

Leather MSMEs for Make in India Impact in Tamil Nadu

R. Parkavi

Research Scholar, Department of Commerce
Alagappa University, Karaikudi, Tamil Nadu, India

G. Vinayagamoorthi

Assistant Professor, Department of Commerce
Alagappa University, Karaikudi, Tamil Nadu, India

OPEN ACCESS

Manuscript ID:
COM-2026-140411161

Volume: 14

Issue: 4

Month: October

Year: 2026

E-ISSN: 2582-6190

Received: 16.08.2026

Accepted: 15.09.2026

Published Online: 01.10.2026

Citation:

Parkavi, R., &

G. Vinayagamoorthi.

“Leather MSMEs for Make in
India Impact in Tamil Nadu.”

ComFin Research, vol. 14,
no. 4, 2026, pp. 15-27.

DOI:

[https://doi.org/10.34293/
commerce.v14i4.11161](https://doi.org/10.34293/commerce.v14i4.11161)



This work is licensed
under a Creative Commons
Attribution-ShareAlike 4.0
International License.

Abstract

Purpose: To assess the contribution of the Make in India schemes on the growth performance and effectiveness of institutional support, scheme outreach, and contribution to enterprise competitiveness and sustainable growth for MSMEs registered under Udyam in leather and footwear clusters in Tamil Nadu with regard to awareness about Make in India schemes, accessibility, impact on sales, job creation, production, technology adaptation, and market expansion.

Design, Methodology/Approach: Primary data were collected from 150 leather and footwear industry units in Vellore, Ambur, Vaniyambadi, Ranipet, and Chennai through a structured questionnaire. The EFA resulted in three factors, and the SEM (DWLS estimator in Jamovi/Lavaan) examined the relationship between these factors. Reliability testing was conducted using Cronbach's alpha, and construct validity was assessed using the KMO and Bartlett's tests.

Findings: The three that EFA identified have were Awareness of Government Schemes (45.18% variance), Scheme Reach and Accessibility (15.99%), and MSME Growth Performance (0.42%). However, SEM showed that awareness had a significant positive influence on scheme reach ($\beta = 1.052$, $p < .001$), but the direct effects on performance were not significant. The model demonstrated a good fit ($CFI = 1.000$, $RMSEA = 0.063$, $SRMR = 0.061$).

Practical Implication: The results indicate the need to increase government scheme awareness and access among MSMEs for policymakers. Some of the major problems are the health risks to workers and the inadequate implementation of environmental measures in tanneries. If implemented properly, the Union Budget 2025–26 Footwear and Leather Scheme can be a great opportunity for growth.

Originality/Value: This study is one of the first to consider the impact of the Make in India scheme on Udyam-registered leather and footwear MSMEs using CFA-SEM with the DWLS estimation method, which includes enterprise performance, worker welfare, and environmental dimensions.

Future Research: Policy integration of worker welfare and environmental compliance interventions in Make in India and Union Budget 2025-26 for the footwear and leather industry should be strengthened.

Keywords: Make in India, MSME Development, Leather and Footwear Industry, Udyam-Registered MSMEs, Government Schemes, Enterprise Performance, Budget 2025–26, Growth Performance.

Introduction

India's leather and footwear sectors are of long-term strategic significance to the national economy because they are export-driven and provide employment to millions of people. The industry has more than 4 million employees, many of whom are from socially and economically marginalized groups, contributing to inclusive economic growth (Dubey & Yajurvedi, 2023). Tamil Nadu is the hub of this industry, supplying nearly 40-50% of India's overall leather exports with an annual value of approximately USD 4.0–4.5 billion (Dubey & Yajurvedi, 2023; Thiripurasundari & Ponsakthisurya, 2018). With the majority of transactions accounted for by micro, small, and medium enterprises (MSMEs) — more than 80% of industry transactions take place through MSMEs (Dubey

& Yajurvedi, 2023). Some specific industrial clusters within the state include Ambur, Vaniyambadi, and Ranipet, as well as other major metropolitan areas such as Chennai, which produce goods across a complete leather value chain from tannery to high-quality finished product; moreover, these clusters also serve as centers for R&D activities.

While a substantial body of research documents the design and intent of the Make in India-linked schemes, most existing studies remain descriptive, evaluating scheme provisions or MSME performance in isolation without empirically testing the causal chain that links awareness, institutional reach, and enterprise-level outcomes. Studies on the leather and footwear sector, in particular, have tended to treat worker welfare, occupational health, and environmental compliance as separate concerns from scheme effectiveness rather than as interconnected dimensions of sustainable MSME growth. Furthermore, the introduction of the Union Budget 2025-26 Focus Product Scheme for footwear and leather has not yet been examined in the empirical literature. The present study addresses these gaps by using Structural Equation Modelling with a DWLS estimator to test whether scheme awareness translates into actual reach and, in turn, into measurable enterprise performance for Udyam-registered leather and footwear MSMEs in Tamil Nadu, while simultaneously situating this relationship within the post-2025 Budget policy context and the sector's worker welfare and environmental challenges.

Review of Literature

Make in India and MSME Development

Babu et al., (2016) who examined the initiative's direct benefits across finance, technology, infrastructure, and skill development. MSMEs contribute nearly 8% of GDP, 45% of manufacturing output, and 40% of total exports, employing over 80 million workers across 36 million units, making the sector indispensable to the vision of a manufacturing-led development strategy. Furthermore, a significant credit gap exists where the annual MSME credit demand of 36 trillion substantially exceeds the formal credit supply of 15 trillion, leaving an unmet financing gap of 21 trillion, identifying access to institutional credit as a severe structural constraint on MSME growth (Hegde et al., 2026).

Beck & Demirgüç-Kunt (2006) established that access to formal credit is a fundamental determinant of SME growth and survival across developing economies, a finding directly relevant to the design of CGTMSE and PMEGP. Storey (2003) demonstrated that awareness of government schemes is the primary determinant of actual utilization, a finding of central importance to the present study, while Djankov et al. (2002) showed that regulatory complexity acts as a persistent administrative barrier to MSME formalization and growth. (Rodrik 2008), emphasized that effective institutional intermediaries are indispensable for bridging the gap between policy design and enterprise-level outcomes.

Leather and Footwear Industry: Performance and Competitiveness

Singh & Gundimeda (2021) The efficiency landscape of the Indian leather industry has been rigorously examined through two-stage bootstrap Data Envelopment Analysis, which identified a significant potential for input minimization of 47% if firms adopt best practices. West Bengal firms, urban-located enterprises, individual proprietorships, and leather consumer goods producers were found to be relatively more efficient, with firm size, skilled managerial staff, and labor intensity as positive efficiency drivers.

The study examined marketing mix strategies among 174 leather footwear exporting SMEs across four major clusters. It found that enterprises rely overwhelmingly on traditional export markets (72.58% of exports), with minimal penetration into emerging markets (27.42%). The study found that all promotional activities — trade fair participation, news releases, company websites, brochures, and business development training — had significant positive relationships with sales revenue and customer retention metrics, underscoring the critical role of proactive marketing strategies in performance outcomes.

Ministry of Finance (2025) The Union Budget 2025-26 brought on board certain provisions for the leather and footwear industry in the Focus Product Scheme to achieve high employment creation, turnover, and exportation. Although the Budget speech did not specify that a separate budget could

be made for leather, the scheme was placed in a larger scheme supporting labor-intensive sectors, indicating high commitment levels of policy.

The information on worker welfare and occupational health provided by NIHL about the Leather Sector is as follows:

Worker Welfare and Occupational Health in the Leather Sector

Worker welfare in Tamil Nadu's leather industry is characterized by multi-dimensional vulnerability; workers, particularly in tanneries and footwear stitching units, face serious occupational health hazards from prolonged exposure to chromium salts, solvents, and synthetic dyes, leading to respiratory diseases, dermatological conditions, and musculoskeletal disorders (Yoganandham & Kalaivani, 2025). The informal employment structure, which affects a significant proportion of the workforce, restricts access to social security, Employees' State Insurance (ESI), and Provident Fund (PF) benefits.

Wage disparities and irregular payment cycles are widespread, with female workers — who constitute 20–30% of the workforce and are concentrated in stitching and finishing tasks — disproportionately affected by low wages and limited occupational mobility. Labor absenteeism, driven by occupational illness and socioeconomic precarity, inflates production costs and reduces quality consistency — effects that econometric models confirm are significantly transmitted through higher unit costs and reduced export competitiveness.

Despite these challenges, skill development initiatives through the Leather Sector Skill Council (LSSC) under the National Skill Development Corporation (NSDC) and Tamil Nadu Skill Development Corporation (TNSDC) aim to improve worker productivity and wages. The 'Naan Mudhalvan' program in Tamil Nadu (Maran, 2025; Viji & Edward, 2024) and PMKVY at the national level represent additional upskilling vectors, although their penetration among informal workers remains limited.

Environmental Challenges and Sustainability

The leather tanning industry is one of India's most environmentally intensive manufacturing

activities. Tannery operations generate large volumes of liquid effluent containing chromium, sulfides, and chlorides; solid waste, including flesh, trimming, and chrome sludge; and air emissions from hydrogen sulfide and ammonia. Tamil Nadu's leather clusters — particularly in Vellore and Ranipet — have historically faced severe environmental scrutiny from the Tamil Nadu Pollution Control Board (TNPCB) and the Central Pollution Control Board (CPCB), leading to periodic closures and production restrictions that directly affect MSME operations, employment, and export commitments.

Common Effluent Treatment Plants (CETPs) established in major clusters represent the primary collective environmental compliance mechanism; however, issues such as improper functioning and non-compliance with discharge norms have limited their effectiveness. Globally, evolving market trends and the urgent need for sustainable and ethical practices create a competitive imperative for Tamil Nadu's leather MSMEs to invest in cleaner-production technologies.

Recent Evidence (2024-2026) and Critical Synthesis

Recent work sharpens rather than resolves the debate over whether awareness of government schemes converts into MSME performance. Hegde et al. (2026) quantify a national MSME credit gap of 21 trillion, suggesting that even fully aware enterprises may be constrained by supply side credit rationing rather than by information deficits alone, a structural factor consistent with this study's non-significant awareness-to-performance path (H2). Similarly, Khurana and Kumar (2025) find that the uptake of environmental upgradation schemes among micro-enterprises remains low, principally because of upfront capital requirements rather than a lack of awareness, reinforcing the present study's finding that awareness (DA) predicts reach (RE) far more strongly than it predicts performance (PE). Regarding worker welfare, Yoganandham and Kalaivani (2025) provide the most direct empirical parallel to this study's third objective, documenting that occupational illness and wage disparity are econometrically linked to reduced export competitiveness in Tamil Nadu's leather clusters.

This study extends this evidence by embedding welfare and environmental concerns within a scheme-performance structural model, rather than treating them as separate strands of inquiry. On the environmental compliance side, report that Common Effluent Treatment Plants in major leather clusters continue to suffer from under-utilisation and discharge non-compliance despite institutional investment, while Rahul, Patnaik, & Paul (2026). argue that global buyer-driven sustainability requirements are now a stronger driver of cleaner production adoption than domestic regulations alone. Collectively, these recent studies indicate a shift in the literature away from awareness-centered explanations of MSME under performance and toward structural, financial, and compliance-capacity explanations-a shift that directly motivates the present study's structural equation approach and its attention to the R-P gap identified through hypothesis testing.

A further cluster of Scopus-indexed studies published between 2024 and 2026 substantiates these findings. At the national level, Martinravi and Krishnasamy (2025) show that Indian MSMEs' resilience and growth remain contingent on financing mechanisms, government policy design, and human capital development, with access to finance and regulatory complexity persisting as binding constraints despite an expanding scheme architecture, corroborating this study's finding that awareness alone does not translate into performance gain. Dominic, Sowmiya, and Venkateswaran (2024) similarly find that the effectiveness of government policy for sustainable MSME growth in India depends on the depth of policy penetration and enterprise-level absorptive capacity rather than on policy design alone, lending support to the reach-to-performance gap identified through hypothesis testing in the present study. Within the leather sector, specifically, Rahul, Patnaik, and Paul (2026) show, using firm- and worker-level data from Ambur, Tamil Nadu, that complementary upgrading of human skills and production technology, rather than scheme awareness in isolation, drives cleaner production, decent work, and competitiveness outcomes, reinforcing this study's structural rather than purely informational explanation of MSME performance gaps. On the environmental dimension,

Sahu et al. (2024) document that Common Effluent Treatment Plants serving Tamil Nadu's tannery clusters continue to generate difficult-to-manage solid residues, even where treatment infrastructure exists, underscoring that the presence of institutional infrastructure does not, by itself, resolve compliance capacity constraints. On worker welfare, Gowtham et al. (2025), in a cross-sectional study of 300 leather factory workers in Chengalpattu district, Tamil Nadu, reported a musculoskeletal-disorder prevalence of 81 percent, with age and illiteracy as significant risk factors, providing recent empirical confirmation of the occupational health burden that this study situates within its third research objective. Collectively, this 2024-2026 evidence base positions the present study within fast-moving literature that is shifting attention from scheme awareness toward absorptive capacity, technological upgrading, and compliance capacity as the binding constraints on MSME performance.

Chishty, S. K. (2024) The present study's focus on environmental compliance and cleaner production in leather clusters of Tamil Nadu is supported by the findings of "shows" which indicates that market oriented environmental sustainability strategies in leather SMEs can create a competitive advantage in green leather exports. Moyo & Dlamini (2024). The report, titled "Competitiveness experiences of leather manufacturing SMEs under import pressure: The case of Botswana" shows that Tamil Nadu's leather MSMEs are not alone in experiencing structural barriers in the form of low prices of imported leather, access to finance, and lack of design innovation. Kamau (2025), "Enterprise growth is significantly driven by skills and technical training, and organizational learning, human capital ecosystems and growth trajectories of leather manufacturing SMEs in Kenya, report that government schemes need to be reinforced by skills and technical training and managerial competency.

Backgrounding Theory

This study is based on institutional theory and resource-based view (RBV) theory. According to Institutional Theory, government policies, regulations, and support programs affect the behavior and performance of enterprises in terms of providing an enabling environment for business

enterprises. In the framework of Make in India, schemes including CGTMSE, PMEGP, CLCSS, and technology upgradation schemes offer institutional support to MSMEs. Complementing this, the RBV Theory states that valuable resources such as finance, technology, skills, and infrastructure are responsible for increasing a firm's competitive advantage and growth. These theories can be used to understand the role of awareness and availability of government support schemes in enhancing the growth performance of Udyam MSMEs in the leather and footwear industry in Tamil Nadu.

Research Gap

There are many studies on footwear and leather MSMEs, but very few studies have investigated the causal relationship between scheme awareness, scheme accessibility, and enterprise performance using structural equation modelling (SEM) with DWLS estimation. In addition, there has been little to no assessment of MSME growth, worker welfare, and environmental sustainability in a post-2025 Budget context.

Objective of the Study

1. To measure the level of awareness of the Make in India-related government schemes among Udyam-registered leather and footwear MSMEs in Tamil Nadu.
2. To analyze the structural relationship between

awareness, scheme reach and accessibility, and MSME growth performance using SEM.

3. To examine worker welfare concerns, occupational health dimensions, and environmental safety challenges in the leather and footwear MSME sector and derive implications for policymakers and industrialists.

Hypotheses

- H_1 : Awareness of government schemes under the Make in India brand has a strong impact on extending the reach and access to the scheme benefits for leather/footwear MSMEs (DA $\rightarrow$ RE).
- H_2 : Awareness of the Make in India government schemes has a significant positive influence on the growth performance of MSMEs in the leather and footwear sector (DA $\rightarrow$ PE).
- H_3 : The reach and accessibility of scheme benefits significantly impact the performance of leather and footwear MSMEs (RE $\rightarrow$ PE).

Variables, Measurement, and Theoretical Basis

This study used three latent constructs assessed using 20 observed ordinal indicators. Table 1 presents the entire set of variables, their operationalization, and the source literature. The variables were defined based on the empirical literature to ensure theoretical defensibility.

Table 1 Variables, Indicators, and Theoretical Sources

Construct	Variable / Indicator	Source / Reference
DA – Awareness of Government Schemes (8 items: A1–A8)	A1: Awareness of Make in India initiative	(Kadian & Chahal 2015)
	A2: Awareness of sector-specific leather /footwear schemes	(Babu <i>et al.</i> 2016)
	A3: Awareness of financial support schemes (CGTMSE, PMEGP)	(Beck & Demirgüç-Kunt 2006)
	A4: Awareness of technology upgradation support (CLCSS, TEQUP)	(Kumar & Singh 2020)
	A5: Awareness of skill development programs (PMKVY, LSSC)	(Yoganandham & Kalaivani 2025)
	A6: Awareness of eligibility criteria for schemes	(Storey 2003)
	A7: Awareness of documentation requirements	(Djankov 2002)
	A8: Awareness of application procedure / process	(Kapur & Vaishnav 2021)

RE – Scheme Reach and Accessibility (6 items: R1–R6)	R1: Reach of scheme-related information to enterprise	(Rodrik 2008)
	R2: Contact from government / implementing agencies	(Rodrik, 2008)
	R3: Availability of guidance or facilitation support (DIC, MSME-DO)	(Beck & Demirgüç-Kunt, 2006)
	R4: Availability of opportunities to apply for schemes	(Djankov, 2002)
	R5: Perceived accessibility of Make in India related schemes	(Storey, 2003)
	R6: Actual availability of scheme benefits to the enterprise	(Ayyagari <i>et al.</i> 2007)
PE – MSME Growth Performance (6 items: P1–P6)	P1: Increase in sales turnover due to scheme support	(Chaudhury <i>et al.</i> 2015)
	P2: Growth in employment generation	(Ayyagari <i>et al.</i> 2007)
	P3: Expansion of production capacity	(Syverson, 2011)
	P4: Improvement in technology adoption	(Yoganandham & Kalaivani 2025)
	P5: Expansion of market access (domestic/export)	(Chaudhury <i>et al.</i> 2015)
	P6: Overall improvement in business performance	(Ayyagari <i>et al.</i> 2007)

Research Methodology

Research Design and Data Collection

This study adopted a descriptive and causal-analytical research design. Primary data were collected using a structured, self-administered questionnaire administered to owners, proprietors, or senior managers of 150 Udyam-registered leather and footwear MSMEs in Tamil Nadu between November 2025 and February 2026. Purposive sampling identified six major manufacturing clusters — Vellore, Ambur, Vaniyambadi, Ranipet, Chennai, and Dindigul — based on their registered MSME density and export intensity. Simple random sampling was applied to each cluster to achieve the target sample. The 150-enterprise sample satisfies the minimum recommended observation-to-variable ratio of 5:1 for factor analysis with 20 variables. Secondary data were drawn from government MSME annual reports, CLRI publications, Council for Leather Exports (CLE) data, TNPCB environmental compliance reports, and peer-reviewed academic literature.

Sample: The six major clusters of leather and footwear—Vellore, Ambur, Vaniyambadi, Ranipet, Chennai, and Dindigul—were selected using purposive sampling as these clusters were identified as holding a high concentration of Udyam registered MSMEs, export intensity, and direct policy relevance to Make in India and post 2025 footwear and leather schemes in leather industry national analyses and cluster-based competitiveness studies.

Measurement Instrument

The questionnaire had four parts: demographic profile (10 items), awareness of Make in India schemes (8 items), scheme reach and accessibility (6 items), and MSME performance (6 items). All constructs were scored on a five-point Likert scale. It passed through a process of pilot testing with 20 respondents to see if it needed any changes before data collection.

Analytical Methods

Descriptive Statistics: Frequency distributions, means, and standard deviations of all scale items were calculated.

Reliability Test: Cronbach's alpha of each subscale was calculated, with an acceptable threshold of $\alpha \geq 0.70$.

Exploratory Factor Analysis (EFA): Principal Component Analysis with Varimax rotation was performed. The KMO and Bartlett's test prerequisites were checked. Variables with eigenvalues greater than 1.0 and factor loadings of at least 0.60 were retained.

Structural Equation Modelling (SEM): The Diagonally Weighted Least Squares (DWLS) estimator, appropriate for ordinal Likert data, was used for confirmatory SEM. Jamovi (Version 2.7) was used to analyze the data with the SEMLj module (Gallucci & Jentschke, 2021) and the lavaan engine

(R Version 4.5). The structural model was specified as follows: $DA = A1 + \dots + A8$; $RE = R1 + \dots + R6$; $PE = P1 + \dots + P6$; $RE = DA$; $PE = DA + RE$.

Model Fit Evaluation: Model fit was evaluated based on χ^2/df , CFI, TLI, NFI, RMSEA, and SRMR against the recommended thresholds (Hu & Bentler, 1999; Wheaton et al., 1977).

Results

Demographic Profile

Table 2 Demographic Profile of Respondents (N = 150)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Enterprise Type	Micro	91	60.7
	Small	37	24.7
	Medium	22	14.7
Nature of Business	Leather Manufacturing	61	40.7
	Footwear Manufacturing	57	38.0
	Both Leather & Footwear	32	21.3
Years of Operation	Less than 5 years	61	40.7
	5–10 years	48	32.0
	Above 10 years	41	27.3
Ownership Type	Proprietorship	70	46.7
	Partnership	36	24.0
	Private Limited	21	14.0
	Others	23	15.3
Location	Urban	84	56.0
	Semi-Urban	42	28.0
	Rural	24	16.0
Workforce Size	Less than 10	57	38.0
	10–49	60	40.0
	50–99	19	12.7
	100 and above	14	9.3
Total		150	100.0

Source: Primary Survey, Tamil Nadu Leather and Footwear Clusters, 2025–26.

Interpretation

According to the demographic profile, the leather MSME sector is dominated by micro enterprises (60.7%). The primary activities are leather manufacturing, and footwear manufacturing,

accounting for 40.7% and 38.0% respectively. The majority of firms are owned by proprietorship (46.7%). Majority of businesses are situated in urban areas (56.0%) and 40.0% of businesses have 10–49 employees showing that most businesses are small.

EFA: Factor Structure, Reliability, and KMO-Bartlett

Table 3 EFA — Rotated Component Matrix, Communalities, and Reliability Statistics

Variable	F1 (DA)	F2 (RE)	F3 (PE)	Communality	Cronbach α
A1: Awareness - Make in India initiative	0.812	0.121	0.089	0.671	
A2: Awareness - Sector-specific schemes	0.798	0.143	0.092	0.658	
A3: Awareness - Financial support schemes	0.781	0.108	0.113	0.634	
A4: Awareness - Technology upgradation	0.776	0.097	0.124	0.628	
A5: Awareness - Skill development	0.754	0.132	0.101	0.597	

A6: Awareness - Eligibility criteria	0.741	0.121	0.087	0.580	
A7: Awareness - Documentation	0.728	0.114	0.095	0.555	
A8: Awareness - Application procedure	0.712	0.119	0.102	0.529	$\alpha = 0.812$
R1: Scheme reach - Information delivery	0.134	0.821	0.104	0.696	
R2: Reach - Contact by agencies	0.112	0.809	0.098	0.671	
R3: Reach - Guidance/facilitation support	0.121	0.793	0.113	0.651	
R4: Reach - Application opportunities	0.109	0.778	0.091	0.625	
R5: Reach - Perceived accessibility	0.132	0.761	0.107	0.601	
R6: Reach - Scheme benefits availability	0.118	0.749	0.097	0.579	$\alpha = 0.789$
P1: Performance - Sales turnover growth	0.091	0.107	0.834	0.713	
P2: Performance - Employment generation	0.104	0.089	0.818	0.682	
P3: Performance - Production expansion	0.097	0.112	0.806	0.665	
P4: Performance - Technology adoption	0.113	0.098	0.791	0.641	
P5: Performance - Market access expansion	0.102	0.104	0.778	0.621	
P6: Performance - Overall business improvement	0.119	0.094	0.762	0.602	$\alpha = 0.801$
Eigenvalue	5.421	3.812	3.104	—	Overall $\alpha = 0.836$
% Variance	27.11%	19.06%	15.52%	—	KMO = 0.782
Cumulative Variance	27.11%	46.17%	61.69%	—	Bartlett $p < .001$

Note. Extraction: Principal Component Analysis; Rotation: Varimax with Kaiser Normalization. Loadings < 0.30 were suppressed. Minimum loading threshold for item retention: 0.60. Source: Primary Survey.

Interpretation

The outcomes of the EFA substantiate the adequacy and validity of the measurement model. Bartlett's test (0.782) and the KMO value suggest that the data are suitable for factor analysis. Three

factors accounting for 61.69% of the total variance were extracted from the data. Discriminant validity is supported by low cross-loadings, and internal consistency and high reliability are found in Cronbach's alpha values.

SEM Model Fit

Table 4 SEM Model Fit Indices (DWLS Estimation, lavaan/jamovi)

Fit Index	Obtained Value	Recommended Threshold	Interpretation
χ^2 (User Model)	151	—	—
Degrees of Freedom (df)	167	—	—
p-value (χ^2)	.806	> .05	Model fits well
χ^2 /df Ratio	0.904	< 3.0	Excellent fit
SRMR (Robust)	0.061	< 0.08	Good fit
RMSEA (Robust)	0.063	< 0.08	Good fit
RMSEA 90% CI (Robust)	[0.043, 0.081]	Upper < 0.10	Acceptable
CFI (User Model)	1.000	> 0.95	Excellent fit
TLI (Tucker-Lewis Index)	1.009	> 0.95	Excellent fit
NFI (Normed Fit Index)	0.931	> 0.90	Acceptable

PNFI (Parsimony NFI)	0.818	> 0.50	Good
Estimation Method	DWLS (Robust)	Ordered data	Appropriate

Source: Primary Data. jamovi (v2.7) / lavaan (R v4.5); SEMlj module; n = 150.

Interpretation

Table 4 presents the SEM model fit indices derived from the lavaan DWLS estimation for the full sample. The model converged after 42 iterations. The chi-square test for the user model was $\chi^2(167) = 151$, $p = .806$, indicating that the model did not significantly depart from the data, which was a favorable result. The scaled chi-square test is $\chi^2(167) = 196$, $p = .059$, which also fails to reject the model at $\alpha = .05$. The chi-square to degrees-of-freedom ratio was 0.904, which was well below the recommended threshold of 3.0 (Wheaton et al., 1977). CFI = 1.000 and TLI = 1.009 indicate an excellent incremental

fit. The SRMR (0.061) and robust RMSEA = 0.063 (90% CI: [0.043, 0.081]) confirm an acceptable fit according to Hu and Bentler (1999). These indices collectively provide strong evidence that the proposed three-factor model with $DA \rightarrow RE \rightarrow PE$ structural paths is an excellent representation of observed data structure.

Structural Path Estimates (Hypothesis Testing)

Table 5 presents the structural path coefficients with standard errors, standardized betas, z-values and significance levels.

Table 5 SEM Structural Path Estimates

Hyp.	Path	Direction	B (Unstd.)	SE	Std. β	z-value	p / Decision
H1	DA $\rightarrow$ RE	Positive	0.914	0.189	1.052	4.834	< .001*** / Supported
H2	DA $\rightarrow$ PE	Positive (ns)	1.272	1.100	1.091	1.156	.248 ns / Not supported
H3	RE $\rightarrow$ PE	Negative (ns)	-0.092	1.244	-0.069	-0.074	.941 ns / Not supported

Note. *** $p < .001$; ns = not significant. Estimation: DWLS with mean-adjusted scaling and shifted test (robust). DA = Awareness of Government Schemes; RE = Scheme Reach and Accessibility; PE = MSME Growth Performance. The negative variance estimates for RE and PE (-0.021 and -0.013 respectively) are an artefact of the DWLS estimator with ordered categorical items and do not invalidate the structural model - Source: Primary Survey. DA = Awareness of Government Schemes; RE = Scheme Reach and Accessibility; PE = MSME Growth Performance. The negative variance estimates for RE and PE (-0.021 and -0.013 respectively) are an artefact of the DWLS estimator with ordered categorical items and do not invalidate the structural model - Source: Primary Survey.

H₁ (DA $\rightarrow$ RE) is strongly supported: the unstandardized path coefficient is $B = 0.914$ (SE = 0.189), standardized $\beta = 1.052$, $z = 4.834$, $p < .001$. This indicates that awareness of government schemes is a powerful and statistically robust predictor of the reach and accessibility of scheme benefits. H₂ (DA $\rightarrow$ PE) and H₃ (RE $\rightarrow$ PE) were not statistically supported at the 0.05 significance level. The large standard errors for H₂ and H₃ reflect the challenge of identifying direct structural paths to performance with a limited sample size of 150.

Effect Size and Practical Significance

Beyond statistical significance, the magnitude of the supported path (H₁: DA $\rightarrow$ RE, standardized $\beta = 1.052$) corresponds to an implied R^2 in excess of 1.0, which exceeds the conventional upper bound

for a standardised coefficient. This pattern is a recognized artifact of DWLS estimation with a single dominant predictor and ordinal indicators exhibiting high inter-item correlation, and it is reported transparently here rather than being smoothed over. The substantive conclusion that awareness of the Make in India schemes is a practically important, not merely statistically detectable, driver of scheme reach nonetheless holds, since even a conservative reading of the unstandardized coefficient ($B = 0.914$) indicates that each one-point improvement in awareness corresponds to a near one-point improvement in reach on the same five-point scale. In contrast, the non-significant paths from awareness to performance (H₂, $\beta = 1.091$, ns) and from reach to performance (H₃, $\beta = -0.069$, ns) carry standard errors large enough, relative to their coefficients,

that no reliable practical claim can be drawn beyond a candidate small-to-negligible direct effect (Cohen's benchmarks: $f^2 < 0.02$ for H_3). For policy purposes, this distinction matters: interventions that raise awareness can be expected to reliably widen scheme reach, but reach alone is not demonstrated here to reliably translate into sales, employment, or production gains, implying that performance outcomes likely depend on additional, unmeasured factors such as credit absorption capacity, technology readiness, and market access, consistent with the post-2025 recent literature discussed in Section 2.5.

Discussion

It has been shown that simply knowing about the Make in India initiatives is not enough to increase the ability to achieve success. MSME's need assistance from institutions to access and use the benefits of these programs. MSME's can benefit from the DIC and MSME's outreach efforts, which simplify how to access assistance and offer support to entrepreneurs. Along with seeking government assistance, MSME's need to use technology and grow their business by finding new customers, paying more than the minimum wage, and providing social security. It is also important to maintain worker welfare (working conditions/wages) and adopt environmentally friendly ways to produce products to achieve the most success, grow as a business, and be successful for many years.

Suggestions

Policy Implications

(i) District Industries Centres and MSME Development Offices should move from generic scheme publicity to targeted, cluster-level outreach in Vellore, Ambur, Vaniyambadi, Ranipet, and Chennai, as awareness is shown to be the strongest lever available to policymakers for widening scheme reach. (ii) Because reach alone did not translate into measurable performance gains, the disbursement of the Union Budget 2025-26 Focus Product Scheme benefits should be paired with post-disbursement handholding-technology adoption support, market linkage assistance, and simplified compliance rather than treated as a one-time transaction. (iii) The TNPCB and CPCB should strengthen monitoring and

technical support for Common Effluent Treatment Plants, given the persistent under-utilization and non-compliance reported in the recent literature. (iv) Occupational health coverage and ESI/PF enrolment should be made a condition of eligibility for scheme benefits to formalize worker welfare gains alongside enterprise growth.

Managerial Implications

(i) MSME owners should treat scheme awareness as a necessary but insufficient condition for growth and proactively pair scheme applications with internal investment in technology adoption and market diversification. (ii) Enterprises should engage directly with DIC and MSME-DO facilitation staff rather than relying solely on passive information channels, as perceived accessibility and actual guidance received are separate constructs in this study's measurement model. (iii) Given the documented link between worker welfare and export competitiveness, firm-level investment in safer tannery processes and stable wage structures should be viewed by owners as a competitiveness strategy rather than solely as a compliance cost.

Future Research Directions

Future studies should (i) extend the sample to unregistered and informal leather units to test whether the awareness-reach-performance chain differs for enterprises outside the Udyam framework; (ii) adopt a longitudinal design spanning the Union Budget 2025-26 implementation period to test causality rather than cross-sectional association; (iii) introduce mediating or moderating variables, such as credit access, technology readiness, and firm size, to explain the non-significant direct paths to performance observed here; and (iv) replicate the model in other Focus Product Scheme-eligible labor-intensive sectors to test the generalizability of the awareness-reach-performance structure.

Conclusions

This study assessed the Make in India initiatives in Tamil Nadu on the growth of Udyam-registered leather and footwear MSME's (150) using SEM analysis. The analysis shows that the impact of awareness of the schemes leads to more scheme

reach and access ($\beta = 1.052$, $p < .001$), while there is an insignificant direct effect of the schemes on the growth performance of MSME's. The findings elucidate that the challenges to the successful implementation of the schemes are more related to how effectively the schemes are implemented rather than how well the schemes are designed. Additional suggestions for increasing the utilization of the schemes and outcomes related to the schemes include increasing the use of institutional support mechanisms, improving digital platforms or similar means of communicating about the schemes, and providing additional awareness programs on the availability of the schemes. The research also emphasizes that to create sustainable growth within the MSME sector, a balance must be struck on all three aspects of business (performance), the nature of employment (welfare of employees), and the environment (sustainability). With improvements in occupational safety, training or skills development, worker security, and a focus on environmental compliance, the sector's competitiveness will be enhanced. The Union Budget 2025-26 Focus Product Scheme has the potential to create many more jobs, increase export sales, and support industrial growth over the next three to five years. This study has certain limitations. The sample of 150 Udyam-registered enterprises, while adequate for the EFA and SEM procedures applied, restricts the statistical power available to detect direct effects on performance and limits generalizability beyond the six clusters surveyed. The cross-sectional design captures relationships at a single point in time and cannot establish a causal direction with certainty. Reliance on self-reported owner/manager perceptions for both scheme awareness and performance outcomes may introduce common method bias, and unregistered leather and footwear units, which constitute a substantial part of the sector, fall outside the sampling frame. These limitations, detailed further under Future Research Directions in Section 7.3, should be considered when interpreting the study findings. This framework could be extended to other sectors of MSME's, and longitudinal studies could be used to understand the longer-term effects of policy support after 2025 on enterprise growth.

References

- Ayyagari, M., et al. "Small and Medium Enterprises across the Globe." *Small Business Economics*, vol. 29, no. 4, 2007, pp. 415-434.
- Beck, T., and A. Demirguc-Kunt. "Small and Medium-Size Enterprises: Access to Finance as a Growth Constraint." *Journal of Banking & Finance*, vol. 30, no. 11, 2006, pp. 2931-2943.
- Chaudhury, B. R., et al. "Study on the Impact of Marketing Mix on Export Performance Vis-a-Vis the Leather Footwear Exporting SMEs of India." *Global Journal of Enterprise Information System*, vol. 7, no. 3, 2015, pp. 28-37.
- Council for Leather Exports. *Indian Leather Industry*. 2024a.
- Council for Leather Exports. *Overview of Indian Leather Industry 2024*. 2024b.
- Department for Promotion of Industry and Internal Trade. *Annual Report 2024-25*. Ministry of Commerce and Industry, Government of India, 2025.
- Dinesh Babu, J., et al. "Make in India — A Prospect of Development for Micro, Small and Medium Enterprises." *Journal of Contemporary Research in Management*, vol. 11, no. 1, 2016, pp. 23-30.
- Djankov, S., et al. "The Regulation of Entry." *Quarterly Journal of Economics*, vol. 117, no. 1, 2002, pp. 1-37.
- Dominic, L. M. et al. "Navigating Resilience: Analyzing Government Policies for Fostering Sustainable MSME Growth in India." *Proceedings on Engineering Sciences*, vol. 6, no. 2, 2024, pp. 467-476.
- Dubey, A., and N. Yajurvedi. "A Study on Factors Affecting Exports of Leather Footwear as a Strong Initiative of Make in India." *Journal of Survey in Fisheries Sciences*, vol. 10, no. 1, 2023, pp. 1558-1565.
- Epskamp, S., et al. *semPlot: Path Diagrams and Visual Analysis of Various SEM Packages Output*. R Package, 2019.
- Gallucci, M., and S. Jentschke. *SEMLj: jamovi SEM Analysis*. jamovi module, 2021.
- Government of India, Ministry of Finance. *Union*

- Budget 2025–26: Budget Speech*. Ministry of Finance, 2025.
- Gowtham, S., et al. "Prevalence of Musculoskeletal Disorders and Associated Risk Factors among Leather Factory Workers in Chengalpattu District, Tamil Nadu, India: A Cross-Sectional Study." *Cureus*, vol. 17, no. 11, 2025, e95931.
- Hair, J. F., et al. *Multivariate Data Analysis*. 8th ed., Cengage Learning, 2019.
- Hu, L., and P. M. Bentler. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis." *Structural Equation Modeling*, vol. 6, no. 1, 1999, pp. 1–55.
- International Labour Organization. *Occupational Safety and Health in the Leather Sector*. ILO Publications, 2016.
- Jha, S. "Environmental Regulations and Their Impact on the Leather Industry in Tamil Nadu." *Environmental Policy and Governance*, vol. 29, no. 4, 2019, pp. 253–265.
- Kadian, R., and A. Chahal. "Make India Innovative and Competitive: Role of MSMEs." *International Journal of Research in Social Sciences and Humanities*, vol. 5, no. 3, 2015, pp. 65–73.
- Kaiser, H. F. "An Index of Factorial Simplicity." *Psychometrika*, vol. 39, no. 1, 1974, pp. 31–36.
- Kapur, D., and M. Vaishnav. *Digital Public Infrastructure and MSME Development in India*. Centre for Policy Research Studies, 2021.
- Kumar, R., and P. Singh. "Automation and Skill Demand in Indian Leather Industry: A Regional Analysis." *Manufacturing & Service Operations Management*, vol. 22, no. 1, 2020, pp. 137–152.
- Martinravi, C. P., and K. Krishnasamy. "Unleashing the Potential of MSMEs in India: A Strategic Analysis." *Journal of the International Council for Small Business*, vol. 6, no. 1, 2025, pp. 123–143.
- Ministry of Micro, Small and Medium Enterprises. *Annual Report on MSMEs in the Leather Sector*. Government of India, 2021.
- Muthén, B. O. "A General Structural Equation Model with Dichotomous, Ordered Categorical, and Continuous Latent Variable Indicators." *Psychometrika*, vol. 49, no. 1, 1984, pp. 115–132.
- National Skill Development Corporation. *Leather Sector Skill Development Program: Annual Review*. 2020.
- Nunnally, J. C. *Psychometric Theory*. 2nd ed., McGraw-Hill, 1978.
- Organisation for Economic Co-operation and Development. *Enhancing the Contributions of SMEs in a Global and Digitalised Economy*. OECD Publishing, 2017.
- Organisation for Economic Co-operation and Development. *Digitalisation and SMEs: An OECD Assessment of the State of Play*. OECD Publishing, 2019.
- Press Information Bureau. "A New 'Focus Product Scheme' for Footwear & Leather Sectors." Ministry of Finance, Government of India, 1 Feb. 2025.
- R Core Team. *R: A Language and Environment for Statistical Computing*. Version 4.5, computer software, 2025.
- Rahul, S., et al. "Upgrading for Sustainability: The Human–Technology Nexus in Tamil Nadu's Leather Clusters." *Business Strategy & Development*, vol. 9, no. 1, 2026, e70308.
- Rodrik, D. *One Economics, Many Recipes: Globalisation, Institutions and Economic Growth*. Princeton University Press, 2008.
- Rosseel, Y. "lavaan: An R Package for Structural Equation Modeling." *Journal of Statistical Software*, vol. 48, no. 2, 2012, pp. 1–36.
- Sahu, P., et al. "Waste Management and Salt Recovery from Solid Residue of Tannery Common Effluent Treatment Plant." *Indian Chemical Engineer*, 2024, pp. 1–13.
- Singh, A., and H. Gundimeda. "Analysing Drivers of Efficiency in the Leather Industry: A Two-Stage Double Bootstrap DEA Approach." *Benchmarking: An International Journal*, vol. 29, no. 9, 2021, pp. 2780–2805.
- Storey, D. J. *Understanding the Small Business Sector*. Routledge, 1994.
- Storey, D. J. "Entrepreneurship, Small and Medium

- Sized Enterprises and Public Policies.” *Handbook of Entrepreneurship Research*, edited by Z. J. Acs and D. B. Audretsch, Springer, 2003, pp. 473-511.
- Syverson, C. “What Determines Productivity?” *Journal of Economic Literature*, vol. 49, no. 2, 2011, pp. 326-365.
- Tamil Nadu Pollution Control Board. *Environmental Compliance Report for Leather Units*. 2020.
- The jamovi project. *jamovi*. Version 2.7, computer software, 2025.
- Thiripurasundari, K., and C. Ponsakthisurya. “Future Prospects of Indian Leather Industry.” *International Journal of Advanced Research*, vol. 5, no. 9, 2017, pp. 1713-1717.
- Wheaton, B., et al. Summers. “Assessing Reliability and Stability in Panel Models.” *Sociological Methodology*, vol. 8, 1977, pp. 84-136.
- World Bank. *India’s Leather Industry: Drivers of Growth and Employment*. World Bank Publications, 2018.
- Yoganandham, G., and M. Kalaivani. “Challenges and Prospects of Leather and Leather Goods Manufacturing Workers in Tamil Nadu: Implications for Production, Sales, and Exports — An Empirical Analysis.” *Science, Technology and Development*, vol. 14, no. 6, 2025, pp. 1-17.

Author Details

R. Parkavi, Research Scholar, Department of Commerce, Alagappa University, Karaikudi, Tamil Nadu, India, **Email ID:** parkavirphd@alagappauniversity.ac.in

G. Vinayagamoorthi, Assistant Professor, Department of Commerce, Alagappa University, Karaikudi, Tamil Nadu, India.