

**THE STATE AND THE INDIAN SUGAR INDUSTRY 1956-70**

**A THESIS SUBMITTED  
TO  
THE UNIVERSITY OF POONA  
FOR  
THE DEGREE OF  
DOCTOR OF PHILOSOPHY  
IN ECONOMICS**

**BY  
(Mrs.) VIMALA RAGHAVACHARI**

**GOKHALE INSTITUTE OF POLITICS AND ECONOMICS,  
POONA 4**

**JUNE 1973**

## PREFACE

The agro-based sugar industry in India is the second largest organised industry in the country and is important from the points of view of investment and employment. Apart from providing an essential commodity it is a good source of revenue for the State. Promotion of its development has occupied the attention of policy makers, first when protection was granted in 1932 and then when the Industrial Policy Resolution was enacted in 1954. The industry made rapid progress after 1956 when further growth of the industry took place mainly in the co-operative sector, in the tropical States. The industry has shown itself to be sensitive to Government policy and the various controls and regulations. From time to time the Government have appointed committees to study the problems of the industry and suggest a suitable policy framework. Currently the Sugar Industry Enquiry Commission is deliberating on a suitable policy for the future growth of the industry; the report of the Commission is expected by the end of the year.

The present work studies the Central Government policies and regulations which have had an impact on the growth of the industry for the period 1956-1970. The study reveals that the State Policy has succeeded in creating new units in new locations and sugar production has recorded significant increase; but the policy has failed to provide

the necessary stability and motivations for steady growth. A major lacuna in the policy is a lack of long term perspective. An attempt, therefore, is made here to fill up this lacuna, on the basis of the findings of this work. After an introduction in Chapter I, Chapters II, III and IV deal with the necessary pre-conditions for the starting of a sugar producing unit. The controls and regulations affecting the functioning of the sugar unit after it has commenced its operations are discussed in Chapter V and the emerging policy pattern is brought out. A plausible set of supply and demand projections for the years 1980-81 and 1985-86 under existing conditions has been attempted in Chapter VI. Eleven factories, six in the co-operative sector and five in the joint stock (private) sector were selected for case studies, to acquire firsthand knowledge of the local environment and a feel of policy problems as seen by the participants. The case studies are presented in Chapter VII. Chapter VIII gives a summary and conclusions.

The data for the study have been obtained from published sources, from the Directorate of Sugar and Vanaspati, Ministry of Agriculture, Government of India, from the Indian Sugar Mills Association, New Delhi, from the National Federation of Co-operative Sugar Factories Ltd., New Delhi and from individuals. The case studies were undertaken with the help of a questionnaire. Although full effort has been made to give data in every instance for the period 1956-1970, it has not

always been possible due to the difficulties of obtaining data. In some cases, the data are not available for the earlier years and in certain other instance, the latest year for which data are available, is 1965. The study thus suffers from this inadequacy of data and therefore, even with the best use of the available statistical techniques the conclusions are more indicative than definitive.

The major portion of the work was done at the Gokhale Institute of Politics and Economics, Poona, Maharashtra, during the years 1970-72. Data collection was done at Poona as well as at New Delhi where all the three authorities dealing with the industry are located viz., the Directorate of Sugar and Vanaspati, Ministry of Agriculture, Government of India, Indian Sugar Mills Association and the National Federation of Co-operative Sugar Factories Limited.

The study was done under the guidance of Dr. M. V. Namjoshi, Professor (Research), Vaikunth Mehta National Institute of Co-operative Management, Poona. I am extremely grateful to him for the numerous discussions he has had with me, the academic freedom he has allowed in the work and in drawing one's own conclusions from the study. I must express my gratitude to his family members too, who have always extended to me a friendly welcome and warm hospitality.

I take this opportunity to express my deep sense of gratitude to Prof. V.M. Dandekar, Director, Gokhale Institute

of Politics and Economics without whose encouragement and help this thesis could not have been submitted. Amidst his extremely busy schedule, he always found time to consider any problem I took to him, academic or non-academic, and make valuable suggestions.

I am grateful to the authorities of the Institute and to Mr. D. P. Apte, the Registrar, for the allotment of residential accommodation which enabled me to keep my two children with me. I am grateful to them again and to the Library Staff, particularly Mr. D. R. Joshi and Dr. V. D. Divekar, for the excellent library facilities and their helpfulness.

I could not have started my research work without the study leave of two years, granted to me by the authorities of Miranda House, University College for Women, Delhi University, where I am a staff member in the Department of Economics. I am particularly grateful to Dr. (Miss) A. C. Janaki Amma, then the Head of the Department of Economic and now the Principal, for the encouragement she had extended to me in this project.

I have no words to express adequately my deep gratitude to Mr. H. Majumdar of the Registrar General's Office, Government of India for the interest he has shown in my work, particularly in the quantitative aspects. His detailed comments have helped me greatly, especially with regard to the projections discussed in Chapter VI.

My thanks are also due to Mr. Sarwan Kumar of the Perspective Planning Division of the Planning Commission, Government of India for the many useful suggestions he made with regard to the projections and for making available the required data.

Mr. N. S. Narasimhan, formerly of the Ministry of Industry and Trade, read the entire manuscript and made many useful suggestions for which I am much indebted to him.

Mr. A. K. Bose, Deputy Director, the Sugar Directorate, Government of India has spared no pains, whenever I had wanted information or data, to get them for me. I have benefited from discussions with him and I record here my gratitude to him.

I am grateful to Mr. L. N. Wahi, Secretary, Indian Sugar Mills Association, for his ready help, whenever I had approached him. I also wish to record my thanks to Mr. Gyan Chandra, Secretary, National Federation of Co-operative Sugar Factories Ltd., for his help.

I wish to thank the authorities of the factories mentioned in the 'Case Studies' of Chapter VII for the necessary facilities made available for visiting them and the information provided by them.

I am grateful to Dr. B. K. Roy, Map Officer, Registrar General's Office, Government of India, for his suggestions in the drawing of the graphs. And to Mr. Sudhir Kumar Mukerjee, Artist in the Map Division of the same office, I am much

indebted, for the neat reproductions of the sixteen graphs presented in the thesis.

I am greatly obliged to Mr. K.L. Mehta of the Registrar General's Office, Government of India who typed the first draft speedily yet accurately from the often illegible manuscript of Chapters I, II, III, VI, VII and the Appendix.

I cannot adequately express my gratitude to Mr. V. N. Inamdar of the Gokhale Institute without whose helpfulness, his sense of dedication to thesis typing and punctuality I could not have submitted my thesis this June. The speed with which he has done the final typing yet with such neatness is astounding.

Last, but not least, my son, Sunderkrishnan, then aged 12 1/2 years and my daughter Ranjana, then aged 8, by their enthusiastic approval of all I did, by sharing cheerfully in all the discomforts of life in a new city and by their high expectations, provided me the motivation to complete my task. Their presence with me in Poona provided me a home away from home and gave me the necessary tranquility to pursue my research.

Poona.

June 1973.

*Vimala Raghavachari*

(Mrs.) Vimala Raghavachari.

## CONTENTS

	<u>Page</u>
PREFACE	(i)
LIST OF TABLES	(x)
LIST OF GRAPHS	(xxi)
LIST OF ABBREVIATIONS USED	(xxiii)
 <u>Chapter</u>	
I	1 - 75
INTRODUCTION AND PERSPECTIVE	
1.1 Introduction	1
1.2 Historical Perspective	4
1.3 Importance of the Industry in the Country and the International Setting	15
1.4 Sugar Industry in 1956	29
1.5 Identification of Problems	72
II	76 - 150
GROWTH OF THE INDIAN SUGAR INDUSTRY 1956-70: AN EVALUATION OF ITS PERFORMANCE WITH PARTICULAR REFERENCE TO THE CO-OPERATIVE SECTOR	
2.1 Introduction	76
2.2 Policy as Regards Co-operativisation	78
2.3 Development of Sugar Co-operation	83
2.4 Definition of the Criteria and Evaluation of the Co-operative Sector	114
2.5 Nationalisation and Conclusions Regarding the Organisational Policy in the Sugar Industry	143
III	151-236
LICENSING AND LOCATIONAL POLICY	
3.1 Introduction	151
3.2 Licensing Policy of the Govern- ment of India	153
3.3 Factors Influencing the Loca- tional Pattern	177
3.4 Changes in the Locational Pattern	205
3.5 The Sick Mills and Their Rehabilitation	222
APPENDIX TO CHAPTER III	233



<u>Chapter</u>		<u>Page</u>
IV	FINANCING IN THE SUGAR INDUSTRY	237-294
	4.1 Introduction	237
	4.2 Finances of the Joint Stock Sector or the Private Sector in the Sugar Industry	241
	4.3 Financial Position of the Co- operative Units in the Sugar Industry	267
	4.4 Problems of the Buffer Stocks	282
	APPENDIX TO CHAPTER IV	291
V	CONTROLS IN THE SUGAR INDUSTRY	295-395
	5.1 Introduction	295
	5.2 Regulation of the Cost Structure	300
	5.3 Regulation of Price	337
	5.4 The Fiscal Policy in the Sugar Industry	355
	5.5 Regulation of Exports	370
	5.6 Trade Regulations	385
	5.7 The Emerging Policy Pattern	390
VI	FUTURE PROSPECTS	396-437
	6.1 Introduction	396
	6.2 Projections of Supply for the Years 1980-81 and 1985-86	405
	6.3 Demand Projections	420
	6.4 Conclusion	433
VII	CASE STUDIES	438-520
	7.1 Introduction	438
	7.2 Sub-Tropical North	439
	7.3 Tropical Region	461
	7.4 The Summing Up	513
VIII	SUMMARY AND CONCLUSIONS	521-537
	8.1 Positive Role of the State	521
	8.2 The Co-operative Sector and the Growth of the Industry	522
	8.3 Licensing and Location	526
	8.4 Financial Facilities	529

<u>Chapter</u>		<u>Page</u>
VIII	8.5	531
(cont'd.)	8.6	533
	8.7	535
	8.8	537
<u>Appendix</u>		
A	MANUFACTURE OF GUR, KHANDSARI AND SUGAR	538-546
B	A COPY OF THE QUESTIONNAIRE USED TO OBTAIN INFORMATION FROM THE SELECTED FACTORIES FOR THE "CASE STUDIES"	547-550
<u>BIBLIOGRAPHY</u>		551-569

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1.1	Growth of Sugar Industry in India in the Post-Protection Period 1932-1956	9
1.2	Progress of the Indian Sugar Industry 1932-1956	13
1.3	Yield of Cane, Sugar Per Acre and Sugar Recovery in Important Sugar Producing Countries for 1961-62	21
1.4	Number of Factories and Average Daily Crushing Capacity for 1961-62 in Some Selected Cane Sugar Producing Countries (in metric tons)	23
1.5	World Production of Centrifugal (Cane) Sugar (in '000 metric tons)	24
1.6	Percentage of Quality-wise Production of Sugar in India 1969-70	25
1.7	Retail Prices of White Refined Sugar in Selected Countries as on 1st January 1969 (in U.K. pence per pound)	27
1.8	Targets of Production for the Second Five Year Plan for Sugar and Allied Industries	31
1.9	Indian Sugar Industry in 1956 (Statewise)	36
1.10	Progress in the Number and Capacity of Units in the Sugar Industry 1950-51 to 1955-56	40
1.11	Gross Profits as Percentage of Net Assets for 73 Companies	43
1.12	Control, Selective Control, Production, Taxes Wholesale, Ex-factory and Open Market Price of Sugar - 1949-59	46
1.13	Fluctuation in Sugar Price at Important Markets during 1955-56	48
1.14	Increase in Taxes in the Sugar Industry during the Years 1946-47 and 1954-55	49

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1.15	Break-up of the Sugar Price for 1957-58	50
1.16	Net Imports and Exports of Sugar of India - 1952 to 1957	52
1.17	Sugarcane Acreage, Production and Yield Per Acre for 1933-34, 1947-48 and 1956-57	56
1.18	Percentage Distribution of Sugarcane for Different Uses	56
1.19	Statewise Figures of Sugarcane Acreage and Production for 1948-49 and 1956-57	59
1.20	Cane Growers' Societies and Their Work - 1956-57	61
1.21	Per Capita and Total Consumption of White Sugar in Selected Countries for 1956	64
1.22	State-wise Per Capita Consumption of Sugar in India in 1956-57	65
1.23	Trends in Production of Power and Industrial Alcohol from Molasses	69
2.1	Growth of the Number of Working Factories Sectorwise	90
2.2	Statewise Growth of Co-operative Factories in Operation, 1960-70	91
2.3	Proportion of Co-operative to Total Number of Factories, 1955-70	92
2.4	Production of Sugar and Recovery Per cent to Cane 1955-70	95
2.5	Proportion of Production in the Co-operative Sector to Total Production	97
2.6	Percentage of Members of Co-operative Sugar Factories Not Supplying Cane and the Number of Factories Involved in States, 1963-64	99
2.7	Quantity of Cane Crushed by the Co-operative Sugar Factories - 1957-58	100

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
2.8	Quantity of Cane Crushed 1960-70, State-wise and Sectorwise	101
2.9	Working Days in the Co-operative Sector	103
2.10	Cane Payment Arrears as on 31-8-1969	106
2.11	Growth in the Number of Members of the Co-operative Sugar Factories	110
2.12	Installed Annual Sugar Production Capacity and Actual Sugar Production (in lakh tonnes) for the Years 1956-70	118
2.13	Cost of Production of Sugar 1960-66	120
2.14	Working Capital, Value of Production and Their Ratio for Co-operative Sector and Total, 1951-1967 in All-India	122
2.15	Profits Before and After Tax Sectorwise 1955-56	127
2.16	Gross Profits as Percentage of Capital Employed for Selected Industries	129
2.17	Dividends as Percentage of Total Paid-up Capital	130
2.18	Profit and Loss Account of Co-operative Sugar Societies, 1957-58	131
2.19	Paid-up Capital, Value of Sales and Their Ratio for the Co-operative Sector, 1957-1968	133
2.20	Paid-up Capital, Value of Sales and Their Ratio in the Joint Stock Sector for the Years 1960-61 to 1967-68 (Based on 82 Companies)	134
3.1	Frequency Distribution of Sugar Mills according to Capacities in Selected Countries	158
3.2	Distribution of Sugar Factories according to Size, Measured in Terms of Daily Installed Cane-crushing Capacity	161

(xiv)

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
3.19	Percentage Distribution of Annual Production of Sugar (Installed Capacity) by States	215
3.20	Linear Regression between the Base Year (1950-51) and Each Terminal Year in Terms of Relative Shares (in respect of Annual Sugar Production) (Installed Capacity)	216
✓ 3.21	Distribution Total Workers and Workers in the Sugar Industry by States and Percentage Distribution of Sugar Industry Workers to Total Workers by States - 1956-1966	218
3.22	Percentage Distribution of Workers in the Sugar Industry in the State to Total Workers, in the Sugar Industry, 1956-65	220
3.23	Percentage of Sugar Workers to Total Workers and Location Quotient by States 1956-1966	221
4.1	Total Liabilities of 82 Sugar Companies, 1960-1965	244
4.2	Assets Growth in the Sugar Industry	245
4.3	Consolidated Balance Sheet of Indian Sugar Industry for 1967 and 1970	246
4.4	Financial Position of an Average Company of Sugar Industry in India, 1961-70	247
4.5	Capital and Net Worth, Profits, Dividends and Profitability Ratios for the Sugar Industry, 1960-65	250
4.6	Profitability Ratios of the ISMA and the Second Central Wage Board	252
4.7	Gross Profits as Percentage of Sales and Total Capital Employed, Statewise Figures	253
4.8	Dividends as Percentage of Total Paid-up Capital in the Sugar Industry	254
4.9	Average Profit Per Company Per Annum, 1960-65	255
4.10	Gross Profits as Percentage of Total Capital Employed in Different Industries, 1960-1966	257

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
3.3	Median, Quartiles and Standardised Semi-Inter-Quartile Range for the Years 1963-64, 1965-66, 1967-68 and 1969-70 in the Indian Sugar Industry	163
3.4	Progress of Licences and Installed Capacity Over the Plans	166
3.5	Licensed/Recommended and Installed Capacity	167
3.6	Number of Growers and Workers Dependent on the Sugar Industry	171
3.7	Chemical Composition of the Sugarcane Stalk	178
3.8	Sugarcane Yield Compared to That of Other Countries for 1961-62	181
3.9	Yield of Cane, Sugar Per Acre and Sugar Recovery in Some Countries for 1961-62	183
3.10	Area Under Sugarcane and Production of Sugarcane, Yield of Cane Per Acre and Recovery of Sugar Per Cent Cane for the Period 1960-61 to 1969-70	186
3.11	Percentage Distribution of Area under Sugarcane and Sugar Production for the Period 1960-61 to 1969-70 by States	188
3.12	Geographical Area under Crops and under Sugarcane	189
3.13	Sugar Production and Surplus or Deficit by States, 1956-57 to 1969-70	191
3.14	Percentage of Sugarcane Utilised for Sugar Production by States for 1961-62 to 1969-70	196
3.15	Percentage Utilisation of Cane Crop for Various Purposes from 1955-56 to 1967-68	197
3.16	Index of Industrialisation	203
3.17	Statewise Number of Factories Working and Sugar Production for the Period 1956-57 to 1969-70 and Their Percentage Distribution	207
3.18	Sugar Recovery Percentage in Tamil Nadu, 1963-70	211

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
4.11	Profitability Ratios Industrywise, 1965-66, 1966-67 and 1967-68	258
4.12	Average Yield of Investments in Share of Companies	260
4.13	Capital Gain or Loss in Sugar Shares for the Period 1961 to 1968	261
4.14	Capital Gain or Loss in Shares of Selected Companies, 1961 to 1968	262
4.15	Sources of Funds in the Joint Stock Sector: 81 Companies of the Sugar Industry	266
4.16	The Pattern of Financing in a Co-operative Sugar Factory with a Daily Crushing Capacity of 1250 Tonnes	268
4.17	List of the Co-operative Factories Which have Completely Repaid the Initial Loan	272
4.18	Statewise Compulsory Deposits Collected Towards Share Capital in the Co-operative Sector in the Sugar Industry, 1966-67 and 1967-68	273
4.19	Share Capital of the Sugar Factories in the Co-operative Sector 1960-61 to 1969-70	274
4.20	Borrowings as Percentage of Total Liabilities	278
4.21	Growth of Total Liabilities in the Co-operative Sector, 1959-60 to 1967-68	280
4.22	Assets in the Co-operative Sector, 1959-60 to 1967-68	281
4.23	Supply and Demand for Sugar, 1960-61 to 1970-71	287
5.1	Break-up of Cost Elements of All Grades of Sugar for 67 Costed Units	301
5.2	Minimum Prices of Sugarcane in Different States	305
5.3	Minimum Sugarcane Price 1950-51 to 1969-70	306



<u>Table No.</u>	<u>Title</u>	<u>Page</u>
5.4	Sugar Percent in Cane (Pol Percent) in the Different Regions, 1963-64 to 1967-68	323
5.5	Percentage of Unskilled Workers Employed on Seasonal Basis to the Total Unskilled Workers in the Sugar Industry	324
5.6	Wage Scales and Graduated Dearness Allowances as per Second Wage Board for the Sugar Industry	329
5.7	Maximum Price Per Quintal of Molasses	333
5.8	Quantity and Value of Exports of Molasses	335
5.9	Control and Decontrol of Sugar Price with Total Production and Consumption	341
5.10	Yearly Average of Wholesale Prices of Indian Sugar in Some of the Important Markets in India for the Years 1947 to 1968: Calendar Year for the Years 1962-70 and Sugar Year till 1960-61	343
5.11	Comparative Figures of Prices of (Controlled) Sugar, Gur and Khandsari for the Period June to December 1967 at Muzaffarnagar (Uttar Pradesh)	345
5.12	Ex-factory Prices of Levy Sugar of D-29 Grade for the Various Zones for 1969-70	348
5.13	Wholesale Prices of Free Sale Sugar in Important Markets	350
5.14	Retail Prices of White Refined Sugar in Selected Countries for the Years 1967, 1968, 1969 and 1970 as on 1st January	351
5.15	Consumer Price Index Numbers for Industrial Workers, Consumer Price Index Numbers for Urban Non-manual Employees, Index Numbers of Wholesale Prices (Food Articles), 1965-66 to 1970-71	353
5.16	Incidence of Taxation Per Quintal of Sugar	357
5.17	Tariff Value for a Quintal of Sugar in 1969-70	358

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
5.18	Cane Cess/Purchase Tax Per Quintal of Cane in 1969-70	359
5.19	Total Tax Collections in the Sugar Industry	361
5.20	Incidence of Taxation on Khandsari Units	363
5.21	Exports as a Percentage of Total Production and Preferential Exports as a Percentage of Total Exports for the Year 1968 in Selected Countries	373
5.22	Quantum and Direction of Indian Sugar Exports	376
5.23	Foreign Exchange Earnings from Sugar Exports and the Quantum of Subsidy for the Years 1961-68	379
5.24	Price of Sugar in Different Markets in 1965	380
5.25	World Sugar Prices, 1958-1970	381
5.26	World Sugar Prices 1957-69	382
5.27	World Net Exports of Centrifugal Sugar and India's Share 1963 to 1970	384
5.28	Offtake of Sugar for the Years 1960-61 to 1970-71	387
5.29	Monthly Releases of Sugar (Levy and Free) Since Partial Decontrol, November 1967 to June 1971	388
6.1	World Per Capita Consumption of Centrifugal Sugar of Selected Countries, 1963 to 1969	399
6.2	Consumption of Sugar, Gur and Khandsari in India for the Years 1956-57 to 1970-71	400
6.3	Per Capita Consumption Per Annum of Sugar, Gur and Khandsari for the Seasons 1956-57 to 1967-68	402
6.4	Statewise Consumption of Sugar, 1956-56 to 1970-71	403
6.5	Per Capita Annual Consumption of Sugar (in kgs.) Statewise for the years 1966-67 and 1967-68	404

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
6.6	Analysis of Variance of Sugar Production Data for the Years 1955-56 to 1970-71 - All-India	407
6.7	Gross Area Sown, Area under Sugarcane and Their Ratio, 1956-1970, All-India	409
6.8	Yield Per Acre of Sugarcane - All-India, 1955-56 to 1969-70 and the Expected Yield for 1980-81 and 1985-86	411
6.9	Projected Supply of Sugar and the Related Factors Used in Its Computation, 1980-81 and 1985-86, All-India	415
6.10	Gross Area under All Crops, the Average Ratio of Area under Sugarcane to Gross Area Sown and Estimated Area under Sugarcane from Selected States - 1980-81 and 1985-86	417
6.11	Estimated Rate of Yield of Sugarcane in Tonnes Per Acre - Selected States, 1980-81 and 1985-86	419
6.12	The Assumptions regarding the Ratio of Sugar Production to Sugarcane Crushed, the Estimated Ratios, the Recovery Rate and Estimated Sugar Production for the Years 1980-81 and 1985-86 - Selected States	421
6.13	Projected Per Capita Disposable Income, Population and Demand for Sugar, 1980-81 and 1985-86 - All-India	428
6.14	The Related Data and Demand Projections for Selected States for 1980-81 and 1985-86	434
6.15	Supply and Demand Projections for Selected Regions for the Years 1980-81 and 1985-86	435
7.1	Share Capital, Reserves and Surplus and Dividends for the Years 1966-67 to 1970-71 in the Upper Doab Sugar Mills Ltd.	441
7.2	Balance Sheet as at 30th September, 1971	442
7.3	Number of Working Days, Quantity of Cane Crushed and the Recovery Percentage for the Years 1966-67 to 1970-71	443

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
7.4	Share Capital, Reserve and Other Funds, Profit and Loss for the Years 1967 to 1970	448
7.5	Number of Working Days, Quantity of Cane Crushed, Recovery Percentage and Production of Sugar for the Years 1966-67 to 1969-70	450
7.6	Analysis of the Working of the D.C.M. for the Years 1964-1970 (Years Ending 30th June)	453
7.7	Recovery Percentage for the Years 1967-68 to 1971-72	455
7.8	Balance Sheet as on 30th June 1969	459
7.9	Recovery Percent for the Years 1967-68 to 1971-72	460
7.10	Sugar Production in Percentage, Qualitywise and Production for the Year 1970-71	464
7.11	Capital Formation in the Panchaganga Sugar Factory, 1960-1971	465
7.12	Borrowings for the Years 1967-68 to 1971-72	466
7.13	Pol and Recovery Per Cent Cane for the Years 1967-68 to 1971-72	467
7.14	Quantity of Cane Crushed, Total Quantity of Sugar Produced and Recovery Percentage for the Years 1969-70, 1970-71 and 1971-72	471
7.15	Analysis of Working for the Years 1964-1969	472
7.16	Quality of Sugar Production for 1969-70	475
7.17	Shareholders, No. of Shares Held by Them and the Capital Contributed by Them for the Years 1969 and 1970	476
7.18	Working of the Sugar Factory, Walchandnagar for the Years 1961-62 to 1970-71	482
7.19	Working of the Sugar Factory for the Years 1947-48 to 1954-55	483
7.20	Analysis of Working for the Years 1966-70	485

(xx)

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
7.21	Distribution of Shareholders by Holdings for 1969-70 and 1970-71	490
7.22	Quantity of Cane Crushed, Sugar Produced (in 1000 tonnes) and the Recovery Percentage for the Years 1958-59 to 1971-72	492
7.23	Details of Loans and Repayment upto 1971	493
7.24	No. of Working Days, Sugarcane Crushed of Members and Non-members, Transport Cost of Cane Per Tonne, Cost of Production Per Bag of Sugar, Cane Price Paid Per Tonne and Average Sale Price Per Bag of Sugar	496
7.25	Recovery Percentage for the Years 1966-67 to 1970-71	498
7.26	Borrowings of the Society for the Years 1966-67 to 1970-71	499
7.27	Balance Sheet for the Year 1968	500
7.28	Quantity and Quality of Sugar Produced for the Years 1966-67 to 1970-71	505
7.29	Average Recovery Per Cent for the Years 1966-67 to 1970-71	506
7.30	Pre-tax Profits (Losses), Dividends for the Years 1966-1970	507
7.31	Quantity of Cane Crushed for the Years 1965-66 to 1969-70	509
7.32	Cost of Sugar Produced Per Quintal in Low and High Recovery States (Estimated) for the Year 1970-71	512

## LIST OF GRAPHS

Graph  
No.

Title

### At the end of Chapter II

- 2.1 Number of Factories: Co-operative, Private and Total during 1955-56 to 1969-70
- 2.2 Proportion of Co-operative to Total Number of Factories Working during 1955-56 to 1969-70
- 2.3 Progress in Sugar Production--Co-operative, Private and Total during 1955-56 to 1969-70
- 2.4 Proportion of Production of Sugar in Co-operative Sector to Total Production
- 2.5 Production Capacity Installed and Actual Production of Sugar 1956-57 to 1969-70 (Total)
- 2.6 Production Capacity (Installed) and Actual Production of Sugar 1963-64--1971-72, Co-operative Sector
- 2.7 Working Capital and Value of Production (Total) during 1951-65 (excluding 1954)
- 2.8 Working Capital and Value of Production--Co-operative Sector during 1957-58 to 1967-69
- 2.9 Ratio of Working Capital to Value of Production (Total) during 1951-1965
- 2.10 Ratio of Working Capital to Value of Production--Co-operative Sector during 1957-58 to 1967-68 (excluding 1966-67)
- 2.11 Paid-up Capital and Value of Sales Co-operative Sector during 1957-58 to 1967-68
- 2.12 Ratio of Paid-up Capital to Value of Sales during 1957-58 to 1967-68 Co-operative Sector
- 2.13 Paid-up Capital and Value of Sales in the Joint Stock Sector, 1960-61 to 1967-68
- 2.14 Ratio of Paid-up Capital to Value of Sales Joint Stock Sector, 1960-61 to 1967-68

(xxii)

**Graph  
No.**

**Title**

**At the end of Chapter III**

- 3.1 Trend in the Number of Sugar Factories for the Period 1956-57—1969-70 in Tropical and Sub-tropical Regions
- 3.2 Trend in Sugar Production for the Period 1956-57 to 1969-70 in Tropical and Sub-tropical Regions

## LIST OF ABBREVIATIONS USED IN THE THESIS

A.P.	Andhra Pradesh
A.S.I.	Annual Survey of Industries
C.I.M.	Census of Indian Manufactures
C.S.A.	Commonwealth Sugar Agreement
C.S.O.	Central Statistical Organisation
I.D.B.I.	Industrial Development Bank of India
I.F.C.	Industrial Finance Corporation
I.R.C.I.	Industrial Refinance Corporation of India
I.S.A.	International Sugar Agreement
I.S.C.	International Sugar Council
I.S.M.A.	Indian Sugar Mills Association
L.I.C.	Life Insurance Corporation
N.C.D.C.	National Co-operative Development Corporation
N.F.C.S.F.Ltd.	National Federation of Co-operative Sugar Factories Ltd.
N.S.S.	National Sample Survey
R.B.I.	Reserve Bank of India
S.F.C.	State Finance Corporation
S.I.D.C.	State Industrial Development Corporation
U.P.	Uttar Pradesh
U.T.I.	Unit Trust of India

### NOTE

The expressions 'lakh' and 'crore' signify 100,000 and 10,000,000 respectively.