E-ISSN: 2708-4523
P-ISSN: 2708-4515
Impact Factor (RJIF): 5.61
AJMC 2025; 6(2): 751-756

www.allcommercejournal.com
Received: 20-06-2025
Accepted: 19-07-2025

Richika Kedia
Research Scholar, Department of Commerce, Gauhati University, Assam, India

Dr. Gour Gopal Banik
Ph.D. Supervisor, Department of Commerce, Gauhati University, Assam, India

Corresponding Author:
Richika Kedia
Research Scholar, Department of Commerce, Gauhati University, Assam, India

Profitability and business sustainability among women entrepreneurs in Kamrup (M), Assam: An analytical study

Richika Kedia and Gour Gopal Banik

DOI: https://www.doi.org/10.22271/27084515.2025.v6.i2h.746

Abstract
Background: The aim of this research is to assess the financial performance and profitability of women-led enterprises in Kamrup (M) district of Assam. Women entrepreneurs are instrumental in promoting inclusive growth and development; however, their financial performance remains under-researched, especially in micro and small-scale settings.
Materials and Methods: A total of 90 women entrepreneurs who were registered with the District Industries and Commerce Centre (DICC), Kamrup (M), were surveyed using a standardized questionnaire. The study evaluated four profitability indicators: return on assets (ROA), return on capital employed (ROCE), net profit ratio (NPR), and gross profit ratio (GPR). Data analysis was carried out using descriptive statistics, correlation analysis, and one-way ANOVA.
Results: The findings showed that trading firms had the greatest NPR (36.66%), ROA (21.26%), and ROCE (25.43%), whereas service enterprises recorded the highest GPR (51.33%). However, ANOVA results indicated no statistically significant differences in profitability ratios across enterprise types ($p>0.05$). Correlation analysis revealed strong positive associations between ROA and ROCE (r=0.986, $p<0.01$) and between GPR and NPR (r=0.807, $p<0.01$), indicating dependency among some profitability metrics.
Conclusion: The findings highlight that industry type alone does not significantly influence profitability. Instead, internal factors such as cost efficiency, resource utilization, financial literacy, and management practices are likely to determine profitability performance. The study recommends targeted capacity-building, enhanced financial literacy, and improved access to resources to boost the sustainability and profitability of women-led enterprises in the region.

Keywords: Assam, financial performance, profitability, women entrepreneurs, financial analysis, women-led enterprises

1. Introduction
Women entrepreneurs have emerged as a powerful catalyst for socio-economic development in India. In recent years, their active participation in Micro, Small, and Medium Enterprises (MSMEs) has significantly contributed to employment generation, poverty alleviation and gender and regional. (Agyapong, 2010; Tambunan, 2019; Prakash *et al*., 2023; Bose & Aich Som, 2025) [1, 7, 12, 13]. Empowering women through entrepreneurship not only create financial inclusion but also strengthens societal structures ensuring gender equality (Datta & Gailey, 2012; Bagheri *et al*., 2022) [3, 11].
According to the Global Entrepreneurship Monitor (GEM) 2021/2022 Report, women entrepreneurs are responsible for 17% of the global Gross Domestic Product (GDP), showcasing their significant role in the economy. According to a National Women's Business Council (NWBC) research, women-owned companies in the US produced over $1.8 trillion in sales and over 10 million jobs annually.
For women-owned enterprises, sound financial management is critical to ensure long-term sustainability and growth (Ramadani *et al*., 2017; Batrancea, 2021; Tariq, 2025) [6, 9, 14]. Among the various financial indicators, profitability, liquidity, and solvency play very significant role in evaluating the performance of these enterprises (Batrancea, 2021; Mbomvu *et al*., 2021) [9, 10]. Efficient financial management ensures that a business for its performance and profitability, which is particularly important for women entrepreneurs who often face financial constraints and limited access to institutional credit.

Navigating this risk-return trade-off is crucial for women entrepreneurs to create profitable and financially secure companies.

Therefore, understanding how the profitability of women-owned MSMEs becomes vital for policymakers, financial institutions and the entrepreneurs themselves. This analysis can provide insights into financial management and profitability that will help design supportive mechanisms to enhance the performance and sustainability of women-led enterprises.

Classification of MSMEs

Table 1: Classification of MSMEs as defined/classified on basis of composite criteria as given below (W.E.F. 1st April, 2025)

Enterprise	Investment limit (In plant and machinery)	Turnover (Annual)
Micro	Not more than 2.5 crore rupees	Not more than 10 crore rupees
Small	Not more than 25 crore rupees	Not more than 100 crore rupees
Medium	Not more than 125 crore rupees	Not more than 500 crore rupees

Source: Ministry of MSME

2. Significance of the problem

Profitability is a key indicator of the financial performance and sustainability of any enterprise (Shen *et al*., 2017; Guo *et al*., 2020) [5, 8]. For women-owned micro enterprises in Kamrup Metro district of Assam, analyzing profitability is essential to assess their business efficiency and long-term viability. Despite their growing presence, many of these enterprises face challenges such as limited access to capital, financial literacy gaps and market constraints, which may affect their ability to generate profits consistently.

Standardized profitability ratios that include the gross profit ratio, net profit ratio, ROA, and "ROCE (Return on Capital Employed)" are crucial for precise profitability measurement. These ratios shed light on how well the companies are using their resources, controlling expenses, and producing returns on investment.

However, there is limited research focused on the profitability levels of micro enterprises run by women in this region using these financial metrics. Identifying profitability trends among the enterprises through ratio analysis can help understand the operational strengths and weaknesses of these enterprises and will guide future financial planning and decision-making.

3. Review of Literature

Conducted a study among 17 selected sugar industries in India to analyse the overall profitability. It was observed that the southern and northern region both had average profitability in terms of EBDIT, EBIT, Gross Profit, PAT and PBT, indicating control over indirect expenses.

Mendoza RR (2015) [4] investigated 33 MSMEs in Calabarzon region in the Philippines to measure the financial performance using liquidity, activity, leverage and profitability ratios. It was found that MSMEs in the Philippines are financially sound in terms of liquidity, activity, and leverage but struggle with low profitability. Profitability and other financial indicators did not significantly correlate, despite their capacity to fulfill commitments and effectively manage assets and receivables. The study suggests that MSMEs must focus on refining cost structures, pricing and risk management to enhance profitability and overall enterprise value.

In order to determine the variations in the financial performance across different enterprise categories, examined the profitability of micro manufacturing businesses in the Dibrugarh area of Assam. Along with BEP, P/V, and CVP analysis, profitability ratios such the gross profit, net profit, as well as operational profit ratios had been taken into consideration. The results showed that there were notable variations in the financial performance of the various enterprise categories, and the average break-even point was reached at 38.23% of sales, suggesting reasonably strong financial performance.

Examined the relationship between the overall profitability indicators, ROE and ROA, and sub-indicators, such as return on sales, asset turnover, and financial leverage, in order to assess the profitability of Czech agricultural enterprises. It found that return on sales had the most consistent and positive impact on ROA, especially in medium and large enterprises, while asset turnover and financial leverage had varying effects depending on size and structure. Small businesses often showed a negative correlation between asset turnover and ROA, while financial leverage significantly influenced ROE, especially in joint stock and limited liability companies. The results revealed that profitability determinants differ significantly across business categories, and profitability can be better managed through cost control, production efficiency, and strategic diversification.

Conducted a study to ananlyse financial performance among 51 MSMEs in Nanded, Maharashtra. Profitability and liquidy ratios were used to find out the performance of enterprises over 5 years i.e., from 2016-2017 to 2020-2021. Only a small number of companies in the agro, mineral, and petroleum-based industries regularly achieved high efficiency and profitability, especially in FY 2020-21. The majority, on the other hand, performed inconsistently or poorly, specifically in terms of ROA and ROCE, setting standards for others to follow.

4. Objectives of the study

- To analyse the profitability condition of micro enterprises owned by women.
- To analyse how profitability varies across different categories of enterprises based on their nature/type of business activity.

5. Hypothesis of the study

- **H_0:** There is no significant relationship between profitability condition and nature/type of business enterprise.
- **H_1:** There is a significant relationship between profitability condition and nature/type of business enterprise.

The variables selected for the study are described below:

- To analyse the profitability condition of micro enterprises owned by women entrepreneurs, Profitability ratios: (i) "Gross Profit Ratio (GPR)" (ii) "Net Profit Ratio (NPR)" (iii) "Return on Assets

(ROA)" (iv) "Return on Capital Employed (ROCE)" has been considered.
- To analyse how profitability varies across different categories of enterprises based on their nature/type of business activity, i.e., manufacturing, trading and service provider enterprises has been considered.

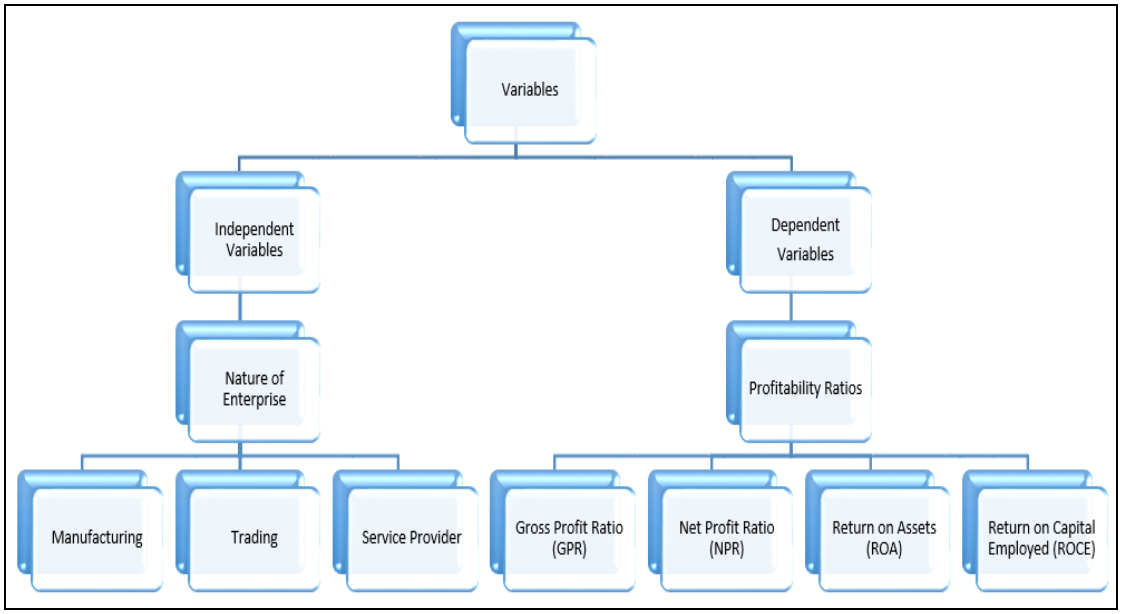

Fig 1: Profitability ratios used for financial performance analysis.

Profitability Ratios: The financial indicators that evaluate a business's capacity to generate a profit are called profitability ratios. These statistics clearly show how well a business makes use of its resources to turn a profit. These statistics are important for evaluating a company's overall sustainability, performance effectiveness, and financial health.

Gross Profit Ratio: After deducting the "COGS (Cost of Goods Sold)", the gross profit ratio calculates the percentage of money left over from revenues and sales. It shows how effectively a company produces or buys its products. After deducting direct costs, higher gross profit ratio indicates that business keeps a bigger percentage of sales revenue, which it can use to fund other expenditures.

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

Net Profit Ratio: The net profit ratio can be defined as the amount of net profit from net sales that remains after all operating and non-operating expenses, including taxes, have been deducted. The percentage of profit made from each rupee of sales is shown by this ratio. It is a comprehensive measure of overall profitability.

$$\text{Net Profit Ratio} = \frac{Net\ Profit}{Net\ Sales} \times 100$$

Return on Assets (ROA): ROA measures how well a business generates net profit from all of its assets. An organization that has a greater ROA is more effective at converting its asset investments into net profits. It is particularly helpful when comparing companies in the same sector.

$$\text{Return on Assets (ROA)} = \frac{Net\ Profit}{Total\ Sales} \times 100$$

Return on Capital Employed (ROCE): ROCE evaluates how well a company generates operational profit using all forms of long-term capital, including stock and long-term debt. By calculating the returns on capital invested in the company, it offers a more comprehensive picture of profitability. It is a crucial sign of long-term financial performance and efficiency.

$$\text{Return on Capital Employed (ROCE)} = \frac{Earnings\ Before\ Interest\ and\ Tax(EBIT)}{Total\ Assets - Current\ liabilities} \times 100$$

6. Research methodology

The current study uses a descriptive and analytical research approach and is based on both primary and secondary data. Ninety women-owned microbusinesses registered in Assam's Kamrup (M) district have been chosen to gather the main data. Among these, thirty businesses are engaged in manufacturing, thirty are engaged in trading, and thirty are engaged in providing services. A standardized questionnaire is used to gather primary data from the chosen businesses. To analysis the measures, the study conducts descriptive statistics and "Analysis of Variance (ANOVA)" with Post Hock analysis test to examine the significant relation/differences found among the above measures within the 3 types of enterprises i.e., (i) Manufacturing (ii) Trading and (iii) Service Provider.

Moreover, before conduction the ANOVA the "Levene Statistics" is calculated to see the Homogeneity of Variances on the data of above selected measures (i.e. GPR, NPR, ROA and ROCE) with the types of enterprises. Here, the following Hypothesis are considered for Homogeneity of Variance and ANOVA with Post Hock Test. The significant level is considered at Sig (P)=0.05 level.

Hypothesis of homogeneity of variances

- **H_0:** Homogeneity of variance is same in GPR, NPR, ROA and ROCE across the types of enterprise.

- **H_1:** Homogeneity of variance is not same in GPR, NPR, ROA and ROCE across the types of enterprise.

Hypothesis of ANOVA and Post Hock Test

- **H_0:** Mean difference of GPR, NPR, ROA and ROCE are same across the types of enterprise.
- **H_1:** Mean difference of GPR, NPR, ROA and ROCE are not same across the types of enterprise.

7. Limitation of the study: Only women-owned microbusinesses that are registered as MSMEs are included in the study in order to gather primary data.

8. Data analysis

Levene's Test was conducted to verify the assumption of homogeneity of variances across different enterprise types (Manufacturing, Trading, and Service Provider) for all four profitability indicators**:** "Gross Profit Ratio (GPR)", "Net Profit Ratio (NPR)", "Return on Assets (ROA)" and "Return on Capital Employed (ROCE)".

Table 2: Homogeneity of Variance (Levene's Test)

Profitability Indicator	Levene Statistic	Sig. (P-Value)	Interpretation
GPR	0.496	0.611	Homogeneity of variance assumed
NPR	1.112	0.334	Homogeneity of variance assumed
ROA	1.037	0.359	Homogeneity of variance assumed
ROCE	2.752	0.069	Homogeneity of variance assumed

Interpretation

Since every p-value is higher than 0.05, the homogeneity of variance null hypothesis is upheld in every instance. This demonstrates that using ANOVA to compare means across groups is valid.

Table 3: Descriptive statistics of profitability ratios by industry type

Indicator	Industry	Mean	Std. Dev.	Minimum	Maximum
GPR	Manufacturing	50.57	23.59	-12.50	76.92
	Trading	48.79	21.92	19.75	93.47
	Service	51.33	26.21	-12.00	96.25
NPR	Manufacturing	27.64	27.26	-37.50	67.00
	Trading	36.66	21.84	3.28	88.96
	Service	23.86	28.18	-36.54	71.18
ROA	Manufacturing	14.93	18.44	-42.86	50.00
	Trading	21.26	22.36	0.63	94.09
	Service	11.70	18.37	-11.11	64.00
ROCE	Manufacturing	15.55	21.82	-60.00	63.49
	Trading	25.43	31.34	0.65	144.12
	Service	12.49	19.79	-11.11	68.09

Interpretation

GPR is highest in Service Providers, while NPR, ROA and ROCE are highest in trading enterprises. However, the actual significance of these differences requires testing through ANOVA.

Table 4: ANOVA results for mean differences

Indicator	F-Statistic	Sig. (P-Value)	Interpretation
GPR	0.089	0.915	No significant mean difference
NPR	1.930	0.151	No significant mean difference
ROA	1.807	0.170	No significant mean difference
ROCE	2.227	0.114	No significant mean difference

Interpretation

All p-values are > 0.05, indicating no statistically significant difference in mean profitability ratios across the three types of enterprises.

Table 5: Post Hoc Comparison

Profitability Indicator	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig. (p)	95% Confidence Interval
Gross Profit Ratio (GPR)	Manufacturing	Trading	1.784	6.189	.955	[-12.975, 16.542]
	Manufacturing	Service Provider	-0.756	6.189	.992	[-15.514, 14.003]
	Trading	Service Provider	-2.539	6.189	.912	[-17.298, 12.219]
Net Profit Ratio (NPR)	Manufacturing	Trading	-9.013	6.377	.410	[-24.696, 6.670]
	Manufacturing	Service Provider	3.779	7.158	.934	[-13.800, 21.358]
	Trading	Service Provider	12.792	6.509	.153	[-3.223, 28.807]
Return on Assets (ROA)	Manufacturing	Trading	-6.329	5.115	.435	[-18.526, 5.868]
	Manufacturing	Service Provider	3.230	5.115	.803	[-8.967, 15.427]
	Trading	Service Provider	9.558	5.115	.154	[-2.639, 21.756]
Return on Capital Employed (ROCE)	Manufacturing	Trading	-9.885	6.412	.277	[-25.174, 5.404]
	Manufacturing	Service Provider	3.061	6.412	.882	[-12.229, 18.350]
	Trading	Service Provider	12.945	6.412	.114	[-2.343, 28.234]

Interpretation: Multiple comparisons using Post Hoc Comparison show that none of the pairwise comparisons between industry types are statistically significant (p>0.05) for any of the profitability ratios (GPR, NPR, ROA, ROCE). There are no significant differences in profitability ratios (GPR, NPR, ROA, and ROCE) across the different types of enterprises (Manufacturing, Trading, Service Provider) run by women entrepreneurs in Kamrup (M), Assam.

To explore the interrelationship among profitability indicators, Pearson correlation coefficients were calculated.

Table 6: Pearson correlation matrix analysis

Variables	GP Ratio	NP Ratio	ROA	ROCE
GP Ratio	1	.807**	.208*	.141
NP Ratio	.807**	1	.428**	.348**
ROA	.208*	.428**	1	.986**
ROCE	.141	.348**	.986**	1

Note: $p<0.05$, $p<0.01$)

Interpretation

- GP RATIO and NP RATIO has strong positive correlation (.807) with *$p<0.01$ significant level.
- GP RATIO and ROA has relatively weak positive correlation (.208) with *p<0.05 significant level
- GP RATIO and ROCE has positive correlation (.141) But the correlation is not significant.
- NP RATIO and ROA has relatively mediocre positive correlation (.428) with *$p<0.01$ significant level
- NP RATIO and ROCE has relatively mediocre positive correlation (.348) with *$p<0.01$ significant level.
- ROA and ROCE has strong positive correlation (.986) with *$p<0.01$ significant level.

9. Results

Objective 1

The descriptive statistics (Table 3) reveal that GPR is the highest in Service Providers (Mean=51.33%), followed by Manufacturing (50.57%) and Trading (48.79%). NPR (36.66%), ROA (21.26%) and ROCE (25.43%) are highest in trading enterprises. The observed minimum and maximum values indicate a considerable dispersion in profitability ratios, suggesting significant performance heterogeneity among enterprises, with a few exhibiting negative values.

The Pearson correlation analysis shows a significant positive relationship between several profitability indicators, particularly between GPR and NPR (r=0.807, p<0.01) and between ROA and ROCE (r=0.986, p<0.01), suggesting that higher gross profit is generally associated with higher net profit and better asset utilization aligns closely with capital efficiency. Thus, the profitability levels vary across enterprises, with trading enterprises showing relatively higher returns in all the indicators except GPR.

Objective 2

The Levene's Test results confirmed homogeneity of variances for all four profitability indicators ($p>0.05$), demonstrating the use of ANOVA. ANOVA results indicate that differences in mean profitability ratios (GPR, NPR, ROA, ROCE) across Manufacturing, Trading and Service Provider enterprises are not statistically significant ($p>0.05$). Post Hoc HSD tests further confirm that none of the pairwise comparisons between enterprise types are statistically significant ($p>0.05$) for any profitability indicator. This indicates that statistically, the nature or type of business activity does not significantly influence profitability among women-owned micro enterprises in Kamrup (M), Assam.

10. Conclusion

The current study used four profitability indicators Gross Profit Ratio (GPR), Net Profit Ratio (NPR), Return on Assets (ROA), and Return on Capital Employed (ROCE) to analyze the profitability performance of women-owned microbusinesses in Kamrup (M), Assam, across three industry types: manufacturing, trading, and service providers. *"Levene's Test for Homogeneity of Variances"* validated the use of one-way ANOVA for future mean comparisons by confirming that the assumption of equal variances was met for all indicators (GPR: P=0.611; NPR: P=0.334; ROA: P=0.359; ROCE: P=0.069).

Descriptive statistics revealed considerable variability in profitability ratios, with minimum values indicating losses in certain enterprises (e.g., NPR in Manufacturing: -37.50; ROCE in Manufacturing: -60.00), while maximum values reflected exceptionally high returns (e.g., ROCE in Trading: 144.12; GPR in Service: 96.25). The highest mean GPR was recorded in the Service sector (51.33%), while NPR, ROA and ROCE peaked in Trading enterprises (36.66%, 21.26%, and 25.43%, respectively).

However, ANOVA results demonstrated there is no statistically significant differences in profitability ratios across the three industry types (GPR: F=0.089, P=0.915; NPR: F=1.930, P=0.151; ROA: F=1.807, P=0.170; ROCE: F=2.227, P=0.114). Post Hoc HSD comparisons further confirmed that none of the pairwise differences between industry types were significant (all $p>0.05$). This indicates that industry type alone does not have a decisive role in determining the profitability of women-owned enterprises in the region.

Correlation analysis provided additional insights into the internal relationships among profitability indicators. Strong positive correlations between ROA and ROCE (r=0.986, $p<0.01$) and GPR and NPR (r=0.807, $p<0.01$) were discovered, indicating interdependence between some profitability metrics. While GPR demonstrated a small but significant positive connection with ROA (r=0.208, $p<0.05$), moderate positive relationships were seen between NPR and ROA (r=0.428, $p<0.01$) and between NPR and ROCE (r=0.348, $p<0.01$).

The findings highlight that while profitability performance varies widely among women-owned enterprises which ranges from substantial losses to exceptionally high returns. These differences cannot be statistically attributed to industry type. Instead, the results suggest that factors other than sector classification, such as management practices, market conditions, financial literacy and access to resources, may have a greater influence on profitability outcomes. It is found that the type of enterprise is not a primary determinant of profitability. Instead, internal enterprise-level factors such as cost efficiency, effective resource utilization, financial management practices and strategic planning are likely to play a more influential role in determining financial performance.

In conclusion, enhancing business sustainability among women entrepreneurs may require greater emphasis on improving internal operational competencies rather than

focusing solely on the type of industry. Targeted training programs, access to financial literacy and tailored support systems can empower women entrepreneurs to strengthen profitability regardless of their business sector.

References

1. Agyapong D. Micro, small and medium enterprises' activities, income level and poverty reduction in Ghana: A Synthesis of Related Literature. Int. J Bus Manag. 2010;5(12). DOI: 10.5539/ijbm.v5n12p196.
2. Lo S. Performance evaluation for sustainable business: A profitability and marketability framework. Corp Soc Responsib Environ Manag. 2010;17(6):311-9. DOI: 10.1002/csr.214.
3. Datta PB, Gailey R. Empowering Women through Social Entrepreneurship: Case Study of a Women's Cooperative in India. Entrep Theory Pract. 2012;36(3):569-87. DOI: 10.1111/j.1540-6520.2012.00505.x.
4. Mendoza RR. Financial performance of micro, small and medium enterprises (MSMEs) in the Philippines. Int. J Bus Finance Res. 2015;9(4):67-80. Available from: https://www.theibfr.com/archive/IJBFR-V9N4-2015.pdf.
5. Shen KY, Tzeng GH, Yan MR. Exploring R&D influences on financial performance for business sustainability considering dual profitability objectives. Sustainability. 2017;9(11):1964. DOI: 10.3390/su9111964.
6. Ramadani V, Dushi SN, Welsh DHB, Dana LP, Ratten V. Decision-making challenges of women entrepreneurship in family business succession process. J Enterprising Cult. 2017;25(04):411-439. DOI: 10.1142/s0218495817500157.
7. Tambunan T. Recent evidence of the development of micro, small and medium enterprises in Indonesia. J Glob Entrep Res. 2019;9(1). DOI: 10.1186/s40497-018-0140-4.
8. Guo A, Liu S, Wei H, Huang C, Zhong F. Enterprise sustainability: Economic policy uncertainty, enterprise investment and profitability. Sustainability. 2020;12(9):3735. DOI: 10.3390/su12093735.
9. Batrancea L. The influence of liquidity and solvency on performance within the healthcare industry: Evidence from publicly listed companies. Mathematics. 2021;9(18):2231. DOI: 10.3390/math9182231.
10. Mbomvu L, Hlongwane IT, Bruwer J, Qayi Z, Nxazonke NP. Load shedding and its influence on South African small, medium, and micro enterprise profitability, liquidity, efficiency, and solvency. SSRN Electron J. 2021. DOI: 10.2139/ssrn.3831513.
11. Bagheri F, Ghaderi Z, Abdi N, Hall CM. Female entrepreneurship, creating shared value, and empowerment in tourism; the neutralizing effect of gender-based discrimination. Curr Issues Tour. 2022;26(21):3465-82. DOI: 10.1080/13683500.2022.2126749.
12. Prakash P, Verma PL, Negi V. MSMEs: Its role in inclusive growth in India. IIFT Int Bus Manag Rev J. 2023. DOI: 10.1177/jiift.231191159.
13. Bose M, Aich Som M. The catalysts of economic progress: Women entrepreneurs. Int J Multidiscip Res. 2025;7(1). DOI: 10.36948/ijfmr.2025.v07i01.37404.
14. Tariq MU. Empowering women entrepreneurs. In: IGI Global; 2025, p. 1-34. DOI: 10.4018/979-8-3693-9193-8.ch001.
15. Ministry of Micro, Small and Medium Enterprises. Available from: https://msme.gov.in