

MINOR RESEARCH PROJECT

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PROJECT TITLE

**“PERFORMANCE APPRAISAL OF COOPERATIVE
SUGAR FACTORIES IN KOLHAPUR DISTRICT 2001-
2002 TO 2012-13”**

Summary Report

By

Dr.S.A.Jadhav

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1. Introduction

Sugar industry, is the second largest agro based industry has developed only after independence, though it began in the pre independence period. Today India has become one of the top sugar producing countries in the world. India's share in world sugar production is around 15 percent. In Indian context Maharashtra produces about one third of India's total sugar production. It means that sugar production in India is mainly concentrated in Maharashtra. Nearly, 20 percent population of Maharashtra is dependent on sugar industry directly and indirectly. It's special characteristic was that it had developed almost in co-operative sector. Only in the recent decade the private sector sugar industry has got momentum and their number has reached to 70 Factories.

Co-operative sugar factories got recognition only after the explosion of drawbacks of private sugar factories. Of course, the governments have played an important role in the development of co-operative sugar factories through the licensing policy, supply of capital and assurance for loans, sugar policy, zoning system, sugarcane pricing policy, development of irrigation and supply of electricity etc.

But during the recent years, the central as well as state governments have been implementing the liberalization, privatization and globalization policies. The implantation of these policies has definitely affected the health of sugar industry especially co-operative sugar factories started facing certain problems which resulted into incurring losses. The cooperative sugar factories in Maharashtra are suffering from certain managerial problems. These problems are mainly as below.

- i) Failure on the part these factories in repaying the loans according to the agreed terms, leading to increase in the outstanding loans and consequently increased burden of interest payments.
- ii) Reluctant to economize administrative cost to a large extent.

- iii) Processing cost exceeding the standard cost to a large extent.
- iv) Low recovery and high total losses.
- v) Instability in sugar prices
- vi) Accumulation of sugar stock and expenses on its storage, interest etc.
- vii) Defective sugarcane pricing policy.
- viii) Excess political interferences
- ix) Misuse of financial resources
- x) Lack of skilled manpower

These problems combined with changed environment of policy matters have resulted into the problem of sickness in the cooperative sugar industry in Maharashtra. As the sugar industry is opened up to the private sector, the cooperative sugar factories have to face the challenge of competition from the private sector. In fact, a question mark is raised on the sustainability of cooperative sugar factories in Maharashtra.

The cooperative movement has a distinct place in the economic development of countries like India. The cooperative sugar industry in Maharashtra has also played an important role in rural development. Not only for maintaining its role in the future but also to carry forward the important and distinct role of the cooperative sugar industry in rural development, it has to overcome the internal problems as well as the obstacles created by the changed policies. This requires the critical appraisal of the current functioning of these factories.

Under this overall background, investigator has attempted to examine the problems of cooperative sugar industry with special reference to Kolhapur District of Maharashtra. In addition, financial performance analysis and progress of cooperative sugar factories in Maharashtra and Kolhapur district are the core elements in the present research task.

1.2 Objectives of the Study

The objectives of the present research work are as below.

- 1) To take review of growth of cooperative sugar factories and sugar cane profile in Kolhapur district.
- 2) To evaluate the financial performance of cooperative sugar factories in Kolhapur district.
- 3) To evaluate the performance of cooperative sugar factories based on cultivators and labours opinion.
- 4) To find out the major problems of cooperative sugar factories in study region.
- 5) To suggest appropriate policy measures to overcome from the problems and sustainable development of cooperative sugar industry.

1.3 Chapter Scheme

The present research work is studied in six chapters. The chapters are framed as per the prescribed objectives and statement of the research problem. The detail chapter scheme of the research is mentioned as below.

Chapter I : Introduction and Research Methodology

The chapter has covered introduction, significance of the study, statement of research problem, objectives of the study, hypothesis of the study and research methodology in detail manner. Under research methodology investigator has covered almost all methodological aspects like method of data collection, data processing techniques, sample design, study area, study period and limitations of the study.

Chapter - II: Review of Literature

Second chapter highlighted the review of previous research studies on various issues regarding sugar industry. The investigator has reviewed various books, articles, research paper etc.

Chapter III: Agriculture Profile of Kolhapur District and Progress of Cooperative Sugar Industry in Kolhapur District

In detail agriculture profile of Kolhapur district has presented in the chapter third. In addition chapter has elaborated the progress of cooperative sugar factories in Maharashtra and in Kolhapur district in the context of number of factories, curing and sugar production. The time series data of cooperative sugar factories from Kolhapur district has gathered in order to measure the trend, variations and growth.

Chapter IV: Financial Performance of Cooperative Sugar Factories in Kolhapur District

The chapter fourth is one of the core chapters of the present research work. It has covered financial performance of all the cooperative sugar industries in the Kolhapur district. Various profitability ratios are computed based on the annual reports of the concern sugar factories during the study period.

Chapter V: Empirical Analysis of Cultivators and Labours

The chapter has focused on the expectations of the cultivators from the sugar factories, satisfaction with operation of the sugar factories and issues of the cultivators. It is also highlighted the expectations, satisfaction and problems of the labours. The chapter is entirely based of field work.

Chapter VI: Conclusion and Suggestion

The last chapter has final outcome of the present research task which has covered major findings and suggestions.

1.4 Findings

1. Study reveals that there were only 67 cooperative sugar factories in the Maharashtra in 1983-84 which gone up to 161 in 2011-12. It has recorded 3.0 percent CGR and 34.4 standard deviation with 27.82 percent coefficient of variance.

2. Likewise, there were total 67 sugar factories in Maharashtra in 1983-84 which increased up to 212 in 2011-12. It has recorded 3.9 percent CGR and 43.73 standard deviation with 31.61 percent coefficient of variance. The cursing capacity of the cooperative sugar factories was just 121082 metric tonne in 1983-84 which increased up to 447300 metric tonne in 2011-12. It has recorded 4.5 percent CGR and 124659.2 standard deviation with 43.97 percent coefficient of variance.
3. Study found that the area under sugarcane was just 3.26 lakh hectares in 1982-83 which has increased significantly up to 10.43 lakh hectares in 2011-12. It means that there is almost three fold growth observed in case of area under sugarcane production. The compound annual growth rate was recorded to 3.9 percent per annum and the standard deviation is observed to 2.53 lakh hectare with 24.28 percent coefficient of variance.
4. Study also reveals that the production of sugarcane was just 313.6 lakh metric tonne in 1982-83 which increased tremendously up to 825 lakh metric tonne in 2011-12. The average production of the sugarcane during the reported period was observed to 450.67 lakh metric tonne. The CGR of the sugarcane production found to 3.3 percent and the standard deviation observed to 190.2 lakh metric tonne with 23.06 percent moderate coefficient of variance.
5. Study found that the production of sugar was just 23.11 lakh metric tonne in 1984-85 which increased up to 89.97 lakh metric tonne in 2011-12. The mean average production of sugar was observed to 49.06 lakh metric tonne during the reported period. It has grown by 5 percent per annum with 23.79 lakh metric tonne standard deviation and 26.44 percent coefficient of variance.

6. Study found that total cursing capacity was 98750 metric tonne per day out of which 76200 metric tonne was cursed by the cooperative sugar factories in the Kolhapur district. It means that nearly 75 percent of the total cursing capacity of the district is belonging to cooperative sector. The total cursing in the year 2010-11 was 1,01,61,108 metric tonne and it was around 1,46,94,455 metric tonne in 2011-12.
7. Study reveals that the share of cooperative sugar factories in total cursing was around 75 percent. The total production of sugar was 12543282 quintal in 2010-11 which increased up to 18647073 quintal in 2010-11. In short, it can be stated that there is significant progress of cooperative Sugar factories in Kolhapur district.
8. It is found that maximum average gross profit ratio during the period under consideration in case of large size operating firm i.e 71.64 percent observed in Datt Cooperative Sugar Factory Shirol. Likewise, the maximum average gross profit ratio during the study period in the context of medium size operating cooperative firm i.e 65.99 percent recorded in Shahu Cooperative Sugar Factory Kagal. Similarly, the highest average gross profit in case of small size operating cooperative sugar factories during the reported period is found to 61.58 percent in case of D.Y Patil Cooperative Sugar Factory.
9. It is observed from the study that the lowest gross profit ratio in case of large size operating cooperative sugar factories has recorded to 66.37 percent in case of Jawahar Sugar Cooperative. In addition, the lowest gross profit ratio of medium size cooperative sugar factories is found to 51.44 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest gross profit ratio in small size cooperative sugar factories is observed to 51.64 percent in Sharad Cooperative Sugar factory.

10. Study reveals the fact that average gross profit of the large size cooperative sugar factories during the study period recorded to 68.84 percent whereas, it was just 59.23 percent in case of medium size operating cooperative sugar factories and 56.26 percent in small size operating cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are earning significant profit than that of medium and small size. The aggregate gross profit ratio is observed to 61.44 percent during the period 2001-02 to 2012-13.
11. Study found that the large size operating cooperative sugar factories are comparatively earning more gross profit in Kolhapur district than other cooperative sugar factories. The large size cooperative sugar factories are earning more gross profit because of more positive externalities which they are enjoying while crushing in large extent.
12. It has evidence from the study that the maximum average net profit ratio during the period under consideration in case of large size operating firm i.e 61.35 percent observed in Datt Cooperative Sugar Factory Shirol. Likewise, the maximum average net profit ratio during the study period in the context of medium size operating cooperative firm i.e 53.34 percent recorded in Shahu Cooperative Sugar Factory Kagal. Similarly, the highest average net profit in case of small size operating cooperative sugar factories during the reported period is found to 46.98 percent in case of Rajaram Cooperative Sugar Factory.
13. The lowest net profit ratio in case of large size operating cooperative sugar factories has recorded to 44.74 percent in case of Jawahar Sugar Cooperative. In addition, the lowest net profit ratio of medium size cooperative sugar factories is found to 29.81 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest net profit ratio in small size cooperative sugar factories is observed to 30.01 percent in Sharad Cooperative Sugar factory.

14. Average net profit of the large size cooperative sugar factories during the study period recorded to 53.98 percent whereas, it was just 44.38 percent in case of medium size operating cooperative sugar factories and 41.40 percent in small size operating cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are earning significant net profit than that of medium and small size. The aggregate net profit ratio is observed to 46.59 percent during the period 2001-02 to 2012-13.
15. It is observed from the data that the maximum net profit variance in case of large size operating firms is found to 29.89 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum net profit variance in case of medium and small size operating firms is found to 51.01 percent and 79.76 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average net profit variance is found to 18.19 percent, 27.83 percent and 48.89 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average net profit variance was observed to 31.63 percent.
16. In short, the large size operating cooperative sugar factories are comparatively earning more net profit in Kolhapur district than other cooperative sugar factories. It also reveals that Shahu Cooperative Sugar Factory has earned more stable net profit compare to other cooperative sugar factories since its net profit variance is just 9.53 percent. On the contrary the high level of instability in the net profit earning is observed in case of Sharad Cooperative Sugar factory since its net profit variance is maximum of 79.76 percent during the study period.
17. It has evidenced from the data that the maximum average operating expenses ratio during the period under consideration in case of large

size operating firm i.e 51.69 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average operating expenses ratio during the study period in the context of medium size operating cooperative firm i.e 41.84 percent recorded in Kumbhi Kasari. Likewise, the highest average operating expenses ratio in case of small size operating cooperative sugar factories during the reported period is found to 36.41 percent in case of Ajara Shetkar Cooperative Sugar Factory.

18. The lowest operating expenses ratio in case of large size operating cooperative sugar factories has recorded to 36.11 percent in case of Jawahar Sugar Cooperative. In addition, the lowest operating expenses ratio of medium size cooperative sugar factories is found to 21.18 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest operating expenses ratio in small size cooperative sugar factories is observed to 21.38 percent in Sharad Cooperative Sugar factory.
19. Operating expenses ratio of the large size cooperative sugar factories during the study period recorded to 43.11 percent whereas, it was just 33.51 percent in case of medium size operating cooperative sugar factories and 30.54 percent in small size operating cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant operating expenses ratio than that of medium and small size. The aggregate operating expenses ratio is observed to 35.72 percent during the period 2001-02 to 2012-13.
20. It is observed from the data that the maximum operating expenses variance in case of large size operating firms is found to 33.55 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum operating expenses variance in case of medium and small size operating firms is found to 54.67 percent and 83.42 percent in Daulat

Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average operating expenses variance is found to 30.17 percent, 39.81 percent and 630.87 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average operating expenses variance was observed to 43.61 percent.

21. In short, the large size operating cooperative sugar factories are comparatively having more operating expenses ratio in Kolhapur district than other cooperative sugar factories. There is high level of stability observed in operating expenses ratio in Shahu Cooperative Sugar Factory Kagal since its operating expenses variance was merely 20.76 percent. On the contrary, the high level of fluctuations are observed in Sharad Cooperative Sugar Factory since, its operating expenses ratio was 83.42 percent.
22. It has been seen from the data that the maximum average expenses ratio during the period under consideration in case of large size firm i.e 48.08 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average expenses ratio during the study period in the context of medium size cooperative firm i.e 38.23 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the highest average expenses ratio in case of small size cooperative sugar factories during the reported period is found to 32.8 percent in case of Ajara Shetkar Cooperative Sugar Factory.
23. The lowest expenses ratio in case of large size cooperative sugar factories has recorded to 34.1 percent in case of Jawahar Sugar Cooperative. In addition, the lowest expenses ratio of medium size cooperative sugar factories is found to 19.17 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest expenses ratio in

small size cooperative sugar factories is observed to 19.37 percent in Sharad Cooperative Sugar factory.

24. Expenses ratio of the large size cooperative sugar factories during the study period recorded to 39.72 percent whereas, it was just 30.12 percent in case of medium size cooperative sugar factories and 32.33 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant expenses ratio than that of medium and small size. The total expenses ratio is observed to 32.33 percent during the period 2001-02 to 2012-13 in Kolhapur district.
25. Data also reveals the fact that the maximum expenses variance in case of large size firms is found to 40.75 percent in Datt Cooperative Sugar Factory Shirol. The maximum expenses variance in case of medium and small size firms is found to 57.88 percent and 86.63 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average expenses variance is found to 34.79 percent, 44.43 percent and 65.49 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average expenses variance was observed to 48.24 percent.
26. In brief, the large size cooperative sugar factories are comparatively having more expenses ratio in Kolhapur district than other cooperative sugar factories. The rate instability in expenses ratio is significantly high in case of small size operating cooperative sugar factories than that of other factories in study region.
27. It has seen from the data that the maximum average operating profit ratio during the period under consideration in case of large size firm i.e 44.42 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average operating profit ratio during the

study period in the context of medium size cooperative firm i.e 34.57 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the highest average operating profit ratio in case of small size cooperative sugar factories during the reported period is found to 29.14 percent in case of Ajara Shetkar Cooperative Sugar Factory.

28. The lowest operating profit ratio in case of large size cooperative sugar factories has recorded to 32.21 percent in case of Jawahar Sugar Cooperative. In addition, the lowest operating profit ratio of medium size cooperative sugar factories is found to 17.28 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest operating profit ratio in small size cooperative sugar factories is observed to 17.48 percent in Sharad Cooperative Sugar factory.
29. Operating profit ratio of the large size cooperative sugar factories during the study period recorded to 36.43 percent whereas, it was just 26.83 percent in case of medium size cooperative sugar factories and 23.86 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant operating profit ratio than that of medium and small size. The aggregate operating profit ratio is observed to 29.04 percent during the period 2001-02 to 2012-13.
30. It is observed from the data that the maximum operating profit variance in case of large size firms is found to 46.41 percent in Datt Cooperative Sugar Factory Shirol. The maximum operating profit variance in case of medium and small size firms is found to 64.54 percent and 93.29 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average operating profit variance is found to 41.00 percent, 50.64 percent and 71.70 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District.

Aggregate average operating profit variance was observed to 54.45 percent.

31. In short, the large size cooperative sugar factories are comparatively having more operating profit ratio in Kolhapur district than other cooperative sugar factories. The high level of instability in operating profit ratio is observed in case of small size operating cooperative sugar factories. On the contrast, the moderate rate of fluctuations in operating profit ratio has observed in case of medium and large size cooperative sugar factories.
32. It has evidence from the data that the maximum average returns on gross employed ratio during the period under consideration in case of large size firm i.e 63.16 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average returns on gross employed ratio during the study period in the context of medium size cooperative firm i.e 53.31 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the highest average returns on gross employed ratio in case of small size cooperative sugar factories during the reported period is found to 47.88 percent in case of Ajara Shetkar Cooperative Sugar Factory.
33. The lowest returns on gross employed ratio in case of large size cooperative sugar factories has recorded to 38.87 percent in case of Jawahar Sugar Cooperative. In addition, the lowest returns on gross employed ratio of medium size cooperative sugar factories is found to 23.94 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest returns on gross employed ratio in small size cooperative sugar factories is observed to 24.14 percent in Sharad Cooperative Sugar factory.
34. Returns on gross employed ratio of the large size cooperative sugar factories during the study period recorded to 49.67 percent whereas, it

was just 40.07 percent in case of medium size cooperative sugar factories and 37.10 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant returns on gross employed ratio than that of medium and small size. The aggregate returns on gross employed ratio is observed to 42.28 percent during the period 2001-02 to 2012-13.

35. It is observed from the study that the maximum returns on gross employed variance in case of large size firms is found to 53.16 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum returns on gross employed variance in case of medium and small size firms is found to 74.28 percent and 103.03 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average returns on gross employed variance is found to 48.54 percent, 58.18 percent and 79.24 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average returns on gross employed variance was observed to 61.99 percent.

36. In short, the large size cooperative sugar factories are comparatively having more returns on gross employed ratio in Kolhapur district than other cooperative sugar factories. The high level of instability in gross employed ratio is observed in case of small size operating cooperative sugar factories. On the contrast, the moderate rate of variance in gross employed ratio has observed in case of medium and large size cooperative sugar factories.

37. It has seen from the data that the maximum average returns on net capital employed ratio during the period under consideration in case of large size firm i.e 55.85 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average returns on net capital

employed ratio during the study period in the context of medium size cooperative firm i.e 46.00 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the maximum average returns on net capital employed ratio in case of small size cooperative sugar factories during the reported period is found to 40.57 percent in case of Ajara Shetkar Cooperative Sugar Factory.

38. The lowest returns on net capital employed ratio in case of large size cooperative sugar factories has recorded to 34.21 percent in case of Jawahar Sugar Cooperative. In addition, the lowest returns on net capital employed ratio of medium size cooperative sugar factories is found to 19.28 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest returns on net capital employed ratio in small size cooperative sugar factories is observed to 19.48 percent in Sharad Cooperative Sugar factory.
39. Returns on net capital employed ratio of the large size cooperative sugar factories during the study period recorded to 44.04 percent whereas, it was just 34.44 percent in case of medium size cooperative sugar factories and 31.47 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant returns on net capital employed ratio than that of medium and small size. The aggregate returns on net capital employed ratio is observed to 36.65 percent during the period 2001-02 to 2012-13.
40. It is observed from the data that the maximum returns on net capital employed variance in case of large size firms is found to 50.58 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum returns on net capital employed variance in case of medium and small size firms is found to 71.70 percent and 100.45 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar

Factory respectively. The average returns on net capital employed variance is found to 43.79 percent, 53.43 percent and 74.49 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average returns on net capital employed variance was observed to 57.24 percent.

41. In short, the large size cooperative sugar factories are comparatively having more returns on net capital employed ratio in Kolhapur district than other cooperative sugar factories. The high level of instability in returns on net capital employed is observed in case of small size operating cooperative sugar factories. On the contrast, the moderate rate of variance in returns on net capital employed has observed in case of medium and large size cooperative sugar factories.
42. It has been evidence from the study that the maximum average returns on share capital employed ratio during the period under consideration in case of large size firm i.e 48.54 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average returns on share capital employed ratio during the study period in the context of medium size cooperative firm i.e 38.69 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the maximum average returns on share capital employed ratio in case of small size cooperative sugar factories during the reported period is found to 33.26 percent in case of Ajara Shetkar Cooperative Sugar Factory.
43. The lowest returns on share capital employed ratio in case of large size cooperative sugar factories has recorded to 29.55 percent in case of Jawahar Sugar Cooperative. In addition, the lowest returns on share capital employed ratio of medium size cooperative sugar factories is found to 14.62 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest returns on share capital

employed ratio in small size cooperative sugar factories is observed to 14.82 percent in Sharad Cooperative Sugar factory.

44. Returns on share capital employed ratio of the large size cooperative sugar factories during the study period recorded to 38.41 percent whereas, it was just 28.81 percent in case of medium size cooperative sugar factories and 25.84 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant returns on share capital employed ratio than that of medium and small size. The aggregate returns on share capital employed ratio is observed to 31.02 percent during the period 2001-02 to 2012-13.
45. It is observed from the data that the maximum returns on share capital employed variance in case of large size firms is found to 48.00 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum returns on share capital employed variance in case of medium and small size firms is found to 69.12 percent and 97.87 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory correspondingly. The average returns on share capital employed variance is found to 39.04 percent, 48.68 percent and 69.74 percent in case of large, medium and small size cooperative Sugar factories correspondingly in Kolhapur District. Aggregate average returns on share capital employed variance was observed to 52.49 percent.
46. In short, the large size cooperative sugar factories are comparatively having more returns on share capital employed ratio in Kolhapur district than other cooperative sugar factories. The high level of instability in returns on share capital employed is observed in case of small size operating cooperative sugar factories. On the contrast, the

moderate rate of variance in returns on share capital employed has observed in case of medium and large size cooperative sugar factories.

47. It has cleared from the data that the maximum average returns on equity share capital employed ratio during the period under consideration in case of large size firm i.e 35.93 percent observed in Datt Cooperative Sugar Factory Shirol. Similarly, the maximum average returns on equity share capital employed ratio during the study period in the context of medium size cooperative firm i.e 26.08 percent recorded in Kumbhi Kasari Cooperative Sugar Factory. Likewise, the maximum average returns on equity share capital employed ratio in case of small size cooperative sugar factories during the reported period is found to 20.65 percent in case of Ajara Shetkar Cooperative Sugar Factory.

48. The lowest returns on equity share capital employed ratio in case of large size cooperative sugar factories has recorded to 22.04 percent in case of Jawahar Sugar Cooperative. In addition, the lowest returns on equity share capital employed ratio of medium size cooperative sugar factories is found to 7.11 percent in Daulat Setkari Cooperative Sugar Factory. Furthermore, the lowest returns on equity share capital employed ratio in small size cooperative sugar factories is observed to 7.31 percent in Sharad Cooperative Sugar factory.

49. Returns on equity share capital employed ratio of the large size cooperative sugar factories during the study period recorded to 28.07 percent whereas, it was just 18.46 percent in case of medium size cooperative sugar factories and 15.49 percent in small size cooperative sugar factories. It means that comparatively, large size cooperative sugar factories are having significant returns on equity share capital employed ratio than that of medium and small size. The

aggregate returns on equity share capital employed ratio is observed to 20.67 percent during the period 2001-02 to 2012-13.

50. It is observed from the data that the maximum returns on equity share capital employed variance in case of large size firms is found to 62.25 percent in Jawahar Cooperative Sugar Factory Hupari. The maximum returns on equity share capital employed variance in case of medium and small size firms is found to 83.37 percent and 89.55 percent in Daulat Setkari Cooperative Sugar Factory and Sharad Cooperative Sugar Factory respectively. The average returns on equity share capital employed variance is found to 47.56 percent, 57.20 percent and 69.19 percent in case of large, medium and small size cooperative Sugar factories respectively in Kolhapur District. Aggregate average returns on equity share capital employed variance was observed to 57.98 percent.

51. In short, the large size cooperative sugar factories are comparatively having more returns on equity share capital employed ratio in Kolhapur district than other cooperative sugar factories. The high level of instability in returns on equity share capital employed is observed in case of small size operating cooperative sugar factories. On the contrary, the moderate rate of variance in returns on equity share capital employed has observed in case of medium and large size cooperative sugar factories.

52. The large size operating Datt Cooperative Sugar Factory Shirol stood at first rank with 53.41 percent composite financial performance index. The second best financial performance index was recorded in case of medium size Kubhi Kasari Cooperative Sugar Factory. Its financial performance index was 43.56 percent observed during the study period. The medium size Gadhinglaj Cooperative Sugar Factory stood at third place with 43.13 percent financial performance index

value. Thus, Datt Cooperative Sugar Factory Shirol, Kubhi Kasari Cooperative Sugar Factory and Gadhinglaj Cooperative Sugar Factory are the top three factories in Kolhapur district which are having strong financial soundness.

53. The large size Tatyasaheb Kore Cooperative Sugar Factory Warna stood at fourth place with 43.11 percent composite financial performance index. The medium size Bhogavati Cooperative Sugar Factory stood at fifth place with 42.09 percent composite financial performance index. The medium size Shahu Cooperative Sugar Factory stood at sixth rank with 40.60 percent composite financial performance index value. Likewise, medium size Hamidvada Cooperative Sugar Factory stood at seventh rank with 38.35 percent composite financial performance index value. The small size Ajara Shetkar Cooperative Sugar Factory stood at eighth rank with 38.13 percent composite financial performance index value. In addition, large size Jawahar Cooperative Sugar Factory Hupari stood at ninth place with 37.58 percent composite financial performance index value. The small size Udaisinghrao Gaikwad Cooperative Sugar Factory stood at tenth place with 34.51 percent composite financial performance index value. Thus, Datt Cooperative Sugar Factory Shirol, Kubhi Kasari Cooperative Sugar Factory, Gadhinglaj Cooperative Sugar Factory, Tatyasaheb Kore Cooperative Sugar Factory Warna, Bhogavati Cooperative Sugar Factory, Shahu Cooperative Sugar Factory, Hamidvada Cooperative Sugar Factory, Ajara Shetkar Cooperative Sugar Factory, Jawahar Cooperative Sugar Factory Hupari and Udaisinghrao Gaikwad Cooperative Sugar Factory are the top ten financial performing cooperative sugar factories in Kolhapur District during the period 2001-02 to 2012-13

54. The small size Rajaram Cooperative Sugar factory stood at eleventh rank with 34.24 percent composite financial performance index and it has followed by D. Y. Patil Cooperative Sugar factory with 32.79 percent composite financial performance index. The Datt Shetkari Cooperative Sugar Factory stood at thirteenth place with 30.27 percent composite financial performance index and it has followed by Indira Gandhi Bhartiya Mahila Cooperative Sugar Factory with 30.22 percent composite financial performance index. Thus, it can be stated that the Rajaram Cooperative Sugar factory, D. Y. Patil Cooperative Sugar factory, Datt Shetkari Cooperative Sugar Factory and Indira Gandhi Bhartiya Mahila Cooperative Sugar Factory are averagely performing and having sufficient financial soundness.
55. Panchganga Cooperative Sugar Factory, Dudhganga Vedganga Cooperative Sugar Factory, Sharad Cooperative Sugar Factory and Daulat Setkari Cooperative Sugar Factory are the bottom four cooperative factories which are not having good financial performance index. These factories are comparatively in worst financial position than other cooperative sugar factories in Kolhapur district during the study period.
56. Study reveals the fact that the profitability of the large size operative cooperative factories is significantly more than that of medium and small size cooperative factories. The medium size cooperative factories are having just adequate financial soundness and the small size cooperative sugar factories are mostly suffering from the financial sickness. The financial condition of the small size cooperative sugar factories is not satisfactory at all. In addition, the instability and inconsistency is high observed in small size of cooperative factories than that of medium and large size cooperative sugar factories.

57. Nearly 30 percent cultivators of the small size operating cooperative sugar factories were agree and strongly agree to the statement delay in payment. Likewise, around 43 percent cultivators of the medium size operating cooperative sugar factories were agree and strongly agree to the statement delay in payment. Similarly, around 66 percent cultivators of the large size operating cooperative sugar factories were agree and strongly agree to the statement delay in payment.
58. Nearly 33 percent cultivators of the small size operating cooperative sugar factories were agree and strongly agree to the statement delay in sugarcane cutting programme. Likewise, around 40 percent cultivators of the medium size operating cooperative sugar factories were agree and strongly agree to the statement delay in sugarcane cutting programme. Similarly, around 70 percent cultivators of the large size operating cooperative sugar factories were agree and strongly agree to the statement delay in sugarcane cutting programme.
59. Nearly 55 percent cultivators of the small size operating cooperative sugar factories were agree and strongly agree to the statement defects in management and operation. Likewise, around 54 percent cultivators of the medium size operating cooperative sugar factories were agree and strongly agree to the statement defects in management and operation. Similarly, around 53 percent cultivators of the large size operating cooperative sugar factories were agree and strongly agree to the statement defects in management and operation.
60. Almost, 37 percent cultivators of the small size operating cooperative sugar factories were agree and strongly agree to the statement excess political interference. Likewise, around 65 percent cultivators of the medium size operating cooperative sugar factories were agree and strongly agree to the statement excess political interference. Similarly, around 49 percent cultivators of the large size operating cooperative

sugar factories were agree and strongly agree to the statement excess political interference.

61. Almost, 20 percent cultivators of the small size operating cooperative sugar factories were strongly agree to the statement no support and guidance by the factory. Likewise, around 24.4 percent cultivators of the medium size operating cooperative sugar factories were strongly agree to the statement no support and guidance by the factory. Similarly, around 20 percent cultivators of the large size operating cooperative sugar factories were strongly agree to the statement no support and guidance by the factory.
62. Almost, 50 percent cultivators of the small size operating cooperative sugar factories are satisfied with the operational performance of the factory. Likewise, around 52 percent cultivators of the medium size operating cooperative sugar factories are satisfied with the operational performance of the factory. Similarly, around 39 percent cultivators of the large size operating cooperative sugar factories are satisfied with the operational performance of the factory.

1.5 Recommendations

The following major recommendations can be given for the improvement in performance of the cooperative sugar factories in Kolhapur district.

1. The small size cooperative sugar factories are having weak financial base and low rate of profitability. Hence, it has suggested that the small size cooperative sugar factories should use their limited resources more rationally and efficiently. They must take efforts to maintain financial discipline and reduce the cost of production as much as possible level. They should also thing about the other major sources of revenue.

2. The medium size cooperative factories are having just enough financial position that has to be changed into strong financial base. The cost effective production techniques should adopted by these cooperative factories. The medium size cooperative sugar factories should think about the extension of plant size because, large the quantity of production more will be the positive externalities. They should think about how to get gain from the market within the resource constraint.
3. The large size cooperative sugar factories are earning significant profit than that of medium and small size cooperative sugar factories. Therefore, it has suggested that large size cooperative sugar factories should be focused on bi-products and export of sugar. The division of labour should be carry on in the future.
4. The sugarcane production is highly instable in nature, hence it has suggested that cultivators should hold the insurance every year in order to protect from the natural disaster.
5. Cultivators should think about the modern production techniques which are least cost and gives more production. The factories should organized training programmes for the cultivators. The sources of finance to the farmers are inadequate. Hence it has suggested to the all banks to provide credit to the cultivators at the affordable cost.
6. Cooperative factories are not implementing labour laws properly. Hence it has suggested to all the cooperative sugar factories to follow the rules and regulation regarding labours.
7. Most of the cooperative sugar factories are directly flowing waste water into the natural water resources. Hence, it has been suggested to all factories to installed water treatment plant and maintain it properly.

8. The proportion of female workers in cooperative sugar factories is significantly less. Hence, it has suggested to increase the proportion of female workers in factory.
9. Factories which are suffering from the debt trap should attempt to reaccelerate the business through raising the fund from the internal as well as external sources.
10. There is an urgent need of concrete policy framework, for the revival of the cooperative sugar factories in study region.