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Halesh R
M.Sc. (Agri) Student, Department of Agricultural Economics, College of Agriculture, VNMKV, Parbhani, Maharashtra, India

RV Chavan
Associate Dean and Principal, Post Graduate Institute of Agribusiness Management, Chakur, Maharashtra, India

Indumathi M
Student, Department of Agricultural Economics, College of Agriculture, UASD, Dharwad, Maharashtra, India

Corresponding Author:
Halesh R
M.Sc. (Agri) Student, Department of Agricultural Economics, College of Agriculture, VNMKV, Parbhani, Maharashtra, India

Key performance indicators of DCCB's in India

Halesh R, RV Chavan and Indumathi M

Abstract
The District Central Cooperative Banks play a crucial role within the three-tier cooperative credit structure. They serve as a federation of Primary Agricultural Credit Societies (PACS) at the district level, bridging the gap between these grassroots cooperatives and the apex cooperative bank. This study was undertaken to analyse the key performance indicators of DCCB's in India, Notably, the applied model demonstrated a good fitted with an R-squared value of 92 per cent. This model was effectively employed to pinpoint the pivotal indicators responsible for DCCBs performance. The key indicators were number of branches, Deposits, Loans/Advances, employees, Owned funds, Recovery, C/D ratio and Total funds were studied. It was also observed that number of branches and employees are found negatively, significant at 5 per cent whereas owned funds and total funds were positively significant indicators for Net profit of DCCBs at 1 per cent level of significance.

Keywords: Performance, indicator, significant, burrowed fund, districts, branches

Introduction
The District Central Cooperative Banks play a crucial role within the three-tier cooperative credit structure. They serve as a federation of Primary Agricultural Credit Societies (PACS) at the district level, bridging the gap between these grassroots cooperatives and the apex cooperative bank. Positioned at the district level, DCCBs assume responsibility for both promotional and developmental activities within the state. Beyond fulfilling the credit needs of affiliated PACS, DCCBs also extend their support to various other primary cooperative entities such as marketing cooperatives, consumer cooperatives, weaver cooperatives, cooperative sugar federations and cooperative spinning mills operating in the district. DCCBs are entrusted with key functions, including resource mobilization, oversight of lending processes, supervision of loan recoveries and perhaps most importantly, educating the members. It is expected that DCCBs will provide guidance and leadership to PACS within the district, fostering their growth and development.

It's worth noting that DCCBs were established in India following an amendment to the "Co-operative Credit Society Act of 1912." Interestingly, even before this amendment, certain Central Cooperative Banks were set up to cater to the financial needs of primary societies. The first Central cooperative bank was registered in Uttar Pradesh in 1906, initially as a primary society. This historical context highlights the evolution and expansion of cooperative credit institutions in India to serve the financial requirements of agricultural and rural communities.

In order to extend banking facilities to the rural areas, the DCCBs open branches within the jurisdiction by simply passing a resolution in the board, which is a privilege given by the reserve bank of India. At present the DCCBs are competing with commercial banks in mobilizing deposits and also in marketing of banking services in rural areas as well as in urban areas. This branch arrangement helps them to improve their contacts with the PACS. Further this also helps to tap the savings of rural people through deposit mobilization.

The primary objective of District Central Cooperative Banks is to fulfill the credit needs of their member societies, which include not only agricultural cooperatives but also the small and tiny sectors operating within a specific district. The period from 1906 to 1918 is often referred to as the period of the origin of DCCBs in India, signifying the early establishment and development of these cooperative institutions. As of the 2020-21 report, there were a total of 352 DCCBs in India, collectively operating 13,992 branches across the country.

These DCCBs continue to play a significant role in facilitating financial services and credit access in their respective districts and regions.

Methodology

The study was based on secondary data collected for 20 years from 2001-02 to 2020-21, various sources using appropriate analytical techniques to satisfy the objective.

Multiple regression

It is the type of linear regression. Multiple regression explains the relationship between dependent and multiple independent variables. The multiple linear regression analysis is used to identify the influencing independent variables on dependent variables. It is used to analyse the key performance indicators of DCCB's in India.

Formula of multiple regression

$$Y= a+b_1x\ b_2x_2 + b_3x_3\ldots + b_nx_n + e$$

Where,

Y - Dependent variable of the regression,

x, x, x, …………x -Independent variables,

b, b, b ………b - coefficient of regressions or slope,

e - Error terms in regression.

Simple or Pearson's correlation

The Pearson coefficient is a type of correlation coefficient that represents the relationship between two variables that are measured on the same interval or ratio scale. The Pearson coefficient is a measure of the strength of the association between two continuous variables. It is used to analyse the key performance indicators of DCCB's in India.

Formula of Pearson's correlation coefficient

$$\boldsymbol{r} = \frac{\boldsymbol{n}(\sum \boldsymbol{xy}) - (\sum \boldsymbol{x})(\sum \boldsymbol{y})}{\sqrt{[\boldsymbol{n}\sum \boldsymbol{x2} - (\sum \boldsymbol{x})2][\boldsymbol{n}\sum \boldsymbol{y2} - (\sum \boldsymbol{y})2]}}$$

Where,

r – Pearson coefficient,

n – number of observations in given sample,

∑xy - sum of products of observations present in x and y variables,

∑x - sum of the x scores,

∑y - sum of the y scores,

$\sum x2$ - sum of the squared x scores and

$\sum y2$ - sum of the squared y scores.

Results and Discussions

The key performance indicators of DCCB's presented in Table-1. Notably, the applied model demonstrated a good fitted with an R-squared value of 92 per cent. This model was effectively employed to pinpoint the pivotal indicators responsible for DCCB performance. The key indicators number of branches, Deposits, Loans/Advances, employees, Owned funds, Recovery, CD ratio and Total funds were studied under the fitted model however number of branches and employees are found negatively, significant at 5 per cent whereas owned funds and total funds were positively significant indicators for Net profit of DCCBs at 1 per cent level of significance respectively which was shown in below Table 1. Results implied that owned funds and Total fund plays an important role for positive growth of Net profit. It was also observed that as number of branches and Employees increases then Net profit of DCCBs decreases.

Table 1: Key performance indicators of DCCB's in India

	Coefficients	Standard Error
Intercept	17439.419	10101.691
Number of Branches	-0.56756346*	0.771033459
Deposits	-0.02245278	0.02283467
Loans/Advances	0.039675637	0.021414573
Employees	-0.037404163*	0.017406836
Owned Funds	0.461239355**	0.225060781
Recovery	0.0361274295	0.027172185
CD Ratio	-65.61274295	46.71721857
Total Funds	0.0715658555**	0.0406736182

(* and ** denotes significance at 5% and 1% level, respectively)

Pearson's Correlation matrix

Pearson's Correlation matrix was observed in Table 2. The Table revealed that the Correlation matrix between among the different variables like Net profits, Number of Branches, loans/Advances, Deposits, Recovery, Staff, CD Ratio and Total funds which were included for study

Table 2: Pearson's Correlation matrix

	Net profit	No branches	Loans	Deposit	Recovery	Employees	CD Ratio	Total fund
Net profit	1	.398	.463*	.391	.444*	-.570**	.276	.403
No branches		1	.947**	.957**	.961**	-.765**	-.049	.949**
Loans			1	.982**	.991**	-.838**	.097	.987**
Deposits				1	.989**	-.816**	-.084	.994**
Recovery					1	-.828**	.006	.995**
Employees						1	-.114	-.835**
CD Ratio							1	-.032
Total fund								1

(* and ** denotes significance at 5% and 1% level, respectively)

The result revealed that, there was high degree of association between selected variables i.e., net profit, number of branches, loans/Advances, deposits, recovery, employees, CD ratio and total funds. Net profit and loans, recovery found to be statistically significant at 5 per cent level of significance with a value 0.463 and 0.444. That means if loans and recovery is increased by 1 unit then it will responsible in increment of net profits by 0.463 and 0.444 units. This is because usually banks make money by providing and earning interest from loans. Customer deposits provide banks with the capital to make these loans. Traditionally, money earned in the form of interest from loans often accounts for up to 65 per cent of a banks' revenue model. Similarly banks also earned net profit by recovery performance higher the recovery that would generate higher net profit to the banks.

Number of branches and loans/advances, deposits, recovery and total funds found to be positively significant at 1 per cent level of significance with the value 0.947, 0.957, 0.961 and 0.949 respectively. Loans /advances and deposits, recovery and total funds found to be statistically significant at 1 per cent level of significance with the value 0.982, 0.991 and 0.987 respectively. Deposits and recovery and total funds found to be positively significant at 1 per cent level of significance with the value 0.989 and 0.994 respectively. Recovery and total fund with value 0.995 found to be significant at 1 per cent level of significance in selected variable. That means if total fund is increased by 1 unit then it will be responsible for increment of recovery by 0.995 units. This is because of number of DCCBs in India has decrease due to factors such as high non-performing assets (NPAs) and low margins and number of branches covered by DCCBs increase year by year. So, the performance was positive with increase in loans, deposits, recovery and total fund. DCCBs successfully achieve its objectives like to take banking to door steps of rural households particularly in banking deprived rural area, to avail easy and cheaper credit to it members and weaker rural section who are dependent on private lenders, to encourage rural savings for productive activities, to generate employment in rural areas and to bring down the cost of purveying credit in rural areas. Thus DCCBs is providing the strongest banking network.

Employees and net profit, number of districts, loan/advances, deposits, recovery and total fund are found to be negatively significant at 1 per cent level of significance with the value -0.570, -0.765, -0.838, -0.816, -0.828 and -0.835 respectively. Because of number of employees in DCCBs in India gradually decreases over the year due to automation of many tasks that were previously performed by humans. For example, many DCCBs now have online and mobile banking platforms that allow customers to conduct transactions without having to visit a branch. This has reduced the need for human employees and also high non-performing assets (NPAs) and low margins in DCCBs that leads to decrease in employees in DCCBs.

Conclusion

1. The study revealed a consistent decline in the number of DCCBs, from 368 in 2001-02 to 352 in 2020-21, signalling a negative growth trajectory. Notably, this decline remained steady during the period from 2007-08 to 2016-17. The factors contributing to this decline include elevated non-performing assets (NPAs), reduced profit margins, and potentially intensified competition from private banks.
2. The key indicators number of branches, Deposits, Loans/Advances, employees, Owned funds, Recovery, CD ratio and Total funds was studied under the fitted model however number of branches and employees are found negatively significant at 5 per cent whereas Owned funds and Total funds are positively significant indicators for Net profit of DCCBs at 1 per cent level of significance respectively.
3. The per-staff productivity of DCCBs increased from 1.10 per cent in 2001-2002 to 8.84 per cent in 2020-2021, with positive growth rate.
4. C/D ratio fluctuated from 82.12 per cent in the year 2001-02 to 79.87 per cent in 2020-21. With highest credit deposit ratio in 2012-13.
5. The net profit of DCCBs reported losses in 2001-02 and 2002-03, but it subsequently increased from Rs. -15 crores in 2001-02 to Rs. 669 crores in 2020-21, signifying that DCCBs are now operating profitably.
6. The increase in the total business percentage was a result of deposits and lending operations both experiencing growth, with a 10.46 per cent increase in deposits and a 9.21 per cent increase in lending operations in the year 2020-2021.

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