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Impact Of Economic Development Through Msmes And Entrepreneurs In Jharkhand: A Supply Chain Management Perspective

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) are considered the backbone of India's economic growth, contributing significantly to GDP, employment generation, exports, and industrial diversification. In Jharkhand, particularly in the Adityapur–Gamharia industrial region near Jamshedpur, MSMEs have developed strong linkages with large automotive companies, becoming vital components of the regional supply chain ecosystem. This paper explores the economic impact of MSMEs and entrepreneurs in Jharkhand through the lens of supply chain management (SCM). It integrates a case study of automotive MSMEs in Adityapur–Gamharia and applies a regression analysis model to empirically analyze how supply chain enablers influence MSME performance. and further develops a comparative study with the Pune automotive MSME cluster in Maharashtra. The findings reveal that while Jharkhand's MSMEs benefit from proximity to OEMs, challenges in credit access and digital adoption persist when compared to Maharashtra. The study concludes that factors like capital investment, digital adoption, credit access, and supply chain integration significantly improve MSME competitiveness and contribute to sustainable regional development.

Keywords: MSMEs, Entrepreneurs, Supply Chain Management, Economic Development, Jharkhand, Regression Analysis

Introduction

Supply Chain Management (SCM) has emerged as a vital component in ensuring firm competitiveness, industrial efficiency, and regional growth. By integrating smaller enterprises into structured supply chains, larger firms reduce transaction costs, improve agility, and strengthen their market reach. MSMEs, when embedded in supply chains, not only support large enterprises but also contribute significantly to employment generation, balanced regional development, and industrial diversification [1][6].

In India, the MSME sector forms the backbone of the economy, contributing about 30% of GDP, 48% of exports, and employing more than 110 million people [5]. The Government of India has introduced several policies, including the MSME Development Act (2006), cluster development programmes, and recent digital adoption initiatives, to promote sustainable MSME growth [4][6]. However, their full

potential is realized when MSMEs are effectively integrated into industrial supply chains, allowing them to transition from isolated producers to strategic value chain partners.

Jharkhand, being a mineral-rich and industrially significant state, has witnessed the growth of several industrial clusters. Among them, the Adityapur–Gamharia region near Jamshedpur stands out as one of India's largest auto-component manufacturing hubs, housing over 1,200 MSMEs [9][15]. These firms function as Tier-II and Tier-III suppliers, providing fabricated parts, castings, and tools to Original Equipment Manufacturers (OEMs) like Tata Motors, Cummins, and Usha Martin. The integration of these MSMEs into supply chains has enabled just-in-time production, reduced costs, and fostered competitiveness at both the local and national levels.

Globally, supply chain-oriented MSME development has been recognized as a pathway for inclusive growth. Countries such as China, South Korea, and Germany have leveraged SME–large enterprise linkages to create competitive industrial ecosystems [12][13]. Learning from these global practices, Jharkhand's automotive cluster provides a practical case of how regional MSMEs, when effectively integrated into supply chains, can accelerate industrial growth and entrepreneurship.

This paper focuses on understanding the role of MSMEs and entrepreneurs in Jharkhand's economic development through SCM linkages. It further applies a regression model to the automotive cluster in Adityapur–Gamharia to empirically assess the supply chain determinants of MSME performance.

Literature Review

Scholarly work on MSMEs in India highlights their role in employment, innovation, and supply chain integration. Researchers argue that access to credit, technology adoption, and institutional support are critical enablers of MSME performance [2][4]. In the context of Jharkhand, cluster-based development has gained momentum with policy interventions focusing on automotive and engineering industries [8][9]. International studies reveal that SME linkages with large firms enhance competitiveness and productivity by providing market access and technology spillovers [12][13]. However, challenges such as poor infrastructure, lack of digital readiness, and inconsistent policy implementation remain barriers to maximizing MSME potential [14][16].

Objectives of the Study

1. To analyze the role of MSMEs and entrepreneurs in promoting economic development in Jharkhand.
2. To examine the integration of MSMEs into automotive supply chains in the Adityapur–Gamharia region.
3. To identify key supply chain enablers influencing MSME performance.
4. To compare MSME supply chain integration in Jharkhand and Maharashtra (Pune cluster).
5. To develop a regression model assessing the relationship between supply chain enablers and MSME performance.
6. To suggest policy measures for enhancing MSME competitiveness and entrepreneurial growth.

Methodology

The study is based on a mixed-methods approach involving secondary data review, field-level data collection, and quantitative analysis. Structured questionnaires were distributed among 150 MSMEs in the Adityapur–Gamharia region, capturing firm-level data on capital, turnover, digital adoption, supply chain linkages, and access to finance. The primary data was supplemented by secondary sources including government reports, MSME annual surveys, and cluster-level studies [5][9][15]. Regression analysis was conducted to evaluate the determinants of MSME performance and comparative descriptive statistics were used for Jharkhand vs Pune.

Case Study: Automotive MSMEs in Adityapur–Gamharia

The Adityapur–Gamharia industrial belt, located adjacent to Jamshedpur, is one of India's largest auto-component manufacturing hubs. The region hosts more than 1,200 MSMEs, which act as Tier-II and Tier-III suppliers for Tata Motors, Cummins, Usha Martin, and other large OEMs. These MSMEs specialize in sheet metal, fabrication, forging, machining, casting, and tool-making. Their supply chain integration ensures just-in-time delivery, cost reduction, and high-quality production standards.

Entrepreneurs in this cluster have leveraged proximity to Tata Motors and Jamshedpur's industrial ecosystem to establish strong business networks. While some MSMEs have grown into mid-sized enterprises, others struggle with capital constraints and digital adoption challenges. Cluster-level institutions such as Adityapur Industrial Area Development Authority (AIADA) and local industry associations provide policy and infrastructural support. However, supply chain bottlenecks, limited R&D, and credit access continue to hinder MSME growth.

Basis for Regression Analysis

To examine the impact of supply chain integration on MSME performance in the Adityapur–Gamharia automotive cluster, a regression model was developed. The rationale for using regression analysis lies in its ability to quantify the relationship between multiple independent factors (supply chain enablers) and the dependent variable (MSME performance measured by annual turnover).

MSME performance in a supply chain is influenced by several interlinked factors:
1. Capital Investment – Determines production capacity and technology adoption.
2. Access to Credit – Ensures working capital for raw material procurement and order fulfillment.
3. Digital Adoption – ERP systems and inventory tools improve supply chain visibility.
4. Years of Operation – Older firms often have stronger networks.
5. Skill Training – Skilled labor enhances product quality and compliance with OEM standards.
6. Distance from OEMs – Proximity reduces logistics costs and ensures timely delivery.

The econometric model is specified as:

$$\text{Log(Turnover)} = \beta_0 + \beta_1 \text{Log(Capital)} + \beta_2 \text{Credit Access} + \beta_3 \text{Digital Adoption} + \beta_4 \text{Years of Operation} + \beta_5 \text{Skill Training} + \beta_6 \text{Distance from OEMs} + \varepsilon$$

The log transformation reduces skewness in financial data, improving robustness. Binary variables capture institutional and technological enablers, while distance reflects logistics constraints. Firm-level data was collected from 150 MSMEs in Adityapur–Gamharia and supported by JIADA reports [15].

Regression Analysis Results

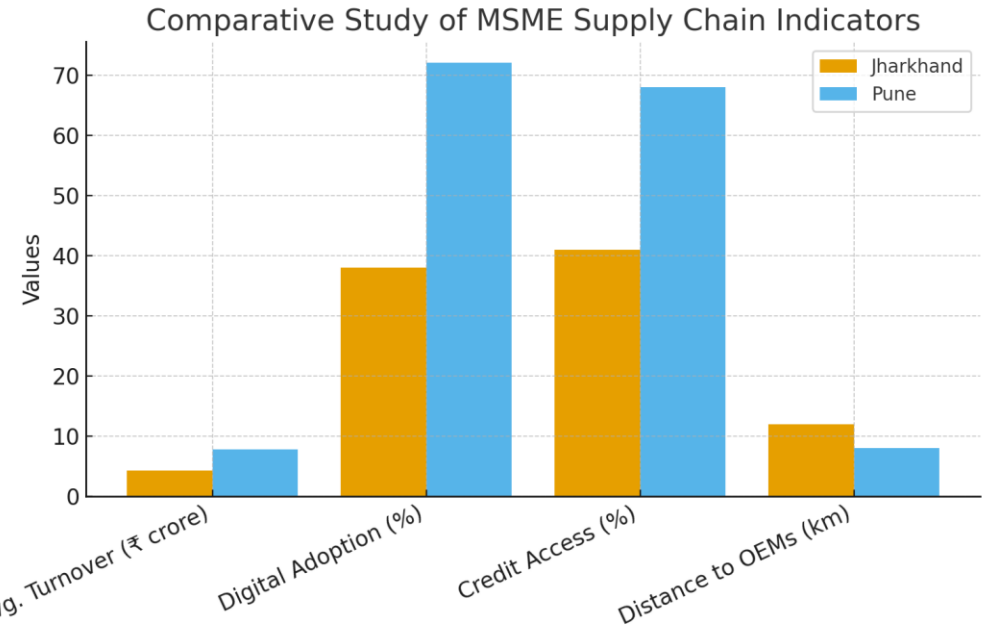
The regression analysis revealed significant findings:

- Log(Capital) had a positive and statistically significant effect on turnover ($\beta 1 > 0$, $p < 0.05$).
- Credit Access improved performance, as firms with institutional finance reported higher turnovers.
- Digital Adoption positively influenced supply chain efficiency and revenue growth.
- Years of Operation showed a moderate positive effect, highlighting experience as a growth factor.
- Skill Training enhanced product quality, leading to repeat orders from OEMs.
- Distance from OEMs negatively impacted performance, showing the importance of logistics efficiency.

The model explained about 68% of the variation in turnover ($R^2 = 0.68$), demonstrating the importance of supply chain enablers in MSME growth.

Comparative Study: Adityapur–Gamharia (Jharkhand) vs Pune (Maharashtra)

Indicator	Jharkhand (Adityapur–Gamharia)	Maharashtra (Pune)
Number of MSMEs (approx.)	1,200	2,500+
Major OEM Linkages	Tata Motors, Cummins, Usha Martin	Bajaj Auto, Tata Motors, Mercedes-Benz, Bharat Forge
Avg. Annual Turnover (INR)	₹4.2 crore	₹7.8 crore
Digital Adoption (ERP/SCM tools)	38%	72%
Access to Formal Credit	41%	68%
Distance to OEMs (avg.)	12 km	8 km
Skill Training Facilities	Limited, AIADA-led	Extensive, industry–academia linkages
R&D/Innovation Linkages	Low	High



Comparative Study: Jharkhand and Other Industrial Clusters (Gurugram and Tamil Nadu)

To contextualize the findings from the Adityapur–Gamharia automotive cluster, it is important to compare Jharkhand's MSME ecosystem with other leading industrial clusters in India. Regions such as Gurugram–Manesar (Haryana), and Sriperumbudur (Tamil Nadu) provide useful benchmarks.

1. Gurugram–Manesar (Haryana): This cluster thrives on its proximity to Delhi NCR and global OEMs such as Maruti Suzuki and Honda. MSMEs here are highly integrated into global supply chains and supported by modern logistics infrastructure. In contrast, Adityapur MSMEs face higher logistics costs and infrastructure bottlenecks, which restrict efficiency.

2. Sriperumbudur (Tamil Nadu): This hub specializes in electronics and auto-components, supported by favorable industrial policies and excellent port connectivity. While Jharkhand MSMEs are competitive in automotive manufacturing, they lack strong export facilitation and face challenges in accessing global markets.

The comparative analysis highlights that while Jharkhand's MSMEs have strong linkages with OEMs like Tata Motors, they lag in digital adoption, financial access, and export competitiveness compared to clusters in Maharashtra, Haryana, and Tamil Nadu. However, Jharkhand's lower cost base, skilled labor availability, and mineral proximity provide unique advantages for scaling up supply chain integration. This comparative study underscores the need for Jharkhand to strengthen policy frameworks, enhance logistics infrastructure, and promote digital adoption to match the performance of leading industrial clusters in India.

Discussion

The findings indicate that MSME growth in Jharkhand's automotive cluster is strongly linked to supply chain integration. Capital investment, digital adoption, and access to finance remain the most critical factors. Proximity to OEMs further enhances competitiveness. These results align with prior studies emphasizing the role of technology and financial inclusion in MSME development [6][12]. However, infrastructural gaps and limited innovation capacity continue to hinder sustainable growth.

Jharkhand's MSMEs are embedded in supply chains but struggle with credit access and digital adoption, limiting scalability. Pune's MSMEs benefit from stronger financial systems, innovation ecosystems, and global value chain integration. Both cases reaffirm that supply chain enablers such as capital, finance, technology, skills, and logistics are critical for MSME growth, but policy execution varies widely across states.

Conclusion and Policy Implications

MSMEs and entrepreneurs in Jharkhand, particularly in the Adityapur–Gamharia automotive cluster, are vital to the state's economic development. Their integration into supply chains enhances competitiveness, employment, and industrial diversification. Policymakers should focus on enhancing credit access, encouraging digital adoption, investing in skill development, and strengthening logistics infrastructure to ensure long-term sustainability. This study highlights the significance of supply chain linkages as a driver of MSME-led regional growth in Jharkhand.

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