

Chapter 6

Conclusions and Suggestions

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6.1 Introduction

This chapter covers the major findings of the study and also the problems of estimation of the district income along with suggestions to solve the problem are described in this chapter.

First chapter namely 'Database and Research Methodology' provides the understanding regarding the database and the research methodology so far adopted for this study. Which covers scope of study, statement of problem, objectives of the study, hypothesis of study, period and research methodology, data analysis and limitation of the study.

Second chapter namely 'Profile of Kolhapur District' highlights some of the important points of district economy of Kolhapur. In this chapter we covered the demographic features of the Kolhapur district along with land use and cropping pattern, cultural status, climatic condition and various places that attracts tourist to visit Kolhapur. Different modes of transport, industrial development and education status of concern district are also examined in this chapter.

Since our study is concerned with the sugarcane crop the agrarian condition of district economy is also studied under we covered the land utilisation and cropping pattern of district economy by offering main emphasis on sugarcane crop. Further the co-operative movement in the Kolhapur district was studied. In the last section of this chapter the some specialties of Kolhapur such as *Chappals*, *Jaggary* and *Wrestling* etc. are described.

The third chapter namely 'Methodology for Estimation of Value of Agricultural Sector in the District Income' the detailed methodology of estimation of the district income from primary sector in general and crop husbandry sector in particular is argued. Then the importance of district income statistics and the actual process of estimation is describe which includes collection of required data, following the state level methodology, Govt. procurement, value of by-products and also the value of inputs, etc.

Afterwards the computer software namely 'Spinfo Indical' which was used to calculate the district income for Kolhapur district is discussed and the procedure of estimation is also described step by step from beginning to the end. In fact, this software is based on the methodology mentioned in the book 'Estimating District Income in India' by Rohini Nayyar, Meenakshi Rajeev and Vinod Vyasulu.

Some of the major limitations of the estimation of the district income are also discussed at the end of this chapter. It includes the gaps in statistical data, problem of netting out, methodological limitations and unreliable and inadequate database.

The fourth chapter namely 'Disaggregation of District Income by Cropping Pattern' describes the actual process of estimation of district income for Kolhapur district, where firstly land utilisation and cropping pattern along with irrigation status has been studied. Further the sugarcane scenario at national, state and also at district level studied and also trends in Minimum Support Price of principal crops in the concerned district have examined.

State and district level estimation of income (provided by DES, Mumbai) at current and constant prices along with its sector wise composition is examined in the further part of this chapter. Also the detailed process of district income estimation by applying Spinfo Indical software is discussed in this chapter. In the last stage we have tested the hypothesis so far adopted for conducting the study.

The fifth chapter of this dissertation namely 'Development at what cost?' highlights the relation between the economic growth and the environmental quality. In which we have study some theoretical background of it and then after the growth of the district economy is studied later on. Since, development process has its own compensation cost it creates the problem of soil salinity in the study area and damage the fertility of soil is also studied in this chapter.

Major causes of the soil salinity and water logging problem along with intensity of same and measures to control this problem is also studied in the further part of this chapter. Then the impact of sugarcane cultivation on soil quality and the need of sustainable development is highlighted in the last part of this chapter.

The very last chapter (i.e. sixth chapter) namely 'Conclusions and Suggestions' highlights some of the major findings of this study and also provides some suggestions to the policy makers and the future researcher.

6.2 Major Findings of the Study

In this section we have tried to collect and put together some of the important findings of the research work. Following are some of the major findings of this study.

1. The study shows that the in 2005-06 Sugarcane (21 per cent), Paddy (20 per cent) and Soyabean (12 per cent) crops together contributes 53 per cent in the district gross cropped area of 553860. Area under sugarcane crop shows the significant growth (4.15 per cent) in the last 10 years.
2. Further it has been observed that the CGR for Rice, Jawar, Wheat, Maize, Soyabean and Sugarcane crops are calculated 1.77 per cent, 1.18 per cent, -0.60 per cent, 2.60 per cent, 3.44 per cent and 4.15 per cent respectively. Wheat shows the negative growth rate (-0.60 per cent) on the other hand Sugarcane crop shows the higher growth rate (4.15 per cent) than the other crops and as against the growth rate of gross cropped area of 0.48 per cent during the 2000-01 to 2006-07.
3. It is clearly found that the CGR for area under sugarcane crop is calculated 11.12 per cent and Production shows the lower CGR of 7.6 per cent, because of average yield shows the negative CGR during the study period.
4. It is observed from the study that the district income estimation by following income-accruing approach may provide more accurate picture of the district economy but this approach cannot be materialised because of certain difficulties at the district level and hence the district income estimations are calculated by following income-originating approach.
5. The study shows that gaps in statistical data, problem of netting out, inappropriate accounting period, working force statistics, cost of production and earning data treated as major limitations of the district income estimations.
6. It has been observed that the percentage of gross cropped area to total geographical area has considerable increased from 57.12 per cent to 73.17 per cent in the last four decades, since the area sown more than once has showing more growth than net area sown.
7. Further it is observed that the gross cropped area has increased with growing gross irrigated area and thus percentage of gross irrigated area to gross cropped area is also increased from 8.82 per cent in 1960-61 to 23.79 per cent in 2006-07 in the study area.
8. The CGR of Net area sown, Area sown more than once, Gross cropped area and Gross irrigated area is calculated 0.41 per cent, 0.75 per cent, 0.48 per cent and 2.04 per cent respectively for the last 7 years.

9. Rice and Jawar show the lower rate of growth (1.77 per cent and 1.18 per cent respectively), Whereas Maize and Soyabean shows moderate rate of growth (2.60 per cent and 3.44 per cent) whereas wheat shows the negative rate of growth (-0.60 per cent), on the other hand Sugarcane shows the highest rate of growth (4.15 per cent) in the cropping pattern of Kolhapur district during the study period.
10. Indian sugar industry has contributed to about 16% of the world's total production of sugar, whereas the contribution of Maharashtra state in nation's total sugar production was 32.16 per cent during the season 2006-07.
11. The study shows that the CGR of area under sugarcane crop in Maharashtra is calculated 6.69 per cent as against national average of 0.69 per cent in the study period, while the production of cane is showing the CGR of 6.05 per cent as against national average of -0.48 per cent and yield figures shows the negative CGR of -0.49 per cent in the same period.
12. In addition to this study also found that the CGR of area under cane in Kolhapur district is calculated 11.12 per cent during the 2000-01 to 2007-08 as against the state's average of 6.69 and national's average of 0.69 per cent. Also in case of production district also maintain the higher rate of growth of 7.6 per cent as against the state's average of 6.05 per cent and national's average of -0.48 per cent. But with regard to the yield of sugarcane is showing the negative trend and compound rate of growth is calculated -2.91 per cent as against state's average of -0.49 per cent and nation's average of -1.17
13. It is also observed that the CGR of the MSP of major crops in the district i.e. Paddy, Jowar, Wheat, Maize, Soyabean and Sugarcane is calculated 2.7 per cent, 3.7 per cent, 2.4 per cent, 4.2 per cent, 3.1 per cent and 5.2 per cent respectively in the last decade.
14. The study shows that the percentage share of primary sector in the GSDP at current price has been continuously decreasing, it was 16.49 per cent in 1999-2000, and now in 2006-07 it reached at 13.70 per cent. However the share of secondary sector is more or less constant and ranges between 26 to 28 per cent. In case of tertiary sector, its share in the GSDP is tremendously increased from 54.75 per cent to 58.21 per cent in the concerned period.

15. The researcher found that the Per Capita GSDP at current price has increased from Rs. 26,257 to 48,171 during the 1999-00 to 2006-07 which shows the CGR of 9.49 per cent. Whereas Per Capita GSDP at constant (1999-2000) prices has also increased from Rs. 26,257 to Rs. 35,633 which shows the CGR of 4.93 per cent in the concerned period.
16. The District income of Kolhapur at current prices is continuously increasing in the last few years, it has increased from Rs. 8,710.18 crores to Rs. 14,524.67 crores during 2000-01 to 2005-06. It shows CGR of 10.57 per cent during the same period as against states average of 11.27 per cent.
17. Also the District income of Kolhapur at constant prices has also increased from Rs. 5,931.51 crores to Rs. 11,406.87 crores during the same period. It shows CGR of 11.47 per cent as against states average CGR of 7.72 per cent.
18. Study also found that the income from primary sector at current prices has increased in from Rs. 2,049.29 crores to Rs. 2,597.59 crores during 2000-01 to 2005-06. It shows the CGR of 4.2 per cent as against states average of 7.79 per cent. Income from secondary sector has increased significantly and reaches at Rs. 3,604.43 crores from Rs. 2,152.02 crores during the same period. It shows CGR of 11.2 per cent as against states average of 11.51 per cent. The income from tertiary sector has increased tremendously from Rs. 4,508.87 crores to 8,322.65 crores during the same period. It shows the CGR of 12.84 per cent as against states average of 12.09 per cent.
19. Hence the percentage share of primary sector in the district income of Kolhapur at current prices has been showing the decreasing trend which is decreased from 23.53 per cent to 17.88 per cent and the share of secondary sector in the district income at current prices is more or less static between 24 to 26 per. Whereas the tertiary sector's contribution to the district income at current prices has been showing the increasing trend. Its share has increased from 51.77 per cent to 57.30 per cent during the concerned period.
20. It is clearly found that the per capita GDDP at current prices has increased from Rs. 24,922 to Rs. 38,691 during 2000-01 to 2005-06. Also the Per capita GDDP at constant prices is increased from Rs. 16967 to Rs. 30,386

in the same period. CGR for per capita district income at constant prices shows the higher growth rate of 10.03 per cent than current price which is calculated 9.18 per cent for the concerned period.

21. The study also estimated the net contribution of sugarcane crop in the district income for year 2006-07 we estimated the gross value of output of sugarcane crop (i.e. Rs. 965.63 crores) and also the value of input for the same is Rs. 677.46 crores which further subtracted from the gross value of output and finally we have estimated the net contribution of sugarcane crop in the district income is about Rs. 288.17 crores for the year 2006-07.
22. This particular study also found the strong positive association between the price of sugarcane and its area under crop, as the value of (r) Karl Person's Coefficient of Correlation between these two variables is calculated 0.82.
23. The study shows the moderate positive association between income from sugarcane (value of output of cane) and volume of DDP at current prices. Since the value of (r) Karl Pearson's Coefficient of correlation is calculated 0.64.
24. Further it is observed that the Govt. institution (DSO) is not interested in the estimation of income at district level by arguing that they already have a lot of work to do with the limited resources.
25. While conducting this study is has also observed that there are several problem occurs when we try to estimate the district income at a small scale. So, there is great need of conduct a study of district income estimation at a large scale which covers at least 50 per cent components from the district economy.
26. It is clearly found that the rate of growth of both district income and also per capital district income for Kolhapur district is always higher than the state and national average. It shows the rapid rate of growth during the recent period. (see Table No. 5.1)
27. The present study also found that the district wise area affected by soil salinity in Maharashtra is as Akola district has 34.78 per cent of saline area followed by Amaravati district (16.57%) and Buldhana district (11.30%). Pune (4.2%), Satara (3.26%), Kolhapur (6.3%) and Solapur (9.20%) are hastily falling into the belt of salinity.

28. Further study also found that the Hathkanangle tehsil accounts 247 ha land affected by salt, where Kagal and Shirol tehsil accounts 70 ha. and 2,468.4ha. respectively in the various irrigation projects' command area. The grant total area of saline soil in the Kolhapur district is accounted 2,785.4 ha.

These are the major findings of our study of disaggregation of district income by cropping pattern: a case study of sugarcane in Kolhapur district.

6.3 Suggestions

Since the suggestions of any particular study helps the policy makers to determine various policies regarding that problem and also it provides path to the potential researchers. It is appropriate to offer the following suggestions based on the in-depth study of disaggregation of district income by cropping pattern in Kolhapur district.

1. There is a great need of separate estimation of district income instead of allocating the state income among the various districts by taking into account some proxy indicators of the same.
2. Since the district income estimation has the scaling problem, it should be done on large scale by covering at least 50% area of district economy. Which may not be possible for any individual researchers because of resources available to them, it can be conducted by existing Govt. agencies like District Statistical Office, etc.
3. The cropping pattern of Kolhapur district is mono-cultured by Sugarcane crop; hence it creates some environmental problems like soil salinity and the water logging in the district. Therefore there is a serious need of change in cropping pattern to ensure the sustainability of growth.
4. As district income estimation requires a large amount of data which are scanty, the gaps in statistical data should be minimised to ensure the accurate estimations. Especially, the crop husbandry sector is concern data on cost of cultivation is unavailable, thus the net contribution of any particular crop in the district income may not be estimate.
5. To ensure the food security in the nation Govt. has to provide incentives to the cultivation of food grain crops rather than cash crops like sugarcane through increase in MSP of the same.

6.4 Conclusions

Since the district income is the only indicator of growth and there by the welfare of the people for the district economy, its role is vital. In this study we have tried our level best to calculate the contribution of sugarcane in the district income in general and in primary sector in particular, during the lack of statistical data and scaling limitation of the same makes our task difficult.

The cropping pattern of concerned district is also showing the monocultural pattern, in which farmers has the first preference to sugarcane and then afterwards to the food grain crops.

The sugarcane contributes a significant share in the district income at the same time it has been created some environmental problem like soil salinity and the water logging in the district. The district economy is also booming at the higher rate, however merely growth does not has any meaning unless it is sustainable. So there is a great need of sustainable development in the district.