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A STUDY ON GROSS PROFIT RATIOS OF LEADING DAIRIES OF GUJARAT

Dr. Sandip Parmar

Researcher H. L. College of Commerce, Gujarat University, Navarangpura, Ahmedabad

Abstract

In general economy of any of the nation is tends to the three sectors – agriculture, industries and territory services. Food industry is one of the leading part an agriculture sector. Moreover, Gujarat is the leading player in milk production worldwide. This research is targeted to examine profitability in terms of Gross profit of the dairy sector of the Gujarat state. In this research the secondary data of all leading dairies of Gujarat have been collected to evaluate the gross profit of the industry. In sense of accounting technique an application of gross profit is examined to know the financial growth of the sector. An application of descriptive statistics and inferential statistics are used to derive the results. The results are compared bases on mean, standard deviation and ANOVA. It is observed that Amul is the leading player amide all the dairy. Thus, Amul model is approached to all other dairy.

Keywords: Gross Profit Ratio, Descriptive statistics, ANOVA

1. INTRODUCTION

There is similarity in the historical backdrop of dairy industry in Gujarat and India. Be that as it may, advancement of dairy industry is known at the cooperative level in Gujarat, the structure of dairy industry in Gujarat had played a main significance in making the white insurgency fruitful. Dairy industry in Gujarat began with the foundation of drain item cooperatives society in Choryasitaluka of Surat locale in 1940. At that point the ranchers and drain makers of Khaira region established Khaira District Milk Producers cooperatives union Ltd. (Amul Dairy) at Anand in 1946 under the direction of Iron man Sardar Vallabhbbhai Patel, Shri Tribhuvandas Patel and Dr. Verghese Kurien who contributed a great deal for the advancement of dairy industry in Gujarat. Amul Dairy created under Dr. Veghese Kurien'spersevering and or dour. The focal government took after the case of Amul Dairy in entire India. Seeing the advancement of Amul Dairy, different regions of Gujarat began setting up dairies. In 1951, Surat area drain item alliance Ltd. was set up. Similarly, at different spots like Baroda in 1957-58, 39 Mehsana in 1960, 40 Banaskantha in 1966 and Sabarkantha in 1964, Milk item cooperatives alliances were established. Foundation of such organizations in all areas prompted the formation of the white insurgency. Dr. Kurien is known as the pioneer of the white insurgency. Dairy industry has grown completely in 13 regions of Gujarat and those locale organizations are conjunct with the Gujarat cooperative drain Distribution league, while Gujarat Government built up Gujarat Dairy Development Corporation in 1972 for the improvement of dairy industry in whatever remains of the areas of Gujarat. Amul Dairy has driving spot in field of dairy industry of Asia, India and Gujarat.

2. METHODOLOGY

The research is carried out for the financial year 2010 to 2020. The nature of data is secondary, which is calculated based on the published balance sheets of the dairies. Thus, the nature of this research is descriptive. Mainly, gross profit ratio is used as a tool for all the ten dairies under the study. Descriptive statistics for GPR is used to compare. Lastly, the variability is measured for all the ten dairies by testing F-test (ANOVA). The comparative statements are presented for each of the year as a part of conclusion of the research. It makes very clear view to understand the research.

Gross Profit Ratio is basically gross pay partitioned by net income. The proportion reflects evaluating choices and item costs. The half gross edge for the organization in our case demonstrates that half of incomes created by the firm are utilized to pay for the cost of merchandise sold. For most firms, gross net revenue will endure as rivalry increments. In the event that an organization has higher gross net revenue than is normal of its industry, it likely holds an upper hand in quality, discernment or marking, empowering the firm to charge more for its items. On the other hand, the firm may likewise hold an upper hand in item costs because of proficient generation procedures or economies of scale. Remember that if an organization is a first mover and has sufficiently high edges, contenders will search for approaches to enter the commercial center, which normally constrains edges descending.

 $Gross \ Profit \ Ratio = \frac{Gross \ Profit}{Net \ Sales} \ x \ 100$



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Gross profit ratio is a financial tool, which can help to examine the financial efficiency of the firm. Gross profit is to be calculated after subtracting the cost of net sale form net profit. The ratio to gross profit and net sales is defined as a gross profit ratio. The particulars for all ten leading dairies of Gujarat state is computed for the gross profit ratio for the financial years 2010-2011 to 2019-2020. The details are presented in table 1 as follows.

Table 1 Gross Profit Ratio										
Dairy	2010-	2011-	2012-	2013-	2014-	2015-	2016-	2017-	2018-	2019-
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AD	38.10	36.60	30.20	30.50	39.10	41.00	31.10	32.60	39.60	38.50
BD	21.50	16.70	9.03	14.10	17.90	25.60	22.00	24.80	19.80	21.50
DD	16.84	16.18	13.35	13.48	17.29	18.13	13.75	14.41	17.51	17.02
DSD	31.40	32.30	32.40	32.90	33.10	32.70	30.40	28.80	27.00	25.60
GD	15.70	16.70	19.70	20.90	19.60	19.40	17.70	14.20	13.60	17.70
MD	19.50	20.50	19.70	24.60	25.40	34.20	25.60	21.00	20.90	17.60
SD	23.75	22.82	18.83	19.01	24.37	25.56	19.39	20.32	24.69	24.00
SUD	13.40	10.41	5.63	8.79	11.16	15.96	13.71	15.46	12.34	13.40
SAD	10.50	10.09	8.32	8.41	10.78	11.30	8.57	8.98	10.91	10.61
VD	19.57	20.14	20.20	20.51	20.63	20.39	18.95	17.95	16.83	15.96

**AD – Amul Dairy, BD – Basan Dairy, DD – Dudhdhara Dairy, DSD – Dudhsagar Dairy, GD – Gopal Dairy, MD – Madhur Dairy, SD – Sabar Dairy, SUD – Sumul Dairy, SAD – Sarbad Dairy, VD – Vasudhara Dairy

An analysis for the years 2010-2011 to 2019-2020 is determine to examine the real scenario of gross profit of the dairy sectors. All ten dairies are examined yearly bases. It is observed that Amul dairy leads all the dairies. Gross profit wise it has computed with the highest ratio of 38.1%. Mahesana, Dudhsagar dairy stands on second position with 31.4% of GPR. Both the dairies are calculated with ratio of more than 30% of gross profit. It indicates that during the year 2010-2011, they have highest sales of the products and earn a healthier profit. Thus, the gross profit for both the dairies stands on first and second position. Sabar dairy is rated on third position. It has gross profit ratio of 23.75%. Banas dairy is stands next to Sabar dairy on fourth position. The least value of GPR is computed for Sarhad Dairy, Kutch. It is computed with 10.5% of the GPR. The dairy unions are working together and sale products direct in to market. All units are producing equal product with name of Amul. The actual earning of the dairy is depending on the total sales in particular region. The production is tending to the total raw material -milk collected. Kutch is drought area and having limited livelihoods and animal husbandry. They are having limited livestock. This may be one of the reason for lower GPR in Kutch. During 2011-2012, compare to last year Amul has decreases its gross profit. It declined and stand on 36.6% of GPR. Still for this year the GPR of Amul lead all the listed dairies under study. Compare to last year, the GPR of Banas dairy declined with 4.8% in GPR. Similarly, Doodhdhara dairy declined with 0.66%, Sabar dairy with 0.93%, Sumul dairy reduced it GPR by 2.99%, the decline ratio of Sarhad dairy was computed 0.41%. For the financial year 2011-2012, Dudhsagar dairy gained with 0.9%, Gopal dairy and Madhur dairy have increment of 1%, Vasudhara dairy has increment of 0.67% in GPR compare to the financial year 2010-2011. During 2011-2012, the net sales of the firms declined, on other hand the cost for sale of good may increase and the ratio for GPR declines. Very few dairies are getting increment during this year. An examining results of 2012-2013 shows that compare to last two years. For the financial year 2012-2013, it is observed that Amul has declined by 6.4% of GPR compare to last year, Banas dairy has declined its GPR by 7.67%, Doodhdhara dairy has also reduced GPR by 2.83%. For this financial year, Dudhsagar dairy has a little gain in GPR of 0.10%. Gopal dairy has increases with highest GPR of 3% for this year. Madhur dairy (0.8%), Sabar dairy (3.99%), Sumul dairy (4.78%) and Sarhad dairy (1.76%) have declined their GPR during financial year 2012-2013. Vasudhara dairy has increased its GPR for this financial year. It has gained with 0.06% compare to financial year 2011-2012. The year 2012-2013 was a little bit difficult year for the dairy sector. Out of ten leading dairies of Gujarat for different region. Only thee dairies have found with little increment in GPR. It cleared that the net sale of the dairy products decreases in this year. On other hand the cost of sale is increases. Thus, the ratio of dairy sector for GPR declined. In form of comparison Amul stand first amid all dairies. Amul is the leader of all dairies in Gujarat. For the financial year if Amul has getting lower GPR, the other dairies have effected in its GPR. After reduction in GPR during 2012-2013, the management of each of the dairy sector commonly decided for price hike of the products. The impact has resulted in financial year 2013-2014 in GPR of the diaries. All the examined dairies were calculated with positive increment in GPR. Amul dairy has gained by 0.3% compare to last year. For this year Amul has computed GPR of 30.5% which lead all the dairies in Gujarat. The Banas dairy has increment of 5.07% in the GPR. Dudhdhara dairy increased with 0.13% compare to last financial year. Dudhsagar dairy was recorded with increment of 0.5% in GPR. Comparatively it stands second among other dairies. It shows steady growth of dairy in maintaining of GPR. Gopal dairy also increases GPR by 1.2%, compared to last year the dairy has decreased by 1.8% growth in GPR. Madhur dairy gained with 4.9% hike for this year. It stands third rank in selected dairies. Sabar dairy has a hike of 0.19% in GPR, then last year. Sarhad dairy has a little gain of 0.08% for this year. The last dairy examined is Vasudhara dairy, which has growth of



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0.31% in GPR. The dairy shows consistent growth in GPR for last three years. Financial year 2014-2015 was a graceful year to the dairy sector. The industry might have change their policies in sales and cost cutting. The Amul dairy has gained GPR of 8.60% compare to last financial year and stood first in GPR. For this year event he ratio of increment was also higher in compare to all other dairies in Gujarat. The Banas and Dudhdhara dairies were computed with equal growth of 3.8% during this year. The computed GPR of Banas dairy was 17.9%, whereas it was measured 17.29% for Dudhdhara dairy. Dudhsagar dairy has increased the GPR in this year. Compare to last financial year it has loosed 0.3% in total GPR. It was standing second highest amid all dairies. The consistency of increment of the dairy was to be found in decline situation. The dairy was failure to maintain its sales and cost of sales. The same was happening to Gopal dairy. This year the dairy has GPR of 19.6% which shows declined structure of GPR. The dairy has failed to manage GPR consistency. For this year it has decreased its GPR by 1.3% than last year. Madhur dairy was standing on third position for GPR in financial year 2014-2015. For this year the GPR of dairy was recorded 25.4% in all. Moreover, the dairy has declined its GPR by 4.1%than financial year 2013-2014. Sabar dairy has ranked on fourth position in this year. It has increment of 5.36% than last year. For this year the GPR of dairy was 24.37% recorded amid all dairies. Sumul dairy was measured with 11.16% which was increased by 2.37% than financial year 2013-2014. Vasudhara dairy has again increases GPR by 0.12% in the year 2014-2015. The GPR of dairy was 20.63% and has stands fifth highest among all dairies. Comparatively, the dairy has decreased it GPR by 0.19% than last year. While measuring the GPR in 2015-2016, it is found that Amul has recorded with 41% in GPR. It has increment of 1.9% in GPR than last year. It was noticeable here that Amul dairy is failed to manage sales and related costs. In compare of financial year 2014-2015, it has declined 6.5% of gross profit ratio. Banas dairy has gained in GPR during this year. It was computed with 25.6% of GPR value. After 2010-2011, first time the dairy has gained GPR. It has a hike of 7.7% than last year. It was standing on fifth position for this year. It has a growth of 0.39% than last year. While examining GPR of Dudhdhara dairy it was computed 18.13% of GPR for this financial year. For this year, it has gained 0.84% in gross profit. Compare to year 2014-2015, it has declined its gross profit by 2.96%. Dudhsagar dairy again failed to manage its gross profit. For this year, the GPR of dairy was measured 32.7% which pushed the dairy on third rank. The dairy was failure in managing its sales cost and gross profit. Gopal dairy has been also pulled down in this year. The dairy has GPR of 19.4%. It shows poor performance of the dairy8 in maintain gross profit. Compare to last year it has decreased 0.2% of its gross profit. The performance of Madhur dairy was getting hike. The dairy was ranked on second position after Amul. For this year the dairy has gained 8.8% in gross profit than last year. This was the best value of gross profit during last five years. Sabar dairy has also increased its gross profit. The ratio of increment was very lower than last year. It has gained 1.18 in gross profit. Even as per last year outcomes in gross profit, this ear it has declined of 4.18% of its GPR than last year. Sumul dairy has gained in gross profit by this year. It was measured with 15.96% of GPR for this year. The increment of GPR was 4.8% in this year. This ratio of dairy was highest for last five years' calculation. The gross profit of Sarhad dairy was computed with 11.3% in the year 2015-2016. It shows hike of 0.52% than last year. This year it has loose GPR by 1.82% in compare to 2014-2015. Vasudhara dairy consistently declined its GPR for last three years. For this year the gross profit of firm was computed as 20.39%. Last year, it was measured with 20.63%, it shows difference of 20.25% decline situation in GPR of the dairy. Financial year 2016-2017 was again crucial year for dairy sector. All the dairy has terrific decline in gross profit ratio. Compare to last year financial gain all the study unit have failed in managing of its gross profit. Amul dairy was computed with 31.1% of GPR value, which was declined by 9.9% than last year. It was again stand on first position, but failure in managing sales and cost after sales. Banas dairy was recorded with 22% of GPR value which was 25.6% in 2015-2016. It shows that the dairy has decline its GPR by 3.6% this year. It seems to be happened to Dudhdhara dairy. It measured GPR was 13.75% in the year 2016-2017, whereas it has GPR of 18.13% in 2015-2016. For this year it lost 4.38% of gross profit. Dudhsagar dairy again declined in GPR. For this year the value of GPR was measured 30.4%, compared to last year it has loose of 2.3% in 2016-2017. It shows greater failure of financial profit of the dairy. For last three years - from 2014-2015 it has consistence down fall in the GPR. The ratio of Gopal dairy was also indicating that the diaries failed to manage its GPR for last three years. For this year, the GPR was measured 17.7%, which was found lower as 1.7% compare to last year. Madhur dairy was standing on third position in Gujarat dairy sector for financial year 2016-2017. It was not out from failure of dairy sector. The GPR of dairy was 34.2% in 2015-2016. It was declined by 9.6% in the year 2016-2017. For financial year 2016-2017, the GPR of Madhur dairy was measured 25.6% and was stands on third position. Sabar dairy was also a part of failure dairy during 2015-2016. It was calculated with GPR of 25.56% in 2015-2016, which has found 19.39% in 2016-2017. It shows, the dairy has lost its 2.24% gross profit in 2016-2017. The GPR of dairy in 2015-2016 measured 15.96%, which was declined and calculated 13.7% in 2016-2017. It shows the dairy was failure to manage its sales and cost to sales. Sarhad dairy has GPR of 8.57%, it declined by 2.73% than 2015-2016. Vasudhara dairy again declined its gross profit in 2016-2017. For financial year 2015-2016, it was measured as 20.39%. The downfall of 1.43% occurred and reached to 18.95% in 2016-2017. The dairies have tried to manage their sales in 2017-2018. This year the prices of dairy products were increased uniformly. Still four dairies were not met to their gross profit. Amul has measured by 32.6% of GPR. For financial year 208, it has growth of 1.5% in GPR. This year, again Amul lead all the dairies of Gujarat. Banas dairy has gained it GPR, then last year. It has gained by 2.8%, the GPR of dairy was measured





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24.8%. For this year the dairy has standing on third rank amid all dairies examined. Dudhdhara dairy was recorded with GPR of 14.41%, it has lost 1.6% of gross profit this year. Gopal dairy was following Dudhsagar dairy. This is the second dairy which was consistently doing loss for last five years. The GPR of the dairy was found 14.2% in 2017-2018. It has decreased gross profit by 3.5% than last year. The GPR of the dairy was found 14.2% in 2017-2018. It has decreased gross profit by 3.5% than last year. Madhur dairy was also failed to manage its gross profit in year 2017-2018. For the year 2017-2018, the GPR of dairy was computed 21%, which has declined by 4.6% compare to last year. Sabar dairy has GPR of 20.32% in financial year 2017-2018. It has gained growth of 0.94% than 2016-2017. Sumul dairy gained 1.75% in gross profit. The GPR value of dairy was measured 15.46%. During 2016-2017, it was found 13.71%. Thus, it has a growth in 2017-2018. Sarhad dairy also gained its gross profit ratio. It has recorded 8.98% of GPR, which was 8.57% in 2016-2017. It shows the growth of 0.41% in gross profit of dairy during 2017-2018. Vasudhara dairy failed again in last three years to manage its gross profit. For the year 2017-2018, the GPR of dairy was measured as 17.95%. Previously it was 18.95% in 2016-2017. The gap of 1% shows decrement in gross profit of dairy. Financial year 2018-2019 end and 2019-2020 were pandemic time era. As per the government guideline few products were allowed to sale in situation of lockdown. Moreover, the economy of the country was unbalance. Indirectly, it has direct effects to the dairy sector of Gujarat. During the pandemic circumstances, the dairy sector has not thinking about profit making. They have bare the increased sales cost. Due to the situation many of the dairies have affected lower growth or failed to manage their GPR. During 2018-2019, out of ten dairies under study six were failed to manage their GPR. Amul has gained its GPR value by 7%. For this year it was calculated 39.6%. The Banas dairy had a great fall in 2018-2019. The GPR of dairy was calculated 19.8%, which was 5% lower in compare to last year. The GPR of Dudhdhara dairy was calculated 17.5%. It has a hike of 3.09% than last year. Dudhsagar dairy was again standing on second rank, but the GPR of dairy was not reached to the expected level. The GPR of dairy was 27% comparing with last year it has declined by 1.8% in 2018-2019. Gopal dairy again fail down in managing gross profit. The GPR of dairy of dairy was calculated 13.6%, it has loss of 0.6% than last year. Madhur dairy also failed this year by 0.10% in managing gross profit. The GPR of dairy was 20.9% which has a difference of 0.10% this year. During 2018-2019, Sabar dairy has manage its gross profit. The GPR of dairy for this year was 24.69%, it shows increment of 4.36% in this year. Sumul dairy affected with situation of pandemic crises. The GPR of dairy was measured 12.34%, last year in 2017-2018. The value of GPR was 15.46% recorded. IT clearly shows that the declined difference of 3.12% in gross profit of the dairy. The Kutch was little far away in pandemic situation. This time Sarhad dairy has increased gross profit. During this year the GPR of dairy was found 10.91%, was higher than 8.98% of 2017-2018. The difference of 1.93% shows increment in gross profit of the dairy. Vasudhara dairy also lose its gross profit in 2018-2019. During 2017-2018, the GPR was recorded 17.95% which was reduced by 16.83% in 2018-2019. The difference shows decline in gross profit of the dairy. Financial year 2019-2020 was again panic due to covid-19 situation. This year again the dairy sector suffered a lot because of second wave of covid-19 pandemic. This year the dairy industry has not tried to maintain its sales cost. Due to that the sales volume reduced and accordingly the gross profit was declined for seven leading dairies in Gujarat. Amul has lost its GPR by 1.1% than last year. The GPR of Amul was recorded as 38.5% during 2019-2020. Similarly, Banas dairy has reached 21.5% of gross profit ratio this year. Compare to last year, it has gained by 1.7% in gross profit. Dudhdhara dairy has falling down by 0.19% this year. The GPR of dairy was recorded 17.02%. Compare to last year it has getting down in GPR. Dudhsagar dairy has GPR of 25.6%. It has again failed in maintaining its GPR. It has declined by 1.4% than last year. For financial year 2019-2020, Gopal dairy has increased GPR by 4.1% after long tenure. This year the dairy has computed 17.7% of GPR. An increment in GPR value for Gopal dairy indicates that the dairy has started to work to manage its sales resources. Madhur dairy has stands with 17.6% of GPR during this financial year. It has declined the gross profit by 3.3% than last year. Sabar dairy has second highest value of GPR. This year the dairy has 24% of GPR. Still compare to last year it declining its value of gross profit. It has decreased by 0.69% during financial year 2019-2020. Sarhad dairy has managed the resources properly. It is observed that the net sales of the dairy for this year reached according to planning. It has reached with GPR 13.4% which was increased by 3.06% than last year. Sumul dairy has a minor reduction in tits GPR than year 2018-2019. For this year, it has declined by 0.30% in GPR. The GPR of dairy was computed by 10.61% for the year. For financial year 2019-2020, the GPR of dairy was found 15.96% stated reduction than last financial year.

3. STATISTICAL ANALYSIS OF GPR

All ten selected dairies under study are examined as per accounting standards. The year wise gap analysis has been studied for each year – each ratio. Overall performance for dairies can be judge with help of statistical tools. Thus, the financial performances of each dairy for each head of ratio is evaluated the particulars are presented by calculating average, standard deviation and co-efficient of variances.

Table 2 Descriptive Statistics of Dairies for GPR

	Count	Sum	Average	Variance
AD	5	165.87	27.64	71.83

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BD	5	79.71	13.29	22.29
DD	5	89.47	14.91	12.61
DSD	5	138.44	23.07	33.84
GD	5	69.86	11.64	18.21
MD	5	100.82	16.80	45.38
SD	5	117.05	19.51	20.70
SUD	5	54.13	9.02	4.36
SAD	5	63.85	10.64	5.24
VD	5	98.00	16.33	8.44

Performance wise Amul dairy stands first amid all dairies. An average of dairy is computed 27.64% with variances of 8.48%, the VD also justify topper position. Dudhsagar dairy stood on second position. The lowest value of an average is counted for Sumul dairy.

For examining the inferential part an application of ANOVA is studied. The formal hypothesis is stated as follows:

Hypothesis to examine the performance of dairies.

H01: There is no significance difference of GPR for selected dairies under the study.

Hypothesis to examine the performance of dairies during last ten years.

Table 3 ANOVA for GPR

Source of Variation	SS	df	MS	F	P-value	F crit
GPR	770.08	5.00	154.02	15.60	6.84E-09	2.42
Years	1816.7	9.00	201.86	20.44	3.95E-13	2.09
Error	444.4	45.00	9.88			
Total	3031.19	59.00				

The stated hypotheses are tested at 5% level of significance. The results of F test are as follows; It can be seen that the Fcrit value is found lower than Fcal value (i) 15.6 > 2.42 and (ii) 20.44 > 2.09. The null hypotheses are rejected at 5% level of significance. The p-values are calculated lower than 0.05 that also support to rejection of null hypotheses. Thus, it is concluded that there is a significance difference of GPR for selected dairies for all ten years.

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