

"INFERENTIAL STUDY OF FINANCIAL PERFORMANCE OF CO-OPERATIVE DAIRIES IN GUJARAT"

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Abstract:

Gujarat, one of the top dairy-producing states in India, depends heavily on the dairy industry for its rural economy. Amul Dairy (Anand), Dudhsagar Dairy (Mehsana), Dudh Dhara Dairy (Bharuch), Sumul Dairy (Surat), Sarvottam Dairy (Surendranagar), Panchamrut Dairy (Godhra), Sarhad Dairy (Kutch), and Amar Dairy (Gandhinagar) are the eight well-known cooperative dairies in Gujarat that under this study. The prime focus of this study is to compare and assess the operational outcomes, financial stability, and efficiency of these dairies over a ten-year period. The two statistical methods used to achieve this are descriptive statistics, which summarize and examine the central tendency, dispersion, and overall trends of key financial variables, and the K-W(Kruskal-Wallis) H Test, which is a non-parametric technique used to check significant differences in variables is present or not, like Net Profit, Income, Total Expenses, Current Ratio, Purchase, and Investment across various dairy organizations. Descriptive analysis and inferential testing are used in this study to give a thorough grasp of the performance variations among Gujarat's top dairy cooperatives. In addition to pointing out financial inequalities, this study provides insightful information that management organizations, legislators, and stakeholders may use to develop plans for increased operational and financial effectiveness.

Introduction:

The cooperative dairy industry in India, especially in Gujarat, showed significant momentum in FY 2024-25. As the world's top milk producer, India has maintained its upward trajectory in production and per capita availability through the revised NPDD and key government schemes like SDCFPO and DAHD. During FY 2024-25, the growth of the sector was strengthened by initiatives like Shweta Kranti 2.0 and increased DAHD budgetary support. National milk production peaked at 239.2 million tonnes, confirming India's global leadership. In Gujarat, GCMMF - which markets Amul led the sector with an 11% annual revenue growth of ₹65,911 crore and an overall group turnover of ₹90,000 crore. GCMMF's vast network spans 3.6 million dairy farmers in 18,600 villages, handling about 3 crore litres of milk per day. Central schemes like DIDF and NPDD have enhanced cooperative resilience by expanding infrastructure and farmer participation. Along with technology upgrades, retail outreach and global market access, these initiatives have positioned India and Gujarat in particular for continued growth in the cooperative dairy ecosystem.

Literature review:

1)Smita Jesudasan (2013), this study focuses on the financial performance of India's nationalized banks from 2001 to 2010. The study uses the camel model and data envelopment

analysis to evaluate the banks. The main objective is to assess and classify these banks based on their financial performance, efficiency, and effectiveness, and to identify the factors affecting their performance. The research methodology involves quantitative analysis of bank-specific, industry-specific, and macroeconomic variables. Data is collected from sources like the reserve bank of India. Tools and techniques include descriptive statistics, multivariate analysis of variance, factor analysis, regression analysis, and the Kruskal Wallis test. Key findings highlight variations in growth rates among banks, the significance of non-interest income for high-performing banks, and the impact of macroeconomic factors like inflation on bank performance. Suggestions emphasize the need for banks to improve operational efficiency, asset quality, and income diversification, and for policymakers to support economic growth and control inflation to enhance the banking sector's financial health.

2) Mitalben Kantigiri Gauswami and Dr. V. J. Dwivedi (2022), in this study researcher carried out a comparative financial analysis of Rajkot and Bharuch cooperative milk unions in Gujarat, focusing on profitability and liquidity. The study aimed to evaluate and compare the financial soundness of both unions using key indicators. A descriptive-comparative methodology was adopted, based on secondary data from annual reports and online sources, covering FY 2015–16 to 2019–20. Tools like ratio analysis and the t-test were employed. Results showed that while Rajkot union outperformed in profitability, both unions suffered from poor liquidity. The researchers suggested improving liquidity through increasing current assets or reducing current liabilities, highlighting the need for better working capital management.

3) Dr. Hetal Bhatia and Dr. Kamini Shah (2024), this study primary objective was to assess and compare the profitability of these units through profitability ratio analysis. The study employed descriptive research, utilizing secondary data sourced from annual reports. Key financial metrics used for analysis included the Net Profit Ratio, ROA, and ROCE. Differences in regional profitability were evaluated for statistical significance using tools like t-tests and the Mann-Whitney U test. The findings revealed notable disparities in performance, with dairy units such as Dudhdhara in Gujarat and Gurdaspur in Punjab showing relatively poor financial outcomes. The authors recommended improved resource utilization and enhanced operational efficiency as strategies to boost profitability in underperforming units.

4) Ruta B. Dhameliya and Dr. Mayank V. Sodha (2025), conducted a study in the field of financial forecasting for cooperative dairies, focusing on Sumul Dairy. The main objective was to predict annual profits for 2025 and 2026 using Holt's Exponential Smoothing Model. The research used a quantitative methodology with secondary data collected from Sumul Dairy's

financial records (2015–2024). Python's stats models library was used to implement Holt's Linear Trend Method, optimizing smoothing parameters to fit the data. The study revealed steady profit growth and predicted ₹132.11 million for 2024–25 and ₹140.95 million for 2025–26. While the model performed well up to 2018 ($R^2 = 0.9190$), accuracy declined after 2020, prompting the suggestion for advanced forecasting methods, improved budgeting, and digital tools to enhance financial planning.

Research methodology

Research Subject

The study focused on "Inferential Study of Financial Performance of Co-operative Dairies in Gujarat".

Objective

1. To analyse different financial indicator of cooperative dairies.
2. To compare the performance of different cooperative dairies.
3. To identify significant differences in financial performance among the eight cooperative dairies

Sample Size

This study focuses on Eight co-operative dairies located in Gujarat:

1)Sumul Dairy	5)Panchamrut Dairy
2)Dudhsagar Dairy	6)Amul Dairy
3)Sumul Dairy	7)Sarhad Dairy
4)Dudhdhara Dairy	8)Sarvottam Dairy

Period of the study

Financial data from 2014–15 to 2023–24 have been analyzed in this study.

Statistical Techniques Used

The descriptive statistics:

The central tendency measure and variability measure of the chosen variables across the dairies were compiled using descriptive analysis. This made it easier to comprehend the overall performance patterns over the research period.

The inferential statistics:

To identify that, there is significance difference in the financial and operational variables across the eight dairies, the Kruskal-Walli's test used. The nature of the data and the presumption that normality would not be fulfilled made this test appropriate. At a 5% significance level, hypotheses were developed for every variable to determine whether there were noteworthy variations among the dairies.

Tools and Software

The data analysis was conducted using **SPSS** and **Microsoft Excel** for tabulation, statistical testing, and graphical representation.

DATA ANALYSIS

A Descriptive Statistical Analysis

Financial Indicators for Selected Cooperative Dairies of Gujarat: The descriptive statistical analysis of Gujarat's eight largest cooperative dairy companies—Amar, Dudh Sagar, Sumul, Dudh Dhara, Panchamrut, Amul, Sarhad, and Sarvottam—is presented in this section. Over a ten-year period, the examination looks at important financial and operational metrics such net profit, income, total expenses, current ratio, purchases, investments, and operating expenses. Descriptive metrics are computed for each dairy, such as Kurtosis (peakness or flatness of data distribution), Skewness (symmetry of data), Standard Deviation (variability), and Mean (average performance).

The foundation for further in-depth comparative and inferential analysis is laid by this thorough statistical review, which offers insights into each dairy's financial stability, operational effectiveness, and investment patterns.

Amar Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net_profit	10	169477874.63	254473645.705	2.338	0.68	5.468	1.334
Income	10	201918670.52	98873140.415	0.079	0.68	-2.026	1.334
Total_Expense	10	563997132.35	956515379.461	1.807	0.68	1.696	1.334
Current_Ratio	10	0.67	1.277	2.496	0.68	6.984	1.334
Purchase	10	2286946480.60	660365627.942	0.836	0.68	0.380	1.334
Investment	10	2075820359.98	592666825.724	1.366	0.68	1.301	1.334
Operational_Expense	10	923274959.15	1571645472.76	1.824	0.68	1.767	1.334
Valid N (listwise)	10						

Resources: Annual report of Amar Dairy

Interpretation: Amar Dairy's Profit:-

Trends Over the Past Ten Years: The average net profit was ₹169.48 million, but there were significant swings (standard deviation of ₹254.47 million), suggesting inconsistent earnings.

Income Stability: A few years had lower-than-normal income, but overall, the average income of ₹201.92 million was constant with very slight fluctuations.

Cost Variability: ₹564 million on average, with a large standard deviation of ₹956.52 million and a propensity for greater costs in certain years.

Cash Flow: A current ratio of 0.67, which is less than the optimal value of 1, indicates that there may be cash flow issues in some years.

Purchases and Investments: Significant expenditures on operations are indicated by the large purchases and investments, which average ₹2.29 billion and ₹2.08 billion.

❖ DudhSagar Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net_profit	10.00	187272341.00	6581389.11	-1.69	0.69	3.42	1.33
Income	10.00	64359459911.90	8800162410.45	0.84	0.69	0.86	1.33
Total_Expence	10.00	128292486579.30	191249240779.24	3.13	0.69	9.86	1.33
Current_Ratio	10.00	1.08	0.98	0.63	0.69	-1.02	1.33
Purchase	10.00	42857440490.30	11204962682.88	1.16	0.69	0.15	1.33
Investment	10.00	25861211095.70	4199474308.50	0.92	0.69	-0.32	1.33
Operational_Expence	10.00	85435046089.00	190590439756.19	3.16	0.69	9.98	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Dudhsagar Dairy

Interpretation: – DudhSagar Dairy

- Profit Trends: Average net profit of ₹187.27 million, but it has negative skewness (-1.69), meaning there were some very low-profit years. The high kurtosis (3.42) suggests a few exceptional years of high profit.
- Income Stability: Average income of ₹643.59 million, with positive skewness (0.84), indicating a few higher income years. Income has been relatively stable overall.
- The average expenses are a very high ₹128.29 billion, but there are significant fluctuations (standard deviation of ₹191.25 billion) and high skewness (3.13), which indicates that some years had very high costs.
- Cash Flow: DudhSagar Dairy typically handles short-term financial commitments efficiently, as seen by its current ratio of 1.08, which is barely above the optimal number of 1.
- Purchases and Investments: On average, ₹42.86 billion is spent on purchases, while ₹25.86 billion is invested. Although the dairy has made large investments, the range of both acquisitions and investments is somewhat small.

❖ Sumul Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net profit	10.00	84746452.50	36795923.82	0.43	0.69	-0.49	1.33
Income	10.00	38705721583.00	13038021543.52	0.63	0.69	-0.27	1.33
Total Expense	10.00	38620975130.50	13001315772.38	0.63	0.69	-0.27	1.33
Current Ratio	10.00	1.44	0.47	0.88	0.69	-0.71	1.33
Purchase	10.00	28840364459.50	9769177034.25	0.95	0.69	0.39	1.33
Investment	10.00	11810066559.30	6049286690.31	-0.76	0.69	-0.39	1.33
Operational Expense	10.00	10976244523.10	3595375765.02	-0.09	0.69	-0.97	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Sumul Dairy

Interpretation: Sumul Dairy

trends over the Past Ten Years: The average net profit is ₹84.75 million, with a standard deviation of ₹36.80 million. The distribution is generally balanced, with the skewness (0.43) indicating a modest bias toward bigger earnings.

- Income Stability: The average income of ₹38.71 billion indicates tight margins because it nearly matches the total costs of ₹38.62 billion. Both have comparable distribution and variance, suggesting dependable financial trends. With a current ratio of 1.44, which is comfortably over 1, cash flow indicates sound short-term financial standing.
- Investments and Purchases: On average, investments total ₹11.81 billion, while purchases total ₹28.84 billion. A few years of investments that were below average are shown by the investment skewness, which is somewhat negative (-0.76).
- Operational expenses: These have a near-normal distribution and an average of ₹10.98 billion, indicating steady cost control in day-to-day operations.

❖ Dudhdhara Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net_profit	10.00	27057579.10	7567800.75	-1.27	0.69	0.17	1.33
Income	10.00	6055417315.50	164159022.57	0.06	0.69	-1.09	1.33
Total_Expense	10.00	6028359736.40	165996499.44	0.15	0.69	-0.92	1.33
Current_Ratio	10.00	1.54	0.45	0.34	0.69	0.58	1.33
Purchase	10.00	5167620900.00	164897269.23	-0.27	0.69	-0.87	1.33
Investment	10.00	1663312441.80	228203459.98	1.76	0.69	1.37	1.33
Operational_Expense	10.00	544003724.80	158632831.16	1.84	0.69	2.02	1.33
Valid N (listwise)	10.00						

Resources: Annual report Dudhdhara Dairy

Interpretation: Dudh Dhara Dairy

- Trends in Dudh Dhara Dairy Profits With a standard deviation of ₹7.57 million, the average net profit is ₹27.06 million. The skewness is negative (-1.27), indicating a few years with below-average earnings. The average income of ₹6.06 billion is nearly equal to the total costs of ₹6.03 billion, demonstrating extremely narrow profit margins. Both are reasonably steady and exhibit little fluctuation.
- Cash Flow: The dairy can easily cover short-term obligations, as seen by its good current ratio of 1.54.
- Investments and Purchases: On average, investments total ₹1.66 billion, while purchases total ₹5.17 billion. Kurtosis (1.37) and investment skewness (1.76), respectively, indicate a few years of exceptionally high investments.
- Operational Expenses: ₹544 million on average, with a positive skewness (1.84) and substantial volatility, suggesting a few years with greater operational cost.

❖ Panchamrut Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
<u>Net profit</u>	10.00	454087892.50	378340490.36	0.46	0.69	-2.19	1.33
Income	10.00	31314397629.70	11053877201.47	1.15	0.69	0.53	1.33
<u>Total Expence</u>	10.00	30808440072.00	10749455965.89	1.35	0.69	1.33	1.33
<u>Current Ratio</u>	10.00	1.75	0.47	0.33	0.69	-0.62	1.33
Purchase	10.00	29306969153.30	12354917892.66	1.45	0.69	0.64	1.33
Investment	10.00	43387232417.60	41483213082.65	0.49	0.69	-2.21	1.33
<u>Operational Expence</u>	10.00	3256761585.40	792070248.55	1.02	0.69	0.40	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Panchamrut Dairy

Interpretation: Panchamrut Dairy

Profit Trends: The standard deviation is ₹378.34 million, while the average net profit is ₹454.09 million. While kurtosis (-2.19) indicates that most values were near the norm, with few extreme occurrences, a tiny positive skew (0.46) indicates a few years that were better than average.

- **Income and costs:** The average income is ₹31.31 billion, which is somewhat more than the average costs of ₹30.81 billion. This indicates a moderate profit margin. Positive skewness is evident in both, suggesting that certain years had significantly higher values.
- **Cash Flow:** Panchamrut Dairy appears to be financially sound in the near future, as indicated by its strong current ratio of 1.75.
- **Investments and Purchases:** The average purchase price is ₹29.31 billion, although there is a lot of variation. At ₹43.39 billion, investments are extremely high and highly variable, suggesting sporadic but significant investments.
- **Operational Costs:** With an upward skew of 1.02% and an average of ₹3.26 billion, the operational costs indicate sporadic increases in daily running expenses.

❖ Amul Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net profit	10.00	4678.61	2079.15	0.09	0.69	-0.87	1.33
Income	10.00	794093.36	295761.04	0.50	0.69	-0.91	1.33
Total Expenditure	10.00	789414.75	293733.46	0.50	0.69	-0.91	1.33
Current Ratio	10.00	0.71	0.06	-0.35	0.69	-0.17	1.33
Purchase	10.00	4678.60	2079.23	0.09	0.69	-0.87	1.33
Investment	10.00	219369.94	66709.78	0.92	0.69	2.01	1.33
Operational Expenditure	10.00	49094.10	15941.60	0.02	0.69	-0.95	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Amul Dairy

Interpretation:- Profit Trends: Net profit varies moderately (₹2,079.15) with an average of ₹4,678.61. With a skewness of 0.09, the distribution is balanced, suggesting steady profit performance. The average income is ₹794,093.36, which is quite close to the average costs of ₹789,414.75, indicating narrow profit margins. Both have comparable distributions and minimal skewness.

- Cash Flow: The current ratio is 0.71, which is less than the optimal value of 1, indicating that short-term obligations may be difficult to pay.
- Investments and Purchases: Investments and purchases exhibit comparable variability and match net profit statistics of ₹4,678.60. With a positive skew (0.92) and high kurtosis (2.01), the average investment is much greater at ₹219,369.94, suggesting that certain years had notably large investments.
- Operational Expenses: Consistent daily expense control with an average of ₹49,094.10 and minimal fluctuation

❖ Sarhad Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net profit	10.00	28876658.70	5711320.94	0.13	0.69	-1.67	1.33
Income	10.00	4675547950.80	1746138726.35	-0.42	0.69	1.71	1.33
Total Expenditure	10.00	6055164557.30	1597688578.59	1.04	0.69	1.18	1.33
Current Ratio	10.00	1.32	0.13	-0.13	0.69	-0.22	1.33
Purchase	10.00	4537543415.30	1142805101.28	0.95	0.69	1.08	1.33
Investment	10.00	1909941285.30	1644085057.38	2.32	0.69	6.53	1.33
Operational Expenditure	10.00	1517621142.00	1623228737.81	2.53	0.69	6.77	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Sarhad Dairy

Interpretation: Sarhad Dairy

- Profit Trends: Net profit varies moderately (₹5.71 million) but averages ₹28.88 million. Skewness (0.13) is low, indicating consistent profit margins throughout time. Operating at a loss in several years is shown by the greater costs of ₹6.06 billion compared to the average income of ₹4.68 billion. The positive skew of expenses (1.04) points to a few years of extremely high expenditure.
- Cash Flow: A healthy current ratio of 1.32 suggests sound short-term financial management.
- Investments and Purchases: The average amount spent is ₹4.54 billion, with some variation. The investments total ₹1.91 billion, however they vary greatly, with high kurtosis (6.53) and a substantial positive skew (2.32), indicating that certain years had extremely high investments.
- Operational expenses: ₹1.52 billion on average, with a significant degree of volatility and skewness (2.53), indicating a few years of exceptionally high operating expenses.

❖ Sarvottam Dairy

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Net profit	10.00	500887892.50	369046775.82	0.12	0.69	-2.21	1.33
Income	10.00	29434397629.70	11312814580.98	1.14	0.69	0.19	1.33
Total Expense	10.00	29998840072.00	11251182152.33	1.34	0.69	1.11	1.33
Current Ratio	10.00	1.75	0.47	0.33	0.69	-0.62	1.33
Purchase	10.00	29306969153.30	12354917892.66	1.45	0.69	0.64	1.33
Investment	10.00	44522232417.60	40591897066.52	0.48	0.69	-2.20	1.33
Operational Expense	10.00	2749061585.40	1227909444.70	-0.51	0.69	1.77	1.33
Valid N (listwise)	10.00						

Resources: Annual report of Sarvottam Dairy

Interpretation: Sarvottam Dairy

- Profit Trends: Net profit varies greatly (₹369.05 million), with an average of ₹500.89 million. While kurtosis (-2.21) implies values grouped around the mean with few outliers, a minor skew (0.12) indicates reasonably constant earnings. Income and costs show narrow margins, with income averaging ₹29.43 billion and expenses slightly higher at ₹29.99 billion. The fact that both had a positive skew suggests that some years had far greater values.
- Cash Flow: A robust current ratio of 1.75 indicates solid short-term financial stability.
- Investments and Purchases: Consistent expenditure is demonstrated by purchases, which average ₹29.31 billion. At ₹44.52 billion, investments are large and very variable, with a kurtosis of -2.20, which is close to the average.

- Operational Costs: Moderately variable, average ₹2.75 billion. Some years may have had lower-than-average expenses, as indicated by the slight negative skew (-0.51).

A Descriptive Overview of Gujarat's Cooperative Dairies' Comparative Financial Performance

Using 10-year average data from eight large dairies, comparative research was carried out to comprehend the financial health and operational effectiveness of cooperative dairies in Gujarat. Important measures including net profit, income, costs, investments, and liquidity (current ratio) are highlighted in this section. We may have a better understanding of each dairy's resource management, variability management, and profitability maintenance by looking at these metrics. The comparison provides information about which dairies are doing well financially and which may benefit from strategic enhancements.

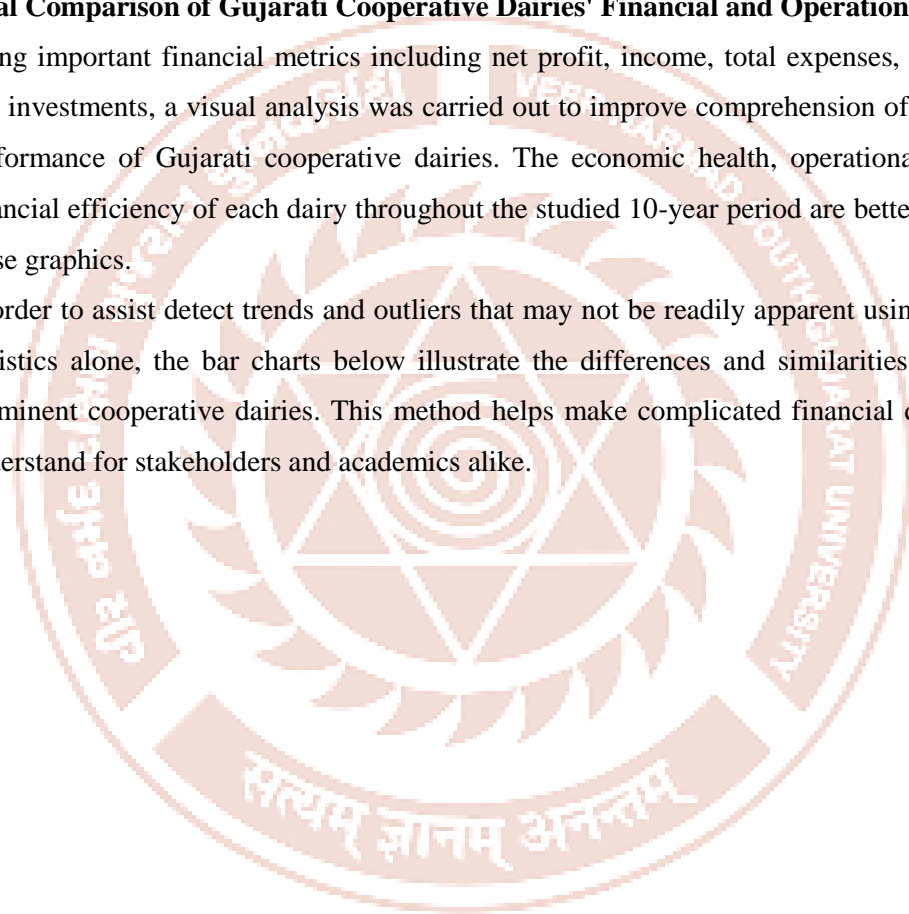
Dairy	Net Profit (₹ Mn)	Income (₹ Bn)	Total Expense (₹ Bn)	Current Ratio	Investment (₹ Bn)	Remarks
Sarvottam	500.89	29.43	29.99	1.75	44.52	High profit, high investment, good liquidity
Panchamrut	454.09	31.31	30.81	1.75	43.39	Strong profit, good liquidity, high investments
Dudh Sagar	187.27	64.36	128.29	1.08	25.86	High income, high expenses, moderate profit
Amar	169.48	0.2	0.56	0.67	2.08	Low liquidity, fluctuating profit
Sumul	84.75	38.71	38.62	1.44	11.81	Stable operations, decent profit, good liquidity
Sarhad	28.88	4.68	6.06	1.32	1.91	Stable profit, high operational variability
Dudh Dhara	27.06	6.06	6.03	1.54	1.66	Tight cost control, good liquidity
Amul	0.0047	0.79	0.79	0.71	0.22	Very small scale, low profits, tight margins

Important Points:

- Top Performers: In terms of financial health, investment, and profit, Sarvottam and Panchamrut are in the lead.
- High Income: Dudh Sagar has the highest income, however its high spending also reduces profit margins.
- Effective Management: Dudh Dhara and Sumul exhibit well-balanced operations and respectable liquidity.
- Attention Is Needed: Amar and Amul require operational changes due to their poor liquidity and modest or erratic profitability.

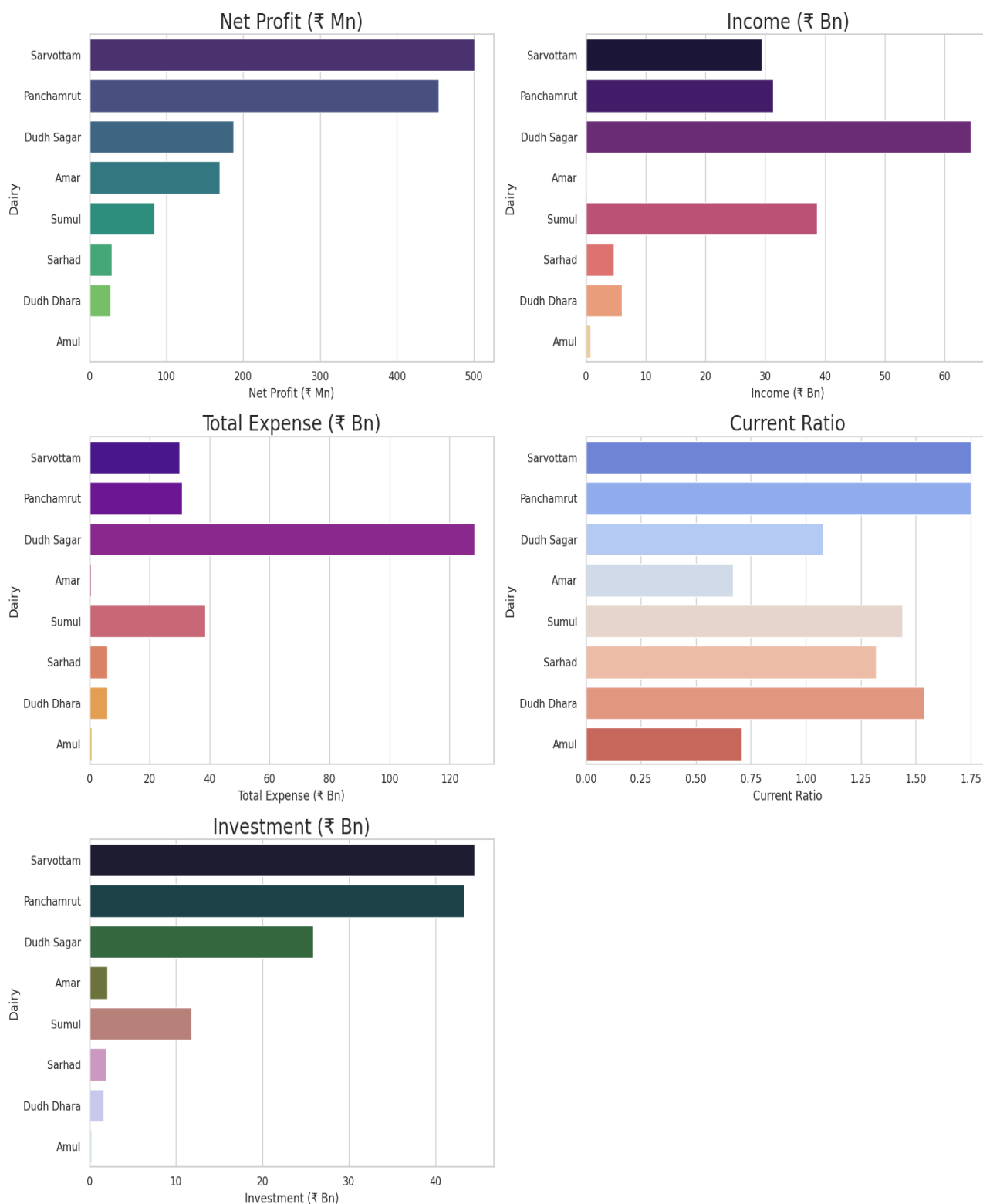
A Visual Comparison of Gujarati Cooperative Dairies' Financial and Operational Measures

- Using important financial metrics including net profit, income, total expenses, current ratio, and investments, a visual analysis was carried out to improve comprehension of the financial performance of Gujarati cooperative dairies. The economic health, operational scope, and financial efficiency of each dairy throughout the studied 10-year period are better depicted by these graphics.
- In order to assist detect trends and outliers that may not be readily apparent using descriptive statistics alone, the bar charts below illustrate the differences and similarities across eight prominent cooperative dairies. This method helps make complicated financial data easier to understand for stakeholders and academics alike.



"Comparative Financial and Operational Performance Analysis of Cooperative Dairies in Gujarat"

Comparative Financial Performance of Cooperative Dairies in Gujarat



In Gujarat, cooperative dairies are important to the dairy industry and the social and economic advancement of the state. To make wise judgments and enhance management techniques, stakeholders, legislators, and investors must have a thorough understanding of their financial and operational dynamics.

Using statistical tests like the Kruskal-Wallis Test, the study finds significant differences in a few financial variables, including Net Profit, Income, Total Expenses, Current Ratio, Purchases, and Investment, and compares and assesses the financial and operational performance of eight cooperative dairies in Gujarat over time. This analysis offers important insights into the operations and performance of each dairy.

Our goal in doing this research is to identify the ways in which the financial performance of various dairies varies and the reasons that contribute to these variations. In addition to adding to the corpus of knowledge in the dairy business, this study provides a standard for future investigations and policy suggestions in the cooperative dairy sector.

Comparative Analysis Using Kruskal-Wallis Test

To identify significant differences in financial performance among the eight cooperative dairies, a Kruskal-Wallis H test was conducted for key financial indicators. This non-parametric test is appropriate for comparing several independent groups without requiring the assumption of a normal distribution.

Hypothesis:

The null hypothesis(H_0):

The financial and operational factors (Net Profit, Income, Total Expenses, Current Ratio, Purchases, and Investment) do not significantly differ across Gujarat's many cooperative dairies.

Alternative Hypothesis (H_1):

The financial and operational metrics (Net Profit, Income, Total Expenses, Current Ratio, Purchases, and Investment) of Gujarat's several cooperative dairies vary significantly from one another

The results are as follows:

Variable	Chi-Square (H)	Df	p-value	Significance
Net Profit	64.225	7	0	Significant
Income	73.802	7	0	Significant
Total Expenses	73.434	7	0	Significant

Current Ratio	34.746	7	0	Significant
Purchase	70.389	7	0	Significant
Investment	65.256	7	0	Significant

From the above Kruskal-Wallis test we can interpret that there is a significant difference between the financial and operational factors of different cooperatives dairy of Gujarat. As all the p values is less than 0.05 so we reject statement of nullity.

CONCLUSION

Using descriptive statistics and the Kruskal-Wallis Test, this study sought to compare the financial performance of a few Gujarati cooperative dairies: Amul (Anand), Dudhsagar (Mehsana), Dudh Dhara (Bharuch), Sarhad (Patan), Amar (Gandhinagar), Sumul (Surat), Panchamrut (Gandhinagar), and Sarvottam (Surendranagar). Descriptive statistical research revealed significant differences between the dairies in important financial metrics as net profit, income, total expenses, current ratio, purchase, and investment. Furthermore, these discrepancies were statistically significant across the majority of financial criteria, according to the Kruskal-Wallis Test, indicating that the cooperatives' financial performance varied significantly.

The results demonstrate that although certain dairy companies, such as Amul, routinely outperform others on the majority of metrics, other cooperatives have room to grow, especially in areas like operational cost control, investment efficiency, and profitability management.

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