Profitability in Micro Manufacturing Enterprises in Dibrugarh District of Assam

** Rubab Fatema Nomani*
*** Alok Sen*

Abstract

Profitability analysis is an important component of financial analysis. Profitability is a yardstick of the overall financial health of a business concern, and a very useful guide for the management, owners, shareholders, and creditors. In this paper, an attempt was made to assess profitability of 115 micro manufacturing enterprises in the district of Dibrugarh in Assam with firm level data collected through field survey. The techniques of cost - volume - profit analysis and profitability ratios were employed in the study. The results indicated that majority of the firms operated above the break-even point. However, although the micro enterprises operated at safe margins and were able to break even, they were operating with very low profit margins. The category-wise analysis revealed that the worst performing sectors were agro based enterprises and weaving and textiles based enterprises, both in terms of break even analysis and profitability analysis. This led us to recommend that the government's support measures must specifically target these two weakest sectors among micro enterprises, with emphasis on financial inclusion. Also, operational efficiency in all categories needs to be improved through more investment on training in management and administration and research & development in small-scale enterprises.

Keywords: **profitability, cost - volume - profit analysis, margin of safety, breakeven point, profitability ratios**

JEL Classification: M0, M2, L2

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Profit - earning is the primary goal of every business concern. According to Lord Keynes, profit is the engine that drives the business enterprise. Profit is the excess of revenue over all kinds of direct and indirect costs and expenses of a business, over a period of time. Profitability refers to the ability of a business to earn profits. Though the two terms are used interchangeably due to their close relation and mutual interdependence, they are not exactly the same. While profit is an absolute measure of earning capacity; profitability is a relative measure, expressed in relation to sales, investments, or risk.

Profitability is an important measure of operational efficiency of a firm, which in turn depends on the amount of profits earned by a firm. The importance of profit and profitability studies was expressed succinctly by Weston and Brigham (1975) in that, profit is a test of efficiency and a measure of control to the financial management, a measure of the worth of their investment to the owners, the margin of safety to the creditors, a measure of taxable capacity to the government, an index of economic progress, national income generated, and rise in living standards of a country.

There are various measures and techniques of analyzing profitability. In our study, we use two commonly used

* *Assistant Professor (Corresponding Author),* Department of Economics, DHSK College, Dibrugarh -786 004, Assam. E-mail: rubabnomani@yahoo.co.in
** *Professor,* Department of Economics, Assam University, Silchar-788 011, Assam. E-mail: alok_sendr@yahoo.com
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methods to assess profitability of the sample enterprises : (a) the cost - volume - profit (CVP) analysis, and (b) profitability ratios. Both the approaches look at profit in different ways.

(i) The CVP analysis /break - even analysis is essentially a technique of management accounting, wherein profit is calculated in a special way. Marginal costs (variable costs) are deducted from sales revenue to arrive at the "contribution"(explained later), which go towards fixed costs, the remaining being profits (Batty,1975).

It measures the functional relationship among the major factors like cost, volume, and prices that affect profits (Mukherjee & Roychoudhury, 1987). The information derived from CVP analysis is of paramount usefulness for profit planning, determination of selling price, selection of optimal volume of production, budgeting, cost control, and most other areas of decision making (Drucker, 1964). Broadly, the CVP analysis uses the techniques of (a) profit - volume (P/V) or contribution analysis and (b) Break-even (BE) analysis (Jawaharlal & Srivastava, 2009).

(ii) The profitability ratios, which are essentially techniques of financial accounting, measure the relationship between profits and sales/investment/risks. In our study, we assess profitability ratios in terms of sales. There are three commonly used measures of a company's overall profitability, that is, (a) gross profit margin, (b) operating profit margin, (c) net profit margin, which are progressively more inclusive.

The study seeks to test the following two hypotheses :

- **H1 :** Most of the enterprises operate above the break-even point.
- **H2 :** There is no significant difference in the financial performance of different categories of enterprises.

Literature Review

The literature (empirical studies) on the application and measurement of the various management and financial accounting tools and techniques on industries in general, and small-scale industries, in particular, are still insufficient. Some existing studies that have been done are mainly from the management sciences' perspective, which tried to assess the impact of adopting/not adopting management tools like CVP analysis/break-even analysis on industrial performance (Abdullahi, Sulaimon, Mukhtar, & Musa, 2017 ; Alnasser, Shaban, & Al - Zubi, 2014 ; Georgiev, 2014 ; Ihemeje, Okereafor, & Ogungbangbe, 2015). Almost all the studies found a close and positive association between firms' performance and adoption of one or more of the techniques of accounting.

Several studies have tried to assess the profitability of banks. Nagaraju (2014) analyzed the performance of 34 Indian private and public banks during 2006 - 2010 by applying the data envelopment analysis. He concluded that both public and private banks underperformed in terms of marketability and profitability efficiency. However, they did better in terms of profitability efficiency than marketability efficiency. In another study on banks, the impact of macroeconomic factors on the profitability of 45 Indian commercial banks during the period from 2010 - 2016 was examined by Jain, Metri, and Rao (2019). It was found that both macroeconomic variables and bank specific factors significantly affected the profitability of the banks.

Umarani and Nithya (2013) examined the impact of firm age, size, and region on the overall profitability of selected companies in the sugar industry based on the margin of sales. They found that companies in the Southern region of India had higher profitability than those in the Northern region. However, companies with different levels of paid - up share capital as well as different ages had the same level of profitability in terms of margin of sales.

Among the few empirical studies that have tried to assess the profitability of firms in the small scale industrial sector using the CVP analysis and profitability ratios in Assam, mention may be made of Devi (2009), who measured category-wise performance of 50 micro-manufacturing enterprises of Lakhimpur District of Assam using the above techniques and found the break-even point (BEP) to be the lowest and margin of safety ratio (MoSR) to be the highest for construction based industries. She also calculated various financial ratios, including the profitability ratios, and concluded that in terms of overall performance, the food-based enterprises occupied the first position in the District.

Saikia (2012) studied 220 small enterprises in five districts of Assam, including Dibrugarh. All the firms were found to operate above the BEP, the average MoSR was quite good at 62.08%, and the average GPR and NPR were 24% and 20%, respectively. In his study on performance of small tea gardens of Assam, Kalita (2014) found the average MoSR to be quite unsatisfactory at a mere 7.08%, and the average GPR & NPR were also very low at 5.22% and 2.30%, respectively. Gogoi (2014) studied the food processing enterprises of Tinsukia District of Assam and found the MoSR to be very high at 79.80%, and most of the firms were operating above the BEP. The average GPR and NPR too were satisfactory at 40.50% and 20.7%, respectively.

In a study of 77 small scale industries of Dibrugarh District, Borah (2015) concluded that most of the firms were operating above the BEP. The average MoSR was higher for manufacturing enterprises (51.85%) than for services enterprises (48.72%). The average for both manufacturing and services enterprises together was 50.65%. The average NPR for the district was found to be a satisfactory 22.92%.

Thus, it may be said that the studies done on the small-scale enterprises in Assam in general found that majority of the firms operated above the BEP level and had safe margins of operations, but in terms of profitability, the scenario was not very encouraging.

Research Gap

The literature review reveals that there is a dearth of studies on SSIs/MSMEs at the regional/state level in India, particularly in the North - Eastern Region (NER). Although several studies have been undertaken on the SSI/MSME sector in Assam, most of them have concentrated on the problems and prospects as well as credit availability of such industries. There are only a handful of methodologically rigorous studies on performance aspects like productivity. The review also shows that very few studies have been conducted on the MSME sector of an important district like Dibrugarh.

The present study is a modest attempt to fill the gap in existing literature on the above counts. It is expected to be of immense help to researchers, government officials, policy makers, NGOs, and all those agencies studying or working for the industrial development of the region, in general and Assam, in particular.

Methodology, Conceptual Background, and Definitions

(1) Methodology : This study is based on cross-sectional primary data at the firm level, collected from 115 working micro-manufacturing enterprises in Dibrugarh district through extensive field survey that involved direct personal interviews with a pre-tested, well structured schedule. The units were selected randomly from each of the seven categories of micro manufacturing firms registered during April 1, 2007 to March 31, 2016 in Entrepreneur's Memorandum, Part II with DICC Dibrugarh, Assam. The reference period of the study is one accounting year, namely April 1, 2016 to March 31, 2017. The fieldwork was conducted during May 1, 2017 to October 30, 2017.

↳ **Sample Design :** As per DICC data, there were 609 registered micro manufacturing units in the district during

Table 1. Classification of Registered Micro-Manufacturing Enterprises in Dibrugarh District During April 1, 2007 to March 31, 2016 and Sample Selection

Sl. No.	Categories	Actual Units*	Working Units#	Sample# (20 % subject to a minimum of 15 numbers)
1.	Weaving and Textiles(W/T)	244	102	20
2.	Construction-based	52	50	15
3.	Engineering-based	77	70	15
4.	Forest-based	102	98	20
5.	Food-based	50	46	15
6.	Agro-based	41	37	15
7.	Others	43	41	15
	Total	**609**	**444**	**115**

Source : * DICC, Dibrugarh; # authors

the above mentioned period, of which 444 units were found to be working. This constitutes the universe of our study. The technique of stratified sampling was adopted for the purpose of selection of samples from the universe. Each strata consisted of the type/category of industry classified on the basis of their type of activity and main product. Thus, seven stratas corresponding to seven categories of industries were finalized, then samples for the study were selected from each strata in the manner depicted in Table 1.

A selection of 20% units (subject to a minimum of 15 numbers in order to justify an analytical study using mathematical/econometric techniques) from each of the seven categories of enterprises gives 115 number of units; which is one more than that given by the Taro Yamane formula. Thus, 115 sample units were selected out of a total of 444 units.

(2) Concepts Related to Cost - Volume - Profit Analysis

(i) Costs Concepts : In the marginal costing analysis, costs are divided into two components: (a) direct cost and (b) indirect cost. Direct costs are directly attributable to the production of a good, example, cost of direct materials, wages of direct labour, equipment. All costs beyond the direct cost of manufacturing, except taxes and interest, are indirect costs. These are essentially fixed expenses or fixed costs (in economics) that do not vary with the volume of production/sales. For example, salaries of supervisor, insurance, rent, depreciation, marketing cost, delivery cost, general administrative cost.

Total costs *(TC)* = Total fixed costs *(TFC)* + Total variable costs *(TVC)*

The components of fixed costs in our study are: (a) rent of factory building and showrooms, (b) lease of land, (c) salaries of permanent staff, including supervisor and sales man (these were not found to vary with the amount of sales), (d) license fee, (e) chartered accountant's fee, (f) interest, (g) insurance premium, (h) property tax. The components of variable costs are : (a) raw materials including transportation - in costs, (b) wages of labour, (c) fuel (electricity/diesel, LPG, and fire-wood), (d) transportation - out costs, (e) telephone, fax, courier, etc. (f) minor repairs of machineries or tools, (g) donations, (h) packaging costs, (i) hand tools or other materials bought every season, eg. mould, spade, hoe, polythene bought every season in the brick kilns.

(ii) Contribution: It is the excess of total sales (revenue) over cost of goods sold (COGS) .

Total sales revenue = Quantity sold × Price per unit.

Contribution = Total sales − Cost of goods sold (COGS)

= Total sales − Variable costs

= Fixed costs + Profits

The contribution margin is a measure of operating leverage, and represents the amount of revenue left over after paying the variable costs. When fixed costs are deducted from contribution, the balance is profit/loss. A good CM is one that can cover the costs of production and ideally, generate a profit.

(iii) P/V Ratio : When contribution is calculated as a percentage of total sales, it indicates each rupee of revenue generated to cover fixed costs and profits. It is called the contribution ratio or profit-volume ratio (P/V ratio) :

$$\frac{P}{V} \text{ ratio} = \frac{CM}{\text{Total Sales}} \times 100$$

Thus, P/V ratio expresses the relationship between contribution and sales. A higher P/V ratio indicates sound financial health of a company, which means higher profitability and vice-versa. It is very useful in managerial decisions regarding determination of price policy, sales policy, cost policy, etc. It is also very useful in break-even analysis.

(iv) Break - Even Point (BEP) : Lucey (1996) defined break-even analysis as the study of the inter-relationship between costs, volume, and profit at different levels of sales or production. The BEP is a critical point at which costs and revenues are in equilibrium, resulting in a no profit, no loss situation. In cost accounting sense, it is that point of sales volume at which the total sales revenue equals the total costs. The BEP may be expressed in terms of volume or in physical amount. Here, we employ the contribution method, which gives the BEP in sales value as follows:

$$BEP\,(\text{Sales}) = \frac{\text{Contribution at BEP}}{\frac{P}{V} \text{ ratio}} = \frac{\text{Fixed costs}}{\frac{P}{V} \text{ ratio}}$$

When the break-even sales are expressed as a percentage of total sales, we get the break-even ratio. The formula is as follows:

$$BE \text{ Ratio} = \frac{(BEP \text{ Sales})}{(\text{Total Sales})} \times 100$$

Break- even analysis is an important management tool. If the business is not at least breaking even, then it must re-evaluate its business strategy and make appropriate changes (Berliner & Brimson, 1998).

(v) Margin of Safety (MoS) : Break-even point is the basis for computing the MoS. The MoS represents sales beyond BEP, or the excess of total sales over break-even sales. It is an indicator of profitability as it gives the value or volume of sales, which directly contributes to profit, as fixed costs have already been accounted for by the BEP. It is expressed as follows:

MoS = Total sales − Sales at BEP

In order to facilitate comparisons, the MoS is expressed as a percentage of total sales and it takes the following form:

$$\text{Margin of Safety Ratio } (MoSR) = \frac{MoS}{\text{Total Sales}} \times 100$$

The size of the MoS represents the financial strength of a firm. It indicates the reduction in sales that can occur before the BEP of a firm is reached or a loss is incurred. A high MoS means that even if there is a substantial fall in sales, there will still be left some profits; conversely, a small MoS means that even a small reduction in sales would adversely affect profits of the business and result in losses.

(3) Profitability Ratios

(i) The Gross Profit Margin (GPM) : The most basic of the profitability measures is the GPM. It looks at the total profits remaining after accounting for only direct production costs (variable costs) and not general overhead costs (fixed costs), taxes, or interest. We deduct all variable costs from net sales to get GPM. Net sale is defined as gross sales minus the following three deductions : (a) sales allowances - which refer to reduction in prices due to minor product defect, (b) sales discount - which refers to an early payment discount, and (c) sales returns - which refer to a refund granted to customers if they return the goods to the company.

$$GPM = \text{Net sales} - COGS$$

When the gross profit is expressed as a percentage of net sales, we get the gross profit ratio. Thus,

$$GPR = GP/\text{Net sales} \times 100$$

It indicates the extent to which selling prices of goods may fall without resulting in losses for the firm. There is no standard norm for GPR value, and it may vary from business to business. Also, it is not a complete or robust measure of profitability and should not be used for comparisons between enterprises.

(ii) Operating Profit Margin (OPM) : The next level of profitability is the OPM. It is derived by deducting all operating expenses from the gross profit. Thus, it takes a wider view of costs than GPM as it includes all costs beyond the direct costs, except taxes and interest.

$$OPM = \text{Net Sales} - COGS - \text{indirect costs}$$

Or, GPM – Indirect costs

The OPR is a ratio of operating profits to net sales expressed as a percentage.

$$OPR = \text{Operating Profits/Net Sales} \times 100$$

(iii) Net Profit Margin (NPM) : The NPM is the amount of revenue left over after all relevant expenses, including taxes and interests, have been deducted from sales revenue. It may be derived as follows:

$$NPM = \text{Net Sales} - COGS - \text{Indirect Costs (Fixed Costs)} - \text{Taxes} - \text{Interest}$$

Or, OPM – Taxes – Interest

The net profit ratio refers to the proportion of sales remaining after all expenses are accounted for. It is expressed as :

$$NPR = \text{Net profit/net sales} \times 100$$

The NPR is the most robust measure of profitability, and along with the OPR, it is an important indicator of operational efficiency. The NPR indicates the management's ability to operate the business in a way so as to recover from revenues; all costs of production of goods, operating expenses, cost of borrowed funds, and still leave a reasonable margin of compensation to the owners.

Analysis and Results

(1) Cost - Volume - Profit Analysis : The category-wise estimates of total sales, net sales, fixed costs, variable costs, total costs, taxes, and interest are presented in Table 2. This is the primary table from which the profitability measures are calculated and presented in subsequent tables. The following observations are made from Table 3 with respect to cost - volume - profit analysis of the micro manufacturing enterprises.

(i) P/V Ratio : The engineering based enterprises have the highest P/V ratio or contribution margin ratio (49.89 %) closely followed by forest based enterprises (49.55%) indicating a high rate of profit ; whereas, the lowest is in agro based enterprises (15.19 %). Next in line are the construction based enterprises (34.37%). The average P/V ratio for all 115 enterprises is 32.67%, which cannot be considered to be very high. It means that the variable costs constitute a very high percentage of the total costs, and hence, profits cannot be expected to increase very fast with increase in sales. However, as previously pointed out, the P/V ratio should be used with caution to interpret profitability of enterprises.

(ii) BEP: The forest based enterprises have the lowest BEP at 20.35% of sales closely flowed by engineering at 25.11%. The agro based enterprises reached the BEP at the highest level of 56.26 % of sales closely followed by 'Others' at a high of 48.21% as compared to all other categories. The average BEP for all 115 enterprises reaches a figure of 38.23% of sales, which may be considered to be a moderately good performance.

Table 2.Category - Wise Estimates of Gross Sales, Net Sales, Direct Costs, Indirect Costs, Total Costs, Taxes, and Interest (in ₹)

Category	Gross Sales	Net Sales	Indirect Costs (FC)	Direct Costs (VC)	TC	Taxes and Interest
W/T	1,30,50000	12890500	1505200	9683516	11188716	1394000
Agro	4236000	4130000	362000	3592300	3954300	356400
Food	40210000	39910000	4015416	29446384	33461800	1185400
Forest	16764000	14859000	1690550	8458080	10148630	1659080
Construction	102310000	101912000	12536300	67146743	79683043	4061500
Engineering	39239000	39145600	4914748	19658992	24573740	457280
Others	58600833	58308800	7664971	42701099	49366070	4835060
Average	39201405	38736557	4669884	25812445	30339471	1992674

Table 3. Category - Wise Estimates of Contribution Margin, P/V Ratio, BEP, BEP Ratio, MoS, MoSR (Based on Totals of Each Group)

Category	Contribution Margin (in ₹)	P/V Ratio (in %) or Contribution Margin Ratio	BEP in ₹ ( ) = %	BE ratio (in %)	MoS (in ₹)	MoSR (in %)
W/T	3366484	25.79	5836371 (44.72)	44.72	7213629	55.28
Agro	643700	15.19	2383147 (56.26)	56.26	1852853	43.74
Food	10763616	26.77	14999686 (37.31)	37.31	25210314	62.69
Forest	8305920	49.55	3411806 (20.35)	20.35	13352194	79.65
Construction	35163257	34.37	36474542 (35.65)	35.65	65835458	64.35
Engineering	19580008	49.89	9851169 (25.11)	25.11	29387831	74.89
Others	15899734	27.13	28252750 (48.21)	48.21	30348083	51.79
Average	4280427	32.67	14458496 (38.23)	38.23	24742909	61.77

(iii) MoS: The forest based enterprises have the highest MoSR (79.65%) closely followed by engineering based enterprises (74.89%). The agro based enterprises have the highest risk with 43.74% MoSR. The average MoSR is 61.77%. This is comparable with the average MoSR for the small scale industries of Assam at 62.08% as estimated by Saikia (2012).

Thus, on the basis of the BEP and MoS, it may be said that the forest based enterprises performed the best, followed by engineering, construction, and food based enterprises in that order. The agro based enterprises seem to be the worst with very high BEP and very low MoS.

(2) Profitability Measures :

(i) Gross Profit Ratio : As shown in Table 4, the gross profit ratio is the highest for engineering based enterprises (49.78%) followed by forest based enterprises (43.08 %) and construction based enterprises (34.11%). It is the least for agro based enterprises (13.02%). The average GPR is found to be 33.36%, implying that for every ₹ 100 sales, the enterprises have ₹ 33.36 to cover their basic operating costs and profits. This is higher than the GPR found by Saikia (2012) at 24 % for Assam, but lower than that of Gogoi (2014) at 40.5% for Tinsukia District.

(ii) Operating Profit Ratio : The OPR gives a better picture of profitability than the GPR as it additionally excludes indirect costs or fixed costs from sales. It is seen in Table 4 that the engineering based enterprises have the highest operating profit ratio (37.22%) followed by forest based enterprises (31.70%) and construction based enterprises (21.81%). The average OPR is found to be 19.71 %.

(iii) Net Profit Ratio : The NPR gives the most accurate picture of profitability as it considers the sales revenue left after all expenses are deducted including taxes, interest, or any other extra expenses not deducted in the calculations of GPR or OPR. In our study, the engineering based enterprises seem to have the highest NPR

Table 4. Category - Wise Estimates of Gross Profit Ratio, Operating Profit Ratio, Net Profit Ratio (Based on Totals in Each Category)

Category	Gross Profit (₹)	GPR (%)	Operating Profit (₹)	OPR (%)	Net Profit (₹)	NPR (%)
W/T	3206984	24.88	1701784	13.20	307784	2.39
Agro	537700	13.02	175700	4.25	-180700	-4.38
Food	10463616	26.22	6448200	16.16	5262800	13.19
Forest	6400920	43.08	4710370	31.70	3051290	20.53
Construction	34765257	34.11	22228957	21.81	18167457	17.83
Engineering	19486608	49.78	14571860	37.22	14114580	36.06
Others	15607701	26.77	7942730	13.62	3107670	5.33
Average		**33.36**		**19.71**		**12.99**

(36.06%) followed by forest based enterprises (20.53%) and construction based enterprises (17.83%).The average NPR is 12.99%, which implies that the firms are able to generate ₹ 12.99 of net profit per ₹ 100 of net sales. This is much less than the NPR found by Saikia (2012) at 20% for Assam, and also that of Borah (2015) at 22.92% for Dibrugarh District, and Gogoi (2014) at 20.7 % for Tinsukia District.

Thus, in terms of overall performance, the engineering based enterprises occupy the first rank followed by forest based and construction based enterprises in that order. The agro based enterprises seem to be the worst with very low GPR and OPR, and negative NPR.

In order to rank the categories of enterprises in terms of financial performance, we use four indicators, that is, margin of safety ratio, gross profit margin, operating profit margin, and net profit margin. The *Z* scores of these ratios and the composite *Z* scores are presented in the Table 5.

It is evident from column 10 of Table 5 that the values of *Z* scores of different ratios for the various categories of enterprises are not the same.

(i) *Z* - score of MoSR : The *Z* score of MoSR is the highest in forest based enterprises followed by engineering based enterprises.

(ii) *Z* - score of GPR : The *Z* score of GPR is the highest in engineering based enterprises followed by forest based enterprises.

Table 5. Standard Scores of Margin of Safety Ratio, Gross Profit Ratio, Operating Profit Ratio, Net Profit Ratio

Category	MoSR (X_1)	Z_1	GPR (X_2)	Z_2	OPR (X_3)	Z_3	NPR (X_4)	Z_4	$Z_1 + Z_2 + Z_3 + Z_4$	Rank
W/T	55.28	-0.51145	24.88	-0.50701	13.20	-0.56871	2.39	-0.78836	-2.37553	**6th**
Agro	43.74	-1.42087	13.02	-1.47023	4.25	-1.35075	-4.38	-1.29173	-5.53357	**7th**
Food	62.69	0.072501	26.22	-0.39819	16.16	-0.31007	13.19	0.014658	-0.6211	**4th**
Forest	79.65	1.409044	43.08	0.9711	31.70	1.047794	20.53	0.560413	3.988353	**2nd**
Construction	64.35	0.203318	34.11	0.242601	21.81	0.18362	17.83	0.359659	0.989198	**3rd**
Engineering	74.89	1.03393	49.78	1.515242	37.22	1.530124	36.06	1.715125	5.79442	**1st**
Others	51.79	-0.78648	26.77	-0.35352	13.62	-0.53201	5.33	-0.56976	-2.24177	**5th**

(iii) *Z* - score of OPR : The *Z* score of OPR is the highest in engineering based enterprises followed by forest based enterprises.

(iv) *Z* - score of NPR : The *Z* score of NPR is the highest in engineering based enterprises followed by forest based enterprises.

The composite *Z* score ranges from a high of 5.79442 for the engineering sector to a low of - 5.53357 scored by the agro sector. On the basis of the composite *Z* score, the categories are ranked systematically. Thus, the first rank is secured by the engineering sector and the second rank is attained by the forest sector. The agro and weaving & textiles sectors attain the last two ranks, with very low scores.

Conclusion and Implications

The study finds that the break - even point on an average is reached at 38.23% of sales, which may be termed as a moderately good performance. Further, majority of the firms in every category operate above the break-even point. This leads us to accept the hypothesis H1. The average MoSR is found to be 61.77%, which is an indicator of low fixed overheads in the enterprises and a high proportion of variable costs in the total costs. The average profit ratios like the GPR, OPR, and NPR cannot be termed as encouraging. In fact, the average NPR is very low at 12.99% only. It may be surmised from the above that although the micro enterprises operate at safe margins and are able to break even, mainly due to low fixed overhead expenses, they are operating with very low profit margins. The huge difference between the GPR and OPR indicates that the enterprises are perhaps more efficient in producing and selling their products than in operational efficiency in terms of managing administration, research, training, and other day to day business costs.

The category-wise analysis based on the *Z* score technique reveals that there is sufficient difference in financial performance among the categories, which leads us to reject the hypothesis H2 of no difference among them in this regard. The best performing category in terms of overall financial performance is the engineering based enterprises closely followed by the forest based enterprises. The worst performing sectors are agro based enterprises and weaving and textiles based enterprises, both in terms of break even analysis and profitability analysis. These two sectors also happen to be the least covered by institutional finance as per our findings.

This leads us to recommend that the government's support measures must specifically target these two weakest sectors among micro enterprises with an emphasis on financial inclusion. Also, operational efficiency in all categories needs to be improved through more investment on training in management and administration and research & development of small-scale enterprises.

Limitations of the Study and Directions for Future Research

A limitation of the study is the small size of the sample. Hence, generalization of its results may not be completely appropriate. In the course of the field work, we encountered many of the typical constraints and barriers that generally crop in such studies. The units were geographically dispersed and unorganized. Locating them, particularly in rural areas, was an arduous task. Moreover, the distribution of units in different blocks of the district is not uniform. Repeated site visits were required in case of seasonal units. Some of the respondents were suspicious of our identity and motive, and had to be repeatedly convinced.

Some possible extensions and modifications of the present study are suggested below :

- An intra - category analysis of profitability by taking more samples from each category of industry.

- An inter-district comparison of profitability in Assam.
- A study to examine the factors associated with profitability.
- A study to identify the causes of managerial inefficiency.

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About the Authors

Rubab Fatema Nomani is an Associate Professor in the Department of Economics, DHSK College, Dibrugarh, Assam. She has 16 years of teaching experience. Her areas of interest are industrial economics and population studies. She has presented scientific papers in several national seminars and one international conference, and has published with reputed journals like *SEDME* and *Man & Development*.

Dr. Alok Sen is a Professor in the Department of Economics, Assam University, Silchar, Assam. He has 28 years of teaching experience, has completed one Major Research Project under ICSSR, and has supervised 12 Ph.d. and 5 M.Phil scholars. His areas of interest are environmental economics and welfare economics. He has presented papers in reputed international conferences and has many publications to his credit.