74-76
4.5	Average Per Cent Marketing in Different Months in the Three Regulated Markets During Sept. 1949 and Aug. 1959.	80
5.1	Timing of Marketing in the Three Markets	89
5.2	Duration of Different Marketing Periods in the Three Markets.	90

(v)

Table No.		Page
5.3	Quantities Marketed During Different Marketing Periods.	102
5.4	Per Cent Quantities Marketed During Different Periods.	103
5.5.	Rate of Marketing Per Week During Different Periods.	104
5.6	Per Cent Rate of Marketing Per Week During Different Periods.	105
5.7	Prices and Price Prospects During October-December of Every Year.	112
6.1	Quantity of Groundnut Crushed by the Oilmills Situated at Barsi, Dhulia and Karad During 1956-57 - 1958-59.	121
6.2	Quantity of Groundnut Pods Purchased by the Oilmills Situated at Dhulia during 1949-50 and 1958-59.	122
6.3	Number of Oilmills at Barsi, Dhulia and Karad and Their Annual Potential and Used-up Capacity During 1956-57 - 1958-59	126
6.4	Imports of Groundnut (in terms of Pods) Made by the Oilmills in Dhulia During 1952-53 and 1958-59.	129
6.5	Seasonality in Production of Oil and Seasonality in Sales of Pods at the Three Centres.	130
6.6	Monthly Exports of Groundnut Kernels From Karad by Railway During 1957-58 and 1958-59.	134
6.7	Cost of Crushing 100 maunds of Groundnut Pods at the Three Centres During 1958-59.	136
6.8	Cost of Decortication of 100 maunds of Groundnut Pods at the Three Centres During 1958-59.	137

Table No.		Page
6.9	Transport Costs for Sending 72 maunds of Kernels from Local Markets to Bombay During 1958-59.	138
6.10	Particulars of the Cost of Storing 100 maunds of Groundnut Pods at the Three Centres During 1958-59.	139
6.11	Values of the Constant Terms in the Equations of the Parity Prices during 1958-59.	145
6.12	Calculation of the Oilmiller's and the Trader's Parity Prices in the Local Markets During 1958-59.	146
6.13	The Oilmiller's Revised Parity Prices in the Local Markets During 1958-59.	150
6.14	Average Per Cent Share of Oilmills and Traders in the Monthly Sales in <u>Dhulia</u> During 1955-56 - 1958-59.	154
6.15	Per Cent share of Oilmills in the Annual Sales of Groundnut Pods in <u>Dhulia</u> during 1949-50 and 1958-59.	156
6.16	Seasonality in Purchases Made by Different Oilmills in <u>Dhulia</u> .	159
7.1	Annual Prices Prevailing in the Three Regulated Markets.	174
7.2	Seasonal Indices of Maximum Prices Prevailing at Barsi, Dhulia, Karad and Bombay.	175
7.3	Seasonality in the Differences Between Maximum and Minimum Prices.	176
7.4	Seasonality in the Differences Between Maximum and Average Prices.	177
7.5	Expected Values of $b_{12}$ for Different Values of Kernel Content in Pods.	185

(vii)

Table No.		Page
7.6	Annual Prices of Bold and Khandesh Quality Kernels in Bombay.	187
8.1	Regression Coefficients of the Equation I	205
8.2	Regression Coefficients of the Equation II	206
8.3	Yield Per Acre in the Three Districts.	209
8.4	Relative Variation in Local Maximum Prices During the Deferred Marketing Periods.	212
8.5	Regression Coefficients of the Equation III	215
8.5A	Estimated Maximum Prices in Local Markets During D.M.P. Assuming Terminal Price at Rs. 35 per cwt.	220
8.6	Average Departures of the Estimated Prices from the Maximum Prices in Different Periods.	223
8.7	Average Max-av. and Max-min. Differences During the Deferred Marketing Periods.	232
8.8	Average Max-av. and Max-min. Differences During the R.M.P.	235
8.9	Departures of the Estimated Average Prices From the Observed Ones in Early Marketing Periods and Rapid Marketing Periods.	237-239

## LIST OF CHARTS

Chart No.		Page
1	Production and Prices of Groundnut in India and Prices of Groundnut Oil in India and U.K. During 1928-29 and 1948-49.	39
2	Yearly Production and Prices of Groundnut in India and Prices of Groundnut Oil in India and U.K. During 1949-50 and 1958-59.	40
3	Month-end Prices of Groundnut and Groundnut Oil in Bombay and U.K. During 1949 and 1959	43
4	Average Per Cent Marketing in Different Months in the Three Regulated Markets	81
5	Start of Rapid Marketing in Different Years	91
6	Relationship Between Yearly Marketing and Start of Rapid Marketing.	93
7	Relationship Between Start of Rapid Marketing and 25 Per cent Points.	95
8	Relationship Between 25 Per Cent and 50 Per Cent Points.	96
9	Relationship Between 50 Per Cent and 75 Per Cent Points.	98
10	Relationship Between Start of Rapid Marketing and End of Rapid Marketing.	100
11	Relationship Between Yearly Marketing and Per Cent Marketed in the R.M.P.	107
12	Relationship Between Yearly Marketing and Length of the R.M.P.	108
13	Relationship Between Yearly Marketing and Weekly Rates of Marketing in Different Periods.	109
14	Prices and Per Cent Marketing in the R.M.P.	115
15	Per Cent Share of Oilmills in the Total Marketed Produce in Dhulia and Annual Prices in Bombay.	152

(ix)

Chart No.		Page
16	Per Cent Share of the 'Big' Mills in the Average Monthly Purchases of All Oilmills.	160
17	Per Cent Share of the 'Medium' and 'Small' Mills in the Average Monthly Purchases of All Oilmills.	160
18	Annual Prices Prevailing at Bombay, Barsi, Dhulia and Karad.	178-180
19	Weekly Prices in Bombay and Weekly Local Maximum Prices and Max-min. and Max-av. Differences.	193-202
20	Relationship Between the Values of $\alpha$ and $B_{12}$ in the Equation $X_1^W = \alpha + \beta_{12} X_2^W$ .	217
21	Departures of the Estimated Maximum and Average Prices from the Actual Prices.	224-226

.....

LIST OF MAPS

Map No.		Page
1	Maharashtra State ...	14
2	Sholapur District ...	69
3	Dhulia District ...	70
4	Satara District ...	71

...

## ABBREVIATIONS

Av. Price	:	Average Price
Cwt.	:	Hundredweight.
E.M.P.	:	Early Marketing Period.
D.M.P.	:	Deferred Marketing Period.
KQ variety	:	Khandesh Quality variety.
Max. Price	:	Maximum Price.
Max-av. Difference	:	Difference between Maximum Price and Average price.
Max-min. Difference	:	Difference between Maximum Price and Minimum price.
M.C.price	:	Most Common price.
Md.	:	Maund.
Min. price	:	Minimum price.
R.M.P.	:	Rapid Marketing Period.
PMGI	:	Report on Marketing of Groundnut in India.

.....

## Chapter I

### INTRODUCTION

#### 1. Statement of the Problem

A market may be defined as "a sphere within which price-making forces operate and transfers of ownership are consummated."<sup>1</sup> This definition does not assign any territorial limit or physical characteristic to the market which covers the entire sphere in which "numerous services such as grading, processing, packaging, transporting, storing and financing are performed in addition to the most commonly recognised activities of buying and selling."<sup>2</sup> In short, it covers all the services performed in the flow of marketing which starts at a point where farmer sells his produce and ends at a point where the ultimate consumer purchases it for his own consumption needs. In this flow of marketing, there are several transfers of title and at each point where such transfers occur, prices are established. These points are also called 'markets', but a 'market', in this sense, denotes a place where buyers and sellers come together and transfers of ownership are effected. Thus,

---

<sup>1</sup> Waite W.C. and Trelogan H.C., Agricultural Market Prices, John Wiley & Sons, Inc., New York, 1951, p. 128.

<sup>2</sup> Ibid., p. 128.

for any agricultural commodity, there are village markets where the produce is sold by farmers, secondary markets where it is assembled, terminal markets where it enters the consumer distribution channels, and finally, the retail markets where it is sold to the ultimate consumers. "These markets, then represent stages or subdivisions in the entire market for given commodities. The relationship between prices existing at these stages depends largely upon the services performed at each stage plus the time and distance involved as the commodity moves from one stage to another. Hence, the points at which processing, storage, grading and packaging takes place have a definite bearing upon prices and price margins existing from one point to another in the movement of products from farmers to consumers."<sup>3</sup>

Among all these points, the most significant price-making point in a particular commodity market is the terminal market. The produce is assembled here in larger volumes than at any other point. The demand and supply forces operating here are also more representative of the entire market. The terminal point affords continuous trading and the latest information about supply and demand is readily available here. The prices prevailing at the terminal point are, therefore, used for ready

---

<sup>3</sup>Waite, W.C. and Trelogan, H.C., op.cit., p. 135.

comparison with those established at other points, and, as such, they exert a direct influence upon the prices established at other points. In a 'perfect' market, the prices prevailing at different stages move in a closely-knit pattern and the differences between them, at any time, can always be explained in terms of the differences in the transport, handling and processing costs and quality considerations.

In actual practice, however, a perfect market is never realised and the 'price spreads' between two points very frequently indicate, in addition to the above-mentioned factors, local demand and supply conditions peculiar to each of the markets considered. The influence of this additional factor determines the extent of imperfection in the market. This imperfection may be of a short-time duration if it arises out of accidental phenomena like transport bottlenecks, and weather conditions, on which those who determine prices have no direct or immediate control. But if the imperfectness is present in the organisational structure which manifests itself in the weak bargaining position of sellers, presence of malpractices in the markets, absence of perfect competition among purchasers and lack of adequate transport or banking facilities, the influence of the 'local supply and demand conditions' is relatively of a longer duration.

The present study concerns itself with the prices prevailing at two stages in a commodity flow. One is the "assembling" stage, where the producers even from distant parts bring their produce; the other is the 'terminal' stage where the purchasers in the 'assembling' centres sell their produce after necessary processing. At the former stage, the dealings are between farmers and traders while at the latter stage, they are between traders and traders. It is our intention to study the differences, if any, in prices prevailing at these stages. Before we discuss the objectives in detail, however, it would be worthwhile to review the research conducted so far in the sphere of agricultural prices.

## 2. Review of the Research in Agricultural Prices

As was to be expected, the initial research in agricultural prices concentrated chiefly on the prices prevailing in the main central or terminal markets and attempts were made to understand the behaviour of prices of various commodities in relation to the changes in the supply and demand factors peculiar to them. As more and more detailed statistics became available, some attention was also given, particularly in the United States, to the comparative study of prices prevailing in different markets and the 'spreads' between them. Side by side with these attempts, statistical techniques were

also refined and the identification and measurement of supply and demand forces which were primarily general and primarily local became possible. To illustrate the development of research on the regional variations in prices, a large volume of literature on the examination of prices of hogs, potatoes and wheat in different markets in America can be cited.<sup>4</sup>

To some extent, these intermarket price comparisons were horizontal rather than vertical. The markets analysed were of the same nature, centrally situated and though, in the case of hogs and potatoes, the transactions at these places were between producers and traders, they were well organized and akin to the terminal markets. The vertical price-comparison, i.e. comparison between the prices paid to the producers and the prices prevailing in the terminal market was not much attempted.

The problems tackled in India also were limited to the behaviour of prices of different commodities in the terminal markets and the factors influencing them.<sup>5</sup>

<sup>4</sup>(a) North Central Livestock Marketing Research Committee, Price Differentials for Slaughter Hogs, Agricultural Experiment Station, Iowa State College, Ames, Iowa, Bulletin P93, August, 1948.

(b) Phillips, C.D., Price Differentials for Slaughter Hogs, 1937-41 at Markets Where Kentucky Hogs Are Sold, Kentucky Agricultural Experiment Station, University of Kentucky, Lexington, Bulletin 520, June 1948.

(c) Working Holbrook, "Price effects of Canadian Wheat Marketing", Wheat Studies of the Food Research Institute, Vol. XIV, No. 2, Oct. 1937.

Continued on next page.

Though some stray attempts were made to analyse regional price differences, <sup>6</sup> by and large, they were of a descriptive nature; and the vertical comparisons of prices were concerned with the functions and shares of different middlemen operating at various points. Of course, the need to examine the prices received by farmers in relation to those prevailing in the terminal markets was felt from the beginning, but the scarcity of price data in the local markets prevented any such attempt. Thus, for example, when Shri Pande examined, <sup>7</sup> in 1938, the prices of cereals in the United Provinces, he selected some major 'principal' markets for which price-data were available and examined various factors determining the prices. Since the information regarding the prices pre-

(d) Working Holbrook, "Factors Influencing Price Differentials Between Potato Markets". Journal of Farm Economics, 1925, p. 377.

<sup>5</sup>(a) Thomas P.J. and Sastry N.S., Commodity Prices in South India : 1918-1938, University of Madras, 1940.

(b) Decline of Agricultural Prices in U.P. & Punjab. A study of its Causes and Effects in Hapur, Chandausi and Moga during May-June 1955. Agricultural Economics Research Section, The Delhi School of Economics, Delhi 8, 1956.

(c) Mahendru, I.D., Some Factors Affecting the Price of Wheat in the Punjab, Board of Economic Inquiry, Punjab, 1937.

<sup>6</sup>(a) Pande J.K., Prices of Cereals in the United Provinces. How They Are Determined at Various Stages, Bureau of Statistics & Economics Research, U.P., Allahabad, 1938.

(b) Munshi M.C., From the Farmer to the Consumer. A Study of Price Spreads, Research Department of the Federation of Indian Chamber of Commerce and Industry, New Delhi, 1945.

Continued on next page.

-vailing in the secondary and village markets was not available, he had to leave the study after determining the middlemen's margin for transporting the produce from these markets to the 'principal' ones.

There was, of course, another reason besides non-availability of data, why the vertical comparison of prices lagged behind. It was a well-known fact that the producers suffered from a weak bargaining power and were subjected to various malpractices. More attention was given to these problems of producers and to the improvement in the agricultural marketing as such than to the study of actual prices received by the farmers because it was rightly felt that any improvement in the latter was not possible as long as the defects in the marketing organisation were not removed. The vast literature on the marketing of different commodities and appointments of various commissions by the Government to examine these problems would indicate the seriousness with which this aspect of the study was tackled. As a result of these investigations, various legislative measures were used by the central and state Governments for improving the marketing system and the establishment of regulated markets was the culmination of these attempts.

---

(c) Parthasarathy G., "Price of Rice During the Second Five-Year Plan Period at Selected Market Centres in the Southern Zone." Artha Vijnana. Vol. 3, No. 2, June 1961.

<sup>7</sup>Pande J.K., op.cit.

Mention must, however, be made of a study conducted by Shri Dantwala.<sup>8</sup> It dealt with the marketing of raw cotton in India, in which, in addition to examining the marketing methods and practices, he tried to calculate, after assuming a fixed ginning percentage in all the raw cotton, the "parity price" for Dhulia cotton in Bombay. He concluded after examining these prices, that the prices of cotton in the Dhulia market were higher as compared to the Bombay prices. His analysis, however, suffered from certain shortcomings. In the words of Dr. Rath,<sup>9</sup> "the size and composition of the trader group in the primary markets could.... have been looked into more thoroughly to examine the possibility of competition and collusion amongst them. The price differential between the various primary markets and terminal market could have been analysed to find indication of the state of transportation, cess, market information and speculative action as well as monopolistic tendencies on the part of the traders."

### 3. The Present Thesis and Its Objectives

With the elimination of many of the malpractices of

---

<sup>8</sup>Dantwala M.L., Marketing of Raw Cotton in India, Longmans, Green & Co., Ltd., Bombay, 1937.

<sup>9</sup>Rath Nilakantha, A Critical Review of Research in Agricultural Economics in India; unpublished Doctoral Dissertation, University of Poona, 1960, p. 513.

the traders, with a general awakening of the farmers towards marketing problems, with the firm establishment of the regulated markets in the Maharashtra State together with a large quantity of data available with them, the present time seems to be ripe to pick up these lost threads and study the market organisation from the price-end. In what follows, an attempt is made in this direction, by taking prices prevailing in the regulated markets as a pivot of analysis of the agricultural marketing and studying various factors, local as well as outside, which influence them. More specifically, the present study is attempted with the following objectives in view :

- (i) To measure the seasonal and regional variations in the prices of a commodity prevailing in the main regulated markets.
- (ii) To examine the relationship of these prices with the terminal prices, to account for the price spreads between the regulated markets and the terminal markets and to measure the share of middlemen.
- (iii) To investigate the factors affecting local supply and demand and measure their influence quantitatively, to determine the relative importance of these factors in the process of price formation.

#### 4. Regulated Markets in Maharashtra

Before we proceed further, a word must be said about the regulated markets in Maharashtra whose origin dates back to 1927 when the Government of Bombay enacted the Bombay Cotton Market Act, under which, by 1939, seven cotton markets were regulated. In 1939, Government decided to extend the application of this Act to other commodities and passed the Bombay Agricultural Produce Markets Act of 1939 under which the present markets are regulated. These markets are supervised by the Market Committees which are composed of the representatives of the farmers, traders, government, and local bodies. They are authorised to collect cess from the sellers for the sales of the regulated commodities, effected in the 'market area', which is the jurisdiction of the Market Committee. They are to lay down the rules for governing trading practices, to fix various market charges and to provide facilities for better marketing. In essence, they represent an attempt on the part of the Government "to establish orderly marketing by standardising the market practices and eradicating the age-old malpractices with a view to create confidence between the seller (producer) on the one hand and the buyer (merchant) on the other so as to give every one a fair deal."

---

<sup>10</sup> Summary Report of the Marketing of Groundnut in the Bombay State, 1951, Office of the Marketing Research Officer, B.S., Bombay, 1954.

It must be stressed, however, that the Market Committees do not directly intervene the price mechanism either by 'fixing' prices or by making purchases or sales. Rather, by regulating the activities of the traders, by disseminating price and other information to both sellers as well as buyers, by introducing the 'open auction' method of sale and by supervising all the dealings, they create conditions in which the real price-determining forces are free to operate. The term 'regulated', therefore, refers not to the prices but to the marketing practices. As far as actual price mechanism is concerned, the markets selected for this study are entirely free from the state regulation.

5. Selection of the commodity, the markets and the Period of Analysis

Considering the magnitude of the problem and the heavy work of calculation it involves, it was decided to select only one commodity and three regulated markets for the study. Two considerations weighed heavily while selecting the commodity. Firstly it was thought that the data for the commodity should be available for at least ten years so that the behaviour of prices in different phases of the business cycle could be observed. Secondly, it had to be seen that, as far as possible, the markets regulating that commodity were spread all over the Maharashtra State to enable regional comparisons

to be made. Any of the foodgrains, therefore, could not serve as a required commodity as they were introduced in the regulated market after 1953 when controls were lifted. Only two commodities - groundnut and cotton - satisfied the first requirement; and out of these two, only groundnut fulfilled the second one, cotton being mostly concentrated in the northern Maharashtra. The fact that the prices of groundnut during the ten-year period between September 1949 and August 1959 exhibited a typical cyclical movement also favoured the selection of groundnut.

Groundnut is produced in the Maharashtra State (excluding the districts of Marathwada and Vidarbha) in the Khandesh (Dhulia and Jalgaon), Sholapur, Satara (Sangli and Satara) and Kolhapur regions. Three markets were selected from each of the first three regions after considering the nature of data available with them and the importance of the markets. These three markets are: Barsi (Sholapur district), Dhulia (West Khandesh or Dhulia District), and Karad (Satara district).<sup>✓</sup> Their location in the Maharashtra State is shown in the accompanying map. All the three markets are large assembling centres where producers bring their produce and are well connected by rail and road with Bombay - the terminal market of the State.

The period of analysis, as mentioned earlier, is

of ten years between September 1949 and August 1959. The marketing year is between September and August.

#### 6. Scope and Contents of the Thesis

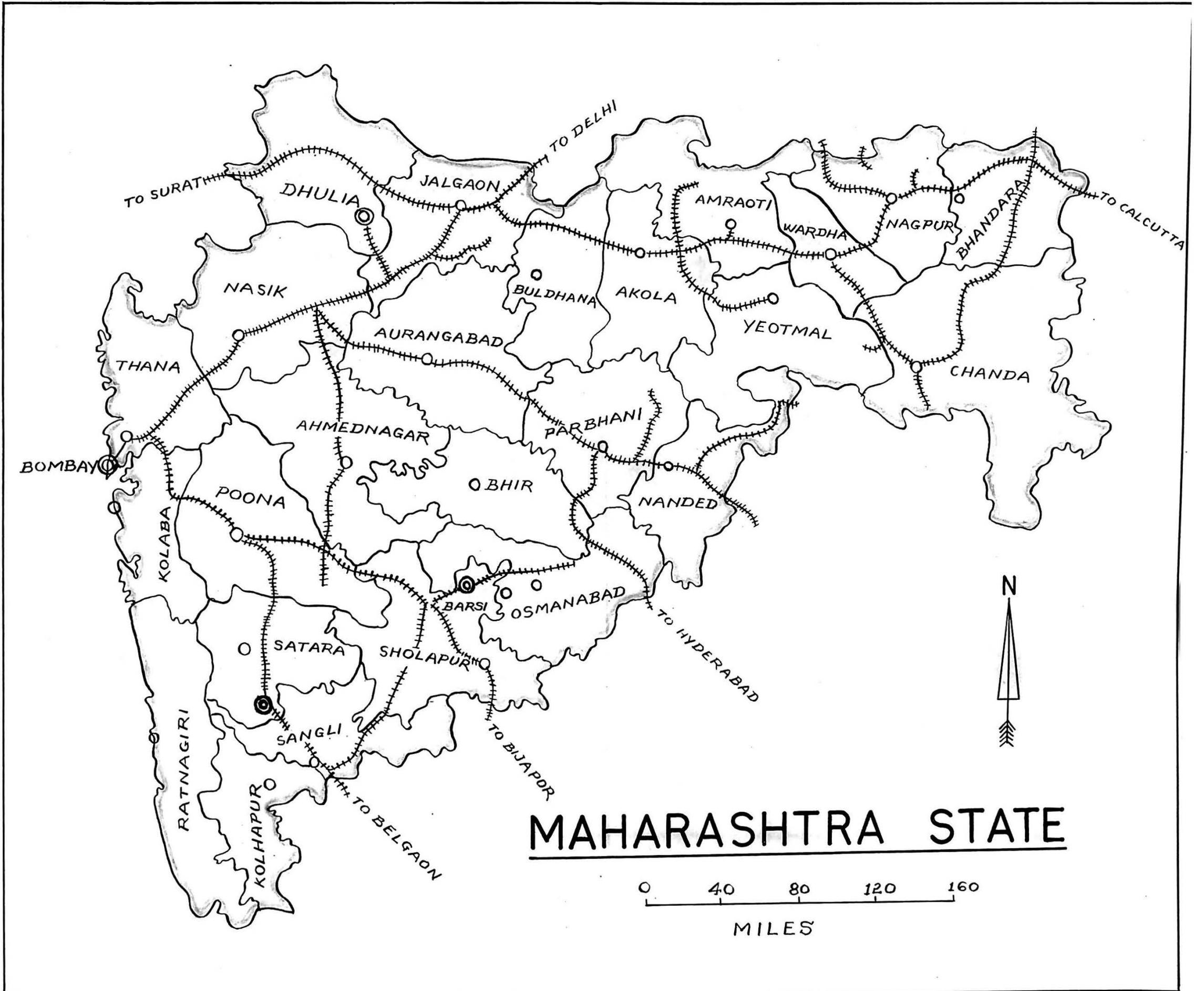
As has been said earlier, the primary purpose of this study is to examine the price mechanism of groundnut in the regulated markets and to analyse the relative importance of various factors determining prices received by farmers. By doing so, it is hoped that the relevant statistical tools can be found out which will be helpful for studying the price-behaviour of other commodities as well. This study is also aimed at finding out in what way the data collected by the regulated markets can be usefully employed and to what extent they can be improved.

It is obvious that the principal factor determining prices in the regulated markets is the terminal price. Since the terminal price sums up all the internal as well as international influences operating in the entire market, it is assumed, at the outset, that by taking 'the terminal price' as one of the determinants of the 'local price' (i.e. price prevailing in a regulated market), we have implicitly considered all these internal and external influences. Moreover, we have assumed the terminal price as given and, though the prices prevailing in Bombay during the ten-year period have been

14

Map 1 :

MAP I



reviewed no attempt is made to assess quantitatively the influence of the various factors on these prices. Further, for all practical purposes, we have assumed the influence of a single regulated market on the terminal market as small and, therefore, negligible. The terminal price is regarded as independent of the local price. /

The previous research in the intermarket price comparisons has been mostly concentrated on the 'price differentials' between the daily, weekly, monthly and annual prices prevailing in two markets. These 'price-differentials' were compared with the normal ones which take into account costs of handling and transporting between the markets, and the differences between the actual and normal price differentials was then related to the local influences prevailing in either of the two markets. This method, however, assumes that the prices quoted in two markets refer to the same commodity and that normally there is one-to-one correspondence between these prices. These assumptions may be valid while comparing the prices prevailing in two terminal markets which are well organised and highly competitive. / But when we compare the prices prevailing in the secondary markets with those prevailing in the terminal market, i.e. when we compare the prices vertically, the validity of these assumptions becomes doubtful. Thus, as far as groundnut

is concerned, the quotations in the two markets do not refer to the same thing. While in the regulated markets, groundnut pods are mostly marketed, in the terminal markets, prices invariably refer to the groundnut kernels. The kernel content in the groundnut pods, also cannot be assumed to be uniform because it changes not only over the years but also within a year depending upon the condition in which the produce is marketed by the cultivators. The second assumption may also suffer due to the weakness in the marketing structure. A secondary market is not as well-organised as the terminal one and therefore, the former may not absorb fully the impact of changes in the terminal price. Moreover, with the speculative nature of the traders, the effects of the terminal price-changes on the local markets may be different in different phases of the business cycle. The one-to-one relationship between the two prices, then, cannot be, a priori, assumed. Unless these assumptions are tested for their validity in more detail, therefore, we cannot use the method of 'price differentials'. As we proceed further it will be clear that taking the 'terminal price' as one of the independent factors and the 'local price' as a dependent one in the regression equation is more advantageous than taking the 'price differential' as a dependent one.

Consistent with the objectives listed earlier, the thesis is divided in nine chapters. The present intro-

ductory chapter is followed by chapter 2 which describes the general importance of groundnut in India - its cultivation, production, trade and consumption. In Chapter 3, the factors governing groundnut prices in Bombay are examined and the movement of these prices during the ten-year period under consideration is reviewed.

The nature of the 'local' factors is examined in detail in the next three chapters before assessing their individual contribution to the price-mechanism. Chapters 4 and 5 are devoted to the supply side of the price-mechanism in the three regulated markets. The former chapter deals with the general importance of the commodity in the markets, its quality and the form in which it is marketed and the factors influencing its yearly and monthly arrivals. Chapter 5 examines the marketing tendencies of the sellers as reflected in the figures of weekly arrivals and studies the effects of the timing of harvests, of the volume of production and of the price prospects on the course of arrivals. The demand side is considered in chapter 6 which examines the functions of different types of purchasers, their 'margins', their importance in the markets, factors determining their demand, role of speculation and the nature of competition. This is followed by a case study of Dhulia

where more detailed information is available.

Chapters 7 and 8 examine the process of price-determination. Chapter 7 describes the methods of sale, the bargaining power of the farmers, the role of co-operative societies and commission agents in the price-determination and the factors taken into account by buyers while fixing day to day prices. This is followed by an examination of the available three price indicators and the differences in their movements patterns. The factors determining local prices are then summarised and a model is set up for measuring quantitatively their influence. It includes a discussion of the various assumptions. Chapter 8 presents the results of the analysis and attempts an interpretation in the light of the available qualitative information. This is followed by Chapter 9 which summarises the findings and suggests improvements in the data which are at present being collected by the Market Committees.

#### 7. Sources of Data

The principal source of the data used in the subsequent analysis is, of course, the records maintained by the Agricultural Produce Market Committees at Barsi, Dhulia and Karad. These records consisted of "Arrivals and Price Registers", from which the figures of daily

arrivals and prices were collected. From these daily figures, the weekly, monthly and annual totals and averages were later computed. In Dhulia, the "Purchase Registers" were available from which the monthly figures of purchases made by different buyers could be obtained. The figures of imports collected by the Dhulia Market Committee were also made available.

In essence, the reliance was placed on the compiled information in the possession of the Market Committees. All the relevant information collected and compiled by them was used. The figures of purchases in Barsi and Karad were obtainable only through the "Transaction Registers" which contained detailed record of each and every transaction effected in the market yard. But this necessitated quite a heavy work of compilation and, therefore, these figures were not collected. For the same reason, the regionwise break-up of arrivals was not available. A special mention must be made of a note prepared by the Barsi Market Committee on "Price spreads for Groundnut" and the "Market Diaries" maintained by it since 1956 in which the day-to-day developments in the market were recorded. Both contained some valuable information. The annual reports of the Market Committees were also found useful.

The information provided by the Market Committees was supplemented with the figures of production of groundnut oil

which were provided by the offices of the Excise Inspector situated at these centres. Interviews were also arranged with the traders and oilmillers who, though unable to give statistical information, provided an insight into the price mechanism. The figures of districtwise acreage and production of groundnut were taken from the "Season and Crop Reports" of the Bombay State, while the taluka-wise statistics for later years were available in the **महाराष्ट्र कृषिजीवन: सांख्यिकीय दर्शन** (Maharashtra Krishijivan: Sankhyikia Darshan).<sup>11</sup>

The figures of daily spot and futures prices prevailing in the Bombay Market were collected from the records of the Bombay Oilseeds and Oils Exchange, Bombay.

#### 8. Statistical Methods Used

The seasonal variation in prices and arrivals has been measured by calculating monthly seasonal indices. For each price series, a two-item total of a twelve-month moving total is taken and the final sum divided by twenty-four. The relatives for each year are obtained by dividing the original data by the ordinates of the moving average and multiplying the ratio by 100. From these

---

<sup>11</sup>महाराष्ट्र कृषिजीवन: सांख्यिकीय दर्शन

relatives, the index for the whole period is computed by what Kuznets<sup>12</sup> calls "the method of positional arithmetic means".<sup>13</sup> This method consists of arranging for each month, the successive relative deviations from the moving average and taking the arithmetic mean of the middle four (or three if the number of years is nine) terms. It is believed that this method removes most of the influence of extreme values and is an improvement over the median. The seasonal index thus obtained is then centred around 100.

In the case of seasonality in arrivals, a slightly different and simpler method is followed. Since the element of secular movement is not appreciable in the series of arrivals, it is considered unnecessary to calculate the deviation of original data from the moving averages. Rather, the relatives are calculated by taking the percentage arrivals of each month (i.e.  $\frac{\text{monthly arrivals}}{\text{annual arrivals}} \times 100$ ) and from these relatives the index is calculated by the same method used in the case of price series.

---

12

Kuznets Simon, Seasonal Variations in Industry and Trade, National Bureau of Economic Research, New York, 1933.

13 Strictly speaking, the method followed here is a simplification over that used by Kuznets which involved taking the arithmetic mean of a successively increasing number of middle items and then choosing that combination of central items which shows a value close to the central tendency for each month.

A word should also be said about the correlation methods used. Whenever the variables under consideration can be accurately measured and whenever the number of observations is sufficiently large, the relationship between the factors is measured quantitatively by the usual correlation and regression coefficients. In all the other cases, the existence and the nature of any relationship is verified approximately either with the help of scatter diagrams or by taking into account the directions of successive changes in the two series.

The description of the other methods followed is given at the appropriate places.

## Chapter II

GROUNDNUT - ITS IMPORTANCE, CULTIVATION,  
UTILIZATION AND TRADE IN INDIA1. Cultivation

Though India leads the world in the acreage and production of groundnut,<sup>1</sup> its cultivation in the country is of a very recent origin. It gained importance during the present century in an unprecedented way. The average acreage during the period between 1900-1910 was only about 575 thousand acres; but it grew to an average of about 9,336 acres during the period between 1940-50.<sup>2</sup> This phenomenal increase in the cultivation is mainly due to the increase in the internal consumption of groundnut oil for various purposes and rise in the world demand for its products.

Groundnut is mainly a kharif crop and the bulk of it is sown in June-July and harvested in November-December. The principal States producing this crop are: Andhra Pradesh, Bombay (Maharashtra and Gujarat), Madras and Mysore. They together, as can be seen from Table 2.1,

---

<sup>1</sup>India's average share in the world acreage was about 48.6 per cent during 1928-32 and 37.9 per cent during 1954-58; in the world production, it was 52.8 per cent and 33.0 per cent in the two periods respectively. [Sources: Report on the Marketing of Groundnut in India (referred to below) pp. 244-45 and Oilseeds in India, 1956-57 and 1957-58, Ministry of Food and Agriculture, Government of India, p. 50.]

Continued on next page.

**Table 2.1 : Area under and production of Groundnut in different states during 1957-58 \***

State	Area in 1957-58		Production in 1957-58	
	Acres (in thousands)	Per cent	Tons (in thousands)	Per cent
Andhra Pradesh	3,101	21.45	995	23.30
Bombay	5,713	39.52	1,265	29.62
Kerala	34	0.24	11	0.26
Madhya Pradesh	814	5.63	199	4.66
Madras	1,795	12.42	860	20.14
Mysore	2,154	14.90	635	14.87
Orissa	55	0.38	16	0.37
Punjab	146	1.01	48	1.12
Rajasthan	172	1.19	35	0.82
Uttar Pradesh	473	3.27	207	4.85
Himachal Pradesh	(b)		(b)	
<b>Total</b>	<b>14,457</b>	<b>100.01</b>	<b>4,271</b>	<b>100.01</b>

\* Relate to final estimates and subject to revision.

(b) Below 500 acres/tons.

Source : Oilseeds in India 1957-58 (Ministry of Food and Agriculture, Govt. of India, 1958 ) p.18-19.

accounted for over 88 per cent of the total acreage and production in India during the year 1957-58.

The main products of groundnut are groundnut kernels and groundnut oil. The by-product of groundnut oil is groundnut cake. The kernel content and oil content in groundnut depend upon its variety. The details of different varieties are given in Table 2.2.

In Bombay, the Peanut variety accounts for the largest area amounting to a little less than half of the total area under groundnut. The Bold variety comes next, accounting for about one-third of the area. All the other varieties are grown in the remaining area. In Madras and Andhra Pradesh, the main variety is Coromandel, Peanut being of secondary importance. In Madhya Pradesh, Red Natal and Peanut are mainly grown, while in Hyderabad, Coromandel, Bold and Peanut are important. Coromandel and Red Natal are important in Mysore.

Though the oil content in different varieties varies between 46 and 48 per cent, the actual oil production depends upon the crushing machinery used. "Figures obtained from a number of mills in the different parts of India show that the crushing of groundnut kernels by

---

<sup>2</sup> Report on the Marketing of Groundnut in India, Second Edition (referred to subsequently as RMGI), Ministry of Food and Agriculture, Government of India, 1953, p. 4.

**Table 2.2 : Varieties of Groundnut Grown in India.**

Variety	Description	Percent of average production of all varieties during 1947-50.	Average kernel content in pods (Per Cent )	Average oil content in the kernels (Per Cent)
(1)	(2)	(3)	(4)	(5)
Coromandel	Medium long kernels smaller than Bold.	51.4	68	48.22
Bold	Large long kernels having a count of not more than 60 kernels per ounce.	17.1	69	46.86
Peanuts	Small round kernels having a count of not more than 77 kernels per ounce.	23.2	72	48.36
Red Natal	Round kernels with deep red coloured skin.	3.4	74	47.33
Other varieties	-	4.9		

Source : RMGI. Col. (2) : p. 128  
 Cols. (3) & (4) : p. 18  
 Col. (5) : p. 123

expellers generally yields 40 to 44 per cent oil. The yield of oil obtained in the rotary mills ranges from 36 to 42 per cent, while that from the chekkus, or hand presses, varies from about 35 to 39 per cent. .. The average yield of oil from kernels in India may, therefore, be taken as 40 per cent. The yield of cake may be reckoned as 60 per cent."<sup>3</sup>

## 2. Utilization of Groundnut in the Country

During the period between 1943-44 to 1947-48, the average annual quantity required for seed was about 13 per cent of the average production. Rest of the kernels were used for edible, crushing and export purposes. Table 2.3 presents the average utilization of groundnuts produced in India during the quinquennia ended 1937-38, 1947-48 and the triennium ending 1957-58.

It can be seen that there is no appreciable change in the utilization of groundnut for seed or edible purposes. Generally, the per capita consumption of groundnut in the kernel form "is high in the groundnut producing provinces and states: it is locally even higher in the producing districts. The states of Madras and Bombay consume 4.6 and 5.1 lbs. per head respectively, the higher consumption in the latter being due to the habit of eating

---

<sup>3</sup> RMGI, p. 173.

**Table 2.3 : Utilization of Groundnut ( Nuts in Shell ) in India.**

	During 1933-34 and 1937-38		During 1943-44 and 1947-48		During 1955-56 * and 1957-58	
	Thousand tons.		Thousand Tons.		Thousand Tons.	
<b>SUPPLY</b>						
Production	2,822		3,692		4,091	
Imports	Negligible		-		-	
<b>Total</b>	<b>2,822</b>		<b>3,692</b>		<b>4,091</b>	
<b>UTILIZATION</b>	Thousand Tons	Per Cent	Thousand Tons	Per Cent	Thousand Tons	Per Cent
Seed	322	11.41	464	12.57	491	12.00
Edible use	188	6.66	280	7.58	286	6.99
Oil extraction	1,200	42.52	2,620	70.96	3,301	80.69
Exports	1,112	39.40	328	8.88	13	0.32
<b>Total</b>	<b>2,822</b>	<b>99.99</b>	<b>3,692</b>	<b>99.99</b>	<b>4,091</b>	<b>100.00</b>

28

\* Subject to revision.

Sources : RMGI. p.37  
Oilseeds in India p. 23.

groundnuts on fast days. The consumption in the non-producing states is confined to the urban areas."<sup>4</sup>

Table 2.3 also indicates the increase in the utilization of groundnut for crushing purposes and decrease in the export of kernels. This is due partly to the Government's policy of encouraging export of groundnut oil in preference to that of kernel, and partly to the increase in the demand for oil for various purposes.

"The groundnut oil is mainly used for culinary purposes specially in South India, in the manufacture of vanaspati and for the adulteration of ghee, or other higher priced oils. Its industrial uses, such as, the manufacture of soaps, cosmetics, shark liver oil, etc. are on the increase."<sup>5</sup>

In the vanaspati (the hydrogenated vegetable oil) industry, groundnut oil forms the main constituent, though other edible oils are also used to a small extent. Consequent to the increase in the number of vanaspati factories, therefore, the consumption of groundnut oil in the industry has also risen. Thus in India, with the increase by more than three times in the number of vanaspati factories in 1948 over that in 1938, the utilization of groundnut oil in this industry has increased from about 42,200 tons in 1938 to nearly 1,68,000 tons or about 25 per cent of the groundnut oil produced in 1949.<sup>6</sup> This increased

---

4 RMGI, p. 35.

5 Ibid., p. 186.

6 Ibid., p. 220.

to about 38 per cent during the triennium ending 1957-58. Table 2.4 presents the details of utilization of groundnut oil in India.

Groundnut cake which is the by-product of groundnut oil is used mainly as cattle food and manure. Prior to 1939, the crops for which it was used as manure were mainly sugarcane and coffee and the quantities utilised for this purpose increased with the expansion in the sugarcane acreage in several areas. During the war, the use of oil cake as manure increased considerably for other food crops also. This was the outcome of the scheme sponsored by the Government of India under the "Grow More Food Campaign". Under this scheme the government distributed fertilizers and manures at subsidised rates and controlled the prices of cake. The controls on the prices of groundnut cake were lifted on 15th February 1949.

### 3. Exports

India's place as an exporting country in the world trade of groundnut can be seen in Table 2.5 which shows her share before and after the war. Before the war India furnished more than half of the world exports of groundnuts; but in recent years, India exports only a small quantity. The importance of the African countries as exporters has increased. The decrease in the India's exports is mainly due to the increase in the home consumption of groundnut

**Table 2.4 : Utilisation of Groundnut Oil in India during 1955-56 and 1957-58 \***

Utilisation	Percentage of estimated total internal oil utilisation
Non-edible purposes ( domestic and toilet including soap )	3
Edible purposes	59
Vanaspati	38
Total	100

\* Subject to revision.

Source : Oilseeds in India 1957-58 p. 23

**Table 2.5 : Net exports of Groundnuts and Groundnut Oil from Principal Primary Producing Countries during 1949-1958 ( Per Cent of the Total in the Oil Equivalent ).**

Country	1938	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
India	57.1	9.2	14.4	19.2	14.5	3.5	4.5	21.8	4.2	0.7	0.5
South Africa	-	0.4	1.7	2.0	2.2	3.4	4.4	4.4	5.9	5.4	2.9
Nigeria	8.1	29.9	25.7	13.7	25.7	27.5	31.6	24.9	27.3	21.9	30.4
China (b)	8.2	2.6	9.8	11.5	9.1	14.3	12.9	15.8	20.3	14.6	10.1
French West Africa	20.0	26.7	29.4	28.1	30.2	33.0	30.2	19.5	26.7	32.3	34.2
United States	-	18.2	5.2	8.3	1.5	1.1	4.1	(a)	0.6	3.2	0.1
Others	6.7	13.0	13.8	17.2	16.8	17.3	12.3	13.6	15.2	21.9	21.7
<b>Total</b>	<b>100.1</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.1</b>	<b>100.0</b>	<b>100.0</b>	<b>100.2</b>	<b>100.0</b>	<b>99.9</b>
<b>Total world exports in the oil equivalent (thousand tons)</b>	<b>941</b>	<b>532</b>	<b>521</b>	<b>459</b>	<b>463</b>	<b>567</b>	<b>665</b>	<b>802</b>	<b>818</b>	<b>753</b>	<b>838</b>

(a) : Net Importer.

(b) : Estimated in post-war year.

Source : Vegetable Oils and Oilseeds, 1956 The Commonwealth Economic Committee, Her Majesty's Stationery Office, London (p.22); 1960 (p.27).

and groundnut oil. Consequently, the Government had to impose restrictions on the exports for controlling internal prices. It is only when the production is abnormally high that India can afford to export in large quantity; this situation occurred in 1955 when India's share in the world trade rose to about 22 per cent.

Before the war, Indian exports of groundnut consisted mostly of kernels. After the war, in order to encourage the local crushing industry, Government encouraged the exports of groundnut oil in preference to that of groundnut kernels. Table 2.6 brings out the increase in the relative importance of oil in recent years.

Indian exports of both kernels and oil are widely distributed. U.K., Canada and Netherlands are the chief purchasers of kernels when they are exported while the Netherlands, Belgium and Burma are the principal destinations of groundnut oil from India. Present Indian trade policy is to direct exports, as far as possible, to those countries whose currencies are scarce in India.

The main ports from which the shipments of groundnuts and oil are made, are situated in the Madras and Bombay States. Madras occupies an important place, despatching about 63 per cent of total exports of kernels and about 78 per cent of exports of oil during 1938-39. The ports in Bombay accounted for about 6 per cent and 21 per cent respectively.<sup>7</sup> The share of Bombay in respect

---

<sup>7</sup>"Oilseed in India" 1951-52 and 1952-53, *ibid.*, p.26.

**Table 2.6 : Composition of Groundnut Exports from India during 1949-50 and 1958-59**  
( Per Cent of Total Exports in the Oil Equivalent )

Year : April - March

Year : April - March

	Average between 1936-37 and 1938-39	1949- 50	1950- 51	1951- 52	1952-53	1953- 54	1954- 55	1955- 56	1956- 57	1957- 58	1958- 59
Export of Oil	4.0	36.7	84.5	71.4	93.2	50.0	91.7	91.9	-	-	43.6
Exports of kernels (in the oil equi- valent) *	96.0	63.3	15.5	28.6	6.8	50.0	8.3	8.1	-	-	56.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-</b>	<b>-</b>	<b>100.0</b>
Total exports in the oil equivalent * (Thousand tons)	347	79	97	28	73	4	109	136	Neg.	Neg.	142

\* : Oil content is assumed to be 40 per cent.

Neg. : Negligible.

Sources : Compiled from Oilseeds in India 1951-52 to 1957-58 and Agricultural Situation in India, Economic & Statistical Adviser to the Govt. of India, Ministry of Food & Agri. New Delhi. 1957-58, 1958-59 and 1959-60.

of export of kernels has increased but the importance of Madras ports in respect of oil exports has remained unchanged in the post-independence period.

As far as the quality of the kernels exported is concerned, "the bulk of kernels exported from the Madras ports and the French port of Pondicherry are of Coromandel type, Peanuts amounting to about 6 per cent of the exports from Madras ports. Bombay sends Khandesh, Bold and Red Natal types."

## CHAPTER III

## THE MOVEMENT OF PRICES OF GROUNDNUT IN BOMBAY

This chapter is divided into two sections. The first one describes the general factors governing prices in India before and after the second world war. The review of monthly prices during the period under consideration, i.e. during September 1949 and August 1959, is attempted in the second section.

## 1

Factors Governing Prices in India

The principal Factors governing groundnut prices in India are : acreage under and production of groundnut, the world supply position, internal and external demand for groundnut and its products and, finally, prices of other oilseeds and their products. As we have noted in the earlier chapter, the demand for groundnut and its products in India and abroad has increased tremendously during the recent years and, consequently, the internal production has also risen substantially. This has been mainly achieved by increasing the acreage under groundnut and there is no significant change in the yield per acre of the crop.

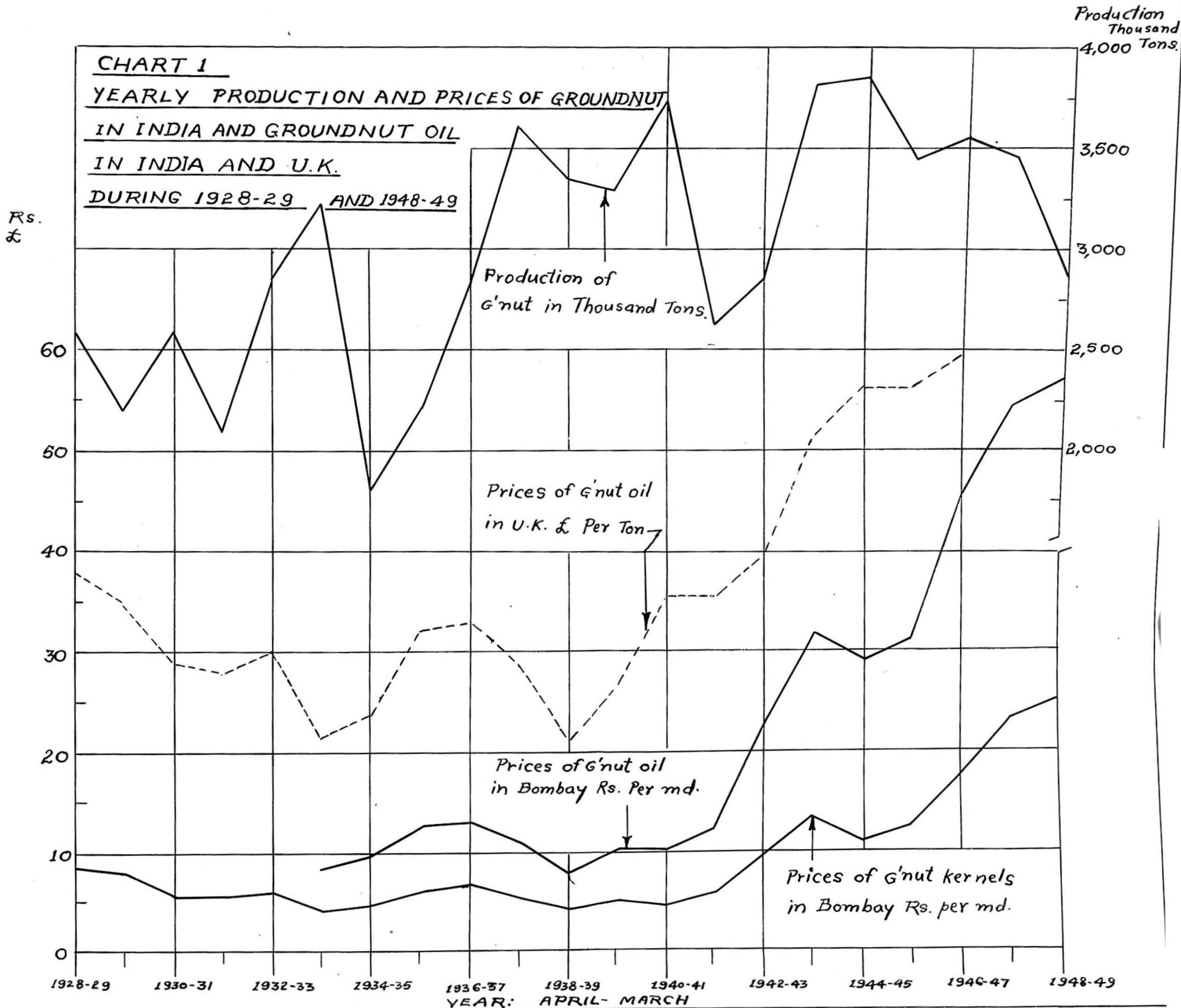
As far as prices are concerned, the second world war seems to have demarcated two different periods. In the pre-war years, India's exports of groundnut mainly consisted of kernels which were almost entirely utilised for the extraction

of oil and only a small quantity of Bold kernels exported from Bombay and Saurashtra was consumed directly. The demand for groundnut in India, therefore, was primarily determined by the demand for groundnut oil in the consuming countries and since India's contribution to the world export trade in this commodity was about 50 per cent, the Indian prices were, to a large extent, affected by the demand for and supply of groundnut oil in the U.K. which was the main importer of groundnut kernels and oil. In contrast to this period, the post-war period, especially the period since Independence, witnessed an increase in the local oil crushing activity and the rise in the manufacture of vanaspati in the country, thereby increasing sharply the internal demand for kernels and oil. The Government also imposed, during this period, controls on exports and encouraged export of oil in preference to that of kernels. Thus, in the years following the second world war, there was a marked change in the composition of demand for this commodity and internal demand largely replaced the external demand.

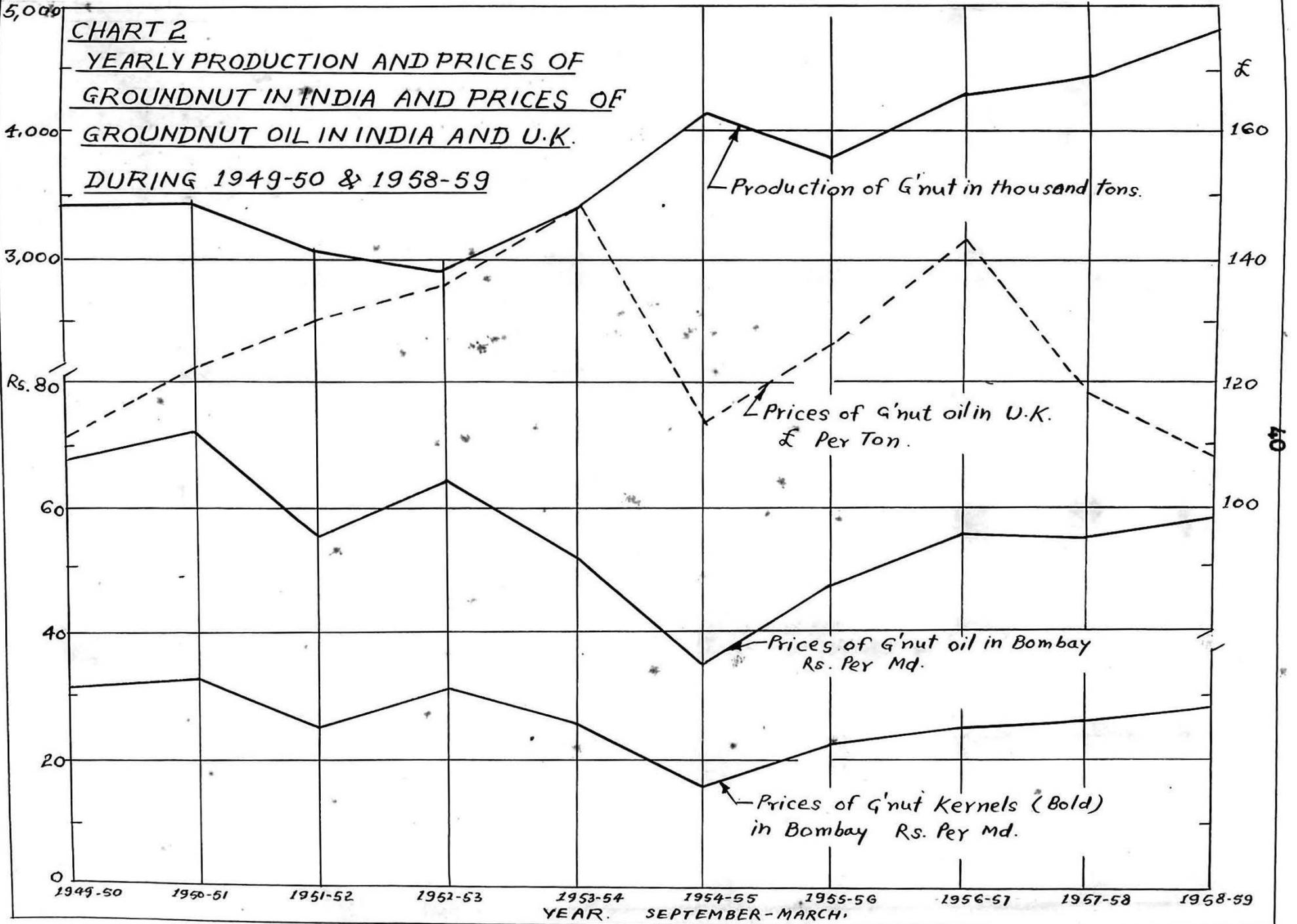
The accompanying charts roughly indicate some such change. Chart 1 shows the production and prices of groundnut in India together with the U.K. prices of groundnut oil during 1928-29 and 1948-49. Chart 2 indicates these figures for the period between 1949-50 and 1958-59. It is quite clear from these charts that during the pre-war years, the prices of groundnut in India closely followed the U.K. prices.

Chart 1 :

**CHART 1**  
**YEARLY PRODUCTION AND PRICES OF GROUNDNUT**  
**IN INDIA AND GROUNDNUT OIL**  
**IN INDIA AND U.K.**  
**DURING 1928-29 AND 1948-49**



PRODUCTION THOUSAND TONS.



As the latter were controlled after 1939-40, the comparison between the Indian and U.K. prices is possible only upto 1939-40, and the parallel movement of the two price-series till then is apparent. As compared to this, however, the picture provided by Chart 2 is slightly different. In this chart, the comparison is possible after 1953-54 when the controls on U.K. prices were lifted, and since 1953-54 to 1956-57, the Indian prices seemed to have followed the trend in the U.K. prices. In 1957-58, the Indian oil prices, in response to a large decline in the U.K. prices, came down slightly while the kernel prices showed a slight increase. The increase in the Indian prices in 1958-59 was definitely out of line with the U.K. prices which showed a considerable decline. This may be taken to indicate the growing importance of internal demand and supply forces in determining groundnut prices in the country.

Since we are considering the influence of terminal price on the prices prevailing in regulated markets during the ten-year period between September 1949 and August 1959, it is necessary to examine first the course of terminal prices during this period and factors related to it. The following section deals with this aspect by reviewing the course of month-end prices of groundnut kernels (of Bold variety, in terms of Rupees per Bengal maund) in the Bombay Market which is the main terminal centre for the country as well as for Maharashtra. These, together with the month-end

prices of groundnut oil in Bombay and U.K. are presented in Chart 3<sup>1</sup>. The year considered is marketing year between September and August.

2 .

Review of Prices in Bombay During

Sept. 1949 - Aug. 1959.

1949-50

The months preceding September 1949 had witnessed an upward trend in groundnut prices. By the end of February 1949, the price of Bold kernels in Bombay was Rs. 26.17 per B.maund, and it increased, by September 1949, to Rs. 33.75. This price-rise, which was quite in striking contrast to the world trade was mainly due to the activities of the speculators who, " in their anxiety to make money somehow, ....resorted to cornering tactics, boosted up the prices and extorted heavy penalties from short-sellers. Even when forward trading remained banned<sup>2</sup>, they did all these under the cloak of doing business in non-transferable delivery contracts. In doing so they did irreparable damage to the country's export trade and neutralised the efforts of the

---

<sup>1</sup> This chart presents 'month-end' prices of groundnut kernels in Bombay to facilitate comparison with the other available data. The monthly prices used in the subsequent analysis are calculated by averaging the daily prices.

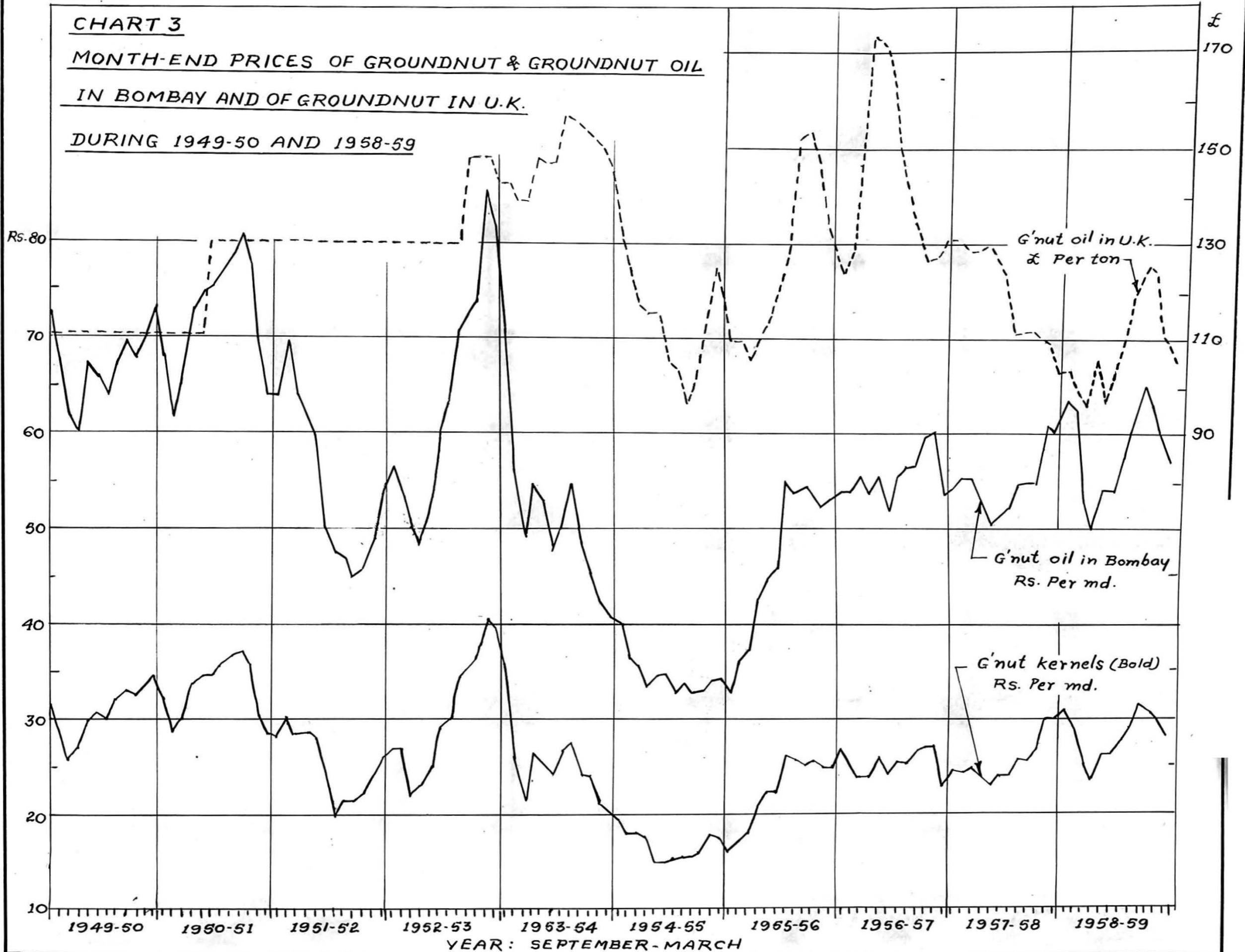
<sup>2</sup> The Government banned all the future transactions in groundnut in May 1943. This ban was lifted in 1956.

**CHART 3**

**MONTH-END PRICES OF GROUNDNUT & GROUNDNUT OIL**

**IN BOMBAY AND OF GROUNDNUT IN U.K.**

**DURING 1949-50 AND 1958-59**



Government at promoting exports."<sup>3</sup>

This price-rise was arrested slightly by the end of October and the prices showed signs of gradual settling at lower levels in November. The fall, however, proved to be short-lived, and after November, the prices again started rising till the end of the year when they stood at Rs.34.35 compared to Rs. 25.62 in Nov. 1949.

To some extent, the fall in prices in the beginning of the year could be regarded as a logical sequel to the high prices prevailing in the preceding months. The heavy arrivals from the interiors and the steadily improving transport situation were also responsible for the easy tendencies in the market. The continuous rise in the following months was only partially seasonal. It was, to a large extent, due to the effects of devaluation of the rupee on Sept. 20, 1949. With the result of the devaluation, the leading export articles of India came to acquire price advantage in the European markets and this led to an increase in the export demand. India exported, during this year, about 107 thousand tons of groundnut kernels and about 25 thousand tons of groundnut oil; and these were larger than the exports in the earlier three years. The relative scarcity of the commodity at home did not, therefore, fail to have an inflationary effect on prices.

---

<sup>3</sup> Commerce, Annual Review Number, 1949, p. 1271.

1950-51

The prices of Bold kernels in Bombay decreased from Rs. 31.78 in September to Rs. 28.29 in October; but then they started rising till May when they reached an all time record of Rs. 37.19. Thereafter, the market displayed an easy undertone and by the end of August the prices stood at Rs. 28.65 per md.

In general, therefore, the prices in this year experienced wide fluctuations, the boom conditions in the first nine months and then slump for three months. The factors responsible for these fluctuations were mostly external. The oilseeds market in India behaved in sympathy with the foreign markets, closely following the political situation in Korea and the Middle-East. The deterioration in Korean situation led to the rise in prices in November 1950, and the stock-piling programmes in Western countries added momentum to the inflationary tendencies. The withdrawal of China from world markets since February 1951 was also responsible to the shortage of world supply of oilseeds. The prices started declining in June chiefly as a result of the slowing down of purchases for stock-piling by the U.S. and other countries and of the rumours that Japan had been directed by the U.S. not to make purchases from the sterling area. The prospects of good crop, the increase in the export duty on groundnut kernels from Rs. 80 to Rs. 150 per ton in July and the removal of ban on the exports of oilseeds

and oils to other states from Saurashtra in August which resulted in heavy selling by Saurashtra traders, accentuated this slump.

### 1951-52

After a period of slump for three months, the beginning of the year 1951-52, witnessed a steady tone. The prices of Bold kernels, which by the end of September 1951, stood at Rs. 28.10 per md., increased to Rs. 30.12 by October and then remained in the neighbourhood of Rs. 28, till the end of January 1952. From February onwards, the prices started declining heavily reaching their lowest of the year immediately in the next month at Rs. 19.65. In April, prices recovered by two rupees and from June onwards, they showed signs of continuous increase. By the end of August they reached Rs. 26.08.

Compared to the previous year, the prices of this year ruled low, and in general, the year was marked by the overall bearish tendency. The earlier fall in November was caused, inter alia, by the rumours of peace in Korea and the rigid money conditions resulting from the increase in the bank rate. The large slump in March 1952 was mainly due to the weakness in the international oils and fats markets. Inadequate and staggering export quotas, tight money conditions and absence of the U.S. Government's willingness to buy oilseeds for stockpiling purposes also contributed to this slump. In order to check this fall, the Government announced,

in February, an export quota of 21,000 tons of oil. These and the efforts of the Grains and Oilseeds Merchants Association in regulating the transactions arrested the fall in prices in April. The rise in prices after April was supported further by the announcement of export quota of 20,000 tons of oil in June 1952.

### 1952-53

The year 1952-53 was marked by an unprecedented boom conditions. The prices, opening at Rs. 27.00 in September, and after remaining fairly constant for a month, decreased to Rs. 23.14 in December. From January onwards, the increase started and the prices touched the record figure of Rs. 40.41 in July. In August there was a small decline by one rupee.

The initial decrease was mainly due to the increasing arrivals of new crop and absence of export quota. In December 1952, an export quota of 40,000 tons of oil was declared and this gave a momentum to the bullish tendency. The increase in prices after January was mainly due to the predominance of speculative forces. "Generally speaking, the movement of prices during the year had hardly any bearing on the stock position of the market. It was the strength of the party, be it a bull or a bear, that determined the trend of prices rather than the forces of demand and supply".<sup>4</sup> On the part of the Government also, there were some

---

<sup>4</sup> Commerce Annual Number (1953), p. 166.

shortfalls which accelerated the rise in prices. It allowed the export of 40,000 tons of oil, inspite of the short crop arising out of failure of the monsoon and appearance of draught in the principal growing centres.<sup>5</sup> The Government also "permitted the resumption of trading in April in non-transferable specific delivery contracts in linseed and groundnuts which had been suspended in May 1952. This led to the degeneration of forward trading into a virtual gamble in futures."<sup>6</sup>

The Government attempted to check the rise in prices, in March, by removing vanaspati from O.G.L. for export and replacing it with a limited quota of 30,000 tons. This proved ineffective and the Government, in early June, banned all further sales of groundnut oil and H.P.S. groundnut kernels for export; but "this decision came so late that it had no effect on the upward trend in prices."<sup>6</sup> The prospects of bumper crop in the next year became visible in August and this, at last, had a dampening effect on prices in that month.

#### 1953-54

This year, the oilseeds market, in general, experienced

---

<sup>5</sup> The production of groundnut pods in India decreased from 3,142 thousand tons in 1951-52 to 2,883 thousand tons in 1952-53. ('Oilseeds in India', (1951-52 to 1955-56 ) *ibid*).

<sup>6</sup> Commerce Annual, 1953 p. A 166.

a downward trend of prices. From Rs. 39.31 in August, the prices of bold kernels in Bombay came down to Rs. 35.27 in September 1953 and the decrease continued upto November end, when the prices reached the figure of Rs. 21.95. December witnessed a rise by about five rupees but it was short-lived and by February, the prices came down to Rs. 24.33. There was some increase in the next two months after which the fall started and by the end of August, groundnut kernels in Bombay were quoted at Rs. 20.39 per B.md.

The prospects of better crop and discouraging overseas advices were the chief factors responsible for the early decline in prices. The wide fluctuations in the subsequent four or five months were due to the lack of knowledge with the market regarding the oilseeds crop of the year. "This gave rise to conflicting estimates of the crop. Again, there was considerable uncertainty regarding the Government of India's export policy for oilseeds..... The situation in the world oilseeds market too, was one of uncertainty since there were conjectures regarding the likelihood of the U.S. releasing stocks of edible oils and fats for sale abroad. These conflicting factors provided a fertile field for all sorts of rumours under which values oscillated both in the local as well as overseas markets."<sup>7</sup> The announcement of export quota of H.P.S. groundnut kernels in March and the

---

<sup>7</sup> Commerce Annual, 1954, p. A 171.

tight supply position of edible oils and fats in world oil markets were responsible for the rise in prices in March and April. The decline in May was chiefly due to the absence of enquiries from the vanaspati interests and announcement of the Government policy that export of groundnut oil during the season would not be allowed. It was further helped in July by the reports of favourable rains in the main oilseeds producing areas. Later, the announcement of the Government to permit a small quantity of oil for export did not entause the market due to the simultaneous imposition of the export duty of the order of Rs. 350 per ton. The fear of competition from China in the world market also contributed to the decline in prices.

#### 1954-55

The decline witnessed by the end of the last year continued during the present year. The prices which stood by the end of September at Rs. 19.29 per md., continuously decreased till the end of January when they touched the mark of Rs.14.78. Subsequently, for about four months, they were slightly above Rs. 15 and from June onwards, they started rising. In August, however, there was some decline and by the end of the month they were at Rs. 17.45.

The weakness in the first few months of the year was due "to the prospects of better crops of all the oilseeds. The downward trend was further assisted by lack of overseas demand, increase in export duty on H.P.S. kernels and the enhanced freight

rates to the U.K. and continental ports, with effect from 2nd February 1955".<sup>8</sup> The revival of overseas demand for oils and oilseeds and the continuation of a liberal export policy by the Government were responsible for the upward trend from June. The decision of the Bombay Oilseeds Exchange to allow non-transferable specific delivery contracts in groundnut and linseed, improved freight position and small arrivals as a result of heavy rains in Saurashtra and the South also strengthened the market. The decline in August could be attributed partly to profit taking at higher levels and partly to the reports of good U.S. groundnut crop, satisfactory rains in the producing areas of oilseeds in India and discouraging overseas advices.

### 1955-56

The oilseeds market recovered during the year 1955-56 and the price-rise initiated in the month of October continued in general during the remaining year. In September 1955, groundnut kernels in Bombay were quoted at Rs. 16, and since October the prices started rising which stood by the end of August at Rs. 25.

The main factors responsible for the price-rise were the comparatively reduced crop position following the floods and other natural factors, and good domestic and foreign demand. The political uncertainties in Argentina, a chief

---

<sup>8</sup> Commerce Annual, 1955, p. A 190.

competitor to India, also assisted the boom conditions in the early year. There was demand for oil in the continental, American and Australian markets and the Government's export policies were also, in general, favourable. All these forces created bullish tendencies in the market and the Government, in April, attempted to arrest the price-rise by imposing increased export duties on various commodities. The Reserve Bank of India also gave a directive to banks to furnish fortnightly returns of advances against these commodities. These measures had some desired effect which lasted for about two months and after May, the prices remained, more or less, constant.

### 1956-57

The year 1956-57, witnessed few large variations in prices. From Rs. 27 in September 1956, they came down to Rs. 24 in November; then there was a rise for two months and the prices went upto Rs. 26 in January 1957. After a decline to Rs. 24.50 in February, there was a rise again upto July when they touched the figure of Rs. 27. By the end of August, groundnut kernels were quoted at Rs. 23.14 per md.

The ban on exports of oil imposed by the Government in November 1956, played an important part in controlling the rise in internal prices. Though the production of groundnut showed an increase over the earlier year, the internal demand from the vanaspati factories also rose and it was this demand which largely influenced the course of oilseeds prices in India.

The decreases were principally speculative arising out of apprehensions regarding changes in the export policy of the Government ( in December ), and increase in the rate of interest announced by the Reserve Bank of India ( in February). The decline in August could be attributed to the absence of demand from crushers, selling pressure induced by the end of August contract and favourable weather reports.

### 1957-58

This year also proved to be uneventful with a pronounced lull on the export front and no great improvement in production. The marked rise in prices, witnessed by the present year, was due to the tight supply position and rapidly increasing domestic demand. The prices, which stood by the end of September 1957 at Rs. 24.43, declined upto Rs. 23.14 in January with an exception of November when they rose to Rs. 24.75; after January 1958, they started rising, reaching, in July, the figure of Rs. 29.94. They remained unchanged in August.

The decline during the first five months was mainly caused by heavy arrivals, absence of export quotas of kernels and oil, and the special margins imposed by the Forward Markets Commission. The abolition of export duties on niger and kardi oils and groundnut cake were responsible for the price-rise in November.

By March, there was a gradual price-rise caused by tight supply position and favourable demand, but, to some extent, it

was checked by margin considerations and possible intervention by the Forward Markets Commission. The buoyant conditions prevailing after June were mainly due to the announcements of export quotas for different oils and oilseeds, including for groundnut H.P.S. kernels and groundnut oil. Thanks to some adverse factors like the reports of favourable monsoons, hopes of trading with Burma, U.S.A., and Canada being not bright and fall in prices in European ports, the effects of the export quotas were partially neutralised and the prices did not rise initially. The removal of export duties on most of oils and oilseeds, however, set off a buying spree in July which lifted the prices to new heights. The shortage of supplies, brisk domestic and foreign demand, the political turmoil in the Far East and the rumours of increase in quotas for seeds, oils and cakes contributed further to the rise in prices.

#### 1958-59

The oilseeds market displayed, in general, a strong bullish tendency which was caused by tight supply position, rapidly growing domestic demand and enlarged exports of seed, oils and cakes, following some liberalisation in export policy. The first four months of the year witnessed slump, the prices of groundnut kernels decreasing from Rs. 30.86 in September to Rs. 23.60 in December. Since January, the market strengthened and the prices rose to Rs. 31.41 in May. Then again, there was a decrease which lasted for three months

and at the end of the year, the prices stood at Rs. 29.29.

The weakness in the first few months was seasonal, due chiefly to the heavy pressure of arrivals of the new crop. The lack of fresh advices from abroad also assisted the decrease in the prices. The market staged recovery, after the announcement of a series of export promotion measures including the grant of additional (bonus) quotas of H.P.S. groundnut kernels and groundnut oil, the quota of 20,000 tons of groundnut oilcake and the reduction of the freight rate in respect of H.P.S. kernels on the India Atlantic Ocean ports. The encouraging inquiries for H.P.S. kernels and other oils and oilcakes, particularly from Hongkong and Canada also encouraged the bullish tendency in the market. The attempts of the Forward Markets Commission in controlling the prices by imposing special margins and of the Reserve Bank of India which restricted advances against groundnuts had a very temporary effect and the groundnuts section "flared up into a virtual boom"<sup>9</sup> in the months of April and May. "The news of heavy damage to the crop in Argentina on account of heavy floods and the closing of the ports in that country gave rise to hopes that the foreign buyers, such as the U.K., would turn to India for supplies of groundnut oil, especially because British West Africa ceased to be seller of oil. A number of export promotion measures announced by the Government aided sentiment. As a new device for promoting exports, the F.M.C. exempted from the operation of margin, open long positions

---

<sup>9</sup> Commerce Annual 1959, p. A 244.

in groundnuts held as a hedge against commitments in respect of groundnut oil exports. No wonder then that exports of groundnut H.P.S. kernels, oil and oilcake continued in full swing. Domestic demand was also at a higher level."<sup>10</sup>

The weakness in the last quarter of the year was due to the commencement of monsoons in producing areas and the pressure of Nigerian offerings of groundnut oil in European countries. The disparity in Indian and Foreign prices in oils and seeds prevented the market responding favourably to the Government's attempts of extending the export licensing scheme in groundnut oil, oilcakes and H.P.S. kernels.

### Summary

These were the broad factors discernible in the data of month-end prices ruling in Bombay. Truly, the ten-year period we have selected for this study has witnessed great upheavals; there were unprecedented boom conditions when the prices reached record heights; there were also times when the prices reached their lowest levels in the post-war period. The factors responsible for these changes were both international as well as internal. On international level, the Korean war situation was the most important factor responsible for the variations in the early period. Then there were changes in the world demand for Indian produce. Among the internal factors, the changes in output and the Government's controls

---

<sup>10</sup> Commerce Annual 1959, p. A 244.

on exports were of great importance. The large output in 1954-55, for example, resulted in the lowest levels of prices during that year. The declaration of export quotas had also some influence on the changes in the prices of groundnut and its products. It is neither possible nor necessary to locate exact influence of each of these factors; suffice it to say that it is on this background that we have to study the behaviour of farmers and traders in the regulated markets. In particular, with the help of the above discussion, we will try to see how these operators in the local markets react to the changes in the prices prevailing in the terminal markets and whether they take into account the factor 'price prospects' in determining their sales and purchases. These concepts we will develop fully in subsequent chapters.

There are other two features of the Bombay prices which we will defer to later analysis. One of them is seasonality which we will consider along with seasonality in regulated market prices. The other is the difference between the spot prices of two varieties - 'Bold' and 'Khandesh Quality' - traded in the Bombay market. Since both of these prices are to be used later, their inter-relationship is considered in chapter 7.

## CHAPTER IV

## MARKETING OF GROUNDNUT IN THE REGULATED MARKETS : I

The three chapters beginning from the present one analyse, with the help of all the available information, various factors influencing supply of and demand for groundnut in the markets under consideration. This chapter forms a prelude to the detailed analysis of supply attempted in the next chapter and is divided into four sections. The first section discusses the nature and, inevitably, the limitations of the available data. The second one considers the importance of the commodity, its quality and the form in which it is marketed in the three markets. General observations as can be made from the review of yearly arrivals are attempted in the third section while the fourth section examines the seasonality in the monthly arrivals.

## 1

Nature and Limitations of the Data

The "Arrivals and Price Register" maintained by the Market Committees provide the daily figures of arrivals from which the weekly, monthly and yearly totals are computed. The arrivals of groundnut kernels are taken from the annual reports of the Market Committees. These figures of arrivals,

it should be noted, refer to the quantities brought and sold in the market yard and they do not include the quantities purchased by the traders and oilmillers outside the Market Area and brought to the town for their own use. If, however, they make direct purchases within the Market Area but outside the market yards, they have to report such purchases to the Market Committee and pay the necessary cess. Whenever such direct purchases are reported, the Market Committee treats them as if they are arrivals in the market yard and includes them in the figures of arrivals. These direct purchases, however, form only a small fraction of 'arrivals' the bulk of which consists of the quantities actually brought and sold in the market yard.

The figures of arrivals at Barsi and Karad are in terms of bags while those at Dhulia are in terms of cart-loads. Enquiries at these markets suggest that approximately one maund of groundnut pods per bag and 15 maunds of groundnut pods per cart should be assumed uniformly for converting these figures into comparable units and, therefore, these conversion units are applied, whenever necessary, in the subsequent analysis.

#### 'Arrivals' as distinguished from 'Sales'

It is necessary to note at this stage that both at Barsi as well as at Dhulia, what are recorded as 'arrivals' are really not 'arrivals' but 'Sales' ( i.e. the quantities sold). It is only at Karad that we have the figures of both 'arrivals'

as well as 'sales'. As these data are to be used extensively in the subsequent analysis, a brief examination of the nature of this limitation is in order.

The market yard at Barsi is not an enclosed one and the produce is brought directly to the commission agents' shops which are situated in the same locality. As it was difficult to conduct auctions in all the shops every day during the peak marketing season, the shops of the commission agents were divided, until 1958-59, into two groups reporting approximately equal arrivals and the produce brought in each group was sold on alternate days. This method was followed during September and December of each marketing year, and later, as the rate of marketing decreased, all the shops in the market yard were visited every day. Attempts are being made, since 1959-60, to clear all the produce coming to the market on the same day, even during the peak marketing season. The figures of 'sales' are collected by the market clerk who supervises every auction and makes necessary entries in his "Sauda Register". These entries are later checked with the reports sent by the commission agents before entering the final totals of daily 'sales' etc. in the "Arrivals and Price Register."

The Market Committee at Dhulia has built an enclosed market yard and, in general, all the produce entering the market yard is sold on the same day, even during the peak marketing season. The Market Committee at Karad relies chiefly on the reports of the commission agents for the figures of

arrivals. In the peak marketing season, it is not possible for this Committee to conduct auctions of all the produce though the attempts are made to clear as much produce as possible every day. The method of collecting the figures of 'sales' in these two markets is the same as that followed by the Barsi Market Committee.

It is safe to assume that the day to day stocks held by the Commission agents either on the advice of sellers who wish to wait for a better price or because of reluctance of buyers to purchase all the quantity brought to the market, as negligible. This is because firstly, a major part of the produce is brought by the cultivators themselves who, with a very limited capacity to wait, are anxious to sell it as soon as possible; and secondly, it is reported that the purchasers refuse to buy only if the produce is of a very bad quality or if it contains excessive dirt and other foreign material. With this assumption, therefore, we can treat the figures of 'sales' in Dhulia as equivalent to those of 'arrivals'. In the other two markets, however, the stocks are held due to the inability of the Market Committees to conduct auctions for all the produce and, therefore, strictly speaking, the assumption of an equality between 'sales' and 'arrivals' does not stand. It should, however, be added that, so long as we do not consider too small a unit of time, most of the characteristics of 'arrivals' will be found reflected in the figures of 'sales', thanks to the efforts of the Market Committees and traders to

clear as much produce as possible every day. The seasonality in 'sales' at Karad which, as we shall see later, is almost equal to that in 'arrivals' provides an instance in point.

There is some discrepancy in the figures of 'sales' and 'arrivals' in the Karad market which are not equal even over a year. Table 4.1, which shows these quantities, indicates that in some years the annual arrivals are substantially larger than the annual sales. This is either because the quantity arrived in the market was not subsequently sold in the market and this fact was not recorded or because it was sold without informing the Market Committee. The excess of arrivals over sales can not be regarded as stocks sold in the subsequent years because the enquiries suggest that such annual carry-over of stocks is never large in the Karad market. It is also to be noted that there has been some under-reporting of arrivals in two months ( October 1954 and September 1957 ) which resulted in 'sales' during these months exceeding the sum of the stocks at the end of the previous months and the arrivals of these months. However, no correction has been made to either of these shortfalls and the figures are used as they are.

There is no indication in the records of the Market Committees as to the extent to which the produce from outside the market area is brought and sold in their market yards. Information regarding the arrivals from traders and farmers is also not separately available.

**Table 4.1 : Yearly Arrivals and Sales of Groundnut Pods in the Karad Market.**

(Figures in B.mds.)

Year	Arrivals	Sales
1949-50	1,49,821	1,49,721
1950-51	1,49,936	1,50,110
1951-52	2,06,889	2,03,613
1952-53	2,25,120	2,15,087
1953-54	2,34,371	2,34,356
1954-55	2,16,491	2,11,694
1955-56	1,52,478	1,49,710
1956-57	1,98,530	1,95,146
1957-58	1,66,586	1,63,268
1958-59	95,152	94,380

Importance of Groundnut in the Three Markets.

In all the three markets, groundnut represents a cash crop of the highest importance. Cotton is also of same importance in Dhulia, but at all the centres there is no other cash crop which fetches as much revenue to the Market Committee as is given by groundnut. Table 4.2, which shows the amount of cess received by the three Market Committees, brings out the importance of groundnut in the three markets. It also indicates that groundnut is mostly marketed in the unshelled form while a very small quantity of groundnut in the form of kernels is sold in the three markets. This has been so in Dhulia and Karad from the beginning, but in Barsi, the marketing of groundnut in the 'unshelled' form is quite recent. Until 1951-52, groundnut was mostly marketed in the 'shelled' ( i.e. kernel ) form and the producers used to get the produce decorticated through decortivating machines on payment of Rs. 0-4-0 per bag of groundnut shelled. This process of decortication before sale by the individual producers was costly and inconvenient. The Market Committee, therefore, introduced from 1952-53 the auctions of groundnut in 'pod' or 'unshelled' form.<sup>1</sup> The accompanying table 4.3 indicates the relative importance of groundnut 'pods' in the total marketing of the commodity in the three markets and

---

<sup>1</sup> From an unpublished note prepared by the Market Committee of Barsi on "Price Spreads for Groundnut" (1959).

**Table 4.2 : Amount of Cess Received by the Market Committees on Different Commodities during 1958-59**

**Centre : Barsi**

Commodity	Rs. nPs.
Jowar	8,857.87
Groundnut pods	3,646.72
Groundnut kernels	174.59
Jaggery	1,415.20
Tur	1,001.91
Moog	1,699.09
Other fourteen commodities	5,257.97
<b>Total</b>	<b>22,053.35</b>

**Centre : Dhulia**

Commodity	Rs. nPs.
Cotton (raw)	2,730.18
Cotton (ginned)	139.50
Groundnut pods	11,987.48
Groundnut kernels	392.50
Wheat	1,378.02
Jowar	2,441.13
Bajri	1,157.11
Jaggery	1,586.75
Gram (whole)	612.29
Chilly (both dry and wet)	679.06
Other five commodities	1,015.48
From other sales	2,109.11
<b>Total</b>	<b>26,228.61</b>

**Centre : Karad**

1957-58

Commodity	Rs. nPs.
Groundnut pods	4,348.62
Groundnut kernels	-
Jaggery	2,615.96
Turmeric	2,428.50
Jowar	4,034.31
Other six commodities	553.53
<b>Total</b>	<b>13,980.92</b>

Sources : Annual Reports of the Market Committees.

**Table 4.3 : Quantities of Groundnut Sold in the Three Regulated Markets.**

(Figures in B.mds.)

Year	BARSII		DHULIA		KARAD	
	Ground- nut pods	Groundnut kernels	Ground- nut pods	Groundnut kernels	Ground- nut pods	Groundnut kernels
1949-50	-	-	10,33,110	6,030	1,49,721	-
1950-51	57,229	48,432	8,48,790	7,500	1,50,110	-
1951-52	1,50,160	3,10,934	7,11,600	1,230	2,03,613	-
1952-53	3,30,128	1,32,580	3,95,145	9,210	2,15,087	-
1953-54	3,76,892	56,190	3,84,630	10,770	2,34,356	-
1954-55	7,52,449	65,072	8,16,060	11,340	2,11,694	432
1955-56	4,90,012	44,722	9,76,860	23,820	1,49,710	254
1956-57	2,96,319	26,156	9,18,060	28,470	1,95,146	24
1957-58	2,44,098	17,554	10,02,390	16,170	1,63,268	-
1958-59	2,05,209	11,174	9,59,070	29,250	94,380	-

**Sources :** Barsi :- An unpublished note prepared by the Market Committee on "Price-Spreads for Groundnut" (1959).

Dhulia  
and  
Karad : Annual Reports of the Market Committees.

shows how the trade of groundnut in kernel form was important before 1952-53 and the gradual replacement of it by large arrivals in the 'unshelled' form since then in the Barsi market.

In the areas surrounding Barsi and Karad markets, the 'spreading' variety of groundnut is generally cultivated which is commercially known as 'Bold'. A very small quantity of 'Ghungru' is also occasionally brought to the markets. Generally, kernel content in the 'bold' type is about 73 maunds in every 100 maunds of groundnut pods while the oil content in the kernel is about 39 per cent. The groundnut coming to the Dhulia market is commercially known as 'spanish peanut' or 'Khandesh'. It is superior to 'bold' in respect of oil content which is about 40 per cent. The kernel content in the pods can be taken as 72 per cent.

It should, however, be noted that the quality of the marketed crop - that is, the kernel and oil content in it - does not remain constant every year. It changes according to the climatic conditions prevailing in each season. It should also be stressed that the quality differs significantly during the first few months of a marketing year. The produce which is sold before the harvest, is often immature and the kernel and oil content in it is appreciably small. After the harvest, the first instalment of the marketed produce is in 'wet' condition. With the passage of time more and more dry produce is marketed till by December or January, all the marketed produce

is in dry condition. In order to avoid confusion between these two kinds of variation in quality, we shall refer to the former yearly variation as the variation in 'quality' while the latter will be identified as the variation in the 'condition' of the marketed produce.

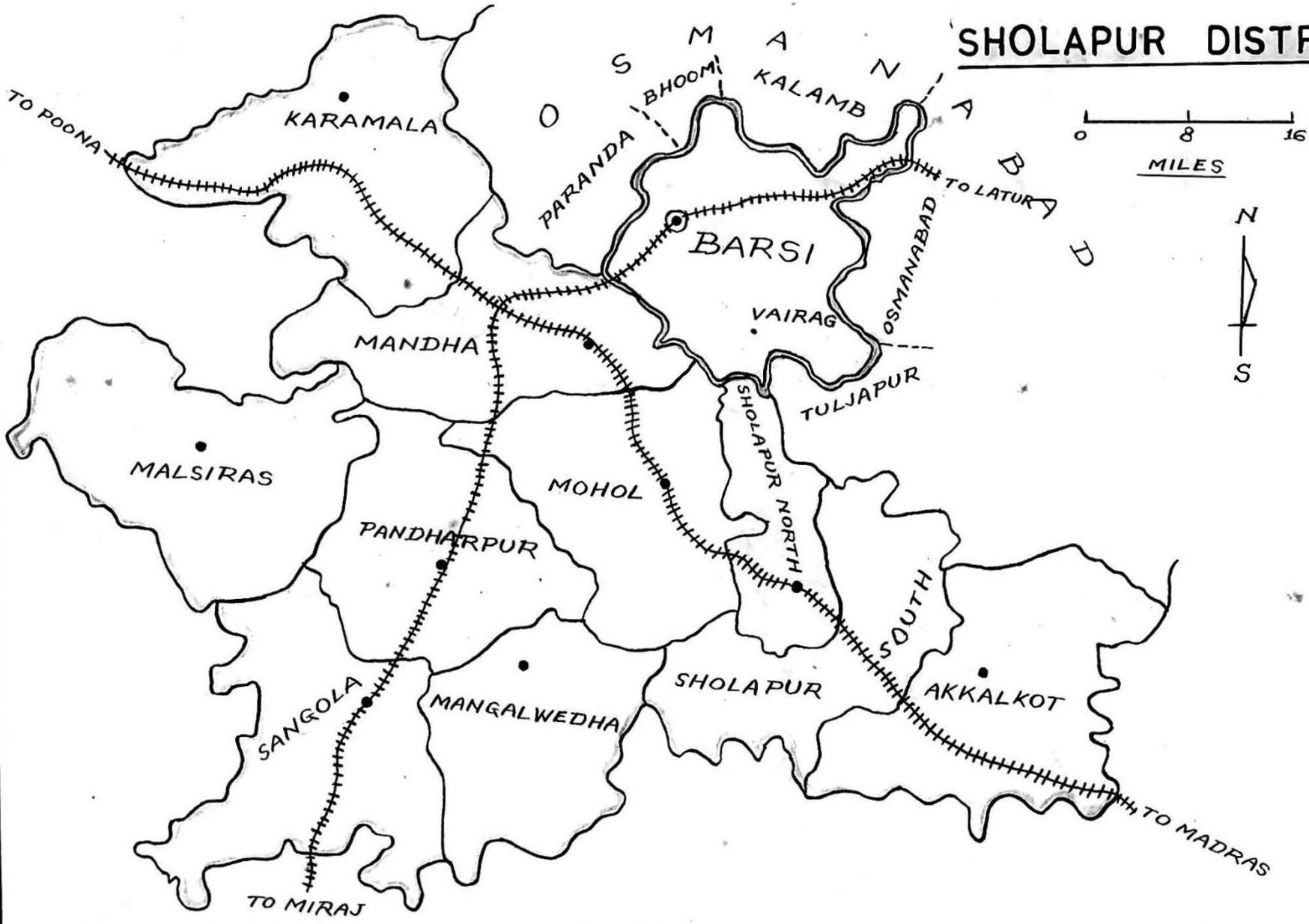
## 3

Yearly Marketing in the Regulated Markets

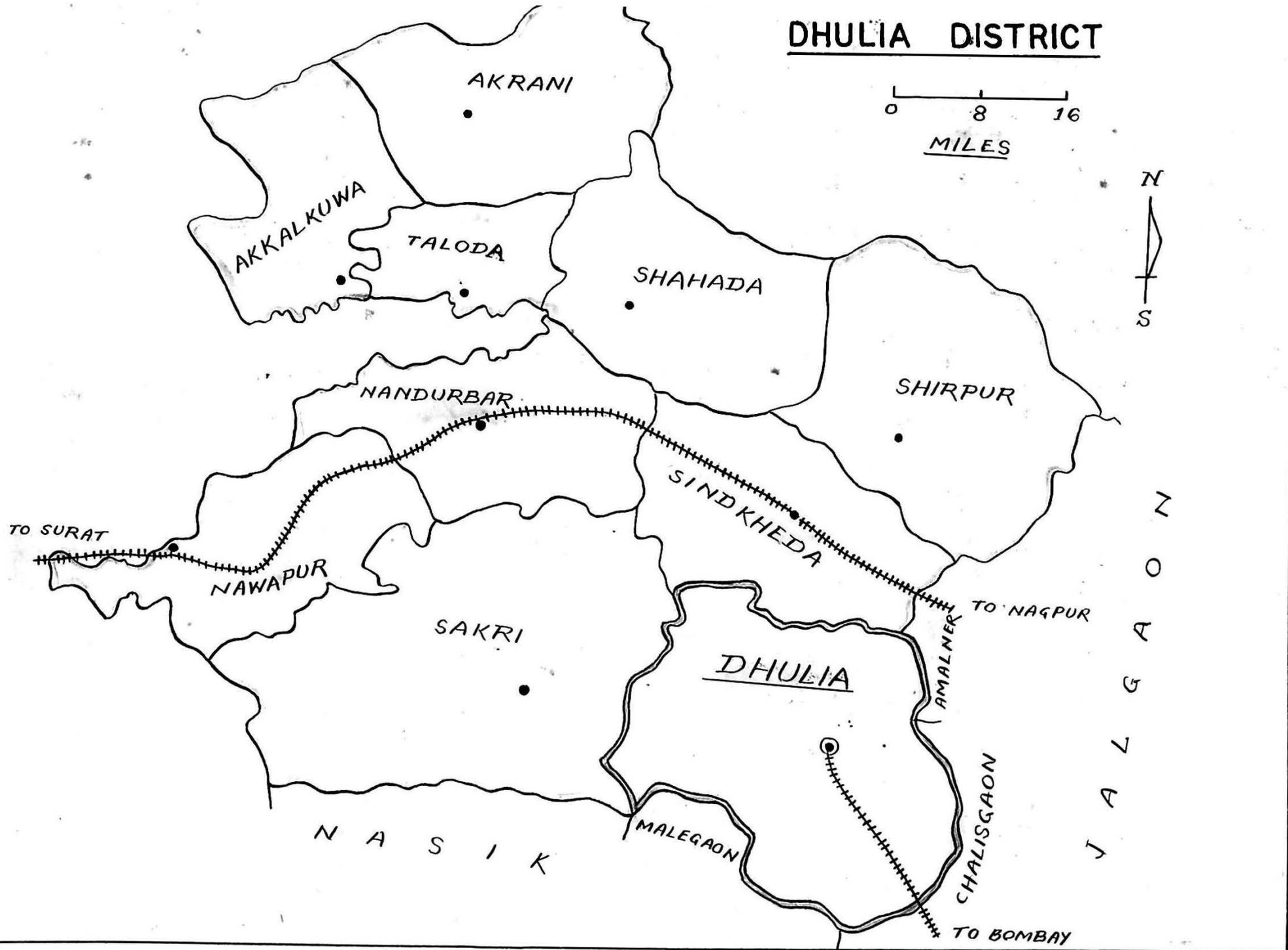
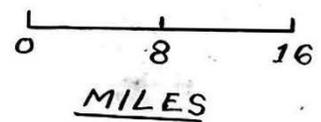
Volume of supply of groundnut in a market depends primarily on the quantity produced in the feeding area during a year. Production is determined by two factors : area under the crop and yield per acre. The latter is influenced by weather conditions, amount of fertilisers and manures used, and incidence of pests and diseases. The decisions regarding acreage to be given to different crops are governed mostly by the weather conditions in the sowing season and conventions, though in the case of cash crops, the price considerations are also reported to be influencing these decisions. Groundnut being a cash crop, most of the harvested produce is marketed and a very small quantity is reserved by the farmers for seed and edible purposes.

It is very difficult to describe the 'feeding area' of each of the markets under study. Some rough idea about them may be had from the accompanying maps ( maps 2, 3 and 4 ) which show the situation of these markets in their respective Districts. It is seen that the Barsi taluka is at the northern

# SHOLAPUR DISTRICT

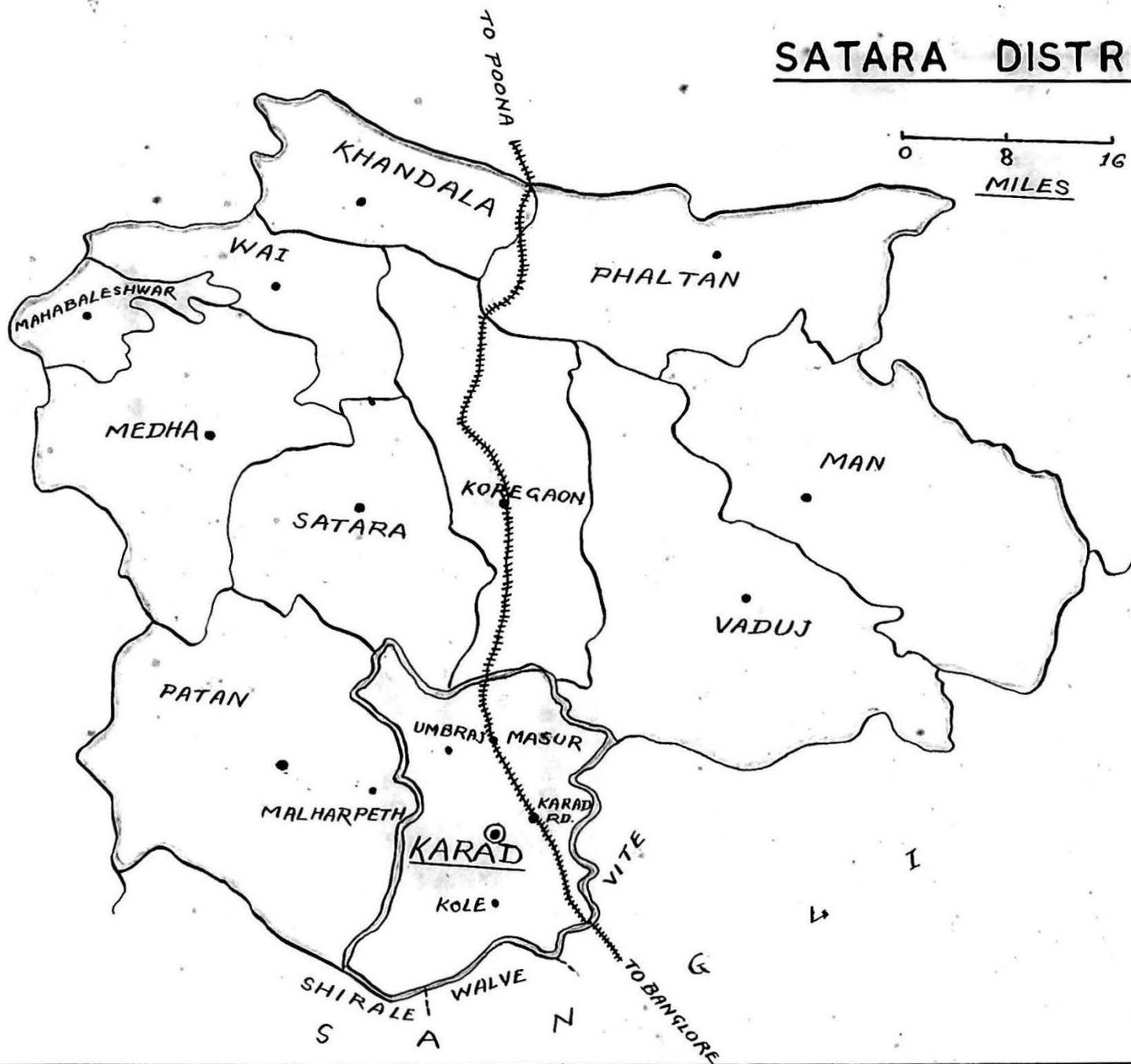


# DHULIA DISTRICT



70

# SATARA DISTRICT



corner of the Sholapur district, adjacent to the Osmanabad district. The market at Barsi is not situated at the centre of the taluka and, therefore, in addition to the produce cultivated in the north-western part of the taluka, that cultivated in the Paranda, Bhoom and Kalamb talukas of the Osmanabad district also finds its way in the Barsi market. The sub-market at Vairag receives produce from the southern part of Barsi taluka.

The Dhulia taluka is at the south-east corner of the district, adjacent to the Nasik and Jalgaon districts. The Dhulia market is more or less centrally situated in the taluka but as it is a big business place having quite a large number of oilmills, it attracts produce from the distant places like Sakri and Sindkheda of the Dhulia district, Amalner, Parola and Chalisgaon of the Jalgaon district and Malegaon of the Nasik district.

The Karad taluka is at the southern corner of the Satara district adjacent to the Sangli district. The Market Area of the Karad market consists of Karad and Patan talukas, but since there are four sub-markets ( three - Umbraj, Masur and Kole - in the Karad taluka and one - Malharpeth - in the Patan taluka), the produce of the Karad taluka is divided between these markets and consequently, Karad receives a smaller share of the production in the taluka. To some extent, the relatively less importance of the Karad market may also be due to the fact that quite a large quantity of groundnut

produced in the taluka is used for edible and export purposes which finds its way directly from the interior markets to the consuming centres without coming to the Karad market.

It is not possible to compare the arrivals of groundnut in the three markets with the production in their actual 'feeding' areas. Since, however, these markets draw their supplies primarily from the production in the talukas, it is best to compare first the yearly arrivals with the production in the talukas. This is done in Table 4.4 which shows area under groundnut and its estimated production in the three talukas and the total quantity of groundnut ( both kernels and pods ) marketed in the regulated markets during the period under consideration. As the separate taluka-wise figures of production are not available, they are estimated by multiplying the yield-per-acre in the three districts to the area under the commodity in the three respective talukas.

It is significant to note that at both Barsi and Dhulia, the yearly marketing exceeds production in most years. In these two markets, the marketing is, on an average, about 75 per cent more than the production in their talukas. At Karad the marketing is just half of the production in taluka.

There are other significant features of marketing brought out by this table. Thus, at Barsi, both the acreage and production in the Barsi taluka increase till 1954-55 and then decrease. The marketed quantity, has, however, decreased from 1952-53 onwards continuously excepting 1954-55. Barring the years 1954-55 and 1955-56, the excess of marketing over

**Table 4.4 : Acreage under and Estimated Production of Groundnut in the Three Talukas and Quantities Marketed in the Three Regulated Markets.**

Centre Barsi

Year	Area under groundnut in the Barsi Taluka (in acres)	Yield per acre in the District (mds.)	Estimated production of groundnut pods in the Barsi Taluka (thousand mds.)	The quantity of groundnut marketed in the Barsi market (thousand mds.)	Per Cent ratio of total marketing to production in the Taluka (Col. 3 <sup>4</sup> + Col. 2 <sup>7</sup> ) x 100 <sup>3</sup>
	(1)	(2)	(3)	(4)	(5)
1949-50	N.A.	N.A.	N.A.	N.A.	N.A.
1950-51	N.A.	10.06	N.A.	124	N.A.
1951-52	30,588	6.60	202	582	288
1952-53	44,244	3.72	165	514	312
1953-54	54,009	6.11	330	455	138
1954-55	61,273	9.25	567	843	149
1955-56	57,776	5.83	337	552	164
1956-57	52,187	5.02	262	333	127
1957-58	51,362	5.10	262	268	102
1958-59	36,631	7.86	288	221	77

contd..

Table 4.4 contd...

Centre Dhulia

Year	Area under groundnut in the Dhulia Taluka (in acres)	Yield per acre in the District (mds.)	Estimated production of groundnut pods in the Dhulia Taluka (thousand mds.)	The quantity of groundnut marketed in the Dhulia market (thousand mds.)	Per Cent ratio of total marketing to production in the Taluka (Col. 3 <sup>4</sup> + Col. 2) x 100 <sup>3</sup>
	(1)	(2)	(3)	(4)	(5)
1949-50	63,345	N.A.	N.A.	1041	-
1950-51	71,602	7.09	508	859	169
1951-52	76,330	4.06	310	713	230
1952-53	78,019	2.17	169	408	241
1953-54	55,820	8.03	448	400	89
1954-55	53,019	5.80	307	832	271
1955-56	56,367	7.69	434	1010	233
1956-57	77,708	8.09	629	958	152
1957-58	86,700	8.61	746	1025	137
1958-59	78,738	7.56	595	1000	168

contd...

Table 4.4 contd ..

Centre Karad

Year	Area under groundnut in the Karad Taluka (in acres)	Yield per acre in the District (mds.)	Estimated Production of groundnut pods in the Karad Taluka (thousand mds.)	The quantity of groundnut marketed in the Karad Market (thousand mds.)	Per Cent ratio of total marketing to production in the Taluka (Col.3 <sup>4</sup> + Col. 2) x 100 <sup>3</sup>
	(1)	(2)	(3)	(4)	(5)
1949-50	N.A.	N.A.	N.A.	150	N.A.
1950-51	36,717	12.33	453	150	33
1951-52	35,151	9.97	350	207	58
1952-53	36,137	10.28	372	215	58
1953-54	35,878	13.54	486	234	48
1954-55	38,155	8.84	337	212	63
1955-56	39,287	8.27	325	150	46
1956-57	29,100	10.86	316	195	62
1957-58	42,233	10.45	442	163	37
1958-59	N.A.	8.90	N.A.	94	N.A.

Sources : (1) Acreage figures from Annual Reports of the Market Committees.

(2) Production figures computed by multiplying the yield of the district (col.2) to the acreage in the taluka. (Yield taken from the Season and Crop Reports.)

(3) Quantity marketed is in terms of pods, and in the case of Barsi and Dhulia takes into account the marketed quantities of kernels also. They are converted by assuming 72 per cent kernel content. In the case of Karad, no such correction is made, since the arrivals of kernels are quite small. The figures for Karad in column 4 refer to sales.

production has also likewise continuously decreased, so much so that in the year 1958-59, the marketing at Barsi was even less than the production. This dwindling importance of the market is attributed by the Market Committee to the fact that since 1953-54, number of oilmills have been established in the interiors of the Barsi taluka and in some of the feeding areas from the Osmanabad district. The first oilmill at Vairag ( in the Barsi taluka ) was established in 1953-54 and by 1958-59, the number of oilmills at this place grew to three. Another oilmill at Gaudgaon ( in the Barsi taluka ) and some oilmills in the Osmanabad district were also started after 1954-55. As a result of these establishments, the produce which would have ordinarily found place in the Barsi market was absorbed in the respective feeding markets for crushing purposes. To some extent, this decrease in arrivals may also be due to the establishment of a sub-market ( of Barsi ) at Vairag in 1954-55 because, after the regulation, this market must have attracted some produce that was coming to the Barsi market from the areas near Vairag.

The Dhulia market has, however, retained its importance. Here, in both acreage and production, there has been a rising trend; but there is no pronounced increase in production in 1954-55 which is witnessed by the other two centres. As far as the marketed quantity is concerned, it is seen decreasing continuously from about ten lakh maunds in 1949-50 to four lakh maunds in 1953-54; thereafter it has sharply increased

and has remained, during the last four years, in the neighbourhood of ten lakh maunds. This means that generally the Dhulia market attracts a quantity which has remained more or less constant; so that, if in any particular year, the production in the taluka falls short of the demand in the Dhulia market, it is made up by more arrivals from outside the taluka. The significant exceptions to this are the years 1952-53 and 1953-54. It is also noteworthy that, in 1954-55, both Barsi and Dhulia attracted quite a large quantity of produce from outside their talukas.

There is nothing much to be said about the Karad market. There has been no element of trend in the changes in acreage and production in the taluka. The yearly marketed quantities are quite small remaining between 1,50,000 maunds and 2,00,000 maunds. In 1958-59, the sales decreased substantially.

Thus, the volume of arrivals in a market is governed not only by the production in the taluka but also by the uses for which groundnut is put, the number of regulated markets and oilmills in the surrounding areas and the local demand for the commodity in the market. Among the three markets considered here, Dhulia seems to be the largest centre where the arrivals are, on an average, twice the production in the taluka. The importance of the Barsi market is declining steadily from 1953-54 onwards and it is becoming, as far as groundnut is concerned, a typical local market attracting produce from the nearby areas only. Karad is

already a local market getting, on an average, about 50 per cent of the total quantity produced in the taluka.

4

### Seasonality in Marketing

The seasonal variation in the supply of agricultural commodities in the primary ( and also, to a lesser extent, in the secondary ) markets is a well known phenomenon. Both climatic factors as well as human institutions are responsible for this seasonality. Climate determines the periods of growth and maturity of crops, and a very low bargaining power of the cultivators, lack of credit and storage facilities, pressing demand for ready cash and ignorance of the market conditions force them to sell their produce immediately after the harvest. Groundnut, though a cash crop, is no exception to this general rule and the bulk of the harvested produce is marketed in the months immediately following the harvest. It is argued that this fetches low price to the farmers not only because of the heavy pressure of supplies but also because of inferior quality of the produce marketed in the early months.

Table 4.5 indicates the extent of seasonality in the marketing of groundnut at the three markets. These seasonal indices are calculated by the method described in Chapter I.

On an average, about 67 per cent of the total marketed

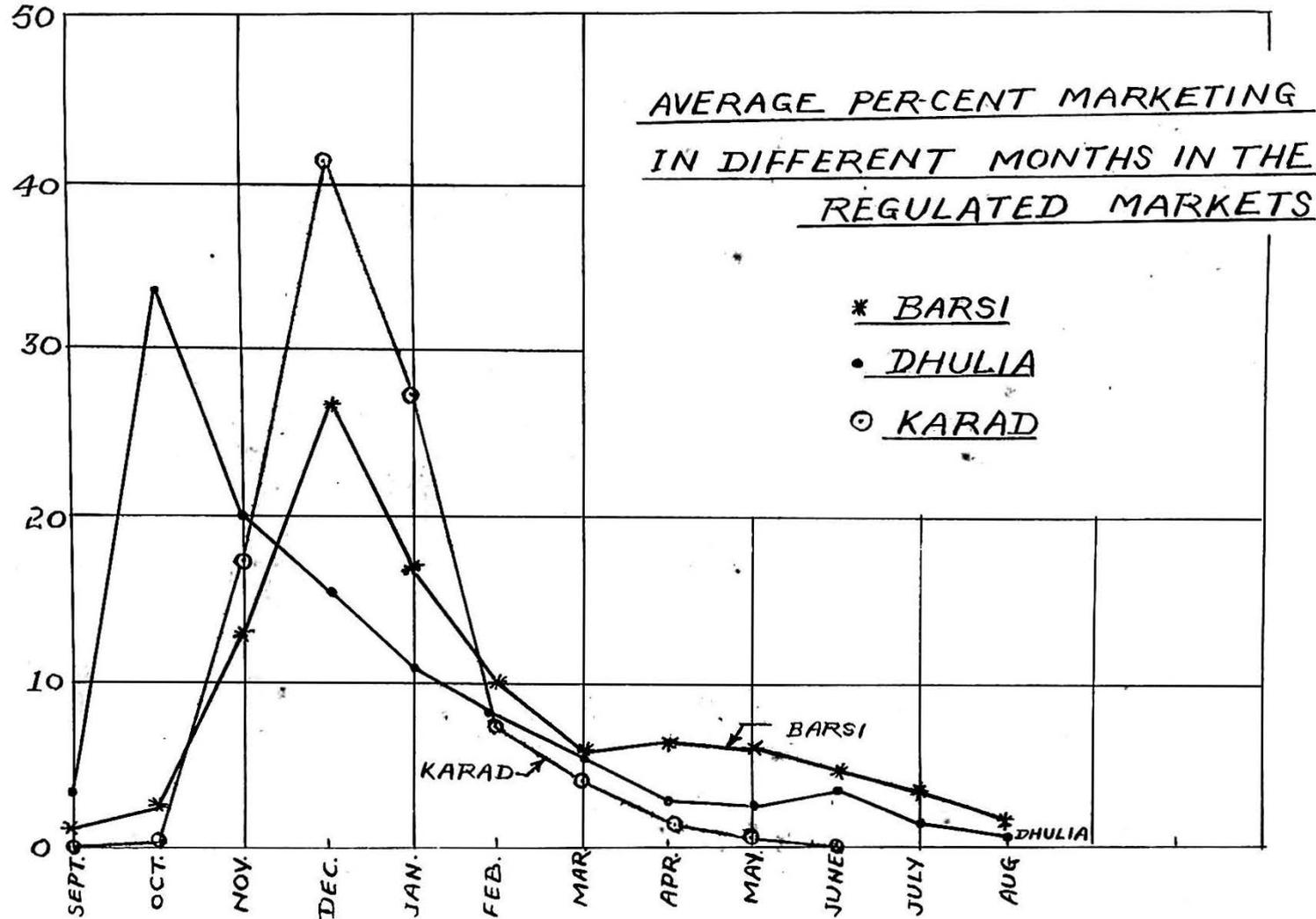
Table 4.5 :

**Table 4.5 : Average Per Cent Marketing in Different Months in the Three Regulated Markets during September 1949 and August 1959.**

Centre		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Total	Mean deviation
Barsi	Sales	1.32	2.49	12.78	27.37	<u>16.88</u>	10.34	6.05	6.68	6.12	4.68	3.49	1.80	100.00	5.67
Dhulia	Arrivals	3.35	33.70	19.88	15.49	10.85	5.48	2.81	2.51	3.46	1.42	0.53	0.52	100.00	7.76
Karad	Arrivals	0.00	0.40	17.13	42.01	27.23	7.37	3.91	1.40	0.49	0.06	0.00	0.00	100.00	10.23
	Sales	0.00	0.43	15.58	41.01	27.13	8.47	5.11	1.73	0.42	0.12	0.00	0.00	100.00	9.81

CHART 4

PER-CENT



produce in Barsi comes to the market during the four months' period between November and February, December witnessing the largest arrivals. In Dhulia, the marketing season begins early, and about 80 per cent of the total marketing is completed between October and January. In Karad, the marketing starts in November and by the end of February, about 94 per cent of the yearly arrivals are complete. In all the markets the arrivals decrease, more or less continuously, from March onwards. Though the seasonality is pronounced in all the markets, it is, as the figures of mean deviations show, more concentrated in Karad than in any other market. Barsi witnesses the lowest seasonality. In Karad, as is to be expected, the seasonality of arrivals is more than that of sales - but the difference between the two can hardly be regarded as large.

This is, thus, the background on which we have to study the effects of price considerations and other factors on the course of marketing in the three markets. This we intend to do in the next chapter with the help of the weekly figures of sales.

Before concluding this chapter a mention must be made of an assumption inherent in the subsequent analysis. We have already noted that we do not possess separate data of arrivals from the regions outside the market area and that these arrivals assume a great importance in the Barsi and Dhulia markets. Hereafter, while using the aggregate figures of

arrivals, we shall take it for granted that these 'imports' have the same characteristics as the arrivals from the market area possess. In other words, there are no differences in quality of the two; both of them exhibit the same pattern of seasonality; and lastly, both of them are affected by the factors determining them in the same way and to the same extent.

## CHAPTER V

## MARKETING OF GROUNDNUT IN THE REGULATED MARKETS: II

In the previous chapter we have considered the general tendencies of marketing as reflected in the annual and monthly figures of arrivals and sales. In the present chapter we intend to examine the weekly figures of sales and study the course of marketing, especially during the period of heavy marketing, in detail. The examination of the weekly figures is considered necessary for two reasons. Firstly, since the heavy pressure of marketing is present, as we have seen earlier, during a period of four or five months in a year, 'month' becomes too large a unit of time for measuring any effect of marketing on prices which is expected to be found in the period of heavy marketing only. This, thus, necessitates analysis of at least weekly prices, if not daily prices; and this in turn requires study of weekly figures of sales. As a matter of fact, 'week' seems to be the only convenient time unit which is, it is hoped, neither too large to obscure the supply effect on prices nor too small to include, to any appreciable extent, the influence of random factors which manifest themselves, for example, in the daily figures of sales and prices. Secondly, apart from the supply effect on prices, there are, as we shall see later, some important characteristics of marketing tendencies which are by themselves interesting and which

can be observed only in the weekly figures of sales. In other words, by taking 'week' as a time unit, we can observe the course of marketing in detail and then subsequently link it with the analysis of prices to see whether it has any effect on prices.

The weekly figures - week beginning from Monday - are compiled from the daily figures of sales in the three markets.<sup>1</sup> The technique of analysis used in this chapter follows closely the one adopted by Holbrook. Working in his examination of the marketing of wheat in western Canada.<sup>2</sup> The figures of sales are preferred in this and the subsequent chapters to those of arrivals in the Karad market because the former are more comparable with the available figures in Barsi and Dhulia.

This chapter consists of three sections. The first one is devoted to the general review of marketing tendencies as reflected in the weekly figures. This is done, firstly, by dividing the marketing year into various periods according to quantities marketed as well as according to changes in the rate of marketing. An Examination of the timing and duration of these periods is attempted subsequently. In the second section, an attempt is made to see whether the marketing tendencies of farmers are

---

<sup>1</sup> Daily or weekly figures of sales and prices are not available in Barsi for the period between Sept. 1952 and Dec. 1952. The year 1952-53 is, therefore, left out of subsequent analysis for the Barsi market.

<sup>2</sup> Holbrook Working, "The Timing of Wheat Marketing in Western Canada," *Wheat Studies* (October, 1936), vol. 13, pp. 33-61.

affected by the changes in the quantities marketed. The last section deals with the relationship between the timing of marketing and the price considerations.

## 1

General Marketing Tendencies.

Different Periods of Marketing :

Chart 21 in chapter VIII (pages 223-225) shows weekly marketings in different markets. It is seen from this chart that the period of heavy marketing is not the same for all the markets; in Dhulia, for example, it starts much earlier than in Barsi and Karad. Moreover, even at one centre, the start and the duration of this period change every year. It seems, therefore, more appropriate to divide the marketing year on the basis of quantities marketed and rates of marketing rather than on the basis of calendar months.

From the weekly figures of sales, a marketing year can be divided into three 'periods' according to the changes in the rate of marketing. We define the 'Rapid Marketing Period' as that period in which the weekly total sales equal or exceed three per cent of the total yearly sales. The choice of this level at three per cent is to some extent arbitrary; but since there is no much variation in the timing and the duration of this period defined whether by two per cent level or by four per cent level, the level at three per cent is

ultimately selected. Moreover, this rate is not much larger than the average weekly rate of marketing which is about two per cent. The Rapid Marketing Period is regarded as a continuous period and the temporary declines in the rate of marketing below the three per cent level are not taken into account. The date of the first day ( i.e. Monday ) of the first week in the Rapid Marketing Period marks the start of the period and the date of the last day ( i.e. Sunday ) of the last week in the Period marks its termination. The period prior to the Rapid Marketing Period is called the "Early Marketing Period" and the period subsequent to the Rapid Marketing Period is named the "Deferred Marketing Period".<sup>3</sup> By so naming the last period, we assume that all the marketing that takes place subsequent to the R.M.P. is deferred by the farmers intentionally for one reason or another.<sup>4</sup>

The above division of the marketing year is based on the rate of marketing. In addition to this, we can locate

---

<sup>3</sup> For the sake of brevity, we will mention these three periods, in the order in which they are introduced, as 'R.M.P.', 'E.M.P.' and 'D.M.P.' in the subsequent analysis.

<sup>4</sup> Working has identified another period between the R.M.P. and the D.M.P. which he names 'secondary' and in which he believes, the marketings 'postponed solely or chiefly for convenience' take place. He identifies this period arbitrarily as that between the termination of the R.M.P. and the end of January. Undoubtedly, such period exists in our markets also, though the identification of it is rather difficult. In any case, the duration of the secondary period in the markets we are considering is small, limited to about three weeks. This is apparent from the sudden and substantial fall in the rate of marketing immediately after the termination of the R.M.P.

three points in the flow of marketing on the basis of quantity marketed. They are '25 per cent point', '50 per cent point' and '75 per cent point' representing respectively, the dates on which 25 per cent, 50 per cent and 75 per cent of the yearly marketing are completed.

Timing and Duration of Different Periods:

The accompanying tables show, for the three markets under consideration, i) the dates on which the R.M.P. in each year started and terminated and the dates of 25 per cent, 50 per cent and 75 per cent points (table 5.1); ii) duration of the R.M.P. and length of intervals between the three points ( table 5.2 ).

The start of rapid marketing is generally governed by the climatic conditions prevailing before and during the marketing period. If all along the farming season, the climatic conditions are favourable for the early maturity of the crop and if rains do not disturb the flow of marketing after the harvest, rapid marketing starts early. When these conditions are not favourable, rapid marketing is delayed. On an average, rapid marketing in Barsi and Karad started on the same date i.e. on 18th November. In Dhulia, it started much earlier, on 30th September indicating early maturity of the crop in this region.

The accompanying chart ( Chart 5 ) presents the year to year changes in the dates of the start of rapid marketing.

Table 5.1 : Timing of Marketing in the Three Markets.

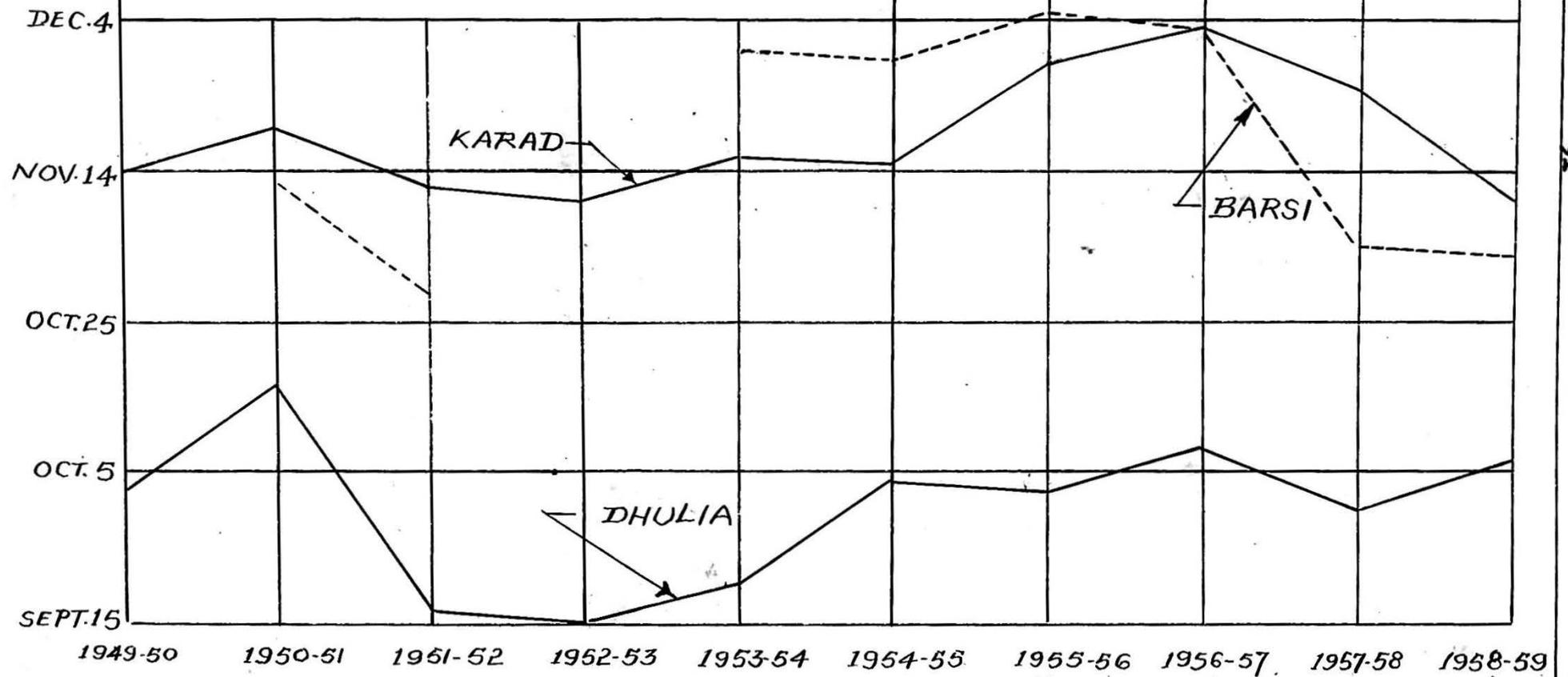
Year	BARSI					DHULIA					KARAD				
	Start of Rapid Marketing	End of Rapid Marketing	25 per cent point	50 per cent point	75 per cent point	Start of Rapid Marketing	End of Rapid Marketing	25 per cent point	50 per cent point	75 per cent point	Start of Rapid Marketing	End of Rapid Marketing	25 per cent point	50 per cent point	75 per cent point
1949-50	-	-	-	-	-	3 Oct	8 Jan	25 Oct	28 Nov	9 Jan	14 Nov	12 Feb	1 Dec	15 Dec	5 Jan
1950-51	13 Nov	11 Feb	5 Dec	27 Dec	7 Feb	16 Oct	14 Jan	28 Oct	25 Nov	29 Dec	20 Nov	28 Jan	11 Dec	29 Dec	24 Jan
1951-52	29 Oct	30 Dec	22 Nov	25 Dec	31 May	17 Sept	23 Dec	6 Oct	15 Nov	17 Jan	12 Nov	27 Jan	3 Dec	19 Dec	6 Jan
1952-53	N.A.	N.A.	N.A.	N.A.	N.A.	15 Sept	16 Nov	6 Oct	17 Oct	7 Nov	10 Nov	25 Jan	30 Nov	13 Dec	24 Dec
1953-54	30 Nov	14 Feb	24 Dec	27 Jan	20 April	21 Sept	1 Nov	13 Oct	11 Nov	1 Feb	16 Nov	31 Jan	11 Dec	27 Dec	19 Jan
1954-55	29 Nov	13 Feb	16 Dec	15 Jan	17 March	4 Oct	23 Jan	19 Oct	11 Nov	18 Jan	15 Nov	30 Jan	3 Dec	27 Dec	22 Jan
1955-56	5 Dec	19 Feb	16 Dec	21 Jan	22 March	3 Oct	18 Dec	18 Oct	5 Nov	9 Dec	28 Nov	26 Feb	21 Dec	16 Jan	12 Feb
1956-57	3 Dec	17 Feb	24 Dec	29 Jan	10 April	8 Oct	23 Jan	27 Oct	1 Dec	8 Jan	3 Dec	3 Feb	18 Dec	5 Jan	21 Jan
1957-58	4 Nov	12 Jan	23 Nov	14 Dec	24 Jan	30 Sept	29 Dec	18 Oct	29 Nov	31 Jan	25 Nov	2 Feb	19 Dec	4 Jan	22 Jan
1958-59	3 Nov	25 Jan	3 Dec	30 Dec	11 March	6 Oct	25 Jan	30 Oct	5 Dec	12 Jan	10 Nov	25 Jan	1 Dec	17 Dec	4 Jan
Average	18 Nov	2 Feb	9 Dec	8 Jan	22 March	30 Sept	26 Dec	19 Oct	18 Nov	5 Jan	18 Nov	2 Feb	9 Dec	27 Dec	16 Jan

Table 5.2 : Duration of Different Marketing Periods in the Three Markets

Year	BARSII					DHULIA					KARAD				
	Early Marketing period	Rapid Marketing Period	25 per cent point	Between 25 per cent and 50 per cent points	Between 50 per cent and 75 per cent points	Early Marketing Period	Rapid Marketing Period	25 per cent point	Between 25 per cent and 50 per cent points	Between 50 per cent and 75 per cent points	Early Marketing Period	Rapid Marketing Period	25 per cent point	Between 25 per cent and 50 per cent points	Between 50 per cent and 75 per cent points
1949-50	-	-	-	-	-	28	98	51	34	42	70	91	88	14	21
1950-51	70	91	93	22	42	42	91	55	28	34	77	70	99	18	26
1951-52	56	63	81	33	158	14	98	34	40	63	70	77	92	16	18
1952-53	N.A.	N.A.	N.A.	N.A.	N.A.	14	63	36	11	21	70	77	91	13	11
1953-54	91	77	116	34	83	21	42	44	29	82	77	77	103	16	23
1954-55	91	77	109	30	61	35	112	51	23	68	77	77	96	24	26
1955-56	98	77	110	36	61	35	77	51	18	34	91	91	115	26	27
1956-57	91	77	113	36	71	35	98	55	35	38	91	63	107	18	16
1957-58	63	70	83	21	41	28	91	47	42	63	84	70	109	16	18
1958-59	63	84	94	27	71	35	112	60	36	38	70	77	92	16	18
Average	78	77	100	30	74	29	88	48	30	48	78	77	100	18	20

CHART 5

START OF RAPID MARKETING  
IN DIFFERENT YEARS



It is not possible to relate these changes with the climatic conditions because the information about the latter is not available. Broadly, however, the changes at the three markets seem to be moving in the same direction. Thus, at all the markets, rapid marketing started quite early in the year 1951-52, while it was delayed in the years 1950-51 and 1956-57. The changes in these dates show no relationship either with the changes in yield which is also determined by the climatic factors, or with the prices prevailing at the time of marketing.

It is, however, significant to note one characteristic of the start of rapid marketing. It is seen from the accompanying scatter diagrams ( Chart 6 ) that the climatic conditions are not the only factor determining the timing of the start of rapid marketing. It is also governed by the total quantities to be marketed in a year; the large quantities seem to be accompanied by a delayed start of rapid marketing while when the small quantities are to be marketed, the R.M.P. starts early. This relationship is clearly pointed out by the figures in the Barsi and Dhulia markets. The scatter around the lines of relationship that can be drawn through the middle of these points is of course large (which probably indicates the influence of climatic conditions after the harvest) but it indicates an unmistakable relationship between the two factors. The exceptional case of Karad is, however, noteworthy; in this market there is no relationship

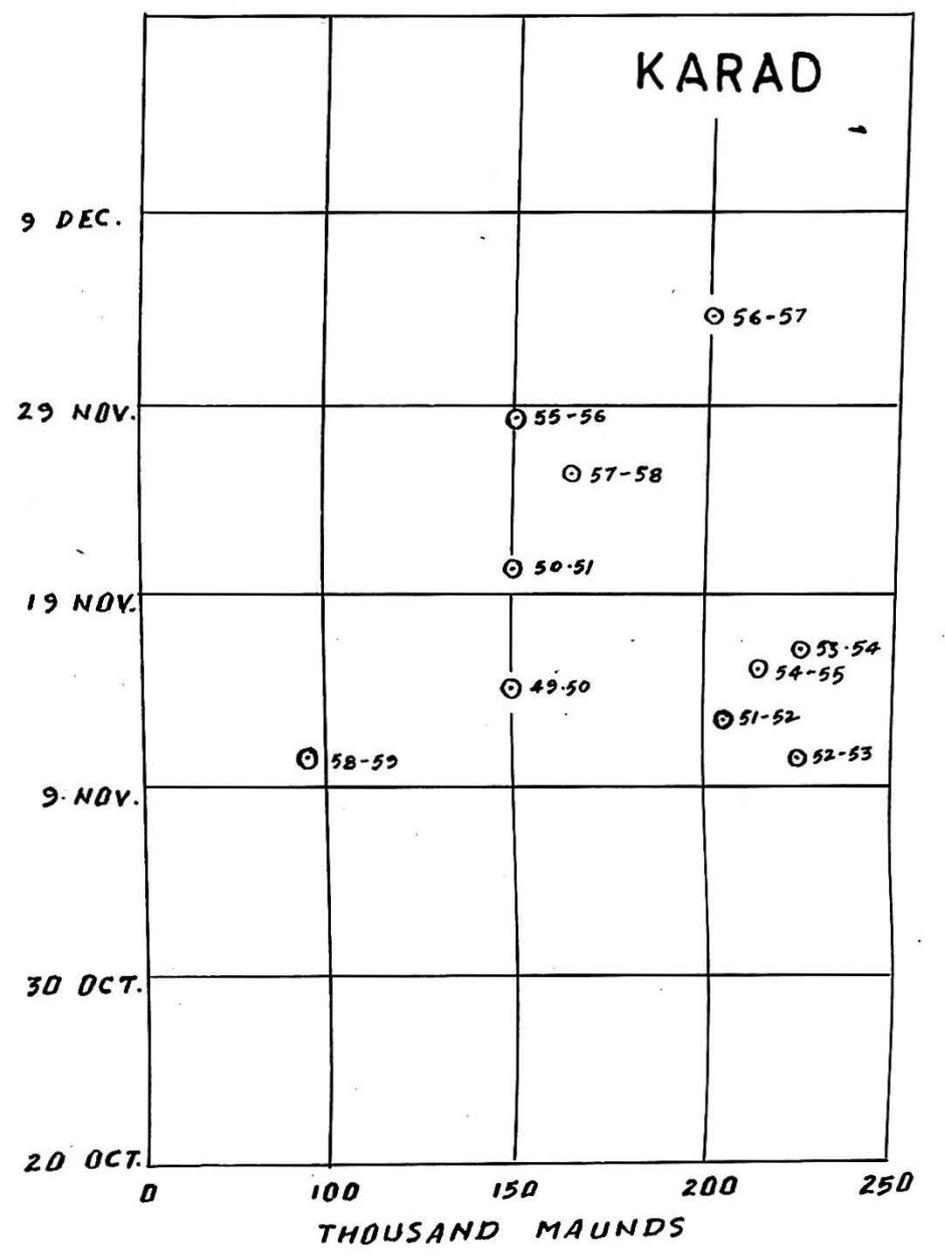
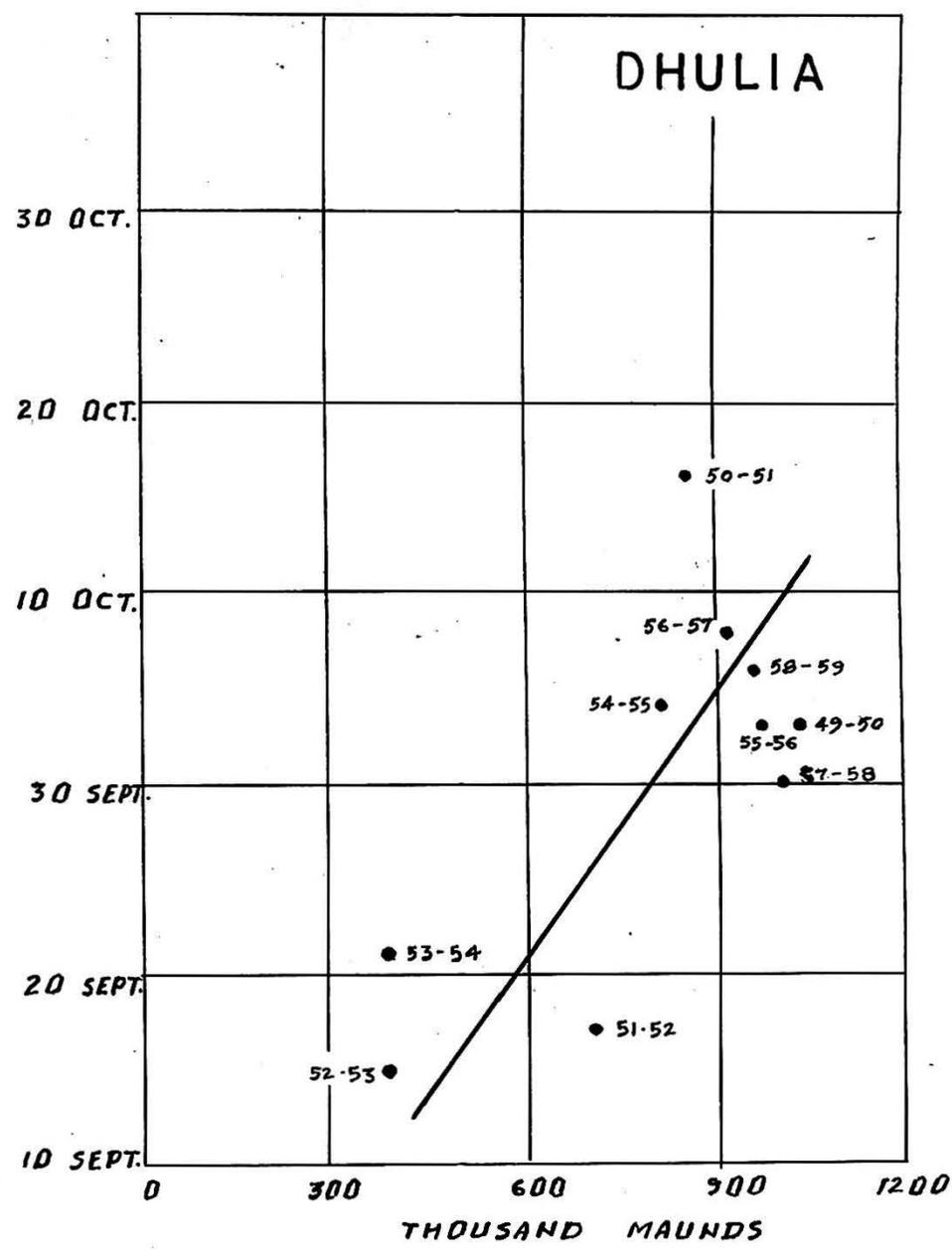
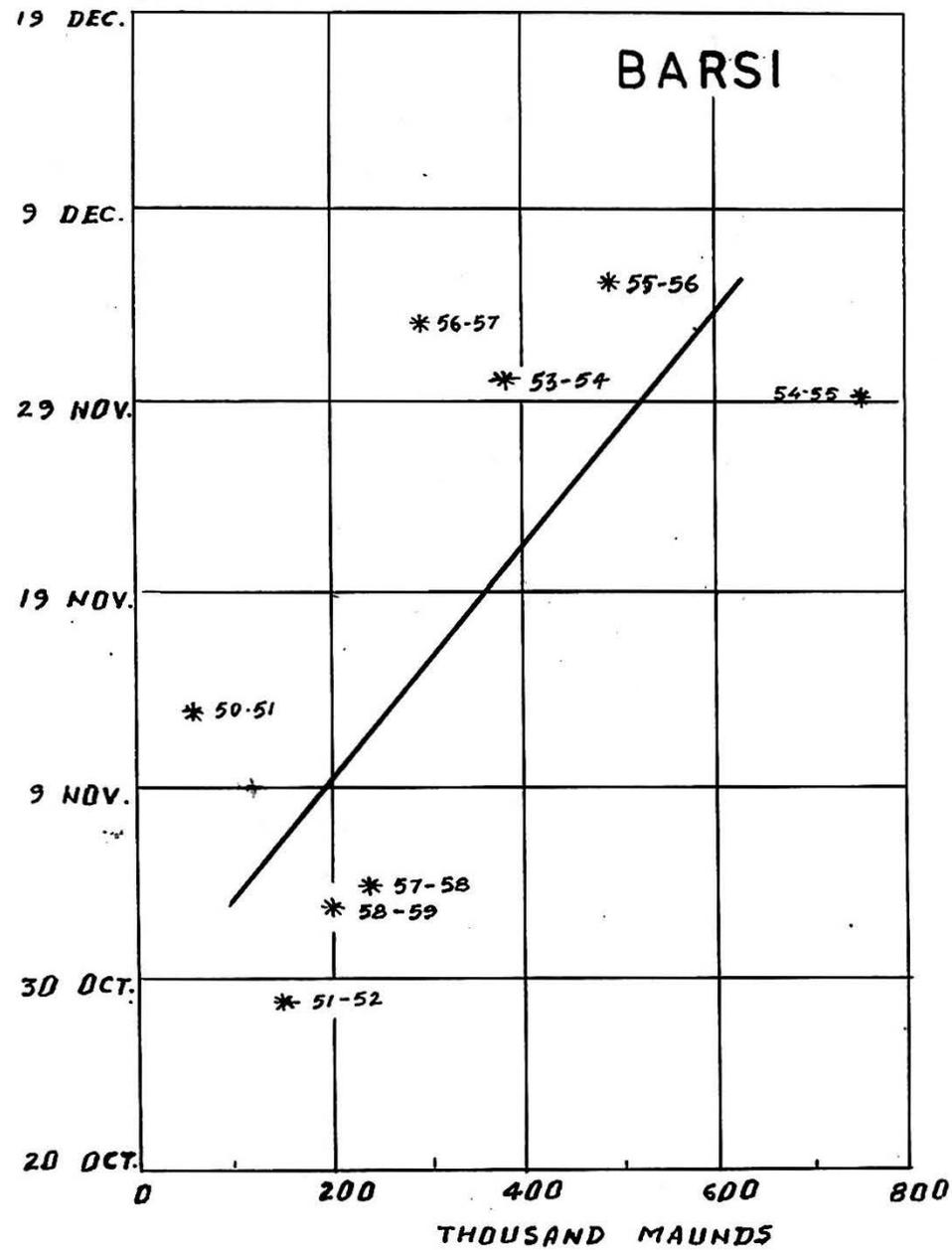
CHART 6

RELATIONSHIP BETWEEN YEARLY MARKETING AND START OF THE R.M.P.

START OF R.M.P.

START OF THE R.M.P.

START OF THE R.M.P.



YEARLY MARKETING

visible at least till 1954-55, but from 1955-56 onwards, we find an evidence of some such relationship between the two factors.

It is not possible to explain why such relationship exists between the quantity marketed and the timing of rapid marketing. But so far as an increase in the annual marketed quantities is due to an increase in production, it may be said that the climatic factors which lead to good crop also lead to late harvests and, therefore, to late start of rapid marketing. This is, of course, hypothetical, especially in view of the two facts, that a) there is no association between the start of rapid marketing and yield and b) till 1954-55, no such relationship between quantities and the start of the R.M.P. is visible at Karad.

It is, however, interesting to observe the effects of changes in the dates of the start of rapid marketing on other dates. On an average, as the tables 5.1 and 5.2 bring out, the 25 per cent point is reached within 20 to 22 days, after the start of the R.M.P. and this duration remains unaffected whether the rapid marketing starts early or late. This is clear from Chart 7. The average lines of relationship are of the same slope and indicate fairly good one to one correspondence between these two timings.

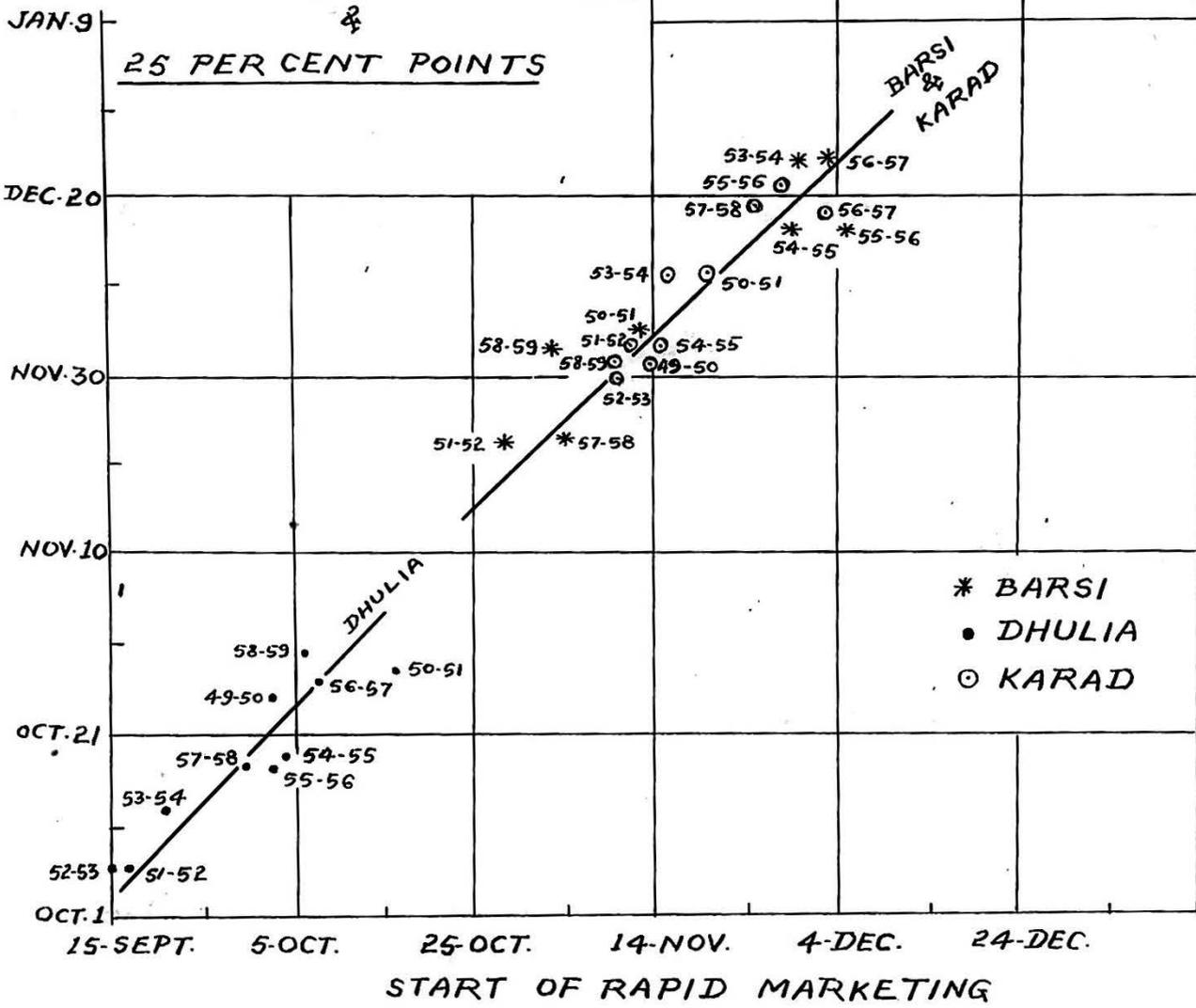
But not so with the 50 per cent points ! Chart 8 presents the relationship between the 25 per cent points and 50 per cent points. We know, from tables 5.1 and 5.2

# CHART 7

25 PERCENT POINT

RELATIONSHIP BETWEEN  
START OF RAPID MARKETING

25 PERCENT POINTS



50 PERCENT POINTS

FEB-9

CHART 8

RELATIONSHIP BETWEEN

JAN-20

25 PERCENT POINTS

AND

50 PERCENT POINTS

DEC-31

DEC-11

NOV-21

NOV-1

OCT-12

1  
OCT.

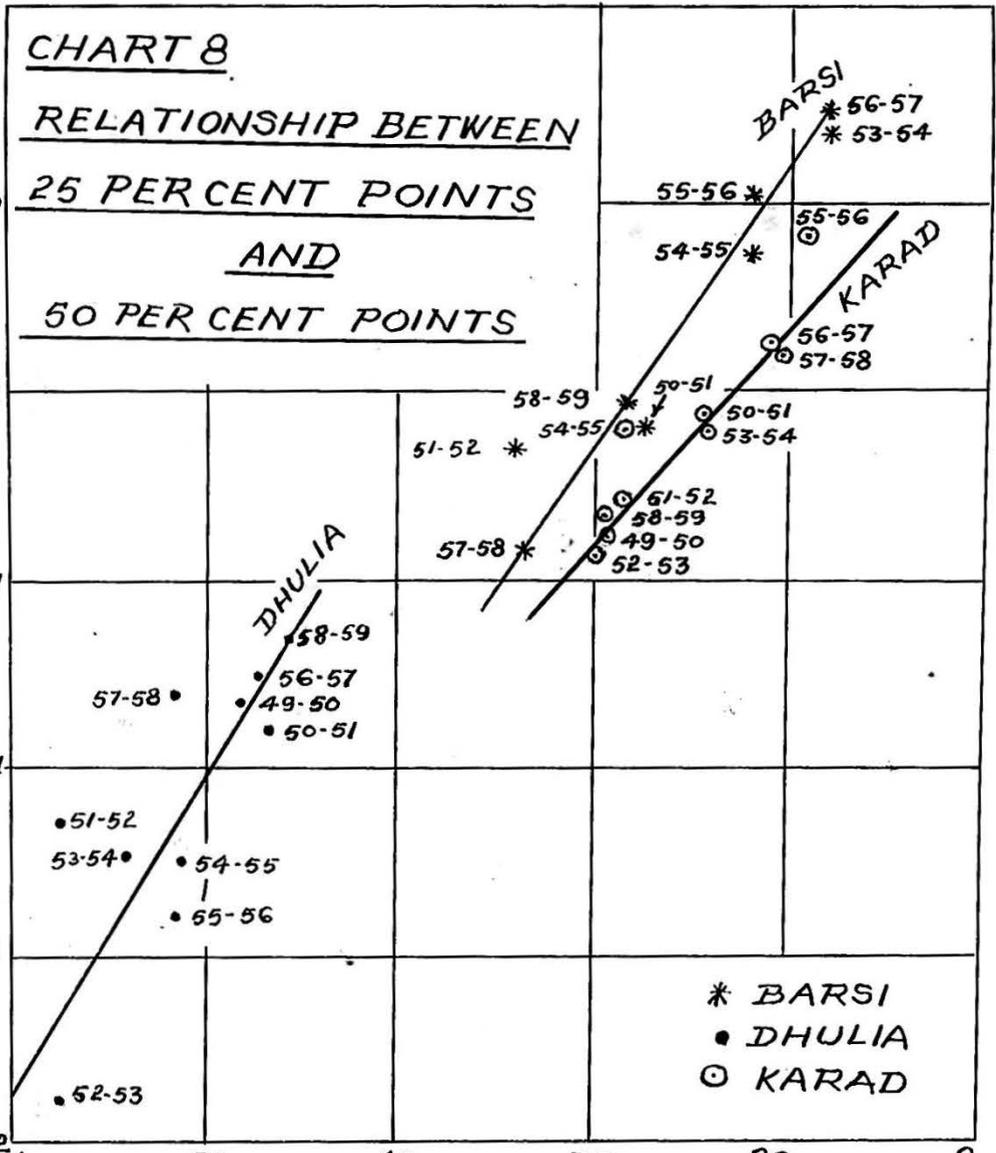
21  
OCT.

10  
NOV.

30  
NOV.

20  
DEC.

9  
JAN.



\* BARSII  
 • DHULIA  
 ○ KARAD

25 PERCENT POINTS

that the average interval between these two points is of 30 days at Barsi and Dhulia and of 18 days at Karad. But, as chart 8 indicates, a delay of some ten days in the 25 per cent point affects this interval by delaying the 50 per cent point at Barsi and Dhulia by some fourteen days. The interval between these two points at Karad, however, remains more or less unaffected by the early or late occurrence of the 25 per cent point. In other words, when the start of rapid marketing is delayed it does not affect the interval between that date and the 25 per cent point; but it does increase the interval between the 25 per cent point and the 50 per cent point at Barsi and Dhulia.

In most years the 75 per cent point is also covered, in the case of Dhulia and Karad, by the R.M.P. and the average interval between the 50 per cent point and 75 per cent point at these centres has been of about 48 days and 20 days respectively ( see table 5.2 ). The corresponding interval at Barsi is of about 74 days. These intervals, however, do not remain the same if the reaching of the 50 per cent point occurs early or late; as chart 9 indicates, at Barsi and Dhulia, the delay of fourteen days in the 50 per cent point leads to a delay of some twenty days in the 75 per cent point. At Karad, for the delay of ten days in the 50 per cent point, there is a delay of about fourteen days. The total effect of the delay of ten days in the start of rapid marketing, thus, results in the delay of twenty days

75 PERCENT  
POINTS

**CHART 9**

RELATIONSHIP BETWEEN  
50 PERCENT POINTS AND  
75 PERCENT POINTS

APRIL 16

MARCH 27

MARCH 7

FEB. 5

JAN. 26

JAN. 6

DEC. 17

NOV. 27

NOV. 7

\* BARS I  
53-54

\* 56-57

\* 55-56

\* 54-55

58-59 \*

DHULIA

50-51 \*

KARAD

○ 55-56

• 53-54

• 57-58

• 54-55

• 51-52

• 58-59

• 49-50

• 56-57

• 50-51

○ 52-53

○ 49-50

○ 51-52

○ 58-59

\* 57-58

○ 50-51

○ 54-55

○ 57-58

○ 56-57

○ 53-54

\* BARS I

• DHULIA

○ KARAD

12  
OCT.

1  
NOV.

21  
NOV.

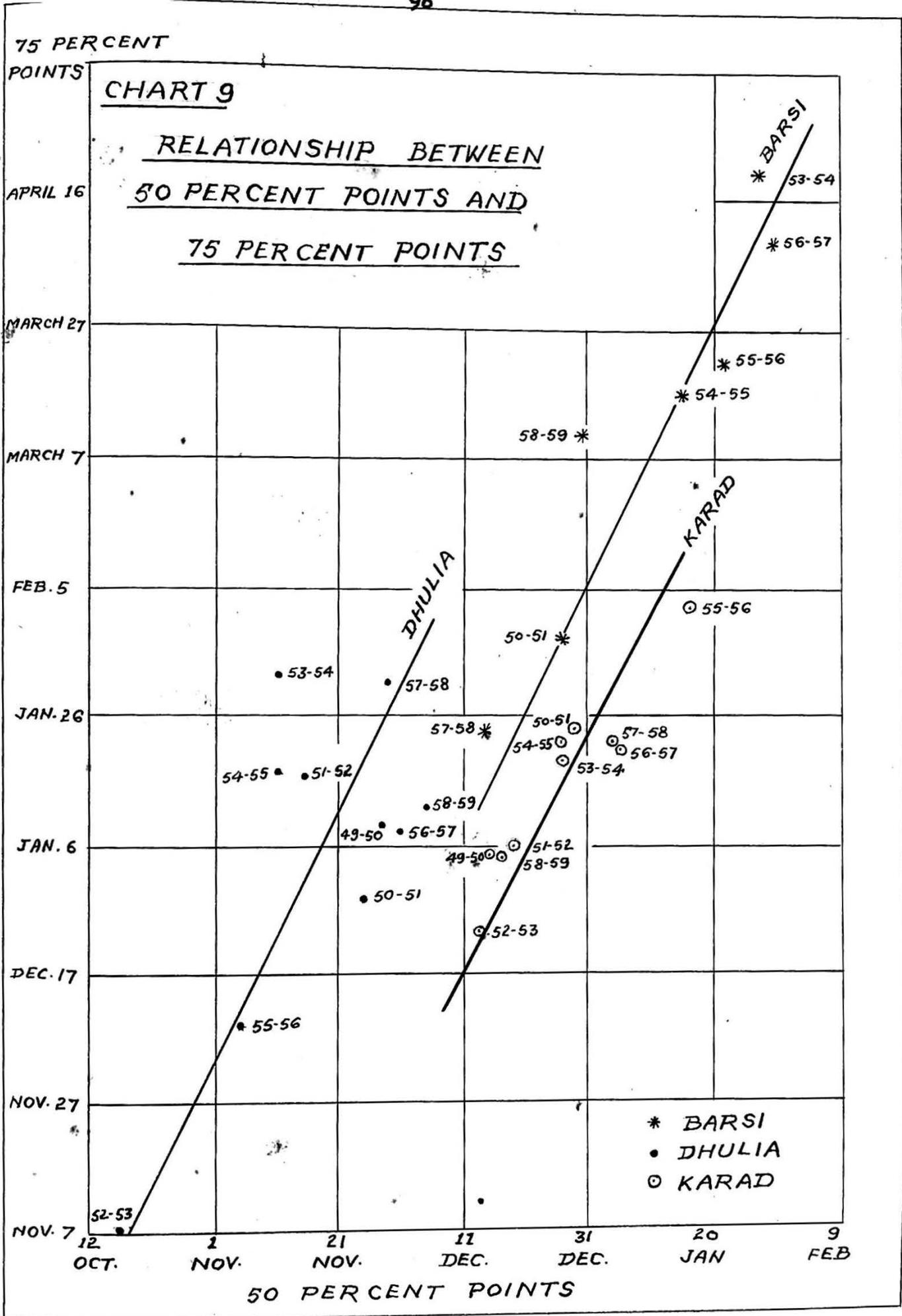
11  
DEC.

31  
DEC.

20  
JAN

9  
FEB

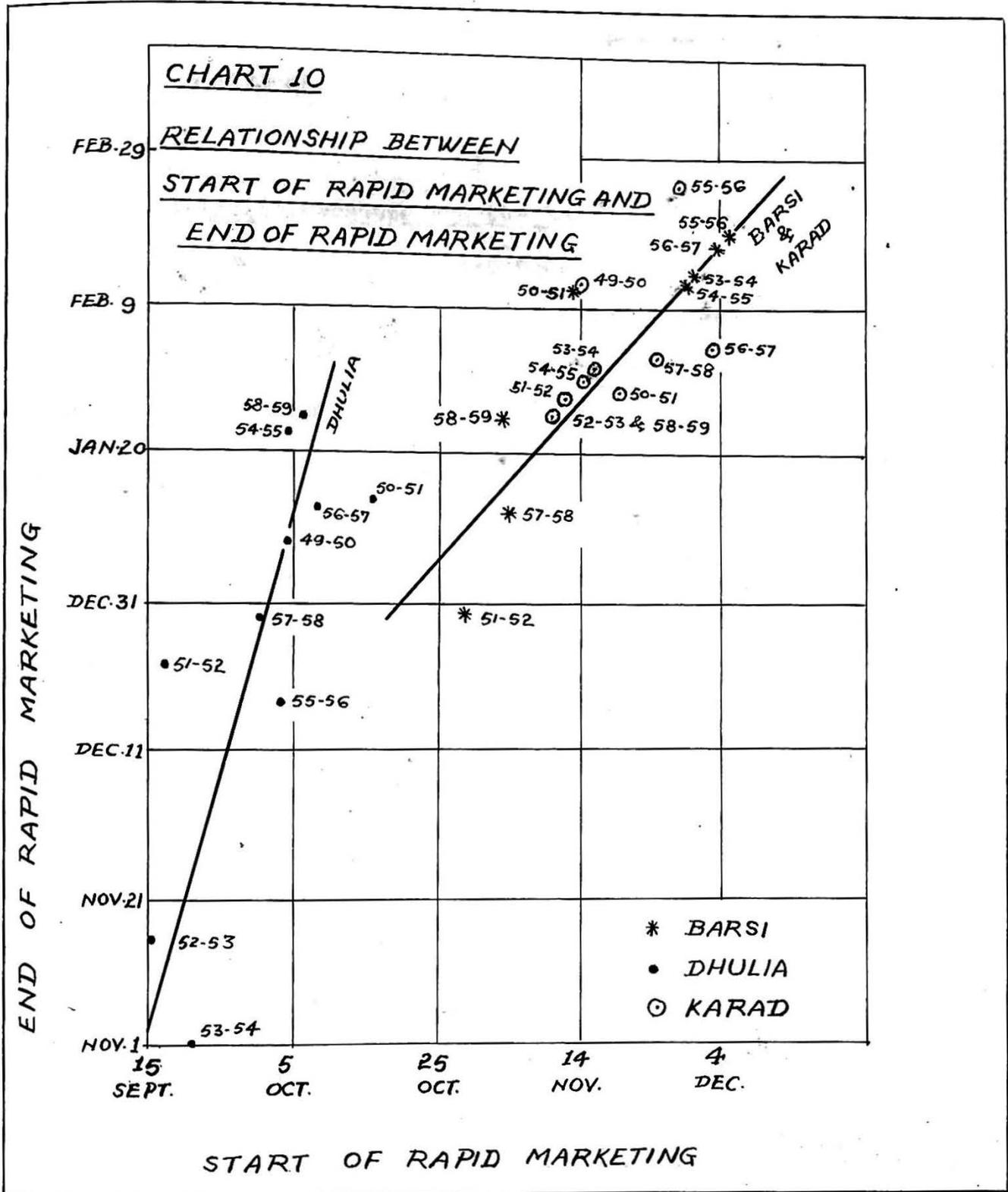
50 PERCENT POINTS



at Barsi and Dhulia and of fourteen days at Karad in the 75 per cent point.

The effect of early or late occurrence of rapid marketing is more particularly seen in the duration of the R.M.P. On an average, the duration of this period is of 77 days at Barsi and Karad and of 88 days at Dhulia. In chart 10 lines of average relationship are drawn, for Barsi and Dhulia, neglecting the year 1951-52 which appears to be exceptional; and these lines indicate that at these two centres the duration of the R.M.P. remains the same, no matter whether the start of the R.M.P. is delayed or occurs early. In the case of Dhulia, however, a delay of some ten days in the start of rapid marketing increases the duration of the period by as much as thirty days. It is also significant to note the spread around the line of relationship for Dhulia which indicates the exceptional years.

The duration of the R.M.P. as well as the interval between different points are expected to be determined by the quantities marketed during the period and during different intervals. We have seen that at Barsi and Dhulia, the delayed start of rapid marketing is accompanied by large quantities marketed in a year. In the light of this fact, the progressive increase in the delay of reaching 50 per cent and 75 per cent points is understandable. The explanation of longer duration of the R.M.P. at Dhulia in the event of a late start of the R.M.P., however, will have to be



sought only in the quantities marketed in the H.M.P. in different years; to this and other aspects of marketing related with quantities, we will now turn our attention.

## 2

Quantities Marketed and the Marketing Tendencies.

The accompanying tables show the absolute (table 5.3) and per cent (table 5.4) quantities marketed in different marketing periods. The rates of marketing per week are presented in Table 5.5 and Table 5.6. On an average, as indicated by these tables, about 56 per cent of the yearly marketed produce is marketed in the H.M.P. at Barsi. The corresponding figures at Dhulia and Karad are larger, being about 71 per cent and 84 per cent respectively. These quantities are marketed on an average at the weekly rate of 5 per cent in Barsi, 6 per cent in Dhulia and 8 per cent in Karad. It is also obvious from these tables that the increase in the yearly marketed quantity leads to an increase in the quantities marketed in all the periods, especially in the H.M.P. and the D.M.P.

If we regard that the total quantity marketed in a year constitutes the total disposable supply with the farmers at the beginning of the year, it will be interesting to see whether any change in this total disposable supply affects, other things remaining constant, the seasonality of marketing; or, to be more precise, whether an increase in this supply

Table 5.3 : Quantities Marketed During Different Periods

( In Maunds )

Year	BARSII				DHULIA				KARAD			
	During E.M.P.	During R.M.P.	During D.M.P.	Total	During E.M.P.	During R.M.P.	During D.M.P.	Total	During E.M.P.	During R.M.P.	During D.M.P.	Total
1949-50	-	-	-	-	49,875	7,21,005	2,62,365	10,33,245	5,157	1,36,995	7,669	1,49,821
1950-51	5,564	38,461	12,974	57,001	12,195	6,91,245	1,45,020	8,48,460	5,233	1,11,803	32,900	1,49,936
1951-52	8,244	69,820	72,096	1,50,160	8,565	4,80,945	2,22,090	7,11,600	7,603	1,78,233	21,053	2,06,889
1952-53	N.A.	N.A.	N.A.	-	4,245	3,08,625	82,110	3,94,980	4,464	2,10,704	9,952	2,25,120
1953-54	20,149	1,93,493	1,62,457	3,76,099	2,550	1,80,015	2,01,975	3,84,540	3,598	1,92,026	31,514	2,27,138
1954-55	90,864	4,04,059	2,56,428	7,51,351	9,780	6,16,710	1,76,940	8,03,430	8,550	1,65,526	42,415	2,16,491
1955-56	54,691	2,59,667	1,79,285	4,93,643	29,775	7,49,940	1,97,430	9,77,145	7,075	1,22,425	22,978	1,52,478
1956-57	37,678	1,53,733	1,03,382	2,94,793	42,615	6,72,675	2,02,335	9,17,625	9,624	1,68,612	20,294	1,98,530
1957-58	27,052	1,47,802	69,244	2,44,098	17,295	6,33,930	3,51,165	10,02,390	8,982	1,33,813	23,791	1,66,586
1958-59	5,188	1,27,800	72,010	2,04,998	28,875	7,62,990	1,67,205	9,59,070	3,677	83,028	6,478	93,183

Note : Figures relate to groundnut pods.

Table 5.4 : Per Cent Quantity Marketed during Different Periods.

Year	BARSII			DHULIA			KARAD		
	During E.M.P.	During R.M.P.	During D.M.P.	During E.M.P.	During R.M.P.	During D.M.P.	During E.M.P.	During R.M.P.	During D.M.P.
1949-50	-	-	-	4.83	69.78	25.39	3.44	91.44	5.12
1950-51	9.76	67.48	22.76	1.44	81.47	17.09	3.49	74.57	21.94
1951-52	5.49	46.50	48.01	1.20	67.59	31.21	3.67	86.15	10.18
1952-53	N.A.	N.A.	N.A.	1.07	78.14	20.79	1.98	93.60	4.42
1953-54	5.36	51.45	43.19	0.66	46.81	52.53	1.58	84.54	13.88
1954-55	12.09	53.78	34.13	1.22	76.76	22.02	3.95	76.46	19.59
1955-56	11.08	52.60	36.32	3.05	76.75	20.20	4.64	80.29	15.07
1956-57	12.78	52.15	35.07	4.64	73.31	22.05	4.85	84.93	10.22
1957-58	11.08	60.55	28.37	1.73	63.24	35.03	5.39	80.33	14.28
1958-59	2.53	62.34	35.13	3.01	79.56	17.43	3.95	89.10	6.95
Average	8.77	55.86	35.37	2.29	71.34	26.37	3.69	84.14	12.17

Table 5.5 : Rate of Marketing Per Week During Different Periods.

( In Maunds )

Year	BARSİ				DHULIA				KARAD			
	During E.M.P.	During R.M.P.	During D.M.P.	Average for the year	During E.M.P.	During R.M.P.	During D.M.P.	Average for the year	During E.M.P.	During R.M.P.	During D.M.P.	Average for the year
1949-50	-	-	-	-	12,468	51,500	7,717	19,870	1,289	10,538	548	3,654
1950-51	556	2,959	447	1,096	2,032	53,173	4,395	16,317	1,744	11,180	1,567	4,410
1951-52	1,030	7,758	2,060	2,888	4,282	34,353	6,169	13,685	1,901	16,203	957	5,592
1952-53	N.A.	N.A.	N.A.	N.A.	2,122	38,578	1,955	7,596	446	19,155	452	5,235
1953-54	1,550	17,590	5,802	7,233	850	30,002	4,697	7,395	720	17,457	1,432	5,977
1954-55	6,990	36,733	9,158	14,449	1,956	38,544	5,708	15,451	770	15,048	1,928	4,920
1955-56	3,906	23,606	6,403	9,314	5,955	68,176	5,336	18,437	708	9,417	1,641	4,121
1956-57	2,898	13,976	3,692	5,669	8,523	48,048	6,131	17,647	1,925	18,735	1,561	7,353
1957-58	3,006	14,780	2,098	4,694	4,324	48,764	10,033	19,277	748	13,381	1,830	4,760
1958-59	576	10,650	2,323	3,942	5,775	47,687	5,394	18,444	368	7,548	360	2,389

Notes : 1) Figures relate to groundnut pods.

2) In Karad, groundnut is not marketed throughout the year. For calculating the rates of marketing during E.M.P., D.M.P. as well as for the entire year, only those weeks are considered in which the marketing took place.

Table 5.6 : Per Cent Rate of Marketing Per Week During Different Periods.

Year	BARSII			DHULIA			KARAD		
	During E.M.P.	During R.M.P.	During D.M.P.	During E.M.P.	During R.M.P.	During D.M.P.	During E.M.P.	During R.M.P.	During D.M.P.
1949-50	-	-	-	1.21	4.98	0.75	0.86	7.03	0.37
1950-51	0.98	5.19	0.78	0.24	6.27	0.52	1.16	7.46	1.04
1951-52	0.69	5.17	1.37	0.60	4.83	0.87	0.92	7.83	0.46
1952-53	N.A.	N.A.	N.A.	0.54	9.77	0.50	0.20	8.51	0.20
1953-54	0.41	4.68	1.54	0.22	7.80	1.22	0.32	7.69	0.63
1954-55	0.93	4.89	1.22	0.24	4.80	0.71	0.36	6.95	0.89
1955-56	0.79	4.78	1.30	0.61	6.98	0.55	0.46	6.18	1.08
1956-57	0.98	4.74	1.25	0.93	5.24	0.67	0.97	9.44	0.79
1957-58	1.23	6.55	0.86	0.43	4.86	1.00	0.45	8.03	1.10
1958-59	0.28	5.20	1.13	0.60	4.97	0.56	0.40	8.10	0.39
Average	0.79	5.15	1.18	0.56	6.05	0.74	0.61	7.72	0.70

enables the farmers to distribute their marketing activity more evenly during a year. The marketing will tend to become less seasonal if, (a) the proportionate quantity marketed in the R.M.P. is decreased or/and (b) the duration of the R.M.P. is increased.

The accompanying scatter diagrams (chart 11) present the relationship between total yearly marketing and per cent produce marketed during the R.M.P. It is apparent that there is no significant relationship between these two factors.<sup>5</sup> We shall see later that in most cases, the per cent produce to be marketed in the R.M.P. is determined after taking into account the price prospects. It is also seen from chart 12 which presents the yearly marketed produce against the duration of the R.M.P., that excepting Dhulia, at no other centre there is any effect of the former on the latter. At Dhulia, there is a positive relationship between the two, which seems natural from the analysis in the earlier section. In other words, normally the seasonality in marketing is not affected at Barsi and Karad by the changes in the quantities marketed yearly; at Dhulia, however, the marketing is more seasonal when the total marketed quantity in a year is small and it is less when the latter is large.

When, therefore, the quantity to be marketed in a year is more, it is done by increasing the rate of marketing in the R. M. P. at Barsi and Karad. This is shown graphically in chart 13. This chart indicates that

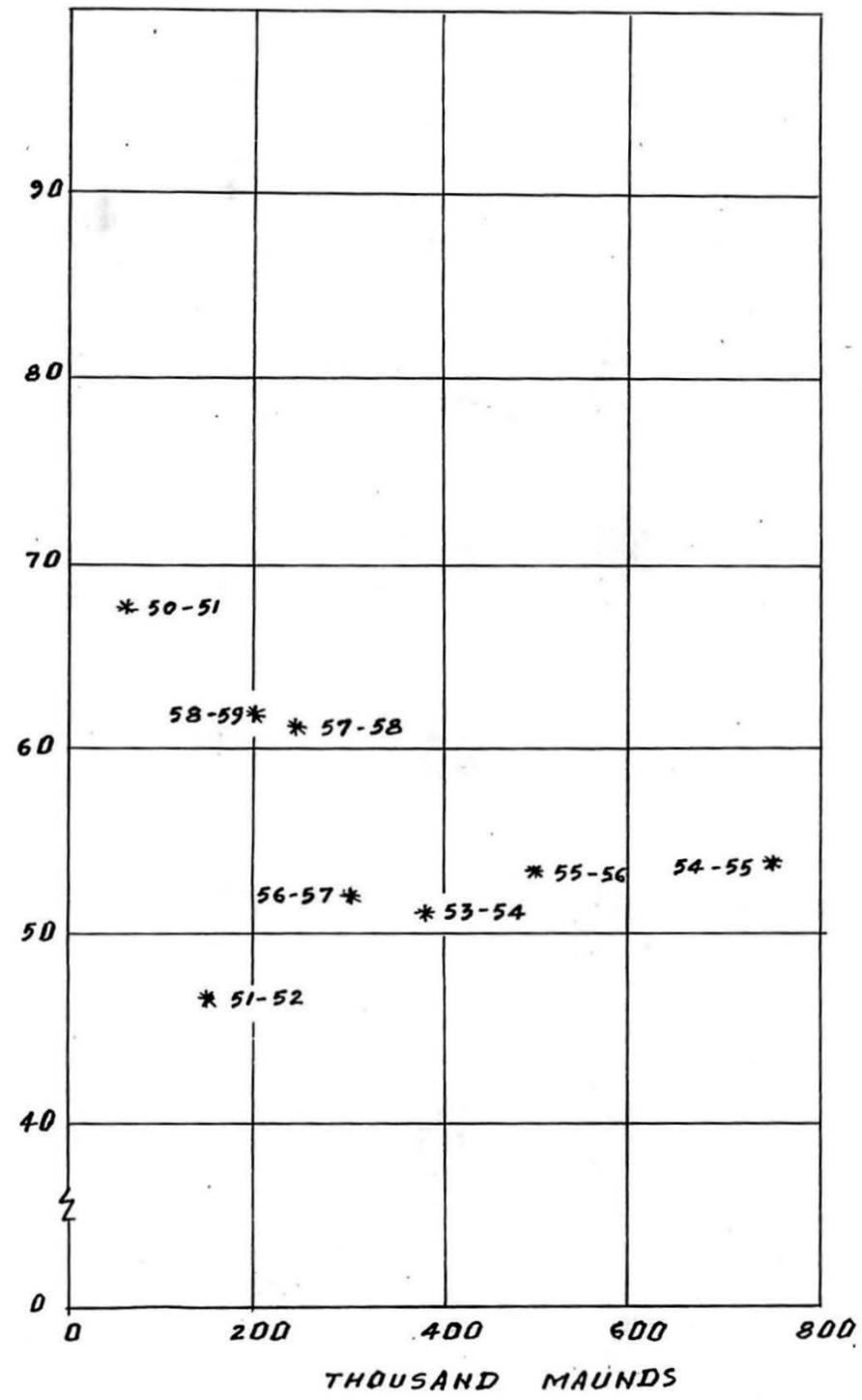
---

<sup>5</sup> Any indication of relationship between the two factors in Dhulia is due to excessive fall in the percentage in 1953-54. If we disregard this year, there seems to be no relationship exhibited by other years.

# CHART II RELATIONSHIP BETWEEN YEARLY MARKETING AND PER-CENT MARKETED IN THE R. M. P.

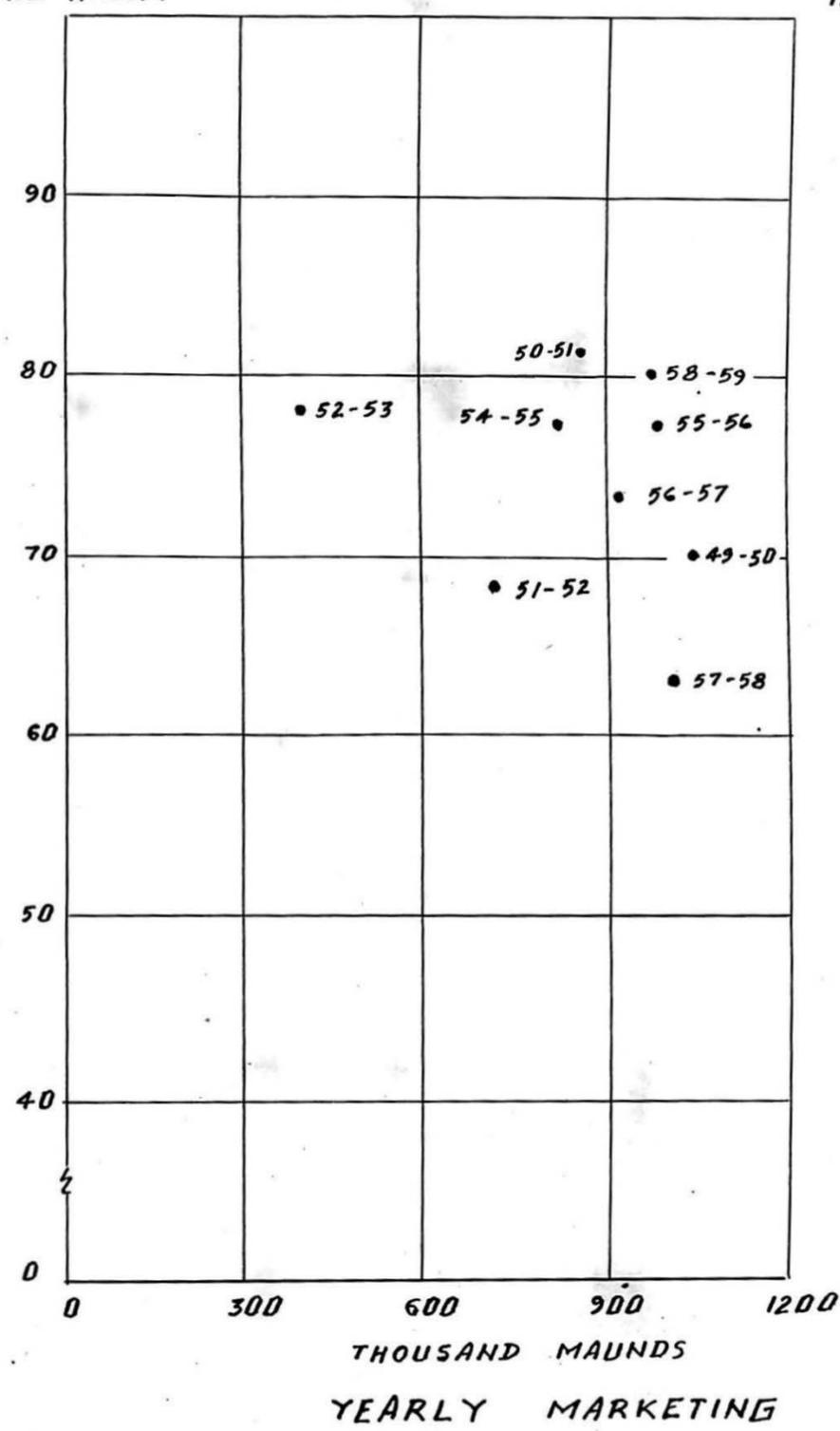
PER CENT MARKETED  
IN THE R.M.P.

## BARSI



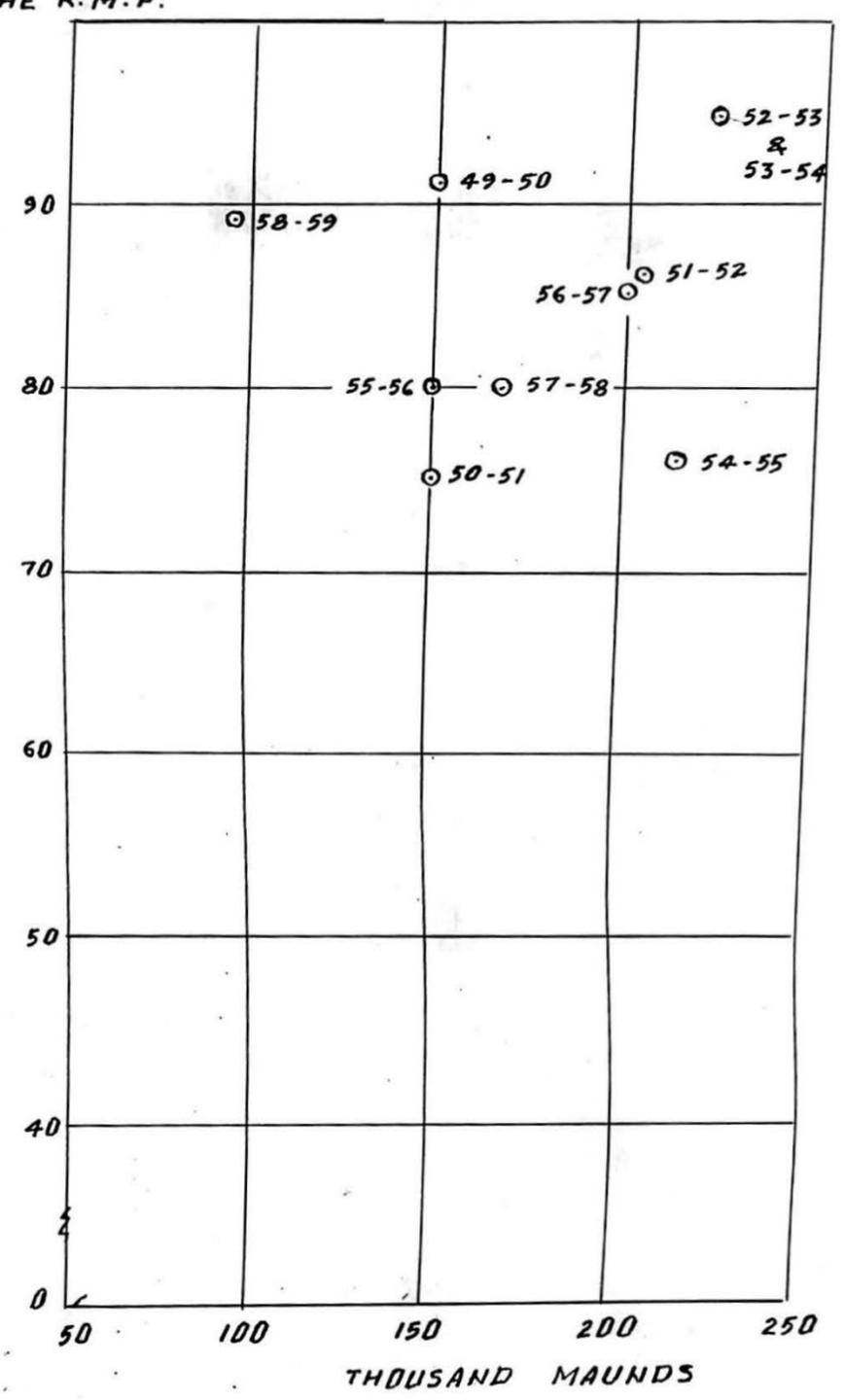
PER CENT MARKETED  
IN THE R.M.P.

## DHULIA



PER CENT MARKETED  
IN THE R.M.P.

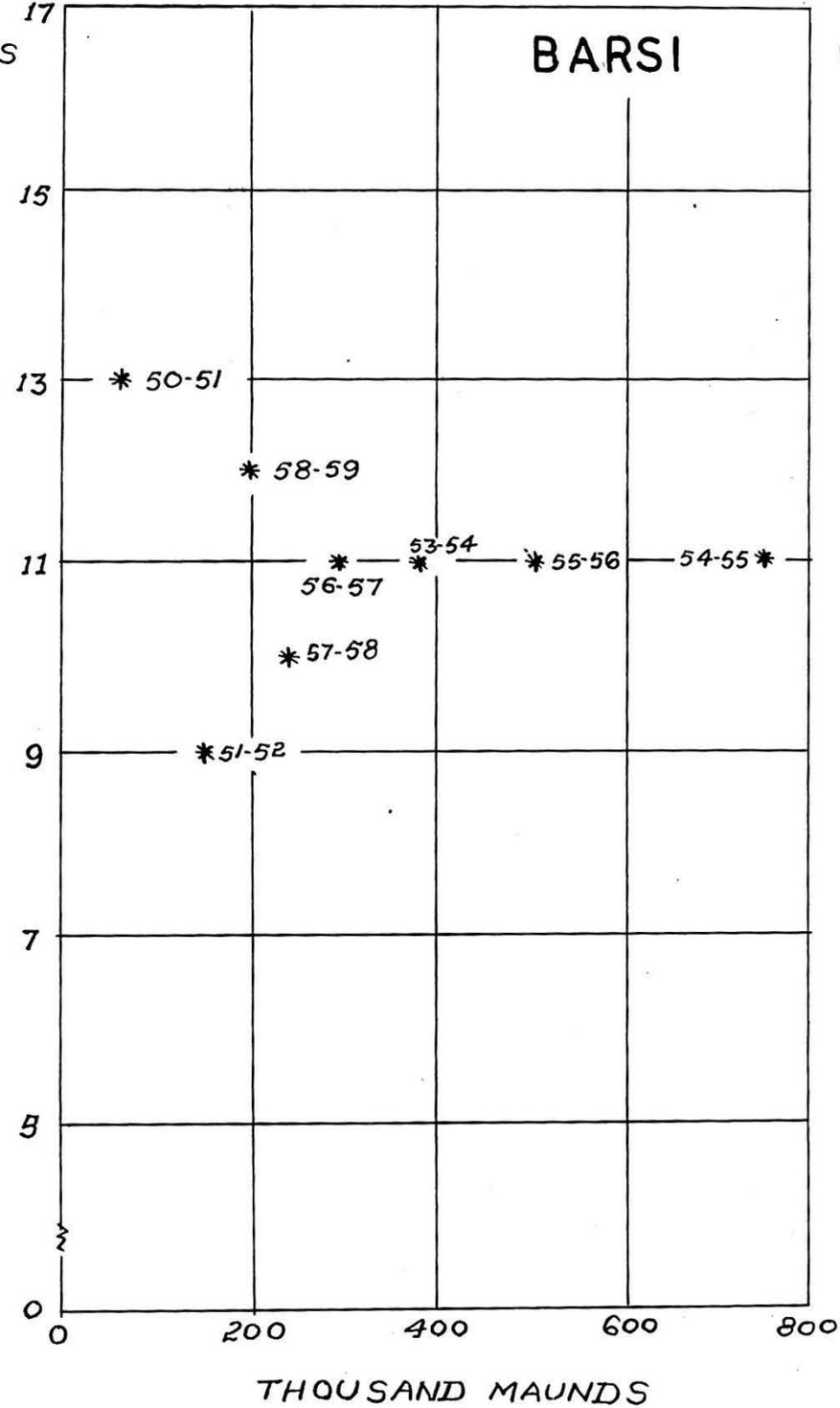
## KARAD



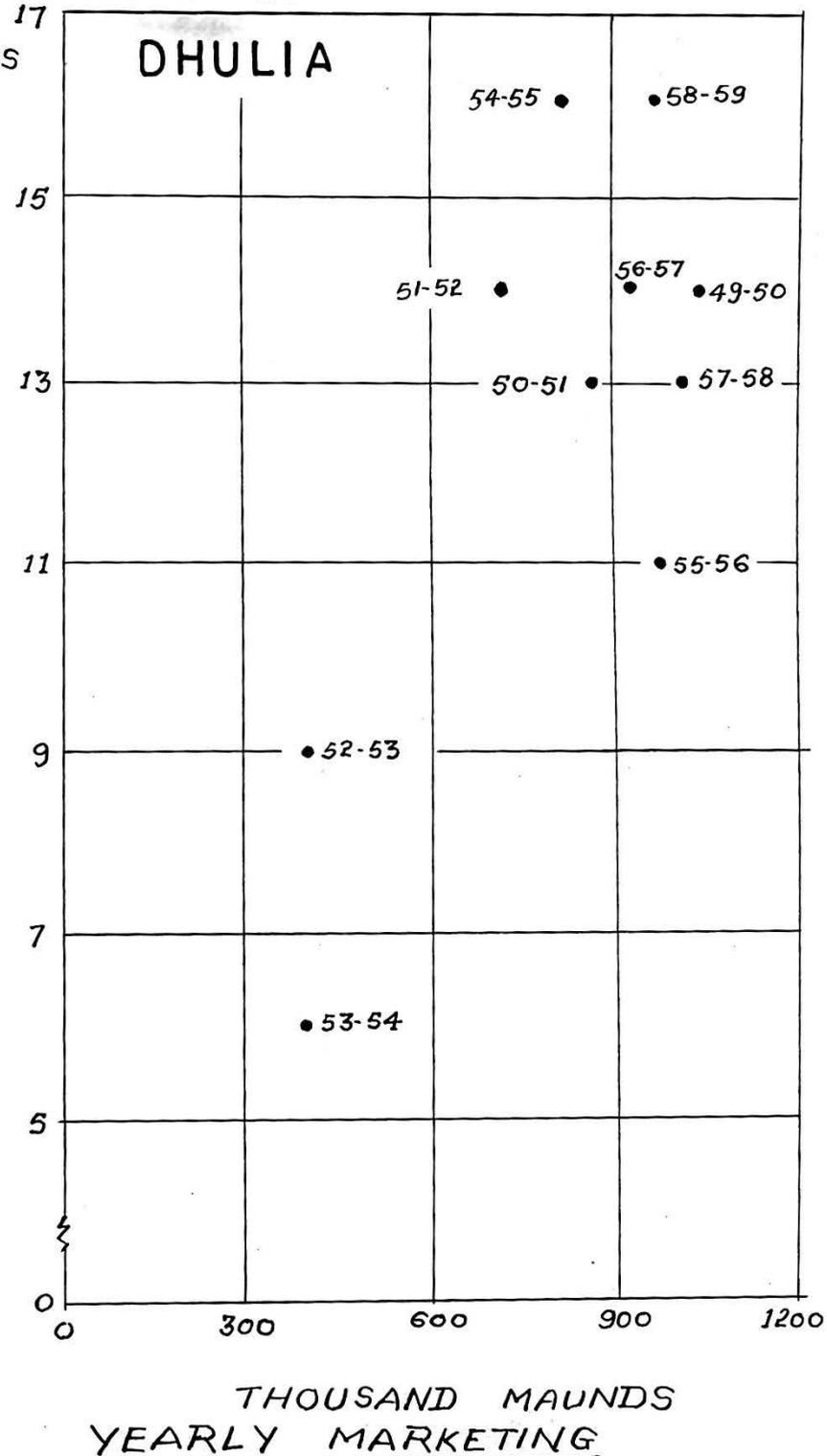
# CHART 12

## RELATIONSHIP BETWEEN YEARLY MARKETING AND LENGTH OF THE R. M. P.

LENGTH OF THE R.M.P.  
IN 17  
WEEKS



LENGTH OF THE R.M.P.  
IN 17  
WEEKS



LENGTH OF THE R.M.P.  
IN 17  
WEEKS

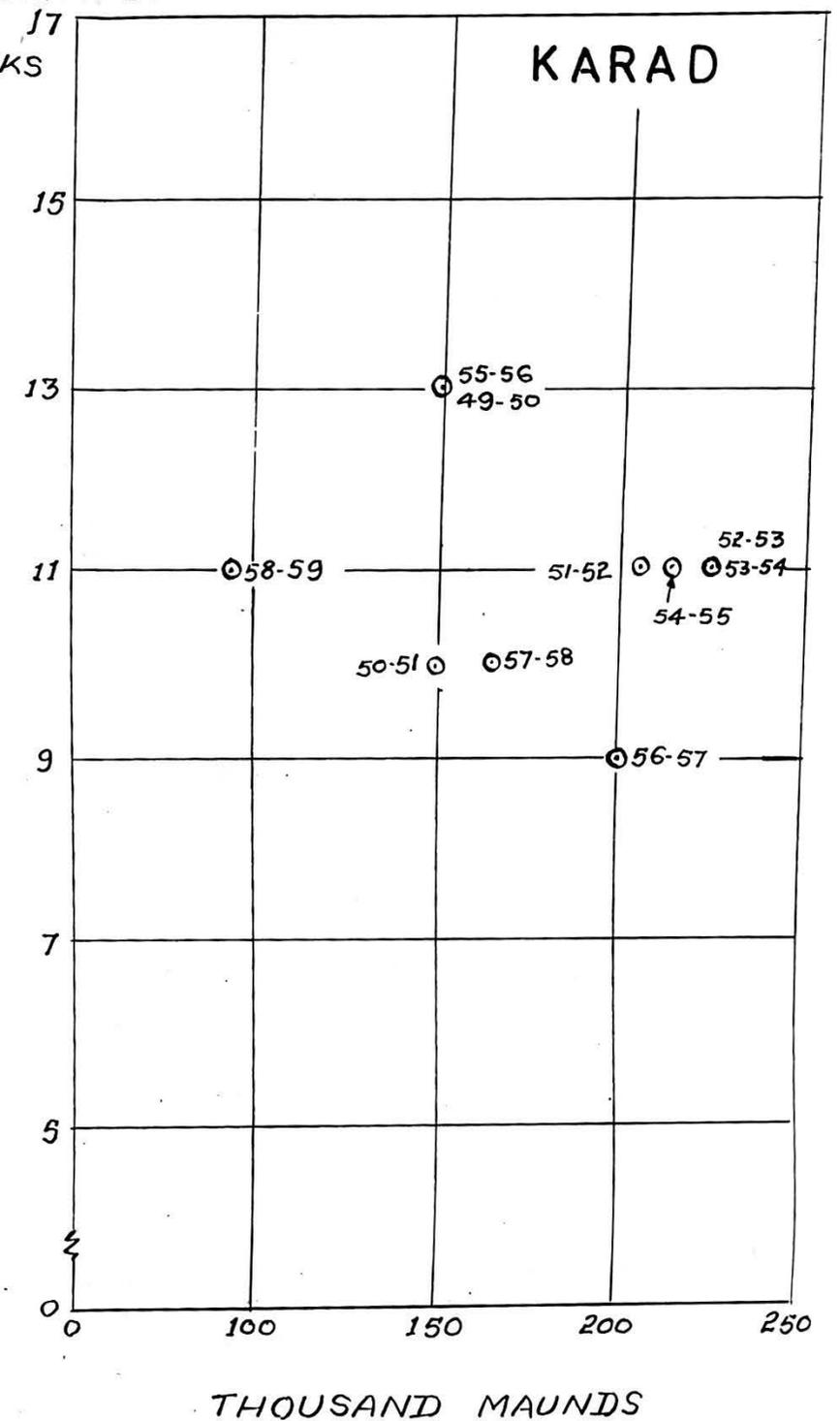
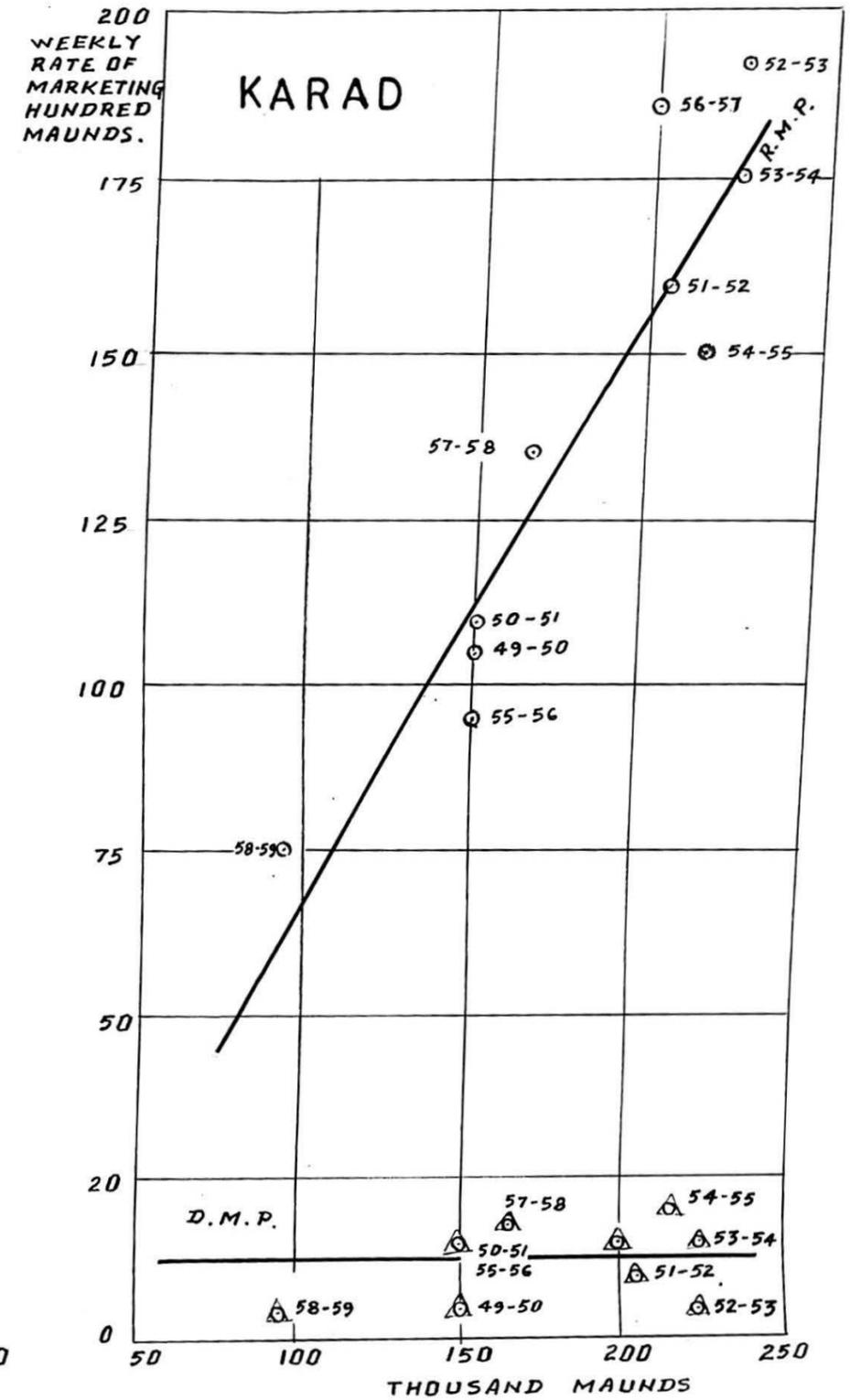
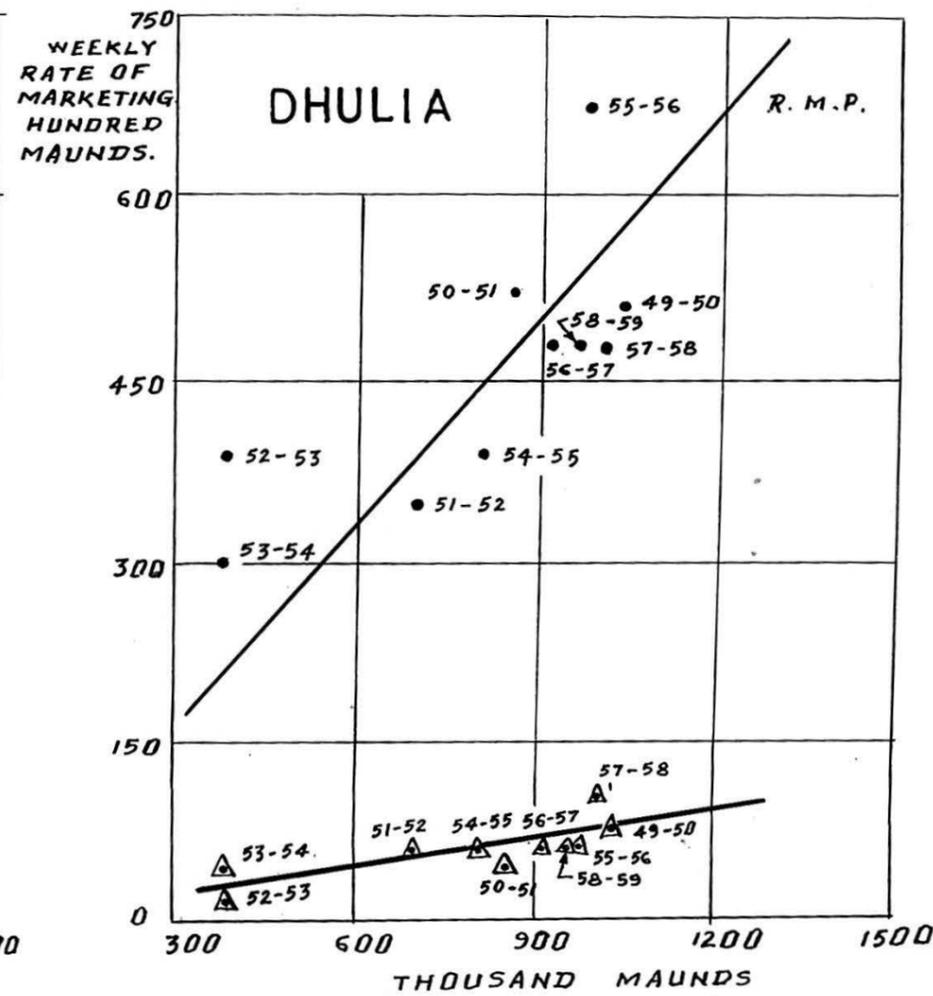
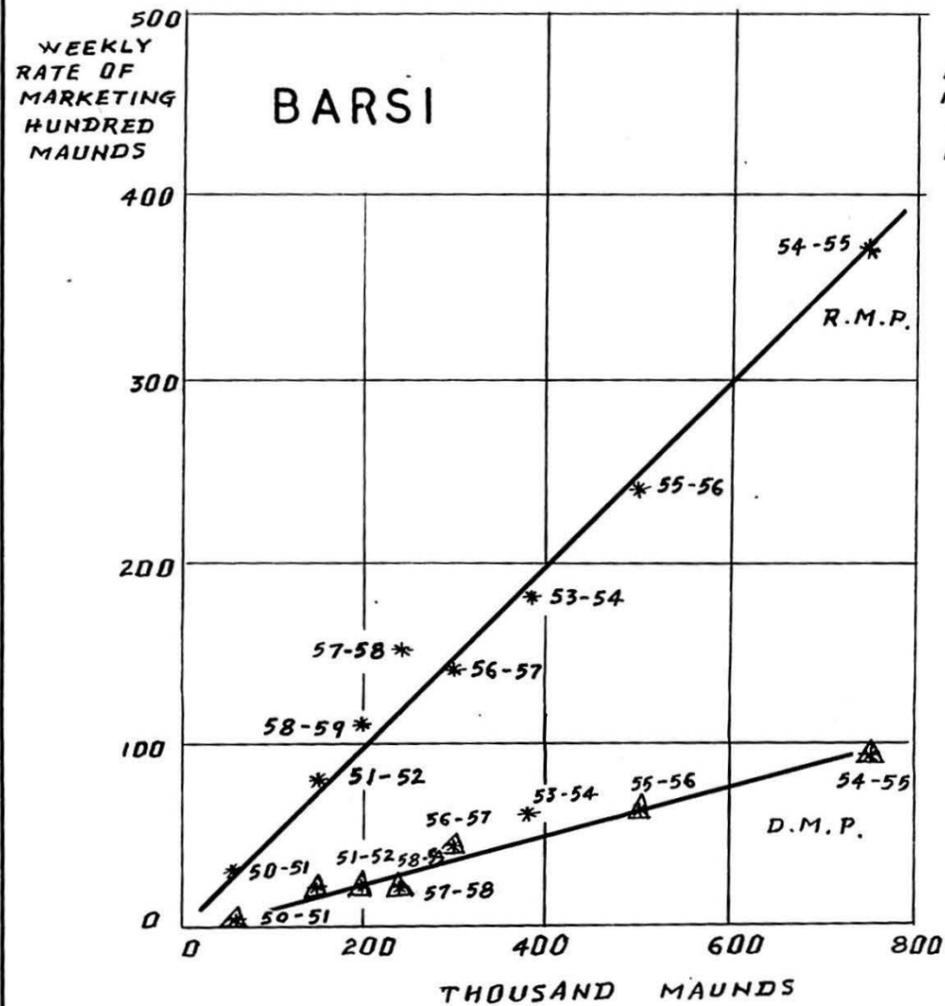


CHART 13

RELATIONSHIP BETWEEN YEARLY MARKETING AND  
WEEKLY RATE OF MARKETING  
IN DIFFERENT PERIODS



for an average of about 3½ lakh maunds marketed annually, the rate of marketing per week is about 17,500 maunds in the R.M.P. and 4,500 maunds in the D.M.P. For every increase ( or decrease ) of about one lakh maunds, the rates of deliveries increase ( or decrease ) by about 5,000 maunds in the R.M.P. and by 1,250 maunds in the D.M.P. At Dhulia, for an average of about 8 lakh maunds of the yearly marketed produce, the weekly average rates of marketing are 45,000 maunds in the R.M.P. and 4,000 maunds in the D.M.P. When there is a change of one lakh maunds in the annual quantity, the rates of marketing change by about 9,000 maunds in the R.M.P. and about 1,000 maunds in the D.M.P. At Karad, the average annual marketing of about 1,75,000 maunds is made at the weekly rates of about 13,800 maunds in the R.M.P. and about 1,500 maunds in the D.M.P. When, however, the annual marketed quantity is increased ( or decreased ) by 10,000 maunds, the rate of marketing is increased ( or decreased ) only in the R.M.P. by 900 maunds without affecting the rate of marketing in D.M.P. In terms of percentages, for every one per cent increase in the annual marketed quantity, the rate of marketing in the R.M.P. is increased by 1.05 per cent at Barsi, by 1.06 per cent at Dhulia and by 1.17 per cent at Karad. Thus, the impact of change in the annual marketed quantity on the rate of marketing in the R.M.P. is larger at Karad than at the other two centres. These figures also indicate that though the

seasonality at Dhulia is decreased with an increase in the yearly marketed quantity, the per cent change in the rate of marketing during the R.M.P. is almost the same as that at Barsi.

## 3

Prices and Marketing Tendencies.

It will be necessary to examine, in this section, two indicators of 'price considerations' taken into account by sellers and purchasers. One of them will be the 'level' of price prevailing during the period of three months between October and December. The second one will be 'price prospects' which summarises all the factors - both internal as well as international - which lead to the operator's expectations regarding the future course of prices. We will call these price prospects 'favourable' if the conditions prevailing between October and December are such that it is reasonable to expect a rise in prices in future; conversely, they will be called 'unfavourable', if the conditions are not encouraging. The accompanying table ( table 5.7 ) is prepared with the help of the discussion of movement of prices in chapter III and shows the prices and price prospects in Bombay during October-December of each year.

Arrivals from outside the Market Area and Price Considerations:

In the previous chapter, we have seen that quite a large quantity in the Barsi and Dhulia markets comes from outside

Table 5.7 : Prices and 'Price Prospects' During October-December of Every Year.

Year	Average Price of kernels (Bold variety) in Bombay during Oct.-Dec. (Rs. per cwt.)	Price Prospects	Factors affecting Price Prospects
1949-50	38.20	Favourable	Good export demand due to devaluation in September 1949
1950-51	42.06	Favourable	Deterioration in the Korean situation and stock-piling programme in the western countries.
1951-52	39.54	Unfavourable	Rumours of peace in Korea; increase in the bank rate.
1952-53	33.30	Favourable	Export quota of oil declared in December 1952.
1953-54	34.13	Unfavourable	Prospects of good crop and discouraging overseas advices.
1954-55	24.12	Unfavourable	Prospects of good crop; lack of overseas demand; increase in the export duty.
1955-56	24.41	Favourable	Reduced crop position; uncertainties in Argentina; favourable export opportunities.
1956-57	33.00	Mixed	Ban on exports of oil but compensated by good internal demand from Vanaspati factories.
1957-58	33.12	Mixed	Absence of export quotas; good internal demand.
1958-59	34.89	Favourable	Expectation of export quotas.

the talukas. Tables 5.3 and 5.4 reveal that not merely the yearly marketed produce in Dhulia exceeds the output in the taluka but the quantity marketed in the R.M.P. is also, many a time, larger than the output. This emphasises the fact that most of the produce coming from outside the taluka is brought by the farmers themselves.

It is reasonable to expect that the pressure of demand in these markets which attracts produce from distant areas should ultimately result in prices in these markets to be more than the prices paid in the surrounding markets. To that extent, farmers can be regarded as price-conscious. This can, of course, be firmly established only when we make comparisons between prices; but this is difficult in view of the fact that most of the surrounding markets are not regulated and, therefore, prices prevailing there are not easy to obtain. To what extent demand is influenced by price considerations we shall see in the next chapter.

There is one significant fact which is probably important in this context. We have seen earlier that in the year 1954-55, both Barsi and Dhulia received a large quantity of produce from outside their Market Areas. Even the marketing at Karad in this year can also be regarded as larger than usual. The year 1954-55, as seen from table 5.7, is characterised by unusually low prices and unfavourable price prospects. It seems reasonable to conclude that more or less constant demand from oilmillers in these markets

enabled farmers to receive more response from buyers in these markets than elsewhere.

Quantity Marketed in the R.M.P. and Price Considerations :

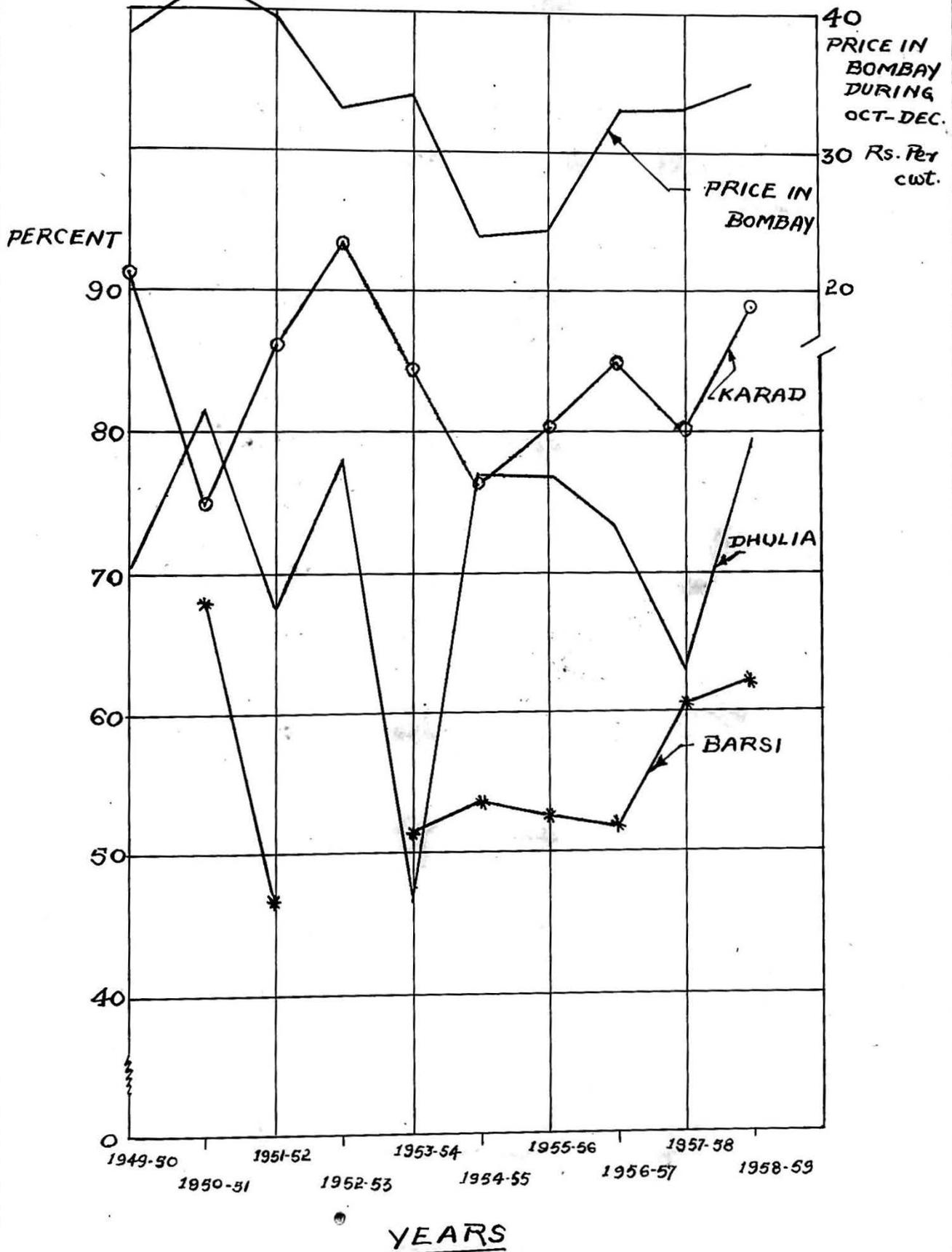
What is the effect of prices on the quantities marketed in different periods ? Chart 14 presents the percentage quantity marketed in the R.M.P. and prices prevailing in Bombay during October and December. There seems to be a positive relationship between the two in the Karad market after 1951-52. Whenever the prices increase, the percentage marketed in the R.M.P. at Karad also increases while when the prices decrease, the percentage marketed decreases. Thus, high percentage was marketed in the year 1952-53 when the price prospects were favourable. In the next two years prices declined and the prospects of them improving were also not in sight; the percentage marketed in the R.M.P. in these two years is seen to be progressively decreasing. From 1955-56, it has increased excepting the year 1957-58.

In Dhulia, there are so significant peaks; the lowest points in the percentages occur in 1953-54 and 1957-58. Among these, the former witnessed unfavourable prospects while in the latter year the prospects were mixed. In Barsi, there are no significant falls; the rise in the percentage is seen in the years 1950-51, 1957-58 and 1958-59. In at least two of these years, we can regard the price prospects as favourable.

Thus, in general, there seems to be a positive relationship between the percentage marketed in the R.M.P. and 'price

CHART 14

PRICES AND PERCENT MARKETING  
IN THE R.M.P.



prospects' . When the latter are favourable, the proportionate quantity marketed in the R.M.P. increases while when they are not encouraging, the farmers are likely to defer their marketing to a later date. This relationship is not, of course, very clearly pointed out by chart 14. If some such relationship exists, however, it indicates that the favourable price prospects generate a good deal of demand in the market which may be affecting prices to such an extent as to encourage farmers to dispose off their produce in the R.M.P. itself. We shall see later whether or not during these years farmers received better prices in the R.M.P.

So far, we have essentially concentrated on the marketing in the R.M.P. There is very little that can be said about the D.M.P. Perhaps, day to day marketing in this period is determined by the day to day changes in prices; it is not possible to go into this aspect because it is very difficult to eliminate the seasonally decreasing trend in marketing and seasonally rising trend in prices. The quantity marketed in this period is too small to warrant any further deviation of this period.

Summary :

- 1) The timing of the start of rapid marketing can be associated with the total marketings in a year. It is seen that the large quantities are generally associated with a delayed start of the R.M.P., and small quantities

with an early start. The relationship is disturbed by the climatic conditions prevailing after the harvest.

2) The delay or early occurrence of the start of the R.M.P. is further intensified in the timing of 50 per cent and 75 per cent points. The most pronounced effect is seen in Dhulia where a delay of ten days in the start of rapid marketing results in the delay of some thirty days in the termination of the R.M.P.

3) The large or small quantities to be marketed in a year do not affect seasonality at Barsi and Karad. In Dhulia, however, the large quantities are seen to reduce the seasonality by increasing the duration of the R.M.P.

4) The price considerations generally play their part by increasing or decreasing demand in the market. When the prices are favourable, demand in the R.M.P. increases and the supply also increases. When the prices are unfavourable, a large proportion of the total quantity is deferred to the subsequent period.

## CHAPTER VI

## DEMAND FOR GROUNDNUT IN THE REGULATED MARKETS

The main purchasers of groundnut in the regulated markets are local oilmillers, wholesalers and agents of the outside purchasers. Among these, the local oilmillers are the largest purchasers in the markets. They purchase most of their requirements in the peak marketing season and spread their processing activity, as far as possible, throughout the year. The wholesalers, when they act on their own, are the local speculators who purchase in the peak marketing season and sell, after some months, either to the local oilcrushers or to the outside dealers. In this sense, they are called the professional stockists or "Kothewale". The agents of the outside purchasers buy the produce in these markets on the advice of their principals and send it to them after getting it decorticated. This classification of the buyers, however, is not exclusive and many a time their functions overlap. Thus, it is observed that an oilmiller purchasing in a local market does not utilise all his purchases for manufacturing oil locally, but sends a part of them to another mill of his situated elsewhere. Strictly speaking, therefore, he acts as an agent of the branch mill whenever he purchases for it. Similarly, all the purchases of the wholesalers are not speculative as quite often they, too, act in the capacity of agents of the outside purchasers. However, for the sake of convenience, we will divide these

buyers into two groups in the subsequent analysis. The first group will consist of all the oilmillers in a market while the second one of 'traders' will include wholesalers and commission agents. In what follows, an attempt is made to study the differences in the purchasing policies of these two classes of buyers in the markets.

Any examination of buyers' behaviour in a market requires the figures of their purchases in the market, their stock position, the utilisation of the produce they buy and the figures of import and export. Unfortunately, however, all the necessary information is not available for even a single market, and what we have, presents only a broad picture of the buyers' behaviour. Thus, while the quarterly figures of production of groundnut oil are made available by the Excise Office, the figures of purchases and imports are available only for the Dhulia market. We have, for the Karad market, the data of exports, but the figures of stocks with the buyers are not kept by any Market Committee. In the following sections, we have presented all the available information but it should be noted that in some respects the arguments, being unsupported by quantitative information, remain hypothetical. Since a somewhat more detailed analysis is possible with the figures available for the Dhulia market, it is attempted separately.

The present chapter is divided into four sections dealing, respectively, with -

- 1) Demand by Oilmills,
- 2) Demand by Traders,
- 3) The 'parity' prices and the extent of competition among the buyers; and
- 4) Behaviour of oilmillers and traders in the Dhulia market.

## 1

Demand by OilmillsImportance of the oilmills:

As the separate figures of purchases made by the oilmills are not available at Barsi and Karad, the figures of quantities crushed by the oilmills provide the only source for getting a rough idea of their importance in these markets. Table 6.1 presents this information and table 6.2 shows the quantity of groundnut purchased by the oilmills situated at Dhulia.

If we assume that the oilmills at Barsi and Karad depend for their raw material primarily on the arrivals in the local markets, it appears from table 6.1 that more than 50 per cent of the marketed produce in Barsi is absorbed by the oilmillers while the oilmillers' purchases at Karad must be more than 60 per cent of the yearly marketed produce.<sup>1</sup> The share of the oilmills in Dhulia is substantially high, ranging between

---

<sup>1</sup> The appreciable fall in the oilmills' share in Barsi in 1958-59 is attributed by the Market Committee to the absence of 'parity' in local prices. ( See also Section III)

**Table 6.1 :** Quantity of Groundnut Crushed by the Oil Mills Situated at the Barsi, Dhulia & Karad Markets during 1956-57 - 1958-59.

Market	Quantity of ground <sup>nut</sup> pods <sup>1</sup> crushed during (in mds.)			Quantity of groundnut pods crushed as percentages of the total sales in the market during		
	1956-57	1957-58	1958-59	1956-57	1957-58	1958-59
Barsi	2,00,334	2,26,302	85,645	59.94	67.81	35.48
Dhulia <sup>2</sup>	N.A.	8,47,389	8,91,837	N.A.	85.91	93.00
Karad	93,207	1,25,994	73,782	47.76	77.17	78.18

1 Converted from the figures of oil production by assuming :-

a) 39% oil content and 73 per cent kernel content in Barsi and Karad.

b) 40% oil content and 72 per cent kernel content in Dhulia.

2 All figures for Dhulia refer to the year Oct.- Sept.

**Table 6.2 :** Quantity of Groundnut Pods Purchased by the Oilmills Situated at Dhulia during 1949-50 - 1958-59.

	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
Quantity purchased by Oilmills in maunds	N.A.	6,34,800	5,50,095	2,63,145	2,99,100	6,70,305	7,85,865	7,21,350	8,47,605	8,12,715
Quantity Purchased by Oilmills as per cent of total sales	N.A.	74.79	77.30	69.11	78.27	82.14	80.45	78.65	84.56	84.74

Average per cent purchases : 78.89

69 per cent and 85 per cent of the total marketed produce. Moreover, their share shows a rising trend during the period between 1950-51 and 1958-59. The figures in table 6.1 indicate quite clearly that the oilmills in Dhulia depend primarily on the Dhulia market for their requirements.

#### Markets for groundnut oil and cake

The oilmills produce groundnut oil and its joint product groundnut cake. The demand for groundnut by the oilmills is thus a derived one which is determined by the demand for oil and cake. The main customers for the groundnut oil produced by these mills are the Vanaspati manufacturers situated in Bombay and elsewhere. The Vanaspati factory situated at Amalner is the regular customer of the Dhulia oil mills. They also send some quantity to U.P. and Bombay. The mills at Barsi find a Vanaspati factory at Akola their regular customer. For oil produced in Karad, Bombay provides an excellent market. Besides these Vanaspati factories, the wholesalers at Bombay and elsewhere also make large purchases from the local oilmillers. These wholesalers either export it or distribute it all over the country, particularly North India, for the consumption purposes. The prices of oil are quoted by the local oilmills usually on loose ex-factory basis.

Without further processing, oil cannot be stored for a long time. It is, therefore, generally sold immediately after production. To assure ready market for oil after its

production, the oilmillers frequently enter into the forward delivery contracts after their purchase of groundnut pods. This practice also insures them from a possible danger of a fall in prices in future. Whenever it is not possible for them to enter into such contracts, they hedge their purchases of pods to counteract the losses due to possible adverse price changes in future.

The markets for groundnut cake, as the enquiries revealed, are mostly local. Their main purchasers are farmers who use it as cattle-food and manure. If the quality of the cake is superior, it is sometimes purchased by the exporters.

The price of oil sold by the oilmills is decided on the basis of that prevailing in Bombay after adjustments are made for the differences in quality and transport costs. The quality of oil is assessed mainly "on the basis of colour while smell and appearance, i.e. transparency, are other factors,"<sup>2</sup> which also count. When damaged, shrivelled and immatured kernels and nooks are crushed with moist goods, free fatty acids develop in oil which make it liable to get ransid on storage. The higher percentage of free fatty acids is, therefore, found in the oil produced during the first few months of the marketing season when a large quantity of wet and inferior quality groundnut is crushed, causing a reduction in the price of oil during these months.

The enquiries suggest that the local prices of groundnut cake do not depend much on those prevailing in Bombay

---

<sup>2</sup> R.M.G.I., *ibid.*, p.90

though, of course, the trend element in the latter is always taken into account while fixing the local prices. Since the main customers for this product are farmers, local competition between the oilmills and the quality of the cake are the main determinants of its price.

#### Factors determining Purchases of the Oilmills

We are now in a position to consider the following factors which determine purchases of the oilmills :

- a) The oilmills' capacity of crushing,
- b) The oilmills' capacity of storing,
- c) Quantity and quality of the produce marketed, and
- d) The presence of 'parity' in the prevailing prices and the extent of competition.

We will deal with the first three factors in this section and leave the discussion of the fourth over to a later section.

#### (a) The Oilmills' capacity of crushing

It is generally believed that the oilseeds crushing industry in India is overequipped. As far as the centres covered by this study are concerned, table 6.3 largely substantiates this belief. As indicated by this table, the oilmills in Karad seem to be possessing the largest under-utilised capacity. In other centres also, the capacity of crushing does not appear to have provided an upper limit for purchasing even during the years of good harvest. On the contrary, over-capacity poses a problem of meeting overhead costs which drives the oilmills to purchase as large a

**Table 6.3 : Number of Oilmills at Barsi, Dhulia and Karad and Their Annual Potential and Used-up Capacity during 1956-57 - 1958-59.**

Market	No. of Oilmills	No. of Standard Expellers	No. of Baby Expellers	No. of Rota-ries.	Potential <sup>1</sup> Annual crushing capacity in terms of pods (mds.)	Used up capacity <sup>2</sup> in percentages		
						1956-57	1957-58	1958-59
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Barsi	4	8	-	2	2,71,233	73.86	83.43	31.58
Dhulia	14	37	-	9	12,70,833	N.A.	66.68	70.18
Karad	6	10	2	6	3,86,301	24.13	32.62	19.20

126

1 Crushing capacity is calculated assuming that machinery is used 16 hours a day for 250 days in a year. The crushing capacity assumed for different types of expellers is as follows :

- i) Standard Expeller : 96 mds. of seeds per day (of 16 hrs.) per Expeller
- ii) Baby Expeller : 48 mds. of seeds per day (of 16 hrs.) per Expeller
- iii) Rotary Expeller : 12 mds. of seeds per day (of 16 hrs.) per Expeller

The figures of seeds are converted into pods by assuming the kernel content given in Table 6.1, foot-note 1.

2 Used-up capacity is obtained by dividing the figures in cols. 1,2 and 3 in Table 6.1 by those in the col. 5 of Table 6.3 and multiplying by 100.

quantity as possible in the regulated markets and use as much of their capacity as possible. Wherever possible, the mills use this capacity for crushing other seeds as well. Thus, for example, at Barsi, where sesamum is marketed, it is crushed by the units producing groundnut oil. To a large extent, however, the oilmills depend on the supply of groundnut pods for meeting their overheads.

That a minimum quantity of groundnut must be crushed to meet the overhead costs is basic to the thinking of most oilmillers. In order to assure their supplies, the mills frequently try to maintain control over their original sources of raw material. It was a widely prevalent practice of the oilmills, before the regulated markets came into existence, to assure direct supplies from farmers by advancing loans to them in the pre-harvest period. This practice still exists, though on a smaller scale. As the regulated markets established themselves, and as the farmers came to realise the advantages of bringing their produce to these markets instead of directly selling it, the grip of the oilmillers on the cultivators automatically loosened. Oilmillers, however, still try to find other ways. In Dhulia district, for instance, it was reported that some of the big cultivators were given advances in the marketing season on the understanding that they sold their produce any time they wished and at the market rate prevalent at that time to a particular oilmill.

To assure adequate supplies, few mills also make some

of their purchases in the distant markets. Thus, quite a substantial quantity is purchased by the oilmills in Dhulia from the markets in Saurashtra. Table 6.4 presents the figures of total imports of groundnut made by the oilmills in Dhulia.<sup>3</sup>

Most of these purchases were made by the big mills and, in general, after February.

(b) Capacity of storing

That most of the marketed produce of the year comes to the market during a period of four months poses a serious problem for the oilmills. If they have to acquire a large quantity of groundnut, they must purchase heavily during the peak marketing period and store the produce for the rest of the year. This necessitates adequate warehousing facilities and large financial resources with them. The oilmills, particularly the smaller ones, are short of both of them. They, therefore, in order to use, at least during the peak marketing period, as much of their capacity as possible, run their establishments for two or more shifts initially, and then decrease their rate of production. This results in the seasonality in the production of oil revealed by Table 6.5.

---

<sup>3</sup> The figures of local purchases and imports do not add to give the figures of total quantity crushed (Table 6.1), not only because there might be some year-to-year carryovers of stocks but also because the figures of exports are not available. Some oilmills in Dhulia are reported to be purchasing locally for their outside branches also, and these figures could not be obtained. To some extent, of course, the error is due to the variation in the average oil and kernel content assumed in Table 6.1 and Table 6.4.

**Table 6.4 :** Imports of Groundnut ( in terms of Pods ) made by  
the Oilmills in Dhulia during 1952-53 - 1958-59

(maunds)

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
Import of ground- nut in terms of pods <sup>1</sup>	43,208	19,757	36,408	37,328	24,269	19,044	47,617

- 1 The figures of seeds are converted into pods by assuming the kernel content given in Table 6.1, foot-note 1.

**Table 6.5 :** Seasonality in Production of Oil and Seasonality in Sales of Pods at the Three Centres <sup>1</sup>

Quarter <sup>2</sup>	Barsi		Dhulia		Karad	
	Production of oil	Sales of pods in the market	Production of oil	Sales of pods in the market	Production of oil	Sales of pods in the market
Oct - Dec.	31.39	46.10	37.76	66.38	29.17	45.69
Jan - March	27.09	29.80	27.90	23.14	40.49	51.24
April- June	23.70	15.68	23.96	8.00	23.24	2.49
July - Sept.	17.82	8.42	10.38	2.48	7.10	0.57
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>99.99</b>
<b>Mean deviation.</b>	<b>4.24</b>	<b>12.95</b>	<b>7.83</b>	<b>20.69</b>	<b>9.83</b>	<b>23.46</b>

1 Averages during 1956-57 and 1958-59 in Barsi and Karad and during 1957-58 and 1958-59 in Dhulia.

2 The figures of oil production are available quarter-wise, starting from Oct. for these centres. Figures of sales accordingly are adjusted.

One can readily see from it that the period of heavy marketing and the period of largest production of oil coincide in each of the markets, though, as can be expected, the seasonality in oil production is less than that in marketing of groundnut pods. Among the three centres, Barsi indicates the lowest seasonality, the production of oil in a quarter varying between 18 per cent and 31 per cent. The largest quantity of oil was produced in the first quarter (October-December) in Barsi and Dhulia and in the second quarter (January-March) in Karad. The third quarter, in all the centres, witnessed about 24 per cent of oil production of the year.

It must be pointed out here that the seasonality of production of oil is not solely due to the lack of storage facilities and financial resources. It is also due to the quality of the crop which is marketed early in the year. Since the groundnut marketed in this period is wet, it cannot be stored for a long time, and it has to be utilised immediately after the purchase. For this reason, the oilmillers are reported to be purchasing for storage in the last two months of the peak marketing period.

(c) Quantity and quality of the marketed produce

The above discussion points out that the oilmillers' capacity of crushing does not, as such, impose a limit on their purchases even during the years of good crop. This leads us to expect that given an increase in the marketed quantity,

there is an increase in the oilmillers' purchases. Similarly, an improvement in the quality should increase their purchases. The factors preventing such increase are shortage of finance, inadequate storing facilities and competition from other purchasers. We have already noted that the first two of these factors result in seasonality in production. The nature of the last factor we shall see in the third section.

## 2

Demand by Traders

By 'traders' we mean all the purchasers other than local oilmillers. As stated earlier, they include wholesalers, who are the local speculators purchasing when the prices are depressed and selling when they rise, and the commission agents who purchase for the outside buyers. In general, groundnut kernels have a substantial demand by the farmers during the sowing season - i.e. between June and July - and, therefore, a certain part of the produce coming in the market in the peak marketing season invariably goes in the hands of the professional stockists who release their stocks during the sowing season.

Among the three markets considered in this study, Karad is by far the largest supplier of groundnut kernels to Bombay. The quality of groundnut produced in its surrounding areas is inferior in respect of oil content but is superior due to its colour, boldness and weight, for edible purposes. The

H.F.S. ( i.e. the Hand-picked selected ) kernels which are chosen from the Karad Bold variety are exported abroad. The demand for kernels, therefore, is larger in Karad than in the other two markets. This explains, to a large extent, the low share of the Karad oilmills in the total sales (Table 6.1) and their large underutilised capacity (Table 6.3). The accompanying table ( Table 6.6) shows the export of kernels from Karad by railway. Most of these exports were directed to Bombay.

Table 6.6 indicates that about 80 per cent of the yearly despatches by railway were made during the period of three months - i.e. between November and January, and this period coincided with the period of heavy marketing. The demand from the purchasers in Bombay was thus most active in the peak marketing period and the local oilmillers had to compete with them for getting their requirements.

Next to Karad, Barsi is the important supplier of kernels. Figures of railway exports are, however, not available for Barsi and Dhulia. The groundnut produced and marketed in Dhulia is, mostly used for crushing purposes.

In general, therefore, the demand by traders is partly speculative and partly reflecting the demand by outside purchasers. When the future price prospects are encouraging and when there is an expectation of export quota, the speculative demand increases and traders become active in the market. When they act as the commission agents, they

**Table 6.6 : Monthly Exports of Groundnut Kernels From  
Karad by Railway during 1957-58 and 1958-59**

(percentages)

Month	1957-58	1958-59
September	-	5.43
October	1.76	-
November	8.63	11.72
December	40.46	56.58
January	30.89	12.95
February	8.40	2.13
March	1.79	1.64
April	3.44	-
May	0.52	-
June	0.80	-
July	1.89	1.40
August	1.41	8.15
<b>Total</b>	<b>99.99</b>	<b>100.00</b>
<b>Total quantity of kernels exported by railway in mds.</b>	<b>1,27,213</b>	<b>37,486</b>

get only the prescribed commission for their purchases and there is no risk element. Unless the produce is to be sent to nearby oilmills, all the goods so purchased by the commission agents are sent in the form of kernels.

## 3

The 'parity' Prices and the Extent of  
Competition among the Buyers.

The 'Parity' price is that price of the raw material which, after an allowance for the normal marketing, handling, processing and other incidental costs is made, enables a buyer to sell the finished products at their current prices.<sup>4</sup> Whenever the prices of the raw material and the finished products are so adjusted, we regard that there is a presence of 'parity' ( which in local parlance is called "Padthar"). The concept of 'parity' is a flexible one and changes with the changes in costs. For an oilmiller, it is the price of the groundnut oil and groundnut cake minus the cost of processing. For a trader who sells the produce after decortication in an outside market, it represents the price of kernels in that market minus the cost of transport and the cost of decortication. For a speculator, the parity price represents the price of groundnut expected by him in future minus the cost of storage. Tables 6.7 to 6.10 present the details of these costs prevailing at the three centres during 1958-59. Table 6.7 shows the cost of processing for

---

<sup>4</sup> This 'parity price' for the buyers is, of course, different from that for the farmers.

**Table 6.7 : Cost of Crushing 100 maunds of Groundnut Pods at the Three Centres during 1958-59.**

---

**a) Market and Handling charges :**

Market commission : @ Rs.0.75 per cent on purchase price

Hamali : Rs. 3.12

Weighing charges : Rs. 1.56

Cart Hire : Rs. 2.62

Total, excluding commission : Rs. 7.30

b) Decortication Expenses of 100 mds. of Pods : Rs. 3.12

c) Cost of Crushing @ Rs. 0.75 per md. of  
Kernels for 72 mds. : Rs.54.00

---

Total cost of crushing excluding commission : Rs. 64.42

d) Excise duty on 28 mds. of oil : Rs. 114.80

---

Total Expenses incurred excluding Commission: Rs. 179.22

OR Total Expenses excluding commission for  
crushing one md. of Pods : Rs.1.80 approx.

---

**Table 6.8 : Cost of Decortication of 100 mds. of Groundnut Pods at the Three Centres during 1958-59.**

	Rs.
<b>1. Market charges :</b>	
1) Commission @ Rs. 0.75 per cent on the value of pods.	-
ii) Other market charges ( from Table 6.7 )	7.30
<b>2. Processing costs :</b>	
i) Cart hire upto decortivating establishment and Hamali	2.12
ii) Mixing the produce to get average quality and sprinkling water on it	6.25
iii) Decortivating charges	6.25
iv) Sieving the seeds and sorting out the splits.	18.75
<hr/>	
Total charges for decortivating 100 mds. of pods ( excluding commission )	Rs. 40.67
• • Average cost per md. of pods excluding commission	Rs. 0.41 approximately.

**Table 6.9 : Transport Costs for sending 72 mds. of  
Kernels from Local Markets to Bombay  
during 1958-59.**

Particulars	Barsi	Dhulia	Karad
Hamali and cart-hire	12.80	12.80	12.80
Sundries (including bags)	32.00	32.00	32.00
Railway freight (wagon rate)	94.32	122.40	86.40
Expenses at Bombay	52.48	52.48	52.48
<b>Total</b>	<b>191.60</b>	<b>219.68</b>	<b>183.68</b>
<b>Average cost per md. of kernels</b>	<b>2.66</b>	<b>3.05</b>	<b>2.55</b>

**Table 6.10** : Particulars of the Cost of Storing 100 maunds of Groundnut Pods at the Three Centres during 1958-59.

- 
1. Market charges, excluding commission : Rs. 7.30  
( from Table 6.8 )
  
  2. Cost of Storing :
    - A. In a Private Warehouse :
      - i) Godown Rent : Rs. 4.00 per month
      - ii) Loss due to deterioration : Value of about 1.40 mds. of the produce per month.
      - iii) Interest on the value of the goods :
      - iv) Loss of Gunny bags : Rs. 0.60 per month
  
    - B. In a Government Warehouse :
      - i) Godown Rent : Rs. 12.00 per month
      - ii) Interest on the value of the goods :
-

an oilmiller while Table 6.8 indicates the cost of decortication of groundnut. Table 6.9 gives the cost of transport between these centres and the Bombay market while the particulars of storage costs are given in Table 6.10.

From these tables we can calculate the parity prices for an oilmiller and a trader who sends the produce to Bombay. ( There is, of course, no way of calculating the parity price of a local speculator because we do not know what his expectations about the future prices are.) For an oilmiller, for example, the following equation gives the parity price :

$$\begin{aligned} L_{PO} &= (\alpha B_o + \beta B_c) - (\alpha T_o + \beta T_c) - C_o \\ &= \alpha (B_o - T_o) + \beta (B_c - T_c) - C_o \end{aligned} \quad \left. \vphantom{\begin{aligned} L_{PO} &= (\alpha B_o + \beta B_c) - (\alpha T_o + \beta T_c) - C_o \\ &= \alpha (B_o - T_o) + \beta (B_c - T_c) - C_o \end{aligned}} \right\} \text{ I}$$

where  $\hat{L}_{PO}$  is the oilmiller's parity price of groundnut pods ( in Rs. per maund)

$B_o$  is the price of one maund of oil in Bombay.

$B_c$  is the price of one maund of cake in Bombay.

$T_o$  is the cost of transporting one maund of oil to Bombay.

$T_c$  is the cost of transporting one maund of cake to Bombay.

$C_o$  is the cost of purchasing and crushing one maund of groundnut pods.

$\alpha$  is the oilcontent in one maund of  
groundnut pods and

$\beta$  is the content of cake in one maund  
of groundnut pods.

In other words, if we assume that an oilmiller sends both groundnut oil as well as cake to Bombay and receives prices  $B_o$  and  $B_c$  for these products respectively, any local price of groundnut pods which is less than or equal to  $\hat{L}_{PO}$  will enable him to make his purchases, produce oil and cake and sell them in the Bombay market without incurring losses. In this equation, thus, the values  $(B_o - T_o)$  and  $(B_c - T_c)$  represent the local parity prices of oil and cake respectively.

Similarly, the parity price for a trader who sends the produce to Bombay will be :

$$\hat{L}_{PT} = \gamma (B_k - T_k) - C_T \quad \dots \quad \text{II}$$

where  $\hat{L}_{PT}$  is the trader's parity price of  
groundnut pods ( in Rs. per maund)

$B_k$  is the price of one maund of kernels  
in Bombay.

$T_k$  is the cost of transporting one maund  
of kernels to Bombay.

$C_T$  is the cost of purchasing and decor-  
ticating one maund of groundnut pods  
and

$\gamma$  is the kernel content in one maund  
of groundnut pods.

In other words, when a trader finds the local price of pods equal to or less than  $\hat{L}_{PT}$ , it is advantageous for him to purchase the produce, decorticate it and sell it in the Bombay market. The value  $(B_k - T_k)$  stands for the local parity price of kernels.

Strictly speaking, these 'parity-price' considerations are the only considerations which should govern the purchases of these buyers. The actual level of prices are not of any import<sup>ance</sup>. So long as there is a parity between the prices of raw material and those of finished goods, these buyers should continue their purchases in the market, process the produce and sell it in the Bombay market. This principle is, however, subject to a qualification when applied to the oilmillers. They take a comparatively longer time than the traders to process the produce, and there is always a danger of a fall in the prices of their finished products during that time. In other words, the parity which exists when they make their purchases may not always be present when they are in a position to sell their products. In terms of the above notation, it is possible that what they actually realise may be less than  $B_o$  and  $B_c$  due to changes in prices during the interval of processing. There are two ways in which an oilmiller can, and generally should, save himself from such possible fall in prices in future. Firstly, when there are such facilities, he can 'hedge' his purchases of raw material by entering into a 'futures' sale contract.

At the time of the sale of his products, he can nullify the losses ( or profits ), if any, due to the price changes by making purchases in the 'futures' transaction. Secondly, the oilmillers, at the time of their purchases of the raw material, can enter into the forward delivery contract at the currently prevailing prices. There are, however, two difficulties faced by the oilmillers in this respect. Firstly, though groundnut oil can be sold in this way, it is not always possible to find a customer for cake at the time of purchasing the raw material. Secondly, even in the case of oil, during the period of falling prices, it is difficult to find a purchaser buying his requirements in advance.

When, however, an oilmiller, facing a severe competition from other buyers, pays more than the parity price  $\hat{L}_{p0}$  in an expectation of making up the losses with the rise in prices of groundnut oil and cake in future, he enters into speculation and cannot take advantage of either hedging facilities or forward delivery contracts. It is claimed by dealers in these markets that the oilmillers sometimes indulge in speculation when prices are rising and this often leads to excessive rise in local prices. We will, therefore, turn our attention to the local prices prevailing in the year 1958-59 and examine whether they are less than, equal to or more than the parity prices defined in equations (I) and (II).

The values of the constant terms  $\alpha$ ,  $T_0$ ,  $\beta$ ,  $T_c$ ,  $C_0$ ,

$\gamma$ ,  $T_k$  and  $C_T$  in these equations can be found out from the tables earlier presented. They are, for the sake of convenience, summarised in Table 6.11.<sup>5</sup>

For calculating the local parity prices, we have considered the prices of oil and cake prevailing in Bombay on the last Saturday of each quarter during 1958-59. These prices together with the prevailing local prices on these days are presented in Table 6.12. The calculation of the parity prices is also shown in this table.

Table 6.12 indicates that the oilmillers' parity price is on the whole equal to the trader's parity price in Barsi. The reason for  $\hat{L}_{PO}$  being larger than  $\hat{L}_{PT}$  in November at all the centres may be found in our assumption of about 39 per cent oilcontent in the kernels. This may not be valid in November when the inferior quality groundnut is marketed. The oilmillers' parity prices in Dhulia and Karad are consistently larger than the traders' parity prices and this may be due to the difference between decortication costs and the crushing costs.

When, however, we compare these parity prices with the actual prices prevailing in these centres ( See columns 7, 9, 10 and 11 of Table 6.12 ), we observe that the actual prices exceeded the parity prices, excepting the 'most

---

<sup>5</sup> These figures, as already stated, refer to the year 1958-59 and, therefore, prices prevailing in this year alone are considered. Attempts to procure figures of transport and other costs before 1958-59 proved unsuccessful. (See also footnote on page 170).

**Table 6.11 : Values of the Constant Terms in the Equations of the Parity Prices during 1958-59.**

I )  $\hat{L}PO = \alpha (B_0 - T_0) + \beta (B_c - T_c) - C_0$  For an Oilmiller  
 II )  $\hat{L}PO = \gamma (B_k - T_k) - C_T$  For a Trader

Market	Values of							
	$\alpha$	$T_0^*$	$\beta$	$T_c^*$	$C_0$	$\gamma$	$T_k$	$C_T$
Barsi	0.28	2.32	0.43	1.81	1.80	0.72	2.66	0.41
Dhulia	0.29	2.53	0.42	1.92	1.80	0.72	3.05	0.41
Karad	0.28	2.27	0.43	1.78	1.80	0.72	2.55	0.41

\* These values are calculated as the values of  $T_k$  in Table 6.9

**Table 6.12 : Calculation of the Oilmiller's and the Trader's Parity Prices in the Local Markets during 1958-59.**

I :  $\hat{L}_{PO} = \alpha(B_0 - T_0) + \beta(B_C - T_C) - C_0$  for Oilmiller's parity price

II :  $\hat{L}_{PT} = \gamma(B_K - T_K) - C_T$  for Trader's parity price

(Rupees per md.)

Date	Prices in Bombay				Parity prices in Local Markets					Actual prices in Local market of			Local market	
	Bold Kernels (B <sub>k</sub> )	KQ Kernels (B <sub>k</sub> )	Oil (B <sub>o</sub> )	Cake (B <sub>c</sub> )	B <sub>o</sub> -T <sub>o</sub>	B <sub>c</sub> -T <sub>c</sub>	$\hat{L}_{PO}$	B <sub>k</sub> -T <sub>k</sub>	$\hat{L}_{PT}$	Pods (L <sub>p</sub> )		Oil (L <sub>o</sub> )		Cake (L <sub>c</sub> )
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Max.	M.C.	(12)		(13)
29th Nov.1958	24.43	25.16	52.90	10.28	50.58	8.47	16.00	21.77	15.26	16.85	14.10	51.50	10.47	Barsi Dhulia Karad
					50.37	8.36	16.32	22.11	15.51	19.00	18.50	51.75	10.01	
					50.63	8.50	16.04	21.88	15.34	18.50	14.00			
28th Feb.1959	26.27	26.63	54.54	10.65	52.22	8.84	16.62	23.61	16.59	20.65	20.50	54.00	11.06	Barsi Dhulia Karad
					52.01	8.73	16.95	23.58	16.57	21.62	21.37	54.62	10.38	
					52.27	8.87	16.65	23.72	16.67	20.00	20.00			
30th May 1959	31.41	31.13	65.03	11.76	62.71	9.95	20.04	28.75	20.29	22.75	22.25	64.00	11.53	Barsi Dhulia Karad
					62.50	9.84	20.46	28.08	19.81	25.00	24.25	64.75	11.48	
					62.76	9.98	20.06	28.86	20.37	22.00	21.50			
29th Aug .1959	28.29	28.37	57.66	12.12	55.34	10.31	18.13	25.63	18.04	21.70	21.05	57.25	11.76	Barsi Dhulia Karad
					55.13	10.20	18.47	25.32	17.82	20.65	20.65	57.75	11.66	
					55.39	10.34	18.16	25.74	18.12	19.50	19.00			

common' (M.C.) prices in Barsi and Karad on 29th November 1958. The local prices were, thus, not in parity with the Bombay prices and it was not profitable to purchase ground-nut pods in the local markets and sell the processed goods in the Bombay market.

The fact that the local prices are sometimes higher than the parity prices can be explained in terms of rise in local demand for both oil and cake in these markets which places the oilmillers in a very advantageous position. Compared to kernels, oil enjoys a wider market. The Vanaspati factories are the chief purchasers of the oil manufactured by the local oilmills and if they happen to be near any of the oilmills considered in this study, the Bombay price becomes of less importance for calculating the oilmillers' parity price. To make this point clear let us assume that a vanaspati factory situated near an oilmill in one of our markets has only two options : either to purchase oil from the oilmill or to purchase oil from Bombay. If it exercises the second option, it will have to pay  $(B_o + T_o')$  where  $T_o'$  is the transport cost between Bombay and its location. Now, if it can acquire its supply from the nearby oilmill, for any price  $(L_o' + T_o'') < (B_o + T_o')$ ,  $T_o''$  being the transport cost from the oilmill to the Vanaspati factory, it will purchase its requirements from the oilmill. Again, if the local oilmiller has also only two options, he will sell the oil to the nearby vanaspati factory provided he

receives,

$L_o^n > (B_o - T_o)$  where  $T_o$  is his transport cost for sending oil to Bombay. The actual price prevailing in the local market ( $L_o$ ) thus will be in the interval<sup>6</sup>

$$(B_o - T_o) \leq L_o \leq (B_o + T_o' - T_o^n) \dots \text{III}$$

The same argument holds good in the case of groundnut cake in which the option is between the local farmer and Bombay trader. The actual price of cake ( $L_c$ ) then will be in the interval

$$(B_c - T_c) \leq L_c \leq (B_c + T_c' - T_c^n) \dots \text{IV}$$

where  $T_c'$  is the cost of transport for the farmer for bringing his requirements from Bombay and  $T_c^n$  is the cost of transport from the oilmill to the farmer's place.

These two relations hold good even if we consider the case of more than two options. The actual levels of  $L_o$  and  $L_c$  will be determined by these options and the degree of competition among the sellers and of that among the buyers.

That, in fact,  $L_o > (B_o - T_o)$  and  $L_c > (B_c - T_c)$  can be found in Table 6.12 ( columns 6, 8, 12 and 13). The

<sup>6</sup> If the oilmill is assumed to be situated in between the vanaspati factory and Bombay, then  $T_o' = T_o + T_o^n$ , and the interval will be  $(B_o - T_o) \leq L_o \leq (B_o + T_o)$ .

For similar assumption regarding oilcake, we will have  $(B_c - T_c) \leq L_c \leq (B_c + T_c)$ .

local demand for oil and cake has thus increased their prices and disturbed the parity of groundnut pods prices. (The groundnut kernels are not regularly traded in these markets and, therefore, their prices are not shown in Table 6.12 ).

We, therefore, substitute the actual levels of  $L_o$  and  $L_c$  in place of  $(B_o - T_o)$  and  $(B_c - T_c)$  in the equation (I) and calculate the revised parity prices of groundnut pods. These are presented in Table 6.13.

Comparing these values with the actual prices of pods, we again find that the latter are higher than the calculated parity prices. This may be due to the speculative activity and competition in the local markets the intensity of which cannot be quantified. But one conclusion definitely emerges <sup>emerges</sup> out of this analysis and that is that the influence of the Bombay market is unmistakably small and limited to its general trend element. The regulated markets seem to have lost 'parity' with the terminal markets and the price determined at these centres is no longer decided by the concept " terminal price minus transport cost." The local factors of supply and demand have thus become of great importance in the process of price-mechanism. We will see later, in section IV, that the oilmillers in Dhulia, both large and small, have to face severe competition between themselves and with traders to get their requirements. The natural result of such excessive competition is often the

**Table 6.13** : The Gilmler's Revised Parity Prices in the Local Markets during 1958-59.

Equation :  $\hat{L}_{PO} = \alpha L_o + \beta L_c - C_o$   
 where  $L_o$  and  $L_c$  are the local prices of oil and cake respectively.  
 Other constants as in equation I  
 ( See Table 6.11 )

Date	Value of $\hat{L}_{PO}$	Market
29th November 1958	17.12	Barsi
	17.41	Dhulia Karad
28th February 1959	18.08	Barsi
	18.40	Dhulia Karad
30th May 1959	21.08	Barsi
	21.80	Dhulia Karad
29th August 1959	19.29	Barsi
	19.85	Dhulia Karad

temptation, on the part of the oilmillers, to speculate. It is reported that the oilmillers are no longer purely processors satisfied with the service costs of processing; they now enter the market as both processors as well as speculators.

## 4

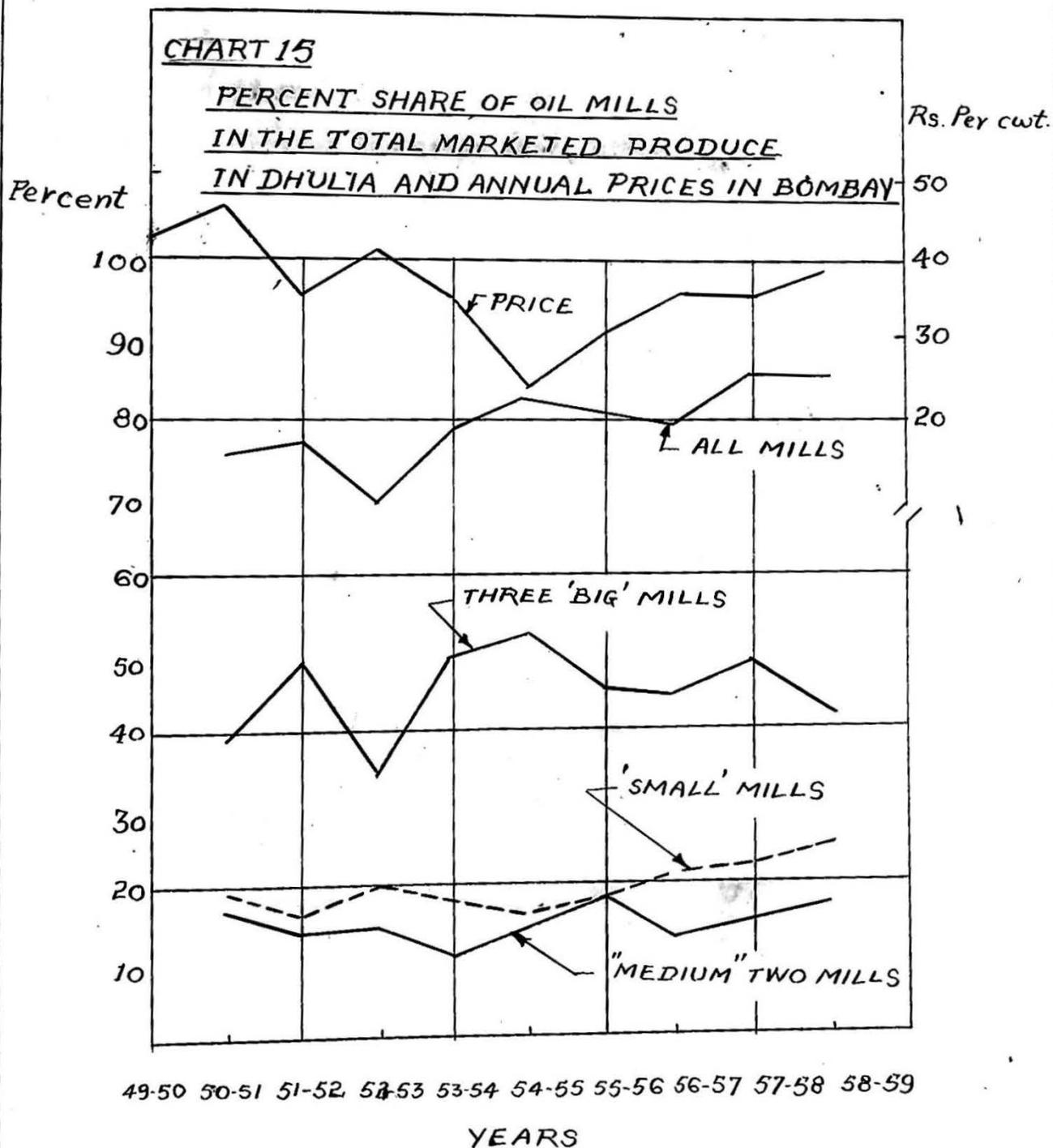
Behaviour of Oilmillers and Traders  
in the Dhulia Market.

In table 6.2, the percent quantity purchased by the oilmills is shown for a period of nine years. There seems to be a positive linear trend in the oilmills' purchases ( See chart 15). To examine whether the level of annual prices in Bombay ( KQ variety)<sup>7</sup> had any influence on the share of the oilmills, two partial correlation coefficients are calculated. The value of  $r_{12.3}$ , the correlation coefficient between the annual per cent share of all oilmills and the positive linear trend, holding the influence of Bombay price constant, is +0.7240 which is significant at 5 per cent level. The  $r_{13.2}$ , the correlation coefficient between the per cent share of all oilmills and the Bombay price, holding the effect

---

<sup>7</sup> We have considered the annual prices and annual purchases because the monthly purchases are not available for all the nine years. The latter are available, as already noted, from 1955-56 onwards.

The prices of KQ variety are selected because this variety is nearer the quality traded in the Dhulia market than the Bold variety. ( See also Chapter 7, page 186 ).



of trend constant, is  $-0.7210$ , which is also significant at 5 per cent level. The first coefficient indicates the rising importance of the oilmills during the last nine years. The second coefficient indicates that, other things remaining constant, there is a decrease in the oilmills' share when the prices are at a high level. This means that during the periods of high prices, the competition from the traders is so acute that the oilmillers are required to reduce their share. In other words, though the local oilmillers are the largest purchasers in the regulated markets, they cannot hold a constant share in the total marketed produce; they have to decrease or increase their share as the competition from the traders increases or decreases.

The accompanying table 6.14 presents the average share of the oilmills and the traders in the monthly sales in the Dhulia market during the four-year period between 1955-56 and 1958-59. It is evident from this that the share of the oilmills increases from September to February. In February, about 91 per cent of the total marketed produce goes to the oilmills. There is then a slight drop in March, but again in April, the share reaches the 91 per cent mark. The biggest fall in the oilmills' share comes in June, when it stands around 57 per cent. The rise is again evident in the next two months. The rise in the traders' share in the month of June is mainly due to the rise in demand of seeds by the farmers for the sowing purposes. This again substantiates our earlier

**Table 6.14** : Average Per Cent Share of Oilmills and Traders in the Monthly Sales in Dhulia during 1955-56 - 1958-59.

Month	Share of Oil mills	Share of Traders
September	79.53	20.47
October	78.00	22.00
November	82.29	17.71
December	84.44	15.56
January	88.14	11.86
February	90.96	9.04
March	88.35	11.65
April	90.75	9.25
May	85.22	14.78
June	57.00	43.00
July	81.83	18.17
August	89.12	10.88
Average for all months	82.10	17.90

observation that, at times, oilmillers have also to face quite a serious competition from the traders. The decrease in the demand by traders through successive months and its sudden rise in the month of June are the two phenomena characteristically present in all the four years.

#### Behaviour of different Oilmills in Dhulia

We can classify the oilmills in Dhulia in three groups. The first group consists of three "big" mills ( A, B and C ) each of which purchased, on an average, during the period between 1950-51 and 1958-59, more than 10 per cent of the total yearly marketed produce. The second group includes two "medium" mills ( D and E ) whose individual share was more than 5 per cent ( but less than 10 per cent). The remaining mills are combined in the third group of "small" mills. Table 6.15 represents the share of the mills in these groups.

The figures in columns 4, 7 and 8 are presented in chart 15. From these, one can see that the three "big" mills, on an average, purchase about 45 per cent of the total marketed produce, the "medium" two taking about 15 per cent while the remaining "small" mills, ( about seven in number ) buying about 18 per cent. The contribution of the "big" mills largely determines the share of all the oilmills. It is significant to note, from chart 15, a negative association between the "big" mills' share and the share of the "medium" two or of the "small" mills. Whenever, there is an increase in the "big" mills' share, there is consequently an increase in the

**Table 6.15 : Per Cent Share of Oilmills in the Annual Sales of Groundnut Pods in Dhulia during 1949-50 - 1958-59.**

Year	Share of Big Three mills				Share of medium two mills			Share of <sup>*</sup> small mills
	A (1)	B (2)	C (3)	Total (4)	D (5)	E (6)	Total (7)	Total (8)
1949-50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1950-51	14.89	8.92	15.60	39.41	6.57	10.19	16.76	18.62(6)
1951-52	17.78	11.48	18.81	48.07	5.67	7.87	13.54	15.70(5)
1952-53	11.87	12.55	9.90	34.32	4.42	10.17	14.59	20.21(5)
1953-54	21.83	13.68	13.70	49.21	3.28	7.32	10.60	18.46(5)
1954-55	20.61	16.34	15.22	52.17	5.55	8.00	13.55	16.42(5)
1955-56	15.16	14.93	14.74	44.83	8.81	9.12	17.93	17.69(6)
1956-57	15.91	12.88	15.03	43.83	6.74	6.60	13.34	21.49(6)
1957-58	16.96	13.54	17.54	48.04	8.82	5.90	14.72	21.79(8)
1958-59	14.77	15.21	12.23	42.21	8.83	8.63	17.46	25.07(8)
Average of all yrs.	16.64	13.28	14.75	44.67	6.52	8.20	14.72	18.38

\* Figures in brackets indicate the number of oilmills in this group.

all mills' share, but the "medium" and "small" mills' proportionate purchases at the same time, decrease. This tendency however, is less marked in the years following 1955-56. The share of the "small" and "medium" mills from this year onwards is steadily increasing. To some extent, the rise in the "small" mills' share is due to the increase in the number of these mills. ( See the number of "small" mills given in brackets in column 8 ). The increase in these mills' purchases is so significant that inspite of a steep fall in the "big" mills' purchases during 1958-59, the total oilmills' share has registered a slight rise.

One can, therefore, conclude that the rise in the all mills' share observed in the earlier section is largely due to the increase in the share of the "medium" and "small" mills though, of course, there is also visible a slight increasing trend in the "big" mills' share.

The negative association between the "big" mills' share and the "medium" and "small" mills' share also suggests that there is very little difference between the behaviour of "small" ( and "medium" ) oilmillers and that of traders. We have earlier seen that there is a negative correlation between all mills' share and price level; a similar correlation coefficient (  $r = -0.7731$ , significant at 5 per cent level) exists between the "big" mills' share and price level. This indicates that the rising prices give rise to a bullish tendency not only among traders but also among "small" and

"medium" oilmills. Quite a severe competition has, therefore, to be faced by the big mills in these periods, with the result that their share in the total marketed produce decreases.

Monthly purchases of different oilmills

As is to be expected, the seasonality in the oilmills' purchases does not differ much from that in the total marketing. Table 6.16, which presents the average seasonality of each of the "big" and "medium" mills' purchases, together with that in the marketing during the three-year period between 1956-57 and 1958-59<sup>8</sup>, indicates that during this period, the peak marketing season was between October and January, and that the mills under study also made their largest purchases during these four months. When, however, there were two months of largest arrivals ( as in 1956-57) mills B, D and E made their highest purchases of the year in October and mills A and C made their highest purchases in December. When the largest marketing was concentrated only in one month ( as in 1957-58), all the mills had made their highest purchases in October.

The purchasing policies of different mills is reflected best in their share in the total oilmills' purchases. The share of each of the three "big" mills and that of the two "medium" mills in the average monthly purchases of all mills are presented in charts 16 and 17 respectively. Chart 17 also presents the share of the other "small" mills. Among the

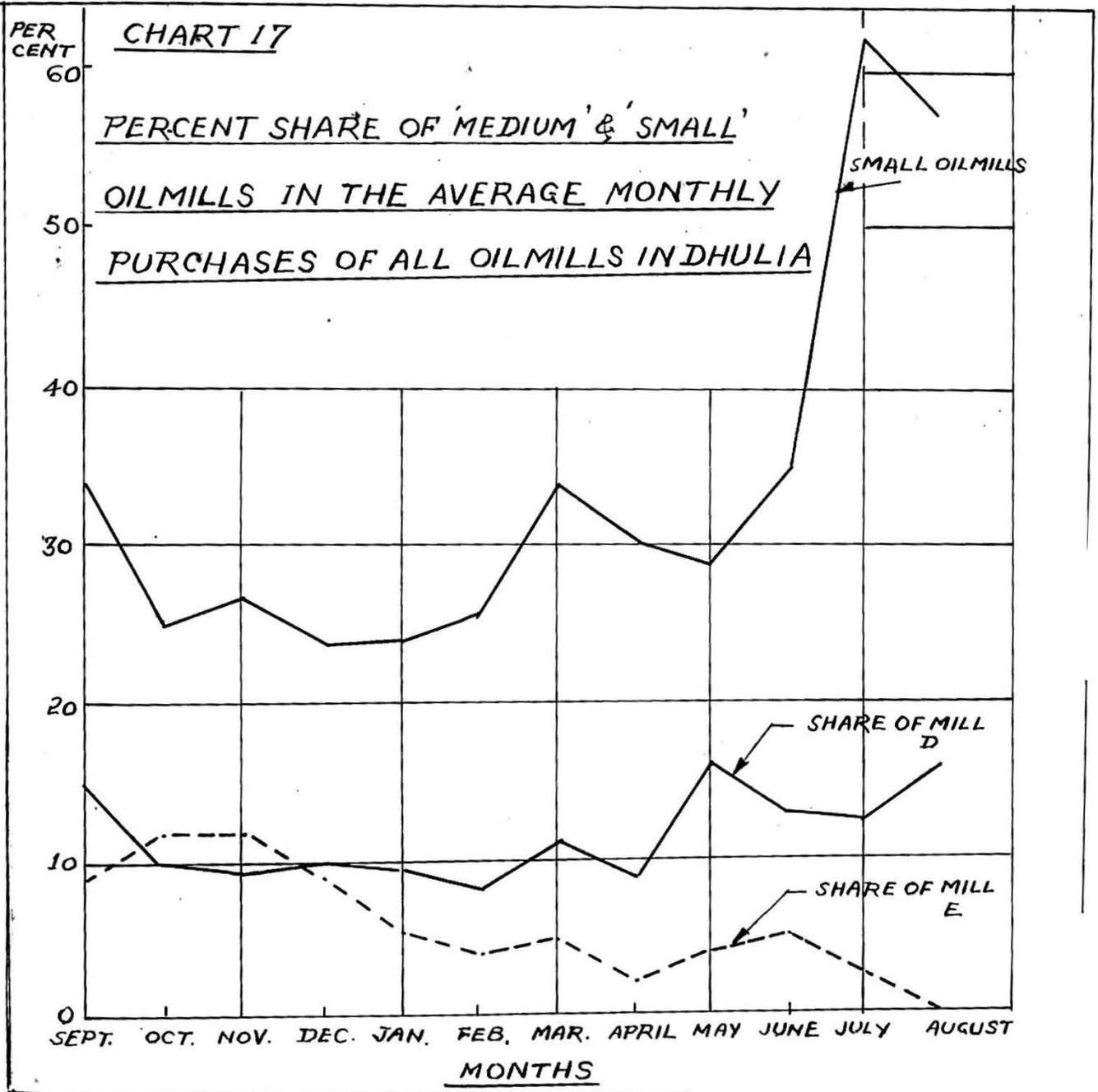
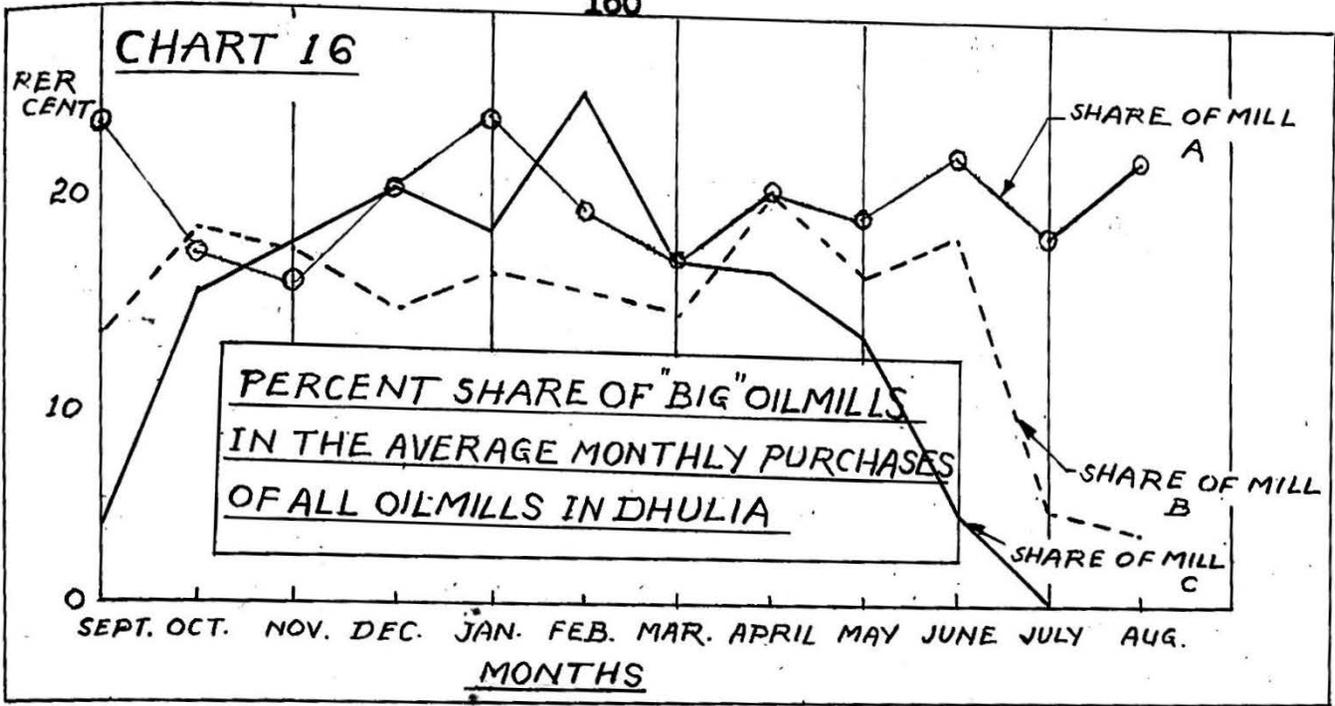
---

<sup>8</sup> The year 1955-56 is not considered because purchases in the month of September 1955 are not available.

**Table 6.16 : Seasonality in Purchases Made by Different Oilmills in Dhulia.**

(Average between 1956-57 and 1958-59)

Month	A	B	C	D	E	Total sales
September	3.05	2.27	.25	2.65	2.62	2.49
October	22.51	27.85	23.18	26.87	35.34	27.05
November	15.24	19.66	17.68	17.30	25.12	18.62
December	23.79	22.13	26.29	17.16	21.94	21.33
January	16.30	14.29	14.09	14.12	7.83	12.50
February	6.65	5.09	7.69	6.59	1.93	5.79
March	3.85	2.70	3.81	4.28	1.62	3.71
April	2.89	2.41	3.07	2.53	.75	2.74
May	3.13	2.68	3.59	5.33	1.90	3.38
June	1.48	.88	.36	1.67	.79	1.46
July	.36	.01	-	.72	.17	.47
August	.75	.03	-	.80	-	.46
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.01</b>	<b>100.02</b>	<b>100.01</b>	<b>100.00</b>
<b>Mean deviation.</b>	<b>7.50</b>	<b>8.52</b>	<b>7.98</b>	<b>7.02</b>	<b>9.57</b>	<b>7.70</b>



"big" mills, the largest variation in the monthly share is seen in the purchases of the mill C. It increased its share from September onwards till February when it purchased about 26 per cent of the produce going to all the oilmills. Then it decreased its share rapidly and in July and August it ceased its operations in the market. The share of the mill B was comparatively steady upto June, varying between 13 and 21 per cent, but after June it also decreased substantially and came down to 5 per cent. Mill A was the most consistent purchaser throughout the year, its share moving between 16 and 25 per cent.

As far as the share of the "medium" mills is concerned, the mill H also, like mill C seemed to be seasonally operating, making largest purchases in October and November and then decreasing its share. Till April, the mill D was purchasing, more or less, a constant share and after April it started playing more active role. The share of the other "small" mills ( chart 17 ) was, in general, subdued till January, but afterwards it also began increasing, and in July, its highest mark was reached at 62 per cent level.

From Table 6.14, we have seen that the monthly share of all oilmills in Dhulia increased, in general, from October onwards. It is also observed above that, the shares of one of the "big" mills and one of the "medium" mills in the total oilmills' purchases were seasonal and decreased after the peak marketing months, while the share of the small oilmills

increased sharply. Thus, the increasing share of the oilmills after October is mostly due to the increasing share of the small oilmills. This may mean that the competition from the "big" and "medium" oilmills prevented the "small" oilmills to make their purchases adequately in the peak marketing months and consequently they increased their share in the later months when some of the larger mills became relatively less active in the market. This could, of course, be only partially true, for, besides competition from the larger mills, the small oilmills had also to face the difficulties of storage and finance. With the shortage of storage facilities and limited financial resources, it is doubtful whether they would have been able to purchase, even in the absence of the larger mills, all their annual requirements during the peak marketing period.

#### Summary

Thus, we have seen that the oilmills have, with their large underutilised capacity and an ever increasing demand for their products, established themselves as the largest purchasers of groundnut in the regulated markets. The competition in these markets is, however, severe and they have to pay sometimes, as the prices in 1958-59 indicate, more than the parity prices calculated on the basis of prices in Bombay. This rise in local prices is chiefly due to the rise in local demand; but it is also due to excessive competition which leads to speculation,

This is more significantly pointed out by the analysis of the figures available in the Dhulia market. It is seen that in Dhulia there is a keen competition not only between oilmillers and traders but also among oilmillers. In the years of rising prices, the "small" and "medium" oilmillers, together with the traders, compete with "big" oilmillers; so that, the share of the latter substantially decreases. It is also observed the oilmillers in Dhulia are becoming more and more important and their share in the total sales in the market is rising during the last ten years.

\*\*\*\*\*

...APTER VII  
PRICE DETERMINATION : I

This chapter is divided into four sections. In the first section, we describe the methods of sale and market practices in the three markets under study. Then all the factors which determine day to day prices in the local markets are summarised in the second section. The third section deals with the nature of price data available with the Market Committees. In this section all the available indicators of prices are studied and their main characteristics and the differences in their movement patterns are noted. The fourth section, then, summarises these findings, selects the appropriate price indicators, discusses the various methods of price analysis before selecting a right one, and then describes the selected method and the assumptions involved. The results of the analysis are presented in the next chapter.

## 1

Methods of Sale and Market Practices.

As earlier noted, the chief purpose of the establishment of regulated markets in the country is to regulate market practices and conduct the sales under impartial supervision. At present, in all the markets under consideration, the sales are conducted by the open auction method. In Dhulia, for

example, each commission agent has been assigned a plot in the market yard and the farmers bringing their produce are directed towards these plots. The produce comes in open cart-loads and it is arranged in a line by the commission agents. The auctions generally start in the morning and the purchasers move from one lot to another, inspecting the produce and bidding openly. The produce is sold to the highest bidder and any farmer can refuse selling his produce if the price so determined falls below his expectation. This option is, of course, seldom used by the agriculturists. In general, efforts are made to sell all the produce coming in the market yard on the same day.

In Barsi, there is no separate market yard and the auctions are conducted in the shops of the commission agents. Before the sales start, they divide the produce coming to their shops in three lots according to quality and only three auctions are held in one shop. Since the Market Committee finds it difficult to conduct sales in all the shops during the peak marketing season, the sales are conducted by rotation and, in general, about half the number of shops are covered in a day. In Karad, the market committee has allowed the commission agents to build their shops in the market yards and the auctions move from one shop to another. As in Barsi, the market committee in Karad also finds itself unable to cover all the shops in a day during the peak marketing period and the auctions, therefore, are held for each shop on alternate days.

It should be noted that while the open auction method in Karad is prevalent right from the establishment of the regulated market there, the introduction of this method in the other two markets is relatively recent. Before 28th March 1955, the sales in Dhulia were conducted under the 'Hatha' system. The commission agents used to deal with each purchaser under cover and sell to that purchaser whose bid was the highest. Under this method, the buyers as well as the sellers were unable to know different bids and there was ample scope for a commission agent to be partial towards one particular buyer. An improvement over this method introduced from 28th March 1955 was 'the open agreement method' under which the commission agent was obliged to declare the highest bid after the 'under cover' dealings were over, and if any purchaser wished to bid higher, he was permitted to do so. The open auction method is followed since 1st September 1956.

As we have seen earlier, in Barsi, before 1st September 1959, i.e. during all the years under the present study, two methods of sale were in operation. The first one, called the 'patti system' was used during the peak marketing season, i.e. between September and December of every year, for conducting the sales of the new crop. Side by side with this, open action sales were also conducted for the old crop. From January onwards, open auction method was made applicable to all transactions. Under the 'patti' method, the general

commission agents dealing in groundnut were divided into two groups and only one group was allowed, in alternate turn, to sell its produce on a day. The produce of all the commission agents forming one group was divided in three lots according to quality and only one auction was held for each of these lots. Thus, on a single day, there were only three purchasers purchasing entirely the marketed produce of the day. This system was discontinued from 1st September 1959 and was replaced by open auction method throughout the year.

As far as deductions allowed in the market price are concerned, they are, in general, uniform and fixed by the Market Committees. The chief deduction is the general commission agent's commission which is fixed by all the Market Committees at 12½ per cent of the market price, to be borne equally ( i.e. 6½ per cent each ) by the buyer and the seller. The other expense for the buyer is conveyance, which is, of course, not uniform and changes from buyer to buyer. In Dhulia, before 15th November 1955, the weighment used to be done at the buyer's place and the seller had to take his produce to the buyer after the sale in the market yard. This was beneficial to the buyers for it resulted in the saving of conveyance costs. Since 15th November 1955, however, the weighment is done at the market yard and it is the responsibility of the buyer to take the purchased produce from the market yard to his place.

There are other market practices which affect, though

slightly, the day to day prices. Thus, for example, it is reported that the price paid by a buyer to a specific lot of produce, many a time, depends upon the general commission agent's capacity of providing credit to the buyer. Under the prevalent method, after the sale and weighment are completed, the commission agent pays the farmer the value of the produce deducting his commission and other charges and then, at a later stage, proceeds to collect it from the buyer. If, therefore, a particular commission agent is financially sound and can wait for a longer period, the produce coming to him is likely to receive a slightly higher price.

## 2

Factors Determining Local Prices

We are now in a position to summarise various factors which are taken into account by the buyers while fixing day to day prices of groundnut pods. They are :

- i) Prices in the terminal market, other surrounding markets and the consuming centres,
- ii) Transport and other handling costs,
- iii) Quantity and the timing of local arrivals,
- iv) Quality and the condition of the marketed produce,
- v) Efficiency of the marketing system, and
- vi) Other short-time phenomena of local character.

Out of these, the first is undoubtedly the most important

factor influencing local prices. Moreover, since all the other market prices also depend upon the terminal prices, we can take the factor 'terminal price' alone and consider its influence on the local price. Its influence is so important that unless it is determined and removed from the local price, the influence of other factors is not easily recognisable. The terminal price affects the local price throughout the year - during the peak marketing period as well as during the lean marketing period. It is present in the day to day prices as well as in the monthly or annual prices. For measuring this influence, it is relevant to take the prices of kernels rather than those of oil and cake prevailing in the Bombay market. This is because kernels are the first processed form of pods and they can be used either for edible purposes or for further processing into oil and cake. It is, of course, true that demand for pods in the local markets is more from oilmillers than from traders and from the point of view of oilmillers, the prices of oil and cake are of more significance. But if we take these prices, we virtually neglect the demand from traders. It is also safe to assume that the prices of kernels, oil and cake in Bombay have a parity between themselves; it thus matters very little whether we select the prices of kernels or of oil and cake to measure the influence of the terminal market. There is, however, no such choice to be made between the spot prices and the future prices simply because the future trading in the country was

banned before 1956. In any case, the spot prices are of more relevance than the future prices as the local markets are essentially the spot markets. Regarding the transport and processing costs, we do not have data for the last ten years.<sup>1</sup> It is, therefore, very difficult to assess its influence.

As far as the effect of arrivals is concerned, it is natural to expect that it is present during the period of only about four months when marketing is heavy. We have already noted in the chapters on supply, the main tendencies in marketing. In the following pages we will make an attempt to see whether they affect local prices to any significant level.

We have also seen earlier that both the quality as well as the condition of the marketed produce change over time. The former changes over years and can be assumed to remain more or less, constant within any single year. The condition of the produce, however, varies within a year - inferior in the early period of marketing and gradually improving in the later months.

The factor "efficiency of the marketing system" includes all the institutional and non-institutional factors which regulate marketing, e.g., the nature of competition between buyers, the bargaining strength of sellers, price disseminating

---

<sup>1</sup> To a query made to the Chief Commercial Superintendent of Central Railway regarding the transport costs for these centres prevailing since 1949, the following reply was received: " ... As per rules only current<sup>rates</sup> as shown above are quoted to the public. It is, therefore, regretted that your request for the quotation of old rates cannot be complied with. There is no publication containing readymade rates for the above traffic."

facilities, method of sale, and other market practices. It is these forces under which the process of price mechanism takes place. We have seen in the chapters on Demand the nature of competition between buyers and also noted that it is the buyers who determine prices and sellers have a very little say in the price fixation. To what extent these factors, taken together, influence local prices is very difficult to measure. The change in the influence of these factors is, however, expected to be gradual and over a period of years. Quantitative analysis of such influence is very difficult, if not impossible.

Under the heading "short-time phenomena" we include a variety of factors, like transport bottlenecks, strikes, sudden arrivals of produce of another quality from distant areas, maladjustments in other neighbouring markets, rumours and such other disturbances. It is difficult, here also, to estimate quantitatively the influence of these factors.

Before we examine the influence of the above listed factors, it is necessary to study the nature of price-data available in the local markets and their movement pattern. To this now we turn.

## 3

### Nature of Price-data

Three price-indicators are available in the records of the Market Committees at Barsi, Dhulia and Karad : Maximum

price, Minimum price and Average price. The 'maximum' price is the highest price paid to any single lot traded in the market on a given day, while the 'minimum' price is the lowest price. The concept of 'average' price is arbitrary, and in Barsi and Karad it refers to the 'Most common' price, i.e. that price which is paid to the largest bulk of the produce. It is, by definition, a modal value, though the actual process of calculating it involves averaging the prices in the neighbourhood of the mode. The 'average' price available in Dhulia refers to the weighted average price, the quantities sold for each price being used as weights. This is arrived at daily by taking an arbitrary sample of prices and quantities from the 'Sauda registers'.<sup>2</sup>

The records of the Market Committees provide daily maximum and minimum prices for all the years. The average prices, however, are recorded at Dhulia from 1949-50, at Barsi from 1953-54 and at Karad from 1952-53.

It should be noted that the 'maximum' and 'minimum' prices prevailing in these markets are not equivalent to the 'highest' and 'lowest' prices prevailing in a terminal market. In the latter case, the quality of the traded produce remains the same and the difference between the 'highest' and the 'lowest' prices indicates the amount of price change occurred during a

---

<sup>2</sup> These three indicators will be denoted in the subsequent tables and charts as 'Max.', 'Min.' and 'Average' respectively, the latter denoting the 'Most common' price at Barsi and Karad and 'the weighted average' (W.A.) price at Dhulia.

day. In the local markets under consideration, however, the difference between these two indicators on any day not only shows the amount of price change, but also refers to the difference in prices paid to two extreme qualities.

The accompanying tables<sup>3</sup> enable us to see to what extent these three indicators are susceptible to the changes in the terminal price and to the changes in the quality and condition of the marketed produce.

Table 7.1 presents the annual maximum, minimum and average prices and the differences between them. These data are also presented in Chart 18. Table 7.2 shows the seasonal indices<sup>4</sup> of the maximum prices; and tables 7.3 and 7.4 show the seasonal indices of the max-min and max-av. differences respectively.<sup>5</sup> Following observations can be made from these tables:

Firstly, both the maximum and minimum prices move in sympathy with Bombay Prices (Chart 18). The minimum prices, however, show a slightly opposite tendency in Barsi and

<sup>3</sup> Since at Karad the commodity is not traded throughout the year, the prices existing in the private dealings outside the market yard are available in the records of the market committee from 1952-53. These tables make use of these prices also.

<sup>4</sup> Seasonal Indices of these prices are calculated by using the methods described in Chapter 1.

<sup>5</sup> Hereafter the terms "max-min. differences" and "max-av. differences" will be used to denote the differences between maximum and minimum prices and those between maximum and average prices respectively.

Table 7.1 : Annual Prices Prevailing in the Three Regulated Markets

(Rs. per maund)

Year	BARSII					DHULIA					KARAD				
	Max. price	Min. price	Average price	Max. price - Min. price	Average price	Max. price	Min. price	Average price	Max. price - min. price	Average price	Max. price	Min. price	Average price	Max. price - Min. price	Average price
1949-50	N.A.	N.A.	N.A.	N.A.	N.A.	22.56	17.33	20.18	5.23	2.38	20.08	17.35	N.A.	2.73	N.A.
1950-51	23.02	20.43	N.A.	2.59	N.A.	24.98	22.23	23.50	2.75	1.48	23.37	21.64	N.A.	1.73	N.A.
1951-52	17.14	15.24	N.A.	1.90	N.A.	19.15	15.93	17.92	3.22	1.23	16.55	13.72	N.A.	2.83	N.A.
1952-53	21.04	18.77	N.A.	2.27	N.A.	21.76	18.81	20.30	2.95	1.46	20.55	18.54	19.68	2.01	0.87
1953-54	18.31	15.98	17.24	2.33	1.07	19.76	16.74	18.25	3.02	1.51	17.55	15.16	16.55	2.39	1.00
1954-55	11.07	9.40	10.73	1.67	0.34	12.50	9.78	11.07	2.72	1.43	11.78	9.51	10.96	2.27	0.82
1955-56	15.39	13.63	14.75	1.76	0.64	16.75	13.44	15.33	3.31	1.42	15.35	12.95	14.25	2.40	1.10
1956-57	17.74	14.15	16.72	3.59	1.02	19.90	14.85	18.00	5.05	1.90	17.61	15.63	16.61	1.98	1.00
1957-58	17.56	15.20	16.81	2.36	0.75	19.25	15.39	17.77	3.86	1.48	17.48	15.23	16.10	2.25	1.38
1958-59	20.52	18.29	19.51	2.23	1.01	21.72	16.58	19.64	5.14	2.08	20.21	17.99	19.09	2.22	1.12

**Table 7.2 : Seasonal Indices of Maximum Prices prevailing at Barsi, Dhulia, Karad and those of Bold, & KQ prices at Bombay.**

Centre	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Mean deviation
Barsi	102.82	101.37	92.16	91.04	92.83	94.16	100.44	102.58	107.75	106.50	106.16	102.19	4.19
Dhulia	98.03	87.75	92.08	94.10	98.79	101.11	103.78	106.10	110.44	106.56	101.71	99.55	4.98
Karad	99.78	95.77	94.68	94.03	96.58	96.35	100.43	101.04	104.60	105.50	107.31	103.93	3.80
Bombay Bold	103.42	98.05	90.66	92.52	95.39	95.89	99.42	102.47	108.30	105.44	106.73	101.71	4.68
Bombay KQ	102.88	97.42	89.66	92.27	96.08	96.63	99.94	102.51	108.29	105.91	106.64	101.76	4.66

Table 7.3 : Seasonality in the Differences Between Maximum and Minimum Prices

( Figures in percentages of the average )

Centre	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Average difference between max. and min. price (Rs. per maund)	
Barsi	92.70	321.78	263.75	101.01	49.50	43.98	59.84	49.19	59.40	74.14	44.83	39.88	64.42	2.30
Dhulia	257.26	198.28	123.00	87.30	92.61	85.06	68.55	70.36	78.24	74.00	36.59	28.75	46.42	3.72
Karad	47.62	259.16	296.58	222.04	103.39	43.61	36.34	39.51	36.67	37.74	36.50	40.84	80.20	2.22

Table 7.4 : Seasonality in the Differences between Maximum and Average Prices

( Figures in percentages of the average )

Centre	Sept.	October	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Mean deviation	Average difference between Max. and average price. (Rs. per maund)
Barsi	43.71	272.46	365.58	112.50	37.67	31.13	79.23	53.49	47.33	80.04	42.05	34.81	75.09	0.80
Dhulia	473.22	259.52	72.01	40.40	43.26	43.36	40.86	47.29	53.88	65.73	34.16	26.31	88.79	1.64
Karad	50.37	275.04	326.34	212.02	76.09	43.80	31.50	44.37	41.19	32.26	31.18	35.84	85.57	1.04

ANNUAL PRICES PREVAILING AT BOMBAY,  
BARSII, DHULIA & KARAD.

CHART 10

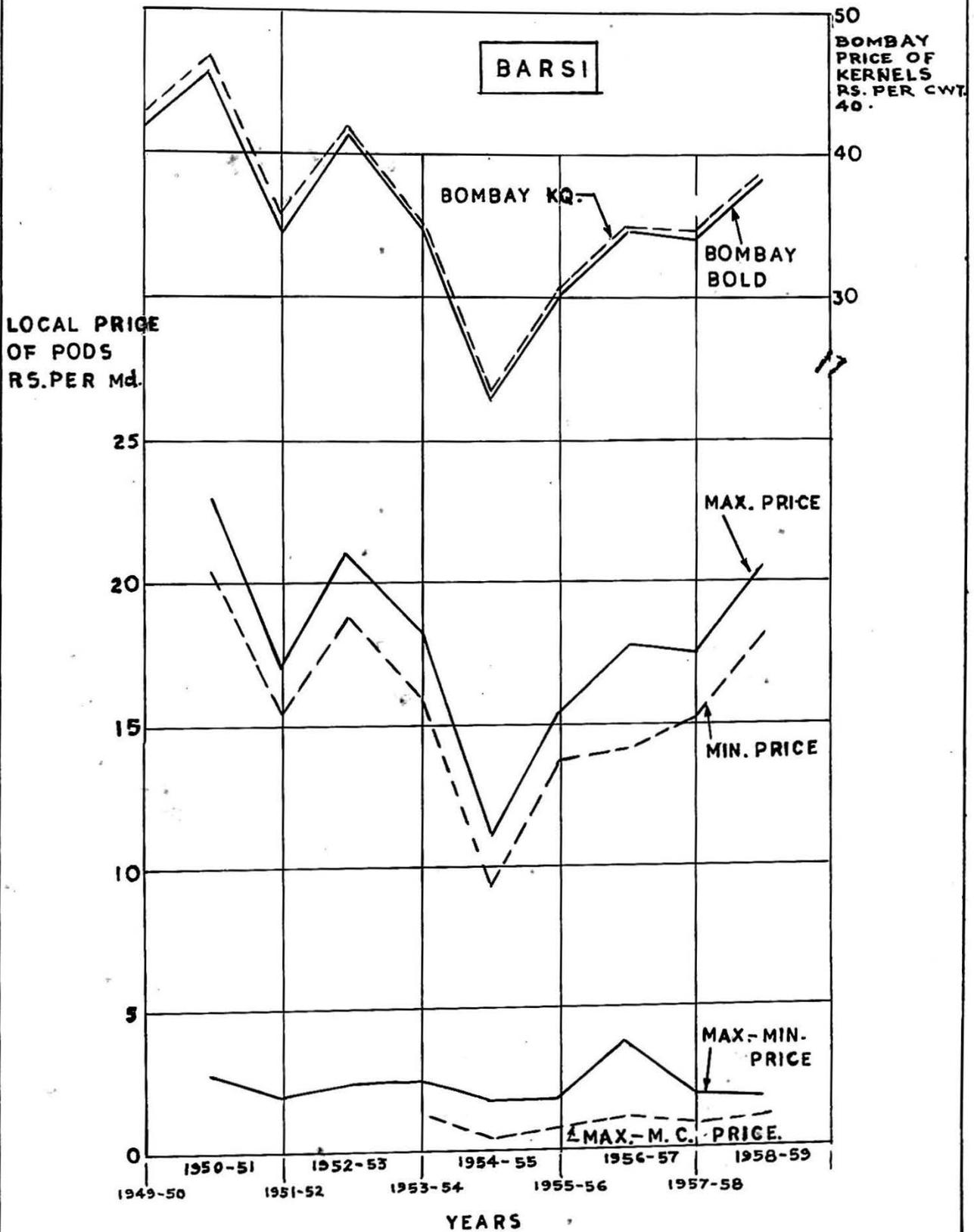


CHART 18  
CONTINUED

ANNUAL PRICES PREVAILING AT BOMBAY  
BARSII, DHULIA & KARAD

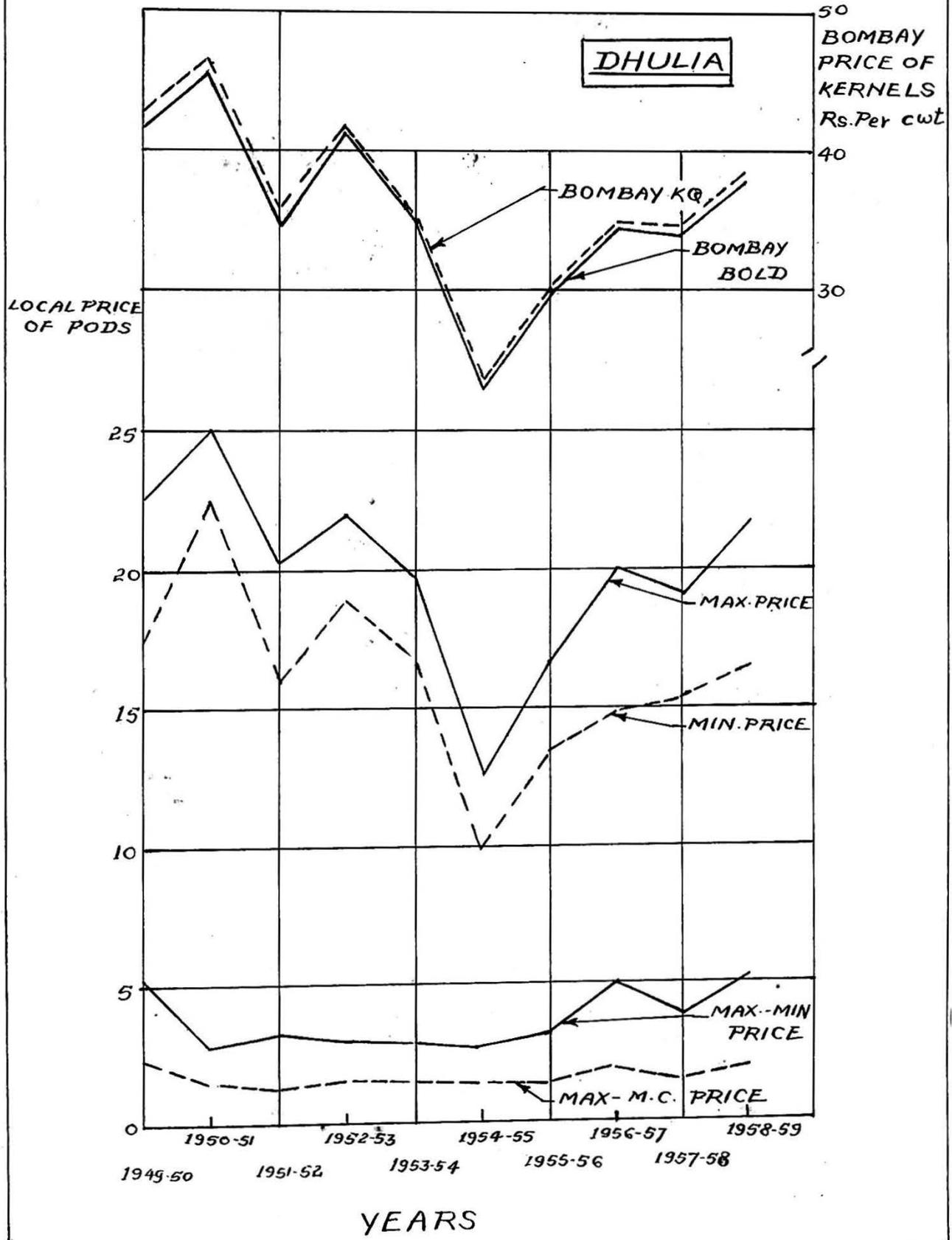
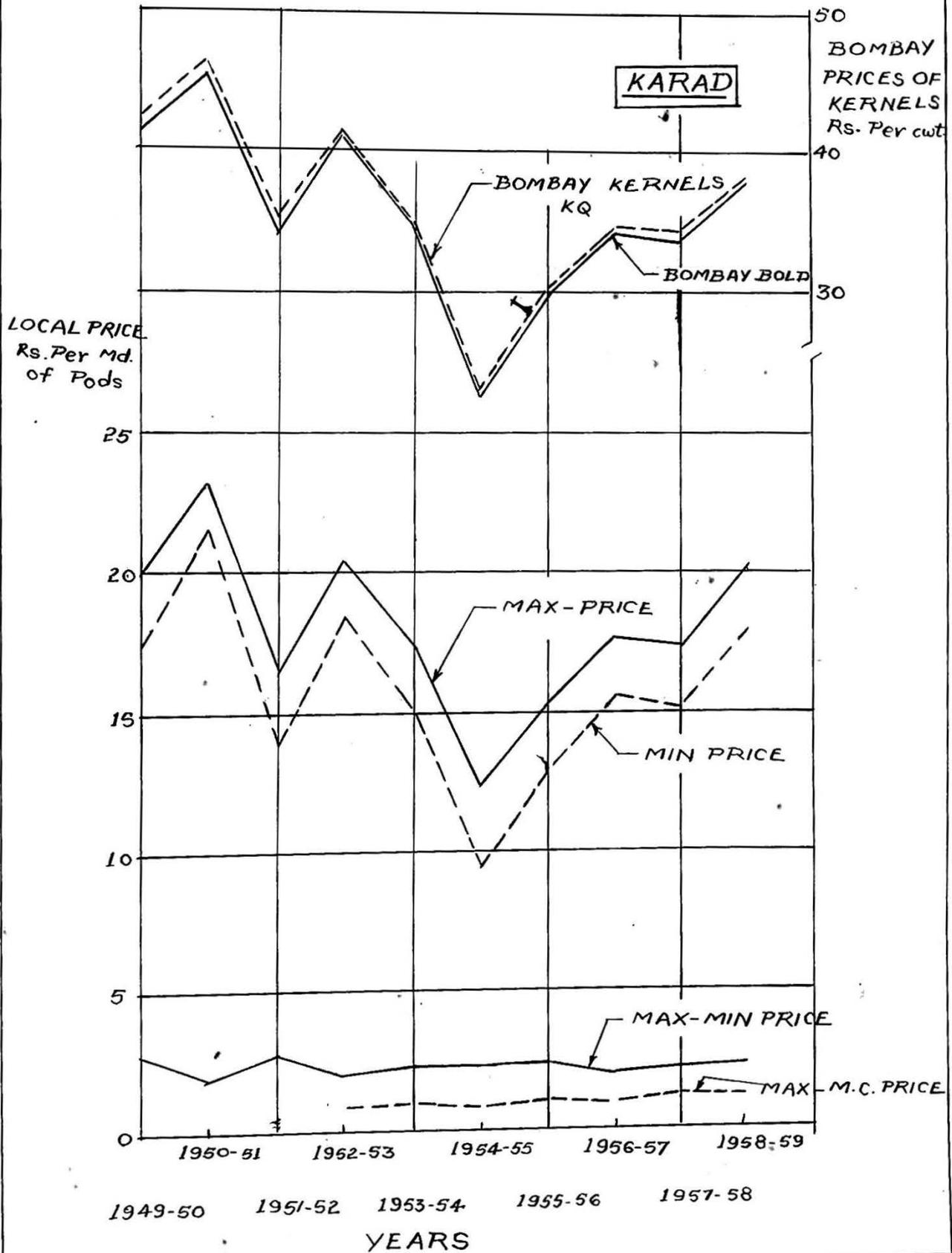


CHART 18  
CONCLUDED

ANNUAL PRICES PREVAILING AT BOMBAY,  
BARSI, DHULIA & KARAD



Dhulia during 1957-58, when in response to a slight decrease in the Bombay prices, they show an increase.

Secondly, the movement of annual maximum, minimum and average prices is not exactly parallel. The differences between the annual maximum and minimum prices move between Rs. 3.59 and Rs. 1.67 in Barsi, between Rs. 5.23 and Rs. 2.72 in Dhulia and between Rs. 2.83 and Rs. 1.73 in Karad. The movement of these differences and also that of the differences between maximum and average prices in Barsi show a positive relationship with the Bombay prices. Barring a slight rise in the max-min. differences during 1953-54 and an abnormal rise in 1956-57, both the max-min and max-av. differences move in sympathy with the Bombay prices. This indicates, perhaps, that the maximum prices are more sensitive to Bombay prices than both the minimum and average prices with the result that the difference increases when the Bombay prices rise and it falls when the Bombay prices decrease. No such association, however, is to be found in the case of Dhulia and Karad. In general, the max-av. differences seem to be more stable than the max-min. differences at all the centres.

Thirdly, as far as the monthly seasonal changes in the maximum prices are concerned, these prices do not fall in the same month. The seasonal fall in Bombay prices is in November while that in Barsi and Karad is in December and that in Dhulia is in October. If we compare this table with Table 4.5 in chapter 4 which shows the seasonality in

arrivals, we find that the troughs in the maximum prices coincide with the peaks in arrivals.

Fourthly, the minimum prices, it appears from table 7.3, decrease most at Barsi in October, at Dhulia in September and at Karad in November. Roughly, therefore, they fall one month earlier than the maximum prices. The average prices, as the table 7.4 indicates, fall likewise, one month earlier than the maximum prices. Moreover, the seasonality in minimum prices and average prices is more pronounced than that in the maximum prices. After February, the max-min. differences and max-av. differences remain, more or less, stable.

Fifthly, the annual max-av. differences seem to be nearer to the maximum prices than the minimum prices.<sup>6</sup> This is observed at all the centres in all the months excepting in Dhulia during September and October.

## 4

Summary : A Model For Further Analysis

We are now in a position to summarise the above observations with following remarks :

a. Among the available three price-indicators, maximum price appears to be the most suitable indicator for examining effects of terminal price and other local influences. It

---

<sup>6</sup> This is easily seen by converting the indices in tables 7.3 and 7.4 into average monthly differences. This is done by multiplying the indices by the annual average and dividing by 100.

is the price charged to the produce which is of top quality and has a wide demand. It also appears to be comparatively less affected by the fluctuations in the condition of the marketed produce. The records of the Market Committees provide a continuous series of 'maximum' prices and, therefore, this seems to be the best choice.

b. It is, however, not the maximum price that is received by the majority of farmers. From their point of view, average like 'most common' price is of importance and it would also be desirable if we can look into the factors influencing this price. Unfortunately, the data of 'most common' prices are available in Barsi only from 1953-54 and in Karad from 1952-53, while records in the Dhulia market contain the data of 'weighted average' prices from 1949-50. We will attempt an analysis of these prices.

c. The 'minimum' prices, however, do not provide much scope for a detailed analysis. They are affected to a large extent by the condition of the produce - a factor which is very difficult to be quantified. Moreover, since they move parallel with the maximum and average prices after February, there seems to be little point in studying them in detail, once we have examined the behaviour of maximum and average prices.

In Chapter I, we have seen why it is necessary to take the local price as a dependent variable in preference to the difference between the terminal price and local price. In other words, the form of function ( where  $P_T$  and  $P_L$  refer to

the terminal price and local price respectively),

$$P_L = f ( P_T ; \text{local factors} ) \quad \dots \quad \text{I}$$

is more appropriate than the customary form

$$(P_T - P_L) = f (\text{local factors}) \quad \dots \quad \text{II}$$

This is because of two reasons. Firstly, the former function enables us to know the influence of the terminal price; in the latter, the one to one correspondence between the two prices is taken for granted. Secondly, we do not have the information regarding the year to year changes in the quality of the crop marketed in a local market. This is necessary for calculating the variable  $(P_T - P_L)$  because, as we have noted earlier,  $P_T$  refers to kernels while  $P_L$  refers to pods.

In the next chapter, we make an attempt to measure the influence of various factors on the local price. This we intend to do in three parts. In the first, we will examine the behaviour of annual maximum, minimum and average prices and their relationship with the terminal price. Since all the local factors of relatively short-time duration are expected to cancel out in the yearly averages, the only independent variable necessary is the terminal price. In other words, the form of the regression equation will be :

$$x_1^A = a + b_{12} x_2^A \quad \dots \quad \text{III}$$

where  $x_1^A$  is the annual price of pods in Rupees per maund in a local market,

and  $x_2^A$  is the annual spot price of kernels in Rupees per cwt. in Bombay.

( of 'Bold' variety for Barsi and Karad

and of 'KQ' variety for Dhulia.)

This equation will be fitted to the data of local maximum and minimum prices, and in the case of Dhulia, to the data of average prices, separately. The differences in the values of 'a' and ' $b_{12}$ ' between different markets as well as between different price indicators will then be examined.

In this equation, 'a' refers to the level of local price, given the terminal price and 'b' stands for the conversion coefficient of Bombay price in terms of local price. Since the price in Bombay is in terms of Rupees per cwt. of kernels, it is necessary to remember what value of 'b' will be, if there is one to one relationship between the two prices. The following table ( Table 7.5 ) gives these values for different assumptions of kernel content. Thus, for example, if the kernel content is assumed to be 70 per cent in the pods marketed at a centre, the value of  $b_{12}$  in the equation 1, if found to be 0.514286, will be equivalent to 1.000 in an equation which has  $X_2$  in terms of Rupees per maund of pods.

Table 7.5 : Expected values of  $b_{12}$  for different values of kernel content in pods.

Per cent Kernel Content in Pods	Expected value of $b_{12}$
64	.470204
66	.484898
68	.499592
70	.514286
72	.528980
74	.543673

In the above and subsequent equations we have used the prices of 'Bold' variety in Bombay to see their relationship with the prices in Barsi and Karad while those of 'Khandesh quality' (KQ) variety are related with the prices in Dhulia. This is done to ensure, as far as possible, comparability in the qualities traded in two markets. Strictly speaking, prices of 'Khandesh' variety are more comparable with the prices in Dhulia than those of 'Khandesh Quality', but as the former variety is not regularly traded in the Bombay market, we have to use the data of prices of 'Khandesh Quality' which is slightly superior to 'Khandesh'.

The following table ( Table 7.6 ) presents the annual prices of Bold and KQ varieties in Bombay. This table and Charts 18 and 19 which show the annual and weekly prices indicate close movement of prices of these two varieties. They also point out that while the KQ prices are above the Bold prices, the differences between the two have narrowed down since 1952-53.

Table 7.6 ..

**Table 7.6 : Annual Prices of Bold and Khandesh Quality  
Kernels in Bombay.**

Year	(Rs. per cwt.)	
	Prices of Bold variety.	Prices of Khandesh Quality variety.
1949-50	41.56	42.47
1950-51	45.57	46.65
1951-52	34.31	35.46
1952-53	41.26	41.40
1953-54	35.09	35.21
1954-55	22.79	22.93
1955-56	30.21	30.25
1956-57	34.60	34.82
1957-58	34.13	34.52
1958-59	38.08	38.40

In the second part of the next chapter, we examine the behaviour of local weekly maximum prices. As already noted, by taking 'week' as a unit of time, we assume that it is a sufficiently large unit to absorb most of the random disturbances but still it is not so large as to absorb the effects of arrivals and other factors of a comparatively longer duration. These weekly averages will be studied for the influence of the following factors :

- a) Weekly terminal price
- b) Total weekly sales and
- c) Quality and condition of the marketed produce.

Among these, the influence of the third factor is difficult to locate. There are two difficulties. Firstly, there are year to year fluctuations in the quality of the crop and care will have to be taken to see that prices of the previous year's produce which is carried over and sold in the current year are not mixed with the prices of the current year's produce. The records of the Market Committees, particularly those of Barsi and Karad, do not contain figures for the old crop and new crop separately. One has, therefore, to choose the current year's prices with care. Secondly, the prices are also affected heavily by the condition of the marketed produce and we know nothing about it beyond the fact that the condition of the produce which is marketed early is very much inferior and it gradually improves over time in later months. We have to account for the influence of this factor without having any quantitative

information at hand.

This factor 'condition' presents a real difficulty in estimating the influence of the other two factors. Thus, in a form of function of the kind

$$X_1^W = a' + b'_{12} X_2^W + b'_{13} X_3^W + b'_{14} X_4^W \dots \quad \text{IV}$$

(where  $X_1^W$  is the weekly local price,  $X_2^W$  is the weekly terminal price,  $X_3^W$  is the weekly marketing and  $X_4^W$  is the factor 'condition'), we can hope to get the correct values of  $b'_{12}$  and  $b'_{13}$  only when we quantify the factor  $X_4^W$  correctly. This we are unable to do. There is also a difficulty of multicollinearity between  $X_3^W$  and  $X_4^W$ . Both of them influence  $X_1^W$  at the same time (i.e. during the R.M.P.) and both of them cause reduction in  $X_1^W$ .

It seems, therefore, best to avoid using any form of function of the type (IV). Instead, we would find out first the size of the fall in local prices during the E.M.P. and the R.M.P. and then to see whether we can attribute it to the factors like supply and condition. We can assume that the pressure of arrivals in the D.M.P. is too less to influence, to any significant extent, the course of prices in a local market. There is, as we know, no question of the factor 'condition' operating during the D.M.P. Thus, we can fairly accurately measure the influence of the terminal price on the local price by fitting the following equation to the data of prices in the D.M.P. :

$$X_1^W = \alpha + \beta_{12} X_2^W \dots \text{ in the D.M.P. } \dots \quad \text{V}$$

where  $X_1^W$  is the local weekly price in Rs. per maund and  $X_2^W$  is the terminal weekly price in Rs. per cwt. of kernels ( of 'Bold' variety for Barsi and Karad and of 'KQ' variety for Ghulia ).

The values of  $\alpha$  and  $\beta_{12}$  in this equation are, of course, different from 'a' and 'b<sub>12</sub>' of equation I. Here, they measure the influence of the terminal price, within a year, on the local price given the quality of the crop and price situations. After studying these coefficients, we apply them to the terminal prices prevailing during the R.M.P. and find the 'expected' local prices, assuming that the terminal prices influence equally during the two periods. The differences between the observed and the expected local prices shows, if they are negative and significantly large, the influence of supply and condition.

In other words, during the R.M.P.,

$$( X_1^W - \alpha - \beta_{12} X_2^W ) = f (\text{supply, condition}) \quad \dots \text{VI}$$

There will, of course, be some random departures - both in the R.M.P. as well as in the D.M.P. The criteria for determining whether such departures are random or not would be (a) their magnitude - whether it is significantly large or not and (b) their periodicity - whether the fall or rise occurs at about the same time during all the years. The nature of equation in (VI) can only be determined after studying the movement of  $( X_1^W - \alpha - \beta_{12} X_2^W )$ .

It is clear that by using the function (VI) we have adopted the concept of 'spreads' in equation (II), but modified the assumptions. We have incorporated the changes

due to quality as well structural differences in calculating these spreads. At the same time, by not considering explicitly the transport and processing costs in calculating these spreads, we have restricted the scope of our study. Thus, by using the equations V and VI we cannot say whether the prices in any year, or even in any period, were below, equal to or above the 'parity' prices (calculated, of course, on the basis of Bombay prices). The only questions these equations provide answers for are : (a) how the local prices in the D.M.P. are related with the terminal prices and (b) whether the local prices fall significantly during the B.M.P. and the R.M.P. and, if so, whether the fall can be attributed to the pressure of arrivals and the deterioration in condition.

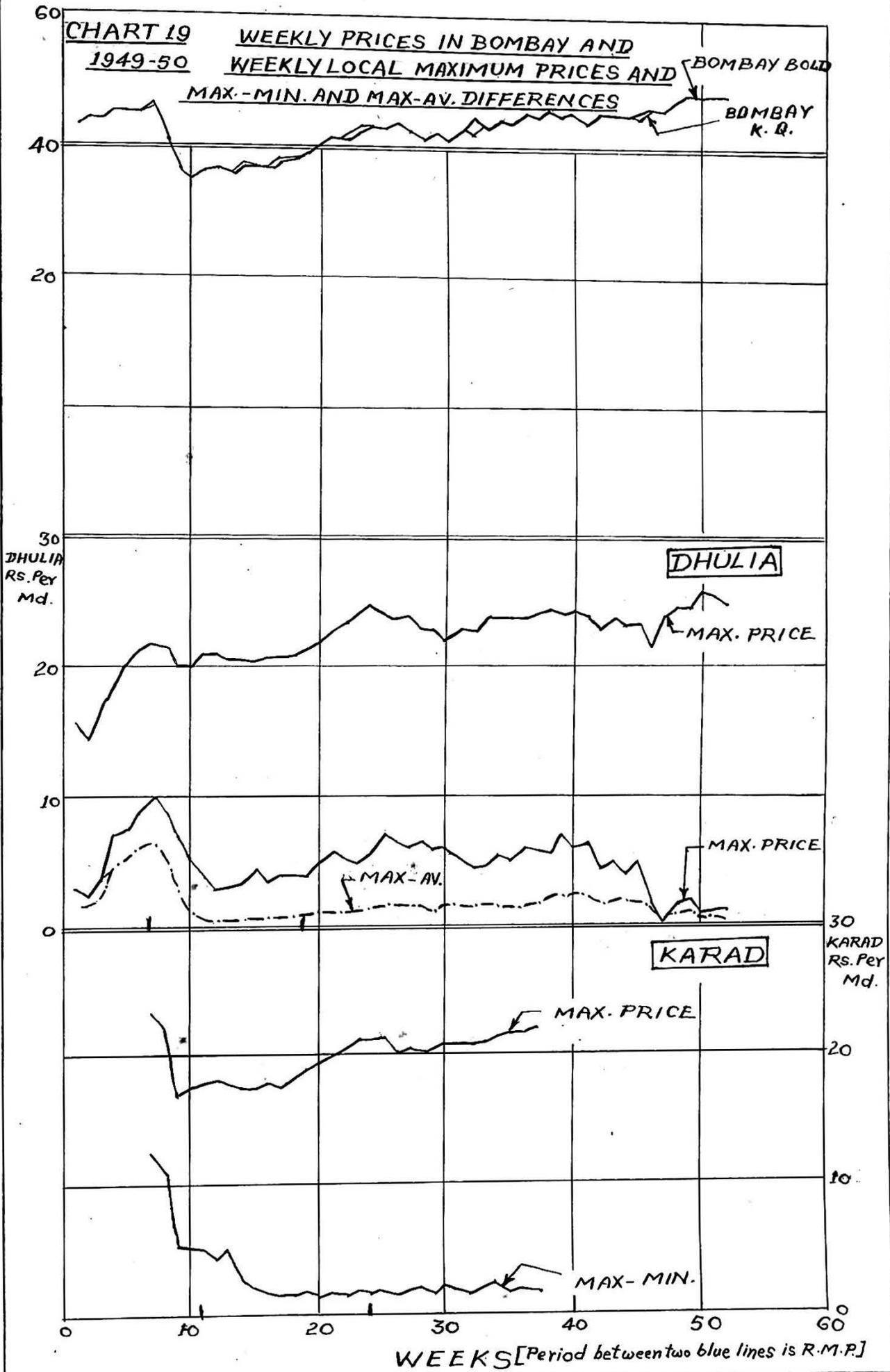
So far, we have assumed that the three available price indicators refer to three qualities traded in the market and the range of differences among these qualities remains constant during the D.M.P. Such will not be the case, however, if the number of transactions, in any week, reduces and all the three qualities are not marketed. Chart 19, which presents weekly maximum prices together with the weekly max-min. and max-av.differences, indicates violent fluctuations in these differences after about 40th week in the D.M.P. In other words, since the transactions are very few, any price indicator during the last three months refers to different qualities in different weeks. It

(after 40th week ) in calculating the coefficients of equation V. In the case of Karad, there is an additional reason for not considering the last twelve weeks. It is found that there are no transactions in the regulated market between June and August and the prices recorded by the Market Committee in these months refer to the private dealings among traders outside the market yard. Strictly speaking, therefore, these prices are not comparable with the prices in the regulated markets. We thus confine our attention, for the purpose of calculating the coefficients in the regression equation V, to all the weeks in the D.M.P. excluding, in the case of Barsi and Dhulia the last twelve weeks and in the case of Karad, those referring to the outside dealings.

It is, of course, true that by first considering only the D.M.P. and then restricting our attention only to certain weeks in the D.M.P., we reduce the number of observations appreciably; we, however, hope that the error due to small size will be more than compensated by the homogeneity in the data used.

Once we examine the behaviour of maximum prices, the analysis of average and minimum prices will be relatively easy. This is done in the third section of the next chapter.

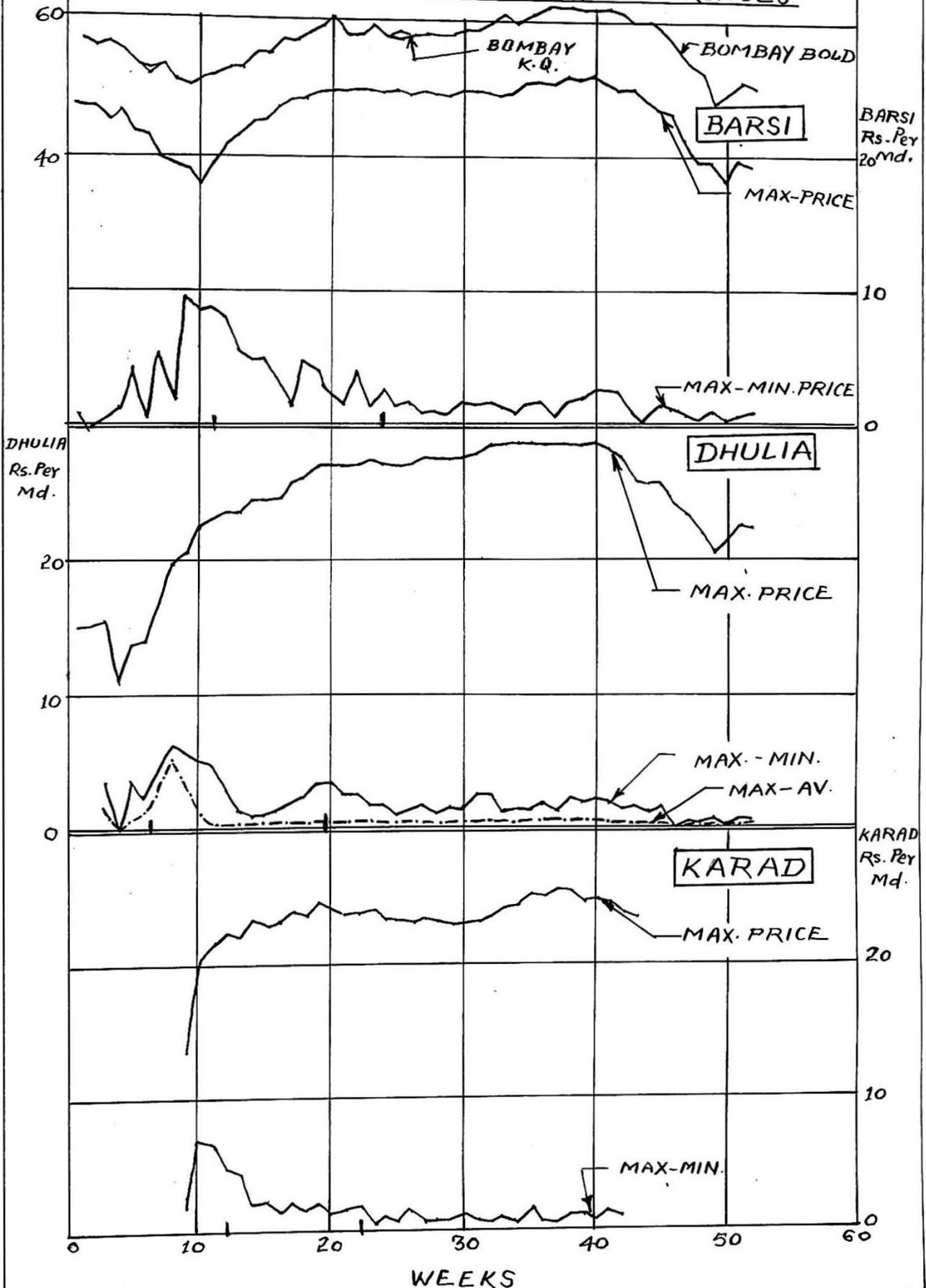
Rs. Per cwt.



Rs.  
Per cwt

**CHART 19 (Continued)** WEEKLY PRICE IN BOMBAY AND  
WEEKLY LOCAL MAXIMUM PRICES AND  
MAX-MIN. AND MAX-AV. DIFFERENCES

1950-51

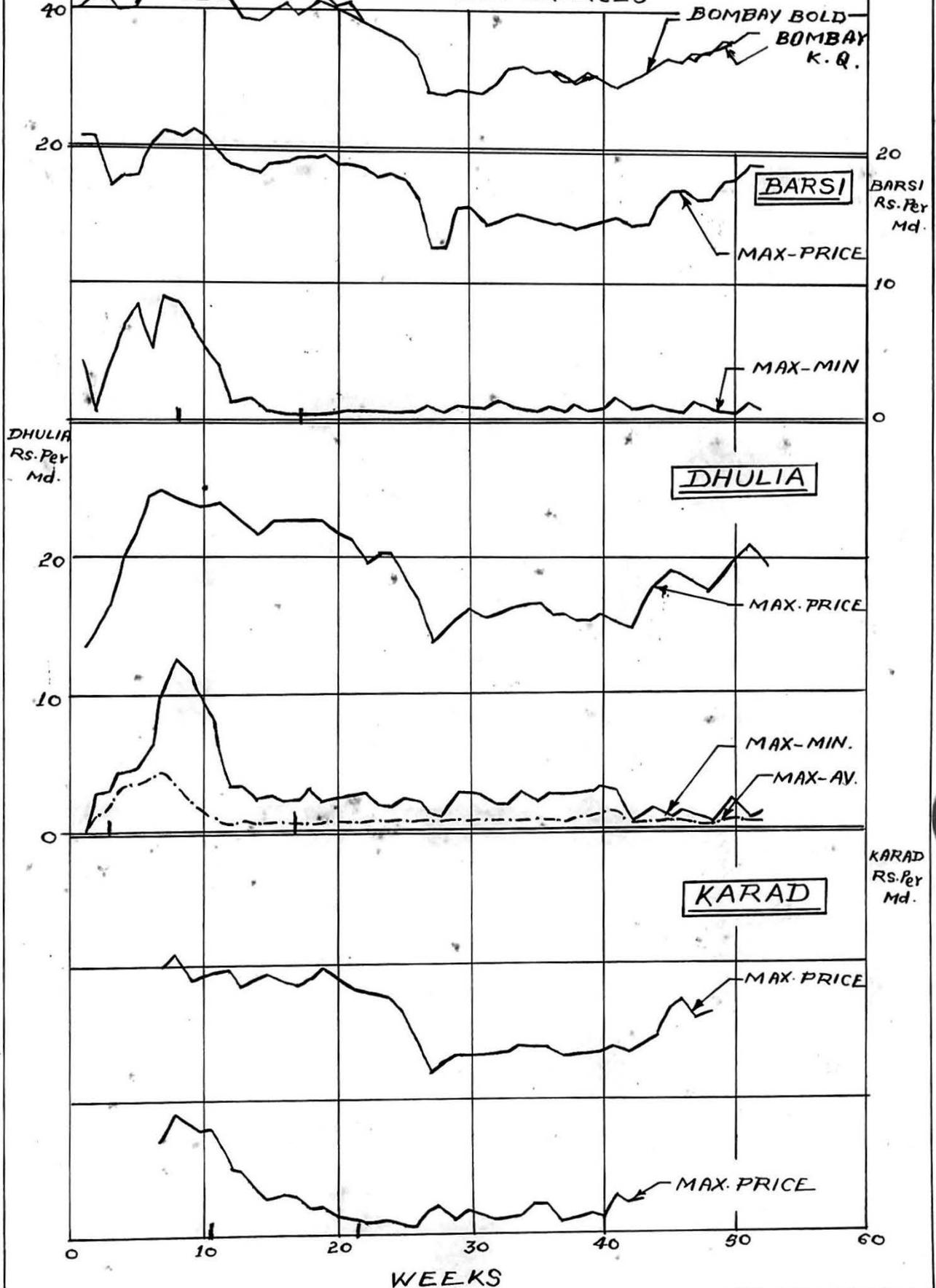


Rs. Per  
cwt.

**CHART 19 [CONTINUED]**

1951-52

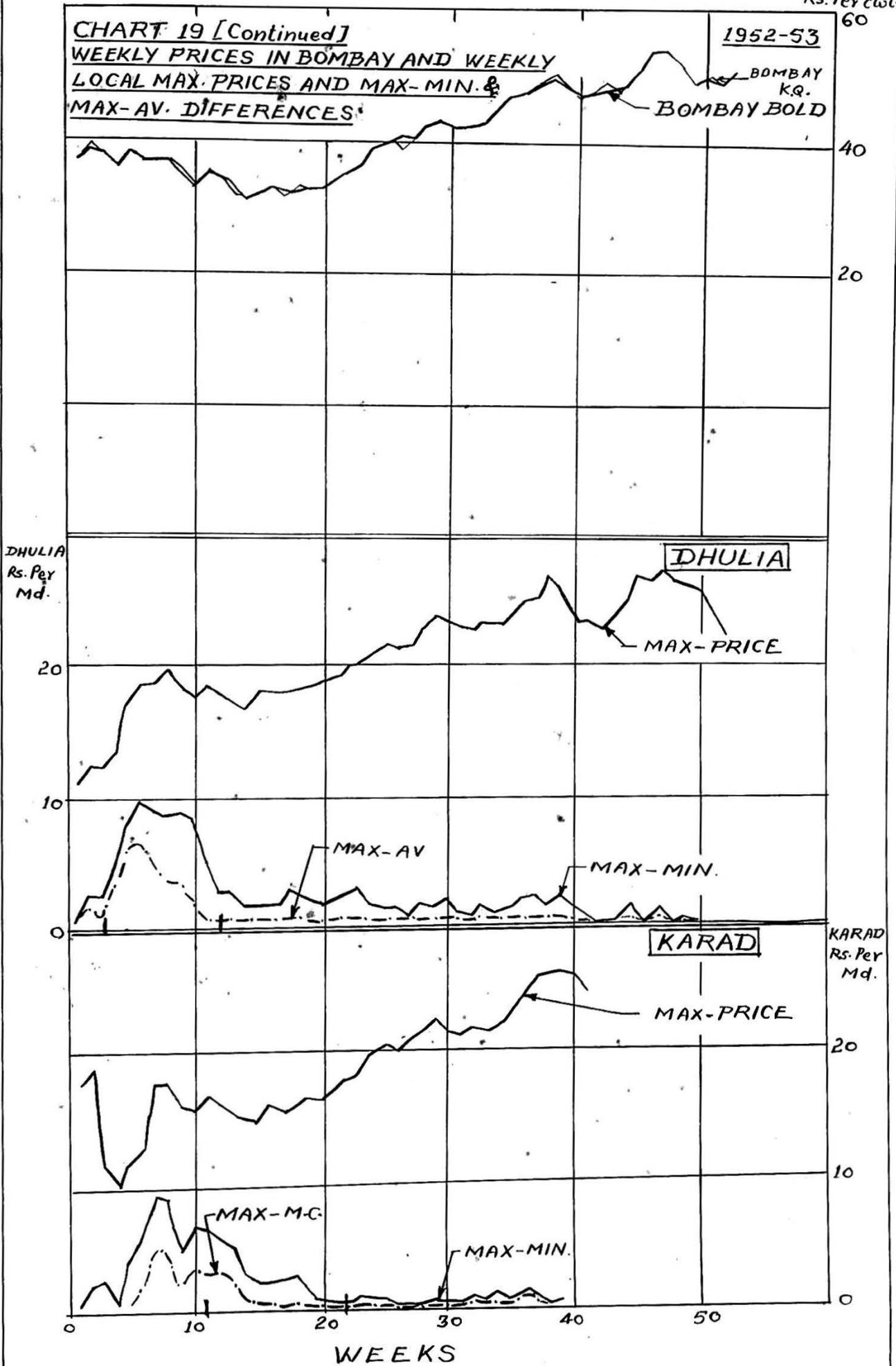
**WEEKLY PRICES IN BOMBAY AND  
WEEKLY LOCAL MAXIMUM PRICES AND  
MAXIMUM-MINIMUM AND MAX-AV.  
DIFFERENCES**



Rs. Per cwt.

**CHART 19 [Continued]**  
**WEEKLY PRICES IN BOMBAY AND WEEKLY**  
**LOCAL MAX. PRICES AND MAX-MIN. &**  
**MAX-AV. DIFFERENCES**

1952-53



Rs. Per cwt.

197

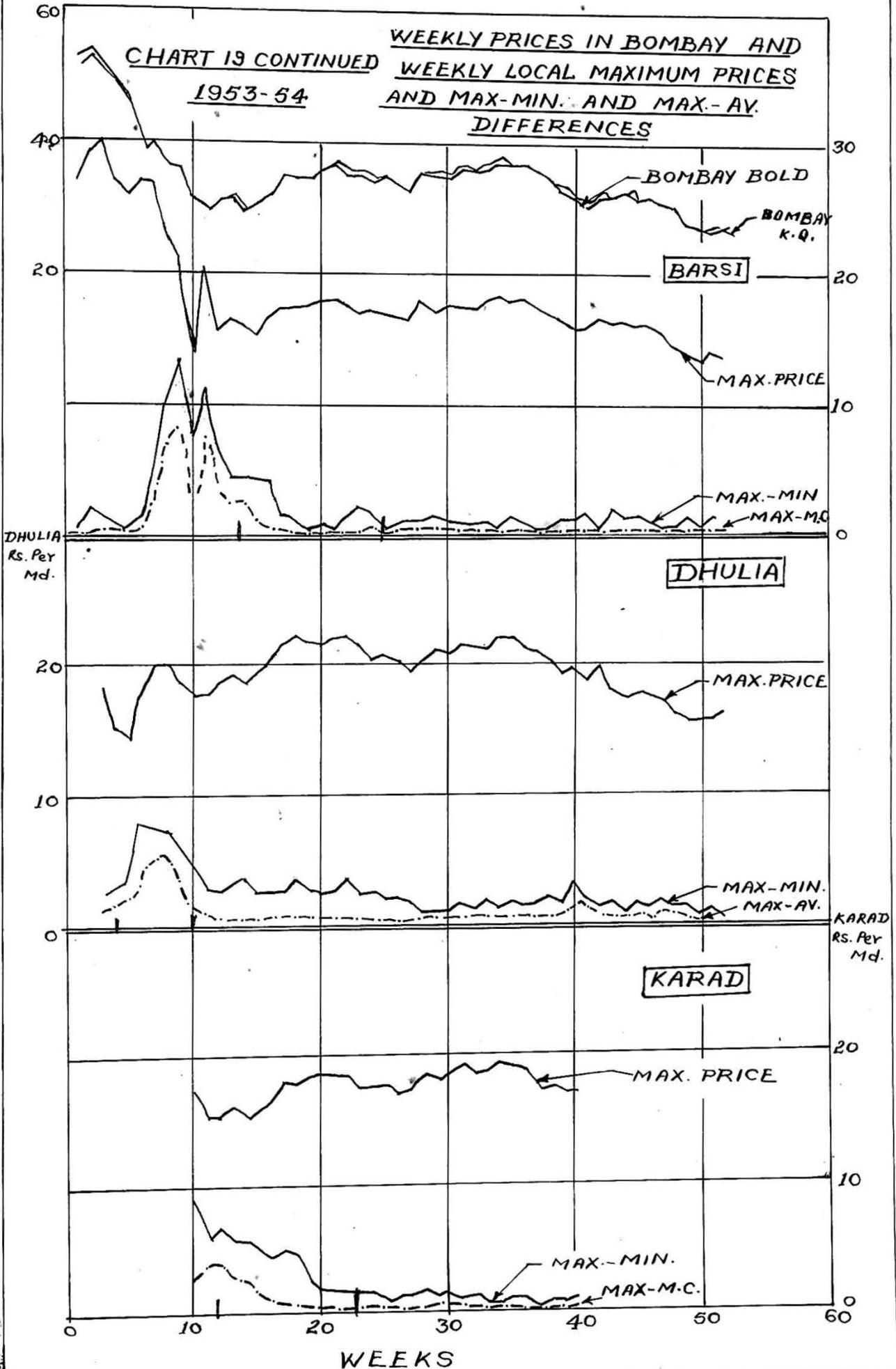
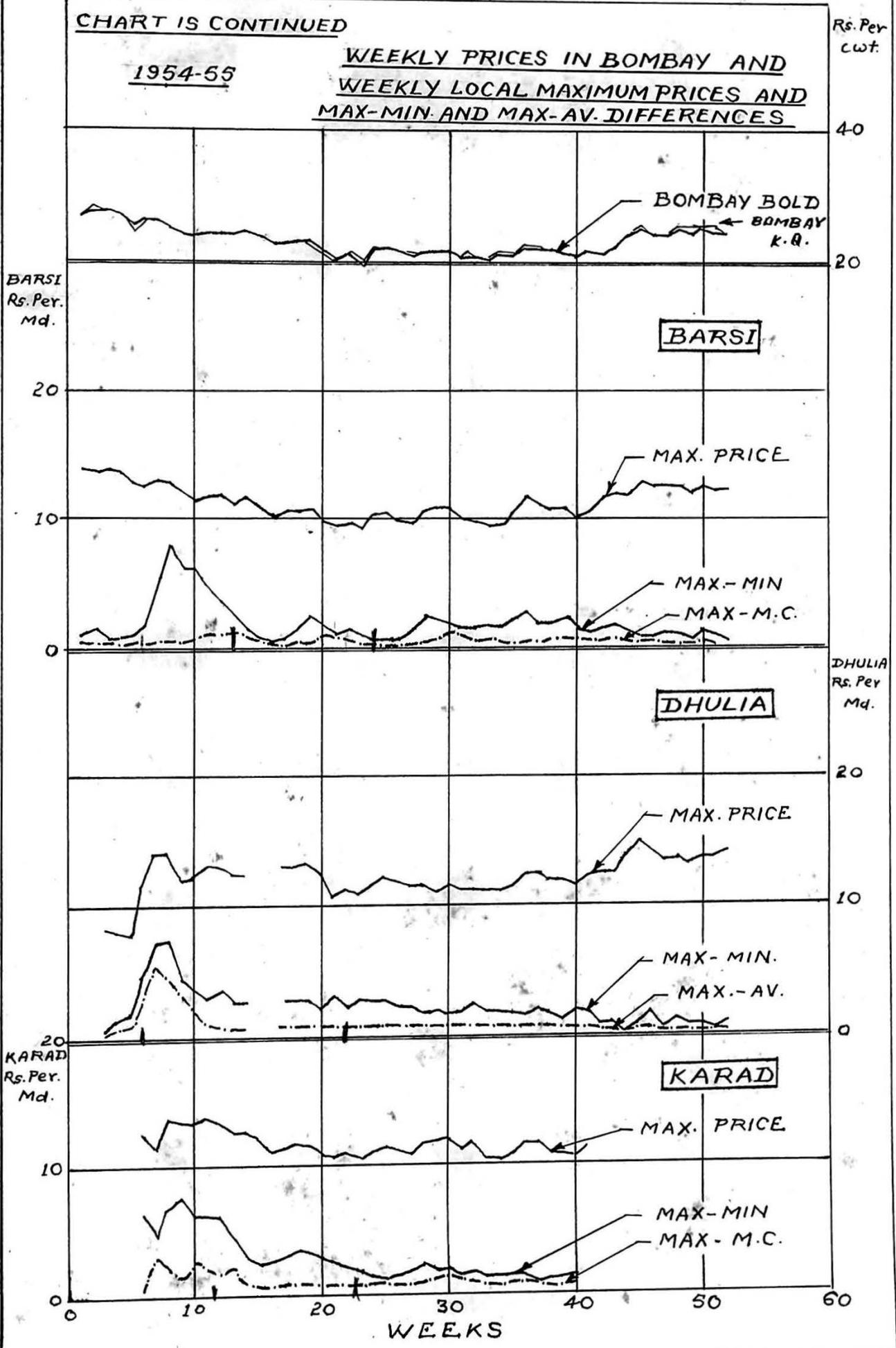


CHART IS CONTINUED

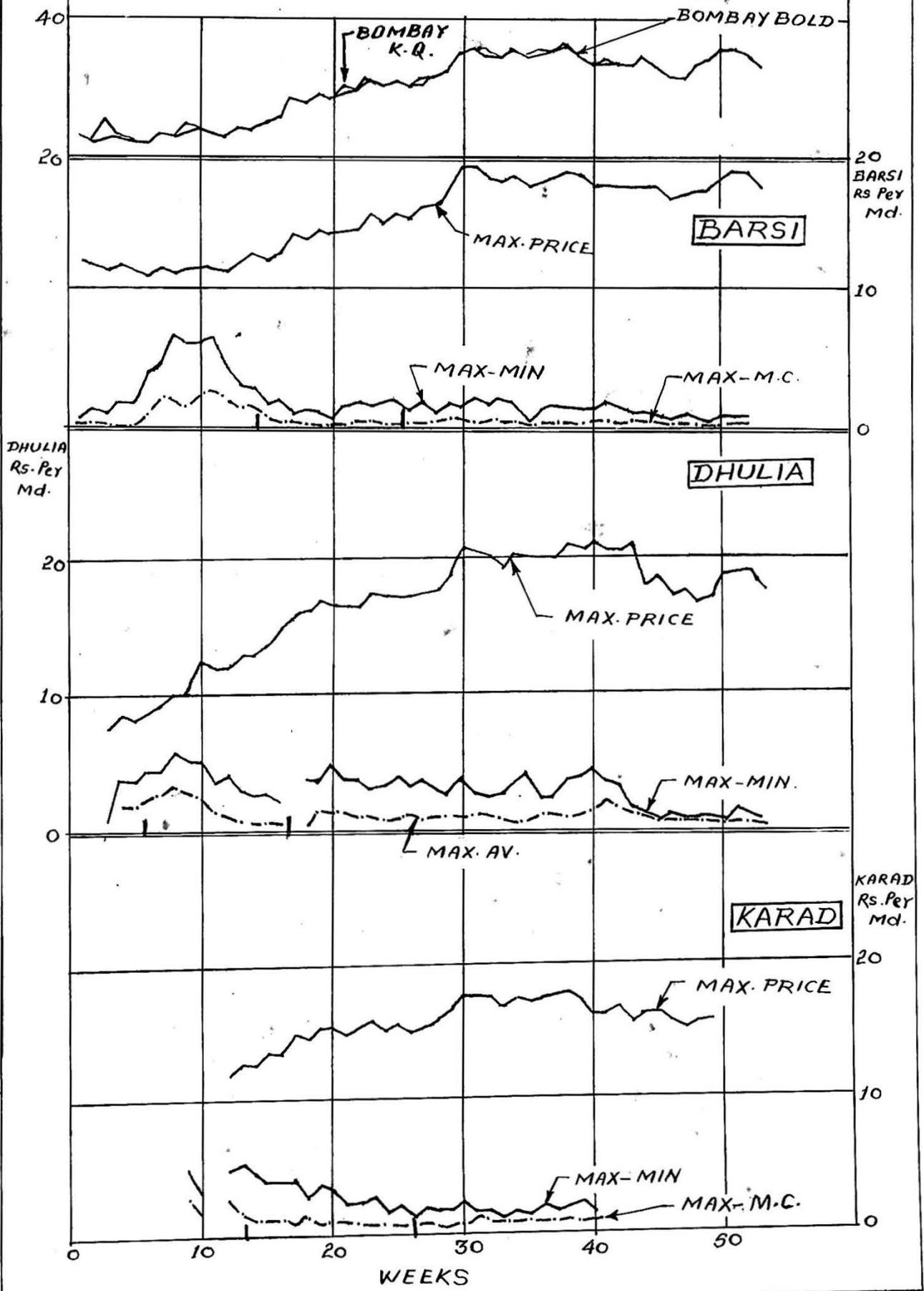
1954-55

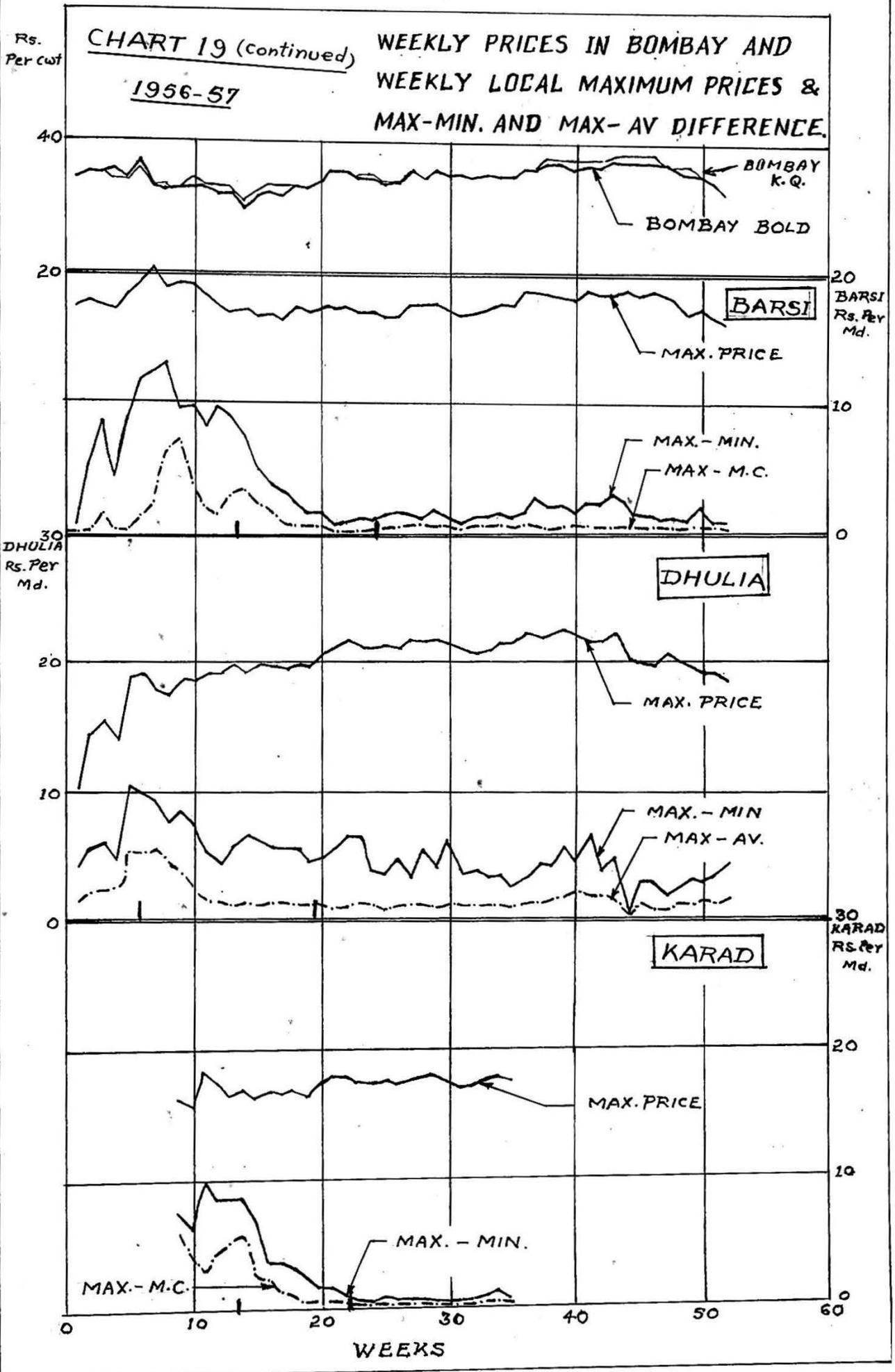
WEEKLY PRICES IN BOMBAY AND  
WEEKLY LOCAL MAXIMUM PRICES AND  
MAX-MIN AND MAX-AV. DIFFERENCES



Rs. Per  
cwt.

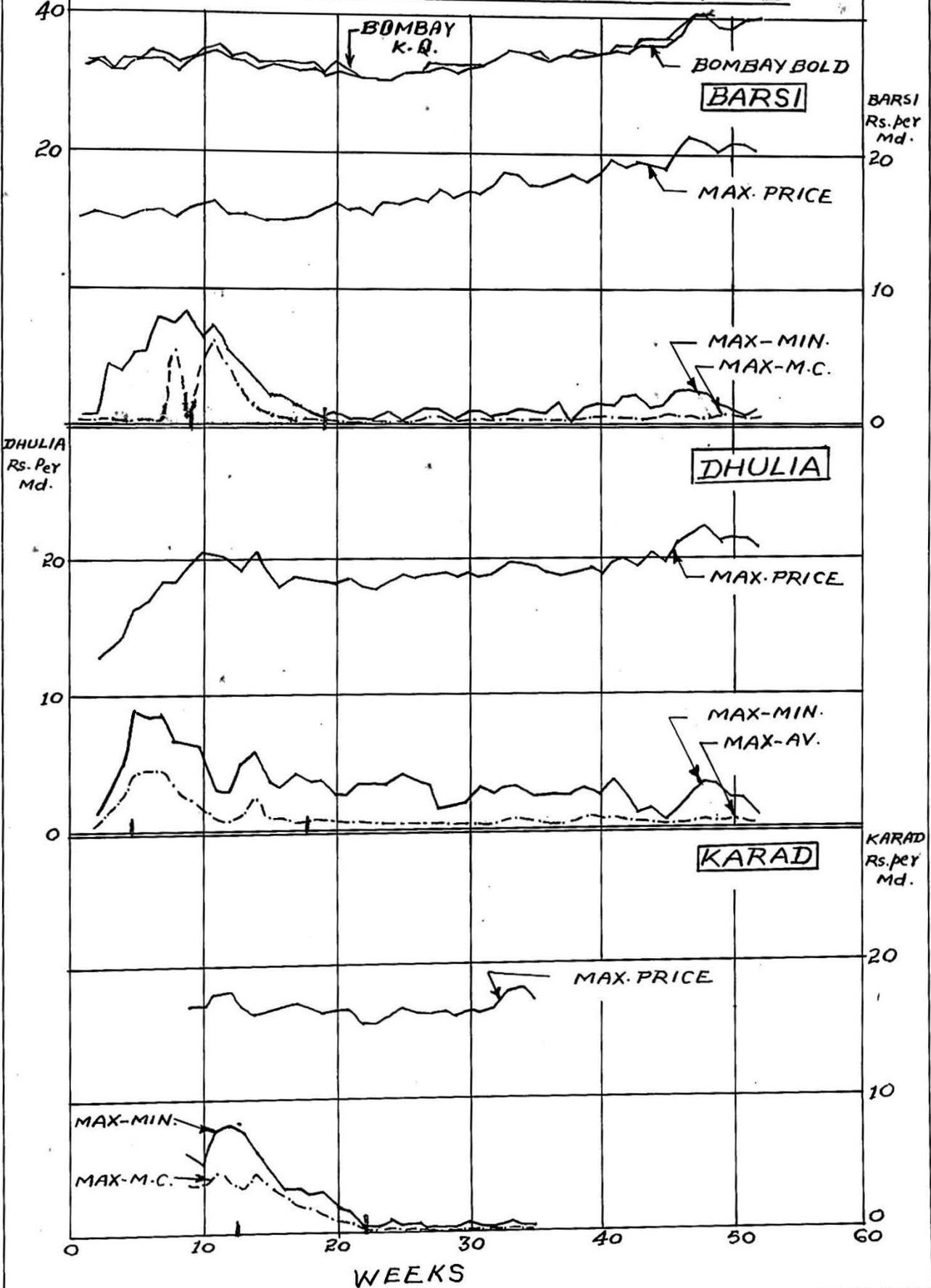
**CHART 19 [CONTINUED] WEEKLY PRICES IN BOMBAY AND  
1955-56 WEEKLY LOCAL MAXIMUM PRICES AND  
MAX-MIN. & MAX-AV. DIFFERENCES**





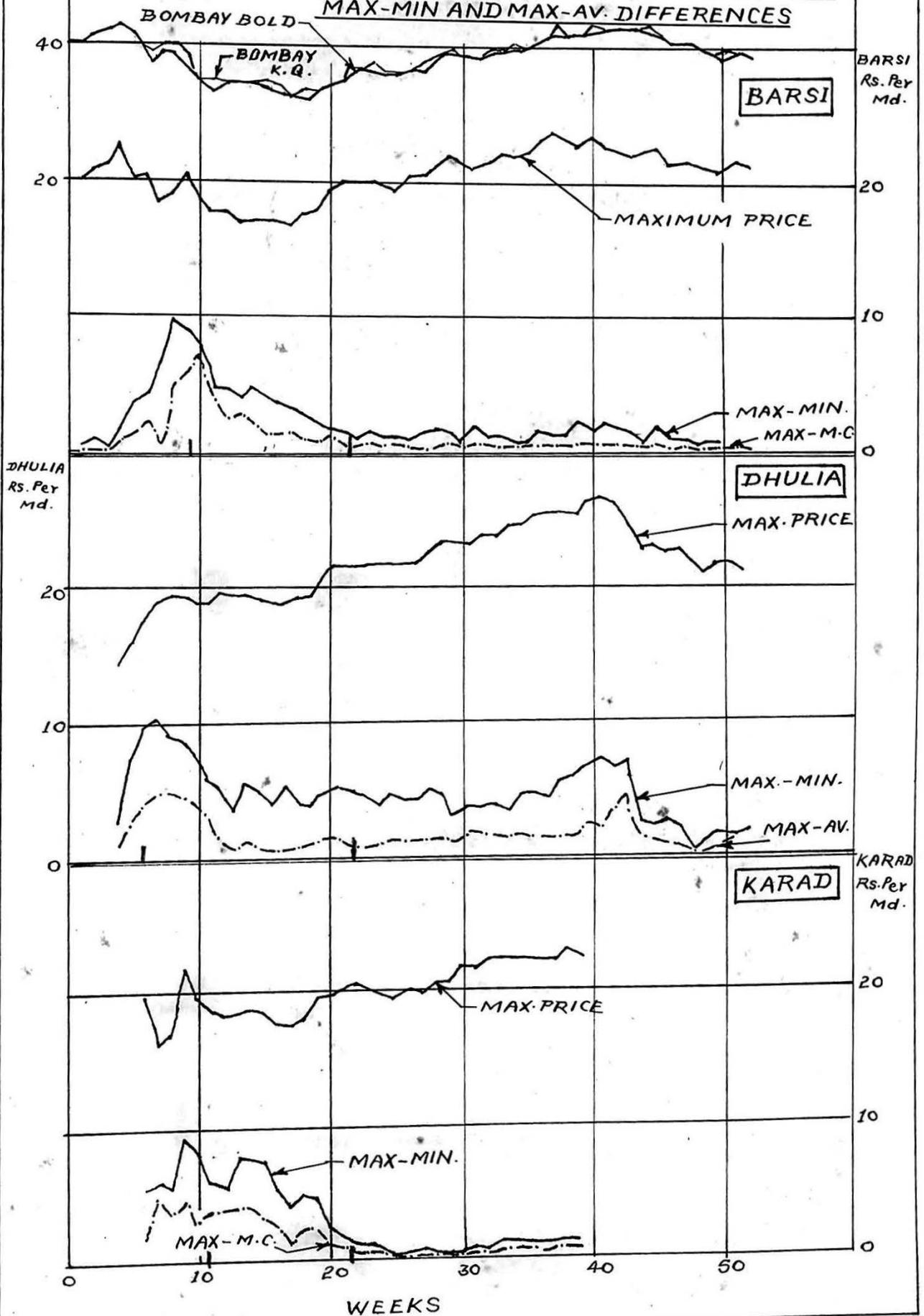
Rs. per cwt.

**CHART 19 [CONTINUED]**  
**WEEKLY PRICES IN BOMBAY AND**  
**1957-58**  
**WEEKLY LOCAL MAXIMUM PRICES AND**  
**MAX-MIN. AND MAX-AV. DIFFERENCE**



Rs. Per  
cwt.

**CHART 19 (CONCLUDED) WEEKLY PRICES IN BOMBAY AND  
1958-59 WEEKLY LOCAL MAXIMUM PRICES AND  
MAX-MIN AND MAX-AV. DIFFERENCES**



## CHAPTER VIII

## PRICE DETERMINATION : II

This chapter is divided into three parts. The first part deals with the analysis of local annual prices. The study of local weekly maximum prices is made in the second part while an examination of the weekly average and minimum prices is done in the third part.

## 1

Annual Prices

The following equations are fitted to the local annual maximum, average and minimum prices.<sup>1</sup>

$$\begin{aligned} X_1^A &= a + b_{12} X_2^A \dots & (Ia) \\ X_1'^A &= a' + b'_{12} X_2^A \dots & (Ib) \\ X_1''A &= a'' + b''_{12} X_2^A \dots & (Ic) \end{aligned}$$

where  $X_1^A$  is the annual local maximum price of Pods in Rs. per maund.

$X_1'^A$  is the annual local average price of Pods in Rs. per maund.

$X_1''A$  is the annual local minimum price of Pods in Rs. per maund.

and  $X_2^A$  is the annual Bombay price of kernels of Bold variety in the case of Barsi and Karad and that of KQ variety in the case of Dhulia, in Rs. per cwt.

---

<sup>1</sup> The annual prices to which these equations are fitted are given in Table 7.1.

These annual averages have been derived from the monthly averages and, as far as possible, the prices of the current year's produce are taken into consideration. Table 8.1 presents the values of the regression coefficients in these equations. It is evident from this table that though the terminal price explains quite a substantial part of variation in the local prices, equation I cannot be called a satisfactory fit. This is because, in the case of maximum prices, the departures of the actual values from those estimated from these equations indicate, at all the centres, presence of a positive trend in the local prices which approximates to linearity. We introduce, therefore, another variable,  $t$ , to estimate the influence of this trend factor, which takes the successive increasing values from zero in 1949-50 to nine in 1958-59. The revised equations fitted thus become -

$$X_1^A = a + b_{12} X_2^A + b_{13} t \dots \text{ ( IIa)}$$

$$X_1'^A = a' + b_{12}' X_2^A + b_{13}' t \dots \text{ ( IIb)}$$

$$X_1''^A = a'' + b_{12}'' X_2^A + b_{13}'' t \dots \text{ ( IIc)}$$

where  $t = 0$  in 1949-50

$= 1$  in 1950-51

etc.

$= 9$  in 1958-59.

The values of the constant terms and the regression coefficients in these equations are given in Table 8.2.

**Table 8.1 : Values of Regression Coefficients in the Equations (I) :**

$$X_1^A = a + b_{12} X_2^A \quad (\text{Ia}) \text{ for annual maximum prices}$$

$$X_1^{VA} = a' + b'_{12} X_2^A \quad (\text{Ib}) \text{ for annual average prices}$$

$$X_1^{NA} = a'' + b''_{12} X_2^A \quad (\text{Ic}) \text{ for annual minimum prices}$$

Centre	Equation (Ia) for maximum prices				Equation (Ib) for average prices				Equation (Ic) for minimum prices			
	a	b <sub>12</sub>	R <sup>2</sup>	s	a'	b' <sub>12</sub>	R' <sup>2</sup>	s'	a''	b'' <sub>12</sub>	R'' <sup>2</sup>	s''
Barsi	-0.764	+0.533709 (.0267)	0.9828	0.4878	-	-	-	-	-1.734	+0.495820 (.0381)	0.9605	0.6949
Dhulia	+1.426	+0.508238 (.0287)	0.9750	0.5745	+0.447	+0.491209 (.0308)	0.9694	0.6155	-1.084	+0.474758 (.0449)	0.9330	0.8972
Karad	+0.420	+0.493096 (.0303)	0.9706	0.5845	-	-	-	-	-2.383	+0.507694 (.0436)	0.9416	0.8404

( Figures in brackets indicate standard errors of the coefficients.)

( All the regression coefficients are significant at 1 per cent level.)

**Table 8.2 : Values of Regression Coefficients in the Equations (II) :**

$$X_1^A = a + b_{12} X_2^A + b_{13} t \quad (\text{IIa for annual maximum prices})$$

$$X_1^{A'} = a' + b'_{12} X_2^A + b'_{13} t \quad (\text{IIb for annual average prices})$$

$$X_1^{A''} = a'' + b''_{12} X_2^A + b''_{13} t \quad (\text{IIc for annual minimum prices})$$

Centre	Equation (IIa) for maximum prices					Equation (IIb) for average prices					Equation (IIc) for minimum prices				
	a	b <sub>12</sub>	b <sub>13</sub>	R <sup>2</sup>	s	a'	b' <sub>12</sub>	b' <sub>13</sub>	R' <sup>2</sup>	s'	a''	b'' <sub>12</sub>	b'' <sub>13</sub>	R'' <sup>2</sup>	s''
Barsi	-2.245	+0.555041 (.0175)	+0.146175 (.0412)	0.9944	0.3000	-	-	-	-	-	-2.477	+0.506526 (.0303)	+0.073360 (.0715)	0.9637	0.5200
Dhulia	-0.513	+0.542127 (.0220)	+0.158288 (.0488)	0.9902	0.3910	-1.508	+0.525364 (.0254)	+0.159533 (.0558)	0.9859	0.4473	-0.878	+0.471159 (.0544)	-0.016809 (.1195)	0.9333	0.9577
Karad	-1.435	+0.525498 (.0235)	+0.154749 (.0497)	0.9877	0.4048	-	-	-	-	-	-4.819	+0.550247 (.0392)	+0.203231 (.0831)	0.9686	0.6761

( Figures in brackets indicate standard errors of the coefficients )

\*\* Significant at 1 per cent level

\* Significant at 5 per cent level

N.S. Not significant.

Here also the regression coefficients of  $X_2$  are highly significant, but the trend variable makes significant improvement only in the case of maximum prices. In the case of minimum prices,  $b_{13}^n$  is significant only in Karad. In general, therefore, the rising trend seems to be visible only in maximum prices, and on an average, it is to the tune of about Rs. 0.15 per year.

Dealing with the maximum prices first, we find that the values of  $b_{12}$  are approximately equal to 0.53 in these equations (Equation II) for all the centres. Referring to Table 7.5 in the previous chapter, we see that this value corresponds to an assumption of about 72 or 73 per cent kernel content and this is as it should be. Thus the values of  $b_{12}$  in these equations represent the conversion coefficient of the prices of kernels in terms of those of pods in Bombay with an assumption of about 72 or 73 per cent kernel content in pods.

The values of  $b_{13}$  indicate that, on an average, there has been a tendency in local prices to increase annually by about Rs. 0.15 irrespective of the changes in the terminal price. We can ascribe the factor 'quality' to it if it has improved over the years in the period under consideration at all the centres without affecting appreciably the terminal prices - rather an extreme possibility. The data about the changes in the quality of the harvested produce could not be obtained; but it was reported by all the concerned - traders, staff of the Market Committees and oilmillers - that, in

general, the conditions favourable to good crop are also favourable to the crop of better quality. In other words, yield and quality go together; whenever there is an increase in yield, there is an improvement in the quality of the crop also. To the extent that the increase in yield is due to sowing of improved variety, this is essentially true; it may be also true if the weather conditions affect the weight and the quality of the produce to the same extent. In any case, yield, even if it is a measure of quality, can be only a rough measure. The available district-wise figures of yield are given in Table 4.4 and are reproduced in the accompanying table ( Table 8.3 ).

These figures show three different kinds of movement. The yield in the Sholapur district ( for Barsi ) shows no increasing or decreasing trend, while that in the Dhulia district shows a slightly positive trend. The yield in Satara ( for Karad ) has tended to decrease slightly over the period under consideration. Thus, since the rise in prices is visible in all the centres, we can not ascribe it to the improvement in quality so far as that is reflected in the changes in yield.

In other words, there are other local factors responsible for this rise in local prices. It may be due, for example, to the pressure of demand by the local oilmillers which, as we have seen earlier, is increasing. It is also possible that due to the efforts of the Market Committees in regulating the market practices, the prices have tended to rise. We can

**Table 8.3 : Yield Per Acre of Groundnut in the Sholapur, Dhulia and Satara Districts during 1949-50 - 1958-59**

( In maunds )

Year	Sholapur	Dhulia (W.Khandesh)	Satara (N.Satara)
1949-50	N.A.	N.A.	N.A.
1950-51	10.06	7.09	12.33
1951-52	6.60	4.06	9.97
1952-53	3.72	2.17	10.28
1953-54	6.11	8.03	13.54
1954-55	9.25	5.80	8.84
1955-56	5.83	7.69	8.27
1956-57	5.02	8.09	10.86
1957-58	5.10	8.61	10.45
1958-59	7.86	7.56	8.90

N.A. : Not available.

Reproduced from Table 4.4

not, of course, be emphatic about any of these two factors but the former appears to be a more important factor.

There is very little that can be said about the regression equations fitted to the minimum prices. We have already seen that the trend variable makes very little improvement in the equations fitted to these prices. We also notice that the regression coefficients of  $X_2$  in these cases are less than those observed in the maximum prices, though the differences are not statistically significant. Both of these results may be due to heavy fall in minimum and average prices in the early year which has affected the annual averages. Since these falls differ in magnitude in different years, it is likely that we get these results even though the maximum, average and minimum prices in the later part of the year respond to the terminal price in the same way. That this is in fact so is brought out by the analysis in the next two sections.

## 2

### Weekly Maximum Prices

#### Weekly Maximum Prices in the D.M.P.

Before studying the relationship between the local price and the terminal price, it will be worthwhile to see the variation in the local prices during the D.M.P. (upto 40th week ) relative to that in the terminal prices. This can be measured by ' $R_v$ ' which is a ratio of coefficient of variation in the local maximum prices to that in the terminal prices.

In other words,

$$R_v = \frac{V_1}{V_2} \text{ where } V_1 = \frac{\sigma_1}{M_1} \text{ and } V_2 = \frac{\sigma_2}{M_2}$$

$\sigma_1$  and  $M_1$  being standard deviation and average of local maximum prices respectively and  $\sigma_2$  and  $M_2$  being standard deviation and average of the terminal prices respectively.

This ratio is independent of the unit of measurement. If it is greater than unity it indicates larger variation in local prices than that in terminal prices. The value of  $R_v$  less than unity denotes that the variation is less in local prices than in terminal prices. Table 3.4 presents the values of  $R_v$ .

In Barsi, the local maximum prices show larger variation than the terminal prices in five years : 1952-53, and all the years between 1954-55 and 1957-58. The largest variation occurs in 1954-55. The years in which local prices are relatively more stable than the terminal prices are 1950-51, 1951-52 and 1953-54. The year 1958-59 witnesses the variation in local prices which is approximately equal to that in the terminal prices.

In Dhulia, the years of larger variation are only four: 1951-52, 1954-55, 1955-56 and 1958-59, the largest being in 1954-55. The prices are relatively more stable in the years 1949-50, 1950-51, 1952-53, 1953-54 and 1957-58. The year 1956-57 shows variation which is approximately equal to that in terminal prices.

In Karad, the prices vary more during six years : 1950-51,

**Table 8.4 : Relative Variation in Local Maximum Prices during the Deferred Marketing Periods.**

Year	Values of $R_v$ at		
	Barsi	Dhulia	Karad
1949-50	-	0.96	0.79
1950-51	0.64	0.69	1.16
1951-52	0.87	1.14	1.18
1952-53	1.08	0.88	0.98
1953-54	0.90	0.95	1.07
1954-55	2.58	1.69	1.91
1955-56	1.12	1.09	0.93
1956-57	1.32	0.98	0.87
1957-58	1.25	0.57	1.16
1958-59	0.97	1.12	1.38

$$R_v = \frac{V_1}{V_2}$$

where

$$V_1 = \frac{\sigma_1}{M_1}$$

$$\text{and } V_2 = \frac{\sigma_2}{M_2}$$

$\sigma_1$  and  $M_1$  being the standard deviation and the average of local weekly maximum prices during the D.M.P. and

$\sigma_2$  and  $M_2$  being the standard deviation and the average of the weekly Bombay prices during the corresponding D.M.P.

1951-52, 1953-54, 1954-55, 1957-58 and 1958-59, the largest variation occurring in 1954-55. In the other years excepting 1952-53, the prices are relatively more stable. In 1952-53, variation in the local prices is approximately equal to that in the terminal prices.

It is significant that  $R_v$  is maximum at all the centres during 1954-55.

To what factor can we attribute the changes in the values of  $R_v$ ? It is clear that these changes do not move in the same direction at all the centres. Except for the fact that the maximum prices at all the centres show the largest variation in 1954-55, the values of  $R_v$  at different centres do not have anything in common. This, thus, reduces the importance of the level of terminal prices or 'price prospects'<sup>3</sup> in determining the variation in local prices, because we expect these factors to influence the variation in local prices at all the centres in the same way, if not to the same extent.

It is at this stage interesting to observe that the variation in yield can explain much of the variation in  $R_v$ . The two are at least seen to be changing every year in opposite direction. Thus, in Barsi, both yield and  $R_v$  change in opposite direction in all the years excepting 1954-55 and 1955-56; likewise, we find a negative relationship between the two in Dhulia ( the years of exception being 1951-52 and

---

<sup>3</sup> 'Price Prospects' in the D.M.F. may, of course, be different from those present in the R.M.F. The latter are given in Table 5.7.

1952-53 ) and in Karad ( the years of exception being 1953-54 and 1955-56 ).

Thus, if the changes in yield can be taken as an indicator of changes in quality, it seems that an improvement in the quality of the harvested crop reduces the variation in local maximum prices in relation to that in the terminal prices. This is, perhaps to be expected because an improvement in quality results in a wider demand for the produce, which in turn results in relative stability of prices.

We turn our attention now to the measurement of the influence of the terminal price on the local maximum price during the Deferred Marketing Period of each year. The following equation is fitted to the data of weekly local maximum prices and weekly terminal prices during the D.M.P. (upto 40th week ) of each year :

$$X_1^w = \alpha + \beta_{12} X_2^w \dots \quad ( III )$$

where  $X_1$  is the weekly local maximum price of pods per maund,

and  $X_2$  is the weekly terminal price of kernels per 8wt. ( of Bold variety for Barsi and Karad and of KQ variety for Dhulia ).

Table 8.5 gives the values of  $\alpha$  and  $\beta_{12}$ , together with those of  $R^2$  and  $S$  for each year in every centre. All the values of  $\beta_{12}$  excepting that for Karad in 1956-57, are found to be significant at 5 per cent level. Since increasing the size of observations beyond 35th week is not justifiable no correction is attempted for this only insignificant value of  $\beta_{12}$ . The departures of the estimated prices from the actual ones

**Table 8.5 :** Values of Regression Coefficients in the Equation (III)

$$x_1^W = \alpha + \beta_{12} x_2^W \quad \text{(III) for maximum prices during the D.M.P.}$$

Year	Barsi					Dhulia					Karad				
	No. of weeks	$\alpha$	$\beta$	$R^2$	S	No. of weeks	$\alpha$	$\beta$	$R^2$	S	No. of weeks	$\alpha$	$\beta$	$R^2$	S
1949-50	-	-	-	-	-	22	+ 4.944	+0.426760 (.0663)	0.6746	0.5491	14	+7.370	+0.322907 (.0599)	0.6752	0.2853
1950-51	17	+12,460	+0.254479	0.6183	0.3297	21	+10.816	+0.341754 (.0409)	0.7855	0.3069	19	-2.829	+0.546054 (.0411)	0.9121	0.2679
1951-52	23	+ 2.682	+0.421210 (.0516) (.0286)	0.9119	0.6271	24	- 1.796	+0.585527 (.0308)	0.9428	0.6869	19	-2.162	+0.554375 (.0291)	0.9503	0.4052
1952-53	20	- 1,694	+0.543867 (.0088)	0.9953	0.1944	29	+ 2.915	+0.468887 (.0193)	0.9561	0.6212	18	+1.197	+0.484215 (.0314)	0.9368	0.6046
1953-54	16	+ 2.128	+0.432456 (.0234)	0.9605	0.1363	31	+ 3,583	+0.487369 (.0513)	0.7570	0.6371	18	+1.715	+0.462974 (.0734)	0.7129	0.4301
1954-55	16	- 6.609	+0.804054 (.2576)	0.4099	0.4432	20	- 4.690	+0.776233 (.1211)	0.6954	0.2520	18	+0.127	+0.517094 (.2143)	0.2665	0.4637
1955-56	15	- 1.040	+0.546709 (.0524)	0.8932	0.3762	23	- 0.922	+0.602526 (.0373)	0.9222	0.5037	14	+1.922	+0.432318 (.0385)	0.9131	0.2218
1956-57	16	- 3.828	+0.609486 (.0693)	0.8468	0.2464	21	+ 2.598	+0.528373 (.1945)	0.7953	0.7746	13	+11.161	+0.183158 (.1198)	0.1758	0.2611
1957-58	21	- 3.516	+0.626994 (.0399)	0.9287	0.2544	23	+ 9.760	+0.273207 (.0369)	0.7228	0.2440	13	- 0.524	+0.520408 (.0811)	0.7891	0.3850
1958-59	19	+ 1.296	+0.523855 (.0328)	0.9374	0.3352	19	- 2.515	+0.665293 (.0287)	0.9693	0.2828	11	- 2.204	+0.613252 (.2086)	0.6435	0.5850

( All the regression coefficients, excepting that for Karad in 1956-57 are significant at 5 per cent level.)

( Figures in brackets indicate standard errors of the coefficients.)

during the period covered by this period are not large and show no systematic element. ( See chart 21 ).

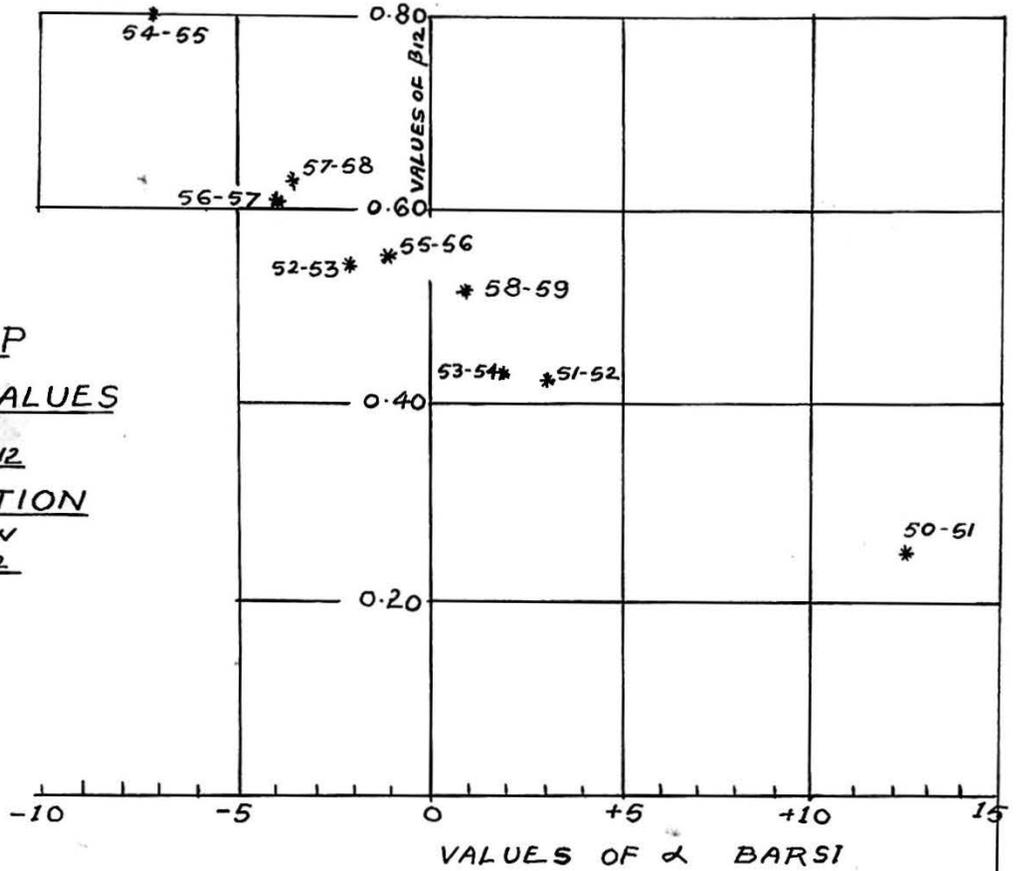
Table 8.5 reveals many interesting results. Firstly, the year to year fluctuations in the values of  $\beta_{12}$  are quite wide in each centre. In Barsi, for example,  $\beta_{12}$  varies between + 0.25 and + 0.80, while in Dhulia it moves between +0.34 and +0.78. In Karad it lies between + 0.18 and + 0.61. Thus the value of  $\beta_{12}$ , within a year, no longer represents merely a conversion coefficient of price of kernels per cwt. into that of pods per maund. It also shows the variation in the influence of the terminal price on the local price. Secondly, there is a clearcut negative relationship between the values of constant terms  $\alpha$  and those of  $\beta_{12}$ . Whenever the value of  $\alpha$  increases, that of  $\beta_{12}$  decreases. This relationship is present in almost all the years and can be established quantitatively ( See the scatter diagrams in Chart 20 ). Thirdly, we find quite a close positive relationship between the values of  $R_v$  and those of  $\beta_{12}$ , a negative relationship between  $\beta_{12}$  and yield and, of course, a positive relationship between  $\alpha$  and yield. These relationships have been observed by taking into account the signs of changes in the series concerned in successive years. In the case of relationship between  $R_v$  and  $\beta_{12}$ , the year of exception in Barsi is 1957-58 and that in Karad is 1953-54. In Dhulia all the signs of changes are in opposite direction. The yield and the values of  $\beta_{12}$  show movement in the same direction in only two years in Barsi (1954-55 and 1955-56) and Dhulia (1952-53

CHART 20

BARSI

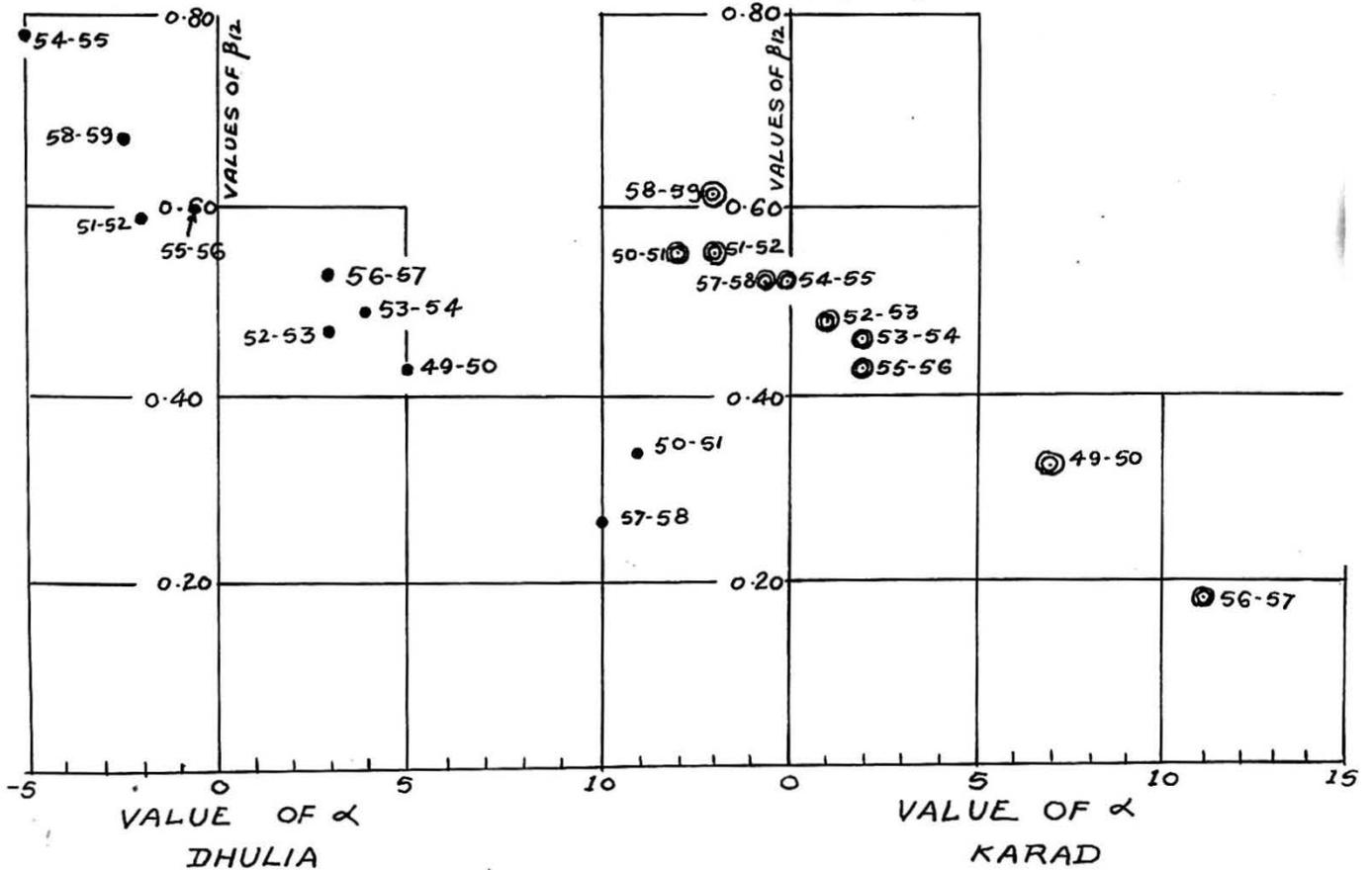
RELATIONSHIP  
BETWEEN THE VALUES  
OF  $\alpha$  AND  $\beta_{12}$   
IN THE EQUATION  

$$X_1^W = \alpha + \beta_{12} X_2^W$$



DHULIA

KARAD



and 1953-54) and in only one year in Karad ( 1955-56 ). Fourthly, the amount of variation in the local prices explained by the terminal prices also varies widely. It is as low as 41 per cent and as high as 94 per cent in Barsi, while in Dhulia it moves between 67 per cent and 97 per cent. In Karad, the variation is far wider, ranging between 18 per cent and 95 per cent. While the adequate evidence of any direct relationship between the values of  $\beta_{12}$  and  $R^2$ , is not forthcoming from these results, there appears to be a negative relationship between the values of  $R^2$  and yield. The years of exception are 1956-57 and 1957-58 in Barsi, 1953-54 and 1954-55 in Dhulia and 1954-55 and 1958-59 in Karad.

The above observations thus bring out the important role played by the factor 'quality of the harvested crop'. The variation in the local prices within a year thus primarily depends on this factor; if there is an improvement in quality, the local prices are placed at a higher level, the influence of the terminal prices decreases and consequently the total variation in the local prices in relation to that in the terminal prices is reduced. In other words, when a better quality crop is marketed, the local markets are relatively stable and respond less to the terminal prices. The terminal prices in such situation explain a relatively less amount of variation in the local prices.

Thus it appears that the actual process of price-fixation in the local markets does not always depend rigidly on the

prices prevailing in the terminal market. For, had there been a rigid one to one relationship between the two price-series,  $\beta_{12}$  would have been nearer to + 0.53 and the allowances for quality changes in the values of  $\alpha$  would not have any effect on the values of  $\beta_{12}$ . But this is not so; when the quality improves, only the trend element in the terminal price seems to be absorbed by the local prices, the minor fluctuations in the former having no influence on the local prices. When, however, the quality of the crop falls down, the local prices respond more to the fluctuations in the terminal market.

The values of  $\alpha$  and  $\beta_{12}$ , taken together estimate the local prices given the terminal prices during the Referred Marketing Period. The level of price so determined sums up the local supply and demand position, quality of the marketed crop, cost of transport and other factors of local importance prevailing during this period of every year. In other words, if we substitute a constant terminal price, say Rs. 35, in equations III, the year to year variation in the resulting local prices would indicate the year to year variation in all these factors taken together.

Table 8.5A gives these 'estimated' prices taking the terminal price at Rs. 35 in equation III for all the ten years. It is, of course, impossible to say which of the above factors was responsible for any fall or rise in prices in any particular year. All the same, it is, perhaps, significant that during the three years 1950-51, 1954-55 and

**Table 8.5(A) : ESTIMATED MAXIMUM PRICES IN LOCAL MARKETS DURING D.M.P. ASSUMING TERMINAL PRICE AT Rs. 35.00 PER CWT.**

Estimating Equation :

$$X_1^W = \alpha + \beta_{12} X_2^W \quad \dots \quad \text{in D.M.P.}$$

The values of  $\alpha$  and  $\beta_{12}$  are given in Table 8.5.

( Rs. per md.)

Year	Estimated Maximum Prices in		
	Barsi	Dhulia	Karad
1949-50	-	19.88	18.67
1950-51	21.37	22.78	16.28
1951-52	17.42	18.70	17.24
1952-53	17.34	19.33	18.14
1953-54	17.26	20.64	17.92
1954-55	21.53	22.48	18.23
1955-56	18.10	20.17	17.05
1956-57	17.50	21.09	17.57
1957-58	18.43	19.32	17.69
1958-59	19.63	20.77	19.26

1958-59, the local prices prevailed relatively at a higher level at all the centres ( except Karad in 1950-51 ). Out of these, the years 1950-51 and 1954-55 can be regarded, on the basis of the figures of yield, as the years in which good quality crop was marketed. It should, however, be recalled that during the year 1954-55, though the quality of the crop was good, there was pronounced increase in the variation in local prices. The influence of the terminal price was also large. If we remember that this year witnessed the prices reaching their lowest level and that during the D.M.P. there were signs of recovery in them, the large variability in the local prices together with a large influence of the terminal price can, perhaps, be explained. During the year 1958-59, though the quality has not much improved, in Dhulia and Karad, the local prices registered a significant rise. This may be due to the large domestic and foreign demand, the release of export quotas and the general encouraging price prospects during the Deferred Marketing Period. These two years, thus, bring out the probable influence of the factor 'price prospects'.

Maximum Prices in other Periods :

We are now in a position to apply equation III to the prices in the E.M.P., R.M.P., and the last twelve weeks of the D.M.P. We assume by using this equation to other periods that the factors like cost of transport and quality do not change and the influence of the terminal price remains the

same in all the periods.

The accompanying chart ( chart 21 ) presents the differences between the actual prices and the estimated prices. In other words, they show the values of 'S' where

$$S = ( X_1^W - \alpha - \beta_{12} X_2^W ) \quad \dots \quad \text{IV}$$

$\alpha$  and  $\beta_{12}$  being determined from equation III for each year and  $X_1^W$  and  $X_2^W$  being the local weekly maximum price of pods per maund and the terminal weekly price of kernels per cwt. respectively. Table 8.6 presents the average departures in different periods.

It is observed that during the last twelve weeks of the Deferred Marketing Period, in each centre, the fluctuations in these departures are quite wide. In general, the maximum prices in this period are negative. This confirms our observation in chapter VII that the local prices do not remain representative in this period; the exclusion of these weeks in calculating the coefficients in equation III is, therefore, proved to be profitable.

In the Early Marketing Period, the departures of the estimated prices from actual ones are different at different centres. At Barsi and Karad, they are, many a time, significantly large,<sup>4</sup> but they show no systematic pattern. In some years, the departures are positive; in some other years, they are negative. In contrast to these centres,

---

<sup>4</sup> The significance is at 5 per cent level. The limits ( $\pm 2S$ ) are calculated from the values of standard errors of the estimate given in Table 8.5 and shown in Chart 21.

**Table 8.6 : Average Departures of the Observed Local Maximum Prices from the Estimated ones in Different Marketing Periods.**

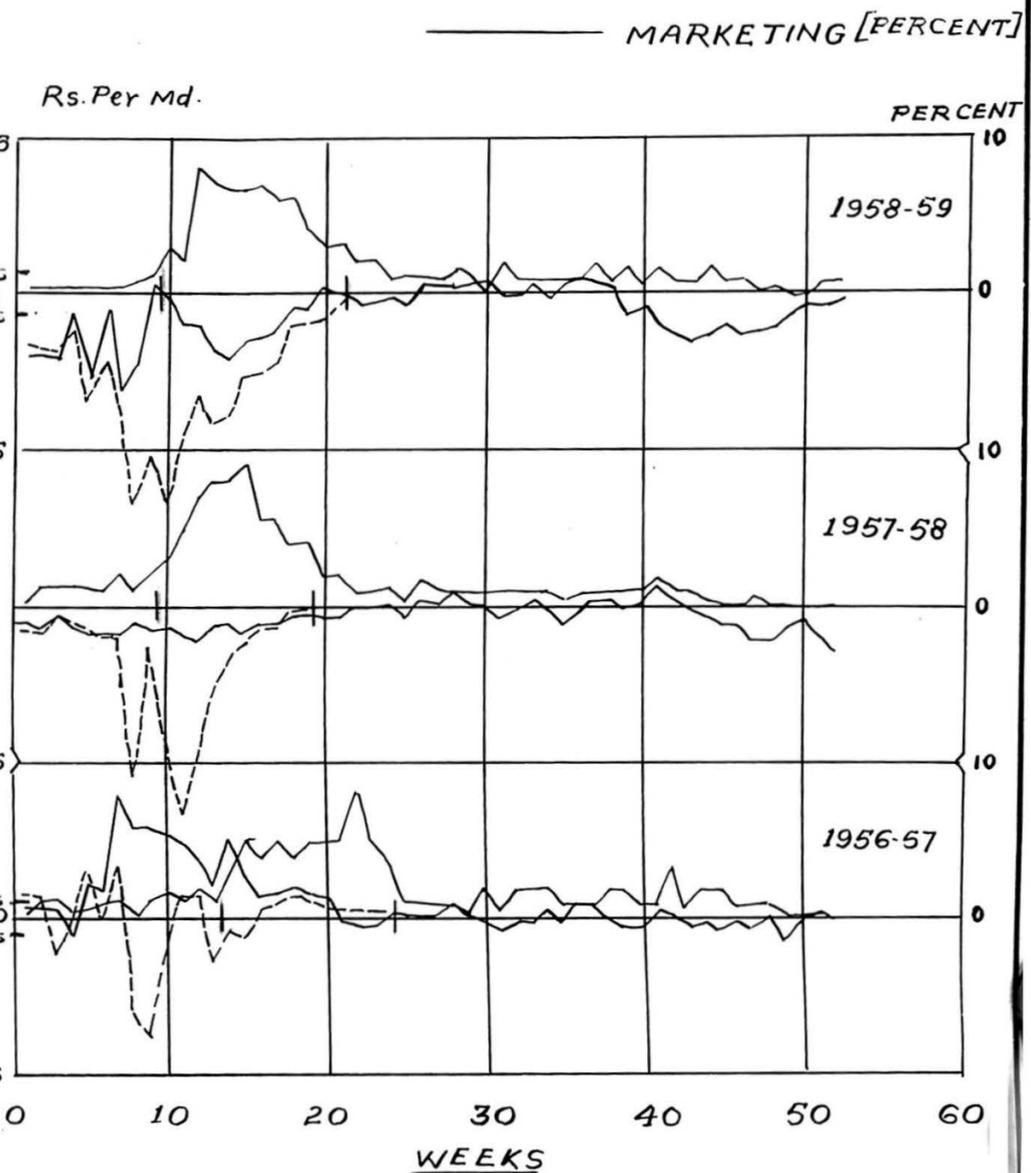
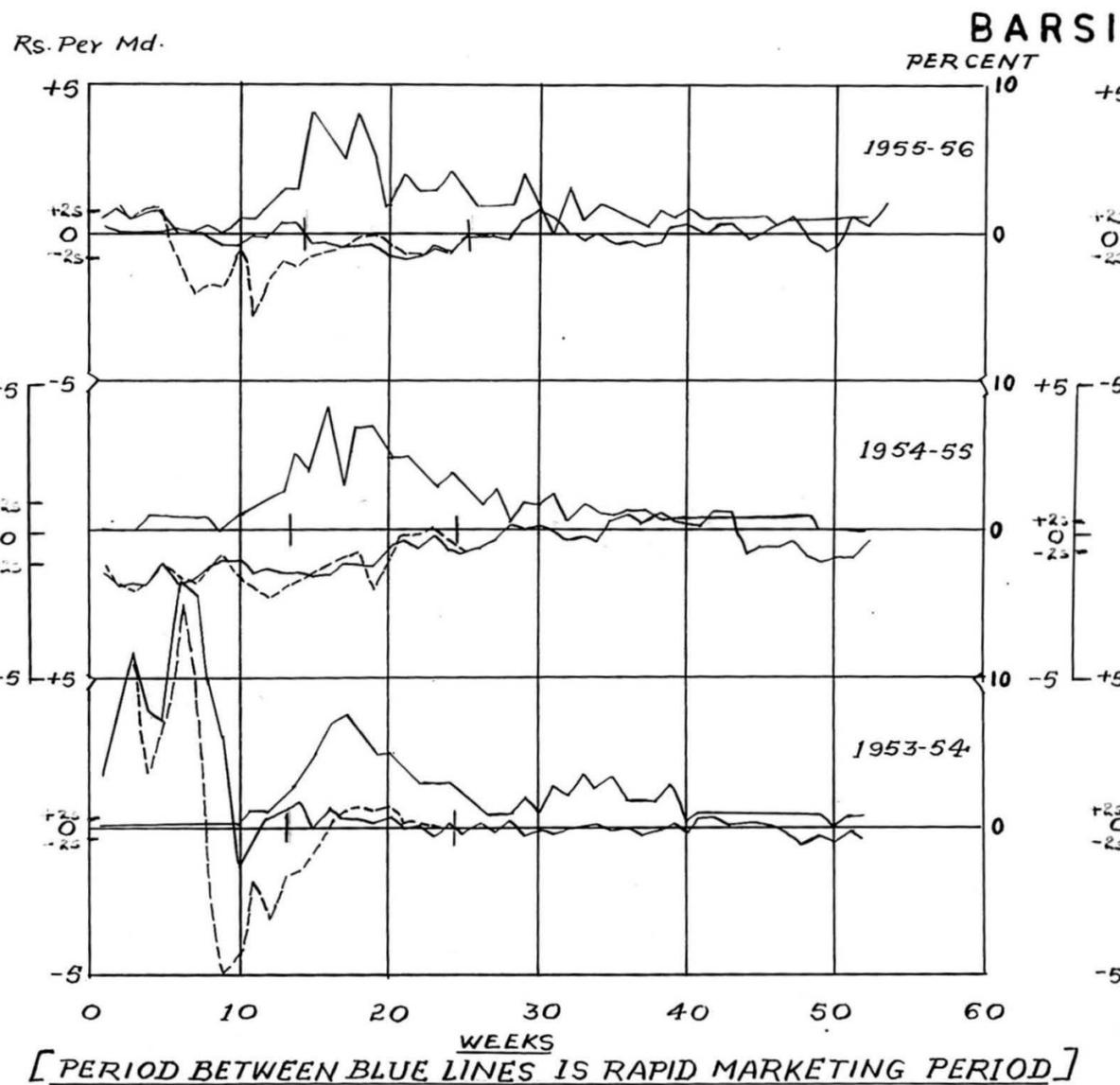
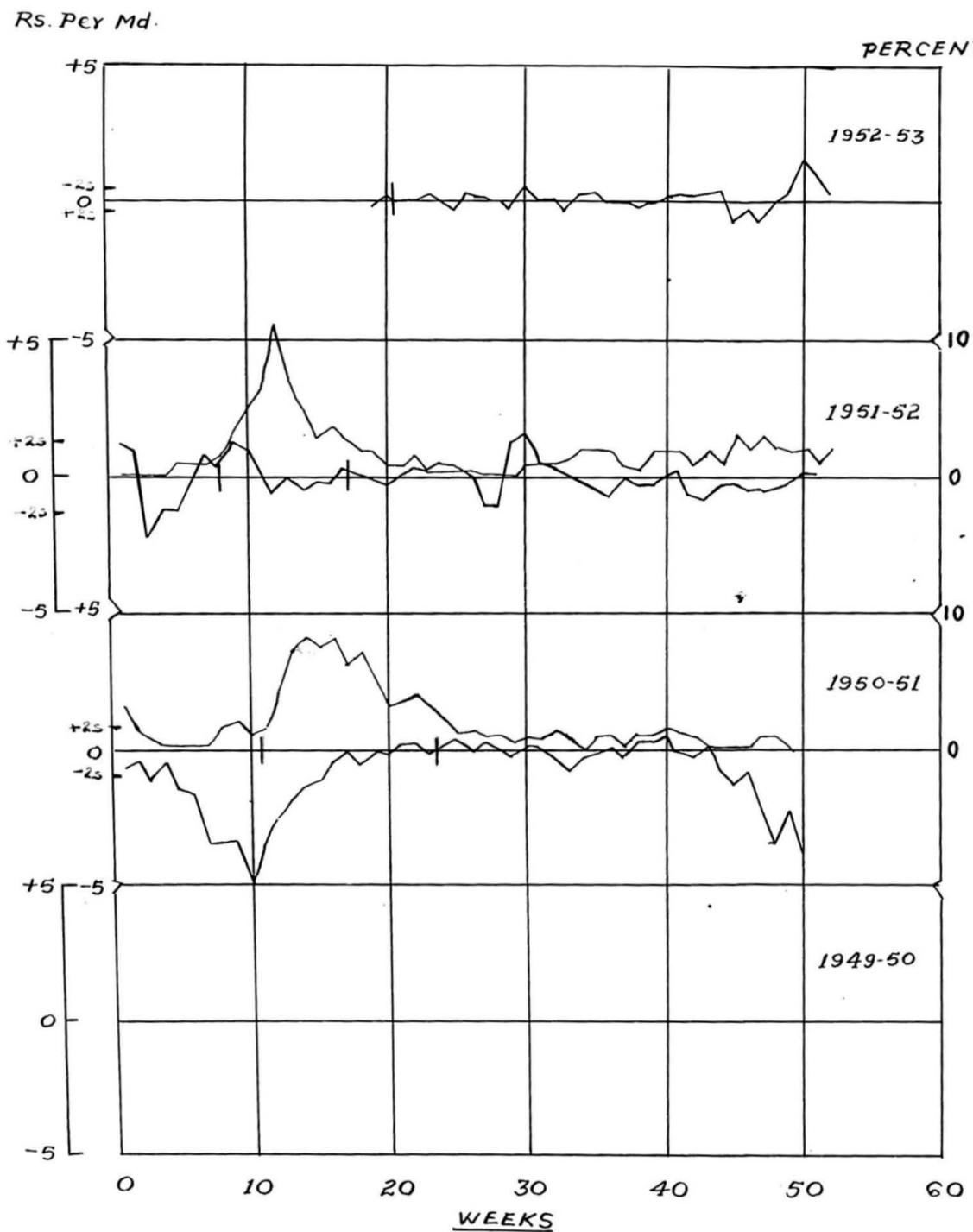
( Average Values of S where  $S = Y_1^W - \alpha - \beta_{12} X_2^W$  )

(Rupees per maund)

Year	Barsi			Dhulia			Karad		
	Early Marketing Period	Rapid Marketing Period	Deferred Marketing Period *	Early Marketing Period	Rapid Marketing Period	Deferred Marketing Period *	Early Marketing Period	Rapid Marketing Period	Deferred Marketing Period *
1949-50	-	-	-	- 7.32	- 0.91	- 0.99	- 0.06	- 0.75	-
1950-51	- 2.07	- 0.89	- 1.77	-12.04	- 2.74	- 2.26	- 0.56	+ 1.11	-
1951-52	- 0.22	+ 0.07	- 0.21	- 7.72	+ 0.31	+ 0.02	- 0.65	- 0.17	+ 0.22
1952-53	-	-	+ 0.19	- 8.86	- 2.69	- 1.29	- 4.29	- 0.56	-
1953-54	+ 3.63	+ 0.29	+ 0.03	-12.00	- 5.92	- 1.33	+ 0.48	- 0.09	-
1954-55	- 1.52	- 0.96	- 0.35	- 7.91	- 1.43	- 0.43	- 0.12	- 0.43	+ 0.35
1955-56	+ 0.04	- 0.53	+ 0.07	- 4.96	- 1.57	- 0.64	- 0.41	+ 0.46	- 0.77
1956-57	+ 1.53	+ 0.68	- 0.12	- 6.61	- 1.51	- 1.59	- 0.14	- 0.17	+ 0.85
1957-58	- 0.65	- 0.62	- 0.48	- 5.23	- 0.06	+ 0.61	+ 0.16	+ 0.31	+ 0.35
1958-59	- 1.70	- 0.98	- 0.93	-10.57	- 1.57	- 1.85	- 2.02	+ 0.24	- 1.46
Average	- 0.12	- 0.37	- 0.45	- 8.32	- 2.26	- 1.22	- 0.76	0.00	- 0.08

\* That part of the period which is not considered by the equation III.

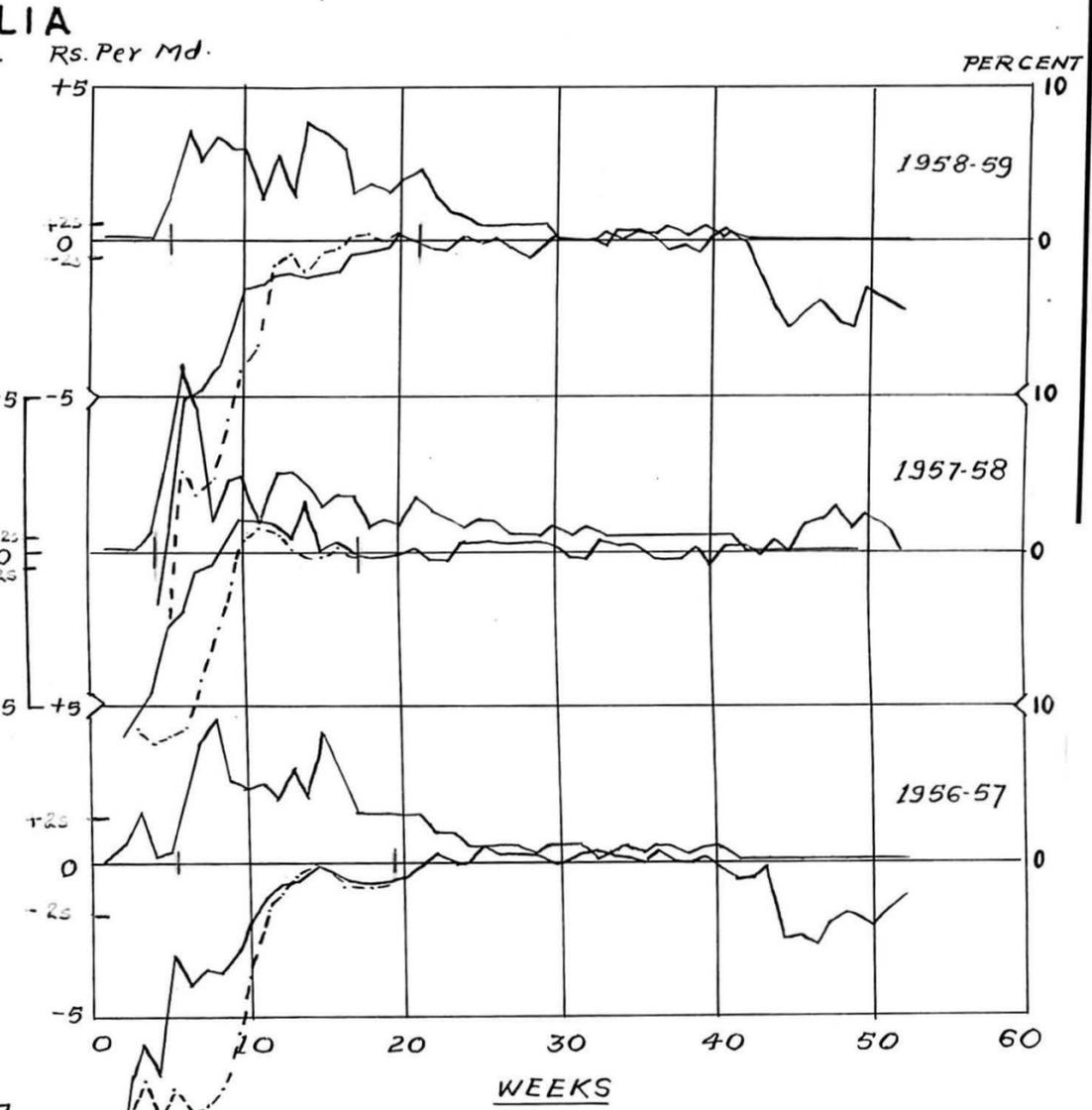
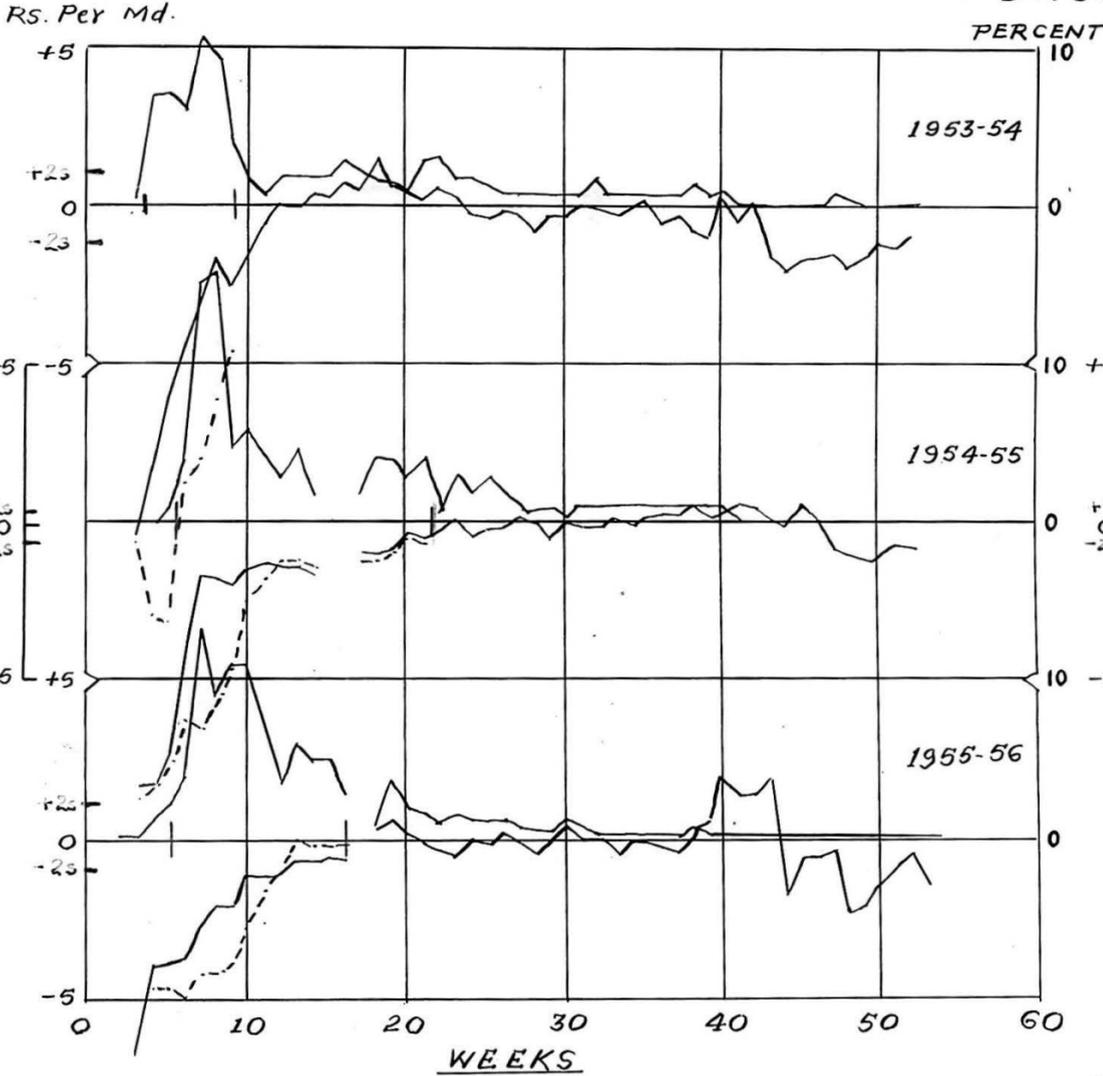
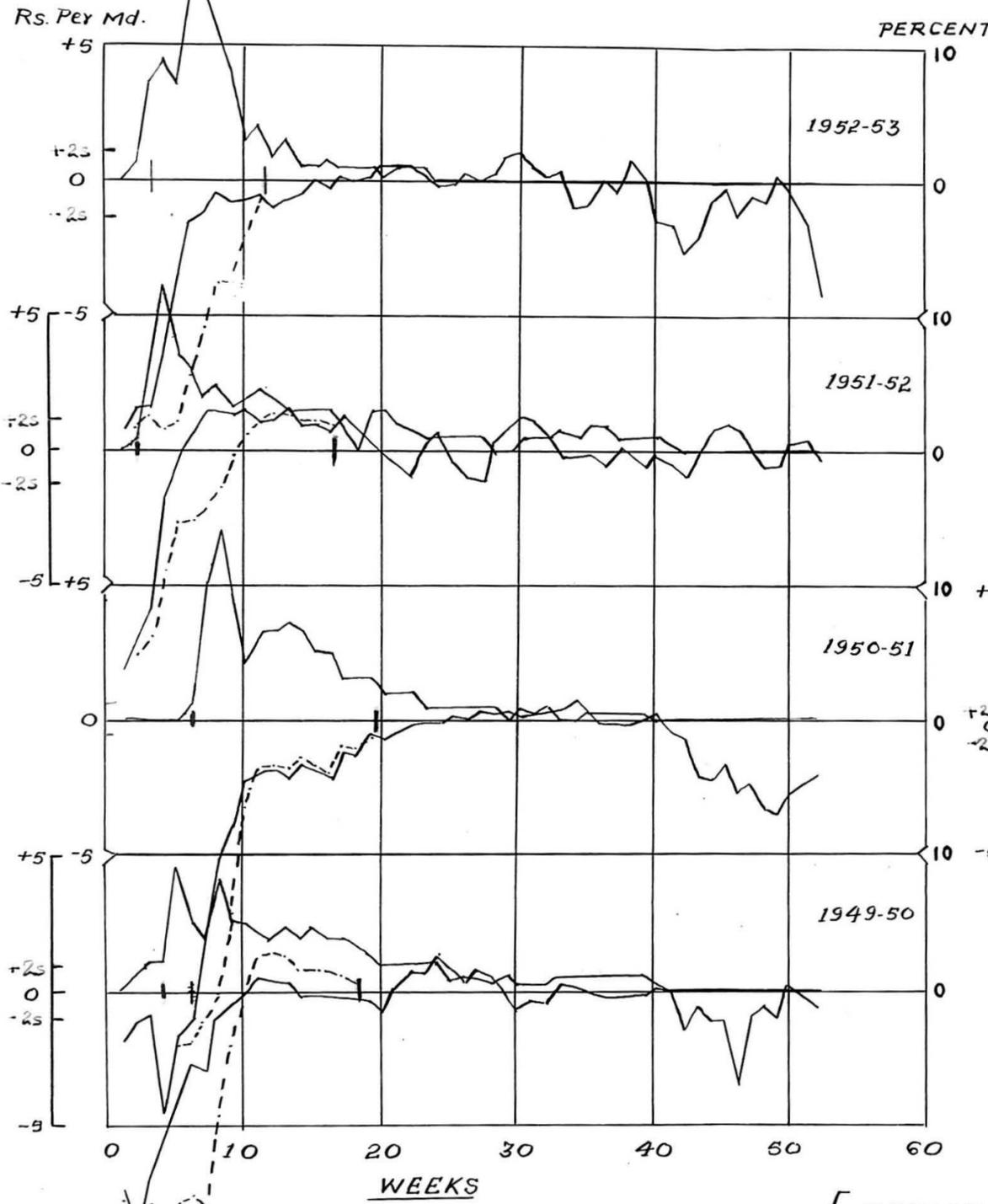
WEEKLY DEPARTURES OF THE ESTIMATED MAXIMUM PRICES (——) AND THE ESTIMATED AVERAGE PRICES (---) FROM THE ACTUAL ONES



—— MARKETING [PERCENT]

[PERIOD BETWEEN BLUE LINES IS RAPID MARKETING PERIOD.]

WEEKLY DEPARTURES OF THE ESTIMATED MAXIMUM PRICES (——) AND THE ESTIMATED AVERAGE PRICES (— — —) FROM THE ACTUAL ONES



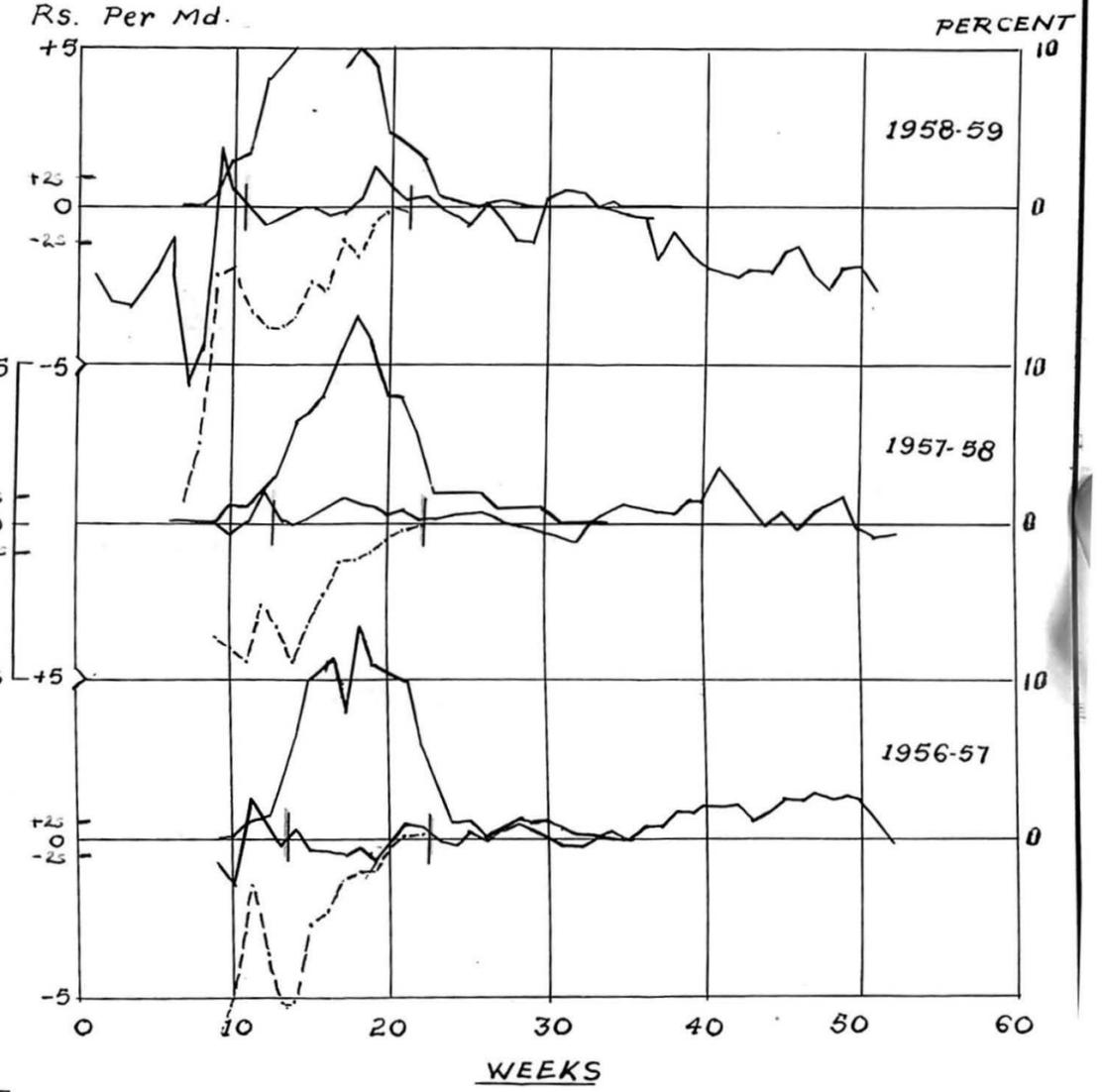
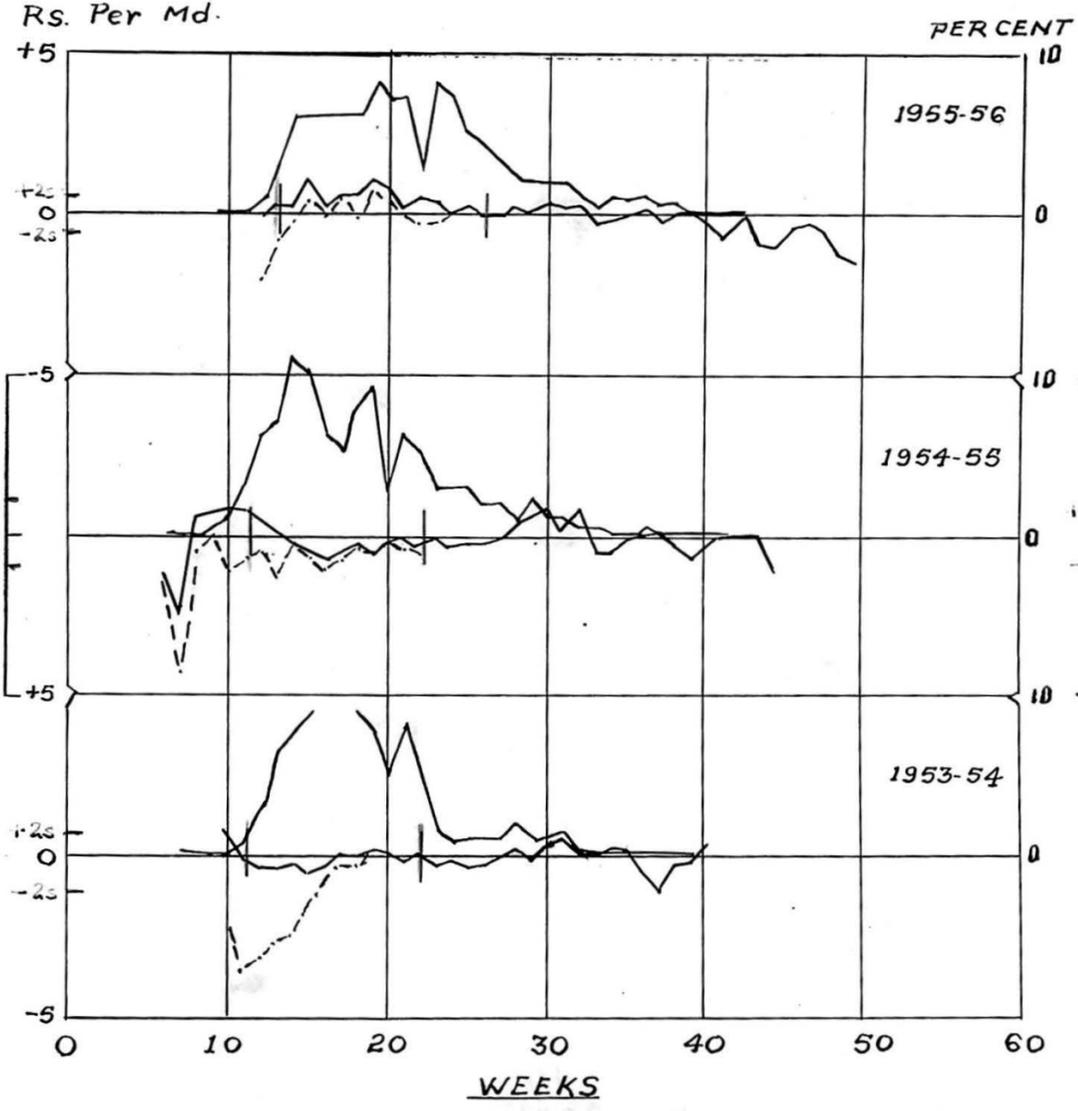
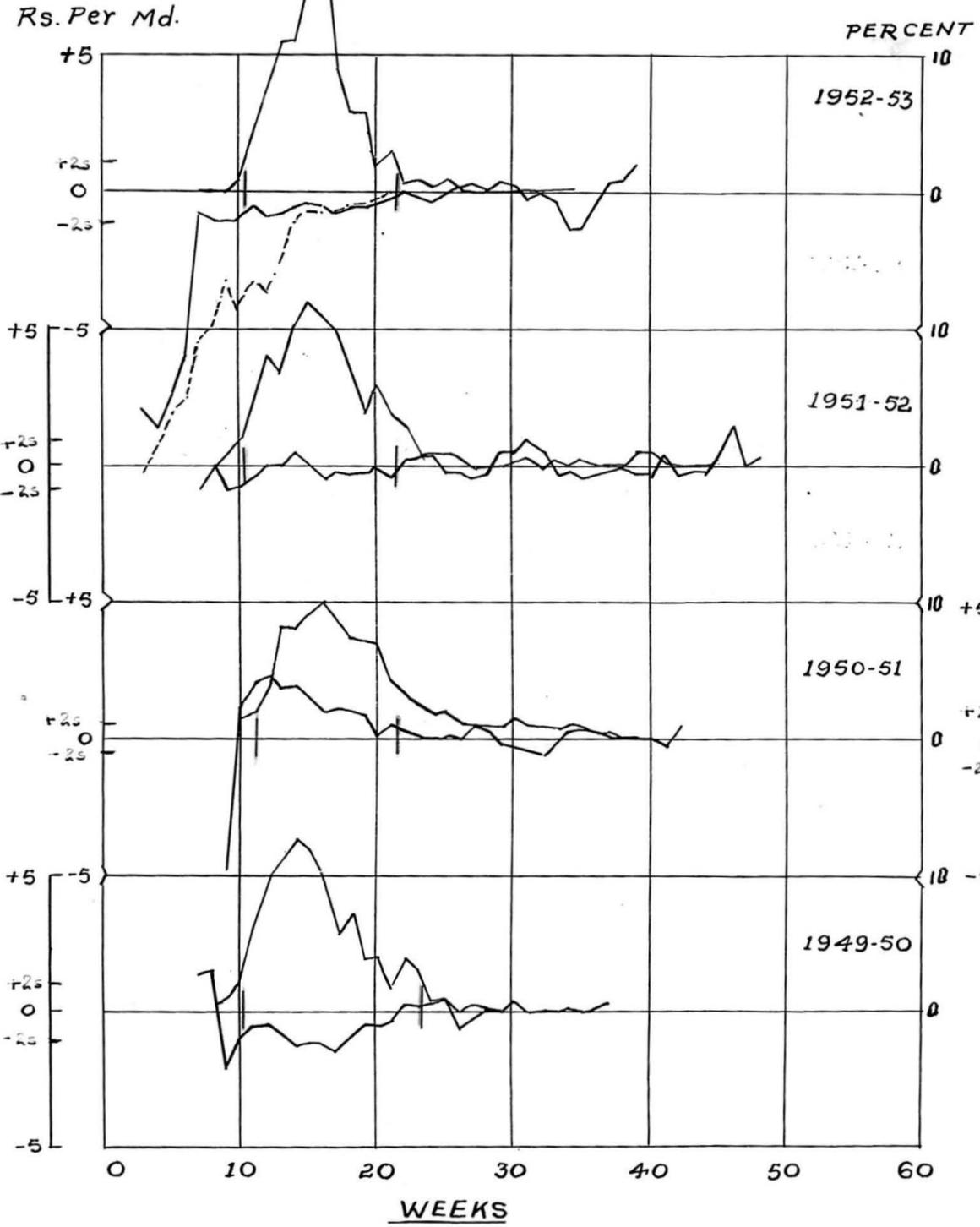
———— MARKETING [PERCENT]

[ PERIOD BETWEEN BLUE LINES IS RAPID MARKETING PERIOD ]

WEEKLY DEPARTURES OF THE ESTIMATED MAXIMUM PRICES (——) AND THE ESTIMATED AVERAGE PRICES (---) FROM THE ACTUAL ONES

KARAD

———— MARKETING [PERCENT]



[ PERIOD BETWEEN BLUE LINES IS RAPID MARKETING PERIOD ]

Dhulia provides a very systematic pattern. In all the years under consideration, the local prices are significantly below the expected level; this fall is initially substantial and has been once to the tune of about fifteen rupees. The local prices then start rising sharply till the start of the R.M.P. The fact that the records of the Market Committees at Barsi and Karad do not provide separate figures of maximum prices of old and new crop and therefore, the maximum prices quite often refer to the old crop, may explain the lack of systematic movement of the departures at these two centres.

In the Rapid Marketing Period, too, the Dhulia market provides a picture which is different from that presented by the other two markets. Thus in Dhulia, at the start of rapid marketing, the fall in maximum prices is significantly large; the sharp rise in local prices witnessed earlier, however, continues undisturbed subsequently for about first four or five weeks in the R.M.P. After this steep rise, the local prices increase more or less steadily throughout the R.M.P. at the end of which they, in general, touch the level of estimated prices. There are, of course, exceptions to this general behaviour but we shall look into them later. At Barsi and Karad, however, we have the departures which are, many a time, not significant. They are positive in some years and negative in some other years. The small magnitude of the departures at these centres, relative to that at Dhulia, seem to be due to the late occurrence of the R.M.P. at these centres. As we have seen earlier, the R.M.P. at Barsi and

Karad start quite late when the monsoons are completely over. The deterioration in condition due to large moisture content in the produce, therefore, is much less at these centres than at Dhulia where the marketing of the new crop commences early. We can not say that the small magnitude of the fall in local maximum prices in the R.M.P. is due, as it is in the E.M.P., to these prices referring to the old crop; this is because it is unlikely that the previous year's produce is marketed as late as in the R.M.P. of the current year.

In Barsi, the departures are negative in the R.M.P. in three years. In 1949-50, the observed prices are initially lower by about five rupees than the estimated ones; then they continuously increase upto 20th week to reach the estimated level. A similarly continuous but not as steep rise is found in 1954-55 and 1957-58. In the years 1951-52, 1953-54 and 1956-57, the contrary is the case. In these years during the R.M.P. the observed prices are more than the estimated prices and they continuously decrease in successive weeks to reach the desired level. In the year 1958-59, the local prices decrease till the middle of R.M.P. when they are less by about two rupees than the estimated prices. Then they start rising and by the end of the R.M.P., they have increased to equal the estimated level. In the year 1955-56, the departures are not wide though they remain negative during the R.M.P.

Thus, in short, there is some evidence to suggest that there is a little fall in maximum prices in Barsi due to

deterioration in quality. Apparently, the pressure or the timing of weekly marketing has no effect on the movement of these local prices. The average departures of the estimated prices from the observed ones in the R.M.P. given in Table 8.6 show no relationship with yield, price level or the total volume of supply in the R.M.P. It is only in 1958-59, that we see a parabolic movement of the departures, but whether this should be related with a corresponding parabolic movement of sales cannot be easily judged by this sole instance.

The departures in Karad are not large, excepting those in 1949-50 and 1950-51. In 1949-50, the observed prices are below the estimated prices while in 1950-51, they are above the estimated prices. Since in other years the departures are quite small, these two isolated instances do not enable us to arrive at any conclusion regarding the effect of 'condition', 'supply', 'price prospects', 'price level' or 'yield' on the maximum prices prevailing in the R.M.P. These prices, as recorded by the Market Committee, therefore, do not indicate any significant change in behaviour from the prices prevailing in the D.M.P.

We have already noted the general behaviour of local maximum prices prevailing during the R.M.P. at Dhulia. The exceptions to the general tendency of these prices to remain below the estimated prices throughout the R.M.P. occur in only three years : 1949-50, 1951-52 and 1957-58. Particularly in the year 1951-52, the observed prices prevail above the

estimated prices by about a rupee for about ten weeks of the R.M.P. This rise in local prices cannot be attributed to 'price prospects' because they were, as we have noted in an earlier chapter, quite unencouraging due to rumours of peace in Korea. Apart from these exceptional years, the tendency of the local prices to increase from quite a low level to the expected level is seen in all the years. This must be attributed to the factor 'condition' and the relationship of the local prices with either timing of sales or the quantity of sales cannot be examined unless the influence of 'condition' is removed. This is very difficult to do. Considering that they increase more or less continuously throughout the year, the local maximum prices seem to be affected very little by the supply. The average departures given in Table 8.6 do not indicate relationship with any of the factors : yield, price level, price prospects, and timing and quantity of marketing in the R.M.P. These values thus indicate mostly, the average fall in the maximum prices due to inferior condition.

To summarise, the fall in the local maximum prices during the R.M.P. is the largest in Dhulia and it is mostly due to the inferior quality of groundnut marketed during the period. There is no significant fall in prices at Karad while the prices at Barsi experience fall in some years only.

## 3

Average and Minimum Prices

So far we have considered the behaviour of the maximum

prices. The average and minimum prices can be examined in the same way. In this section we deal with them by studying firstly the differences between maximum and average prices and those between maximum and minimum prices. This will enable us to know to what extent do they differ in behaviour from the maximum prices in various periods. This is followed by a detailed analysis of average prices in the Early and Rapid Marketing Periods.

Max-av. and Max-min. differences during the D.M.P. and the R.M.P.

Table 8.7 presents the average Max-av. and Max-min. differences during the D.M.P. ( upto 40th week ). From this table it appears that as far as year to year variation is concerned, the average max-av. differences are more stable than the max-min. differences though the movement in the two series is generally in the same direction. In Dhulia, for example, during 1950-51 and 1954-55, the annual max-min. differences vary between Rs. 1.85 and Rs. 2.30 while the max.av. differences fluctuate between Rs. 0.48 and Rs.0.56 only. Another interesting feature of the average prices is that they are nearer to the maximum prices than to the minimum prices in the D.M.P., as can be seen from the fact that the max-av. differences are, in almost all cases, less than half the max-min. differences.

We cannot say anything definitely regarding the factors which determine the size of these differences in the D.M.P. of each year. In Karad we observe a negative relationship

**Table 8.7 : Average Max-Av. and Max-Min. Differences during the Deferred Marketing Periods.**

(Rupees per maund)

Year	Barsi		Dhulia		Karad	
	Max-av. diffe- rence	Max-min. diffe- rence	Max-av. diffe- rence	Max-min. diffe- rence	Max-av. diffe- rence	Max-min. diffe- rence
1949-50	-	-	1.42	5.46	-	0.79
1950-51	-	1.56	0.52	1.90	-	0.96
1951-52	-	0.75	0.48	2.06	-	1.52
1952-53	-	0.84	0.50	1.82	0.33	0.63
1953-54	0.29	1.01	0.56	2.30	0.49	1.29
1954-55	0.34	1.58	0.50	1.85	0.67	1.32
1955-56	0.32	1.36	1.03	3.47	0.59	1.53
1956-57	0.53	1.50	1.10	4.36	0.29	0.58
1957-58	0.32	0.90	0.76	2.96	0.16	0.46
1958-59	0.37	1.12	1.14	4.31	0.31	0.71
<b>Average</b>	<b>0.36</b>	<b>1.18</b>	<b>0.84</b>	<b>3.05</b>	<b>0.41</b>	<b>0.98</b>

between the max-min. differences and the yield but any such relationship is absent in the figures available in Barsi and Dhulia. These differences seem to be related neither to price level nor to the total quantity marketed in the D.M.P. as well to the quantity marketed in the entire year.

As far as the within-a-year movement of weekly differences in the D.M.P. are concerned, we find ( see Chart 19 in Chapter VII) that here also the max-av. differences are more stable than the max-min- differences. Neither of these series contains any systematic element and the changes in them can not be attributed to the changes in the terminal prices. Moreover, the variation in these differences is also very small. We thus come to the conclusion that the average and minimum prices in D.M.P. respond to the terminal prices in the same way and to the same extent as the maximum prices do. In other words, if the equation

$$x_1^w = \alpha + \beta_{12} x_2^w \quad \dots \quad ( III$$

holds good for maximum prices in the D.M.P., similar equations

$$x_1^{i w} = \alpha + \beta_{12} x_2^w - Q^i \quad \dots \quad ( V$$

$$\text{and } x_1^{n w} = \alpha + \beta_{12} x_2^w - Q^n \quad \dots \quad ( VI$$

will hold good for average and minimum prices respectively in the D.M.P. where  $Q^i$  and  $Q^n$  are average max-av. and max-min. differences respectively in the D.M.P. This indicates that the differences in the behaviour of annual maximum and minimum prices observed in section I of this chapter are entirely due to the differences in their behaviour during

the R.M.P. In the D.M.P. ( upto 40th week ) these prices vary in a more or less similar way and to the same extent. Once, therefore, the maximum prices in the Deferred Marketing Period are determined, the average and minimum prices can be easily estimated by deducting from them the values  $Q'$  and  $Q''$  respectively.

The max-av. and max.min. differences prevailing in the R.M.P. ( Table 8.8 ) are seen to be higher than those prevailing in the D.M.P. We cannot say, as we have said in the case of the D.M.P., that the average prices are nearer to the maximum prices than to the minimum prices in the Rapid Marketing Period. In some years such is the case; but in quite a number of years, the contrary is true. This makes estimation of average prices for those years in which they are not available, an all the more difficult task.

#### Average Prices in the E.M.P. and the R.M.P.

At this stage we leave the minimum prices out of analysis and concentrate on average prices which we regard as important both to the sellers as well as to the buyers. We will consider only those years for which average prices are available.

We know that in the Deferred Marketing Period, the following equation holds good for average prices:

$$X_1^w = \alpha + \beta_{12} X_2^w - Q' \quad \dots \quad (V)$$

where  $\alpha$  and  $\beta_{12}$  are measured from equation III and  $Q'$  is

**Table 8.8 : Average Max-Av. and Max-Min. Differences during the Early Marketing Periods and the Rapid Marketing Periods.**  
(Rupees per maund)

Year	Barsi				Dhulia				Karad			
	Max-Av. difference		Max-min. difference		Max-Av. difference		Max-Min. difference		Max-Av. difference		Max-Min. difference	
	E.M.P.	R.M.P.	E.M.P.	R.M.P.	E.M.P.	R.M.P.	E.M.P.	R.M.P.	E.M.P.	R.M.P.	E.M.P.	R.M.P.
1949-50	-	-	-	-	2.56	2.25	4.06	5.42	-	-	8.56	1.86
1950-51	-	-	3.35	4.36	0.83	1.26	2.12	3.24	-	-	5.08	2.34
1951-52	-	-	6.03	2.47	0.52	1.79	1.59	5.90	-	-	8.27	3.43
1952-53	-	-	-	-	0.90	3.39	1.56	7.18	2.43	1.04	4.70	3.00
1953-54	2.80	0.47	5.13	1.83	0.83	3.56	2.58	5.82	3.44	1.48	7.60	4.14
1954-55	0.50	0.32	3.20	0.94	0.48	1.61	1.07	3.61	1.89	0.89	6.15	3.12
1955-56	1.20	0.30	3.36	1.26	1.62	1.60	3.51	3.80	2.14	0.83	4.49	2.85
1956-57	2.39	0.91	8.60	2.68	2.74	2.34	6.16	6.62	4.56	1.70	8.20	3.50
1957-58	1.02	2.07	5.09	3.73	1.34	2.15	3.43	5.64	4.02	2.25	6.90	3.63
1958-59	1.73	2.11	3.95	3.59	1.63	2.02	4.88	5.88	3.30	2.54	6.73	4.97
<b>Average</b>	<b>1.61</b>	<b>1.03</b>	<b>4.84</b>	<b>2.61</b>	<b>1.34</b>	<b>2.20</b>	<b>3.10</b>	<b>5.31</b>	<b>3.11</b>	<b>1.53</b>	<b>6.67</b>	<b>3.28</b>

the average difference prevailing between maximum and average prices in the D.M.P. From this equation we estimate the average prices prevailing in the E.M.P. and R.M.P. and then find their departures from the observed average prices. These departures we will call  $D'$ , where

$$\left. \begin{aligned} D' &= X_1^w - (\alpha + \beta_{12} X_2^w - Q') \\ &= S - (R' - Q') \end{aligned} \right\} \quad (\text{VII})$$

where  $S$  is the departure of the estimated maximum price from the observed one ( $S = X_1^w - \alpha - \beta_{12} X_2^w$ ) and  $R'$  is the weekly max-av. difference ( $R' = X_1^w - X_1^w$ ). In other words,  $D'$  is nothing but the max-av. difference in the E.M.P. and R.M.P. which is first adjusted to the average max-av. difference prevailing in the D.M.P. and then deducted from the departure of the estimated maximum price from the observed one. Thus, if both the maximum as well as average prices fall in a week,  $D'$  represents the total fall in average price including the fall in maximum price, while the factor  $(R' - Q')$  represents the additional fall in average price over that in maximum price. The weekly values of  $D'$  are given in Table 8.9. They are also shown in Chart 21.

There are three characteristics of the average prices brought out by this table. Firstly, we find that generally, the average prices experience the largest fall during the Early Marketing Period. The average prices then start rising. Secondly, during the Rapid Marketing Period the prices are below the expected level in the initial three or four weeks.

**Table 8.9 :** Departures of the Estimated Average Prices from the Observed Ones in Early Marketing Periods and Rapid Marketing Periods.

Centre - BARSI (Values of D' where  $D' = X_1^W - (\alpha + \beta_{12} X_2^W - Q)$ )

Week No.	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
1					+ 1.93	- 1.26	+ .50	+ .72	- .73	- 1.67
2					+ 3.64	- 1.85	+ .86	+ .66	- .80	- 1.76
3					+ 5.63	- 1.96	+ .53	- 1.19	- .37	- 1.82
4					+ 2.09	- 1.77	+ .73	- .19	- .52	- 1.12
5					+ 3.55	- 1.16	+ .70	+ 1.54	- .79	- 3.44
6					+ 7.59	- 1.62	- .86	- .10	- 1.06	- 2.15
7					+ 4.98	- 1.83	- 1.95	+ 1.56	- .99	- 3.62
8					- 1.99	- 1.25	- 1.77	- 2.99	- 5.74*	- 6.65*
9					- 4.86*	- 1.09	- 1.75	- 3.75*	- 1.16	- 5.27
10					- 4.13	- 1.71	- .43	- .72	- 4.88	- 6.84
11					- 1.78	- 2.03	- 2.77*	+ .73	- 6.71	- 4.64
12					- 2.97	- 2.25*	- 1.62	+ .76	- 4.87	- 3.25
13					- 1.64	- 2.04	- .92	- 1.34	- 2.56	- 4.21
14					- 1.42	- 1.68	- 1.11	- .38	- 1.58	- 3.82
15					- .72	- 1.47	- .77	- .49	- 1.18	- 2.62
16					+ .23	- 1.21	- .65	+ .30	- .74	- 2.48
17					+ .59	- 1.07	- .54	+ .51	- .66	- 2.18
18					+ .66	- .90	- .17	+ .70	- .34	- 1.06
19					+ .59	- 1.93	- .11	+ .74	- .20	- .90
20					+ .71	- .89	- .42	+ .61		- .74
21					+ .32	- .26	- .73	+ .39		- .17
22					+ .22	- .17	- .84	+ .30		
23					+ .05	+ .05	- .55	+ .30		
24					+ .03	- .41	- .60	+ .31		
25							-0 .20			
<hr/>										
⊙ % Maximum fall					27.71	17.97	24.15	23.81	34.96	31.74
<hr/>										
% Fall in the first four weeks of R.M.P.					2.10	11.62	3.99	0.13	27.42	25.54

\* Maximum fall.

⊙ If it occurs in E.M.P.

The period between the two red lines is the Rapid Marketing Period.

Table 8.9 contd -

Centre - DHULIA

Week No.	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
1	- 7.76							-10.75*		
2	- 9.38*		- 7.69*	- 9.32*				- 7.95		
3	- 7.90	- 11.94	- 6.92	- 8.71	-10.66	- 8.66*		- 6.96	- 5.81	
4	- 8.80		- 4.55	- 9.27	-13.01*	- 8.30	- 4.66	- 8.31	- 6.23*	
5	- 7.90	-12.14*	- 2.82	- 8.97	-13.12	- 7.47	- 4.62	- 7.29	- 5.97	-12.45*
6	- 7.68	-12.07	- 2.72	- 7.28	- 8.70	- 6.30	- 4.90*	- 7.90	- 5.69	- 7.55
7	- 8.19	-11.27	- 2.23	- 5.47	- 7.98	- 6.48	- 4.35	- 7.77	- 4.34	- 8.20
8	- 4.77	-10.04	- 1.50	- 3.81	- 6.13	- 5.42	- 4.20	- 7.31	- 2.60	- 7.64
9	- 2.17	- 7.25	- .24	- 3.86	- 4.57	- 4.45	- 3.91	- 5.53	- 1.29	- 5.84
10	- .34	- 3.20	+ .50	- 2.13		- 2.59	- 2.79	- 3.66	+ .39	- 4.26
11	+ 1.24	- 1.89	+ .91	- .67		- 1.70	- 1.59	- 1.55	+ .74	- 3.21
12	+ 1.38	- 1.70	+ 1.25			- 1.34	- 1.06	- .92	+ .64	- .88
13	+ 1.19	- 1.87	+ 1.31			- 1.34	- 0.09	- .53	- .06	- .46
14	+ 0.68	- 1.46	+ 1.10			- 1.46	- .23	- .34	- .19	- .96
15	+ 0.65	- 1.71	+ 1.02				- .24	- .20	- .18	- .46
16	+ 0.58	- 2.04	+ .89				- .17	- .71	- .01	- .24
17	+ 0.48	- 1.03				- 1.27		- .80	- .27	+ .16
18	+ 0.27	- 1.11				- 1.27		- .64		+ .22
19		- .69				- .94		- .57		- .05
20						- .41				+ .27
21						- .66				- .18
⊙ % Maximum fall	42.27	48.66	35.67	45.51		53.59		54.96	34.55	52.55
% Fall in the first four weeks of R.M.P.	31.76	32.63	19.42	43.04	44.49	39.31	36.35	36.81	25.62	33.84

\* Maximum fall.

⊙ If it occurs in E.M.P.

The period between the two red lines is the Rapid Marketing Period.

Table 8.9 contd.

Centre - KARAD

Week No.	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59
1										
2										
3										
4				-10.13						
5				- 9.30						
6				- 8.08						
7				- 7.56		- 1.27				- 2.04
8				- 5.47		- 4.39*				- 9.56*
9				- 4.93		- 0.50				- 7.50
10				- 3.20		0.00	- 2.89*	- 6.41*	- 3.69	- 2.00
11				- 4.31	- 1.44	- 1.16	- 2.16	- 4.98	- 3.98	- 1.85
12				- 3.35	- 3.48*	- .70		- 1.55	- 4.46*	- 3.27
13				- 3.62	- 3.28	- .50	- 2.04	- 3.75	- 2.66	- 3.67
14				- 2.81	- 2.67	- 1.26	- .76	- 5.32	- 3.37	- 3.78
15				- 1.12	- 2.54	- .30	- .19	- 5.25	- 4.47	- 3.53
16				- .59	- 1.61	- .62	+ .50	- 2.74	- 3.11	- 2.39
17				- .64	- .79	- .93	- .01	- 2.44	- 2.38	- 2.48
18				- .63	- .32	- .76	+ .51	- 1.41	- 1.30	- 1.07
19				- .43	- .26	- .38	- .06	- 1.15	- 1.29	- 1.57
20				- .41	+ .18	- .52	+ .81	- 1.17	- .93	- .52
21				- .31	+ .10	- .29	+ .47	- .34	- .55	+ .33
22				- .02	- .32	- .37	- .04	+ .01	- .28	+ .09
23					+ .14	- .48	- .27	+ .28	- .11	
24							- .23			
25							0.00			
26							+ .24			
							+ .07			
6 % Maximum fall				53.00	22.85	33.74	25.09	37.91	25.80	45.22
∅ % Fall in the first four weeks of R.M.P.				16.75	17.14	5.66		17.78	20.53	19.67

\* Maximum fall.

∅ If it occurs in E.M.P.

∅ In the year 1954-55 the prices in the first four weeks are above the expected price.

The period between the two red lines is the Rapid Marketing Period.

Thirdly, the prices recover during the R.M.P. differently in different years. Sometimes the recovery is late, and in some other years, it is rapid. We will, therefore, examine these three features in detail in the following pages :

The Size of fall in the Early Marketing Period :

The fall in the Early Marketing Period is, of course, due to deterioration in the condition of the marketed produce. It is seen that the largest fall in the average prices, which occurs in the E.M.P., is generally related with the level of expected price - such that when the latter is more, the size of the former is also more. This is to be expected because the large moisture content found in the produce marketed in this period increases the weight of the produce and, thus, decreases, proportionately, its price. We, therefore, express this largest fall in terms of percentage of the expected average price. It is then seen varying, in Barsi, between 18 per cent and 35 per cent, in Dhulia, between 35 per cent and 55 per cent and, in Karad, between 23 per cent and 53 per cent.

It is obvious that the size of the largest fall is determined by its timing. Thus the fall is higher at Dhulia than at other centres mainly because the marketing at Dhulia starts earlier. Similarly, at every centre, the year to year variations in the size is related with the timing of it. In Barsi, for example, it occurs in the ninth week in the years 1952-53 and 1956-57, and it is about 28 per cent and

24 per cent respectively. When the fall is delayed by three weeks in the year 1953-54, it is to the tune of about 18 per cent. Some part of the large size of the highest fall in the years 1957-58 and 1958-59 also can be attributed to its slightly early occurrence. In Karad, we do not possess the data of prices in all the weeks in the E.M.P., but from whatever we have, the relationship between the timing of maximum fall and its size is quite apparent. Thus, in the year 1952-53, the maximum fall occurs in the third week and it is to the tune of about 53 per cent. When it occurs between the seventh and ninth week, its average size is about 35 per cent while when it happens in the eleventh week ( in 1953-54 and 1957-58 ) its size moves around 25 per cent. In Dhulia, there is no much variation in the length of the E.M.P., and, therefore, we do not find much evidence of such relationship at this centre. As far as Barsi and Karad are concerned, however, we can say that the maximum fall in average prices is high if it occurs early and it is low if it occurs late.

The Fall in Average prices during the first four weeks of the R.M.P.

In general, we notice that the largest fall in the R.M.P. occurs during the first four weeks of the period. The average fall during these weeks also shows positive relationship with the level of price. In terms of percentages, therefore, we find that the size of average fall during the first four weeks of the R.M.P. lies between 2 per cent and 27 per cent

of the average expected price in those weeks at Barsi. In Dhulia, the corresponding figures are 19 per cent and 44 per cent while in Karad they are 6 per cent and 21 per cent. In general the size of this initial fall in the R.M.P. seems to be governed mainly by the timing and the size of the maximum fall in the E.M.P. as well as by the timing of the start of the R.M.P. in each year. In Barsi, for example, the rapid marketing started quite early ( i.e. in the tenth week) during 1957-58 and 1958-59 and the initial fall during the first four weeks was between 26 and 27 per cent, the highest observed during the period under consideration. In these years the maximum fall in the E.M.P. also occurred early, immediately after which the R.M.P. started. In the remaining four years the R.M.P. started quite late-i.e. by about fourteenth week - and the initial fall in the R.M.P. was mainly determined by the number of weeks between the occurrence of the largest fall and the start of the R.M.P. When there was a difference of about four weeks ( in 1953-54 and 1956-57) between the two, the fall in prices in the R.M.P. moved around one per cent. When, however, the R.M.P. started only one week after the largest fall ( in 1954-55 and 1955-56), the initial fall in the R.M.P. was to the tune of about twelve per cent.

A similar but not so clearcut relationship is found in Karad. In the years 1955-56 and 1956-57, for example, the R.M.P. started as late as in the fourteenth week and the average prices in the first four weeks of the R.M.P. were

above the expected level by about two per cent in 1955-56 and below the expected level by about 18 per cent in 1956-57. The latter fall may be due to the large maximum fall of about 38 per cent in the E.M.F. In the other years there was no much variation in either the timing of the start of the R.M.F. or the fall in prices in the first four weeks of the R.M.F. The latter moved around 17 per cent except in the year 1954-55 when it was only 6 per cent.

In Dhulia, the variation in the percentage fall in prices during the first four weeks of the R.M.F. is not much. Excepting the three years - 1951-52, 1953-54 and 1957-58 - in all the other seven years the initial fall is about thirtyfour per cent. There is, of course, no much variation in the start of the R.M.F. either

#### Subsequent Recovery in Prices during the R.M.F.

It is interesting to observe that, in general, the subsequent recovery in the average prices is related with the size of fall in the initial four weeks of the R.M.F. In other words, when the size of this initial fall is small, it is generally accompanied by a rapid recovery in the average prices during the subsequent weeks; on the other hand, when the initial fall is large, the recovery in prices is seen to be slow. This kind of relationship is clearly seen in the case of Barsi, where the small initial falls in prices in the R.M.F. in the years 1953-54 and 1956-57 are seen to be accompanied by rapid recovery in prices which ruled above

the expected level in nine out of eleven weeks; while the largest falls in the years 1957-58 and 1958-59, are accompanied by the delayed recovery in prices which ruled below the expected level in all the weeks in the R.M.P.

In Karad, the size of the initial fall was around 17 per cent in all the years excepting 1954-55 and 1955-56. In 1954-55, the fall was six per cent while in 1955-56 it was two per cent. We, however, find rapid recovery in only 1955-56; in all the other years including 1954-55, there was a gradual recovery in prices throughout the R.M.P.

In Dhulia, the rapid recovery in prices took place during 1949-50, 1951-52 and 1957-58 and out of these three years, in all the years excepting 1949-50, the size of the initial fall was small. In 1953-54 and 1954-55, the slow rate of recovery was accompanied by the large size of the initial fall. In other years the fall was to the tune of 33 per cent and there was a gradual recovery.

Thus, in short, the course of prices in the R.M.P. is seen to be determined chiefly by the size of the initial fall. The latter in turn depends, as we have noticed earlier, on the timing of marketing. In other words, when the marketing is delayed, the initial fall due to deterioration in condition is small and the course of recovery in the subsequent weeks of the R.M.P. is rapid. When, however, the marketing takes place early, the initial fall in prices is large and the prices in the subsequent weeks recover slowly.

The years of exception to the above generalisation are

1949-50 in Dhulia when there was a rapid recovery in spite of a large initial decrease and 1954-55 in Karad when there was a slow recovery inspite of a small initial decrease in prices. As a matter of fact in the latter year - 1954-55 - at all the centres, we find a tendency of the local prices to linger at a low level for quite a long time in the R.M.P. It appears that we can relate the factor 'price prospects' with these two observations. In 1949-50, for example, the prices were rising and the price prospects were also encouraging. The rapid recovery in Dhulia prices may be due to this. In the year 1954-55, at the time of the R.M.P., the prices experienced a heavy fall and an immediate increase in them was not expected. We, therefore, come to the conclusion that next to the timing of marketing, the factor 'price prospects' may also be of importance in determining the course of prices in the R.M.P.

#### Prices and Quantities Marketed :

As far as the effects of the total quantities marketed both in a year as well as in the R.M.P. are concerned, we do not find any evidence of their relationship with either the size of the initial fall or the rate of recovery in the subsequent weeks in the R.M.P.

It is very difficult to find the exact influence of the pressure of supply on weekly movement of prices. In Barsi and

middle of the period. The max-av. differences also move likewise without apparently being affected by sales. As we have seen earlier, the rate at which the average prices recover during the R.M.P. is determined by timing of the start of marketing of the new crop. It seems, therefore, likely that arrivals have no effect on the course of average prices during the R.M.P. in these markets. The fall in prices is essentially due to the fall in condition.

In Dhulia, locating the influence of the pressure of supply is all the more difficult because firstly, the arrivals are large during the first four or six weeks when the fall in condition is also large and secondly, the average prices being the weighted average of maximum and minimum, are also susceptible to changes in quality which influence the maximum and minimum prices.

There were two peaks in arrivals in the R.M.P. at Dhulia during the years between 1955-56 and 1958-59 and it may be of interest to see whether the second peak, at least, had any influence on the average prices.

In 1955-56, the second peak occurred in the ninth week but there was no corresponding increase in the max-av. difference at that time. Similarly in 1956-57, there was no decrease in the average prices in the neighbourhood of fifteenth week when the arrivals reached their second peak. In 1957-58, the arrivals increased again in the twelfth and the thirteenth weeks and the max-av. differences increased sharply by more than a rupee in the fourteenth week. This

rise lasted only for that week and then the differences resumed their general falling tendency. Since the minimum prices also decreased at that time, a part of the fall in average prices should be attributed to the fall in minimum prices. In 1958-59, there was a slight decrease in the average prices associated with a second peak in arrivals, but this too, was accompanied by a corresponding decrease in minimum prices. We cannot, therefore, attribute the entire fall in average prices to the increase in arrivals unless we associate the additional fall in minimum prices also with it.

Thus, as far as Dhulia is concerned, no definite conclusion can be reached because of two factors - condition and quantity - operating simultaneously. The evidence, however, suggests that by far condition is the most important factor and the quantity affects very little, if at all, the course of prices. Even in those years in which the average prices are found to be decreasing together with the increase in supply, such decrease is short-lived and accompanies the fall in minimum prices.

Thus to conclude :

- 1) The prices in the regulated markets are mainly determined by the terminal prices. They have, however, tended to increase, during the ten years under consideration, annually by about Rs. 0.15 irrespective of the changes in the terminal price.

ii) The year to year changes in the quality of the harvested crop, as reflected in the figures of yield, affect appreciably the influence of the terminal price on the weekly local price within a year. In a year in which the produce harvested is of a better quality, the local prices are observed to be less affected by the terminal prices than in a year in which the quality of the harvested produce is not so high. In the former year, the local prices appear to be more stable than the terminal prices. As a matter of fact, the annual changes in the quality seem to be the only factor determining the variability of the local prices and the influence of the terminal price. There is, however, a possibility that the factor 'price prospects' may be determining the level of the local price.

iii) As compared to those in the D.M.P., the average prices in the R.M.P. are found to be in general, depressed, even after the influence of the terminal price is removed. This fall is chiefly attributable to the deterioration in condition of the marketed crop. It is most pronounced in Dhulia where the prices in the first four weeks of the R.M.P. decrease by about 34 per cent. In Barsi and Karad the fall is about 12 per cent and 16 per cent respectively. In the subsequent weeks of the R.M.P. the average prices recover. The size of the initial fall as well the subsequent rate of recovery are governed by the timing of the start of the R.M.P.

The rate of recovery is also sometimes governed by the factor ' price prospects!.

iv) As far as the effects of arrivals are concerned, we find that they can not be easily determined. It is, however, expected that their extent is not considerable.

CHAPTER IX  
SUMMARY AND CONCLUSIONS

## 1

In the previous chapters we made an attempt to utilise the data collected and compiled by the Market Committees at Barsi, Dhulia and Karad for the purpose of investigating into the price mechanism of groundnut in the interior markets. We observed the marketing tendencies of the farmers as well as the purchasing policies of the sellers. We also tried to study the movement of prices in these markets and the relationship of these prices with the terminal prices.

The picture emerging out of this analysis does not seem to be unfavourable to the farmers. It appears that these markets are growing in importance and becoming more and more independent of the terminal market. The rise in local oil crushing industry as well increasing demand by the vanaspati factories situated nearby have affected these markets which no longer play the role of secondary markets satisfying merely the demand in the terminal market. The rising trend in the local prices is unmistakable and is chiefly due to the rise in local demand.

There is, of course, no denying of the influence of the terminal price on the local price. It, however, varied in different years and seemed to be related with the quality

of the harvested crop. We could not measure the influence of the latter factor; but the figures of yield could be used as a measure of quality changes. It seemed that when the yield was large, the local prices tended to become more stable than the terminal prices. When, however, the yield was less, the local prices varied more than the prices in the Bombay market. The influence of the terminal price in the latter case was quite large.

Compared to those in the Deferred Marketing Period, prices in the Rapid Marketing Period were no doubt depressed, but there was reason to believe that this fall was essentially due to the fall in condition of the produce. There was no evidence to indicate a significant fall due to pressure of arrivals. Indeed, there were some instances when the prices in the Rapid Marketing Period in these markets were above those warranted by the terminal prices. We have also seen that delayed start of rapid marketing generally results in rapid recovery in prices. This, thus, affords some scope for improvement in the marketing of the crop, especially at Dhulia where quite a large quantity is marketed in the first four or five weeks of the R.M.P. in wet condition. The regulated markets and the cooperative societies would do well in seeing that the produce which is marketed is sufficiently dry and clean. In particular, cooperative societies, which at present are nothing more than commission agents in the markets, should see whether they can give temporary finances to those cultivators who

cannot wait, due to financial difficulties, for the produce to dry.

## 2

There were many difficulties in analysing the information provided by the Market Committees. Thus, for example, the results of this study suffer heavily due to the absence of data regarding arrivals from the areas outside the jurisdiction of the markets, arrivals of the last year's crop and the prices received by them, resales, changes in the quality of the crop, production in the talukas, changes in the transport, handling and processing costs, local prices of the processed goods and their by-products, purchases made and stocks held by different traders, the volume of purchases made by the local purchasers outside the market area, and the condition of the marketed crop to which different price indicators refer. Since these data are important and a regulated market is an ideal institution to possess them, it will not be out of place to refer to this aspect of the study briefly. It is needless to point out here that the observations made in the following pages do not arise out of the study directly; they are, however, important if the quality of the data possessed by the Market Committees is to be improved. These observations, however, refer not only to the markets covered by this study but also to other markets which the author had an opportunity to visit in the course of the survey.

At the outset, it should be noted that most of the above-mentioned information is available with the Market Committees but it is not properly compiled. Thus, for instance, it is obligatory for every Market Committee to maintain for every commodity what is called, "the Transaction Register" in which every transaction is recorded with details such as, the names of the buyer, seller and commission agent, the village of the buyer, the weight of the produce sold and the price paid; and from this register, which is maintained fairly adequately, quite a large amount of information can be made available. The register is, however, so voluminous that it is extremely difficult, after some time, to compile the information contained in it. The by-laws of a Market Committee also require each purchaser to send the details of the purchases made by him outside the market yard; but most of the Market Committees are not vigilant in receiving this information, and those who receive it do not compile it systematically.

Even the information that has been recorded by the Committees is not without its shortfalls. It is found, for example, that the concept of the 'most common price' is not understood by many Committees and they record the arithmetic average of maximum and minimum prices as the 'most common price'. The methods used by some Committees for calculating the weekly, monthly or annual averages also suffer from mistaken ideas. For instance, some Market

Committees use the maximum of daily maximum prices and the minimum of daily minimum prices prevailing in a week and take the arithmetic average of these two extreme points to give 'average price' of the week. Then there are some Market Committees which are enthusiastic in collecting all the information that is readily available to them but since there is no well-directed effort in maintaining it properly, it often causes unnecessary duplication.

The state of affairs described above thus represents an absence of any well-defined objective before the Market Committees. Many of the regulated markets in Maharashtra have established themselves fairly well; they have ensured orderly marketing, are now financially self-sufficient and can command respect both from the sellers as well as the purchasers. In the case of such markets, at least, the time has come to expand their activities and enable them to function as an independent, impartial third party rendering the knowledge of supply and demand factors to both the parties of the contract. In other words, once firmly established, these Market Committees should work in dual capacity: Firstly, they should supervise the dealings and exercise controls over the malpractices and secondly, they should become small research units at a local level, ✓ collecting, compiling and analysing the necessary information and providing an expert advice on the movement of prices in the local and surrounding markets to those who

require it.

It is necessary to incorporate these functions into the present supervisory activities of the Market Committees because once the market practices become well regulated and well defined, the farmers are bound to become more conscious of the prices they receive and the mere reporting of prices to them will not satisfy their needs. They will desire to know the factors governing these prices and expect, if possible, an advice for framing their marketing policies. The regulated market is an ideal institution to do this work because it is in a position to collect all the required information and also because, since it supervises the day to day dealings, it is expected to know the market conditions better than any other institution.

Some such effort is made by the regulated markets in Madras. The Expert Committee has observed that in these markets, "the Market Committees not only displayed a variety of statistical data including the weather conditions, the progress of the crop, acreage, trend of prices, trade position, movement of commodities, etc., but also published a weekly report of arrivals, disposals, stock prices, etc., along with a short resume of agricultural operations and of the trend of the market. This report is priced so as to cover the postage and paper costs and made available to the neighbouring Market Committees as well. It is

also published in daily papers."<sup>1</sup>

The Expert Committee has dealt with this aspect in detail. It has recommended that "the daily report (of the Market Committee) should cover daily arrivals in the market, the trend of prices, the number of bargains done in the market yard and the trend of demand and supply. This information should not only be displayed on the notice board but should also be circulated in the village by post. In addition to this, each Market Committee should prepare and supply a weekly market review covering not only the factors governing the trend in the market it regulates but also in associated markets. The weekly report should also mention the basis on which the price parity is worked out, so that the agriculturists can know the price relationship between the two markets."<sup>2</sup> It has further recommended that "the Marketing Research Section should be responsible for the building up of the whole organisation from the bottom to the top with the regulated market as the base, the neighbouring markets as the link and the terminal market in Bombay as the peak so that the market intelligence service can be supplied to all as well as received from different sources, directed properly from the expert level and also pooled at the top for the purpose of

---

<sup>1</sup> Report of the Expert Committee on the Review of the Bombay Agricultural Produce Markets Act, 1939, Govt. of Bombay, 1956, p. 76.

<sup>2</sup> Op. cit., pp. 77-78.

interpreting it and this, in turn, can again be made available to the markets in the assembling centres."<sup>3</sup>

Unfortunately, these recommendations are only partly implemented. At present, the Market Committees remain essentially an agency supplying the price-information required by the Marketing Research Officer who makes arrangements for relaying it on radio and publishes it in the weekly review issued by his office. The Market Committees are not required to do any work independently. It is, therefore, time to implement these recommendations fully, at least in the case of those Market Committees which are well-established. Once this is done, the Market Committees will understand the utility of collecting and maintaining the necessary information in an orderly manner and then, with the addition of some well-trained staff and with a proper guidance from the Marketing Research Officer, will assume a dynamic role of rendering useful service to the cultivators, traders, cooperative societies and the Government. They will then be in possession of a large amount of data, compiled and maintained in a systematic manner which will be of immense use for economic research. For enabling the regulated markets to assume such a role, however, attempts should be made by the Marketing Research Officer to reduce the unnecessary administrative work of the Market Committees and to follow a clear line of procedure. Only then will the regulated markets serve the purpose necessitated by the changing times.

---

<sup>3</sup> Ibid., p.78.

## SELECT BIBLIOGRAPHY

### I BOOKS :

Agricultural Economics Research Section, The Delhi School of Economics, Decline of Agricultural Prices in U.P. and Punjab, University Press, Delhi 8, 1956.

Aiyer, A.K.Y.N., Principles of Crop Husbandry in India, Bangalore Press, Bangalore City, 1948.

Bahl, J.C., The Oilseeds Trade of India, New Book Co., Bombay, 1938.

Cassels, John M., A Study of Fluid Milk Prices, Harvard University, Cambridge, Mass., 1937.

Commonwealth Economic Committee, Vegetable Oils and Oilseeds, A Review (Yearly Publication), Her Majesty's Stationery Office, London.

Cox, R.W., Factors Influencing Prices of Corn, Minnesota Agricultural Experiment Station, Technical Bulletin No.81.

Dantwala, M.L., Marketing of Raw Cotton in India, Longmans, Green and Co., Ltd., Bombay, 1937.

Davis, H.T., The Analysis of Economic Time Series, The Principia Press, Inc., Bloomington, Indiana, 1941.

Dutt, C.P. and Fugh, B.M., Principles and Practice of Crop Production in India, Parts I and II, Kitabistan, Allahabad, 1947.

Ezekiel, Mordecai, and Fox, C.A., Methods of Correlation and Regression Analysis (Third Edition), John Wiley & Sons, Inc., New York, 1959.

Goris, H., Price Determining Factors in American Tobacco Markets - Experimental Approach in Statistical Analysis, North-Holland Publishing Co., Amsterdam, 1954.

Foote, R.J., Analytical Tools for Studying Demands and Price Structures, Agriculture Handbook No. 146, U.S. Department of Agriculture, Washington D.C., 1948.

Gokhale Institute of Politics and Economics, महाराष्ट्र कृषिजीवन : सांख्यिकीय दर्शन (Marathi), Gokhale Institute of Politics and Economics, Poona-4, 1961.

Government of Bombay, Report of the Enquiry into Regulated Markets in Bombay State, Government of Bombay, 1951.

Government of Bombay, Report of the Expert Committee on the Review of the Bombay Agricultural Produce Markets Act, 1939, Government of Bombay, 1956.

Government of Bombay, Summary Report of Groundnut in the Bombay State, 1951, Marketing Research Officer, B.S., Bombay, 1954.

Government of India, Agricultural Marketing in India : Regulated Markets, Vol. I : Legislation, Directorate of Marketing and Inspection, Ministry of Food and Agriculture, Delhi, 1956.

Government of India, A Bibliography of Indian Agricultural Economics, Directorate of Economics and Statistics, Ministry of Food and Agriculture, Delhi, 1958.

Government of India, Collection of Agricultural Prices in India, Report of the Enquiry Committee, Ministry of Food and Agriculture, Delhi, 1954.

Government of India, Guide to Oilseeds Statistics, Directorate of Economics and Statistics, Ministry of Food and Agriculture, Delhi, 1949.

Government of India, Oilseeds in India (Yearly Publication), Directorate of Economics and Statistics, Ministry of Food and Agriculture, Delhi.

Government of India, Report on the Marketing of Groundnut in India, Ministry of Food and Agriculture, Government of India, Delhi, 1953.

Indian Oilseeds Committee, A Review of Activities and Achievements, Indian Central Oilseeds Committee, New Delhi, 1949.

Kulkarni, K.R., Agricultural Marketing in India, Vols. I and II, The Co-operative Book Depot, Bombay 1, 1956.

Kuznets, Simon, Seasonal Variations in Industry and Trade, National Bureau of Economic Research, New York, 1953.

Mahendru, I.D., Some Factors Affecting the Price of Wheat in Punjab, Board of Economic Inquiry, Punjab, Publication No. 49, 1937.

Rath, Nilakantha, A Critical Review of Research in Agricultural Economics in India, Unpublished Doctoral Dissertation, University of Poona, 1960.

Samuelson, P.A., Intertemporal Price Equilibrium : A Prologue to the Theory of Speculation, Zeitschrift des Instituts Fur Weltwirtschaft - An der Universitat Kiel, 1957.

Schultz, Henry, Theory and Measurement of Demand, The University of Chicago Press, Chicago, Illinois, 1957.

Shepherd, Geogfrey S., Agricultural Price Analysis (Third Edition), The Iowa State College Press, Ames, Iowa, 1950.

Shepherd, Geoffrey S., Marketing Farm Products - Economic Analysis, The Iowa State College Press, Ames, Iowa, 1955.

Social Science Research Council, Research in Marketing of Farm Products : Scope and Method, Edited by John D.Black, S.S.R.C.Bulletin No.7, 203 Park Avenue, New York, 1932.

Social Science Research Council, Research in Prices of Farm Products : Scope and Method, Edited by John D.Black, S.S.R.C. Bulletin No.8, 203 Park Avenue, New York, 1933.

Stover, Howard J., Relation of Daily Prices to the Marketing of Hogs at Chicago, Cornell University Agricultural Experiment Station, Bulletin 534, Ithaca, New York, 1932.

Srivastava, R.S., Agricultural Marketing in India and Abroad, Vora and Co., Bombay, 1960.

Thomas, P.J. and Sastry, N.S., Commodity Prices in South India, 1918-39, University of Madras, Madras, 1940.

Thomsen, F.L. and Foote, R.J., Agricultural Prices, McGraw-Hill Book Company, Inc., New York, 1952.

Waite, W.C. and Trelogan, H.C., Agricultural Market Prices, John Wiley & Sons, Inc., New York, 1951.

Warntz, William, Toward a Geography of Price, University of Pennsylvania Press, Philadelphia, 1959.

Warren, G.F. and Pearson, F.A., Interrelationships of Supply and Price, Cornell University Agricultural Experiment Station, Bulletin 466, Ithaca, New York, 1928.

Waugh, F.W., Readings on Agricultural Marketing, The Iowa State College Press, Ames, Iowa, 1953.

II ARTICLES :

- Bean, Louis, "The Farmers' Response to Price," Journal of Farm Economics, Vol. XI, No.3 (July 1929).
- Bhargava, N.M., "Oilseeds and Vegetable Oils Position in India", Agricultural Situation in India, Vol. VIII, No.7 (Oct. 1953).
- Enke, S., "Equilibrium Among Spatially Separated Markets : Solution by Electric Analogue", Econometrica Vol.19, No.1 (Jan.1951).
- Ezekiel, M., " A Statistical Examination of Factors Related to Lamb Prices", The Journal of Political Economy, Vol. XXXV, No.2 (April, 1927).
- Ezekiel, M., "Statistical Analysis and the 'Laws' of Price", Quarterly Journal of Economics, Vol. XLII, No.2 (Feb.1928).
- Flux A.W., "The Measurement of Price Changes - Retrospect and Prospect", Journal of Royal Statistical Society, Vol. XCVI, Part IV, (1933).
- Giles, B.D., "Agriculture and Price Mechanism", Oxford Studies in the Price Mechanism, edited by Wilson T. and Andrews, P.W.S., Oxford Clarendon Press, 1951.
- Commodity Studies for India, "Groundnuts", Agricultural Situation in India, Vol. III, No. 10, (Jan. 1949).
- Hedden, W.P., "Studies of Market Supply, Price and Sales as a Basis For Control of Distribution of Perishables", Journal of Farm Economics, Vol.VIII, No.2 (April, 1926).
- Marshall, George, "Cottonseed - Joint Products and Pyramidal Control", Price and Price Policies, by Walton Hamilton and others, McGraw-Hill Book Company Inc., New York, 1938.
- McPherson, W.K., "How well Do the Auctions Discover the Price of Cattle ?", Journal of Farm Economics, Vol. XXXVIII, No.1 ( Feb., 1956).
- Nicholls, W.H., "Market-sharing in the Packing Industry", Journal of Farm Economics, Vol. XXII, No.1 (Feb.,1940).
- Parthasarathy, G., "Prices of Rice During the Second Five-Year Plan Period at Selected Market Centres in the Southern Zone", Artha Vijnana, Vol.3, No.2 (June 1961).

Pendharkar, V.G., and Mathur, G.D., "Monthly Fluctuations in Raw Jute Prices", Sankhya, Vol.6, Part 3 (1943).

Poduval, R.N., "Export Duties on Agricultural Commodities", Agricultural Situation in India, Vol.VIII, No.6, (Sept.1953).

Powe, H.B., "Economic Significance of Changes in Market Organization", Journal of Farm Economics, Vo. XXII, No.1, (Feb. 1940).

Samuelson, P.A., "Spatial Price Equilibrium and Linear Programming", American Economic Review, Vol.XLII, No. 3 (June, 1952).

Singh, Mohinder, "Vegetable Oilseeds and Oils", Agricultural Situation in India, Vol. VII No.6 (Sept. 1952) (Reprinted in Studies in Agricultural Economics, Vol.I, Economic and Statistical Adviser, Ministry of Food and Agriculture, Govt. of India, 1954).

Suits, Daniel B. and Koizumi, Susumu, "The Dynamics of Onion Market", Journal of Farm Economics, Vol. XXXVIII, No.2 (May 1956).

Whelpto, P.K., "Seasonal Fluctuations in the Price of Cotton", Journal of Farm Economics, Vol. VII No.4 (Oct.1925).

Working, Holbrook, "Differential Price Behaviour as a subject for commodity Price Analysis", Econometrica, Vol.3, No.4 (Oct. 1935).

Working, Holbrook, "Factors Influencing Price Differentials Between Potato Markets", Journal of Farm Economics, Vol.VII No.4 (Oct., 1925).

Working, Holbrook, "New Ideas and Methods for Price Research", Journal of Farm Economics, Vol.XXXVIII, No.5, (Dec., 1956).

Working, Holbrook, "Practical Applications of Correlation Studies of Prices", Journal of Farm Economics, Vol. VIII No.2 (April 1926).

Working Holbrook, "Price Effects of Canadian Wheat Marketing", Wheat Studies of the Food Research Institute, Vol.XIV, No.2 (Oct. 1937).

Working Holbrook, "The Timing of wheat Marketing in Western Canada", Wheat Studies of the Food Research Institute, Vol. XIII, No.2, (Oct. 1936).