80

MARKETING EFFICIENCY

TO OF AGRICULTURE

IN KONKAN REGION

OF MAHARASHTRA STATE

INDIA

MARKETING EFFICIENCY OF AGRICULTURE IN KONKAN REGION OF MAHARASHTRA STATE, INDIA

A thesis
submitted to the
University of Poona
For the degree of
Doctor of Philosophy in Economics

By: A. A. RANE

Gokhale Institute of Politics and Economics
Pune 411 004.

November 1992

Certificate

Certified that the work incorporated in this Thesis MARKETING EFFICIENCY OF AGRICULTURE IN KONKAN REGION OF MAHARASHTRA STATE, INDIA submitted by SHRI A.A. RANE was carried out by the candidate under my supervision. Such material as has been obtained from other sources has been duly acknowledged in the Thesis.

A.K. MITRA Supervisor

Acknowledgements

I express my deep sense of gratitude to DR.A.K.MITRA, GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, Pune for his guidance, valuable suggestions, keen interest and constant encouragements throughout the progress of this work. I also sincerely thank him for bringing the Thesis to the present shape.

I sincerely thank DR.V.S.CHITRE - Professor & Ex-Director, DR.D.C.WADHWA Director, and DR.P.VENKATRAMAIAH - Joint Director of GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, for their encouragements and for providing me an opportunity to work and use all the facilities in the Institute required for completing this work.

I record my profound thanks to DR.S.B.KADREKAR - Vice-Chancellor, KONKAN KRISHI VIDYAPEETH, Dapoli, District Ratnagiri, for his constant encouragements and for granting me deputation for completing this work at Gokhale Institute of Politics and Economics, Pune. I also thank Scientists, Administrative Officers and Finance Officers of Konkan Krishi Vidyapeeth, Dapoli, District Ratnagiri for their encouragements and necessary help needed throughout the progress of this work. I also thank PROF.V.H.PATIL - Associate Director of Research, Scientists and other staff members of AGRICULTURAL RESEARCH STATION, Karjat for their encouragements and best wishes.

I sincerely thank DR.S.N.GADAM - Registrar, DR.V.R.GOKHALE - Deputy Registrar, SHRI R.A.KULKARNI - Accountant, SHRI R.D.KHODASKAR - Field Inspector, SHRI D.R.GAYKWAD, MRS.V.V.NATU and other staff members of GOKHALE INSTITUTE OF POLITICS AND ECONOMICS for their encouragements and best wishes.

I sincerely thank MRS.A.A.KHER and MRS.ANAGHA KULKARNI for helping me in completing Computer work efficiently. I also thank SHRI MOHAN MARATHE for entering voluminous amount of data in Computer at GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, Pune.

I thank all the staff of GOKHALE INSTITUTE LIBRARY for their help throughout the progress of the work.

I thank INDIAN COUNCIL OF AGRICULTURAL RESEARCH, New Delhi, for awarding me Teacher's Fellowship for about one and a half year. I also thank INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH CENTRE of GOKHALE INSTITUTE OF POLITICS AND ECONOMICS for sanctioning me contingency grant for data processing.

My heartiest thanks to SHRI SHIRISH KULKARNI of SARK Typographics, Pune for neat and diligent Reprographic Services of this Thesis.

I sincerely acknowledge the help and encouragements I received from my advisors, friends, colleagues and family members.

Gokhale Institute of Politics and Economics Pune 411 004.

NOVEMBER 1992 -

Par 20/11/92

A.A. RANE

Table of Contents

CHAPTER NO.	TITLE .		PAGE NO.
-	Acknowledgements		[i]
-	List of Tables	[viii]
1	Introduction		01
1.1	OBJECTIVES	•••	03
1.2	HYPOTHESES	•••	05
1.3	CHARACTERISTICS OF THE AREA STUDIED	•••	07
1.3.1	Seasons	•••	08
1.3.2	Rainfall	•••	08
1.3.3	Relative Humidity	•••	10
1.3.4	Temperature	•••	10
1.3.5	Agronomic Factors	•••	11
1.3.6	Crops Grown	•••	12
1.4	SAMPLING DESIGN	•••	13
1.4.1	Sample Farmers	•••	14
1.4.2	Sample Traders	•••	16
1.5	SIZE OF HOLDING OF SAMPLE FARMERS		17
1.6	DATA BASE OF THE STUDY	•••	20
1.6.1	Primary Sources	•••	20
1.6.2	Secondary Sources	•••	20
2	Some Aspects Of Foodgrain Production In Maharashtra		22
2.1	REGIONWISE PRODUCTION OF ALL FOODGRAINS (MAHARASHTRA)	•••	22
2.2	REGIONWISE AREA UNDER FOODGRAIN CROPS IN MAHARASHTRA	•••	25
2.3	REGIONWISE PER HECTARE YIELD OF FOODGRAINS IN MAHARASHTRA	•••	27
2.4	REGIONWISE PADDY PRODUCTION IN MAHARASHTRA	•••	31
2.5	REGIONWISE AREA UNDER RICE CROP IN MAHARASHTRA	•••	36
2.6	REGIONWISE PER HECTARE YIELD	•••	39

Table of Contents [Contd...]

CHAPT NO.	ΓER	TITLE		PAGE NO.
3		Cropping Pattern	•••	44
3.	1	EXISTING CROPPING PATTERN IN STUDY AREA	•••	. 44
3.	2	FACTORS AFFECTING CROPPING PATTERN	•••	45
	3.2.1	Climatic Factors	•••	45
	3.2.2	Agronomic Factors	•••	46
	3.2.3	Economic Factors	•••	47
4		Analytical Procedures	• • •	51
4.	1	MULTIPLE REGRESSION ANALYSIS	•••	51
	4.1.1	For Examining Casual Relationship between Marketable Surplus As Dependent Variable and Factors Affecting Marketable Surplus As Independent Variables	•••	51
	4.1.2	For Examining Causal Relationship Between Total Annual Market Arrivals of Rice and Production of Rice, Time Variable in Maharashtra	•••	52
4.2	!	CORRELATION	•••	53
4.3		INDEX NUMBERS	•••	55
	4.3.1	Index Numbers of All Foodgrain Production in Maharashtra	•••	55
	4.3.2	Yield Index Numbers	• • •	55
	4.3.3	Area Index Numbers	• • •	56
	4.3.4	Price Index Numbers	•••	56
4.4		PRICE SPREAD	•••	57
		<u>Marketable Surplus</u>	• • •	58
5.1		DEFINITION		58
5.2		IMPORTANCE OF ESTIMATION OF MARKETABLE SURPLUS	•••	58
5.3		MARKETABLE SURPLUS OF PADDY IN AREA UNDER STUDY	•••	61
5.4		IRRIGATION AND MARKETABLE SURPLUS	•••	67
5.5		LEVY AND MARKETABLE SURPLUS	•••	70
5.6		FACTORS AFFECTING MARKETABLE SURPLUS	•••	71

CHAPTER NO.		R	TITLE		
	5.7		CORRELATION BETWEEN MARKETABLE SURPLUS AND INDEPENDENT VARIABLES AT KARJAT MARKET CENTRE	•••	72
	5.8		CORRELATION BETWEEN MARKETABLE SURPLUS AND INDEPENDENT VARIABLES AT PANVEL MARKET CENTRE	•••	72
	5.9		CORRELATION BETWEEN MARKETABLE SURPLUS AND OTHER INDEPENDENT VARIABLES AT KALYAN CENTRE	•••	75
	5.10)	REGRESSION ANALYSIS	•••	77
		5.10.1	Multicollinearity	• • •	78
		5.10.2	Production Functions	• • •	78
		5.10.3	Karjat Centre	• • •	79
		5.10.4	Panvel and Kalyan Centre	• • •	82
		5.10.5	Study Area		83
		5.10.6	Policy Implications		84
6			Marketing Efficiency		85
	6.1		NEED FOR EFFICIENT MARKETING	•••	85
	6.2		MARKETING EFFICIENCY	•••	86
		6.2.1	Technical Efficiency	• • •	86
		6.2.2	Economic Efficiency		87
	6.3	2	CONDITIONS OF PERFECTLY COMPETITIVE MARKET AND RICE MARKETING IN STUDY AREA	•••	88
	6.4		RICE MARKETING IN STUDY AREA AND VARIOUS CONDITIONS OF PERFECTLY COMPETITIVE MARKET	•••	88
		6.4.1	Large Number of Buyers and Sellers		88
		6.4.2	Homogeneous Product		89
		6.4.3	Free Entry or Exit	• • •	89
		6.4.4	Perfect Knowledge	• • •	90
		6.4.5	Absence of Transport Cost		90
		6.4.6	Perfect Mobility of Factors of Production	• • •	90
	6.5		REGULATED RICE MARKETS AND PATTERN OF RICE MARKETING IN STUDY AREA	•••	91
	6.6		CHANNELS OF RICE DISTRIBUTION		93

Table of Contents [Contd...]

CH NO	APTER •	TITLE		PAGE NO.
	6.7	PRICE SPREAD	• • •	93
	6.7.1	Price Spread of Rice in Study Area	•••	95
	6.8	DISTANCE OF FARM FROM MARKET CENTRE	• • •	109
	6.9	MARKET INFORMATION	• • •	110
	6.10	STORAGE LOSSES	• • •	111
7		Paddy Price Trend and Market Price Integration	•••	113
	7.1	PRICE TREND	• • •	113
	7.2	SEASONAL VARIATION IN PADDY PRICES	• • •	115
	7.3	CORRELATION BETWEEN PER QUINTAL PRICE OF PADDY AND OTHER VARIABLES AT PEN REGULATED MARKET (RAIGAD DISTRICT)	•••	118
	7.4	MARKET PRICE INTEGRATION	•••	
	7.5	MEASUREMENT OF PADDY MARKET PRICE INTEGRATION IN STUDY AREA	•••	122
	7.6	PADDY MARKET PRICE INTEGRATION WHEN DISTANTLY LOCATED MARKETS ARE CONSIDERED	•••	125
	7.7	RICE MARKET PRICE INTEGRATION WHEN DISTANTLY LOCATED MARKETS ARE CONSIDERED	•••	127
	7.8	VARIATION IN MONTHLY WHOLESALE PRICES OF PADDY - ALL INDIA LEVEL	•••	130
	7.9	MONTHLY WHOLESALE PRICES OF RICE AT DIFFERENT MARKETS IN THE COUNTRY	•••	132
8		Market Arrivals of Rice		134
	8.1	PRODUCTION, MARKETABLE SURPLUS, MARKETED SURPLUS AND MARKET ARRIVALS	• • •	134
	8.2	MARKET ARRIVALS OF IMPORTANT FOODGRAIN CROPS IN INDIA	• • •	135
	8.3	STATEWISE MARKET ARRIVALS OF RICE	•••	137
	8.4	MARKET ARRIVALS OF RICE IN MAHARASHTRA		139
	8.5	CORRELATION BETWEEN MONTHLY MARKET ARRIVALS OF RICE AND OTHER VARIABLES AT PEN (RAIGAD) REGULATED MARKET	•••	141
	8.6	ANNUAL MARKET ARRIVALS OF PADDY IN REGULATED MARKETS OF RAIGAD AND THANE DISTRICTS (1989-90)	•••	143
	8.7	CAUSAL RELATIONSHIP BETWEEN MARKET ARRIVALS OF RICE AND PRODUCTION OF RICE, TIME VARIABLE IN MAHARASHTRA	• • •	147

[vii]

Table of Contents [Contd...]

NO.	TITLE		PAGE NO.
9	Financial Position of Regulated Markets in Maharashtra	•••	150
9.1	PERMANENT FUNDS	•••	151
9.2	LOANS	•••	153
9.3	GRANTS	•••	153
9.4	FINANCIAL POSITION OF REGULATED MARKETS IN KONKAN	•••	154
9.5	DIVISIONWISE EXPENDITURE MADE ON CONSTRUCTION BY REGULATED MARKETS IN MAHARASHTRA	•••	156
9.6	EXPENDITURE MADE ON CONSTRUCTION OF INFRASTRUCTURE FOR REGULATED MARKETS IN KONKAN	•••	158
9.7	DIVISIONWISE INCOME AND EXPENDITURE OF REGULATED MARKETS IN MAHARASHTRA	•••	162
9.8	INCOME AND EXPENDITURE OF REGULATED MARKETS IN KONKAN	•••	163
.0	<u>Conclusions and Suggestions</u>		169
10.1	CONCLUSIONS	•••	169
10.2	SUGGESTIONS	•••	184
	<u>Appendices</u>		201
-	<u>Bibliography</u>		211
		Ì	

[viii]

<u>List of Tables</u>

CHAPTER NO.	TABLE NO.	TITLE .		PAGE NO.
1	1.1	DIVISIONWISE AVERAGE ANNUAL RAINFALL RECEIVED DURING 1985-86 TO 1987-88 IN MAHARASHTRA	•••	09
	1.2	DISTRIBUTION OF SAMPLE FARMERS (CENTREWISE)	•••	15
	1.3	DISTRIBUTION OF SAMPLE TRADERS		18
	1.4	AVERAGE SIZE OF HOLDING OF SAMPLE FARMERS	•••	19
2	2.1	DIVISIONWISE PRODUCTION OF ALL FOODGRAINS (MAHARASHTRA)	•••	23
	2.2	DIVISIONWISE INDEX NUMBERS OF ALL FOODGRAIN PRODUCTION (MAHARASHTRA)	•••	24
	2.3 .	DIVISIONWISE AREA UNDER TOTAL FOODGRAINS	•••	26
	2.4	DIVISIONWISE INDEX NUMBERS OF AREA UNDER TOTAL FOODGRAINS	•••	28
	2.5	DIVISIONWISE PER HECTARE YIELD OF FOODGRAINS IN MAHARASHTRA	•••	29
	2.6	DIVISIONWISE YIELD INDEX OF TOTAL FOODGRAINS	•••	30
	2.7	DIVISIONWISE PRODUCTION OF RICE IN MAHARASHTRA	•••	32
	2.8	DIVISIONWISE INDEX NUMBERS OF RICE PRODUCTION IN MAHARASHTRA	•••	34
	2.9	PROPORTION OF RICE PRODUCTION TO TOTAL FOODGRAIN PRODUCTION IN MAHARASHTRA	•••	35
	2.10	DIVISIONWISE AREA UNDER RICE CROP IN MAHARASHTRA	•••	37
	2.11	DIVISIONWISE INDEX NUMBERS OF AREA UNDER RICE CROP IN MAHARASHTRA	•••	38
	2.12	AREA UNDER SUMMER RICE IN MAHARA SHT RA		40
	2.13	DIVISIO NWI SE AVERAGE YIELD OF RICE CR OP IN MAHARASHTRA	•••	41
÷	2.14	DIVISIONWISE INDEX NUMBERS OF AVERAGE YIELD OF RICE CROP IN MAHARASHTRA		42

CHAPTER NO.	TABLE NO.	TITLE	PAGE NO.
3 .	3.1	CORRELATION COEFFICIENTS BETWEEN AREA UNDER RICE AND OTHER FACTORS	50
5	5.1	DISTRIBUTION OF MARKETABLE SURPLUS OF PADDY IN AREA UNDER STUDY (1989-90)	63
	5.2	DISTRIBUTION OF MARKETABLE SURPLUS OF PADDY POOLING THREE CENTRES TOGETHER	65
	5.3	AVERAGE MARKETABLE SURPLUS IN STUDY AREA OVERALL	66
	5.4	DISTRIBUTION OF MARKETABLE SURPLUS IN IRRIGATED AND IN UNIRRIGATED AREA	68
	5.5	AVERAGE MARKETABLE SURPLUS PER SAMPLE FAMILY IN IRRIGATED AND IN UNIRRIGATED AREA	69
	5.6	CORRELATION MATRIX FOR KARJAT CENTRE	73
	5.7	CORRELATION MATRIX FOR PANUEL CENTRE	74
1.0	5.8	CORRELATION MATRIX FOR KALYAN CENTRE	76
	5.9	REGRESSION COEFFICIENTS OF LINEAR	80
5	6.1	PRODUCER'S SHARE IN CONSUMER'S RUPEE (PRICE SPREAD) FOR KARJAT RICE MARKET FOR THE YEAR 1989-90	. 99
	6.2	MARKETING COSTS AND PROFIT AT KARJAT RICE MARKET FOR THE YEAR 1989-90	100
	6.3	PRODUCER'S SHARE IN CONSUMER'S RUPEE (PRICE SPREAD) FOR PANVEL RICE MARKET FOR THE YEAR 1989-90	101
	6.4	MARKETI NG COSTS AND PROFIT AT PANUEL RICE MARKET FOR THE YEAR 1989-90	102
	6.5	PRODUCE R'S SHARE IN CONSUMER'S RUPEE (PRICE S PR EAD) FOR KALYAN RICE MARKET FO R THE YEAR 1989-90	103
	6.6	MARKETING COSTS AND PROFIT AT KALYAN RICE MARKET FOR THE YEAR 1989-90	104
	6.7	STORAGE CAPACITY AND CAPITAL INVESTED BY TRADERS (POOLED DATA)	112
	7.1	YEARWISE PADDY PRICES IN STUDY AREA	114
	7.2	MONTHWISE PADDY PRICES (1989-90)	116
	7.3	CORRELATION BETWEEN PER QUINTAL PRICE OF PADDY AND OTHER VARIABLES AT PEN REGULATED MARKET	119

CHAPTER NO.	NO.	TITLE		PAGE NO.
	7.4	PADDY MARKET PRICE INTEGRATION (AVERAGE ANNUAL PRICE DATA [1983-84 TO 1989-90])		123
-	7.5	PADDY MARKET PRICE INTEGRATION (MONTHLY AVERAGE PRICE DATA FOR 1989-90	•••	124
	7.6	PADDY MARKET PRICE INTEGRATION (CORRELATION COEFFICIENTS) BASED ON 1987 AND 1988 PRICES	•••	126
	1.7	RICE MARKET PRICE INTEGRATION (CORRELATION COEFFICIENTS) 1987 AND 1988 PRICES	•••	129
	7.8	AVERAGE MONTHLY WHOLESALE PRICES (1987, 1988) OF PADDY AT DIFFERENT MARKETS AND COEFFICIENT OF VARIATION (C.V.)	•••	131
	7.9	AVERAGE MONTHLY WHOLESALE PRICES (1987, 1988) OF RICE AT DIFFERENT MARKETS AND COEFFICIENT OF VARIATION (C.V.)	•••	133
8	8.1	ESTIMATED ARRIVALS OF WHEAT, GRAM, RICE AND JOWAR FROM VILLAGES INTO WHOLESALE ASSEMBLING MARKETS AS PERCENTAGE OF PRODUCTION - ALL INDIA	•••	136
	8.2	STATEWISE ARRIVALS OF RICE FROM VILLAGES INTO WHOLESALE ASSEMBLING MARKETS AS PERCENTAGE OF PRODUCTION	•••	138
	8.3	YEARWISE INFORMATION OF PRODUCTION AND ARRIVALS OF RICE IN MAHARASHTRA	•••	140
	8.4	CORRELATION BETWEEN MARKET ARRIVALS OF RICE AT PEN MARKET AND OTHER VARIABLES	•••	142
	8.5	MARKET ARRIVALS OF PADDY IN REGULATED MARKETS OF THANE AND RAIGAD DISTRICTS (1989-90)	•••	145
9	9.1	DIVISIONWISE FINANCIAL POSITION (PERMANENT FUNDS, LOANS AND GRANTS) OF REGULATED MARKETS IN MAHARASHTRA	•••	152
	9.2	FINANCIAL POSITION (PERMANENT FUNDS, GRANTS AND LOANS) OF REGULATED MARKETS IN KONKAN	•••	155

CHAPTER NO.	TABLE NO.	TITLE		PAGE NO.
	9.3	FINANCIAL POSITION (PERMANENT FUNDS, LOANS AND GRANTS) OF REGULATED MARKETS	•••	157
	9.4	DIVISIONWISE EXPENDITURE MADE ON CONSTRUCTION BY THE REGULATED MARKET COMMITTEES (MAHARASHTRA)	•••	159
	9.5	EXPENDITURE MADE ON CONSTRUCTION BY REGULATED MARKETS IN KONKAN EXCLUDING BOMBAY CITY		160
	9.6	EXPENDITURE ON CONSTRUCTION FOR BOMBAY CITY, THANE AND RAIGAD DISTRICT REGULATED MARKETS	•••	161
	9.7	DIVISIONWISE TOTAL INCOME AND TOTAL EXPENDITURE OF REGULATED MARKETS IN MAHARASHTRA	•••	164
	9.8	INCOME AND EXPENDITURE OF REGULATED MARKETS IN KONKAN	•••	165
	9.9	INCOME AND EXPENDITURE OF REGULATED MARKETS	•••	167