

**ECONOMIC ANALYSIS OF CROP LOAN FINANCE BY DHULE AND
NANDURBAR DISTRICT CENTRAL COOPERATIVE BANK**

by

Miss. PATIL KAJAL DEVIDAS
(Reg. No.2021/206)

A Thesis submitted to the
MAHATMA PHULE KRISHI VIDYAPEETH
RAHURI- 413 722, DIST- AHMEDNAGAR
MAHARASHTRA, INDIA

In partial fulfilment of the requirements for the degree

of

MASTER OF SCIENCE (AGRICULTURE)

in

AGRICULTURAL ECONOMICS



DEPARTMENT OF AGRICULTURAL ECONOMICS

POST GRADUATE INSTITUTE
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MAHARASHTRA, INDIA**

2024

CANDIDATE'S DECLARATION

I hereby declare that this thesis or part
there of has not been submitted
by me or other person to any
other University or Institute
for a Degree or
Diploma

Place : MPKV, Rahuri
Date : / /2024

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CERTIFICATE

This is to certify that the thesis entitled **“ECONOMIC ANALYSIS OF CROP LOAN FINANCE BY DHULE AND NANDURBAR DISTRICT CENTRAL COOPERATIVE BANK”** submitted to the Faculty of Agriculture, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar (Maharashtra) in partial fulfilment of the requirements for the award of the degree of **MASTER OF SCIENCE (AGRICULTURE)** in **AGRICULTURAL ECONOMICS**, embodies the result of piece of bonafide research work carried out by **Miss. PATIL KAJAL DEVIDAS** under my guidance and supervision and that no part of the thesis has been submitted for any other degree or diploma.

The assistance and help received during the course of this investigation have been duly acknowledged.

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Place: MPKV, Rahuri

Date: / /2024

(S. A. Ranpise)

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ABBREVIATIONS

/	-	Per
Agri.	-	Agriculture
Agril.	-	Agricultural
CDR	-	Credit Deposit Ratio
CB	-	Commercial Bank
DCCB	-	District Central Co-operative Bank
DNDCCB	-	Dhule and Nandurbar District Central Co-operative Bank
e.g.	-	Exempli gratia (For example)
Econ.	-	Economics
<i>et al.</i>	-	et alia (others)
etc.	-	Etcetera
Fig.	-	Figure
GDP	-	Gross Domestic Product
Govt.	-	Government
i.e.	-	That is
LDBs	-	Land Development Bank
NABARD	-	National Bank for Agriculture and Rural Development
NAFSCOB	-	National Federation of State Co-operative Banks
NGOs	-	Non-Government Organization
No.	-	Number
PACS	-	Primary Agricultural Co-operative Society
PCARDBs	-	Primary Co-operative Agricultural and Rural Development Bank
RBI	-	Reserve Bank of India
RRBs	-	Regional Rural Bank
Rs.	-	Rupees
SBI	-	State Bank of India
SCB	-	State Co-operative Bank
SLR	-	Statutory Liquidity Ratio
<i>Viz.</i>	-	Videlicet (namely)
@	-	At the rate
%	-	Per cent

ABSTRACT

ECONOMIC ANALYSIS OF CROP LOAN FINANCE BY DHULE AND NANDURBAR DISTRICT CENTRAL COOPERATIVE BANK

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District Central Cooperative Banks (DCCBs) have emerged as crucial financial intermediaries, providing accessible and affordable credit facilities to farmers at the grassroots level. The present study had been undertaken to examine the scale of finance and credit gap, inequality in short term and medium-term credit flow and the factors influencing per hectare short term credit flow by Dhule and Nandurbar DCCB. The attempt was made to examine the performance of Dhule and Nandurbar District Central Cooperative Bank in Maharashtra by way of studying the growth in performance indicators. The problems faced by DCCB have been studied along with the remedial measures there on. The study is based on secondary data for the period of past 36 years i.e. from 1985-86 to 2020-21, which was secured from the published data of NAFSCOB reports and annual reports of Dhule and Nandurbar DCCB. Also, a data for the last 36 years on gross cropped area, area under commercial crops, area under horticultural crops and average rainfall for the Dhule and Nandurbar district were secured from the published reports of Government of Maharashtra.

The credit gap based upon the scales exercised for crop loans by the Dhule and Nandurbar DCCB and the credit requirement for different crops for the year 2020-21 was studied. The Coefficient of Variation (CV) was calculated for the 36 years during 1985-86 to 2020-21 to measure the inequality. The factors influencing per hectare short-term credit flow by Dhule and NandurbarDCCB, a multiple linear regression analysis was attempted. The performance of Dhule and Nandurbar DCCB was studied with the help of rates of compound growth in the different performance indicators

for 1985-86 and the terminal year 2020-21 with the help of ratios and percentages.

The credit gap in the finance by Dhule and Nandurbar DCCB was noticed for most of the crops grown in the region. There was excess finance paid up to farmers by DCCB was observed for the hybrid irrigated Cotton (14.72%), Tur (13.23 %) and for Gram (2.42 %) on the basis of Cost A. The maximum credit gap in the finance by Dhule and Nandurbar DCCB was observed for Turmeric (78.74 %) followed by Banana (72.99 %), Chilli (72.19 %) and Adsali Sugarcane (59.81 %) according to Cost B. On the basis of cost C maximum credit gap in finance was noticed for Turmeric (79.55 %) followed by Chilli (75.26 %).

The results of coefficient of variation indicates that there was inequality in short term and medium-term agricultural credit flow per hectare of GCA across the year by Dhule and Nandurbar DCCB. It could be seen that the coefficient of variation of short term and medium term agricultural credit flow per hectare of GCA across the year were 76.69 and 86.46 per cent, indicating the inequality in short-term agricultural credit during the study period.

The factors influencing the inequality in the disbursement of per hectare short term credit flow in Dhule and Nandurbar DCCB were proportion of area under horticultural crops to GCA and recovery percentage of short term agricultural loan had positive impact while, proportion of area under commercial crops to GCA and average rainfall showed significant but negative impact during the period under study. The R^2 suggest that the above said six factors have jointly explained 85 per cent of the variation in the disbursement of short-term credit by Dhule and Nandurbar DCCB.

The performance of DNDCCB in terms of network and coverage was satisfactory as the membership had increased substantially during the study period but number of offices decreased during same period, may be due to minimum transaction and merging of branches. A significant increase of 10.19 per cent in total share capital, 9.64 per cent in reserve fund, 10.39 per cent in owned funds, 9.22 per cent in deposits, 11.13 per cent in investment and 7.5 per cent in working capital during the study period indicated the financial soundness of Dhule and Nandurbar DCCB.

Although there was significant growth in own funds and deposits, however, this growth was not sufficient to fulfill the increasing demand of loans by the members, as the borrowings of Dhule and Nandurbar DCCB over the entire period had substantially increased.

The C:D ratio had witnessed a declining trend in Dhule and Nandurbar DCCB during the period. It could be noted that deposits and advances had witnessed a steady increase over a period. But the increase in deposits was not in the direct proportion to the increase in advances. Further higher incidence of overdues had adversely affected the lending and hence the negative trends in credit-deposit ratio. It is further revealed that the growth in overdue percentage has registered non-significant negative growth rate in the DNDCCB during the entire study period. the proportion of overdues to outstanding loans in DNDCCB had increased over the study period.

Unsatisfactory performance was observed in respect of decreased in number of branches, increased in cost of management and importantly, increased in loan overdues. The major problems of DNDCCB were inadequacy of funds, problems in disbursement of the agricultural loans in time and increasing overdues.

The study advocated the need of paying attention to borrower members which will lead to increase in the share capital and loan disbursement for agricultural purpose. The efforts should be made to enhance deposit mobilization. The efforts are required to be made to bring down the cost of management and reduction in losses. The concerned authorities shall pay more attention towards the recovery of both short term and medium-term loans so as to recycle the large amount of credit and to increase the per hectare availability of credit.

1. INTRODUCTION

The agricultural sector plays a vital role in the economic development of a country, particularly in agrarian societies. It contributes 18.3 per cent to the GDP during the year 2022-23. In many regions, farmers heavily rely on crop loans to meet their financial requirements for cultivation and other farming-related activities. The advanced technological changes in the agricultural sector necessitated the requirement of more working capital. Availability and access to adequate, timely and low-cost credit from institutional sources are being great important especially to small and marginal farmers. Along with other inputs, credit is essential for establishing sustainable and profitable farming systems. It has shown that easy access to financial services at affordable cost, positively affects the productivity, asset formation, income and food security of the rural poor. The major concern of the Government is therefore, to bring all the farmer households in the banking fold and promote complete financial inclusion. District Central Cooperative Banks (DCCBs) have emerged as crucial financial intermediaries, providing accessible and affordable credit facilities to farmers at the grassroot level.

Co-operative banks were established on the principle of cooperation and to serve the poor peasants. The main function of these banks is to relieve the poor farmers from the clutches of the money lenders. Credit is an important input which ensures adequate working capital as well as infrastructural development. Adequate and timely credit provision significantly increases agricultural output which leads to an increase in the economic development of the cultivators and people attached to cultivation. Moreover, agricultural credit serves as an instrument for stimulating increase in output, income and employment.

1.1 Importance of credit in agriculture

Credit plays a crucial role in agriculture, it requires significant investments in inputs such as seeds, fertilizers, pesticides, and machinery. Farmers often need credit to purchase these essential inputs, especially during planting seasons. Without access to credit, farmers may struggle to afford the necessary resources, leading to lower productivity and reduced yields. Credit allows farmers to adopt modern agricultural practices and technologies, such as high-yielding varieties, efficient irrigation systems, and advanced machinery. By accessing credit, farmers can invest in these productivity-enhancing measures, leading to increased agricultural output, improved efficiency, and higher income levels. Adequate credit availability stimulates agricultural production, leading to increased food production, stable food prices, and reduced reliance on imports. By supporting farmers with credit, economies can achieve food self-sufficiency, reduce food insecurity, and promote overall economic development. The majority of

the world's poor live in rural areas and depend on agriculture for their livelihoods. Access to credit empowers small-scale farmers and enables them to invest in their farms, increase production, and generate higher incomes. This, in turn, contributes to poverty reduction, rural development, and improved living standards in agricultural communities. Credit is of paramount importance in agriculture as it facilitates investment, boosts productivity, manages cash flow, mitigates risks, supports infrastructure development, promotes rural development, and contributes to economic growth and food security. Access to credit is essential for farmers to thrive, adopt modern practices, and contribute to sustainable agricultural development.

1.2 Sources of agricultural credit

Sources of agricultural credit can be broadly classified as institutional and non-institutional sources. Moneylenders, traders, commission agents, relatives, and landlords are examples of non-institutional sources, whereas cooperatives, commercial banks like the SBI Group, the RBI, and NABARD are examples of institutional sources. Non-institutional sources satisfied or fulfilled the majority of farmers' credit requirements due to their simpler loan procedures and willingness to give even for unproductive purposes. However, due to restricted resources, they were unable to satisfy their medium and long-term needs/requirements. Commercial Banks (CBs) and Regional Rural Banks (RRBs), which are primarily supported by the Scheduled Commercial Banks and state governments, are the two main institutional credit institutions in India. Additionally, there are Cooperative Banks, which are further separated into rural and urban cooperatives. The major lenders are Scheduled Commercial Banks, followed by Cooperatives and Regional Rural Banks. It has been noted that since the commercial banks in India were nationalized in 1969, the commercial banks as a whole have steadily grown their share of institutional credit to the agricultural sector.

1.3 Flow of institutional credit to agriculture

Agricultural credit has been distributed through a multi-stage network consisting of Commercial Banks, Regional Rural Banks and Credit Co-operative Banks. The flow of institutional credit for agricultural and allied activities is presented in Table 1.1. Agriculture and related activities had an increase in the flow of institutional financing from ₹ 22,032 crores in 1995-96 to ₹13,92,729 crores in 2019-20 and it reached up to the ₹ 15,89,400 crores in 2022-23.

According to Table 1.1, commercial banks' proportionate part of institutional credit flow increased from 46.17 per cent in 1995-1996 to 73.39 per cent in 2022-2023 while cooperative banks' share decreased from 47.56 per cent to 11.03 per cent over the same time period. However, we must not overlook the crucial position that cooperatives play in rural development and credit in general. Between 1995-1996 and 2022-2023, the proportionate share of regional rural banks

increased from 6.27 to 15.58 per cent. It is also significant to note that, starting in 2002-2003, commercial banks accounted for a greater proportion of agricultural loans than cooperative banks.

Table 1.1 Flow of institutional credit to agriculture in India during 1995-96 to 2022-23
(₹ in Crores)

Year	Institutions			Total
	Cooperative Banks	Regional Rural Banks	Commercial Banks	
1995-1996	10479 (47.56)	1381 (6.27)	10172 (46.17)	22032 (100)
2002-2003	24296 (34.31)	5467 (7.72)	41047 (57.97)	70810 (100)
2018-2019	152340 (12.12)	149667 (11.91)	954823 (75.97)	1256830 (100)
2019-2020	157367 (11.30)	165326 (11.87)	1070036 (76.83)	1392729 (100)
2020-2021	190682 (12.10)	190012 (12.06)	1194704 (75.84)	1575398 (100)
2021-2022	243220 (13.05)	204180 (10.96)	1415964 (75.99)	1863363 (100)
2022-2023	175279 (11.03)	247657 (15.58)	1166465 (73.39)	1589400 (100)

(Figures in parentheses indicate percentage to the respective years' total.)

Source: Website - www.indiastat.com

1.4 Role of District Central Co-operative Banks in agricultural finance

India is no stranger to cooperation. It has been known and practiced in this country from the beginning of time. The modern co-operative movement has been growing for 100 years, beginning with the passage of the Co-operative Credit Societies Act on 25th March, 1904. Prior to independence, the cooperative sector in India had a humble beginning as an effective tool against the clutches of moneylenders. Following independence, the cooperative sector was given its proper place in the economic growth process.

One of the primary functions of DCCBs is to provide crop loans to farmers. DCCBs offer credit facilities specifically tailored to meet the financial needs of farmers, enabling them to purchase inputs, such as seeds, fertilizers, and pesticides, as well as cover other cultivation expenses. Crop loans provided by DCCBs ensure timely and affordable credit access to farmers, especially during the crucial planting and harvesting seasons. DCCBs operate at the district level, making them more accessible to farmers in rural areas. They have a widespread network of branches and extension counters, allowing farmers to easily approach them for credit. This proximity helps in bridging the gap between farmers and formal financial institutions, improving the accessibility of credit services in remote agricultural regions.

DCCBs contribute to financial inclusion by reaching out to underserved and unbanked segments of the rural population. They aim to extend financial services to small and marginalized

farmers who may have limited access to formal credit. DCCBs provide a platform for these farmers to access financial products and services, promoting their economic empowerment and inclusion in the formal banking system. DCCBs play a vital role in agricultural finance by providing crop loans, enhancing credit accessibility, offering customized loan products, fostering financial inclusion, operating on cooperative principles, and supporting rural development initiatives. Through their dedicated focus on the needs of farmers and rural communities, DCCBs contribute to the overall growth and sustainability of the agricultural sector.

1.5 The District Central Co-operative Banks in Maharashtra

Maharashtra is the country's most industrialized state. Agriculture and related sectors continue to dominate throughout the state. Agriculture provides a livelihood for roughly half of the state's population. However, the agricultural sector's contribution to state income has been declining over time. Almost one-third of the state is in a rain shadow region, where rainfall is scarce and irregular (Economic Survey of Maharashtra, 2021-22).

Highlights of the cooperative movement in Maharashtra State included its quantitative growth, its ability to provide services for all facets of human life, its success in creating a co-operative economy base, and, most importantly, its widespread acceptance as a potent tool for social and economic advancement. Maharashtra's social and economic development has been significantly influenced by the co-operative movement.

Table 1.2 Business growth of DCCBs in Maharashtra (Members (000) and ₹ Crores)

Sr. No.	Particulars	1980-81	1990-91	2000-01	2010-11	2020-21
1.	No. of Banks	26	30	30	31	31
2.	Branches	1,703	3,147	3,722	3,715	3714
3.	Total membership	62	84	107	125235	133893
4.	Share capital	45.63	188.96	655.09	1646.0	3650.70
5.	Owned funds	102.06	375.87	2231.75	7844.6	16436.14
6.	Deposits	588.14	3199.40	19,519	46,873.66	97,714.18
7.	Borrowings	93.55	911.07	2241.45	3495.15	9814.66
8.	Working capital	835.26	4834.92	23,736.10	61,084.58	1,28,111.28
9.	Loan advanced	278.70	1,191.96	15,458	26,649.23	51,960.55
10.	Demand	363.91	1625.28	8,248.55	17,980.20	45,193.15
11.	Recovery	218.43	1107.12	5701.40	11,520.60	29,441.15
12.	Percentage of recovery to demand	60.0	67.7	69.12	64.07	65.15
13.	Loans overdue	144.52	561.51	2,546.87	6,459.60	15,752.00
14.	Percentage of overdue to demand	29.4	18.2	30.88	35.93	34.85
15.	No. of banks in profit	-	-	19	27	29
16.	Amount of profit	3.76	17.14	242.10	333.86	1430.14
17.	No. of banks in loss	-	-	11	4	2
18.	Amount of loss	-	-	170.29	493.53	144.64

(Source: National Federation of State Co-operative Banks Report, 2020-21.)

Maharashtra State Cooperative Bank (MSCB) is the apex bank for all the DCCBs in Maharashtra. It provides financial support, guidance, and supervision to the DCCBs in the state.

MSCB acts as a central coordinating agency for the cooperative credit structure and facilitates the flow of credit to the agricultural sector. The state has a robust network of DCCBs spread across various districts, collectively working towards providing accessible and affordable credit facilities to farmers, promoting rural development, and strengthening the agricultural sector.

If we go back over the last four decades since the foundation of the Maharashtra state, the availability of loans has increased significantly, but the increase in the number of borrowers has not been adequate. Without a doubt, from 2010-11 to 2020-21, the total amount of loans and advances rose from ₹ 26,649.23 crores to ₹ 51,960.55 crores. However, this was accompanied by an increase in overdue amounts that was more than proportionate (State Cooperative Bank Report, December 2020-21). The business growth of Maharashtra's District Central Co-operative Banks from 1980-1981 to 2020-2021 is shown in Table 1.2.

Due to the All India Rural Credit Review Committee's (1966) policy of one DCCB for one district, the number of banks decreased from 35 in 1960-1961 to 26 in 1980-1981 in India. In addition, the formation of four more districts in the state in 1982 caused the number of DCCBs increased to 30 in 1991, and to 31 in 2021. Due to the growth of the branches, the involvement of the government, and the extension of PACS, the owned funds of the DCCBs increased from ₹ 102.06 crores in 1980-81 to ₹ 16,436.14 crores in 2020-21. The deposits increased by 166 times, going from ₹ 588.14 crores in 1980-81 to ₹ 97,714.18 crores in 2020-21. Deposits increased significantly as a result of DCCBs' mandatory mobilization of deposits and minimal involvement policy. In Maharashtra, DCCBs' working capital expanded 153 times, from ₹ 835.26 crores in 1980-1981 to ₹ 1,28,111.28 crores in 2020-21.

Borrowings have also increased 104 times in the last four decades, from ₹ 93.55 crores in 1980-81 to ₹ 9,814.66 crores in 2020-21. Loan advances have also increased 186 times during the last four decades. Due to the adoption of numerous agricultural development programs, such as the Rural Infrastructure Development Fund, Kisan Credit Cards, and the engagement of NGOs, DCCBs lending policy underwent significant modifications. Aside from that, the bank has broadened its activities.

The DCCBs overdues in Maharashtra have increased from ₹ 144.52 crores in 1980-81 to ₹ 15,752 crores in 2020-21, indicating a massive growth in overdues over the last four decades. There have been no significant efforts to reduce the congestion. In the fiscal year 2020-21, 29 DCCBs were profitable, with a profit of ₹ 1430.14 crores, while 2 DCCBs experienced losses finance, with a loss of ₹ 144.64 crores. In today's competitive environment, DCCBs that do not make a profit may not have a strong financial foundation and thus will be unable to endure competition from external opposing and counteracting forces. As a result, the essential measures are required in terms of boosting owned funds, deposits, and loan recovery, as well as decreasing

the amount of overdues and overall expenditure. The removal of dual control over co-operatives, as well as government funding for recapitalization, were the measures required to establish co-operatives as strong, efficient, and viable institutions.

1.6 Financial highlights of Dhule and Nandurbar District Central Cooperative Bank

The Table 1.3 represents information about the financial highlights of Dhule and Nandurbar District Central Cooperative Bank.

The total number of banks decreased from 115 in 2000-01 to 84 in 2020-21. The Bank's constitution is a hybrid, with members comprised of individuals and co-operative societies. DNDCCB's total membership has increased from 3579 in 2000-01 to 4448 in 2020-21. Due to PACS increased membership and Government participation the DNDCCB's share capital has expanded from ₹ 17.07 crores in 2000-01 to ₹ 117.35 crores in 2020-21. The DNDCCB's reserve funds increased from ₹ 69.60 crores in 2000-01 to ₹ 125.92 crores in 2015-16 and eventually declining to ₹ 54.68 crores in 2020-21. Deposits increased from ₹ 341.77 crores in 2000-01 to ₹ 607.79 crores in 2020-21. The rise in the amount of deposits was primarily due to DNDCCB's compelled deposit mobilization.

Table 1.3 Financial highlights of Dhule and Nandurbar DCCB in Maharashtra
(₹ in crores)

Sr. No.	Particulars	2000-01	2005-06	2010-11	2015-16	2020-21
1.	Number of branches (No.)	115	111	110	91	84
2.	Total membership (No.)	3579	3737	3768	4207	4448
3.	Share capital	17.07	23.87	37.75	109.58	117.35
4.	Reserve funds	69.60	111.08	61.95	125.92	54.68
5.	Deposits	341.77	617.66	1125.73	516.73	607.79
6.	Borrowings	82.48	49.77	--	85.96	--
7.	Investment	82.29	171.58	689.68	236.43	313.62
8.	Working capital	594.66	905.84	1265.90	856.56	882.78
9.	Loan advanced	237.75	206.68	469.03	268.92	255.66
10.	Net Profit	123.70	-205.63	-117.86	89.76	-99.84

(Source: The profile of Dhule and Nandurbar DCCB 2021.)

Dhule and Nandurbar DCCB's working capital in Maharashtra has grown from ₹ 594.66 crores in 2000-01 to ₹ 882.78 crores in 2020-21. DNDCCB's total investment increased from ₹ 82.29 crores in 2000-01 to ₹ 313.62 crore in 2020-21. The bank has invested in bonds, trustee securities, government securities, shares of cooperative societies, as well as the Apex Bank and State Bank of India. The bank has provided the primary agricultural credit societies marketing societies with resources. Weavers, consumer societies, industrial cooperatives, spinning mills, salary earners societies, urban co-operatives, and bank co-operatives are a few examples. sugar factories, individuals, loans secured by gold ornaments, deposit receipts, durable goods,

transportation societies, project financing, etc. Over the past two decades, the amount of loans advanced also increased from ₹ 237.75 crores to ₹ 255.66 crores.

1.7 Financial schemes by Dhule and Nandurbar DCCB to rural development

1.7.1 Credit to farm sector

A. Short term loan

Short-term loan also called as crop production loan, that provided for the period of 6 to 18 months. It supplied by DNDCCB to purchase manures and fertilizers, seeds, pesticides, insecticides and fungicide. It also required by farmers to prepare soil for the growing of crops or the land for irrigation, purchase farm implements like, ploughs, plough-shares, spades, sickles, spraying machines etc. The crops covered are cotton, wheat, sugarcane, maize, pulses and oilseeds.

B. Medium term loan

The medium term finance provided for the period of 3 to 5 years. It required by farmer for different purpose viz; construction of surface wells excavation, deepening and cleaning of wells, construction of shallow and deep tube wells and construction of storage tanks, Life irrigation from river basins, tanks, bandanas. Also given for purchasing oil-engines, pump sets or other costly mechanical equipment like power-tillers, purchasing a tractor, purchasing livestock like bullocks or horses, or animal drawn carts, starting of dairy farm poultry, piggery, goat and sheep rearing.

C. Long term loan

The long-term finance was provided for the period of 5 to 10 years. Its purpose may be a major improvement to land, purchase of expensive and heavy machinery, construction of storage tanks, reclamation and preparation of land, and development of mechanized farming of new plantations, green houses, poly houses etc.

1.7.2 Credit to non-farm sector

The DNDCCB provided non-agricultural finance for various purpose to the following institutions.

1. Urban banks	2. Marketing societies
3. Sugar factories	4. Spinning mills
5. Consumer societies	6. Weaver societies
7. Bio-gas	8. Individual loan
9. Self Help Group	10. Education loan
11. Artisans societies	12. Cash credit accounts
13. Transport Societies	14. Computer loan
15. Salary earners societies	16. Receipts and NSC
17. Loan against gold	18. Industrial and labour contract
19. Overdrafts against fixed deposits	20. Sugar consortium

1.8 The problem

Undoubtedly, the most recent developments in agricultural production technology have allowed for an enormous increase in productivity. However, because the majority of the inputs are obtained from the non-farm sector, this innovation has also greatly increased the farm sector's capital requirements. Recent research in farm management economics has demonstrated the critical role that capital plays in the adoption of new technology. Farmers, especially marginal and small farmers, who constitute the majority of the agrarian hierarchy in terms of numbers, must depend on other sources of funding in order to meet their needs for farming due to the scarcity of essential and current inputs. Therefore, it is essential to provide timely and sufficient finance facilities in order to maintain and increase the use of modern inputs in agriculture. Therefore, the rate of agricultural development could be increased by giving farmers access to sufficient finance at the proper time, location, and institution.

In the past, private agencies effectively controlled the rural lending market. These companies usually took advantage of the borrowers by charging extravagant interest rates. As a result, there was a rapid rise in the number of rural people who were indebted, who were unable to escape debt throughout their lives, and even when their children were born, who continued to be held hostage by moneylenders. Nowadays, co-operatives are the primary institution that provides institutional financing to farmers. The DCCBs are crucial to the co-operative credit system as a whole. The DCCB's operation has a significant impact on the co-operative credit structure's success. These banks protect not only the PACS's security but also those of numerous other credit and non-credit societies throughout the district. Consequently, the district level requires the development of a strong and efficient DCC Bank. Such a powerful bank would serve as a centre of balancing through taking money from surplus societies and giving it to deficit civilizations.

Although the amount of credit the DCCB has extended to agriculture has increased over time, the flow is not consistent throughout all districts. The necessity for a scientific investigation into topics such as uneven loan disbursement in the present, the causes of such inequality, the efficiency of the DCCBs, loan disbursement concerns, and debt recovery in relation to the DNDCCB was felt. Since the Prudential Norms were made applicable to DCCBs in 1996-1997, these banks' recovery percentages have changed. As a result of this performance analysis of the Dhule and Nandurbar District Central Co-operative Bank (DNDCCB) in Maharashtra was conducted. It was decided to study the following particular objectives to evaluate the performance of DNDCCB with regard to various economic indicators, disparity in credit flow, causes influencing disparity in credit flow, and challenges experienced by DNDCCB in banking operations.

1.9 Objectives

The specific objectives of the study are as follows.

1. To examine the scale of finance and credit gap in DNDCCB.
2. To assess the inequality in disbursement of crop loans by DNDCCB.
3. To identify the factors responsible for disbursement of crop loans.
4. To analyse the performance of DNDCCB and constraints involved in credit supply.

1.10 Scope and utility of the study

The findings of this study will help in understanding the benefits and drawbacks of the DNDCCB in Maharashtra. The study will help the cooperative banks identify strategies for increasing the effectiveness of the various tasks that they carried out. The findings will be helpful in future planning for enhancing the operations of cooperative banks in various state regions.

The analysis is based on data collected from the DNDCCB in Maharashtra over a 36-year period, from 1985-1986 to 2020-21. Data from the DNDCCB were used to examine the disparity in short- and medium-term credit distribution. The response obtained in regards to the issues of the DNDCCB was having satisfactory. To gather information on issues and challenges, certain open-ended questions were posed to DNDCCB staff. It's possible that the officials' opinions will disagree. As a result, the study's efforts were rather limited. Despite these drawbacks, the study's findings will enable a thorough assessment of the DNDCCB's performance in Maharashtra.

2. REVIEW OF LITERATURE

The research work carried out in the past relevant to the present investigation were reviewed and presented in this chapter under the following subheads.

1. Scale of finance and credit gap.
2. Inequality in disbursement of crop loans.
3. Factors responsible for disbursement of crop loans.
4. Performance of DCCB and constraints involved in credit supply.

2.1 Scale of finance and credit gap

Jadhav and Kasar (2005) has been made an attempt to examine the performance of DCCBs in Maharashtra by way of studying the growth in performance indicators and estimating Performance Index (PI). The study was based on secondary data obtained from 30 DCCBs in Maharashtra for the period from 1985-86 to 2000-01. The study revealed that the performance of DCCBs in Maharashtra in terms of the number of branches, membership, share capital, loans and advances, and recovery was satisfactory during pre-banking reform period, i.e, 1985-86 to 1993-94. Further, a better performance was noted in respect of reserve funds, own funds, deposits, investment, profits and importantly, reduction in overdues and cost of management during post-banking reform period, i.e, 1994-95 to 2000-01. The higher magnitude of average performance index achieved by the DCCBs in Western Maharashtra and Konkan region indicated a developed system of DCCBs in these two regions. However, the performance of DCCBs in Marathwada and Vidarbha regions was not upto that level to ensure adequate flow of credit for agriculture. The regional inequality in the disbursement of credit was also noted. The study advocated the need to pay attention to the borrower members, which will lead to increase in the share capital and loan disbursement of agricultural purposes. The DCCBs were required to be operated more transparently to minimise the percentage of non-performing assets and disbursement may be made strictly up on the basis of repayment capacity of the borrowers, technical efficiency and economic soundness of the societies. The study suggested that efforts should be made to enhance deposit mobilisation and investment of funds in Government securities and fixed deposits for transparency in financial management.

Shah (2005) studied financial health of credit cooperatives in India. An analysis encompassing two case studies conducted in forward and backward regions of Maharashtra has shown deterioration in the financial health of central level credit cooperatives (Sangli District Central Cooperative Bank (SDCCB)) in forward region and gross inefficiency in their functioning (Buldana District Central Cooperative Bank (BDCCB)) in the backward region of

the state, mainly to their mounting NPAs or overdues. Because of substantially high NPAs, the fixed expenses of these institutions have been adversely affected, which in turn have grossly affected the break-even levels of loan advances and deposits of these credit institutions, so much so that there has been huge gap between the break-even levels of loan advances and deposits and the actual loan advances and deposits. In the case of BDCCB, the deficit between actual and the break-even levels were so high (about 60 %) that it will be wellnigh impossible for it to overcome this situation. High transaction costs, poor repayment performance, and mounting NPAs were the root causes of the moribund state of rural credit delivery through these cooperatives. The estimated trend over the past two decades in Maharashtra showed a slower growth in institutional finances through credit cooperatives and also in their membership during the decade of economic reforms (1991-2000) as against the decade preceding it (1980-1990). On the other hand, the outstanding loans of these cooperatives have grown at much faster rate as compared to their loan advances during both pre- and post economic reform periods. The slower growth in institutional finance through credit cooperatives during the decade of 1991-2000 was mainly due to adverse environment created by the financial sector reforms. Due to unfavourable policy framework, much of the deposits of the credit cooperatives were going into investments, instead of advancing loans to the farming sector. As a result, the C-D ratios of these credit cooperatives have been adversely affected. In brief, in order to rejuvenate rural credit delivery system through cooperatives, the root problems facing the system, viz., high transaction cost, poor recovery performance, and NPAs, need to be tackled with more fiscal jurisprudence reserving exemplary punishment for willful defaults, especially by large farmers, and the individual cases who have borrowed credit from these institutions. In fact, insofar as rural credit delivery through credit cooperatives was concerned, the focus should be on strategies that are required for tackling issues such as sustainability and viability, operational efficiency, recovery performance, small farmer coverage and balanced sectoral development.

Mohan (2006) studied status, issues and future agenda of agricultural credit in India. Agricultural credit has played a vital role in supporting farm production in India. Though the outreach and amount of agricultural credit have increased over the years, several weaknesses have crept in which have affected the viability and sustainability of these institutions. Following the shifts in consumption and dietary patterns from cereals to non-cereal products, a silent transformation was taking place in rural areas calling for diversification in agricultural production and value addition processes in order to protect employment and incomes of the rural population. In the changed scenario, strong and viable agricultural financial institutions were needed to cater to the requirements of finance for building the necessary institutional and marketing infrastructure. The difference now was that initiatives were needed in a disaggregated

manner in many different segments of agriculture and agroindustry: horticulture, aquaculture, pisciculture, dairying, sericulture, poultry, vegetables, meat, food processing, other agro-processing and the like.

Singh and Sukhmani (2011) analyzed productivity and profitability of DCCBs in Punjab. Bank and police are two universal organisations. One will find them in every corner of the world. Police is to control and maintain social order. Banks perform the function of economic police i.e they control, direct and stimulate economic development. Banks are vehicles to channelize the savings of masses in national production. Liberalization, privatisation and globalisation have compelled financial organisations world over to change their working environment, strategies, policies, structures and product lines. Cooperative credit structure which is an integral and important part of Indian Banking system is not immune to winds of economic change. As a result of uncertainty in production, low income generation and high transaction cost, agriculture financing is very risky business for banks. Therefore, commercial banking system was avoiding to finance agriculture operations and to fill this gap cooperative banks were organised as a tool of state policy. Agriculture being prime sector of Indian economy needs a very strong, efficient and effective institutional credit support even today. Therefore, it has been repeatedly stressed that the vitality and viability of the cooperative credit institutes must be preserved to enable them to function efficiently, as they were and will be, prime institutional agencies for agriculture and rural credit with their vast network, wider coverage and out-reach extending to remotest part of the country. In the context of the same, the present study focuses on evaluation of the performance of cooperative banks in the state of Punjab. Six DCCBs from the state of Punjab has been selected for the study. Their productivity and profitability have been studied for a period of nine years (1999–2000). It was found that profitability in all selected DCCBs of Punjab had shown a negative trend whereas the productivity improved significantly over the period of study.

Devi and Govt (2012) studied the role of credit co-operatives in the agricultural development of Andhra Pradesh, India. Andhra Pradesh is basically an agrarian economy and is known as “Granary of the South” by producing one-tenth of India’s total output of food grains. Initially the agriculturists depend more on non-institutional sources for their credit requirements which used to squeeze the blood of the poor peasants by charging high rates of interest. Hence adequate and timely credit to the farmers on liberal terms becomes Sinequa non. Cooperatives are considered as the agencies for mobilization and development of rural resources in a planned and cost-effective manner besides providing inputs, services and marketing facilities to the rural economy. In Andhra Pradesh, credit cooperatives are playing a significant role in serving the needy farmers by fulfilling their credit requirements. On this backdrop, an attempt was made to

analyse its role in the agricultural development of the state. The main objective of the study was to evaluate the performance of credit cooperatives by analyzing its deposits, credit and impact of credit on the beneficiaries. In the state, Co-operatives are functioning in most efficient manner by providing adequate, cheap and timely credit to agricultural sector. These are providing not only credit, but also non-credit services for all activities under primary, secondary and tertiary sectors of rural economy. Through cooperative credit the farmers benefitted to maximum extent by increasing their agricultural output which in turn increased their levels of employment and income. Hence it can be concluded that cooperative credit has become a powerful tool in the agricultural development of the state.

Stein *et al.* (2013) studied closing the credit gap for formal and informal micro, small, and medium enterprises. Job creation and economic growth through private sector development have become primary areas of focus for policy makers around the world in the aftermath of the global financial crisis. Recent evidence points to the importance of small and medium enterprises (SMEs) in providing employment across countries. In addition to employing the largest number of people in aggregate, SMEs generate the most new jobs. But SMEs also face many challenges in day-to-day operations and to grow. This note was a report back on the state of the credit gap for MSMEs with this new and updated data, while providing additional focus on the sizable informal enterprise sector in the developing world. In addition, this report examines various operational challenges that small and informal firms face, and some formalization obstacles they often cite as the primary reasons for not registering their business. A framework to differentiate the informal sector was offered, with the intention of segmenting the vast landscape of informal firms some of which exist today due to opportunistic behavior, while others were just trying to survive and to better design specific interventions depending on the stage of development and the willingness of the firm to register its business. The rest of this report was organized as follows. Section I focuses on the credit gap for formal MSMEs, and offers some innovative models and interventions that can be used to more fully meet the financial and non-financial needs of formal MSMEs. Section II focuses exclusively on informal enterprises, and goes beyond the access to finance paradigm, describing the operational challenges faced by informal firms, reviewing the experiments that have tried to induce higher rates of formalization, and looking at a series of private sector models that if combined, could more fully meet the needs of informal firms.

Singh and Kaur (2014) studied socio-economic impact of revolving cash credit to farmers. Rural cooperative credit structure is an important and integral part of Indian banking system. It has played a decisive role in economic development of India especially of rural economy. Technical support by Punjab Agriculture University and financial support by

cooperative banks are known to be ‘two pillars’ of green revolution in India which took place in seventies of last century. A well-defined rural credit system has already been developed to meet agriculture production oriented credit needs. However, for other socio consumption needs farmers are still dependent upon informal credit sources. To fill this credit gap cooperative banks of Punjab have taken a lead in 1997-98 and have started providing Revolving Cash Credit Facility (RCCF) to farmers. This study makes an attempt to assess the impact of this new product line on socio economic conditions of farmers. In this article profile of borrowers has been studied to know various aspects of borrowers. Detailed analysis of social and economic impact of RCCF on life of borrowers has also been conducted in selected DCCBs of Punjab (India). Some measures have been suggested to strengthen it further.

Beltran *et al.* (2021) studied optimizing credit gaps for predicting financial crises: Modelling choices and tradeoffs. Credit gaps were good predictors for financial crises, and banking regulators recommend using them to inform countercyclical capital buffers for banks. Researchers typically create credit gap measures using trend-cycle decomposition methods, which require many modelling choices, such as the method used, and the smoothness of the underlying trend. Other choices hinge on the tradeoffs implicit in how gaps were used as early warning indicators (EWIs) for predicting crises, such as the preference over false positives and false negatives. We evaluate how the performance of credit-gap-based EWIs for predicting crises was influenced by these modelling choices. For the most common trend-cycle decomposition methods used to recover credit gaps, we find that optimally smoothing the trend enhances out-of-sample prediction. We also show that out-ofsample performance improves further when we consider a preference for robustness of the credit gap estimates to the arrival of new information, which was important as any EWI should work in real-time. We offer several practical implications.

Suhendra and Anwar (2021) studied the role of central bank rate on credit gap in Indonesia by a smooth transition regression approach. This paper examines the effect of the interest rate set by Bank Indonesia on financial system stability as measured by the credit gap in Indonesia for quarterly data for the period 1976 Q1 to 2019 Q4. We suppose that the relationship between the Central Bank rate and the credit gap was non-linear. Hence, this study applies a smooth transition regression (STR) model to investigate the relationship between these variables. By performing STR estimation they obtained a threshold level of Central Bank rate of 2.01. Second, a decrease in the Central Bank rate results in a reduction in the credit gap when the Central Bank rate was above or below the threshold level. The effect of the Central Bank rate was five times greater for the high regime than for the low regime. Third, the study found evidence that the effect of the exchange rate, economic growth, inflation, and GDP per capita on the credit gap for the high regime was the opposite of the low regime. The study suggest that policymakers need to keep the Central Bank

interest rate low and stable so that the role of the bank as a financial intermediary remains stable and conducive to strengthening financial stability.

2.2 Inequality in disbursement of loan

Vaikunthe (2005) examined institutional credit to agriculture in his case study of DCCB in Shimoga district in Karnataka. He discusses its structure, membership and their socio-economic profile, crop loan availed by the Primary Agricultural Credit Societies (PACs) for farming and non-farm operations. The study was based on a survey of 100 crop loan beneficiaries in 5 taluka of Shimoga district. The crop loans were advanced by SDCCB through five PACs in the respective talukas. The study has focused only on four talukas, viz., Shimoga, Sagar, Thirthahalli and Hosanagar. The results of the study indicated that the average utilisation of crop loan was higher in the non-irrigated areas in Sagar, Hosanagar and Thirthahalli talukas compared to the utilisation of loan in the other categories of cultivation for farm operations. Purposewise the loanee farmers in all the four talukas have utilised maximum amount of crop loan for marriage expenditure in irrigated areas. The analysis also noted that the incremental income of the crop loan beneficiaries in the four talukas has been positive in the post-investment period as compared to pre-investment period.

Goyal *et al.* (2009) studied growth and regional inequality in rural credit flow in India. The flow of institutional credit to agriculture and allied activities increased at an annual compound growth rate of 16.57 per cent. The share of cooperatives in agricultural credit was about 63 per cent in 1980-81 which went on declining year after year and reduced to only 19 per cent in 2007-08. The decadal growth rate of agricultural credit disbursed by all the agencies indicate that the growth increased at the rate of 13.52 per cent per annum during 1980s which increased to 18.64 per cent in 1990s and this further increased substantially to 28.06 per cent during 2000-01 to 2007-08. Over the years, the share of co-operatives in the total Kisan Credit Cards issued has been declining whereas the share of commercial banks and regional rural banks has been increasing. On an average the loan advanced per borrower which was only ₹ 1486 in 1993-94 increased to ₹ 7259 in 2007-08 indicating about five-fold increase over this period. The amount of overdues increased at a compound growth rate of 13 per cent during this period. Wide fluctuation was noticed in the flow of agricultural credit per hectare of gross cropped area in different regions and across the states. The recovery of loan was recorded to be 64.33 per cent for the country as a whole. At the regional level, the recovery performance was the highest in the southern region and lowest in North eastern region. Interregional disparity was found to be relatively more in case of loans per member, loans per society, loans per ha of gross cropped area, number of societies in profit and deposits per member as compared to the number of

societies, overdues per member, overdues as percentage of demand (recovery performance), villages covered per society, cropped area per society.

Gaur and Khatkar (2011) studied institutional credit to agriculture sector across different regions of India. The study has analysed the potential for growth of institutional credit for agriculture sector across different regions of India. The evolution of institutional credit to agriculture could be broadly classified into four distinct phases—1904–1969 (predominance of co-operatives and setting up of Reserve Bank of India), 1969-75 (nationalisation of commercial banks and setting up of Regional Rural Banks), 1975-1990 (setting up of NABARD) and from 1991 onwards (financial sector reforms). The study was based mainly on secondary data. To test the significance of difference in credit flow and investment on market infrastructure development across different regions of the country the non-parametric ‘Friedman Test’ was applied, Cobb-Douglas production function was used in the analysis to ascertain the amount of loan disbursement and market infrastructure development. There was wide variation in the flow of agricultural credit across the states and regions of the country. The agriculturally well-developed states and regions are dominating the scene as lesser developed states are having low access to institutional credit. The per capita agriculture net domestic product was found to be the major determinant influencing the flow of agriculture credit in almost all regions of the country. Thus, a balanced credit flow in agriculture sector both for production and capital formation need to be emphasised with suitable policy interventions for sustainable agricultural growth and enhancement of productivity on equity basis across different regions.

Pagire and Nagane (2013) examined the crop loan disbursement to banana and grape crops by the co-operative banks in Western Maharashtra in their case study of Solapur DCCB. Sixty cultivators were selected randomly, i. e. 30 for banana and 30 for grapes. The data were collected by personally contacting the sample cultivators. The aspects like cost of cultivation of the selected crops, the crop loan disbursed to these crops and the credit gap at different levels of costs were worked out. In the case of the crops, banana and grapes (for the establishment and maintenance of orchard), the scale of finance decided or provided by the SDCCB was not enough at working capital (expenses), total cost (i.e. cost 'C') and 50 per cent of total cost (i.e. of cost 'C') levels. The scale of finance decided by the SDCCB was not enough. Furthermore, in the context of the inflationary trend of all crucial inputs prices being used in the banana and grapes cultivation, this scale cannot be justified. It is therefore, necessary to raise the scale of finance for these crops by the SDCCB, in particular and other financing agencies, in general for these crops.

Tripathi (2017) studied credit for agricultural households in India. Why has the share of non-institutional finance sources for agricultural households not come down between 2002 and

2012? Is the dependency on non-institutional sources is the same across farm size classes? Who are the major beneficiaries of the revival in agricultural credit in the 2000s? Are larger farmers becoming more productive and commercial thus requiring higher levels of credit? Are small farms becoming unviable, making it difficult for banks to finance them? This paper examines these issues empirically based on data from the Situation Assessment Survey (SAS) of Agricultural households and the All-India Debt and Investment Survey (AIDIS) conducted by the National Sample Survey Organization (NSSO) in its 59th (i. e. 2003) and 70th round (i. e. 2013) and various publications from the Reserve Bank of India.

Raut *et al.* (2018) studied regional inequality in medium term credit flow by the DCCBs in Maharashtra, India. A co-operative bank is a financial entity which belongs to its members, the owners and the customers of their bank. Agriculture sector plays a strategic role in the process of economic development. As the World Bank describes, “Credit is often a key element in the modernization of agriculture”. In India, agriculture loans are mostly provided by cooperative banks, commercial banks, regional rural banks etc. among these co-operative banks play an important role in the rural credit.

Sinha and Kundu (2018) studied disbursement of personal loans by scheduled commercial banks in India. The focus of the paper was to analyse the position of personal loans disbursed by the scheduled commercial banks in India for the period of 2004-05 to 2015-16. RBI data show that the maximum share of total personal loan goes mostly to the Southern region which was distantly followed by the Western region and a very small percentage remains for the North-Eastern region. With regard to the regional concentration of the personal loan portfolio of banks, the Herfindahl-Hirschman index (HHI) value lies in the range of 2379 to 2604. In terms of inequality in distribution across the regions, disparity was quite high with Gini coefficient value ranging between 35 and 40 during the period. In terms of growth rate of personal loan per capita, the Southern and Western regions come at number two and three, respectively. The growth in this loan category in the North-East was surprisingly more than the other states and this was mainly due to the sudden rise in flow of this loan during the past few years. With regard to the inter-regional difference, the statistical tests show a significant difference among the regions.

Mohapatra and Mishra (2020) studied status of institutional credit disbursement of agricultural sector in Odisha, India. The analysis has revealed that the credit disbursed for the crop loan, term loan and allied loan has been increased over the period of time. The growth rates in crop loan disbursement among the institutional sources showed that co-operative banks registered significantly highest growth of 18.05 per cent followed by commercial banks at 17.27 per cent and regional rural banks at 7.22 per cent and all significant at different per cents of

probability level. Commercial banks were the major sources of term credit followed by co-operative banks and RRBs. The percentage of NPA to total outstanding has been recorded highest in case of regional rural banks followed by co-operative banks and commercial banks. Over the period of time it has been seen a gradual decrease in percentage of NPA to total outstanding in every cases of banks. The study has suggested improved modifications and policy measures that government should start for simplification of the procedure for a better access to agricultural credit of smallholders and less-educated/illiterate farmers.

Naik (2021) studied the impact of institutional agricultural financing on socio-economic aspects of farming community in Goa. The sample considered in the study were farmers and bankers designated as managers. Secondly, the study aims at identifying the problems faced by farmers in borrowing institutional agricultural financing through banks in the state of Goa. It also identifies the difficulties among bank managers for authorizing farm loans to farmers. The inclinations of farmers for accomplishing loan for agriculture through different private and public area banks are additionally analyzed. The finding reveal that there exists significant difference between term of loan and recovery of loan by bank officials through agricultural financing, loan sufficiency and recovery of loan by bank officials, types of crops cultivated and land ownership in agricultural financing, medium of sale for crops and types of crop cultivated whereas there was no significant difference between external factors such as weather conditions, inferior quality of input and causes for overdue in agricultural financing. There was enough evidence to conclude that, according to Pearson's correlation test, there was a relationship between loan monitoring and loan recovery by bank officials. The impact of bank employees' knowledge about various loan schemes and their perceptions of bank executives' behaviour on the probability of banks granting the requested loan sum was investigated. Both variables contributed to the model's important relationship. The association between the system of cultivation used and the types of farm land was found to be important in a categorical regression study. The study of correlation using Spearman's Rank with factors such as lack of repayment subsidy and complex recovery methods have a greater association in agricultural lending, according to correlation. On the other hand, where farmers with small land holdings were given agricultural financing, there is a stronger link between small land holdings and social political influence. The Bankers data also showed that there was correlation between time lag in loan sanctioning and loan disbursement. The Concordance test defined classes of significantly related variables, such as agricultural lending percentage achievement and agricultural lending xxii percentage default. When considering agricultural loans through banks, the large number of small agri borrowers and restricted space for agricultural expansion were important considerations. In terms of the proportion of crop loans to agricultural loans, there was a

shortage of funding from Government agencies. Furthermore, crop deceptions and family circumstances cause farmers to participate in unsustainable ventures, reducing their willingness to invest in crops. The research was limited to the state of Goa. As a consequence, the findings may not be relevant to other fields. The conclusion reached and the generalisations made were directed specifically at farmers in the state of Goa. This study was focused on farmers in Goa taking out bank loans for agricultural purposes. However, study satisfaction can vary over time, depending on agroclimatic, financial, technological, and socio-economic factors.

Purwanto and Lidasan (2021) studied the positive effects on economic growth and negative effects on income inequality by financing of the medium, small and micro enterprises sector by sharia banking. This study was aimed to find empirical evidence that the financing provided by Islamic banking in Indonesia has a positive effect on economic growth and reduces income inequality. The method used in this study was analysis of Structural Equation Model PLS using WarpPLS. The analysis shows the empirical evidence that the financing of the MSMEs sector by Islamic banking has significant positive effect on economic growth and significant negative effect on income inequality. Economic growth has also been shown to have a negative effect on inequality. However, the results of the analysis show that the economic growth was unable to mediate the relationship between financing of MSMEs sector toward income inequality. This study concludes that financing the MSMEs sector by Islamic banking can increase economic growth in Indonesia and have an impact on reducing people's income. The contribution of this research was that the financing of the MSMEs sector by Islamic banking must be increased because it can increase economic growth and reduce income.

2.3 Factors responsible for disbursement of crop loans

Jadhav *et al.* (2007) studied rural finance and inequality in credit flow through DCCBs in Maharashtra. The study examines the financial management, magnitude and direction of inequality in the flow of short-term credit amongst the different regions of the state and factors influencing the inequality in short term credit disbursement of DCCBs in Maharashtra. The study is based on secondary data obtained from the annual reports of 30 DCCBs in Maharashtra covering the period of 16 years, i.e., from 1985-86 to 2000-01. The regionwise and periodwise performance in respect of growth in loans and advances were estimated with the help of compound growth rates. The annual rates of compound growth were estimated for three different periods, i. e., Period I (1985-86 to 1993-94), Period II (1994-95 to 2000-01) and Period III (1985-86 to 2000-01) which covered the entire study period. The coefficient of variation (CV), Theils Entropy Coefficient I (Y_i), Gini ratio and Lorenz curve were used for measuring both intra and interregional inequality. In order to study the factors influencing inequality in per hectare short term credit flow by DCCBs, a multiple linear regression analysis was attempted for

all the regions and state as a whole, separately covering the period from 1985-86 to 2000-01. In the base year (1985-86) and terminal year (2000-01), the DCCBs from Western Maharashtra region had maintained the highest position in terms of disbursement of loans and advances. Over 80 per cent of the total loans and advances issued were in the form of short-term loans and the remaining being medium term and other loans and advances indicating focused emphasis on short term loans by the DCCBs from Maharashtra. The total loans advanced by the DCCBs in Maharashtra state increased by 12.76 per cent per annum for the entire period. The region wise results revealed that the magnitude of compound growth of total loans in the Western Maharashtra was high (14.77 %) as compared to Vidarbha (13.69 %) and Marathwada (12.85 %). The better performance of DCCBs in Western Maharashtra, Konkan and Marathwada regions and state as a whole was noticed for disbursement of loans, during Period I, while in Vidarbha region it was in Period II. The trend analysis of Theil's entropy coefficient and coefficient of variation showed a significant decline in inequality in short-term credit flow in the Konkan region during the entire period. In the Marathwada region, the coefficient of trend equation indicated a slight but non-significant increase in inequality in short-term credit flow. The results of Gini ratio and Lorenz curve for short-term credit flow showed an increase in intra-regional inequality in the average year (1993-94) and subsequently reduction in inequality during the year 2000-01. The interregional inequality in the short-term credit flow showed subsequent reduction in inequality in the average year (1993-94) and terminal year (2000-01) in Western Maharashtra and Konkan region. In the Marathwada region, a slight non-significant increase in inequality in short-term credit flow was evident. The gross cropped area, average rainfall and deposits with the DCCBs were observed to be the most important factors influencing the regional inequality in the disbursement of per hectare short term credit in all the regions as well as the state as a whole. It was suggested that due importance needs to be given to borrower members, which will lead to increase in loan disbursement. It was also suggested that the official machinery of DCCBs should make efforts to minimise the inequality in disbursement of short-term loans.

Kumar *et al.* (2010) studied status, performance and determinants of institutional credit to agriculture sector in India. The institutional credit has been conceived to play a pivotal role in the agricultural development of India. The study was based on the secondary data compiled from several sources, has revealed that the institutional credit to agriculture in real terms has increased tremendously during the past four decades. The structure of credit outlets has witnessed a significant change and commercial banks have emerged as the major source of institutional credit in recent years. But, the declining share of investment credit in the total credit may constrain the sustainable agricultural growth. The quantum of institutional credit availed by the

farming households was affected by a number of socio-demographic factors which include education, farm size, family size, caste, gender, occupation of household, etc. The study has suggested simplification of the procedure for a better access to agricultural credit of smallholders and less-educated/illiterate farmers.

Ibekwe and Ukoha (2011) studied determinants of loan acquisition from the financial institutions by small-scale farmers in Ohafia Agricultural zone of Abia State, South East Nigeria. The study was designed to analyse the determinants of loan acquisition from financial institutions by small-scale farmers in Ohafia Agricultural zone of Abia state, South East Nigeria. Data were collected with structured questionnaire from 100 randomly selected farmers. Data were analyzed using simple descriptive statistics and multiple regression models. Results show that, the farmers committed their loans to agricultural production and only a few divert their loans. Factors influencing the amount of loan disbursement by financial institutions were age of the farmers, level of education, farming experience and farm size. Financial institutions were encouraged to disburse more loans to farmers to improve their income and alleviate household poverty in the State.

Singh and Lal (2011) studied the problems of rural cooperative credit in India. Rural Cooperative Banking and Credit Institutions play an important role in meeting the growing credit needs of rural India. Cooperatives are based on the principles of autonomy and independence. The cooperative banks like Primary Agriculture Credit Societies are working in the country to meet the demand of short term and medium term credit. But the rural credit cooperatives in the country are in an impaired state at present. Strengthening financial resources base of the various cooperative credit institutions and enterprises was definitely a priority area for working out a competitive edge for cooperatives in the field of short term and medium term credit system. Despite the phenomenal outreach and volume of operations, the health of a very large proportion of these rural credit cooperatives has deteriorated alarmingly. Several factors have led to the impairment of the cooperative credit structure in the country. Present article was an attempt to understand the underlying reasons for the impairment of cooperative credit institutions in the country.

Bhosale *et al.* (2013) studied factors influencing flow of short-term agricultural credit in Konkan Region of Maharashtra. Four districts i.e Thane, Raigad, Ratnagiri and Sindhudurg were selected for the present study. Under these four, DCCBs of the selected districts, 1044 Primary Agricultural Credit Societies were working during the year 2008-09. Short term loan disbursement was obtained from the publication of NAFSCOB, annual reports of DCCBs, progress reports and other records of banks. The time series data on gross cropped area, net cultivated area, area under horticultural crops and average rainfall were collected from the

published reports/bulletins of Government of Maharashtra. This information was used for factors influencing inequality in disbursement of total short term loan. The methods of analysis employed were used to regression analysis.

Kumar *et al.* (2017a) studied effect of agro-economic variables on disbursement of agricultural credit in Bihar. Agricultural production process is biological in nature and has comparatively long transition period, resulting in a wide time gap between investment and income. For the long production and marketing period, the available fund with the farmers was not found sufficient. Credit requirement of the farmers has increased manifold in Bihar, particularly because of using more and more of purchased inputs i.e. high yielding variety seeds, fertilizer, irrigation, micronutrients, pesticides etc. The study was based on time series data of Bihar for a period of 25 years that was from 1980-81 to 2005-06. It was found that association between agricultural credit flow and different variables as the percentage area under HYV, percentage area under irrigation, percentage area under non cereal crops, fertilizer consumption per hectare and no of PACS per 1000 villages, land holding and agricultural labour use was positive.

Kumar *et al.* (2017b) studied impact of socio-economic variables on disbursement of agricultural loan. Higher development of area in terms of infrastructure as availability of markets, electricity, roads, literacy also increase the profitability in agriculture and thus necessitates the credit requirement in agriculture. The study was based on time series data of Bihar for a period of 25 years that was from 1980-81 to 2005-06. It was found that association between agricultural credit flow and different socio-economic and infrastructure variables when it was analysed for different categories of districts classified on the basis of per hectare agricultural loan. The proportion of electrified villages, road length per 1000 kms of geographical area, literacy per cent, number of dairy co-operatives per 1000 villages, population per bank branch and per capita electricity consumption were comparatively high in districts of category D than the category of districts A, indicating the association of these socio economic and infrastructural variables with agricultural credit flow in different districts of Bihar.

Florence and Nathan (2020) studied the effect of commercial banks' agricultural credit on agricultural growth in Uganda. Over the past one-decade, commercial banks in Uganda have progressively lent credit to agriculture. However, the increasing commercial bank's agricultural credit disbursements have not translated into commensurate increase in agricultural GDP growth. Upon this backdrop, the study sought to examine the short run and long run impact of the commercial banks' credit on agricultural sector growth. Using quarterly time series data sourced from bank of Uganda and Uganda bureau of statistics over the sample period of 2008Q3-2018Q4, the study applied the Autoregressive Distributed Lag (ARDL) approach to examine that the short run and long-term relationship between commercial banks' credit and Uganda's agricultural GDP

performance. In the long run, they found credit to have significant positive impact on agricultural output. Credit to production was found to have a much higher impact on agriculture output compared to credit to processing and marketing. In the short run, we find bank credit not to have an instantaneous impact on agricultural output. The study provides evidence that commercial banks' agricultural credit contributes significantly to Uganda's agricultural sector GDP. Specifically, the study provides evidence of the segment of the agriculture value where credit has the highest impact. This paper contributes to providing policy options for improving agricultural GDP performance in Uganda for example de-risking production segment.

Sinha and Kundu (2020) Explored the factors that determine flow of agricultural credit to Indian states. The issue of agriculture and agricultural credit has always gained importance in the context of India. The present research looks at various important aspects of agricultural credit which include growth trends and determination of factors that influence flow of credit to the different states. The findings were based on analysis of twenty-nine states for the period 2007-08 to 2017-18. The empirical research shows wide disparity across regions with the maximum flow to the southern region and the minimum to the north-east of the country. The study traces the growth in agricultural loans and finds that nature of the curve was in the quadratic form where the rate of decline was much less compared to the rapid rise in the growth of loans in all the regions. With regard to the panel regression model, cropping intensity, lending rate and inflation rate have a significant effect on flow of credit to states (at 1% level). However, though the share of agriculture in the state GDP matches the expected sign, the coefficient was not significant even at 10 per cent. The study was a unique one which was an improvement over the earlier studies. However, non-availability of data for all states and exclusion of non-financial considerations at the state level were the limitations of the study.

Karbhari (2022) studied the share of agriculture sector in total credit provided to priority sector by different financial institution for Jalna district, Maharashtra. The institutional credit system has been conceived to play a pivotal role in agricultural development in India. The maximum number of Institutional credit agencies involved in the disbursement of credit to Agricultural sector. However the persistence of money a lender in the rural credit market has still a major concern. In this backdrop the present study has examined the performance of agricultural credit flow and identified the determinants of increased use of institutional credit at the farm household level in India. The study was based on the primary data and secondary data from several sources has revealed that the institutional credit to agriculture real terms has increased but covid-19 situation credit disbursement system has disturb totally in this situation credit disbursement ratio has decreased for banks to farmers. the credit disbursement major

source has commercial bank followed by Regional rural bank, Private bank and lastly cooperative bank in the study area. But ratio of credit disbursement has less in the marginal and small as compare to medium and large farmers in the study area. The socio-economic factors was responsible for credit disbursement like less awareness about credit, illiteracy rate, timely availability of loan etc. the study has suggested arrange the awareness programs, to overcome the illiteracy government officers to be appointed at each gram panchayat level

2.4 Performance of District Central Co-operative Bank

Satyasai (2008) studied structural constraints and some corrective measures in rural credit delivery in India. In view of the importance of rural credit to agriculture and rural development, this paper has examined a few structural constraints that hamper the credit delivery and has discussed some of the measures taken to improve the situation. The public policy on rural credit in India has been focussed on institutionalisation as a means of providing cheaper credit to farmers. As a result, the share of private moneylenders has decreased substantially from 93 per cent in early-1950s to 31 per cent by 1991. Disturbingly enough, they have emerged as an important source, more so for the resource-poor with a share of 39 per cent by 2002. The multiagency system onset for giving a wide choice to farmers has turned out to be ineffective due to deficiencies of design and architecture. Also, ailing cooperatives, backtracked RRBs and commercial banks with waning interest in rural credit have contributed to the ineffectiveness of the multiagency system, hampering the credit delivery. Several measures have been taken to revitalise the system from time to time. Cooperatives were being given a package assistance for revival following the Vaidyanathan Committee Report. RRBs have been amalgamated and were being given capital to cleanse up their balance sheets. Commercial banks have been successfully involved in 'Farm Credit Package' for doubling the credit and other initiatives of Government of India. The SHG-bank linkage has been promoted on a large scale to supplement rural credit delivery. But, its high transaction costs make it a costly alternative, especially when the business was handled solely by NGOs/MFIs. A thorough overhauling of the rural credit system and its restructuring was the need of the hour. However, it cannot be effective if done alone in isolation without revitalising the Indian agriculture itself.

Chander and Chandel (2010) studied financial viability and performance evaluation of co-operative credit institutions in Haryana (India). Co-operative Banks were organized and managed on the principals of co-operation, self-help, and mutual help. These have been playing imperative role in Indian financial system with broad network in both urban and rural areas. Around three hundred and seventy two DCCBs with large number of branches and extension counters cater to the needs of nearly one lakh societies in rural India. In Haryana nineteen

DCCBs with more than two hundred branches have been facilitating self-sufficiency in food grain production, creation.

Devaraja (2011) analysed the institutional financing and agricultural credit policy in India. This working paper attempts to analyse the issues in institutional credit in India. The analysis revealed that the credit delivery to the agriculture sector continues to be inadequate. Facilitating credit through institutional sources – commercial banks, cooperatives and RRBs that are vertically integrated with the farmers for providing them critical inputs or processing their produce, could increase the credit flow to agriculture significantly. Agricultural credit was disbursed through a multiagency network consisting of Commercial Banks (CBs), Regional Rural Banks (RRBs) and Cooperatives. An assessment of agriculture credit situation brings out the fact that the credit delivery to the agriculture sector continues to be inadequate. It appears that the banking system was still hesitant on various grounds to purvey credit to small and marginal farmers. The situation calls for concerted efforts to augment the flow of credit to agriculture, alongside exploring new innovations in product design and methods of delivery, through better use of technology and related processes.

Hooda (2011) studied evaluation of financial indicators of DCCBs in India. Co-operative banks have made significance progress in various important sectors of Indian economy. DCCBs were very common and well recognized institutions among co-operative credit institutions. DCCBs provide the necessary financial resources to PACSs and were responsible for their recovery. DCCBs are of two kinds, viz., pure and mixed. They have played significant role in the development of rural economy of India. The present paper explores and evaluates the growth and progress made by all DCCBs in India. It was found that all the financial variables (capital, reserves, deposits, advances, demand, collection and overdues) increased with higher growth rate during 1995-1999 followed by the phase 1995-2009, 2000-2004 and 2005-2009 respectively on the basis of ACGR. The management of DCCBs and policy makers of these banks should focus on the corporate governance, professionalism, better outlook of branches, various attractive schemes of deposits and speed up the procedure of computerisation, etc.

Rachana (2011) studied financial inclusion and performance of rural co-operative banks in Gujarat. In an Index of financial inclusion, India has been ranked 50 out of 100 countries. Only 34 per cent of the India's population has access to basic banking services. The objective of the paper was to study financial inclusion in rural areas, reasons for low inclusion, satisfaction level of the rural people toward banking services and to assess the performance of the banks which were working in the rural areas which mainly include the co operative banks and regional rural banks. Structured questionnaire designed on the basis of literature review was used to collect data from 200 people residing in Ambasan, Jotana and Khadalpur villages of Gujarat.

The paper first describes in detail the financial inclusion status in India and Gujarat followed with a review of scenario at the global level. The third section analyses the data with the help of Chi-square test and Tabulation followed with the discussion of analysis, recommendations and conclusion indicating that there were lot of opportunity for the commercial banks to explore the rural unbanked areas. Though RRBs and PACS have good coverage but most of them were running into losses. Commercial banks should seize this opportunity rather than looking at it as a social obligation.

Chandel (2012) studied financial performance of DCCBs in Haryana. The origination of co-operative credit institutions (CCIs) in India was made nearly 120 years back with the founding principles of self help and mutual help. With the passing of Co-operative Credit Societies Act 1904, the official efforts were started to eradicate the peculiar peasantry problems and other financing problems of common public and that is continuing even today through various committees and legislations. The face and pace of CCIs has changed drastically due to the competition from commercial banks, undue political interference, scams in co-operatives and failure/closure of various co-operative banks. The co-operative banks which were previously conceived as the best substitutes for money lenders have been struggling for sustenance. However these banks have played vital role in making available short and long term financing in both rural and urban India yet their performance in the last few decades has been questionable. The failure/bankruptcy of nearly 100 co-operative banks has cost dearly and above ₹ 1000 crore to the DICGC/RBI in last decades. Considering these facts it becomes crucial to analyze the financial position of these banks minutely and genuinely. Out of total 372 DCCBs in India, 19 DCCBs have been operating under four divisions in Haryana. In the present paper an attempt was made to make profound comparative financial analysis of eleven DCCBs operating in Ambala and Rohtak divisions in Haryana (India). The financial data for a period of twelve years (1997-98 to 2008-09) has been tested with the statistical tools and parameters like- profitability, liquidity, solvency, efficiency and risk. The end results reveal that these banks have been in awful situation as all the banks have poor financial performance and have been suffering from the financial mismanagement. The Government should take immediate workable measures for their revamp.

Das (2013) evaluated the performance of the West Bengal State Co-operative Bank Ltd. Present study evaluates the performance of the West Bengal State Co-operative bank Ltd. from the year 2001-02 to 2010-11. The objectives of the paper were to explore and evaluate the growth prospect, operational profitability, stability and recovery performance of the WBSCB Ltd. In order to measure the growth prospect of the banks some important parameters like deposits, loans and advances, and business were analysed. The study shows that all the variables

exhibited positive and significant growth during the period of study. It was found that overall profitability of the bank during the study period is satisfactory as "Burden Coverage Ratio" in all the years was more than one. Results obtained in the study shows that WBSCB Ltd. have satisfactory Z score that means probability of book-value insolvency has decreased during the study period, suggesting that banks were sufficiently stable during the period of study. The study found that recovery performance of WBSCB Ltd. was satisfactory during the period of study. The management of WBSCB Ltd. should focus on diversification of business activities of the banks, modernization of the services rendered by the bank, proper methods of borrower appraisal and credit management.

Rani (2016) studied financial performance of selected DCCBs. Finance is an essential requirement for every productive activity. Agriculture in India needs more attention as it provides livelihood for 65 per cent of population and directly contributing 20 per cent to the national income. It is obvious that the contribution of agriculture sector to the national income is not in line with the number of people engaged in that sector, which calls for an immediate attention for increasing the production and hence for a prosperous agricultural economy. The formation of cooperative society was to provide agricultural loan at reasonable rate of interest was one of the mottos of cooperative movement at the initial stage.

Kumar and Bhatnagar (2021) studied demystifying the role of cooperatives banks in financial inclusion. Financial inclusion facilitates households' access to and use of financial services and thereby improves their socio-economic wellbeing. Cooperative banks have played a critical role in the countryside to reach the rural poor through collateral-free lending practices. In this study, we analyze the microfinance business model of a DCCB and its role in financial inclusion. The study finds that DCCB has innovated unique approaches to reach the unbanked and under-banked rural segments through microfinance-plus services. As a result, the bank could reach 0.5 million poor households at the bottom of the pyramid and could attain profitable microfinance businesses. Commercial, rural and cooperative banks have ample policy direction from this study to adopt a similar microfinance business model and to make financial inclusion a sustainable development effort.

3. RESEARCH METHODOLOGY

3A. Methodology

This chapter is devoted to a brief overview of the approach used to achieve the present study's objective. It looks into the data sources, sampling design, data collection method, and meanings of various variables chosen for investigation, as well as the method of analysis used in data analysis in relation to the study's objectives. The primary goal of this study was to examine the performance of Dhule and Nandurbar DCCB (DNDCCB) during the last 36 years, from 1985-86 to 2020-21. The technique used is outlined under the following headings in accordance with the study's objectives.

- 3A.1 Data requirements and sources of data
- 3A.2 Meaning of terms and concepts used in the study
- 3A.3 Sampling technique
- 3A.4 Method of analysis

3A.1 Data requirements and sources of data

As the analysis is based on macro-level data, an attempt has been made to estimate period wise growth rates of performance of various indicators in DNDCCB during a 36-year period from 1985-86 to 2020-21. Time series data on the number of branches, membership, share capital, working capital, reserve funds, borrowings, deposits, investment, loan issued, loan outstanding, loan recovery, loan overdues, and cost of management were obtained from published data of NAFSCOB and annual reports of DNDCCB. The time series data on gross cropped area, commercial cropped area, horticulture cropped area, and average rainfall were obtained from the Maharashtra Government's published publications. This data was utilized to identify regional inequality and the factors that influence regional inequality in the distribution of per hectare short-term loans.

The inquiry into the problems faced by DNDCCB in their performance and corrective measures was carried out with the help of opinions and suggestions obtained through personal contact from the Chief of Agricultural Loan Sections, General Manager, and Member of Management Committee of DNDCCB.

3A.2 Meaning of terms and concepts used in the study

3A.2.1 Agricultural credit

The term agricultural credit includes two types of credit viz., short-term credit and medium-term credit at the district level, rather than at the individual level.

3A.2.2 Short-term credit

The short-term credit refers to the amount of credit available for the purpose of crop production from the District Central Co-operative Banks for the period of 12 to 18 months.

3A.2.3 Medium-term credit

This refers to medium-term investment credit made available by the District Central Co-operative Banks for the period of 3 to 5 years.

3A.2.4 Irrigation

It is measured in terms of the proportion of the gross irrigated area to gross cropped area. It represents the developments in terms of spread of irrigation.

3A.2.5 Commercial crops

It is expressed as the proportion of area under commercial crops to the gross cropped area. The commercial crops include cotton, sugarcane and summer groundnut, which generally need higher credit facilities.

3A.2.6 Horticultural crops

It is expressed as the proportion of area under horticultural (fruit) crops to the gross cropped area. Horticultural crops include the area under grapes, mango, pomegranate, guava, coconut, orange and other fruit crops.

3A.2.7 Rainfall

The quantum of rainfall (mm) received during the particular year is taken as the weather parameter.

3A.2.8 Deposits

It is measured as the amount of total deposits (Rs.) mobilized by the DCCBs.

3A.2.9 Credit flow

This refers to the amount of short and medium term through PACS agricultural credit made available to the farmers by District Central Co-operative Banks in each of the districts.

3A.2.10 Other investment

It includes investment in SCB mutual arrangement scheme deposits, SCB reserve fund and shares of Industrial Finance Corporation.

3A.2.11 Investment in government security

It includes cotton monopoly and State and Central Governments debentures.

3A.2.12 Investment in other trusts

It includes investment in sugar factories, IDBI bonds, Indira Vikas Certificates and NABARD bonds.

3A.2.13 Other loans and advances

It includes long-term loan and advances.

3A.3 Sampling technique

The Dhule and Nandurbar District Central Co-operative bank in Maharashtra was selected purposively for the study. The study collected past 36 years (1985-86 to 2020-21) data on different factors based on the availability.

3A.4 Method of analysis

To accomplish the objectives under study, different analytical tools were employed to analyse the data. The methods of analysis employed were tabular analysis, growth function, inequality measures like coefficient of variation, regression analysis etc. The performance of DNDCCB was analysed with the help of different performance indicators by simple tabular method of analysis besides estimating their compound rates of growth.

3A.4.1 Scale of finance and credit gap in Maharashtra

The schedules of the scale of finance of the DNDCCB for the year 2020-21 were utilized for analysis of scale of finance offered by the DNDCCB. The actual data of cost of cultivation of different crops for year 2020-21 were obtained from CPMCC Scheme, Department of Agricultural Economics, MPKV, Rahuri.

This actual data of cost of cultivation were compared with the scale of finance recommended by the state level and district level finance committee to work out the credit gap.

3A.4.2 Measures of inequality in credit flow by DNDCCB

The inequality in disbursement of short term and medium-term loans by DNDCCB were assessed with the help of following measures of inequality.

To accomplish the objective relating to the inequality, the coefficient of variation (CV) and Cuddy and Della Vella Index were calculated over a year by using the following formula.

$$CV = SD/Mean \times 100$$

Where,

- CV = Coefficient of variation
- SD = Standard deviation
- Mean = $\sum x/n$
- X = Per hectare credit
- n = Number of districts

Then taking CV as dependent variable and time as independent variable, a linear equation viz.; $CV = a + bt + u$ was fitted to examine the trend of variation. The regression coefficients were tested for significance. A significant positive regression coefficient indicates an increase in the variability in credit flow while a significantly negative regression coefficient indicates a tendency of reduction in variability over the 36 years period (1985-86 to 2020-21).

$$Cuddy - Della Vella Index = CV X \sqrt{1 - r^2}$$

Where,

r^2 = Coefficient of multiple determination

3A.4.3 Identifying the factors influencing in credit flow

In order to study the factors influencing per hectare short term credit flow by DNDCCB, a multiple linear regression analysis was carried out.

The form of the equation is as below

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + u$$

Where,

Y = Per hectare short term agricultural credit (Rs.)

a = Constant

b_{is} = Regression coefficients

X₁ = Gross cropped area (lakh hectares)

X₂ = Proportion of area under commercial crops to gross cropped area (Per cent)

X₃ = Proportion of area under horticultural crops to gross cropped area (Per cent)

X₄ = Annual rainfall (mm)

X₅ = Total deposits in crores of rupees

X₆ = Short term agricultural loan recovery (Per cent)

u = Error term.

Zero order correlation matrix including all the possible factors along with the dependent variable was worked out for examining the problem of multicollinearity. The significance of the coefficients of each of the variables from the estimated model was tested with the help of 't' statistic and goodness of fit was judged on the basis of analysis of variance.

3A.4.4 Tabular analysis

Simple tabular analysis was employed to evaluate the performance of DNDCCB over the period of time. The following composition proportions and ratios of various co-operative performance indicators were calculated for a period of 1985-86 to 2020-21.

- | | |
|---|--|
| 1. Composition of membership | 2. Composition of share capital |
| 3. Composition of working capital | 4. Composition of owned funds |
| 5. Composition of cost of management | 6. Composition of deposits |
| 7. Composition of overdues | 8. Composition of investments |
| 9. Composition of loan advances | 10. Composition of loan outstanding |
| 11. Composition of loan collection | 12. Credit-Deposit Ratio (CDR) |
| 13. Percentage of overdue to loan Outstanding | 14. Ratio of cost of management to Working capital |

3A.4.5 Estimation of rates of compound growth in performance indicators

The growth in the progress of the performance indicators was estimated by using per cent change over the base period 1985-86. To assess the growth of DNDCCB in the state during

the study period, the compound growth rates of development indicators of co-operatives were computed. These indicators were,

- | | |
|------------------------------|--|
| 1. Number of branches | 2. Membership |
| 3. Share capital | 4. Reserve and other funds |
| 5. Owned funds | 6. Deposits |
| 7. Borrowings | 8. Working capital |
| 9. Investments | 10. Loan issued |
| 11. Loan outstanding | 12. Loan collection |
| 13. Loan balances (overdues) | 14. Working results and cost of management |

The rates of compound growth in performance indicators were estimated for two periods viz.;

1. Period I : 1985-86 to 2002-03
2. Period II : 2003-04 to 2020-21

The compound growth rates for different indicators (as listed above) of DNDCCB have been estimated using the following type of exponential model.

$$Y = ab^t$$

Where,

Y = Dependent variable (indicator)

a = Intercept

b = Trend value

t = Time period in years

The percentage compound growth rate was estimated by using the formula $CGR = (\text{antilog } b - 1) \times 100$, which was derived as under.

$$Y = ab^t$$

Where,

$$b = (1+r)$$

i.e.

$$\text{Log } Y = \text{log } a + t \text{ log } b$$

$$t \text{ log } b = \text{log } Y - \text{log } a$$

$$\text{log } b = (\text{log } Y - \text{log } a) / t$$

substituting (1+r) for 'b' we get

$$\text{log } (1+r) = (\text{log } Y - \text{log } a) / t$$

say, $(\text{log } Y - \text{log } a) / t = \text{some quantity of 'X'}$,

therefore, $(1+r) = \text{Antilog 'X'}$,

therefore, $r = \text{Antilog 'X'} - 1$

The compound annual rate of growth

$$= (\text{Antilog 'X'} - 1) * 100$$

$$\text{Since 'X' = log } b$$

The equation becomes, $r = (\text{Antilog 'b'} - 1) * 100$

The significance of the estimated compound growth rate was tested with the help of Student 't' test.

3A.4.6 Problems faced by Dhule and Nandurbar DCCB

By evaluating information obtained from DNDCCB officials, an attempt was made to understand the challenges involving administration, management, financing, loan disbursement, and loan recovery. Similarly, the ideas offered by DNDCCB personnel for improving DCCB work performance and the empirical results of the study served as the foundation for suggesting remedial steps for solving those problems. This was accomplished by simple tabular method of analysis with the help of frequency distribution and percentages.

Analytical techniques were used for obtaining numerical estimates for the purpose to accomplish the study's objectives; the results of the analysis of the performance and inequality study of DNDCCBs achieved have been presented in the chapter.

3B. Brief description of study area and profile of Dhule and Nandurbar DCCB

The chapter primarily focuses on broad information about the study area, including physical characteristics and agricultural patterns through illustrations of land use, cropping patterns, etc.

3B.1 Physical features of Dhule and Nandurbar Districts

3B.1.1 Location and geographical features

The region of Dhule and Nandurbar districts belongs to Nashik division of Maharashtra state. The Dhule district lies between 20°38' to 21°61' North latitudes and 73°50' to 75°11' East longitudes occupies an area of 7,195 square km which is 2.4 per cent of the total geographical area of Maharashtra state and consist of 4 tahsils. The Dhule district is on the height of 180 to 215 meter from Mean Sea Level.

The Nandurbar district lies between 21°03' to 22°00' North latitude and 73°31' to 74°32' East longitude occupies an area of 5,955 square km which is 1.62 per cent of the total geographical area of Maharashtra state and consist of 6 tahsils. The Nandurbar district is on the height of 210 meter from Mean Sea Level.

3B.1.2 Topography and soil

The Dhule region is broadly divided into the Satpuda region, the Tapi valley proper, the region of dykes and residual hills of the Sahyadri spurs with eastward trending streams in between and, Navapur and western Nandurbar region with a westerly aspect below the Sahyadri scarps. The light Black type soil is good for kharif crops generally found in Dhule, Sakri tahsils and medium black type soil is highly suited for irrigation found in Sindhkheda, Western part of Dhule and Sakri tahsils.

The Nandurbar district can be divided into two broad physiographic parts. One is hilly terrain of Satpuda ranges prominently dominated by tribals i.e. Akrani, Akkalkuwa and Toloda. Second part is Tapi river basin, which is comparatively more fertile and having good irrigation facilities, covered by the three remaining Tahsils i.e. Shahada, Nandurbar and Navapur. The soil

can be divided into 3 zones as follows. The first zone consists of light shallow and sandy soil is good for Kharif crop. The second zone consist of medium quality soil, which is useful for minor irrigation. Third zone consist of black cotton soil on the basin of Tapi river, its water holding capacity is quite good.

3B.1.3 Climate and rainfall

The Dhule district experiences a dry climate in general except during the monsoon and winter months. However, during the monsoon, the amount of humidity in the air increases. The temperature reached in the summer and winter seasons are extremes, i.e. 45°C and 6°C, respectively which are typical of tropical temperature zones. In May and June, the heat is intolerably hot. The Dhule district receives 593 mm of rain on average, but not equally across the district. The Tapi river basin, which has good irrigation facilities, includes the Shirpur and Shindhkheda blocks.

The Nandurbar district region generally has dry weather. The temperature reached is in the average range for a tropical climate. Every summer, from March to June, it is intolerably hot. The district experiences a temperature range of 42.8°C in the summer to 10.6°C in the winter. The district receives approximately 888mm of rainfall on average, however not equally across it.

3B.1.4 Population and literacy

According to the 2011 census, Dhule district has a total population of 20.51 lakh. 10.54 lakh men and 9.96 lakh women contribute to the population. About 14.79 lakh people live in rural areas, constituting about 72.16 per cent of the district's total population, while 5.71 lakh people live in urban areas, giving up 27.84 per cent. The Dhule district's population density is 285 people per square km, which is significantly less than the 365 people per square km of Maharashtra state. In comparison to the Maharashtra's literacy rate is 82.34 per cent, the Dhule district has a literacy rate of 72.8 per cent. Male literacy rate is 79.5 per cent while female literacy rate is 65.8 per cent.

The total population of Nandurbar district as per the 2011 census is 16.48 lakh. The male population is 8.33 lakh while female population is 8.15 lakh. The rural population is 13.73 lakh which constitute 83.31 per cent of the total population of the district while as urban population is 2.75 lakh which constitutes 16.69 per cent. Population density of the Nandurbar district is 277 per sq. km. The literacy rate of Nandurbar district is 64.4 per cent. The literacy rate of male is 72.2 per cent and female is 56.5 per cent.

3B.1.5 Livestock

The Dhule district's livestock population was 9,74,295 as per the 2018 livestock census. Cows, bullocks, and buffaloes constituted 46.87 per cent of the total, followed by sheep and

goats at 49.53 per cent and other kinds of livestock at 3.6 per cent. The poultry population was 10,84,010 in Dhule district.

The Nandurbar district had 7,09,076 livestock, according to the 2018 livestock census. Cows, bullocks, and buffaloes comprised 57.68 per cent of the total, followed by sheep and goats at 40.62 per cent and other kinds of livestock at 1.70 per cent. The poultry population was 9,63,562 in Nandurbar district.

3B.1.6 Land utilization pattern of Dhule and Nandurbar district (2020-21)

The Table 4.1 gives an idea about the land utilization pattern of the Dhule and Nandurbar district under the study for the year 2020-21.

Table 4.1 Land utilization pattern of Dhule and Nandurbar district (2020-21)

Sr. No.	Land Utilization	Area ('00' ha)		Per cent to geographical area	
		Dhule	Nandurbar	Dhule	Nandurbar
1.	Total Geographical Area	7330	7050	100.00	100.00
2.	Area under forest	1990	3734	27.15	52.96
3.	Area not available for cultivation	790	437	10.78	6.20
	a) Land under non-agriculture use	245	105	3.34	1.49
	b) Barren and uncultivable land	546	332	7.45	4.71
4.	Other than cultivable land excluding fallow	222	362	3.03	5.13
	a) Permanent pasture	178	325	2.43	4.61
	b) Land under misc. tree & grooves not included in area sown	12	7	0.16	0.11
	c) Culturable waste land	32	30	0.44	0.43
5.	Fallow land	244	77	3.33	1.09
	a) Current fallow	139	11	1.90	0.16
	b) Other fallow	105	66	1.43	0.94
6.	Cultivable area	4370	2554	59.62	36.23
7.	Net area sown	4082	2441	55.69	34.62
8.	Area sown more than once	1339	1198	18.27	16.99
9.	Gross Cropped Area	5421	3639	73.96	51.62
10.	Cropping Intensity	--	--	133	149

(Source: Scheme for Timely Reporting of Agril. Intelligence Land Utilisation Statistics 2020-21)

The table shows that the net cultivated area in the Dhule district constituted around 55.69 per cent of the geographical area. The district's gross cropped area comprised of 73.96 per cent of the total geographical area. The district cropping intensity was 133 per cent. 18.27 per cent of the district's total geographic area was sown more than once.

It is noted from the table that the net cultivated area in the Nandurbar district constituted around 34.62 per cent of the geographical area. The district's gross cropped area comprised 51.62 per cent of the total geographical area. The district cropping intensity was 149 per cent. 16.99 per cent of the district's total geographic area was sown more than once.

3B.1.7 Cropping pattern of Dhule and Nandurbar district

Due to the region's diverse natural resources and climatic conditions, a wide range of crops, including cotton, sugarcane, bajra, jowar, maize, wheat, paddy, groundnut, soybean, gram etc. are grown there. Onion, tomato, banana, grapes, papaya, and other vegetable and fruit crops are also cultivated.

The data on cropping pattern of Dhule and Nandurbar district is presented in Table 4.2.

Table 4.2 Cropping pattern of Dhule and Nandurbar district (2020-21)

Sr. No.	Crops	Area ('00' ha)		Percentage	
		Dhule	Nandurbar	Dhule	Nandurbar
1.	Paddy	68.38	269.62	1.01	6.24
2.	Wheat	540.78	262.83	7.95	6.09
3.	Kharif Jowar	104.86	290.17	1.54	6.72
4.	Rabi Jowar	125.87	92.32	1.85	2.14
5.	Bajra	553.66	74.54	8.14	1.73
6.	Maize	695.57	616.37	10.23	14.27
7.	Ragi	15.47	0.45	0.23	0.01
8.	Other cereals	39.53	74.99	0.58	1.74
9.	Total cereals	2144.12	1681.28	31.54	38.94
10.	Gram	612.71	320.14	9.01	7.41
11.	Mung	304.19	61.99	4.47	1.44
12.	Tur	155.94	239.18	2.29	5.54
13.	Udid	143.82	116.85	2.12	2.71
14.	Other pulses	24.68	23.48	0.36	0.54
15.	Total pulses	1241.35	761.64	18.26	17.64
16.	Total foodgrains	3385.46	2442.92	49.80	56.58
17.	Groundnut	224.32	72.77	3.30	1.69
18.	Sunflower	0.15	15.62	0.002	0.36
19.	Soyabean	193.28	268.70	2.84	6.22
20.	Sesamum	3.35	0.38	0.05	0.009
21.	Other oilseeds	20.96	24.35	0.31	0.56
22.	Total oilseeds	442.06	381.35	6.50	8.83
23.	Cotton	2366.18	1180.92	34.81	27.35
24.	Sugarcane	29.24	145.85	0.43	3.38
25.	Fruits & vegetables	497.11	129.93	7.31	3.01
26.	Others	77.94	37.04	1.15	0.86
27.	Gross Cropped Area	6798	4318	100.00	100.00

(Source: Socio-economic survey of Dhule and Nandurbar district 2021-22.)

Cotton, which contributed to 34.81 and 27.35 per cent of the district's gross cropped area respectively, was the major crop in both the Dhule and Nandurbar districts. The other important crops in the Dhule district included maize, wheat, and gram, each of which comprised 10.23, 7.95, and 9.01 per cent of the district's gross cropped area. Maize, wheat, and gram were also important crops in the Nandurbar district, accounting for 14.28, 6.09, and 7.41 per cent of the total area under cultivation.

In the districts of Dhule and Nandurbar, respectively, cereals contributed about 31.54 and 38.94 per cent of the total planted area. Pulses were grown in 18.26 per cent of the Dhule district and 17.64 per cent of the Nandurbar district. Oilseeds constituted 6.50 and 8.83 per cent of the total cropped area in the districts of Dhule and Nandurbar, respectively. About 7.31 and 3.01 per

cent of the total cropped area in the Dhule and Nandurbar districts, respectively, comprised of fruits and vegetables.

3B.2 Profile of Dhule and Nandurbar District Central Cooperative Bank

The Dhule and Nandurbar District Central Cooperative Bank came into existence on 13th September 1957. Within the cooperative credit structure, the Central Cooperative Bank has a privileged position. They serve as a crucial link between Primary Agriculture Credit Societies and Apex Cooperative Banks. To a significant extent, their financial stability determines the continued success of the cooperative credit movement.

3B.2.1 Objectives of Dhule and Nandurbar DCCB

- i. To ensure timely and increased flow of credit to the farming sector.
- ii. To reduce and gradually eliminate the money lenders.
- iii. To provide longer credit support to various rural development programs.
- iv. To provide cheap credit with or without any security.
- v. One of the most important functions of DCCBs is to provide funds to the Primary Agricultural Credit Societies.
- vi. To meet the credit requirements of member-societies.
- vii. To act as balancing center for the PACS by diverting the surplus funds of some societies to those which face shortage of funds.
- viii. To maintain close and continuous contact with PACS and provide leadership and guidance to them.
- ix. To supervise and inspect the PACS.

3B.2.2 Management

The management of the bank is vested in the board of directors consisting of 21 members.

The total strength of staff is 1428, which consisting of 1 Chief Executive Officer, Manager -2, Assistant Manager – 6.

3B.2.3 Recovery

The bank has recovered 74 per cent of the short-term loan allocated in the previous year as at the end of March 2022. But under Mahatma Jotirao Phule Shetkari Karj Mukti Yojana 2019. The amount of ₹ 2.00 lakh members could not recover the overdues loan due to not getting the benefit of loan waiver. Also, as the medium-term loan was not included in the debt relief scheme, the overdue medium-term loan could not be recovered. Therefore, the amount of loan recovery is low.

3B.2.4 Major achievements by the bank

- i.** The bank received the Best Turn Around Bank National Award for the year 2021-22 by Frontiers Co-operative Association Delhi at Indore.
- ii.** The bank as on 31st August 2022, the amount eligible for recovery of current crop loans of 34088 farmers in Dhule and Nandurbar district is ₹ 31821.96 lakh out of which 31417 farmers got ₹ 29184.52 lakh current term kharif agriculture crop loan has been recovered. The bank has recovery up to 91.71 per cent.
- iii.** The bank has received ₹ 677.34 lakh commission and other income received during the period April 2022 to March 2023.
- iv.** Dhule and Nandurbar district received above average rainfall in the financial year 2022-23. Also, there was unseasonal rain in winter due to this there was a huge loss of agricultural crops, but at the end of March 2023, the recovery of agricultural loans and other loans was ₹ 319.35 crores. Also, the non-performing loan of the bank is ₹ 518.26 lakhs recovery increased the direct income of the bank. The bank has invested as per the statutory Liquidity Ratio (SLR) and Cash Liquidity Ratio (CRR) as per the guidelines of Reserve Bank of India and NABARD during the period of 12 months from April 2022 to March 2023. In particular there is no shortage of bank days.

4. RESULT AND DISCUSSION

The DCCBs hold an important place in the three-level co-operative credit structure. The District Central Co-operative Banks come (DCCBs) into Primary Agricultural Credit Society (PACS) credit scheme and establish a vital bridge between the Apex co-operative bank and PACS. The DCCBs perform at the district level, directly connected with PACS at the base level. As a district level credit provider institution, it offers promotional and development activities for the loan seekers. Moreover, in addition to meeting the credit requirements of affiliated PACS also lends a supportive gesture to other types of requirements for people in rural areas. DCCBs protect the interests of PACS as well as other credit and non-credit societies in the districts. It is crucial to look thoroughly at how DNDCCB has developed in the state over time in relation to various performance indicators.

The objective of this chapter is to evaluate DNDCCB's performance using a number of indicators. The percentage growth over the base year and the estimated compound growth rates for the years 1985–1986 to 2020–2021 have been used to derive the empirical evidence about the performance of DNDCCB. The number of branches, membership, share capital, reserve funds, owned funds, deposits, borrowing, working capital, investment loan, loan issued, loan outstanding, loan collection (recovery), loan balances (overdue), working results, and cost of management were the performance indicators selected for the analysis. Additionally, estimates were made for the compositions and ratios of these indicators for the base year, which is 1985–1986 and the terminal year, 2020–2021. Prior to making this attempt, it was determined to research the credit gap in crop loans as well as the average scale of financing provided by the DNDCCB for various crops. Additionally, the present study undertakes an attempt to determine the level of inequality in the flow of short- and medium-term credit from the DNDCCB and to identify the causes of this variation. Furthermore, it was determined to look into the various problems that the DNDCCB experienced when disbursing and recovering loans and to offer remedies to them throughout Maharashtra.

4.1 Scale of finance

The actual amount of financing provided by the DCCBs for various crops is referred to as the "scale of finance." The cost of crop production, or the cost of inputs, is the primary factor considered when determining the scale of finance. The scale of finances must be increased in order to cover the cost of crop cultivation because throughout time, the cost of cultivation fluctuates due to changes in wages and the prices of inputs like seeds, fertilizer, pesticides, etc. The estimated amount of capital that farmers would require to cultivate their crops is known as the credit requirement. It's been said that credit is lifeblood of agriculture for increasing

agricultural production. Based on the cost of cultivation of different crops the Commissioner of Agriculture finalizes the scale of finance for different crops.

Each DCCB determines its own scale of finance separately for each of its working areas based on the guidelines provided by the SCB. The DCCB modifies its policy form determining scale of finance in view of the district's agricultural importance. The major crops grown in the district are given the appropriate weightage. The distinction between the amount of credit required and the amount of credit available for various crops is known as the "credit gap." The current study assessed the actual size of financing supplied by the DNDCCBs as credit accessible for crops for the years 2020-21 while the scale of finance approved by the Commissioner of Agriculture for important crops and fruit crops in the years 2020-21 was considered the credit requirement.

4.1.1 Credit requirement, credit availability and credit gap for the different crops in Dhule and Nandurbar DCCB

The per cent credit gap has been estimated separately for major crops and the results are presented in Table 4.1 together with information on credit availability and credit requirement.

Table 4.1 Credit requirement, availability and credit gap for the different crops in Dhule and Nandurbar DCCB

Sr. No.	Name of Crop	Availability of Credit (₹/ha)	Credit Requirement and Gap					
			Cost 'A' (₹)	Gap (%)	Cost 'B' (₹)	Gap (%)	Cost 'C' (₹)	Gap (%)
1	Cotton							
	a) Hybrid Irrigated	75000	65378	12.83	88365	-17.82	97639	-30.19
	b) Hybrid Rainfed	55000	60621	-10.22	77617	-41.12	85332	-55.15
2	Sugarcane							
	a) Adkali	125000	228885	-83.11	311027	-148.82	328667	-162.93
	b) Pre-seasonal	110000	196189	-78.35	260984	-137.26	281464	-155.88
	c) Suru	110000	178538	-62.31	246317	-123.92	264112	-140.10
	d) Ratoon	85000	115196	-35.52	173966	-104.67	188178	-121.39
3	Rabi Jowar	32500	34714	-6.81	50627	-55.78	59643	-83.52
4	Bajra	27500	40851	-48.55	48362	-75.86	55368	-101.34
5	Paddy	40000	52492	-31.23	68358	-70.90	93199	-132.00
6	Wheat	45000	47168	-4.82	65033	-44.52	74784	-66.19
7	Groundnut	37500	51480	-37.28	62344	-66.25	72783	-94.09
8	Soybean	50000	64055	-28.11	82193	-64.39	87971	-75.94
9	Tur	37500	33118	11.69	41125	-9.67	44585	-18.89
10	Gram	37500	36612	2.37	46074	-22.86	50552	-34.81
11	Onion	70000	142503	-103.58	191302	-173.29	216411	-209.16
12	Chilli	62500	177279	-183.65	224706	-259.53	252649	-304.24
13	Turmeric	80000	297576	-271.97	376252	-370.32	382808	-378.51
14	Banana	100000	278662	-178.66	370298	-270.30	380625	-280.63
15	Grape	325000	438855	-35.03	636389	-95.81	656266	-101.93
16	Pomegranate	130000	130186	-0.14	304855	-134.50	313405	-141.08

(Source: Crop Loan Policy Reports of Dhule and Nandurbar DCCB in Maharashtra, 2020-21.)

It could be observed from the table that, for different plantation type the scale of finance i.e. credit availability differs, as in case of cotton and sugarcane. The per hectare scale of finance for hybrid irrigated cotton was ₹ 75,000/-, while it was ₹ 55,000/- in case of rainfed cotton. On the other hand the per hectare scale of finance for *adsali*, pre-seasonal, *suru* and *ratoon* sugarcane were amounted to ₹ 1,25,000/-, ₹ 1,10,111/-, ₹ 1,10,000/- and ₹ 85,000/-, respectively. As the requirement for each plantation type was different with variation in the growth duration, the scale of finance may have been varied accordingly. In case of field crops, the maximum credit was allotted for soybean (₹ 50,000/- per ha), followed by wheat (₹ 45,000/- per ha) and paddy (₹ 40,000/- per ha). The commercial crops like onion, chilli and turmeric were granted amount of ₹ 70,000/-, ₹ 62,500/- and ₹ 80,000/- per hectare, respectively as scale of finance. Whereas, per hectare allotment of credit for fruit crops like banana, grape and pomegranate was to the tune of ₹ 1,00,000/-, ₹ 3,25,000/-, ₹ 1,30,000/-, respectively.

Cost 'A' is the actual paid out cost by farmers in the cultivation of crops. It could be observed from the table that, only in case of hybrid irrigated Cotton, Tur and gram the per hectare availability of credit which amounted to ₹ 75,000/-, ₹ 37,500/- and ₹ 37,500/- respectively, was enough to cover the per hectare cost 'A' (i.e. ₹ 65,378/-, ₹ 33,118/- and ₹36,612, respectively) while, 12.83, 11.69 and 2.37 per cent of excess finance was available in respect of these crops. In case of different plantation types in sugarcane the per cent gap in available and required credit at cost 'A' has ranged between -35.52 (*Ratoon*) to -83.11 (*Adsali*) per cent. Among the field crops, it was observed that Bajra was having maximum gap of -48.55 per cent followed by groundnut (-37.28%) while, wheat showed minimum of -4.82 per cent of credit gap. More than 100 per cent of gap could be noticed in case of commercial crops like Onion, Chilli, Turmeric and fruit crops like Banana to the extent of -103.58, -183.65, -271.97 and -178.66 per cent, respectively. Grape has -35.04 per cent of gap in available and required credit, on the other hand Pomegranate showed the minimum gap of -0.14 per cent. It could be concluded from the above discussion that, every important crops in the study area were under financed by DNDCCB, which might be due to the uncertainty in production of these crops that possibly leads to lowering the repayment capacity of the farmers.

All the crops mentioned in the Table 4.1 were under financed by DCCB in Dhule and Nandurbar with respect to cost 'B' and 'C'. This might be because of the DNDCCB was not considering these costs while finalizing the scale of finance for the crops as these were the imputed costs and were not actually paid by the farmers in cultivation of crops.

4.2 Inequality in credit disbursement by the Dhule and Nandurbar DCCB

It is said that the quantity of credit advanced for different purposes varies in agricultural co-operative credit performance. Furthermore, it seems to have flowed primarily to large farmers, while it was expected that credit development would primarily help small and

marginal farmers. Using the coefficient of variation, the disparity in credit flow by DNDCCB over a period of time was evaluated. The following is a brief explanation of the findings from the discussion.

4.2.1 Short and medium term agricultural credit flow

The disparity in the short-term and medium-term agricultural credit flow provided by DNDCCB is shown in Table 4.2 and 4.3.

Table 4.2 The short and medium-term agricultural credit disbursed by Dhule and Nandurbar DCCB

Year	Short Term Credit		Medium Term Credit	
	Amount (₹ in Lakhs)	% Change over 1985-86	Amount (₹ in Lakhs)	% Change over 1985-86
1985-86	15705.59	--	1749.38	--
1986-87	24359.14	55.10	1970.89	12.66
1987-88	34906.39	122.25	6527.31	273.12
1988-89	32080.23	104.26	14256.55	714.95
1989-90	47947.23	205.29	6337.07	262.25
1990-91	27194.41	73.15	3158.95	80.58
1991-92	16277.49	3.64	12652.73	623.27
1992-93	24865.00	58.32	7096.94	305.68
1993-94	48580.07	209.32	4102.02	134.48
1994-95	50551.30	221.87	5370.35	206.99
1995-96	60517.22	285.32	12315.96	604.02
1996-97	35577.05	126.52	5909.63	237.81
1997-98	49426.35	214.71	2901.23	65.84
1998-99	45067.84	186.95	3006.97	71.89
1999-00	67987.77	332.89	3657.49	109.07
2000-01	67631.35	330.62	6856.29	291.93
2001-02	74829.93	376.45	8781.69	401.99
2002-03	92256.56	487.41	15068.32	761.35
2003-04	69693.27	343.75	9409.75	437.89
2004-05	102397.88	551.98	36956.26	2012.53
2005-06	136559.14	769.49	4647.55	165.67
2006-07	146422.21	832.29	5292.51	202.54
2007-08	177920.56	1032.85	3072.43	75.63
2008-09	105011.60	568.63	1136.89	-35.01
2009-10	211068.83	1243.91	6514.47	272.39
2010-11	258578.84	1546.41	14355.07	720.58
2011-12	297862.05	1796.54	20861.93	1092.53
2012-13	271518.92	1628.80	7937.18	353.71
2013-14	266703.09	1598.14	13350.55	663.16
2014-15	238503.03	1418.59	10259.13	486.44
2015-16	198790.72	1165.73	15124.99	764.59
2016-17	230408.63	1367.05	2385.40	36.36
2017-18	97132.58	518.46	4731.71	170.48
2018-19	92389.99	488.26	3311.94	89.32
2019-20	101277.44	544.85	2851.75	63.01
2020-21	180059.66	1046.47	3425.83	95.83

It could be seen from the Table 4.2 that, the short and medium term credit disbursed through DNDCCB was to the tune of ₹ 15,705/- and ₹ 1749.38/- lakhs in the base year of the study i.e. year 1985-86, which increased by many folds during the study period of 36 years. In case of short term credit, the minimum per cent of 3.64 per cent was noticed during 1991-92 with the amount of ₹ 16,277.49/- lakhs and increased by 1046.47 per cent during the terminal year of the study (2020-21) while, attaining the peak at 1796.54 per cent during the year 2011-12. On the other hand, the disbursement of medium term agricultural credit was decreased by -35.01 per cent during 2008-09 and maximum change was noticed to the tune of 2012.53 per cent in the year 2004-05.

As the maximum amount of short term credit disbursed was ₹ 2,97,862.05/- (2011-12) and in case of medium term credit, it was ₹ 36,956.26 (2004-05). It could be stated that the amount of short term credit was much higher than the medium term credit disbursed by DNDCCB.

The variation in short and medium term over the period is presented in Table 4.3. It could be observed from the table that, the coefficient of variation in short term credit was observed to be 59.53 and 55.15 per cent during period I (1985-86 to 2002-03) and period II (2003-04 to 2020-21), respectively. While, it was about 76.69 per cent for the entire period under study. In case of medium term credit the variation observed was to the tune of 71.66, 104.13 and 86.46 per cent, respectively during the same period. In more accurate terms i.e. Cuddy Della and Vella Index, the respective variation during Period I, Period II and Entire period for short term credit was observed to be 35.47, 54.36 and 39.27 per cent, respectively while in case of medium term credit was 68.42, 100.00 and 86.27 per cent, respectively.

Thus, it could be concluded that, the variation in short term credit fluctuated closely during both the periods while, wide gap was noticed in case of medium term credit. Also, the magnitude of variation in short term credit was lower than the variation in medium term credit. Similar trend of variation in short and medium term credit could be observed during the entire period (1985-86 to 2020-21) under study.

Table 4.3 Variation in short term and medium-term agricultural credit flow by Dhule and Nandurbar DCCB

Period	Short term credit		Medium term credit	
	CV	CDVI	CV	CDVI
Period I (1985-86 to 2002-03)	59.53	35.47	71.66	68.42
Period II (2003-04 to 2020-21)	55.15	54.36	104.13	100.00
Entire Period (1985-86 to 2020-21)	76.69	39.27	86.46	86.27

4.3 Factors influencing flow of short term agricultural credit

In order to study the factors influencing per hectare short-term credit flow by DNDCCB, a multiple linear regression analysis was attempted.

Zero order correlation matrix including all the possible factors along with the dependent variable was worked out for examining severity of multicollinearity. The significance of the coefficients of each of the regressors from the estimated function was tested with the help of 't' statistics and goodness of fit was judged on the basis of analysis of variance i.e. 'F' test.

The flow of credit to agriculture is supposed to be associated with the social, economic policy and natural factors related to agricultural activities. The selection of variables is based on some of the priority expectations so that these variables would provide sufficient economic explanations. Gross cropped area was taken as a proxy for agricultural infrastructure including irrigation and the proportion of commercial crops to GCA variables represent the extent of commercialization in agriculture. Proportion of horticultural crops to GCA was taken as indicator of perennial crops, recovery percentage of short-term credit represents amount of funds available for reutilization and rainfall was taken as a proxy for climate in this analysis. The results of the multiple linear regression analysis for factors influencing the inequality in short term credit flow are presented in Table 4.4.

Table 4.4 Factors influencing inequality in disbursement of short term agricultural loans by the Dhule and Nandurbar DCCB

Sr. No.	Variables		Regression Coefficients
1	Constant	a	66770.21
2	Gross Cropped Area ('00' ha)	X ₁	3.05924 (7.7242)
3	Proportion of area under commercial crops to GCA (Per cent)	X ₂	-3065.91*** (782.231)
4	Proportion of area under horticultural crops to GCA (Per cent)	X ₃	31679.71*** (10273.30)
5	Average Rainfall (mm)	X ₄	-56.986** (32.4215)
6	Deposits (Rs. in Lakh)	X ₅	0.23076 (0.30785)
7	Recovery of short term agril. loan (Per cent)	X ₆	1667.67*** (389.112)
8	R ²		0.85
9	F Value		29.00**

(Figures in parentheses indicate standard errors of respective coefficients)

Note: ** and *** indicates significance at 5 and 1 per cent level

It could be observed that, the significant factors influencing the inequality in the disbursement of short term credit in DNDCCB were proportion of area under horticultural crops to GCA (X₃) and recovery percentage of short term agril. loan (X₆) having regression coefficient as 31679.71 and 1667.67, respectively, at one per cent level while, proportion of area under

commercial crops to GCA (X_2) and average rainfall (X_4) showed significant but negative impact at one and five per cent, respectively, during the period under study. The R^2 suggest that the above said six independent factors have jointly explained 85 per cent of the variation in the disbursement of short-term credit by DNDCCB.

4.4 Performance of Dhule and Nandurbar DCCB in Maharashtra

The performance of the DNDCCB was examined for various indicators from 1985-1986 to 2020-21 and discussed in sub-sections below.

4.4.1 Number of branches

The details of number of branches of DNDCCB is shown in Table 4.5.

Table 4.5 Total branches (including head office) of Dhule and Nandurbar DCCB

Year	Total Branches (including head office) (Numbers)	Per cent Change Over Base Year
1985-86	100	--
1986-87	101	1
1987-88	109	9
1988-89	110	10
1989-90	114	14
1990-91	118	18
1991-92	118	18
1992-93	118	18
1993-94	117	17
1994-95	116	16
1995-96	113	13
1996-97	113	13
1997-98	113	13
1998-99	113	13
1999-00	113	13
2000-01	115	15
2001-02	115	15
2002-03	115	15
2003-04	115	15
2004-05	113	13
2005-06	111	11
2006-07	110	10
2007-08	110	10
2008-09	110	10
2009-10	110	10
2010-11	110	10
2011-12	110	10
2012-13	91	-9
2013-14	91	-9
2014-15	91	-9
2015-16	91	-9
2016-17	91	-9
2017-18	85	-15
2018-19	85	-15
2019-20	84	-16
2020-21	84	-16

It shows that the total number of branches including the head office of DNDCCB were 100 during 1985-86. During the entire period of 36 years, the number of total branches fluctuated year to year, as they increased by maximum of 18 per cent over base year till 1992-93, then decreased upto 10 per cent upto 2011-12. Negative change in percentages of branches over the base year could be observed during 2012-13 to 2020-21 and finally there were 84 branches of DNDCCB including the head office. The increase in the number of branches was associated with covering new regions in the bank's jurisdiction, while the negative change or decreased was caused by closer of non-functioning branches.

The growth of number of branches of DNDCCB is presented in Table 4.6. It can be observed from the table that, the total number of branches of the DNDCCB have significantly increased by 0.47 per cent per annum at five per cent level during period I (1985-86 to 2002-03).

Table 4.6 Growth in number of branches of Dhule and Nandurbar DCCB

Period	Compound Annual Growth Rate (CAGR)
Period I (1985-86 to 2002-03)	0.47 **
Period II (2003-04 to 2020-21)	-2.13 ***
Entire Period (1985-86 to 2020-21)	-0.75 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

On the contrary, the number of branches shown significant decrease by -2.13 per cent per annum during the period II (2003-04 to 2020-21). Similarly, during the entire period of study the number of branches has been decreased by -0.75 per cent per annum significantly at one per cent level.

4.4.2 Membership

The DCCB have been primarily organized to provide credit and to extend guidance and technical assistance to PACS without affecting their autonomy and independent character. The DCCB also act as financing agencies to other type of societies such as weaver's societies, processing co-operatives and consumer's stores etc. and such societies therefore become member of the DCCB. One peculiar feature of the bank is that individuals were also admitted as members during the initial years, because the induction of individual members with reputation could repose confidence in the minds of the investing public creditors and would provide a local leadership for the bank. The details of membership of DNDCCB is depicted in Table 4.7.

One individual and 2342 co-operative societies which includes all Primary Agril. Credit Societies, Marketing Societies and other co-operative societies operating in the rural areas of the bank's jurisdiction were the member of DNDCCB in 1985-86.

Table 4.7 Composition of total membership of Dhule and Nandurbar DCCB (Numbers)

Year	Cooperative Societies	Individuals	Total
1985-86	2342	1	2343
1986-87	2395	1	2396
1987-88	2499	1	2500
1988-89	2621	1	2622
1989-90	2706	1	2707
1990-91	2938	1	2939
1991-92	3008	1	3009
1992-93	3032	1	3033
1993-94	3132	1	3133
1994-95	3132	1	3133
1995-96	3248	1	3249
1996-97	3295	1	3296
1997-98	3382	1	3383
1998-99	4205	2	4207
1999-00	3502	2	3504
2000-01	3578	2	3580
2001-02	3603	2	3605
2002-03	3667	1	3668
2003-04	3667	1	3668
2004-05	3714	1	3715
2005-06	3736	1	3737
2006-07	3742	1	3743
2007-08	3746	1	3747
2008-09	3750	1	3751
2009-10	3761	1	3762
2010-11	3767	1	3768
2011-12	3772	1	3768
2012-13	3775	1	3776
2013-14	3786	201	3987
2014-15	3798	398	4196
2015-16	3799	408	4207
2016-17	3800	435	4235
2017-18	3805	457	4262
2018-19	3809	540	4349
2019-20	3815	578	4393
2020-21	3821	627	4448

The number of member co-operative societies varied between 2342 (1985-86) to 3775 (2012-13) with its maximum of 4205 member societies in 1998-99, but single individual membership was registered during the period with exceptionally two between 1998-99 to 2001-02. Later, the number of co-operative societies varied between 3786 in 2013-14 to 3821 in 2020-21. On the contrary, the individual membership has increased from 201 in 2013-14 to 627 members in the terminal year i.e. during 2020-21. Thus, the total membership has increased from 2343 in 1985-86 to 4448 in 2020-21 in DNDCCB i.e. during the span of 36 years.

Table 4.8 Growth in membership of Dhule and Nandurbar DCCB

Period	Membership		
	Co-operative Societies	Individuals	Total
Period I (1985-86 to 2002-03)	2.85 ***	-0.43	2.85 ***
Period II (2003-04 to 2020-21)	0.19 ***	66.95 ***	1.23 ***
Entire Period (1985-86 to 2020-21)	1.21 ***	19.05 ***	1.55 ***

Note: *** indicates significance at 1 per cent level.

The growth in total membership of DNDCCB presented in Table 4.8. The growth in total membership was mainly attributed to positive and significant annual growth in individual membership by 66.95 per cent during period II (2003-04 to 2020-21) and 19.05 per cent per year during the entire period. The maximum annual significant growth rate of 2.85 per cent was noticed in the number of member co-operative societies in Period I which declined to 0.19 per cent per annum during Period II, while remained at 1.21 per cent during the entire period annually. The positive and significant compound annual growth rate of total membership was 2.85, 1.23 and 1.55 per cent was observed at one per cent level of significance.

4.4.3 Owned fund

A District Central Co-operative Bank like any other banking organization needs funds to be lent to its members. Total funds needed by a DCCB depends on factors such as volume of business, type of services it provides, kinds of physical facilities available, nature and competition it faces and degree of risk it takes in the day-to-day business. Whatever the total amount of funds, it is normally related to the number of members and volume of business. The DCCB raises funds in four ways i) Share capital, ii) Reserve funds, iii) Deposits from members and non-members and iv) Borrowings from higher financing agencies. These funds together called working capital, which indicate the financial strength of the DCCB. The financial soundness is most important for better credit and service activities of DCCB.

4.4.3.1 Share capital

Share capital is one of the important sources of funds of the DCCB. Member societies and individuals are the main sources of share capital. Member societies do not remit shares beyond the limit required for borrowing, in view of low dividend declared by these central banks. The details of share capital of DNDCCB is presented in Table 4.9.

It could be seen from the table that, the total share capital of the DNDCCB was ₹ 346.40 lakh in 1985-86 which was composed of ₹ 313.40 lakhs and ₹ 33 lakhs of paid up share from co-operative societies and Government, respectively. No contribution from individual was registered till 2012-13, which might be due to banks internal policy. A continuous increasing trend of per cent change in total share capital was observed with a sharp increase from 1148.85 per cent in 2011-12 to 2977.94 per cent in subsequent year.

Table 4.9 Composition of total share capital of Dhule and Nandurbar DCCB (₹ In Lakhs)

Year	Paid up Share Capital			Total Share Capital	
	From Co-operatives	From Government	From Individuals	Amount	% Change over 1985-86
1985-86	313.40	33	0	346.40	--
1986-87	367	33	0	400	15.47
1987-88	473	38	0	511	47.52
1988-89	681	38	0	719	107.56
1989-90	823	38	0	861	148.56
1990-91	930	38	0	968	179.45
1991-92	992	38	0	1030	197.34
1992-93	1033	38	0	1071	209.18
1993-94	1139	38	0	1177	239.78
1994-95	1226	38	0	1264	264.90
1995-96	1335	38	0	1373	296.36
1996-97	1364	38	0	1402	304.73
1997-98	1399	38	0	1437	314.84
1998-99	1441	38	0	1479	326.96
1999-00	1542	38	0	1580	356.12
2000-01	1669	38	0	1707	392.78
2001-02	1821	38	0	1859	436.66
2002-03	1985	38	0	2023	484.01
2003-04	2089	38	0	2127	514.03
2004-05	2215	38	0	2253	550.40
2005-06	2349	38	0	2387	589.09
2006-07	2557	38	0	2595	649.13
2007-08	2954	38	0	2992	763.74
2008-09	3032	38	0	3070	786.26
2009-10	3259	38	0	3297	851.79
2010-11	3737	38	0	3775	989.78
2011-12	4288	38	0	4326	1148.85
2012-13	5535	5127	0	10662	2977.94
2013-14	6397	4614	10	11021	3081.58
2014-15	7058	4101	20	11179	3127.19
2015-16	7348	3589	21	10958	3063.39
2016-17	7714	3589	22	11325	3169.34
2017-18	7847	3589	24	11460	3208.31
2018-19	8017	3327	33	11377	3184.35
2019-20	8137	3327	35	11499	3219.57
2020-21	8370	3327	38	11735	3287.70

A continuous increasing trend was observed in the paid up share capital from co-operative societies and it was ₹ 8370 lakhs during the terminal year of the study i.e. 2020-21. The contribution from Government was constant at ₹ 38 lakhs till 2011-12 which sharply increased to ₹ 5127 lakhs in 2012-13 and remained constant at ₹ 3327 lakhs during 2018-19 to 2020-21. On the other hand, paid up share capital from individual has been started from 2013-14 with amount of ₹ 10 lakhs and reached to ₹ 38 lakhs during 2020-21.

The compound annual growth rates of share capital of Dhule and Nandurbar DCCB are depicted in Table 4.10.

Table 4.10 Growth in share capital of Dhule and Nandurbar DCCB

Period	Paid Up Share Capital		
	Cooperatives	Government	Total Share Capital
Period I (1985-86 to 2002-03)	9.86 ***	0.47 **	9.44 ***
Period II (2003-04 to 2020-21)	9.96 ***	46.01 ***	13.33 ***
Entire Period (1985-86 to 2020-21)	9.01 ***	15.54 ***	10.19 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

It could be observed from the table that, the per annum increase in paid up share capital from co-operative societies and Government was to the tune of 9.01 and 15.54 per cent, respectively, during the entire period under study. Similarly, the total share capital has also increased by 10.19 per cent annually. Further, it could be noted that the growth in paid up capital from co-operative societies was at par during both the period, while it has changed drastically in case of share capital from Government. The estimates for growth in share capital from individuals were not depicted due to smaller quantum of available data.

4.4.3.2 Reserve fund

The detailed composition of total reserve funds of Dhule and Nandurbar DCCB is depicted in Table 4.11.

The total reserve fund of the DNDCCB has witnessed a steady growth over a period. It can be seen from the table that, the reserve funds of Dhule and Nandurbar DCCB in the State had increased from ₹ 295.08 lakhs in 1985-86 to ₹ 5468 lakhs in 2020-21 and had registered an impressive increase over the base year. Among the different components of total reserve funds, the maximum contribution by other reserve funds (₹ 3552 lakhs) was observed followed by statutory reserve funds (₹ 1774 lakhs) and agricultural credit stabilization fund (₹ 142 lakhs) during the terminal year of study i.e. 2020-21. The results are depicted by pie diagram in Figure 4B.

The per cent change over base year in total reserve funds ranged between 7.77 per cent to 462.22 per cent during 1985-86 to 1995-96, respectively, and increased sharply to 965.47 per cent in 1996-97. It could be observed that, the total reserve fund has fluctuated drastically during the study period and attended several high peaks at 3707.78, 4167.32 and 3725.40 per cent, respectively, during the year 2008-09, 2015-16 and 2017-18. During this period the total reserve funds have only increased by 309.38 per cent over the base year in 2016-17 due to minimum of ₹ 74 lakhs of other reserve funds. All these changes in the magnitudes of total reserve funds might be attributed towards the varying Government as well as banks' internal policies.

Table 4.11 Composition of total reserve funds of Dhule and Nandurbar DCCB

(₹ in Lakhs)

Year	Reserves and Other Funds			Total Reserve Funds	
	Statutory Reserve Fund	Agricultural Credit Stabilisation Fund	Other Reserves	Amount	% Change over 1985-86
1985-86	79.68	60.35	155.05	295.08	--
1986-87	83	64	171	318	7.77
1987-88	87	72	203	362	22.68
1988-89	103	92	279	474	60.63
1989-90	115	103	326	544	84.36
1990-91	130	111	382	623	111.13
1991-92	131	113	460	704	138.58
1992-93	132	117	543	792	168.40
1993-94	132	120	801	1053	256.85
1994-95	130	124	969	1223	314.46
1995-96	132	128	1399	1659	462.22
1996-97	154	142	2848	3144	965.47
1997-98	155	141	4733	5029	1604.28
1998-99	157	142	4742	5041	1608.35
1999-00	157	142	5885	6184	1995.70
2000-01	158	142	6660	6960	2258.68
2001-02	160	142	8537	8839	2895.46
2002-03	162	142	10806	11110	3665.08
2003-04	164	144	10796	11104	3663.05
2004-05	170	142	11013	11325	3737.94
2005-06	174	142	10792	11108	3664.40
2006-07	185	142	11056	11383	3757.60
2007-08	190	142	11675	12007	3969.07
2008-09	206	142	10888	11236	3707.78
2009-10	230	142	6530	6902	2239.03
2010-11	254	142	5799	6195	1999.43
2011-12	287	142	9676	10105	3324.50
2012-13	419	142	8934	9495	3117.77
2013-14	450	142	9721	10313	3394.98
2014-15	482	142	10707	11331	3739.98
2015-16	525	142	11925	12592	4167.32
2016-17	992	142	74	1208	309.38
2017-18	1083	142	10063	11288	3725.40
2018-19	1395	142	3515	5052	1612.08
2019-20	1598	142	3439	5179	1655.12
2020-21	1774	142	3552	5468	1753.06

Note: *** indicates significance at 1 per cent level.

The above discussion was reverified with the estimation of compound annual growth rates of reserve and other funds in DNDCCB and the results are depicted in Table 4.12. The same have also been presented by bar diagram in Figure 4A. The total reserve funds have increased with 25.84 and 9.64 per cent of significant annual rate during the period I and entire period, while recorded a significant decrease by -5.03 per cent during period II.

Table 4.12 Growth in total reserve funds of Dhule and Nandurbar DCCB

Period	Reserves And Other Funds			Total Reserve Funds
	Statutory Reserve Fund	Agricultural Credit Stabilisation Fund	Other Reserves	
Period I (1985-86 to 2002-03)	4.12 ***	4.87 ***	31.26 ***	25.84 ***
Period II (2003-04 to 2020-21)	16.48 ***	-0.02	-9.15 *	-5.03 **
Entire Period (1985-86 to 2020-21)	7.56 ***	1.57 ***	9.74 ***	9.64 ***

Note: *, ** and *** indicates significance at 10, 5 and 1 per cent level.

Among the different components of total reserve funds like statutory reserve fund, agricultural credit stabilization fund and other reserves have recorded significant annual growth of 7.56, 1.57 and 9.74 per cent, respectively, during the entire period and 4.12, 4.87 and 31.26 per cent in period I, respectively. The statutory reserve funds have been increased by 16.48 per cent annually during the period II but, on the contrary the other reserve funds were decreased by -9.15 per cent significantly during period II. The fluctuations in annual growth of these funds were mainly due to timely changes in the Government as well as bank policies.

4.4.3.3 Composition of owned fund

The owned funds of the DCCB normally includes share capital and reserve fund. The total owned funds of the DNDCCB indicates the amount of funds available with DNDCCB. The composition of total owned funds is given in Table 4.13.

Initially the total owned funds were jointly contributed by 54 and 46 per cent of paid up share capital and reserved funds during 1985-86 amounting to ₹ 641.48 lakhs. The contribution of share capital and reserve funds fluctuated during the entire study period. The maximum contribution of share capital to the own funds was estimated during the year 2016-17 (90.36%) whereas maximum contribution of reserve funds was observed during 2002-03 (84.60%). Further, the own funds were near about equally contributed by both during 1994-95 and 2017-18.

During the terminal year of the study i.e. 2020-21, the total own funds were ₹ 17203 lakhs but, have attained its peak at ₹ 23550 lakhs during the year 2015-16. Thus, it could be stated from the above discussion that as the total own funds have fluctuated during the entire study period keeping the constant increase in total amount, the contribution of share capital and reserve funds has also varied over the years.

The compound annual growth rate depicted in Table 1.14 indicated that, the significant annual growth of 19.75 per cent during period I (1985-86 to 2002-03) was quite higher as compared to 2.50 per cent of annual growth in period II (2003-04 to 2020-21). The total owned funds of DNDCCB have recorded a significant and steady growth of 10.39 per cent annually over the entire period of 36 years starting from 1985-86 to 2020-21.

Table 4.13 Composition of total owned funds of Dhule and Nandurbar DCCB**(₹ In Lakhs)**

Year	Share Capital		Reserve Funds		Total Owned Funds	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
1985-86	346.40	54.00	295.08	46.00	641.48	100.00
1986-87	400	55.71	318	44.29	718	100.00
1987-88	511	58.53	362	41.47	873	100.00
1988-89	719	60.27	474	39.73	1193	100.00
1989-90	861	61.28	544	38.72	1405	100.00
1990-91	968	60.84	623	39.16	1591	100.00
1991-92	1030	59.40	704	40.60	1734	100.00
1992-93	1071	57.49	792	42.51	1863	100.00
1993-94	1177	52.78	1053	47.22	2230	100.00
1994-95	1264	50.82	1223	49.18	2487	100.00
1995-96	1373	45.28	1659	54.72	3032	100.00
1996-97	1402	30.84	3144	69.16	4546	100.00
1997-98	1437	22.22	5029	77.78	6466	100.00
1998-99	1479	22.68	5041	77.32	6520	100.00
1999-00	1580	20.35	6184	79.65	7764	100.00
2000-01	1707	19.70	6960	80.30	8667	100.00
2001-02	1859	17.38	8839	82.62	10698	100.00
2002-03	2023	15.40	11110	84.60	13133	100.00
2003-04	2127	16.08	11104	83.92	13231	100.00
2004-05	2253	16.59	11325	83.41	13578	100.00
2005-06	2387	17.69	11108	82.31	13495	100.00
2006-07	2595	18.56	11383	81.44	13978	100.00
2007-08	2992	19.95	12007	80.05	14999	100.00
2008-09	3070	21.46	11236	78.54	14306	100.00
2009-10	3297	32.33	6902	67.67	10199	100.00
2010-11	3775	37.86	6195	62.14	9970	100.00
2011-12	4326	29.98	10105	70.02	14431	100.00
2012-13	10662	52.89	9495	47.11	20157	100.00
2013-14	11021	51.66	10313	48.34	21334	100.00
2014-15	11179	49.66	11331	50.34	22510	100.00
2015-16	10958	46.53	12592	53.47	23550	100.00
2016-17	11325	90.36	1208	9.64	12533	100.00
2017-18	11460	50.38	11288	49.62	22748	100.00
2018-19	11377	69.25	5052	30.75	16429	100.00
2019-20	11499	68.95	5179	31.05	16678	100.00
2020-21	11735	68.21	5468	31.79	17203	100.00

Table 4.14 Growth in total owned funds of Dhule and Nandurbar DCCB

Period	Total Owned Funds
Period I (1985-86 to 2002-03)	19.75 ***
Period II (2003-04 to 2020-21)	2.50 **
Entire Period (1985-86 to 2020-21)	10.39 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

4.4.4 Deposits

The composition of total deposits of Dhule and Nandurbar DCCB during 1985-86 to 2020-21 is presented in Table 4.15.

Table 4.15 Composition of total deposits of Dhule and Nandurbar DCCB

(₹ in Lakhs)

Year	Deposits						Total Deposits	
	From Cooperatives		From Individuals		From Others		Amount	Per cent
	Amount	Per cent	Amount	Per cent	Amount	Per cent		
1985-86	1403.64	41.39	1564.03	46.12	423.28	12.48	3390.95	100.00
1986-87	1495	37.51	1916	48.07	575	14.43	3986	100.00
1987-88	1892	37.32	2470	48.72	708	13.96	5070	100.00
1988-89	2176	36.22	3173	52.82	658	10.95	6007	100.00
1989-90	2620	37.41	3969	56.68	414	5.91	7003	100.00
1990-91	2186	31.71	3954	57.36	753	10.92	6893	100.00
1991-92	1901	29.89	3629	57.05	831	13.06	6361	100.00
1992-93	2471	28.29	4530	51.87	1733	19.84	8734	100.00
1993-94	3648	32.25	5715	50.53	1948	17.22	11311	100.00
1994-95	5468	36.74	6944	46.65	2472	16.61	14884	100.00
1995-96	5005	33.67	8301	55.85	1558	10.48	14864	100.00
1996-97	6056	34.70	10172	58.29	1224	7.01	17452	100.00
1997-98	2662	11.80	12863	57.02	7034	31.18	22559	100.00
1998-99	11260	40.74	13803	49.93	2579	9.33	27642	100.00
1999-00	11642	35.33	16470	49.98	4842	14.69	32954	100.00
2000-01	12024	35.18	19138	56.00	3015	8.82	34177	100.00
2001-02	13225	34.70	21541	56.52	3347	8.78	38113	100.00
2002-03	14363	34.32	23807	56.89	3680	8.79	41850	100.00
2003-04	14874	30.73	26751	55.27	6775	14.00	48400	100.00
2004-05	6037	11.59	28129	54.02	17904	34.38	52070	100.00
2005-06	14515	23.50	31860	51.58	15391	24.92	61766	100.00
2006-07	15156	22.35	34804	51.33	17842	26.31	67802	100.00
2007-08	15243	20.49	41422	55.69	17716	23.82	74381	100.00
2008-09	20873	23.20	49347	54.84	19768	21.97	89988	100.00
2009-10	23025	24.59	54428	58.12	16199	17.30	93652	100.00
2010-11	23151	20.57	64532	57.32	24890	22.11	112573	100.00
2011-12	20044	16.62	63341	52.52	37229	30.87	120614	100.00
2012-13	12652	21.35	25351	42.78	21253	35.87	59256	100.00
2013-14	12488	24.49	24151	47.37	14343	28.13	50982	100.00
2014-15	11460	22.59	26086	51.42	13183	25.99	50729	100.00
2015-16	11888	23.01	27072	52.39	12713	24.60	51673	100.00
2016-17	12729	25.64	24454	49.26	12462	25.10	49645	100.00
2017-18	209	0.42	23816	47.61	25994	51.97	50019	100.00
2018-19	12195	11.82	27492	26.65	63470	61.53	103157	100.00
2019-20	16873	28.40	30924	52.05	11620	19.56	59417	100.00
2020-21	18971	31.21	30776	50.64	11032	18.15	60779	100.00

Deposits in a Central Co-operative Bank assume special urgency and importance in the context of the need for extending credit support to cover growing credit of agricultural and non-agricultural sector. Deposits help the bank, immediately by cushioning the requirements

overdues and thereby maintain an uninterrupted flow of credit from the higher financing agency. The expanding scale of activities and growing diversification has also made it necessary that the DCCBs should build up large resources by way of deposits. The growth in deposits helps the DCCBs to reduce their reliance on external resources.

It could be observed from table that, the total amount of deposits of DNDCCB in the Maharashtra had increased from ₹ 3390.95 lakhs in 1985-86 to ₹ 60779 lakhs in the year 2020-21. There was a significant growth in total deposits of DNDCCB due to the policy of RBI in lending to Central Co-operative Banks, which was linked with the minimum investment (MI) policy and compulsory deposit mobilisation by DNDCCB. The contribution from co-operatives, individuals and other sources was estimated to be 41.39, 46.12 and 12.48 per cent, respectively, during 1985-86, whereas, the same was 31.21, 50.64 and 18.15 per cent, respectively, during 2020-21 in the total deposits of DNDCCB. The largest contribution in total deposits were to the tune of 41.39 per cent (1985-86), 58.29 per cent (1996-97) and 61.53 per cent (2018-19) by co-operatives, individuals and other sources, respectively. The results are presented by pie diagram in Figure 6B.

The compound annual growth rates in total deposits of Dhule and Nandurbar DCCB are depicted in Table 4.16.

Table 4.16 Growth in total deposits of Dhule and Nandurbar DCCB

Period	Institutional Deposits from			Total Deposits
	Cooperatives	Individuals	Others	
Period I (1985-86 to 2002-03)	15.25 ***	17.22 ***	15.30 ***	16.46 ***
Period II (2003-04 to 2020-21)	-4.16	-1.92	1.55	-0.46
Entire Period (1985-86 to 2020-21))	5.73 ***	8.85 ***	12.98 ***	9.22 ***

Note: *** indicates significance at 1 per cent level.

The deposits of DNDCCB showed a significant growth of 9.22 per cent per annum during the entire period. The performance of deposits was varying during two periods. The performance of DCCB in respect of total deposits and deposits from different institutions was satisfactory during Period I, which witnessed the higher magnitude of compound growth rate i.e., for co-operatives 15.25 per cent, for individuals 17.22 per cent, for other institutions 15.30 per cent and for total deposits 16.46 per cent. The higher growth rate showed by deposits from other institution at 12.98 per cent during entire study period. The growth in total deposit have been depicted by bar graph in Figure 6B.

4.4.5 Borrowings

Borrowings are useful to assess the dependence of DCCBs. The DCCBs generally borrow from the State Apex Co-operative Bank. The DCCB should rely less on borrowings; it

has to make all other special serious efforts to augment its deposits and owned funds. The year wise borrowings of Dhule and Nandurbar DCCB are given in Table 4.17.

Table 4.17 Composition of total borrowings of Dhule and Nandurbar DCCB

(₹ in Lakhs)

Year	Borrowings	% Change Over Base Year
1985-86	1173	--
1986-87	2679	128.39
1987-88	3180	171.09
1988-89	5035	329.24
1989-90	6435	448.59
1990-91	7343	526.00
1991-92	9556	714.66
1992-93	7957	578.35
1993-94	7265	519.35
1994-95	7378	528.98
1995-96	7337	525.49
1996-97	6958	493.18
1997-98	5927	405.28
1998-99	4204	258.39
1999-00	46506	3864.7
2000-01	8248	603.154
2001-02	59509	4973.23
2002-03	8295	607.16
2003-04	5137	337.93
2004-05	5547	372.89
2005-06	4977	324.29
2006-07	5900	402.98
2007-08	7208	514.49
2008-09	687	-41.43
2009-10	3754	220.03
2010-11	2912	148.25
2011-12	1103	-5.97
2012-13	1500	27.87
2013-14	7967	579.19
2014-15	9374	699.15
2015-16	8596	632.82
2016-17	6900	488.23
2017-18	4064	246.46
2018-19	1600	36.4
2019-20	4458	280.05
2020-21	4255	262.75

It could be observed that the total borrowings of the DNDCCB had increased from ₹ 1173 lakhs in 1985-86 to ₹ 4255 lakhs in 2020-21 marking an increase of more than 200 per cent over the base year. The borrowing were decreased by -5.97 per cent during 2011-12.

It could be observed from the Table 4.18 that the total borrowings of Dhule and Nandurbar DCCB have only been increased significantly by 11.96 per cent per annum for period I, while decreased by -0.01 and -1.12 per cent during period II and entire period, respectively. The growth in borrowings have been depicted by way of bar graph in Figure 7.

Table 4.18 Growth in total borrowings of Dhule and Nandurbar DCCB

Period	Total Borrowings
Period I (1985-86 to 2002-03)	11.96 ***
Period II (2003-04 to 2020-21)	-0.01
Overall Period (1985-86 to 2020-21)	-1.12

Note: *** indicates significance at 1 per cent level.

4.4.6 Working capital

Working capital indicates the amount of funds for undertaking various credit and service activities in a co-operative organization. Larger the available working capital, greater is the potential of services and credit activities of the District Central Co-operative bank. If the working capital increases over the years, it reflects the financial strength of the DCCBs, which is an indication of better performance. The details regarding total working capital of Dhule and Nandurbar DCCB is presented in Table 4.19.

It could be revealed from Table 4.19, that the total working capital of DNDCCB has increased from ₹ 5715 lakhs in 1985-86 to ₹ 88278 lakhs in 2020-21, indicating an impressive change by 1444.67 per cent over the base year of the study. It clearly indicates that sufficient amount of funds were available with DNDCCB for undertaking various credit and service activities during the period under study. It could be concluded that the DNDCCB had quite substantial working capital for their credit activities.

The compound annual growth in total working capital of DNDCCB is given in Table 4.20. It is observed that the significant compound growth rate in the total working capital of DNDCCB was 7.5 per cent per annum during entire study period. This growth could be attributed mainly to the increase in total own funds, deposits and total reserve funds of DNDCCB. Significant and positive growth of 14.50 per cent was also recorded during the period I of the study while, the total working capital has decreased annually by -0.96 per cent during period II which was non-significant. It indicates that, though there was decrease in the total working capital of the DNDCCB it may not had any considerable impact on the performance during the said period. The growth in working capital of Dhule and Nandurbar DCCB is graphically shown in Figure 8.

Table 4.19 Total working capital of Dhule and Nandurbar DCCB (₹ in Lakhs)

Year	Total Working Capital	% Change Over Base Year
1985-86	5715	-
1986-87	7736	35.36
1987-88	9691	69.57
1988-89	13377	134.06
1989-90	17203	201.01
1990-91	17293	202.58
1991-92	17897	213.15
1992-93	18850	229.83
1993-94	21141	269.92
1994-95	26295	360.1
1995-96	25550	347.06
1996-97	34355	501.14
1997-98	40479	608.29
1998-99	36812	544.12
1999-00	52646	821.18
2000-01	59466	940.52
2001-02	65685	1049.34
2002-03	73019	1177.67
2003-04	77609	1257.98
2004-05	81077	1318.67
2005-06	90584	1485.02
2006-07	100285	1654.76
2007-08	108323	1795.41
2008-09	116540	1939.19
2009-10	107886	1787.76
2010-11	126590	2115.04
2011-12	142351	2390.83
2012-13	84452	1377.72
2013-14	83775	1365.87
2014-15	86141	1407.27
2015-16	85656	1398.79
2016-17	71108	1144.23
2017-18	78619	1275.66
2018-19	81159	1320.1
2019-20	89230	1461.32
2020-21	88278	1444.67

Table 4.20 Growth in total working capital of Dhule and Nandurbar DCCB

Period	Total Working capital
Period I (1985-86 to 2002-03)	14.50 ***
Period II (2003-04 to 2020-21)	-0.96
Entire Period (1985-86 to 2020-21)	7.50 ***

Note: *** indicates significance at 1 per cent level.

4.4.7 Investment

Having understood the need for proper management of funds, it becomes necessary to plan its deployment in the best possible manner to increase the returns on one hand and ensure virtually zero risk of liquidity on the other. The investments were primarily confined to meet statutory requirements of cash reserve ratio (CRR) and statutory liquidity reserves (SLR). The composition of total investment by DNDCCB is presented in Table 4.21.

Table 4.21 Composition of total investment of Dhule and Nandurbar DCCB

(₹ In Lakhs)

Year	In Govt. Securities		Fixed Deposits		Other Investments		Total Investments	
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
1985-86	57	5.64	700	69.24	254	25.12	1011	100.00
1986-87	73	5.85	900	72.17	274	21.97	1247	100.00
1987-88	87	5.91	1086	73.78	299	20.31	1472	100.00
1988-89	87	4.83	1568	87.06	146	8.11	1801	100.00
1989-90	73	3.24	2028	90.05	151	6.71	2252	100.00
1990-91	73	2.63	2551	91.96	150	5.41	2774	100.00
1991-92	73	2.62	2572	92.19	145	5.20	2790	100.00
1992-93	73	2.62	2578	92.37	140	5.02	2791	100.00
1993-94	92	3.38	2493	91.49	140	5.14	2725	100.00
1994-95	82	2.37	3230	93.27	151	4.36	3463	100.00
1995-96	82	2.11	3236	83.21	571	14.68	3889	100.00
1996-97	102	2.30	3796	85.61	536	12.09	4434	100.00
1997-98	145	2.84	4496	88.04	466	9.12	5107	100.00
1998-99	120	2.00	5396	89.98	481	8.02	5997	100.00
1999-00	105	1.33	7099	90.15	671	8.52	7875	100.00
2000-01	105	1.28	7499	91.13	625	7.60	8229	100.00
2001-02	91	0.96	8794	93.00	571	6.04	9456	100.00
2002-03	96	0.92	9979	95.60	363	3.48	10438	100.00
2003-04	61	0.54	10600	93.51	675	5.95	11336	100.00
2004-05	76	0.53	12312	85.32	2043	14.16	14431	100.00
2005-06	76	0.44	15817	92.18	1265	7.37	17158	100.00
2006-07	41	0.19	21225	98.09	372	1.72	21638	100.00
2007-08	41	0.22	18136	97.37	448	2.41	18625	100.00
2008-09	31	0.08	21887	58.55	15465	41.37	37383	100.00
2009-10	6745	14.05	40397	84.16	857	1.79	47999	100.00
2010-11	14636	21.22	53440	77.49	892	1.29	68968	100.00
2011-12	14623	22.99	48073	75.57	917	1.44	63613	100.00
2012-13	13667	49.81	12839	46.79	932	3.40	27438	100.00
2013-14	13668	52.98	11139	43.18	990	3.84	25797	100.00
2014-15	13656	54.38	10456	41.64	998	3.97	25110	100.00
2015-16	12177	51.50	10304	43.58	1162	4.91	23643	100.00
2016-17	12808	71.99	3344	18.80	1639	9.21	17791	100.00
2017-18	11304	37.17	8034	26.42	11072	36.41	30410	100.00
2018-19	10333	24.93	7719	18.62	23399	56.45	41451	100.00
2019-20	13844	49.60	13609	48.76	460	1.65	27913	100.00
2020-21	11862	32.38	19500	53.23	5272	14.39	36634	100.00

It could be observed from the table that, the total investment was composed of investment made in Government securities, in fixed deposits and other sources of investment. Initially the total investment by selected DNDCCB was ₹ 1011 lakhs, which was distributed into 5.64 per cent in Govt. securities, 69.24 per cent in fixed deposits and 25.12 per cent in other sources of investment. The highest investment by DNDCCB was observed in the year 2010-11 amounting to ₹ 68,968 lakhs which was contributed as ₹ 14,636 lakhs in Govt. securities, ₹53,440 lakhs in fixed deposits and ₹ 892 lakhs in other sources. The composition of total investment of DNDCCB have been depicted by pie diagram in Figure 9B.

The growth in investment of Dhule and Nandurbar DCCB is presented in Table 4.22.

Table 4.22 Growth in total investment of Dhule and Nandurbar DCCB

Period	In Govt. Securities	Fixed Deposits	Other Investments	Tota Investments
Period I (1985-86 to 2002-03)	2.92 ***	15.16 ***	8.01 ***	13.86 ***
Period II (2003-04 to 2020-21)	49.57 ***	-4.18	7.22	3.06
Entire Period (1985-86 to 2020-21)	20.15 ***	8.25 ***	9.05 ***	11.13 ***

Note: *** indicates significance at 1 per cent level.

The significant annual rate of growth in the total investment by DNDCCB was 11.13 per cent, which indicates satisfactory performance by DNDCCB during the entire period under study. The annual growth in investment in Government securities was highest i.e., 20.15 per cent. The analysis showed that the compound annual growth rate in total investment in period I was 13.86 per cent and period II (3.06%) was positive but non-significant. This result has been presented in Figure 9A.

4.4.8 Loan and advances

The lending policies of District Central Co-operative Banks have undergone many changes due to the implementation of various agricultural developmental schemes. Besides, banks also diversified their activities. They had started providing credit to small-scale industries and business activities of the weaker sections under differential rate of interest scheme. Special attention was bestowed on implementation of the credit part of the District Rural Development Agency Programme, Drought Prone Area Programme and Integrated Rural Development gramme. All these schemes were intended to assist the small and marginal farmers and landless agricultural labourers to benefit from the economic growth and development in the rural sector by maintaining the production on cultivation their small holdings through intensive and undertaking subsidiary occupation, which would generate employment and income. The short-term loans were provided for cultivation of crops to the identified farmers, while medium term loans were advanced for subsidiary occupations such as dairying, poultry farming, sheep and

goat rearing. The composition of loan and advances issued by the Dhule and Nandurbar DCCB are depicted in Table 4.23.

Table 4.23 Composition of loan and advances issued by the Dhule and Nandurbar DCCB

(₹ In Lakhs)

Year	Short Term Loans				Medium Term Loans				Other	Per cent	Total Loans and Advances	Per cent
	Agril.	Non Agril.	Total	Per cent	Agril.	Non Agril.	Total	Per cent				
1985-86	1212	3792	5004	61.04	135	108	243	2.96	2952	36.00	8199	100.00
1986-87	1891	4097	5988	67.62	153	123	276	3.12	2591	29.26	8855	100.00
1987-88	2722	27	2749	28.07	509	101	610	6.23	6435	65.70	9794	100.00
1988-89	2671	6421	9092	54.22	1187	4	1191	7.10	6487	38.68	16770	100.00
1989-90	3889	8097	11986	67.07	514	333	847	4.74	5037	28.19	17870	100.00
1990-91	2178	8459	10637	67.68	253	92	345	2.20	4734	30.12	15716	100.00
1991-92	1199	4133	5332	73.89	932	7	939	13.01	945	13.10	7216	100.00
1992-93	1934	6180	8114	70.55	552	45	597	5.19	2790	24.26	11501	100.00
1993-94	3695	6487	10182	86.27	312	40	352	2.98	1268	10.74	11802	100.00
1994-95	3897	10442	14339	87.71	414	449	863	5.28	1147	7.02	16349	100.00
1995-96	4727	10840	15567	93.34	962	51	1013	6.07	97	0.58	16677	100.00
1996-97	2685	11212	13897	95.17	446	94	540	3.70	165	1.13	14602	100.00
1997-98	3748	5147	8895	94.75	220	229	449	4.78	44	0.47	9388	100.00
1998-99	3687	6235	9922	95.04	246	118	364	3.49	154	1.48	10440	100.00
1999-00	5558	14535	20093	98.34	299	24	323	1.58	16	0.08	20432	100.00
2000-01	5445	17310	22755	95.71	552	68	620	2.61	400	1.68	23775	100.00
2001-02	6050	10759	16809	93.13	710	223	933	5.17	306	1.70	18048	100.00
2002-03	7494	6767	14261	91.57	1224	31	1255	8.06	58	0.37	15574	100.00
2003-04	5703	4432	10135	81.58	770	769	1539	12.39	750	6.04	12424	100.00
2004-05	8498	3338	11836	77.76	3067	212	3279	21.54	106	0.70	15221	100.00
2005-06	11430	8752	20182	97.65	389	96	485	2.35	1	0.00	20668	100.00
2006-07	12339	3528	15867	95.94	446	208	654	3.95	18	0.11	16539	100.00
2007-08	15230	6960	22190	84.04	263	273	536	2.03	3678	13.93	26404	100.00
2008-09	9052	16556	25608	89.39	98	541	639	2.23	2400	8.38	28647	100.00
2009-10	18306	12785	31091	96.67	565	425	990	3.08	82	0.25	32163	100.00
2010-11	23435	15932	39367	83.93	1301	413	1714	3.65	5822	12.41	46903	100.00
2011-12	26471	19585	46056	76.44	1854	420	2274	3.77	11924	19.79	60254	100.00
2012-13	25759	3256	29015	72.50	753	4311	5064	12.65	5942	14.85	40021	100.00
2013-14	26849	5260	32109	79.82	1344	1089	2433	6.05	5684	14.13	40226	100.00
2014-15	24759	3106	27865	89.04	1065	495	1560	4.98	1870	5.98	31295	100.00
2015-16	22028	2786	24814	83.00	1676	402	2078	6.95	3003	10.05	29895	100.00
2016-17	22216	2730	24946	96.52	230	335	565	2.19	335	1.30	25846	100.00
2017-18	10264	4684	14948	83.80	500	106	606	3.40	2284	12.80	17838	100.00
2018-19	9931	2601	12532	76.15	356	715	1071	6.51	2855	17.35	16458	100.00
2019-20	11258	860	12118	59.05	317	1550	1867	9.10	6538	31.86	20523	100.00
2020-21	19920	2133	22053	86.26	379	869	1248	4.88	2265	8.86	25566	100.00

The Table 4.23 revealed that, the total amount of loan advanced by the DNDCCB had increased from ₹ 8199 lakhs in 1985-86 to ₹ 25566 lakhs in 2020-21. Initially, during 1985-86 maximum loan and advances were contributed by total short term credit (including agril. and non-agril. loans) issued (61.03%) followed by other loan and advances (36.00%) while, remaining 2.96 per cent contribution was made by total medium term credit (including agril. and non-agril. loans). The proportion of total short term, medium term and other loan and advances have changed to 86.26, 4.88 and 8.86 per cent, respectively during 2020-21. The maximum amount of ₹ 60,254 lakhs was issued as loan and advances by the DNDCCB during the year

2011-12. The proportionate shares of total loan and advances by the DNDCCB from different sources for the year under study have been presented by pie diagram in Figure 10B.

The compound annual growth rates for loan and advances issued by Dhule and Nandurbar DCCB for the period of 36 years and two periods have been estimated and presented in Table 4.24.

Table 4.24 Growth in loan and advances issued by the Dhule and Nandurbar DCCB

Period	Short Term Loans		Medium Term Loans		Other	Total Loans & Advances
	Agril.	Non Agril.	Agril.	Non Agril.		
Period I (1985-86 to 2002-03)	8.11 ***	13.03 **	3.9	1.57	-25.41 ***	3.34 **
Period II (2003-04 to 2020-21)	3.48	-7.78 **	-2.54	5.99	27.08 **	1.43
Entire Period (1985-86 to 2020-21)	8.26 ***	-0.06	1.53	9.28 ***	0.99	3.41 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

The results indicates that the total loans and advances issued by the Dhule and Nandurbar DCCB registered a significant compound growth rate of 3.41 per cent per annum for the entire period under study. The significant compound annual growth rate of short-term loan issued for agricultural purpose was 8.26 per cent while medium-term loan issued for non-agricultural purpose was 9.28 per cent during entire study period. The other loan issued growth rate per annum was declined significantly by 25.41 per cent in period I whereas it was increased significantly by 27.08 per cent in period II. The medium term loan issued for agricultural purpose during period I, II and entire period while, for non- agricultural purpose during period I and II were not having significant impact. These results are presented by bar graph in Figure 10A.

4.4.9 Credit Deposit ratio

Credit deposit ratio is one of the indicators of performance. Higher C:D ratio simply means that the advances are larger than the deposits. It does not necessarily imply that the magnitude of advances is large. The volume of advances may be small but the ratio could be higher because the deposits are very small. Higher the C:D ratio better is the performance of bank in purveying the credit requirements of the clients. A favourable C:D ratio does determine the profitability of the banks. Hence, a bank should aim at higher C:D ratio. The total credit disbursement, total deposit and C:D ratios are presented in Table 4.25.

The results revealed that the C:D ratio had witnessed a declining trend in Dhule and Nandurbar DCCB during the period under study. The C:D ratio of DNDCCB had declined from 83.43 per cent in period I to 40.33 per cent in period II, while it was 48.71 per cent during the entire period under study. As seen in the earlier sections, it could be noted that deposits and

advances had witnessed a steady increase over a period. But the increase in deposits was not in the direct proportion to the increase in advances. Also showed higher incidence of overdues had adversely affected the lending and resulted in the negative trend in credit-deposit ratio.

Table 4.25 Average credit disbursement, average deposit and CD ratio in Dhule and Nandurbar DCCB

Period	Average Credit (₹ in Lakhs)	Average Deposit (₹ in Lakhs)	C:D Ratio (%)	CAGR (%)
Period I (1985-86 to 2002-03)	16847.28	14056	83.43	-11.27 ***
Period II (2003-04 to 2020-21)	69827.94	28160.61	40.33	1.90
Entire Period (1985-86 to 2020-21)	43337.61	21108.31	48.71	-5.33 ***

The compound annual growth rate analysis indicated that there was significant annual decline of -11.27 and -5.33 per cent was noticed during period I and entire period, respectively while non-significant annual increase of 1.90 per cent was noticed in period II.

4.4.10 Loan outstanding

The performance of loan outstanding is also another criteria used to assess and evaluate the growth as well as efficiency in management of DCCB, the details are depicted in Table 4.26.

It could be seen from the table that, the total loan outstanding in DNDCCB had increased from ₹ 4026 lakhs in 1985-86 to ₹ 23949 lakhs in 2020-21. This shows that the growth in total loan outstanding was more than five times over the base year of the study. Total short term loan was the major factor contributing about 70.24 per cent in the total outstanding of the DNDCCB followed by other outstandings (15.62%), and total medium term loan (14.13%) in the year 1985-86. The proportion of short term loan outstanding has reduced to 37.34 per cent during 2020-21, but the proportion of other outstandings (33.33) and medium term loan outstandings (29.33%) has increased considerably. The proportionate shares of total loan outstanding by the Dhule and Nandurbar DCCB from different sources for the year under study have been presented by pie diagram in Figure 11B.

It is observed that, the total loan outstanding of DNDCCB showed a compound growth rate of 4.88 per cent per annum for the entire period under study. The compound annual growth rate of short-term loan outstanding for agricultural purpose was 5.92 per cent and for non-agricultural purpose was 5.28 per cent during entire study period. While the growth rate of medium-term loan outstanding per annum for agricultural purpose was 3.44 per cent and for non-agricultural purpose was 11.52 per cent during entire study period. The other loan outstanding growth rate per annum was 15.49 per cent in Period I whereas for overall period it was positive but non-significant. These results are presented by bar graph in Figure 11A.

Table 4.26 Composition of loan outstanding of Dhule and Nandurbar DCCB

(₹ in Lakhs)

Year	Short Term Loans				Medium Term Loans				Other		Total Loan Outstanding	
	Agril.	Non Agril.	Total	Per cent	Agril.	Non Agril.	Total	Per cent	Amount	Per cent	Amount	Per cent
1985-86	1815	1013	2828	70.24	314	255	569	14.13	629	15.62	4026	100.00
1986-87	2666	1504	4170	74.52	422	304	726	12.97	700	12.51	5596	100.00
1987-88	3199	10	3209	43.35	726	288	1014	13.70	3180	42.96	7403	100.00
1988-89	2984	2009	4993	47.93	1473	101	1574	15.11	3850	36.96	10417	100.00
1989-90	4857	2460	7317	56.60	1665	398	2063	15.96	3547	27.44	12927	100.00
1990-91	3869	2469	6338	50.27	1455	246	1701	13.49	4570	36.24	12609	100.00
1991-92	4103	2868	6971	51.07	6136	209	6345	46.48	334	2.45	13650	100.00
1992-93	3382	2694	6076	44.05	1683	235	1918	13.91	5799	42.04	13793	100.00
1993-94	4307	2762	7069	46.21	1550	247	1797	11.75	6432	42.04	15298	100.00
1994-95	4833	4577	9410	47.44	1671	1890	3561	17.95	6863	34.60	19834	100.00
1995-96	5638	4621	10259	52.12	2259	224	2483	12.62	6940	35.26	19682	100.00
1996-97	4417	5416	9833	51.81	1762	172	1934	10.19	7211	38.00	18978	100.00
1997-98	5070	5224	10294	51.59	1573	422	1995	10.00	7664	38.41	19953	100.00
1998-99	5199	5859	11058	51.26	1561	447	2008	9.31	8507	39.43	21573	100.00
1999-00	6094	6535	12629	46.90	1633	310	1943	7.22	12356	45.89	26928	100.00
2000-01	7213	9346	16559	60.28	2152	107	2259	8.22	8651	31.49	27469	100.00
2001-02	7871	7278	15149	53.38	2685	379	3064	10.80	10168	35.83	28381	100.00
2002-03	9378	6920	16298	55.40	3534	131	3665	12.46	9458	32.15	29421	100.00
2003-04	8801	6283	15084	50.82	3422	971	4393	14.80	10207	34.39	29684	100.00
2004-05	7395	6248	13643	43.24	4602	822	5424	17.19	12482	39.56	31549	100.00
2005-06	9930	10985	20915	58.87	5108	126	5234	14.73	9379	26.40	35528	100.00
2006-07	10741	14112	24853	60.25	6743	529	7272	17.63	9127	22.12	41252	100.00
2007-08	19758	14122	33880	64.52	7666	752	8418	16.03	10215	19.45	52513	100.00
2008-09	8932	11346	20278	59.58	6767	4402	11169	32.81	2590	7.61	34037	100.00
2009-10	15055	9137	24192	69.24	6650	1595	8245	23.60	2501	7.16	34938	100.00
2010-11	7569	17809	25378	77.09	4233	874	5107	15.51	2435	7.40	32920	100.00
2011-12	11181	29157	40338	79.70	4607	3212	7819	15.45	2453	4.85	50610	100.00
2012-13	16287	9319	25606	72.06	2473	5031	7504	21.12	2424	6.82	35534	100.00
2013-14	16216	8340	24556	70.17	2651	5350	8001	22.86	2437	6.96	34994	100.00
2014-15	17695	7829	25524	62.78	2717	9548	12265	30.17	2865	7.05	40654	100.00
2015-16	19722	6775	26497	68.95	2688	4039	6727	17.50	5207	13.55	38431	100.00
2016-17	22443	6130	28573	78.24	2036	4518	6554	17.95	1394	3.82	36521	100.00
2017-18	17633	5222	22855	73.38	1762	4881	6643	21.33	1648	5.29	31146	100.00
2018-19	17614	9719	27333	75.82	2650	4712	7362	20.42	1355	3.76	36050	100.00
2019-20	15330	584	15914	46.15	1739	5942	7681	22.27	10890	31.58	34485	100.00
2020-21	8187	755	8942	37.34	1741	5284	7025	29.33	7982	33.33	23949	100.00

Table 4.27 Growth in loan outstanding of Dhule and Nandurbar DCCB

Period	Short Term Loans		Medium Term Loans		Other	Total Loan Outstanding
	Agril.	Non Agril.	Agril.	Non Agril.		
Period I (1985-86 to 2002-03)	7.17 ***	19.99 ***	8.48 ***	-0.29	15.49 ***	10.47 ***
Period II (2003-04 to 2020-21)	3.44 **	-9.75 **	-7.38 ***	18 ***	-6.25 *	-0.72
Entire Period (1985-86 to 2020-21)	5.92 ***	5.28 **	3.44 ***	11.52 ***	0.79	4.88 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

4.4.11 Loan collection (Recovery)

Performance of loan recovery is another criterion used to assess the growth as well as efficiency in management of District Central Co-operative Banks.

Table 4.28 Composition of total loan collection (recovery) of Dhule and Nandurbar DCCB
(₹ in Lakhs)

Year	Short Term Loan	Per cent	Medium Term Loan	Per cent	Total Collection (Recovery)	Per cent
1985-86	1320	95.72	59	4.28	1379	100.00
1986-87	897	91.34	85	8.66	982	100.00
1987-88	1571	86.51	245	13.49	1816	100.00
1988-89	1935	90.00	215	10.00	2150	100.00
1989-90	1721	88.57	222	11.43	1943	100.00
1990-91	2162	85.69	361	14.31	2523	100.00
1991-92	1067	86.89	161	13.11	1228	100.00
1992-93	996	88.53	129	11.47	1125	100.00
1993-94	1820	93.05	136	6.95	1956	100.00
1994-95	1354	91.55	125	8.45	1479	100.00
1995-96	1926	93.13	142	6.87	2068	100.00
1996-97	2455	76.60	750	23.40	3205	100.00
1997-98	1974	94.04	125	5.96	2099	100.00
1998-99	2519	94.73	140	5.27	2659	100.00
1999-00	1750	93.78	116	6.22	1866	100.00
2000-01	2670	95.66	121	4.34	2791	100.00
2001-02	2789	94.16	173	5.84	2962	100.00
2002-03	3251	94.07	205	5.93	3456	100.00
2003-04	3486	93.28	251	6.72	3737	100.00
2004-05	6608	90.03	732	9.97	7340	100.00
2005-06	6059	96.33	231	3.67	6290	100.00
2006-07	8437	96.42	313	3.58	8750	100.00
2007-08	12704	98.84	149	1.16	12853	100.00
2008-09	12392	95.46	590	4.54	12982	100.00
2009-10	13840	96.18	550	3.82	14390	100.00
2010-11	22440	99.05	215	0.95	22655	100.00
2011-12	22377	98.24	400	1.76	22777	100.00
2012-13	22306	98.06	442	1.94	22748	100.00
2013-14	21243	98.40	345	1.60	21588	100.00
2014-15	19114	96.95	601	3.05	19715	100.00
2015-16	10000	97.18	290	2.82	10290	100.00
2016-17	9665	63.51	5552	36.49	15217	100.00
2017-18	15350	90.15	1678	9.85	17028	100.00
2018-19	9686	85.68	1619	14.32	11305	100.00
2019-20	12256	96.79	406	3.21	12662	100.00
2020-21	16878	96.02	699	3.98	17577	100.00

It could be seen from Table 4.28 that the total loan recovered by DNDCCB in Maharashtra had increased from ₹ 1379 lakhs in the base year (1985-86) to ₹ 17577 lakhs in the terminal year (2020-21) of the study. The proportion of short term loan recovery to total recovery of selected DNDCCB remained above 85 per cent during the entire period under study, except during 1996-97 (76.60%) and 2016-17 (63.51%) where the recovery of medium term loans was 23.40 and 36.49 per cent, respectively. These are presented by pie diagram in Figure 12B.

The growth in total loan collection (recovery) by the DNDCCB in Maharashtra is presented in Table 4.29. The results showed that the amount of loan recovered by DNDCCB registered a compound growth rate of 9.53 per cent per annum during the period under study. It is mainly due to the positive growth in the recovery of short-term loan by 10.33 per cent and medium-term loan by 6.17 per cent. The recovery of short-term loan and medium-term loan showed positive but non-significant compound annual growth rate in period I. As regards the sub periods the growth of total loan recovery was slightly more in period II as compared to period I. The growth in total loan collection have been depicted by bar graph in Figure 12A.

Table 4.29 Growth in total loan collection (recovery) of Dhule and Nandurbar DCCB

Period	Short Term Loan Collection	Medium Term Loan Collection	Total Collection
Period I (1985-86 to 2002-03)	5.71	1.27	4.65 ***
Period II (2003-04 to 2020-21)	4.89 **	8.82 **	5.38 **
Entire Period (1985-86 to 2020-21)	10.33 ***	6.17 ***	9.53 ***

Note: ** and *** indicates significance at 5 and 1 per cent level.

4.4.12 Recovery percentage to demand

It is the ratio of amount of loan recovered to total demand and measured in percentages and depicted in Table 4.30.

It is seen from Table 4.30 that the recovery percentage of DNDCCB had decreased from 55.05 per cent in 1985-86 to 48.82 per cent in 2020-21. In case of short term loan recovery percentage to demand, a minor change from 56.85 per cent in 1985-86 to 57.57 per cent in 2020-21 was noticed, with highest proportion during 2010-11 (87.16%). On the other hand, the medium term loan recovery percentages have drastically changed from 32.24 per cent in 1985-86 to 10.45 per cent in 2020-21, with maximum ration during 1987-88 (61.71%) and minimum in the year 2019-20 (5.53%). These results of recovery percentage and its composition have been graphically shown in Figure 13.

Table 4.30 Composition of recovery percentage to demand in Dhule and Nandurbar DCCB (Per cent)

Year	Short Term Loan Recovery to Demand	Medium Term Loan Recovery to Demand	Total Recovery to Demand
1985-86	56.85	32.24	55.05
1986-87	34.39	32.95	34.26
1987-88	58.64	61.71	59.04
1988-89	50.72	45.65	50.16
1989-90	35.52	29.96	34.78
1990-91	47.47	43.44	46.85
1991-92	23.14	17.29	22.16
1992-93	2.47	11.82	4.52
1993-94	33.84	9.08	28.44
1994-95	29.14	7.74	23.61
1995-96	31.53	9.23	27.04
1996-97	38.59	44.99	39.92
1997-98	31.19	10.23	27.80
1998-99	36.66	10.51	32.41
1999-00	27.29	8.06	23.76
2000-01	40.47	7.90	34.33
2001-02	30.91	8.69	26.90
2002-03	30.27	9.03	26.57
2003-04	28.25	9.20	24.80
2004-05	47.84	30.77	45.33
2005-06	52.08	15.13	47.80
2006-07	50.91	13.18	46.18
2007-08	51.12	7.12	47.70
2008-09	71.92	28.85	67.35
2009-10	69.40	44.00	67.90
2010-11	87.16	29.70	85.59
2011-12	77.99	44.79	76.99
2012-13	75.81	45.90	74.86
2013-14	74.45	43.18	73.60
2014-15	62.64	50.08	62.16
2015-16	34.33	25.33	33.99
2016-17	26.51	49.46	31.91
2017-18	42.11	23.82	39.15
2018-19	31.62	25.65	30.60
2019-20	36.41	5.53	30.88
2020-21	57.57	10.45	48.82

The growth in recovery percentage to demand of Dhule and Nandurbar DCCB during 1985-86 to 2020-21 is presented in Table 4.31.

Table 4.31 Growth in recovery percentage to demand in Dhule and Nandurbar DCCB

Period	Short Term Loan Recovery to Demand	Medium Term Loan Recovery to Demand	Total Recovery to Demand
Period I (1985-86 to 2002-03)	-1.69	-10.09 ***	-2.79
Period II (2003-04 to 2020-21)	-1.30	0.84	-1.15
Entire Period (1985-86 to 2020-21)	1.69 *	0.05	1.56 *

Note: * and *** indicates significance at 10 and 1 per cent level.

The significant per annum increase in the recovery percentage of total loan and advances of DNDCCB was 1.56 per cent, for the entire period of the study. The growth in short term loan recovery showed relatively better performance as indicated by positive 1.69 per cent growth rate as compared to medium term loan recovery percentage, where the growth rate of recovery percentage was positive but non-significant at 0.05 per cent.

4.4.13 Loan balances (Overdues)

One of the serious issues affecting the performance of District Central Co-operative Banks is mounting overdues. In spite of the facilities of conversion and rephasing extended to borrowers in times of natural calamities, there has been pronounced increase of overdues largely on account of organized resistance to recovery of overdues. Overdues grip the DCCB and cripple its activities unless it is checked in time. It is bound to spread throughout and would cripple the entire structure.

It can be observed from the Table 4.32 that, the poor performance of DNDCCB was quite comprehensible from increase in total overdues of the DNDCCB from ₹ 1126 lakhs in the base year (1985-86) to ₹ 18430 lakhs in the terminal year (2020-21). This clearly indicated that the rising overdues had seriously weakened the performance of DNDCCB. The highest short term loan overdues was observed in the year 2015-16 (95.72%) with minimum (4.28%) share of medium term loan overdues to total overdues in the selected DNDCCB. These results have been shown by pie diagram in Figure 14B.

The information on growth in the total balances (overdues) of DNDCCB in Maharashtra during study period is presented in Table 4.33. It was noted that overdues of DNDCCB registered a compound growth rate of 7.92 per cent per annum during the entire period of study. On critical examination of table, it was revealed that the growth in total overdue showed an increasing trend, which can be attributed to the increase in overdues of short-term loans (8.22%) and medium-term loans (6.41%). It looks that no care has been taken to curb the overdues of short term and medium-term loans by the DNDCCB and therefore, there was increase in overdue. As regards to the medium-term loan in period II, the growth in overdues was positive but it was non-significant indicating that some care has been taken to minimize the overdues. The results of growth in overdues have been graphically presented in Figure 14B.

Table 4.32 Composition of total loan balances (overdues) of Dhule and Nandurbar DCCB
(₹ in Lakhs)

Year	Short Term Loan Balances (Overdues)	Per cent	Medium Term Loan Balances (Overdues)	Per cent	Total Loans Balances (Overdues)	Per cent
1985-86	1002	88.99	124	11.01	1126	100.00
1986-87	1097	87.90	151	12.10	1248	100.00
1987-88	1108	87.94	152	12.06	1260	100.00
1988-89	180	41.19	257	58.81	437	100.00
1989-90	3124	85.75	519	14.25	3643	100.00
1990-91	2392	83.58	470	16.42	2862	100.00
1991-92	3544	82.15	770	17.85	4314	100.00
1992-93	2886	75.00	962	25.00	3848	100.00
1993-94	3559	72.32	1362	27.68	4921	100.00
1994-95	3293	68.83	1491	31.17	4784	100.00
1995-96	4183	74.98	1396	25.02	5579	100.00
1996-97	3907	80.99	917	19.01	4824	100.00
1997-98	4354	79.88	1097	20.12	5451	100.00
1998-99	4352	78.50	1192	21.50	5544	100.00
1999-00	4663	77.89	1324	22.11	5987	100.00
2000-01	3928	73.57	1411	26.43	5339	100.00
2001-02	6233	77.32	1828	22.68	8061	100.00
2002-03	7488	78.39	2064	21.61	9552	100.00
2003-04	8856	78.14	2477	21.86	11333	100.00
2004-05	7206	81.40	1647	18.60	8853	100.00
2005-06	5574	81.14	1296	18.86	6870	100.00
2006-07	8135	79.79	2061	20.21	10196	100.00
2007-08	12147	86.20	1944	13.80	14091	100.00
2008-09	4250	44.73	5252	55.27	9502	100.00
2009-10	6103	89.71	700	10.29	6803	100.00
2010-11	3306	86.66	509	13.34	3815	100.00
2011-12	6316	92.76	493	7.24	6809	100.00
2012-13	7118	93.18	521	6.82	7639	100.00
2013-14	7289	94.14	454	5.86	7743	100.00
2014-15	11401	95.01	599	4.99	12000	100.00
2015-16	19131	95.72	855	4.28	19986	100.00
2016-17	26793	82.52	5674	17.48	32467	100.00
2017-18	21098	79.72	5367	20.28	26465	100.00
2018-19	20945	81.70	4693	18.30	25638	100.00
2019-20	21401	75.52	6939	24.48	28340	100.00
2020-21	12439	67.49	5991	32.51	18430	100.00

Table 4.33 Growth in total loan balances (overdues) of Dhule and Nandurbar DCCB

Period	Short Term Loan Balances (Overdues)	Medium Term Loan Balances (Overdues)	Total Loans Balances (Overdues)
Period I (1985-86 to 2002-03)	13.32 ***	16.47 ***	13.4 ***
Period II (2003-04 to 2020-21)	7.83 ***	6.36	7.62 ***
Entire Period (1985-86 to 2020-21)	8.22 ***	6.41 ***	7.92 ***

Note: *** indicates significance at 1 per cent level.

4.4.14 Percentage of loan overdues to demand

The percentage of overdues to outstanding loans is one of the most important indicators of effectiveness of agricultural credit system. The overdues percentage to loan outstanding of Dhule and Nandurbar DCCB is presented in Table 4.34.

Table 4.34 Percentage of loan overdues to demand of Dhule and Nandurbar DCCB
(Per cent)

Year	Short term loan overdues to demand	Medium term loan overdues to demand	Total loan overdues to demand
1985-86	43.15	67.76	44.95
1986-87	42.06	58.53	43.55
1987-88	41.36	38.29	40.96
1988-89	4.72	54.56	10.20
1989-90	64.48	70.04	65.22
1990-91	52.53	56.56	53.15
1991-92	76.86	82.71	77.84
1992-93	74.34	88.18	77.38
1993-94	66.16	90.92	71.56
1994-95	70.86	92.26	76.39
1995-96	68.47	90.77	72.96
1996-97	61.41	55.01	60.08
1997-98	68.81	89.77	72.20
1998-99	63.34	89.49	67.59
1999-00	72.71	91.94	76.24
2000-01	59.53	92.10	65.67
2001-02	69.09	91.81	73.20
2002-03	69.73	90.97	73.43
2003-04	71.75	90.80	75.20
2004-05	52.16	69.23	54.67
2005-06	47.92	84.87	52.20
2006-07	49.09	86.82	53.82
2007-08	48.88	92.88	52.30
2008-09	24.66	256.82	49.29
2009-10	30.60	56.00	32.10
2010-11	12.84	70.30	14.41
2011-12	22.01	55.21	23.01
2012-13	24.19	54.10	25.14
2013-14	25.55	56.82	26.40
2014-15	37.36	49.92	37.84
2015-16	65.67	74.67	66.01
2016-17	73.49	50.54	68.09
2017-18	57.89	76.18	60.85
2018-19	68.38	74.35	69.40
2019-20	63.59	94.47	69.12
2020-21	42.43	89.55	51.18

It is observed from the table that, the percentage of overdues to demand in DNDCCB had increased from 44.95 per cent in 1985-86 to 51.18 per cent in 2020-21. As regard to the percentages of short-term loans overdues to demand were 43.15 per cent in the year 1985-86 and

42.43 during the terminal year (2020-21), on the other hand, percentages of medium-term loans overdue to demand were 67.7 per cent in the year 1985-86 and 89.55 during the terminal year (2020-21). The maximum proportion of short-term loans overdue to demand was estimated in the year 1991-92 (76.86%) while, in case of percentages of medium-term loans overdue to demand were high in the year 2008-09. Accordingly, 4.72 per cent was the lowest estimated proportion of short-term loan overdue to demand and 38.29 per cent in medium-term loan overdue during 1988-89 and 1987-88, respectively. These results have been graphically shown in Figure 15.

The growth in percentage of loan overdue to demand of Dhule and Nandurbar DCCB is presented in Table 4.35. The growth in overdue percentage to demand had registered non-significant negative compound growth rate of -0.36 per cent in the DNDCCB during the entire study period. The rate of growth in overdues percentage was negative -0.26 per cent but non-significant for total short-term loans in the DNDCCB for overall period. The rate of growth in overdues percentage was positive but non-significant 0.27 per cent for medium term loans in the DNDCCB for entire period. In Period I compound growth rate of total percentage of loan overdues was 4.8 per cent per annum.

Table 4.35 Growth in percentage of loan overdues to demand of Dhule and Nandurbar DCCB

Period	Percentage of short term loan overdues to demand	Percentage of medium term loan overdues to demand	Percentage of total loan overdues to demand
Period I (1985-86 to 2002-03)	5.39 *	3.4 ***	4.8 **
Period II (2003-04 to 2020-21)	1.47	-1.44	0.95
Entire Period (1985-86 to 2020-21)	-0.26	0.27	-0.36

Note: *, ** and *** indicates significance at 10, 5 and 1 per cent level.

4.4.15 Cost of management

The expenditure of the bank mainly includes expenditure on salaries of staff and other expenditure. The other expenditure includes interest paid, establishment expenses and operating expenses like rent and taxes, printing and stationery, audit fees, telegram and postage and miscellaneous. The cost of management of Dhule and Nandurbar DCCB was estimated and results are presented in Table 4.36.

It is observed from the table that, the total cost of management also registered an upward trend. The total cost of management in Dhule and Nandurbar DCCB had increased from ₹ 169 lakhs in the base year (1985-86) to ₹ 2201 lakhs in the terminal year of the study period. Further, it was observed from the table that the total employee in DNDCCB had decreased from 1001 in the base year (1985-86) to 495 in the terminal year of the study while, expenditure on salaries have

increased from ₹ 131 lakhs to ₹ 1584 Lakhs, during the same period. The per employee cost of management was ₹ 4.45 Lakhs, which suggests that efforts should be made for reduction in per employee cost of management. The results depicted by the way of pie diagram in Figure 16B.

Table 4.36 Composition of total cost of management of Dhule and Nandurbar DCCB
(₹ in Lakhs)

Year	Salaries	Other Expenses	Total Cost of Management	Total No. of Employees	Cost of Management per Employee
1985-86	131	38	169	1001	0.17
1986-87	156	41	197	1023	0.19
1987-88	184	45	229	1212	0.19
1988-89	234	53	287	1208	0.24
1989-90	287	63	350	1378	0.25
1990-91	417	75	492	1465	0.34
1991-92	327	106	433	1446	0.30
1992-93	493	87	580	1401	0.41
1993-94	550	115	665	1370	0.49
1994-95	674	187	861	1360	0.63
1995-96	825	110	935	1345	0.70
1996-97	824	121	945	1324	0.71
1997-98	902	132	1034	1305	0.79
1998-99	1040	144	1184	1349	0.88
1999-00	1099	189	1288	1327	0.97
2000-01	1106	184	1290	1300	0.99
2001-02	1433	205	1638	1270	1.29
2002-03	1666	212	1878	1251	1.50
2003-04	1862	236	2098	1204	1.74
2004-05	1342	258	1600	1178	1.36
2005-06	1353	278	1631	1148	1.42
2006-07	1400	427	1827	1119	1.63
2007-08	1534	275	1809	1086	1.67
2008-09	1723	257	1980	1049	1.89
2009-10	2170	346	2516	1006	2.50
2010-11	2663	325	2988	927	3.22
2011-12	2883	432	3315	889	3.73
2012-13	2404	346	2750	778	3.53
2013-14	2213	360	2573	739	3.48
2014-15	1882	523	2405	701	3.43
2015-16	1858	524	2382	654	3.64
2016-17	2003	384	2387	608	3.93
2017-18	1964	436	2400	536	4.48
2018-19	1830	685	2515	485	5.19
2019-20	1766	682	2448	427	5.73
2020-21	1584	617	2201	495	4.45

It could be seen from the table that, the rate of growth in total cost of management of DNDCCB in Maharashtra was 7.55 per cent per annum and it was highly significant during the entire period of study. This means that the expenditure on cost of management had significantly increased over the years. The increase in total cost of management was mainly due to positively

significant growth in salary 7.44 per cent and other expenditure 7.84 per cent per annum during study period. The growth rate of total number of employees was negative i.e., -2.68 per cent per annum showed decrease in number of employees in DNDCCB. The growth in per employee cost of management was positively significant at 10.52 per cent per annum, indicates that the per employee cost of management was increased in DNDCCB during study period. The results of growth in cost of management have been graphically presented by way of bar diagram in Figure 16A.

Table 4.37 Growth in total cost of management of Dhule and Nandurbar DCCB

Period	Salaries	Other expenses	Total cost of management	Total No. of employees	Cost of management per employee
Period I (1985-86 to 2002-03)	15.57 ***	10.75 ***	14.77 ***	0.77	13.88 ***
Period II (2003-04 to 2020-21)	1.09	5.62 ***	1.95 **	-6.08 ***	8.56 ***
Overall Period (1985-86 to 2020-21)	7.44 ***	7.84 ***	7.55 ***	-2.68 ***	10.52 ***

Note: *** indicates significance at 1 per cent level.

4.4.16 Working results

A certain frame of thought claims that since cooperatives are service organizations, its goal shouldn't be to maximize profit; yet, it's important to keep in mind that cooperatives are also economic organizations. Profit is necessary for all types of economic organizations, including partnerships, joint stock companies, cooperatives, and private businesses. To properly serve its members, a cooperative need to turn a profit. A cooperative without a profit might not be able to maintain its financial stability in this competitive environment, making it more difficult for it to survive the competition from outside forces that are competing against it. Profit should be an objective for a cooperative in the best interests of its members

The working results of the DNDCCB comprises of total loss, total profit, cost of management to working capital and audit class. From the Table 4.38, it is observed that the total profits of the DNDCCB had decreased from ₹ 11 lakhs in 1985-86 to ₹ -9984 lakhs in the terminal year, which indicates a decreasing trend in the profits of DNDCCB during the period under study.

As regards the number of branches of DNDCCB in profit, it could be seen that about 19 branches were running in profit in 1986-87, which were increased to 83 in 2020-21. As regards to the audit class obtained by the DNDCCB, it was revealed that the DNDCCB had maintained their B class status during the period under study.

The proportion of cost of management to working capital showed declining trend. The proportion of total cost of management to total working capital was 2.96 per cent in 1985-86, which declined to 2.49 per cent.

Table 4.38 Growth in working result of Dhule and Nandurbar DCCB (₹ in Lakhs)

Year	Bank Profit (+) Loss (-)	Branches Working in		Cost of Management to Working Capital (%)	Audit Class
		Profit (No.)	Loss (No.)		
1985-86	11	--	--	2.96	--
1986-87	23	19	82	2.55	--
1987-88	41	29	80	2.36	--
1988-89	50	22	87	2.15	--
1989-90	31	42	71	2.03	--
1990-91	--	29	88	2.85	--
1991-92	67	46	72	2.42	--
1992-93	122	54	63	3.08	--
1993-94	9	41	76	3.15	B
1994-95	6	35	80	3.27	B
1995-96	74	57	56	3.66	B
1996-97	--	--	--	2.75	--
1997-98	-7326	43	69	2.55	B
1998-99	-10184	28	84	3.22	B
1999-00	-10184	NA	NA	2.45	--
2000-01	12370	71	43	2.17	C
2001-02	--	NA	NA	2.49	--
2002-03	-19187	98	16	2.57	C
2003-04	-20440	112	2	2.70	D
2004-05	-19940	106	6	1.97	D
2005-06	-20563	104	6	1.80	D
2006-07	-20563	105	5	1.82	D
2007-08	-651	100	9	1.67	D
2008-09	-18200	101	9	1.70	D
2009-10	-12868	77	32	2.33	D
2010-11	-11786	101	8	2.36	D
2011-12	-11696	103	6	2.33	D
2012-13	-7856	74	16	3.26	D
2013-14	-6780	66	24	3.07	C
2014-15	-8388	73	17	2.79	B
2015-16	8976	60	30	2.78	B
2016-17	828	67	23	3.36	B
2017-18	--	71	14	3.05	B
2018-19	-2082	28	56	3.10	B
2019-20	-1721	56	28	2.74	B
2020-21	-9984	81	2	2.49	B

4.5 Problems faced by Dhule and Nandurbar DCCB

The problems faced by Dhule and Nandurbar District Central Co-operative Banks regarding the availability of funds, disbursement of loans and loan recovery were studied and briefly explained as under.

4.5.1 Availability of funds

It was noted that, the respondent of DNDCCB had reported that they had inadequate funds with them. The present system to meet the requirements of funds was through increasing

share capital, deposits, and borrowings from apex institution. However, the personnel of bank reported that there are some problems in disbursement of the agricultural loans in time. As regards the availability of funds for agricultural loans, the banks reported that they had fulfilled the minimum investment (MI) criteria fixed by NABARD.

4.5.2 Problems concerning disbursement of agricultural loans

It was seen that the DNDCCB was disbursing the agricultural loans through PACS and Kisan Credit Cards. The extent of coverage of crop loans through Kisan Credit Card was more than 50 per cent of the total agricultural loans disbursed. It is suggested to popularize the scheme of KCC amongst the borrowers in view of its simplicity.

The membership of a society, cropping pattern, land holding, status of repayment of earlier loans and repaying capacity of the borrowers were the major norms considered for the disbursement of agricultural loans.

4.5.3 Problems in loan recovery

The responses of officials on the recovery of loans in DNDCCB was obtained to arrive at some useful results. There are number of socio-economic, legal and political factors, which are responsible for the poor recovery of agricultural loans and subsequently leading to increase in overdues. Some important reasons for mounting overdues of agricultural credit are common. The main reasons for low recovery reported by the respondents of DNDCCB were scarcity conditions, low prices to agricultural produce, misutilization of credit, willful defaulters, inadequate recovery staff and tendency of borrowers to wait for exemption of loans.

The other important reasons for low recovery of loans are indicated as below.

1. Defective and improper appraisal of loan applications by the lending institutions resulting into sanctioning of loans to undeserving applicants.
2. Lack of effective supervision and follow up and inadequate monitoring of credit utilization by the borrowers largely due to inadequate and untrained staff, particularly in the case of co-operative institutions.
3. Diversion of income generated by the use of loan amount to other businesses for acquiring additional land and other farm assets and construction of house particularly by large farmers.
4. Weakness in recovery procedure such as failure to remind for payment of loan installments in advance and contact the borrowers at the time of harvesting and marketing of produce for collection of dues.

The specific suggestions made by all the respondents of DNDCCB to improve the recovery were individual contacts and regular follow up, disbursement of loans by strictly observing repayment capacity, serious action against defaulters and cooperation of revenue department, for motivating farmers to repay the loans

5. SUMMARY AND CONCLUSIONS

Agricultural credit is considered the backbone for any business, and it has always been a non-monetary activity for the rural population. Credit is vital to agricultural businesses because it gives farmers access to capital that might not otherwise be available to them. It helps them secure the seeds, equipment, and land they need to operate a successful farm. Agricultural credit programs not only help farmers and other agricultural producers, but also supports ranchers and rural homeowners with their finances. Agricultural credit is an integral part of the process of commercialization of agricultural modernization and the rural economy. Easy and cheap credit represents the fastest way to improve agricultural production. Agricultural credit is seen as one of the strategic resources of crop production, which has led to increase in the standard of living for our rural poor agricultural society. Therefore, it plays a significant role in economic development.

The Dhule and Nandurbar District Central Co-operative Bank in the State have influenced the economic development of farmers in the district, by changing cropping pattern, increased production, creating employment opportunities, increasing income, adoption of new technology and overall changes in the rural society. This became possible mainly because of the constant increase in the flow of agricultural credit by the DNDCCB through primary credit societies.

Though the quantum of credit advanced to agriculture has increased over the years, the flow is not uniform in the district. The differences in agro-climatic situations and the indicators of agricultural development may have influenced such inequality in the flow of credit in the district. The need was felt to examine the working performance of DNDCCB in terms of various performance indicators. The attempt to examine the magnitude and direction of inequality in the flow of credit by DNDCCB over the years would also be useful to assess the performance of DCCB in the state. It was in this context the present study viz; performance analysis of Dhule and Nandurbar District Central Cooperative Bank in Maharashtra has been taken up with the help of following specific objectives.

1. To examine the scale of finance and credit gap in DNDCCB.
2. To assess the inequality in disbursement of crop loans by DNDCCB.
3. To identify the factors responsible for disbursement of crop loans.
4. To analyse the performance of DNDCCB and constraints involve in credit supply.

The study is based on secondary data for the period of past 36 years i.e. from 1985-86 to 2020-21. The time series data on fifteen performance indicators such as number of branches, membership, share capital, reserve fund, owned fund, deposits, borrowings, working capital, investment, loan advancement, loan outstanding, loan recovery, overdues, cost of management

and working results for the period from 1985-86 to 2020-21 i.e. 36 years were secured from the published data of NAFSCOB reports and annual reports of DNDCCB in Maharashtra. Also, a data for the last 36 years on gross cropped area, area under commercial crops, area under horticultural crops and average rainfall for the Pune district were secured from the published reports of Government of Maharashtra. The investigation related to the problems faced by DNDCCB in their performance was conducted with the help of opinions, suggestions obtained from the Chief of Agricultural Loans Section, General Manager and Member of Management Committees of Dhule and Nandurbar DCC Banks.

The credit gap based upon the scales exercised for crop loans by the DNDCCB and the credit requirement for different crops for the year 2020-21 is also studied. To accomplish the objective relating to the inequality in short term and medium-term credit flow, the Coefficient of Variation (CV) was calculated for the 36 years during 1985-86 to 2020-21. The factors influencing per hectare short-term credit flow by DNDCCB, a multiple linear regression analysis was attempted. Further, the performance of DNDCCB was studied with the help of rates of compound growth in the different performance indicators as mentioned above the annual rates of compound growth were estimated for two period viz., Period I i.e. 1985-85 to 2002-03 and Period II i.e. 2003-04 to 2020-21 covered the entire period under study. The compositions and proportions in the performance indicators were estimated for the base year (1996-97) and the terminal year (2020-21) with the help of ratios, averages and percentages. The problems faced by DNDCCB in Maharashtra were studied with the help of frequency distribution, percentages etc.

5.1 Summary of findings

The findings of the study so obtained have been summarized as below

1. The credit gap in the finance by DNDCCB was noticed for most of the crops grown in region. There was excess finance paid up to farmers by DNDCCB was observed for the hybrid irrigated Cotton 14.72 per cent, for Tur 13.23 per cent and for Gram 2.42 per cent on the basis of Cost A. The maximum credit gap in the finance by DNDCCB was observed for Turmeric 78.74 per cent followed by Banana 72.99 per cent, Chilli 72.19 per cent and Adsali Sugarcane 59.81 per cent according to Cost B. On the basis of cost C maximum credit gap in finance was noticed for Turmeric 79.55 followed by Chilli 75.26 per cent, Banana 73.73 per cent and Onion 67.65 per cent.
2. It could be seen that the coefficient of variation of short-term agricultural credit flow per hectare of GCA across the year was 76.69 per cent, indicating the inequality in short-term agricultural credit during the study period. It can be revealed that the coefficient of variation of medium-term agricultural credit flow per hectare of GCA across the years was 86.46 per cent during the period under study, indicating there was inequality in medium term credit flow by the DNDCCB.

3. The factors influencing the inequality in the disbursement of per hectare short term credit in DNDCCB were proportion of area under horticultural crops to GCA (X_3) and recovery percentage of short term agricultural loan (X_6) had positive impact while, proportion of area under commercial crops to GCA (X_2) and average rainfall (X_4) showed significant but negative impact during the period under study. While the gross cropped area (X_1) and deposits (X_5) were positive but non-significant. The R^2 suggest that the above said six factors have jointly explained 85 per cent of the variation in the disbursement of short-term credit by DNDCCB.
4. The performance of DNDCCB based on number of branches indicated that during the entire period of 36 years, the number of total branches fluctuated year to year. There was significant but negative growth -0.75 per cent per annum in number of branches during the entire period under study, this negative change or decrease was caused by closer of non-functioning branches.
5. The overall significant increase in total membership of DNDCCB indicated the satisfactory performance of DNDCCB in respect of coverage. The growth in total membership was mainly attributed to positive growth in individual membership. The significantly growth in cooperative societies membership was noticed during the study period. The proportional share of individual membership in total membership had increased during the study period, while the proportion of PACS membership in total membership of DNDCCB, a decline trend was noticed. The period wise growth in total membership of DNDCCB revealed that the increase in the membership was more satisfactory during Period I than Period II.
6. A continuous increasing trend of per cent change in total share capital was observed with a sharp incline from 1148.85 per cent in 2011-12 to 2977.94 per cent in subsequent year. The total share capital of the DNDCCB has steadily increased by 10.19 per cent per annum during the entire period. The increase in paid up share capital of DNDCCB over the years was mainly due to the increase in number of members and increased contribution of cooperatives and government to the share capital. No contribution from individual was registered till 2012-13, which might be due to banks internal policy. Further, it could be noted that the growth in paid up capital from co-operative societies was at par during both the period while, changed drastically in case of share capital from Government. The increasing trend in total share capital during the entire period showed the financial soundness of DNDCCB.
7. The total reserve fund of the DNDCCB has witnessed a steady growth over a period. The reserve funds of DNDCCB in the state had increased from ₹ 295.08 lakh in 1985-86 to ₹

5468 lakhs in 2020-21 and had registered an impressive increase over the base year. Among the different components of total reserve funds, the maximum contribution by other reserve funds was observed followed by statutory reserve funds and agricultural credit stabilization fund during the terminal year of study i.e. 2020-21. It could be observed that, the total reserve fund has fluctuated drastically during the study period and attended several high peaks in different years. The total reserve funds have increased with 9.64 per cent of significant annual rate during the entire period of study. All these changes in the magnitudes of total reserve funds might be attributed towards the varying Government as well as banks' internal policies.

8. Initially the total owned funds were jointly contributed by 54 and 46 per cent of paid up share capital and reserved funds during 1985-86 amounting to ₹ 641.48 lakhs. The contribution of share capital and reserve funds fluctuated during the entire study period. The total own funds have attained its peak at ₹ 23550 lakhs during the year 2015-16. Thus, it could be stated from the above discussion that as the total own funds have fluctuated during the entire study period keeping the constant increase in total amount, the contribution of share capital and reserve funds has also varied over the years. The total owned funds of DNDCCB have recorded a significant and steady growth of 10.39 per cent annually over the entire period of 36 years starting from 1985-86 to 2020-21. Period wise trend indicated that the maximum growth in total owned funds was noticed during Period I as compared to Period II.
9. There was a significant growth in total deposits of DNDCCB due to the policy of RBI in lending to Central Co-operative Banks, which was linked with the minimum investment (MI) policy and compulsory deposit mobilisation by DNDCCB. The largest contribution in total deposits were to the tune of 41.39 per cent (1985-86), 58.29 per cent (1996-97) and 61.53 per cent (2018-19) by co-operatives, individuals and other sources, respectively. The deposits of DNDCCB had recorded an impressive growth with an annual growth rate of 9.22 per cent. The PACS and individuals were the major sources of deposits which together contributed more than 82 per cent of the total deposits in DNDCCB in year 2020-21. The performance of DNDCCB in respect of total deposits and deposits from different institutions was satisfactory during Period I.
10. There was a non-significant decrease in the total borrowings of the DNDCCB during the study period. The total borrowings of DNDCCB had been increased by 11.96 per cent per annum for Period I, which indicated the increasing trend in the borrowings. The State Co-operative Bank was the major source of borrowings for the DNDCCB.

11. The total working capital of DNDCCB had indicating an impressive change by 1444.67 per cent over the base year of the study. It clearly indicates that sufficient amount of funds were available with DNDCCB for undertaking various credit and service activities during the period under study. The compound growth rate in the total working capital of DNDCCB was 7.5 per cent during the entire period under study. It indicted a sound financial position of DNDCCB. The higher growth was observed in Period I with highly significant growth rate of 14.5 per cent.
12. Initially the total investment by selected DNDCCB was ₹ 1011 lakhs, which was distributed into Govt. securities, fixed deposits and other sources of investment. Fixed deposits occupied a lion's share of 69.24 per cent in total investment during the year 1985-86 which subsequently declined to 53.23 per cent in the terminal year 2020-21. The percentage share of investment in Govt. securities was increased during the study period. At the same time the percentage of investments in others had substantially decreased indicating the proper investment of funds in fixed deposits and Government securities investment. The growth in total investments, at the overall level, had significantly increased by 11.13 per cent during entire period. The analysis showed that the compound annual growth rate in total investment in Period I was 13.86 per cent.
13. The total amount of loan advanced by the DNDCCB initially, during 1985-86 maximum loan and advances were contributed by total short term credit issued (61.03%) followed by other loan and advances (36.00%) while, remaining 2.96 per cent contribution was made by total medium term credit. The proportion of total short term, medium term and other loan and advances have changed to 86.26, 4.88 and 8.86 per cent, respectively, during 2020-21.

The total loan advanced by the DNDCCB had increased by 3.41 per cent per annum for the entire period. It is concluded that the positively significant increase in growth rate of short-term loan issued for agricultural purpose and medium-term loan issued for non-agricultural purpose during entire study period. Over 86 per cent of total loans and advances issued were in the form of short-term loans and remaining being medium term and other loans and advances during the terminal year (2020-21) of study period indicates focussed emphasis on short term loans by the DNDCCB. The percentage shares of medium-term loan were increased during the study period.

14. The C:D ratio had witnessed a declining trend in DNDCCB during the period. It could be noted that deposits and advances had witnessed a steady increase over a period. But the increase in deposits was not in the direct proportion to the increase in advances. The compound annual growth rate analysis indicated that there was significant annual decline

of -5.33 per cent was noticed during the entire period, further higher incidence of overdues had adversely affected the lending and hence the negative trends in credit-deposit ratio.

15. The total loan outstanding in DNDCCB had increased from ₹ 4026 lakhs in 1985-86 to ₹ 23949 lakhs in 2020-21. The proportion of short term loan outstanding has reduced to 37.34 per cent during 2020-21, but the proportion of other outstandings (33.33) and medium term loan outstandings (29.33%) has increased considerably. The growth in the total loan outstanding of DNDCCB had registered a growth of 4.88 per cent per annum for the entire period. Further, it could be seen that the growth in short term and medium-term loan for agricultural and non-agricultural purposes was positively significant during the entire period under study. The per cent share of short-term and medium term outstanding in total loan outstanding was decreased and increased respectively during the period of study.
16. The total loan recovered by DNDCCB in Maharashtra had increased from ₹ 1379 lakhs in the base year (1985-86) to ₹ 17577 lakhs in the terminal year (2020-21) of the study. The proportion of short term loan recovery to total recovery of selected DNDCCB remained above 85 per cent during the entire period under study, except during 1996-97 (76.60%) and 2016-17 (63.51%). The total loan recovered by DNDCCB had registered a compound growth rate of 9.53 per cent per annum during the entire period. Further, it is noted that the recovery of short-term loans and medium-term loans showed satisfactory performance by registering positively significant growth. The proportion of recovery of short-term loans in total loans was prominent.

The growth in recovery percentage of DNDCCB had decreased from 55.05 per cent in 1985-86 to 48.82 per cent in 2020-21 recording a growth of -11.32 per cent over the base year. The per annum increase in the recovery percentage of total loan and advances was 1.56 per cent, for the entire period of the study. The growth in short term loan recovery showed relatively better performance as indicated by positive growth rate as compared to medium term loan recovery percentage, where the growth rate of recovery percentage was positive but non-significant.

17. The poor performance of DNDCCB was quite comprehensible from increase in total overdues of the DNDCCB from ₹ 1126 lakhs in the base year (1985-86) to ₹ 18430 lakhs in the terminal year (2020-21). This clearly indicated that the rising overdues had seriously weakened the performance of DNDCCB. The overdues of DNDCCB registered a compound growth rate of 7.92 per cent per annum during the entire period of study, which can be attributed to the increase in overdues of short-term loans and medium-term

- loans. It is also concluded that out of the total overdues of DNDCCB, the share of short-term loan overdues was substantially increased, while the share of medium-term loan overdue in total loan overdues was decreased during the study period.
18. The percentage of overdues to demand in DNDCCB had increased from 44.95 per cent in 1985-86 to 51.18 per cent in 2020-21, recording a growth of 13.86 per cent over the base year. As regard to the percentages of short-term loans overdues to demand were 43.15 per cent in the year 1985-86 and 42.43 during the terminal year (2020-21), on the other hand, percentages of medium-term loans overdues to demand were 67.7 per cent in the year 1985-86 and 89.55 during the terminal year (2020-21). The growth in overdue percentage to demand had registered non-significant negative compound growth rate of -0.36 per cent in the DNDCCB during the entire study period. So, it is necessary to make the policies for reduction of these overdues percentages.
 19. The total cost of management also registered an upward trend. The total cost of management in DNDCCB had increased from ₹ 169 lakhs in the base year (1985-86) to ₹ 2201 lakhs in the terminal year of the study period. Further, it was observed that the total employee in DNDCCB had decreased while, expenditure on salaries have increased during the same period. The per employee cost of management was ₹ 4.45 lakhs, which suggests that efforts should be made for reduction in per employee cost of management. The total cost of management in DNDCCB had increased by 7.55 per cent per annum and it was highly significant during the entire period of study. This means that the expenditure on cost of management had significantly increased over the years. The increase in total cost of management was mainly due to the positively significant growth in salary and other expenditure.
 20. The total profit of the DNDCCB had decreased from ₹ 11 lakhs in 1985-86 to ₹ -9984 lakhs in the terminal year, which indicated a decreasing trend in the profits of DNDCCB during the period under study. As regards the number of branches of DNDCCB in profit, it could be seen that about 18.8 per cent (19) of branches were running in profit in 1986-87, which were increased to 97.6 per cent (83) in 2020-21. As regards to the audit class obtained by the DNDCCB in Maharashtra it is revealed that the DNDCCB had maintained their B class status during the period under study. The proportion of cost of management to working capital showed declining trend.

5.2 Conclusions

1. Considerable amount of gap was observed in credit availability for almost all the crops in the study area.

2. The magnitude of variation in medium-term credit flow was higher than the short-term credit flow in DNDCCB.
3. The factors influencing the inequality in the disbursement of per hectare short term credit in DNDCCB were proportion of area under horticultural crops to GCA and recovery percentage of short term agricultural loan had positive impact while, proportion of area under commercial crops to GCA and average rainfall showed significant but negative impact during the period under study.
4. The performance of DNDCCB in terms of network and coverage was satisfactory as the Membership had increased substantially during the study period but number of offices decreased during same period, may be due to minimum transaction and merging of branches.
5. A significant increase of 10.19 per cent in total share capital, 9.64 per cent in reserve fund, 10.39 per cent in owned funds, 9.22 per cent in deposits, 11.13 per cent in investment and 7.5 per cents in working capital during the study period indicated the financial soundness of DNDCCB.
6. Although there was significant growth in own funds and deposits, however, this growth was not sufficient to fulfill the increasing demand of loans by the members, as the borrowings of DNDCCB over the entire period had substantially increased.
7. Unsatisfactory performance was observed in respect of decreased in number of branches, increased in cost of management and importantly, increased in loan overdues.

5.3 Suggestions

1. Credit gap should be minimized covering all the cultivation expenses including profit margins.
2. Efforts are needed to increase recovery performance by strengthening the supervision and efficient recovery mechanism.

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7. VITAE

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