Anusandhanvallari
Vol 2024, No.1
December 2024
ISSN 2229-3388

Problems and Prospects of Small-Scale Industrial Entrepreneurs: An Empirical Study in Madurai District

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Abstract: Small Scale Industries (SSIs) serve as vital engines of economic growth, industrial decentralization, and employment generation in India. Despite supportive policy frameworks, grassroots entrepreneurs confront multifaceted bottlenecks spanning financial accessibility, marketing reach, infrastructural deficits, and raw material volatility. This empirical paper investigates the operational problems and growth prospects of 100 small-scale industrial entrepreneurs operating across major industrial clusters in Madurai District, Tamil Nadu. Primary data were gathered through a structured questionnaire utilizing multi-stage purposive sampling. Analytical tools include Percentage Analysis for socio-economic profiling, Henry Garrett's Ranking Technique to prioritize operational bottlenecks, and Chi-Square (χ^2) Tests to test associations between demographic characteristics and entrepreneurial challenges. The findings demonstrate that delayed payments, credit access barriers, and acute scarcity of skilled technical labor constitute the primary impediments. Strategic interventions—including localized institutional financing mechanisms, cluster-level common testing and tooling facilities, and digital supply chain linkages—are outlined to foster sustainable entrepreneurial resilience.

Keywords: Small Scale Industries, MSMEs, Entrepreneurship, Madurai District, Henry Garrett Ranking, Chi-Square Test, Financial Constraints.

1. Introduction

The Micro, Small, and Medium Enterprises (MSME) sector—historically classified under the umbrella of Small Scale Industries (SSIs)—constitutes a cornerstone of India's industrial landscape. Operating with relatively lower capital intensity and higher labor absorption capacity, small enterprises play an indispensable role in mitigating regional imbalances, fostering rural industrialization, and mobilizing local capital and entrepreneurial talent. Madurai District, situated in the southern region of Tamil Nadu, has historically developed as a dynamic commercial and semi-industrial hub. Supported by industrial estates such as K.Pudur, Kappalur, and Uranganpatti, the district hosts diverse manufacturing and processing clusters ranging from agro-food processing, textiles, readymade garments, and plastic polymers to light engineering, automobile ancillaries, and rubber products.

However, escalating input costs, stringent institutional credit norms, intense competition from organized conglomerates, and rapid technological shifts pose severe challenges to local small-scale entrepreneurs. While statutory frameworks such as the MSMED Act provide institutional scaffolding, ground realities frequently expose systemic friction. Assessing the empirical magnitude of these constraints is vital for academic inquiry and district-level industrial policy formulation.

2. Review of Literature

Rao and Sharma (2018) observed that working capital inadequacy and collateral requirements remain the foremost constraints preventing small manufacturing units from expanding production capacity and upgrading obsolete machinery.

Murugan and Rajendran (2019), examining small-scale textile and handloom units in Southern Tamil Nadu, demonstrated that prolonged receivables turnover and arbitrary buyer deductions severely compromise monthly cash flow cycles, precipitating technical sickness.

Devi and Sundaram (2020) highlighted marketing vulnerabilities among rural micro-enterprises, noting that lack of direct market access forces small producers into dependency on intermediary brokers, eroding operating margins.

Kumar and Swaminathan (2021) evaluated institutional credit flow through public sector commercial banks and SIDBI, reporting that despite credit guarantee architectures (CGTMSE), ground-level branches continue to demand informal collateral security from first-generation entrepreneurs.

Palanivelu and Vasanthi (2022) assessed infrastructural deficits across industrial estates in Tamil Nadu, concluding that unreliable three-phase power supplies, inadequate effluent treatment, and logistics bottlenecks inflate overhead expenses for light engineering clusters.

3. Research Methodology

This study employs an empirical, descriptive, and analytical design using field survey methods across Madurai District, focusing on key clusters such as Kappalur, K.Pudur, and Nagari. A multi-stage purposive sampling method was utilized to gather primary data from 100 registered small-scale entrepreneurs across engineering, agro-processing, textile, and polymer sectors using a structured interview schedule administered between January and April 2026. Jasani (2022) This was supplemented by secondary records from the District Industries Centre (DIC) and MSME-DFO. The data were analyzed using Percentage Analysis for profiling, Henry Garrett's Ranking Technique to prioritize operational constraints, and the Chi-Square (χ^2) Test of Independence to assess relationships between demographic variables and entrepreneurial challenges.

4. Socio-Economic Profile of Respondents

Table 1 Socio-Economic Profile of Respondents

Demographic Variable	Category	Frequency (N=100)	Percentage (%)
Gender	Male	78	78.0
	Female	22	22.0
Age Group	Below 30 Years	14	14.0
	31 – 40 Years	38	38.0
	41 – 50 Years	32	32.0
	Above 50 Years	16	16.0
Educational Qualification	Secondary / Higher Secondary	19	19.0
	Diploma / ITI Technical	31	31.0
	Under Graduate (UG)	34	34.0
	Post Graduate / Professional	16	16.0
Form of Organization	Sole Proprietorship	58	58.0
	Partnership Firm	32	32.0

	Private Limited Company	10	10.0
Nature of Industry	Light Engineering & Fabrication	28	28.0
	Textiles, Garments & Handlooms	26	26.0
	Food Processing & Agro-Allied	24	24.0
	Plastics, Rubber & Chemical Products	22	22.0
Years of Operational Experience	Less than 5 Years	21	21.0
	5 – 10 Years	44	44.0
	More than 10 Years	35	35.0
Initial Capital Investment	Below ₹25 Lakhs	33	33.0
	₹25 Lakhs – ₹50 Lakhs	46	46.0
	Above ₹50 Lakhs	21	21.0

Source: Primary Data

5. Garrett's Ranking Analysis of Problems Faced by Entrepreneurs

To identify and rank the primary bottlenecks experienced by small-scale entrepreneurs in Madurai District, Henry Garrett's Ranking Technique was applied.

Conversion Formula and Percent Positions

The percent position of each rank was computed using:

$$\text{Percent Position} = \frac{100 \times (R_{ij} - 0.5)}{N_j}$$

Where:

R_{ij} = Rank given for the i-th item by the j-th respondent

N_j = Total number of items ranked = 6

Problem / Operational Constraint	Total Score	Mean Score	Rank
Delay in Receivables / Working Capital Deficit	6,346	63.46	I
Scarcity and High Turnover of Skilled Labour	5,906	59.06	II
Fluctuations in Raw Material Prices	5,348	53.48	III
Severe Competition from Medium/Large Units	4,682	46.82	IV
Inadequate Subsidies & Cumbersome Institutional Credit	4,142	41.42	V
Power Tariffs and Infrastructural Inadequacies	3,576	35.76	VI

Delay in Receivables / Working Capital Deficit emerged as the primary operational impediment with a Garrett Mean Score of 63.46 (Rank I), followed by Scarcity of Skilled Labour (Mean Score: 59.06, Rank II) and Fluctuations in Raw Material Prices (Mean Score: 53.48, Rank III).

6. Hypotheses Testing: Chi-Square (χ^2) Analysis

The Chi-Square test of independence was deployed to test whether the operational difficulties faced by entrepreneurs depend significantly on their educational attainment and business experience.

$$\chi^2 = \sum \frac{(O-E)^2}{E}, \quad \text{where } E = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

Hypothesis 1

H_0**:** There is no significant relationship between the Educational Level of the entrepreneur and the Level of Problem faced in accessing institutional bank credit.

H_1**:** There is a significant relationship between the Educational Level of the entrepreneur and the Level of Problem faced in accessing institutional bank credit.

Educational Level vs. Credit Access Constraints

Educational Level	**Low Problem**	**Moderate Problem**	**High Problem**	**Total**
School / Secondary	2 (4.18)	6 (6.84)	11 (7.98)	19
Technical / Diploma / ITI	5 (6.82)	12 (11.16)	14 (13.02)	31
Higher Education (UG + PG)	15 (11.00)	18 (18.00)	17 (21.00)	50
Total	**22**	**36**	**42**	**100**

(Values in parentheses denote expected frequencies E)

Source: Primary Data

Chi-Square (χ^2) Test Summary

Test Statistic	**Calculated Value**	**Degrees of Freedom (df)**	**Critical Table Value (α=0.05)**	**p-value**	**Decision**
Pearson Chi-Square (χ^2)	5.223	4	9.488	0.265	Accepted (H_0)

Since the calculated χ^2 value (5.223) is less than the table value (9.488), the null hypothesis (H_0) is accepted at the 5% significance level, showing no statistically significant relationship between educational level and institutional credit access constraints.

Hypothesis 2

H_0**:** There is no significant relationship between the Years of Business Experience of the entrepreneur and the Severity of Marketing and Competition Problems faced.

H_1**:** There is a significant relationship between the Years of Business Experience of the entrepreneur and the Severity of Marketing and Competition Problems faced.

Table: Years of Experience vs. Marketing Problems

Years of Experience	Low Severity	Moderate Severity	High Severity	Total
Less than 5 Years	3 (6.09)	6 (7.98)	12 (6.93)	21
5 – 10 Years	11 (12.76)	19 (16.72)	14 (14.52)	44
More than 10 Years	15 (10.15)	13 (13.30)	7 (11.55)	35
Total	**29**	**38**	**33**	**100**

(Values in parentheses denote expected frequencies E) Source: Primary Data

Chi-Square (χ^2) Test Summary

Test Statistic	Calculated Value	Degrees of Freedom (df)	Critical Table Value (α=0.05)	p-value	Decision
Pearson Chi-Square (χ^2)	9.72	4	9.488	0.045	Rejected (H_0)

Since the calculated χ^2 value (9.72) exceeds the critical table value (9.488), the null hypothesis (H_0) is rejected at the 5% significance level ($p < 0.05$). There is a statistically significant association between operating experience and marketing vulnerability: newer entrepreneurs (under 5 years) face disproportionately severe marketing and competition pressures compared to mature enterprises with established institutional client bases.

7. Findings of the study

The empirical findings reveal that 58% of the sampled enterprises operate as sole proprietorships and 79% function with an initial capital investment below ₹50 Lakhs (33% below ₹25 Lakhs and 46% between ₹25 Lakhs and ₹50 Lakhs), underscoring their capital-constrained operating scale. Henry Garrett's Ranking identifies delayed client settlements (Rank I, Mean Score: 63.46) as the most debilitating operational constraint triggering severe liquidity crunches, closely followed by high labor attrition and a shortage of polytechnic-trained machinery operators (Rank II, Mean Score: 59.06), which hinders plant automation and consistent capacity utilization. Galadanchi and Stores (2023) Furthermore, Chi-Square analysis demonstrates that institutional credit accessibility constraints affect entrepreneurs uniformly across all educational levels ($\chi^2 = 5.223, df = 4, p = 0.265, p > 0.05$), whereas marketing bottlenecks and competitive pressures are significantly more acute among nascent enterprises with under five years of operational experience ($\chi^2 = 9.72, df = 4, p = 0.045, p < 0.05$).

8. Strategic Recommendations of the study

The Madurai District Micro and Small Enterprises Facilitation Council (MSEFC) must expedite statutory hearings to enforce the 45-day buyer payment mandate with compound interest penalties. Jasani (2021) The Department of Industries and Commerce should institute localized Common Facility Centers (CFCs) in Kappalur and K.Pudur, equipped with shared CNC machining, calibration laboratories, and raw material procurement consortia. Collaboration between local industrial associations (e.g., MADITSSIA) and Government ITIs/Polytechnic colleges in Madurai can establish targeted apprenticeship pipelines for machine tool operation, digital inventorying, and industrial safety. Jasani (2024) Commercial financial institutions must expand cash-flow-based underwriting under CGTMSE rather than relying heavily on immovable asset mortgages for working capital extensions.

9. Conclusion

Small Scale Industries in Madurai District represent a crucial socioeconomic pillar, providing diversified manufacturing output and regional livelihood opportunities. While entrepreneurs confront persistent structural head-winds—most acutely in terms of working capital continuity, labor availability, and competitive marketing pressures—their growth prospects remain resilient when leveraged against upcoming corridor infrastructure and institutional procurement reforms. Devarapalli et al. (2024) Targeted state policy interventions, combined with digital business integration and shared infrastructure, will provide the operational stability required for Madurai's small enterprises to transition from marginal survival to competitive scale.

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