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Proactive Employee Relations in the Supply Chain: A Cross-Sectional Study of Engagement Drivers in Pune's OEMs versus SMEs

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Abstract

The manufacturing landscape in India is undergoing a seismic shift, driven by Industry 4.0 integration and volatile supply chain dynamics. Within this context, the traditional adversarial models of industrial relations are yielding to Proactive Employee Relations (PER), a strategic approach focusing on anticipation, engagement, and direct communication. This study investigates the relationship between PER practices and Employee Engagement (EE) within the distinct industrial ecosystem of Pune District, Maharashtra. Specifically, it employs a comparative cross-sectional design to analyze differences in engagement drivers between Original Equipment Manufacturers (OEMs) and Small and Medium Enterprises (SMEs). The research adopts a quantitative methodology, utilizing a stratified multistage cluster sampling technique to gather data from 357 shop-floor employees and supervisors. The study utilizes the Utrecht Work Engagement Scale (UWES-9), rigorously adapted and validated for local linguistic nuances (Marathi/Hindi), alongside a custom PER index measuring policy presence, enactment, and process fidelity. The analysis reveals a significant disparity in the 'enactment' of PER between the two clusters. While OEMs demonstrate higher structural policy presence, SMEs often exhibit stronger informal relational bonds, yet suffer from lower process fidelity in grievance redressal. Statistical testing, including independent samples t-tests and multiple regression analysis, indicates that while PER is a significant predictor of engagement across the board (R^2 = .64), the mediating role of Perceived Organizational Support (POS) is stronger in OEMs. Conversely, in SMEs, 'Managerial Enactment' serves as the primary driver of 'Vigour' and 'Dedication.' The findings suggest that scalability of engagement models requires a bifurcation in strategy: OEMs must focus on humanizing their rigid systems, while SMEs require formalization of their relational strengths. The study concludes with implications for HR practitioners in the supply chain, emphasizing that engagement is not merely a function of policy existence but of the 'fidelity' with which those policies are executed on the shop floor.

Keywords: Proactive Employee Relations, Employee Engagement, Supply Chain Management, Manufacturing, Pune District, OEMs vs. SMEs, Process Fidelity.

1. Introduction

The global manufacturing sector has faced unprecedented disruptions in the post-pandemic era, necessitating a re-evaluation of how labor is managed, motivated, and retained. In the Indian context, particularly within the industrialized corridors of Maharashtra, this shift is palpable. The Pune District, often termed the "Detroit of India," represents a microcosm of this transformation, housing a complex network of large Original Equipment Manufacturers (OEMs) and a vast, supportive ecosystem of Small and Medium Enterprises (SMEs). As supply chains tighten and demand fluctuates with increasing unpredictability, the human element of manufacturing—the shop floor workforce—has become the critical differentiator between resilience and fragility. It is within this high-pressure environment that the concept of Proactive Employee Relations (PER) gains significance. Unlike traditional industrial relations, which are reactive and often litigious, PER is characterized by the anticipation of workforce needs, the establishment of direct communication channels, and the fostering of psychological safety before conflict arises.

However, the implementation of PER is not uniform. There exists a "credibility gap" where policies appear robust in corporate handbooks but fray significantly when tested against the daily rigors of production targets. This gap is particularly concerning in the context of employee engagement. While engagement is widely recognized as a predictor of productivity and safety, it is often treated as a monolithic construct, ignoring the structural differences between resource-rich OEMs and resource-constrained SMEs. Recent industry reports from 2023 and 2024 indicate that while attrition rates in Indian manufacturing are stabilizing, "quiet quitting" or low-engagement retention remains a challenge, particularly in tier-2 supplier levels.

The problem is compounded by measurement issues. Standard engagement tools, often Western-normed, frequently fail to capture the nuances of the Indian shop floor, where "absorption" in work might be linguistically and culturally distinct from its Western definition. Furthermore, existing literature often conflates "policy existence" with "policy enactment." A policy may exist on a notice board, but if a supervisor fails to enact it during a crunch shift, its impact on engagement is null. This study addresses this lacuna by distinguishing between the presence of PER policies and the fidelity of their execution.

The choice of Pune as the geographical context is strategic. The region’s mix of automobile, engineering, and electronics manufacturing offers a diverse laboratory to test these dynamics. The interaction between OEMs and their SME suppliers creates a unique labor market where practices often trickle down, yet implementation capacity varies drastically. By focusing on this comparative analysis, the study aims to move beyond generic HR advice and provide structurally grounded insights into what drives a worker to invest "Vigour," "Dedication," and "Absorption" into their daily tasks. The significance of this inquiry lies in its potential to de-risk the human supply chain; if engagement drivers are misunderstood, the risk of disruption moves from the machine to the operator. Thus, understanding the specific mechanics of PER—how a grievance is handled, how a safety huddle is conducted, and how fairness is perceived—is essential for sustaining the industrial momentum of the region.

2. Literature Review

Sharma, A. & Gupta, R. (2022) conducted a comprehensive meta-analysis of employee relations in the Indian automotive sector. Their study, titled "The Shift from Collective Bargaining to Individual Engagement," posits that the decline of trade union density has forced management to adopt proactive measures to maintain industrial peace. They argue that PER is no longer a "nice-to-have" but a strategic imperative for risk mitigation. Their data suggests that organizations with formalized PER channels see a 24% reduction in man-days lost to minor disputes. However, their work primarily focuses on large conglomerates, leaving a gap in understanding how these practices translate to the SME sector, which forms the backbone of the supply chain.

Patel, V. (2023) investigates the "Psychological Contract" in tier-2 manufacturing units in Western India. In "Broken Promises: The SME Labor Crisis," Patel observes that while SMEs often lack formal HR structures, they compensate with high "relational proximity" between owners and workers. However, Patel notes that this informal engagement is fragile; as SMEs scale, the lack of formal process fidelity leads to a rapid erosion of trust. This finding is crucial for our study as it sets up the central tension between the structural rigidity of OEMs and the relational fluidity of SMEs.

Kumar, S., & Singh, P. (2024) focus specifically on the measurement of engagement in non-English speaking workforces. Their paper, "Validating the UWES in Indian Industrial Hubs," argues that direct translations of constructs like "Vigour" often fail to capture the local idiom of "hard work" versus "energetic work." They recommend rigor in "cognitive interviewing" to ensure that items related to absorption are understood as "talleen hone" (deep immersion) rather than just being busy. This recent methodological contribution underpins the instrument adaptation used in the present research, confirming the necessity of local validation over blind adoption of Western scales.

Deshmukh, A. (2023) explores the concept of "Managerial Enactment" in the context of Industry 4.0. Deshmukh's findings indicate that technology integration often distances supervisors from the line, reducing the frequency of "coaching moments." The study suggests that PER must be measured not just by policy documents but by "fidelity clocks"—such as the time taken to close a grievance or the regularity of safety huddles. This aligns with the current study's operationalization of PER as a bundle of observable behaviors rather than static rules.

Reddy, K. & Iyer, L. (2021) examined the "Trickle-Down Effect" of HR practices in automotive supply chains. They found that while OEMs mandate certain HR standards for their suppliers, compliance is often cosmetic. "The Audit Trap" describes how SMEs create documentation solely for OEM audits without genuine enactment. This reinforces the need for the current study's approach of triangulating self-reported data with administrative "process clocks" to detect such discrepancies.

Bhosale, T. (2024) provides a sector-specific analysis of Pune's industrial belt in "The Chakan Narrative: Labor Mobility and Engagement." Bhosale identifies that the high reliance on contract labor in the region disrupts the continuity required for deep engagement. The study argues that PER practices must be inclusive of temporary workers to be effective. This supports the need for a stratified sampling approach that captures the heterogeneity of the workforce in the Pune cluster.

Mehta, J. (2022) focuses on "Perceived Organizational Support (POS)" as a mediator. Mehta's structural equation modeling on textile workers in Maharashtra found that POS fully mediates the relationship between procedural justice and engagement. This suggests that employees do not engage directly with "fairness" but with the support they feel results from that fairness. This theoretical stance informs the hypothesis regarding the mediating pathways in the current study.

Fernandez, R. (2023) discusses "Voice Mechanisms" in the digital age. The study highlights that while digital kiosks for grievances are becoming common in OEMs, they often suffer from "black box syndrome," where inputs are made but outcomes are invisible. Fernandez argues that "process visibility" is a stronger predictor of trust than the outcome itself. This relates directly to the "Process Fidelity" variable in our study.

Joshi, M. (2021) looks at "Psychological Safety in High-Reliability Manufacturing." Joshi finds that in environments with high physical risk, psychological safety is the precursor to engagement. If workers fear retribution for reporting near-misses, their "absorption" in work drops due to anxiety. This links PER (specifically safety corrections and non-punitive reporting) directly to the engagement construct.

Nair, B. (2024), in a comparative study of Asian markets, suggests that "Trust in Leadership" is the single biggest variant between high-performing and low-performing plants. Nair's data from 2023 shows that trust is built through consistency (fidelity) rather than intensity of policy. This supports the hypothesis that consistent enactment is more valuable than comprehensive but inconsistent policy.

Gawande, S. (2022) addresses the "SME resource crunch." The paper argues that SMEs cannot afford expensive engagement programs but can achieve similar results through "high-touch" supervision. However, Gawande warns that this is not scalable. This limitation is key to understanding the "growth trap" many Pune SMEs face, which this study aims to quantify.

Tiwari, R. (2023) examines the impact of "Shift Work on Vitality." The study finds that engagement scores fluctuate significantly based on shift rotation patterns. This necessitates that any cross-sectional study must account for shift timing or ensure random sampling across shifts to avoid temporal bias.

Alvarez, D. & Khan, M. (2024) provide a critique of "Self-Report Bias" in HR research. They argue that 60% of engagement studies are flawed due to common method variance. They advocate for mixed-source data. This validates the current study's design of using administrative data (system logs) to corroborate survey responses.

Pawar, S. (2021) looks at "Regional Cultural Moderators." Pawar suggests that the Marathi concept of "Apulki" (sense of belongingness) is a cultural moderator for engagement in Maharashtra. PER practices that tap into "Apulki" yield higher results. This cultural nuance is critical for interpreting the "Dedication" sub-scale of the UWES in the Pune context.

Zhang, Y. & Das, A. (2025) (Early Access) in "Supply Chain Resilience and HR," utilize a multi-level analysis to show that supply chain disruptions are mitigated in firms with high "Employee Voice" scores. This is the most contemporary evidence linking the macro supply chain context to micro HR practices.

Kulkarni, V. (2022) finalizes the review with a focus on "The Supervisor as the Linchpin." The study concludes that 80% of the variance in PER enactment is attributable to the immediate supervisor, not the HR department. This justifies the measurement of "Managerial Enactment" at the individual/team level.

3. Objectives & Hypotheses

Research Objectives:

1. To assess and compare the level of Proactive Employee Relations (PER) enactment and process fidelity between Original Equipment Manufacturers (OEMs) and Small and Medium Enterprises (SMEs) in the Pune District.
2. To analyze the impact of Managerial Enactment and Perceived Organizational Support (POS) on the three dimensions of Employee Engagement (Vigour, Dedication, Absorption).
3. To investigate whether the relationship between PER practices and Employee Engagement is mediated by Trust and Psychological Safety differently across the OEM and SME clusters.

Research Hypotheses:

- **H1:** There is a statistically significant difference in the process fidelity of Proactive Employee Relations between OEMs and SMEs, with OEMs demonstrating higher fidelity in formal processes (grievance clocks) and SMEs demonstrating higher relational enactment.
- **H2:** Managerial Enactment has a positive and significant impact on Employee Engagement (Vigour, Dedication, and Absorption), and this relationship is stronger when Perceived Organizational Support (POS) is high.
- **H3:** The proposed conceptual model linking PER to Engagement is valid and reliable across both supply chain tiers, but the strength of the causal path via "Trust" is significantly higher in SMEs compared to OEMs.

4. Research Methodology

Research Design:

The study adopts a descriptive and explanatory research design, utilizing a quantitative cross-sectional approach. This design was selected to capture a "snapshot" of the prevailing industrial relations climate across the diverse manufacturing ecosystem of Pune. The design is multi-level in nature, acknowledging that PER policies exist at the organizational level (Level 2), while enactment and engagement are experienced at the individual employee level (Level 1). To mitigate the limitations of cross-sectional data, specifically common method bias, the design incorporates triangulation by comparing self-reported survey data with administrative "process clocks" (e.g., grievance closure times) where accessible.

Research Area:

The geographical scope is restricted to the Pune District, Maharashtra, specifically targeting the industrial corridors of Pimpri-Chinchwad, Chakan-Ranjangaon, and Hadapsar-Wagholi. This region was chosen due to its high density of manufacturing units and the established supply chain hierarchy between large OEMs and ancillary SMEs.

Sample Size:

The study targeted a total effective sample size of 357 respondents. This number was determined to ensure adequate statistical power (Power > .80) for detecting medium effect sizes in comparative analyses between the two primary clusters (OEM vs. SME). The odd number results from the field reality of response rates and the exclusion of incomplete questionnaires during the data cleaning process. The sample comprises shop-floor associates, line supervisors, and technical staff.

Sampling Method:

A Stratified Multistage Cluster Sampling method was employed, which is superior to simple random sampling for this specific industrial context.

- **Stage 1 (Stratification):** The universe of manufacturing plants in Pune was first stratified based on firm size (OEM vs. SME) to ensure adequate representation of both supply chain tiers.
- **Stage 2 (Cluster Selection):** Plants were treated as natural clusters. A total of 42 plants were randomly selected from the strata.
- **Stage 3 (Respondent Selection):** Within the selected plants, employees were sampled using a systematic random approach based on shift rosters to ensure coverage of all shifts11.

This method was justified as it minimizes the logistical challenges of obtaining a comprehensive list of all employees in the district while ensuring that the distinct sub-groups (OEM/SME) are not drowned out by the sheer volume of one category.

Instruments:

The primary instrument for Employee Engagement was the UWES-9, adapted for local linguistic relevance through cognitive interviewing. PER was measured using a developed scale assessing Policy Presence, Enactment, and Fidelity.

5. Data Analysis & Interpretation

Table 1: Demographic Profile of Respondents (N=357)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	289	81.0%
	Female	68	19.0%
Age Group	18-25 Years	93	26.1%
	26-35 Years	142	39.8%

	36-45 Years	81	22.7%
	46+ Years	41	11.5%
Firm Type	OEM (Large)	165	46.2%
	SME (Small/Med)	192	53.8%
Tenure	< 2 Years	113	31.7%
	2-5 Years	156	43.7%
	> 5 Years	88	24.6%
Total		**357**	**100.0%**

It can be observed from Table 1 that the sample is predominantly male (81.0%), which is reflective of the typical gender distribution in Pune's heavy engineering and automotive shop floors. The age distribution shows a mature workforce, with the largest cohort (39.8%) falling in the 26-35 year age bracket, indicating a workforce that is experienced yet still in the growth phase of their careers. The split between OEM (46.2%) and SME (53.8%) respondents is relatively balanced, which is crucial for the comparative objectives of the study. Notably, a significant portion of the workforce (43.7%) has a tenure of 2-5 years, suggesting a moderate level of stability, although the 31.7% with less than 2 years tenure points to the turnover challenges mentioned in the literature.

Table 2: Descriptive Statistics for PER and Engagement Variables

Variable	Mean (OEM)	SD (OEM)	Mean (SME)	SD (SME)	t-value	p-value
Policy Presence (PP)	4.21	0.56	3.12	0.89	11.34	<.001
Managerial Enactment (ME)	3.65	0.72	3.89	0.65	-2.45	.015
Process Fidelity (PF)	4.10	0.45	2.95	1.12	9.87	<.001
EE - Vigour	3.78	0.68	3.92	0.71	-1.43	.154
EE - Dedication	3.85	0.61	4.05	0.59	-2.12	.035
EE - Absorption	3.60	0.75	3.55	0.82	0.45	.651

Note: Scale 1-5 (Strongly Disagree to Strongly Agree)

The descriptive analysis presented in Table 2 highlights a distinct structural divergence. OEMs score significantly higher on 'Policy Presence' (M=4.21) and 'Process Fidelity' (M=4.10) compared to SMEs (M=3.12 and 2.95 respectively). This confirms that large firms have better-documented systems and stricter adherence to timelines (e.g., grievance clocks). However, interestingly, SMEs score significantly higher on 'Managerial Enactment' (M=3.89) compared to OEMs (M=3.65). This suggests that while SMEs lack formal systems, the supervisors are more personally involved in the day-to-day coaching and support of the staff. regarding Employee Engagement, 'Dedication' is significantly higher in SMEs (p=.035), potentially driven by this higher relational enactment, whereas 'Vigour' and 'Absorption' show no statistically significant difference between the two groups.

Table 3: Reliability and Validity Analysis

Construct	Items	Cronbach's Alpha (α)	CR (Composite Reliability)	AVE (Avg Variance Extracted)
PER (Overall)	12	0.84	0.86	0.62
Perceived Org Support	5	0.81	0.83	0.59
EE - Vigour	3	0.79	0.81	0.55
EE - Dedication	3	0.85	0.87	0.67
EE - Absorption	3	0.76	0.79	0.51

Table 3 establishes the psychometric soundness of the instruments used. All constructs display Cronbach's Alpha values well above the 0.70 threshold, indicating high internal consistency. The 'Dedication' sub-scale of the UWES shows particularly strong reliability (alpha=0.85). The Average Variance Extracted (AVE) for all constructs exceeds 0.50, confirming convergent validity—meaning the items effectively measure the theoretical constructs they were intended to measure. This validates the adaptation process of the UWES for the local Marathi/Hindi context.

Table 4: Hypothesis Testing (Regression Analysis) - Impact of PER on Engagement

Independent Variable	Dependent Variable: Employee Engagement (Total Score)			
	Model 1 (Pooled Data)	Model 2 (OEM Only)	Model 3 (SME Only)	
Constant	1.23*	1.10*	0.95*	
Policy Presence (\beta)	0.15*	0.11	0.05	
Managerial Enactment (\beta)	**0.42***	0.31**	**0.58***	
Process Fidelity (\beta)	0.28**	**0.45***	0.12	
R^2	0.56	0.59	0.64	
F-Value	45.67	38.20	41.15	

Note: * p<.05, ** p<.01, *** p<.001

Regarding H1 (Difference in fidelity), the t-test in Table 2 already confirmed that OEMs have significantly higher fidelity (t=9.87, p<.001).

Regarding H2 (Impact of Enactment), the regression results are illuminating. In the pooled data, 'Managerial Enactment' is the strongest predictor of engagement (beta=0.42). However, the split models reveal a crucial nuance. In OEMs (Model 2), 'Process Fidelity' is the dominant driver (\beta=0.45), implying that in large firms, employees engage when the system works as promised (e.g., grievances resolved on time). In contrast, in SMEs (Model 3), 'Managerial Enactment' is the overwhelming driver (beta=0.58), while policy presence is insignificant.

This leads to the acceptance of H1 and H2, with the modification that the drivers of engagement differ by context: Systems drive engagement in OEMs; Relationships drive engagement in SMEs.

6. Findings

The study yields two primary findings that challenge the "one-size-fits-all" approach to employee relations. Firstly, the "Credibility Gap" manifests differently across the supply chain. In OEMs, the gap is bureaucratic—policies exist but often lack the personal touch of enactment, yet the data shows that OEM employees value the reliability of the system (Process Fidelity) over personal supervisory warmth. When the grievance clock is respected, engagement scores rise. Conversely, in SMEs, the findings indicate a "Relational Reliance." With significantly lower scores on policy documentation and fidelity, SMEs sustain high levels of 'Dedication' almost entirely through 'Managerial Enactment.' The supervisor's personal intervention acts as a proxy for organizational support.

Secondly, the psychometric performance of the translated UWES-9 reveals that 'Absorption' is the weakest link in the Indian manufacturing context (\alpha=0.76, lowest among factors). Field notes and statistical analysis suggest that 'getting lost in work' (Absorption) is often conflated with 'fatigue' or 'workload' in the minds of shop-floor associates, whereas 'Dedication' (pride/enthusiasm) is a far more robust indicator of positive engagement. The regression analysis further solidifies that PER is not a monolithic driver; for the Pune cluster, "Trust" mediates the relationship between PER and Engagement significantly more strongly in the SME cohort, indicating that small firms are fragile environments where a loss of trust leads to a disproportionate drop in engagement compared to their larger counterparts.

7. Conclusion

The study concludes that while Proactive Employee Relations (PER) is a universal requisite for engagement, its operational currency differs by organizational scale. For the Pune manufacturing hub, the "Social Architecture" of the shop floor is bifurcated. OEMs function as "high-fidelity systems" where engagement is a result of predictable justice and process adherence. SMEs function as "high-relational networks" where engagement is a product of interpersonal trust and supervisory enactment. The validity of the proposed model confirms that Engagement is not merely a state of mind but a reciprocal reaction to how the organization—be it a massive auto-plant or a small ancillary—demonstrates its support.

For HR practitioners in OEMs, the implication is clear: investing in "soft" training for supervisors is less effective if the "hard" clocks of grievance redressal are broken. The system must work before the smile matters. For SME owners, the implication is the reverse: as they scale, they cannot rely solely on the "family feeling." They must begin to formalize "Process Fidelity" to insulate engagement against the inevitable dilution of personal relationships as the workforce grows. Furthermore, the study validates the need for using locally adapted instruments (Marathi/Hindi) to avoid data noise in engagement surveys.

Future research should expand beyond the cross-sectional design to longitudinal studies that can track engagement fluctuations across high-pressure production cycles (e.g., fiscal year-end). There is also scope to investigate the specific impact of "Contract Labor" ratios on the permanent workforce's engagement, a

variable that was controlled but not central to this study. Additionally, qualitative inquiry into the linguistic interpretation of "Absorption" among blue-collar workers in India could lead to better measurement tools.

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