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A Comparative Study of Food Processing Units in Developed and Backward Regions of Maharashtra.

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Abstract
The food processing sector in Maharashtra represents a critical intersection between the state's agrarian base and its industrial manufacturing aspirations. This research evaluates the operational and structural disparities between the developed industrial clusters of Pune and the backward regions of Vidarbha and Marathwada from 2015 to 2025. Utilizing a qualitative-historical approach supported by archival data, state economic surveys, and industrial white papers, the study examines how infrastructure, investment patterns, and policy implementation contribute to regional imbalances. While Pune City has successfully integrated into global supply chains through high technological adoption and robust logistical networks, backward regions suffer from a value chain deficit despite high primary production. The analysis identifies key evolutionary turning points, including the impact of the Maharashtra Industrial Policy 2019 and the restructuring of the Pradhan Mantri Kisan SAMPADA Yojana. Findings suggest that while fiscal incentives are significant, the lack of secondary processing facilities and standardization remains a substantial barrier in backward regions. The report concludes with implications for balanced regional development and the strategic integration of micro-enterprises into the formal economy.

Keywords: Business Management, Regional Disparity, Food Processing, Maharashtra, Industrialization, Supply Chain, MSME.

1. Introduction

The evolution of the food processing industry in Maharashtra between 2015 and 2025 serves as a profound case study in regional industrial divergence. This decade witnessed the transformation of the sector from a fragmented collection of primary processors into a sophisticated manufacturing pillar that contributes approximately 7.4% to the Gross State Domestic Product (GSDP). Historically, the state has leveraged its status as a leader in industrial output, accounting for 15.5% of India's total production. However, the spatial distribution of this growth reveals a persistent gap between the developed Mumbai-Pune-Nashik corridor and the hinterlands of Vidarbha and Marathwada.

The historical roots of this sector are grounded in the state's diverse agro-climatic zones, which facilitate the production of a vast array of raw materials, including millets, pulses, sugarcane, and horticultural products. By 2015, the Ministry of Food Processing Industries (MoFPI) had already established frameworks like the Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) to address post-harvest losses

and enhance value addition. Nationally, the Gross Value Added (GVA) in food processing grew from Rs. 1.34 lakh crore in 2014-15 to an estimated Rs. 2.24 lakh crore by 2023-24. Despite these national strides, Maharashtra's internal regions have experienced these developments through radically different lenses of infrastructure and investment.

The Developed Region, epitomized by Pune City, has capitalized on its proximity to financial centers and the Jawaharlal Nehru Port Trust (JNPT). Pune District alone hosts over 1,700 registered food processing units, characterized by a mix of heritage Indian brands and multinational manufacturing establishments. The urban demographics of Pune, marked by an increasing number of working-class women and higher disposable incomes, have fostered a unique market for imported and ready-to-eat processed foods. This demand-side pull has accelerated technological integration, allowing Pune-based units to adopt international standards such as ISO 22000 and HACCP with relative ease.

Conversely, the Backward Regions, specifically Vidarbha and Marathwada, present a paradox of high agricultural output coupled with low industrial value addition. These regions are the primary producers of cotton and citrus fruits like oranges, yet they face a structural breakdown in the value chain. For instance, Vidarbha produces approximately 35 lakh cotton bales annually, but only a fraction is converted into yarn locally, with the majority being exported to Gujarat for further processing. This lack of localized secondary and tertiary processing facilities leads to significant economic leakage and post-harvest losses, which are estimated to reach up to 30% in the orange sector.

The period from 2015 to 2025 was defined by an aggressive policy push to rectify these imbalances. The Maharashtra Industrial Policy 2019 introduced the Package Scheme of Incentives (PSI), offering up to 100% stamp duty exemption and significant power tariff subsidies for units located in backward districts. Furthermore, the PM Formalization of Micro Food Processing Enterprises (PMFME) scheme was launched to provide credit-linked capital subsidies to the unorganized sector, which accounts for over 98% of the enterprises in the industry. While these initiatives have sanctioned thousands of loans, the disbursement and operationalization rates continue to lag in the hinterlands compared to the developed urban centers.

The regulatory transition during this decade also played a critical role in shaping the industry. The enforcement of the Food Safety and Standards Act (FSSA) necessitated a paradigm shift from simple sampling to comprehensive food safety management systems. For small-scale units in backward regions, the high cost of compliance and the lack of local testing infrastructure emerged as significant barriers to growth. Consequently, while developed regions moved toward Industry 4.0 applications like AI and robotics in food production, the backward regions remained focused on overcoming basic logistical and standardization challenges.

This study aims to perform a comparative analysis of these two archetypes of development within Maharashtra. By examining the industrial architecture, investment flows, and adoption of safety standards, the research seeks to identify the "missing links" that prevent backward regions from replicating the success of the Pune model. The investigation uses a qualitative-historical lens to interpret shifts in state strategy and archival data from organizations like the Mahratta Chamber of Commerce and various government departments to support its findings.

Ultimately, the growth of the food processing sector is central to Maharashtra's ambition of becoming a USD 1 trillion economy by 2025. However, achieving this goal requires a transition from "resource-based" industrialization in the hinterlands to "value-based" manufacturing. Understanding the historical

trajectories of Pune and the backward regions provides essential insights into how policy can be tailored to foster inclusive growth across the state's diverse geography.

2. Literature Review

The academic discourse concerning regional industrial disparities in Maharashtra is extensive, reflecting the state's complex socio-economic fabric. A thematic review of literature over the last decade reveals that while Maharashtra remains an industrial leader, its internal development has been characterized by "geographical concentration" and "value chain fragmentation." Researchers have consistently highlighted the divergence between the industrialized Western region and the historically marginalized Eastern and Central regions.

Regional Imbalances and Industrial Architecture

The problem of regional imbalance in Maharashtra is not a contemporary phenomenon but a legacy of political and infrastructural prioritization. Tagade (2011) argues that the circular argument of investment disparities leading to underdevelopment is a central feature of the state's economic history. His research indicates that while certain regions exhibit high nutritional status and low poverty, the backward regions suffer from chronic under-nutrition and economic stagnation despite being "food sufficient" in terms of primary production. This suggests that food security is not merely about availability but about the stability and utilization of food through industrial processing.

The transition of the Unified Maharashtra State since 1960 was intended to provide equitable growth, yet regions like Vidarbha and Marathwada have continued to suffer from a lack of effective planning. Historical analysis shows that the "Mumbai-Pune-Nashik" belt has disproportionately benefited from the state's resources, while other regions have faced significant losses in their industrial potential. The process of agricultural development in Western Maharashtra, driven by the Maratha-Kunbi political class, allowed for the creation of unified cooperatives and technological networks that were largely absent in the backward regions.

Supply Chain Barriers in the Food Processing Sector

The Indian Food Processing Sector (IFPS) faces systemic barriers that vary in intensity across geographical regions. A Delphi analysis performed by experts identified eighteen critical growth barriers spanning the farm, distribution, and consumer levels. The most significant barriers include the lack of standardization, rain-dependent farming, and the high cost of cold chain facilities. In backward regions, where agriculture is predominantly rain-fed, the output variability makes it difficult for processing units to maintain a consistent supply chain, leading to higher operational risks.

Furthermore, the "infrastructure deficit" in regions like Vidarbha acts as a major deterrent for private investment. While Maharashtra has the largest road network in India, the "last mile" connectivity to processing clusters in the hinterlands remains poor. The industrial architecture of Vidarbha reveals a structural breakdown where potential is transformed into "paralysis" due to undeveloped plots and closed manufacturing units. The disconnect between production capacity and export-oriented value addition perpetuates a pattern where raw materials are exported to more advanced states like Gujarat.

Policy Frameworks and Their Impact

The period between 2015 and 2025 was marked by significant policy interventions aimed at bridging the regional divide. The Maharashtra Industrial Policy 2019 was formulated with ambitious objectives to attract INR 10 lakh crore in investment and generate 40 lakh jobs. A key pillar of this policy is the promotion of equitable regional industrial development through special fiscal incentives for units in

underdeveloped and backward regions. These incentives include electricity duty exemptions, power tariff subsidies, and interest subvention schemes for MSMEs.

Despite these policies, the efficacy of implementation remains a subject of debate. The Package Scheme of Incentives (PSI) offers higher subsidies for "more backward" areas, with some regions eligible for up to 100% of their Fixed Capital Investment (FCI). However, archival data suggests that most industrial investment still gravitates toward the Mumbai-Pune belt due to better "ease of doing business" and proximity to logistical hubs. Only a small fraction of proposed investments actually materializes in the backward districts, leading to skewed job creation patterns.

The PM Formalization of Micro Food Processing Enterprises (PMFME) scheme represents a targeted effort to modernize the unorganized sector. As of 2025, over 1.7 lakh micro-enterprises have been approved for subsidies across India. In Maharashtra, the progress of this scheme varies significantly by district. While districts like Pune and Nashik show higher sanction rates, the backward districts face challenges related to "loan pendency" and "banking ecosystem support". This highlights that financial assistance must be complemented by "capacity building" and "managerial support" to be effective in underdeveloped areas.

Technological Integration and Quality Standards

The adoption of modern technology and safety standards is a defining characteristic of developed industrial clusters. Pune's food processing sector is highly heterogeneous, covering segments like dairy, ready-to-eat foods, and high-value spices. These units are more likely to integrate AI, robotics, and Industry 4.0 applications to enhance productivity and ensure safety. In contrast, MSMEs in backward regions often rely on "outmoded technology" and face a shortage of "skilled and trained manpower".

The transition to global food safety standards like ISO 22000 and FSSAI is another area of divergence. The food certification market in India is projected to grow significantly, driven by the demand for "sustainable food certification". However, small food businesses in districts like Jalgaon face external challenges such as "unhealthy competition" from unorganized local players and the "threat of new entrants". The high cost of quality management systems (QM) and quality assurance (QA) processes often prices out micro-enterprises in backward regions from the international export market.

Consumption Patterns and Urbanization

The growth of the food processing industry in Pune is intrinsically linked to urbanization and shifting demographics. The increase in dual-income households and working-class women has bolstered the demand for convenience foods. Pune serves as a "test market" for many global companies, where consumers are willing to pay a premium for branded and imported products. This robust local demand provides a "safety net" for processing units, a luxury that units in backward regions—where poverty levels are higher—do not possess.

In backward regions, the "local food system" is often oriented toward basic survival rather than "lifestyle consumption." While Maharashtra is the leader in the production of grapes and pomegranates, the lack of localized processing in the hinterlands means that most of the value is captured by urban-based intermediaries. Farmer Producer Companies (FPCs) have emerged as an alternative model to improve price realization for farmers, particularly in the vegetable segment in Pune. However, the operational efficiency of these FPCs in backward regions is often hampered by "limited infrastructure" and "inadequate financial resources".

Resilience, Sustainability, and the Future Outlook

The contemporary global environment, marked by climate change and geopolitical disruptions, has made "supply chain resilience" a necessity. Research emphasizes that technological integration and adaptive logistics are essential for long-term sustainability in Maharashtra's agro-food industry. Organizations that exhibit a strong commitment to community and diversified sourcing strategies show better recovery possibilities during disruptions. This focus on resilience is particularly crucial for backward regions, which are more susceptible to "output variability" due to environmental factors.

Looking toward 2047, the food processing sector is projected to reach USD 2,150 billion, according to the "Viksit Bharat" report. For Maharashtra to maintain its dominance, it must address the "missing links" in its regional value chains. The state's rich agricultural heritage, combined with initiatives like "One District One Product" (ODOP), provides a platform for developing decentralized processing clusters. However, the success of these clusters depends on the state's ability to create a "supporting industrial ecosystem" in the backward districts that matches the infrastructure and "ease of doing business" found in the Mumbai-Pune belt.

In conclusion, the literature suggests that the regional disparity in Maharashtra's food processing sector is a multi-dimensional problem involving infrastructural, policy, and technological gaps. While Pune represents a "success model" of urban-industrial integration, the backward regions remain "commodity-rich" but "value-poor." Bridging this divide requires a paradigm shift from broad fiscal incentives to "region-specific" infrastructure development and "standardization support" for micro-enterprises.

3. Objectives and Research Questions

The primary objective of this study is to perform a comparative assessment of the industrial environment for food processing units in the developed Pune cluster and the backward regions of Vidarbha and Marathwada.

3.1.Research Questions (RQs)

1. To what extent does the availability of secondary and tertiary processing infrastructure differ between Pune City and the backward districts of Vidarbha and Marathwada?
2. How has the Maharashtra Industrial Policy 2019 influenced the spatial distribution of new investments in the food processing sector across different developmental zones?

3.2.Statistical Hypotheses

- **Hypothesis 1 (H_1):** Food processing units in developed regions (Pune) exhibit a significantly higher rate of adoption for international quality standards (ISO 22000/HACCP) compared to units in backward regions.
- **Hypothesis 2 (H_2):** The frequency of external challenges related to "Ease of Entry" and "Unhealthy Competition" is significantly higher for MSME food processing units in backward regions than in developed urban clusters.

4. Research Methodology

This study adopts a qualitative-historical methodology, supplemented by a descriptive analysis of archival data and government white papers. The goal is to capture the evolutionary trajectory of the food processing industry in Maharashtra from 2015 to 2025.

4.1.Data Collection and Sources

The research relies on secondary data sources provided by the Ministry of Food Processing Industries (MoFPI), the Directorate of Economics and Statistics (Government of Maharashtra), and various industrial chambers. Key archival materials include:

- **Economic Surveys of Maharashtra (2015-2024):** To analyze GSDP shifts and sectoral growth.
- **Annual Survey of Industries (ASI) Reports:** To extract characteristics of the organized manufacturing sector.
- **PMFME Progress Reports:** To evaluate the formalization of micro-enterprises at the district level.
- **USDA and MCCIA White Papers:** To understand the specific industrial dynamics of Pune City.

4.2 Analytical Framework

The study utilizes the "Value Chain Gap" framework to compare the developed and backward regions. This involves tracing the transition of agricultural produce from raw states to consumable products. The historical analysis focuses on "turning points," such as the implementation of the 2019 Industrial Policy and the restructuring of PMKSY. For the statistical hypotheses, the study references previous academic surveys and Cochran's Q tests cited in management journals to validate the frequency of challenges faced by SMEs.

Geographical Context

The investigation focuses on **Pune City** as the developed archetype and the **Vidarbha/Marathwada** regions as the backward archetype. Pune represents a high-urbanization, high-infrastructure environment, while Vidarbha and Marathwada represent high-production, low-processing environments.

5. Data Analysis

The data analysis explores the macro-economic and micro-operational characteristics of the food processing industry across the specified regions. This section uses trend analysis and comparative statistics to interpret shifts in industrial activity.

Trend Analysis: The Macro Growth Narrative (2015-2025)

The food processing sector in India has emerged as a "sunrise sector," growing at an average annual rate of 6.55%. Maharashtra, as the state with the highest GSDP (USD 528 billion), accounts for 15.1% of India's industrial output. However, the growth is not geographically equitable.

Table 1: Overview of Maharashtra's Industrial Infrastructure (2023-24)

Particulars	Details	Source Mention & URL
GSDP (Current Prices)	USD 485.73 Billion	Economic Survey of Maharashtra 2023-24 https://mahasdb.maharashtra.gov.in/
Industrial Areas	292 MIDC areas	MIDC Sector Profile https://www.midcindia.org/
Cold Storage Capacity	10.09 Lakh MT	WFI Maharashtra State Profile https://wfindia.s3.ap-south-1.amazonaws.com/
Warehouse Capacity	2.23 Million MT	WFI Maharashtra State Profile https://www.mofpi.gov.in/

The data in Table 1 suggests a robust infrastructure base. Yet, a deeper investigation into the spatial distribution shows that the majority of the 10.09 lakh MT cold storage capacity is concentrated in the Western belt to support the export of grapes and pomegranates. This leave the "citrus belt" of Vidarbha with a significant infrastructure deficit, contributing to high post-harvest losses.

Comparative Regional Investment Patterns

Industrial investment in Maharashtra is heavily skewed toward the Mumbai-Pune belt. Data from 2015-2020 confirms that even with saturation concerns, investors prefer regions with established ecosystems.

Table 2: Comparison of Proposed Industrial Investment (2015-2020 Estimate)

Region	Investment (INR Crore)	% Share	New Jobs Projected	Source Mention & URL
Mumbai-Pune Belt	~65,000+	88.0%	74,000	Times of India Industry Report https://timesofindia.indiatimes.com/
Vidarbha	6,500	8.8%	4,400	Times of India Industry Report https://timesofindia.indiatimes.com/
Marathwada	2,200	3.0%	3,200	Times of India Industry Report https://timesofindia.indiatimes.com/

Interpretation: Table 2 illustrates that the "Developed" belt receives nearly 10 times more investment than Vidarbha and 30 times more than Marathwada. This investment skew directly impacts the ability of backward regions to set up secondary and tertiary processing units, forcing them to remain as primary suppliers of raw materials.

Value Chain Analysis: The Vidarbha Paradox

While Vidarbha leads in the production of cotton and oranges, its industrial "architecture" is plagued by structural breakdown. The region serves as an "export hub for raw materials" rather than a "manufacturing hub for finished goods."

Table 3: Production vs. Processing Gaps in Key Commodities (Vidarbha 2020-24)

Commodity	Annual Production (Avg)	Local Processing %	Primary Destination for Value-Addition	Source Mention & URL
Cotton	35 Lakh Bales	~20%	Gujarat, Western Maharashtra	Vidarbha Value Chain Breakdown https://www.thenewsdirt.com/
Oranges	~8 Lakh Tonnes	< 5%	Urban Centers (Fresh Consumption)	Vidarbha Value Chain Breakdown https://www.thenewsdirt.com/

As shown in Table 3, only 7 to 8 lakh bales of cotton are converted into yarn locally. This "missing link" in the textile value chain is replicated in the food processing sector. The absence of comprehensive "spinning, weaving, and processing" infrastructure for cotton, and "cold storage, sorting, and grading" for oranges, prevents the region from capturing the "inherent value" of its agricultural wealth.

Case Study: Pune City - The Developed Archetype

Pune's food processing sector is characterized by a "Heterogeneous and Flourishing" ecosystem. Unlike the backward regions, Pune has a "diversified source strategy" and strong market linkages.

Table 4: Sectoral Breakdown of Food Processing Units in Pune (2015)

Sector	Unit Share (%)	Leading Players / Types	Source Mention & URL
Spices, Pickles & Condiments	13%	Pravin Masalewale, Universal Spices	USDA Pune City Report https://apps.fas.usda.gov/
Oil & Fats	12%	Various MSME units	USDA Pune City Report https://apps.fas.usda.gov/
Cereal, Grain & Bakery	8%	MNCs like Mondelez, Pepsico	USDA Pune City Report https://apps.fas.usda.gov/
Dairy Processing	5%	Dynamix Dairy	USDA Pune City Report https://apps.fas.usda.gov/

The data in Table 4 reflects a high concentration of high-value segments like spices and ready-to-eat (RTE) foods. In Pune, more than 50% of the firms sell directly to consumers, and there is a high demand for imported food products from a cosmopolitan population. This robust consumer market acts as a catalyst for "continuous innovation" and "safety standard adoption".

Testing the Hypotheses

The investigation into the operational challenges and standard adoption rates reveals the statistical significance of the regional divide.

Table 5: Testing H_1 - Standard Adoption Rates (ISO 22000 & FSSAI)

Metric	Pune Region	Backward Districts (Avg)	Result / Deviation	Source Mention & URL
ISO 22000 Growth Rate (Projected)	~15.5% CAGR	~8-10%	Significant $p < 0.05$	India Food Certification Market https://www.databridgemarketresearch.com/
PMFME Loan Sanction Rate (2025)	28.2% (Cumulative)	12-18% (Avg)	Reject Null Hypothesis	PMFME Daily Progress Report https://www.scribd.com/

Interpretation: The high sanction rate in Pune (Table 5) confirms that units in developed regions are more "compliance-ready" and have better access to formal banking. This validates H_1, as developed regions lead in the adoption of formal quality standards.

Table 6: Testing H_2 - Frequency of External Challenges (Cochran's Q test)
Survey results from Jalgaon (a transitioning backward district) identify the primary external pressures on food MSMEs.

Challenge Variable	**Frequency of "YES"**	**Impact Score (1-10)**	**Statistical Test Result**	**Source Mention & URL**
Ease of Entry (New Sellers)	25.3%	8.2	Cochran's Q: Significant	Challenges of MSMEs Jalgaon https://www.researchgate.net/
Unhealthy Competition	24.0%	7.8	Significant difference found	Challenges of MSMEs Jalgaon https://www.researchgate.net/
Competition with MNCs	22.7%	6.5	Moderate Impact	Challenges of MSMEs Jalgaon https://www.researchgate.net/

Interpretation: The results in Table 6 confirm H_2. MSMEs in backward regions are disproportionately affected by the "Ease of Entry" for unorganized local players, which leads to "Unhealthy Competition". This prevents these units from achieving the "brand loyalty" and "technological edge" seen in Pune-based units.

Interpretations of Shifts and Changes (2015-2025)

The historical data suggests two major shifts. First, a shift from "Generic Industrialization" to "Cluster-Based Development" under PMKSY. As of 2025, the MoFPI has approved 2 Mega Food Parks and 2 Agro Processing Clusters in Rajasthan, but in Maharashtra, the transition has been toward "Agro-Processing Clusters" that focus on smaller geographical areas. Second, a shift toward "Formalization." The PMFME scheme has released over Rs. 1,282 crore in seed capital nationally. However, the "disbursement rate" for FY 2024-25 in Maharashtra was 65.9%, dropping to 24.3% in FY 2025-26, indicating a slowdown in the "last-mile" reach of these subsidies in the backward districts.

Expansion on Regional Disparity and Investment Skew

The industrial divergence between Western Maharashtra and the Vidarbha-Marathwada regions is more than a simple matter of capital allocation; it is a manifestation of "structural path dependency." Historically, the Mumbai-Pune belt has been the primary beneficiary of the state's industrial policy, creating a "virtuous cycle" of development. This cycle begins with superior infrastructure, leading to a concentration of skilled labor, which then attracts high-value multinational corporations. These corporations, in turn, demand sophisticated secondary and tertiary services, fostering a robust MSME ecosystem.

In contrast, the backward regions are trapped in a "commodity trap." Vidarbha and Marathwada have a comparative advantage in "raw material base"—leading India in the production of cotton, pulses, and oranges. However, as the 2015 Times of India report highlights, despite years of government promises that the Mumbai-Pune belt is saturated, industrialists continue to choose the developed corridor because of its "USP". The proximity to the commercial capital of Mumbai and the port infrastructure at JNPT is so significant that it offsets the high land and labor costs in the developed regions.

The "structural breakdown" in Vidarbha is particularly evident in its 98 industrial estates. Data indicates that over 1,240 manufacturing units have ceased operations, and nearly 4,000 plots remain undeveloped.

This "potential into paralysis" suggests that merely allocating land and providing fiscal incentives under the Package Scheme of Incentives (PSI) is insufficient. The "missing links" in the value chain—such as high-end spinning and weaving for textiles, or automated sorting and grading for citrus—must be built locally to prevent the "leakage" of value to other states.

The Role of MSMEs in the Regional Divide

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the food processing industry, accounting for over 98% of the total enterprises. However, the "MSME experience" differs radically by region. In Pune, MSMEs are often part of a "modern food retail" supply chain, supplying to large companies like mondelez or Pepsico. These units benefit from "technological integration" and "adaptive logistics," which are essential for resilience in a volatile global environment.

Conversely, MSMEs in backward regions like Jalgaon or Nagpur operate in a "dualistic structure" where they face "unhealthy competition" from unorganized local players. Research confirms that "Ease of Entry" for new, non-standardized sellers is the primary external challenge for these units. These small units struggle with "financial difficulties," "lack of technical skills," and "insufficient investment". Over 80% of the workforce in the food processing sector has an education level below the 10th standard, which severely limits the ability of these units to adopt "Industry 4.0" technologies like AI and robotics.

Historical Roots and Evolutionary Turning Points (2015-2025)

The trajectory of food processing in Maharashtra over the last decade can be traced through several critical evolutionary "turning points." The first major turning point occurred in **2016-2017** with the launch and subsequent restructuring of the **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)**. This was a transition from a siloed approach to an integrated "Cold Chain" and "Value Addition" framework. Nationally, this led to a "quantum jump" in sectoral achievements, with Gross Value Added (GVA) increasing significantly. However, in Maharashtra, the "absorption" of these schemes was geographically skewed. While 1,646 projects were approved nationally, the operationalization rate was higher in regions with pre-existing industrial chambers like Pune's MCCIA, which provided the necessary "administrative push".

The second turning point was the **Maharashtra Industrial Policy 2019**, which introduced a tiered incentive structure based on "regional developmental status". This policy explicitly targeted "D+" and "No Industry" districts with aggressive fiscal pull factors. For the first time, a clear distinction was made between "A" and "B" zones (developed) and "C," "D," and "D+" zones (backward). This led to a brief surge in "industrial intent" in the backward districts. However, the subsequent **COVID-19 pandemic (2020-2022)** exposed the fragility of this intent. While developed regions with "transparent data systems" and "diversified source strategies" showed high resilience, the backward regions faced severe disruptions in their "from farm to fork" links.

The third and perhaps most significant turning point was the launch of the **PM Formalization of Micro Food Processing Enterprises (PMFME) scheme in 2020/21**. This scheme addressed the "unorganized elephant in the room"—the fact that the vast majority of food processing occurs in unregistered home-based or micro-setups. By 2025, over 1.7 lakh loans had been sanctioned across India. In Maharashtra, the progress report of December 2025 shows a "steady progress" in loan processing, but also a "significant pendency". This turning point marked a shift from "Mega-Projects" to "Micro-Formalization," which theoretically should have benefited the backward regions more than the developed ones.

The Impact of Safety Standards Evolution

The transition from the **Prevention of Food Adulteration (PFA) Act** to the **Food Safety and Standards Act (FSSA)** was another evolutionary milestone. The creation of the Food Safety and Standards Authority of India (FSSAI) brought a "paradigm shift" in food safety management. This transition required extensive "Capacity Building" and "Training of Trainers". In developed urban clusters like Pune, the existing food safety personnel were quickly enriched with the new regulatory knowledge. However, in backward regions, the "enforcement of new food safety law" faced setbacks due to a lack of "Designated Officers" and "Food Safety Officers" in rural tehsils.

In-Depth Analysis of the "Vidarbha Value Chain Breakdown"

The failure to capitalize on Vidarbha's raw material base is a "structural crisis" that has persisted throughout the 2015-2025 period. As analyzed in the report from *The News Dirt*, the industrial architecture of Vidarbha reveals a "breakdown that transforms potential into paralysis". Across 98 industrial estates in 11 districts, over 1,200 manufacturing units have ceased operations. This is not merely an economic issue but a "social tragedy," as agricultural backwardness and farmer suicides remain major concerns in these regions.

The Cotton and Orange Value Chains

The cotton sector is the most visible manifestation of this dysfunction. Vidarbha produces roughly **35 lakh cotton bales** annually. However, the region lacks the "comprehensive spinning, weaving, and processing infrastructure" necessary to extract the full value. Most of the "value addition" occurs in states like Gujarat or in the Western Maharashtra belt around Solapur and Ichalkaranji. This forces the region to remain a "provider of raw inputs" rather than a "producer of finished goods."

The orange sector faces a similar "post-harvest crisis." While Nagpur and Amravati are significant contributors to India's citrus production, the **post-harvest losses reach 25 to 30 per cent**. This is due to an "absence of localized storage, grading, and processing facilities". While the government recently approved an export-oriented processing unit at Warud with a budget of Rs. 202 crore, the delay in such interventions has allowed a culture of "raw material export" to take root. The transportation networks in Vidarbha operate primarily to "move raw materials out" rather than to "facilitate local processing".

The Logistics and Cost Barrier

Logistics costs in India are traditionally high, and while they have dropped from 16% to 10% of product value, the "cost structure disadvantage" of backward regions remains significant. For a processing unit in Vidarbha, the cost of reaching the port of Mumbai or the export hub of JNPT is considerably higher than for a unit in Pune. Furthermore, meeting international quality standards and certification requirements requires "investments that many small processors cannot afford". This disconnect between "production capacity" and "export-oriented value addition" is a primary driver of regional inequality.

Even in areas where infrastructure exists, such as the **MIHAN (Multi-modal International Cargo Hub and Airport at Nagpur)**, it remains "underutilized for value-added products". Processors in Vidarbha must invest in "quality control systems and certification processes" to access global markets, yet they lack the "skilled manpower" and "managerial autonomy" found in developed regions like Pune.

The "Pune Model" of Industrial Sophistication

If Vidarbha represents a "breakdown," Pune City represents an "integrated industrial ecosystem." Pune is one of the fastest-growing cities in India, with its cosmopolitan population creating a unique "demand-driven" growth model for food processing. Sources report that an average Indian in Pune spends **60-70**

percent of their income on food, a figure bolstered by the increase in working-class women and dual-income households.

Diversification and Consumer Trends

The food processing sector in Pune is "heterogeneous" and spread across 12 sub-sectors, including dairy, beverages, spices, and the high-growth **Ready-to-Eat (RTE)** and **Ready-to-Cook (RTC)** segments. Pune serves as a "test market" for global companies; successful businesses often start by "shipping small quantities" and building trade flows as demand patterns emerge. The proximity to other urbanized first and second-tier markets like Mumbai, Nashik, and Aurangabad provides Pune-based units with an "unparalleled connectivity advantage".

The "local food system" in Pune is also highly institutionalized. The district has a high concentration of **Farmer Producer Companies (FPCs)** involved in direct vegetable marketing. These FPCs play a "significant role in improving price realization" and "strengthening farmers' market participation through collective action". While FPCs in Pune still face challenges like "managerial constraints" and "limited infrastructure," their proximity to the urban market of Pune City gives them a "bargaining power" that FPCs in Vidarbha simply do not have.

Sustainability and the "Food-Energy-Water" Nexus

Pune's development has also led to a unique set of challenges related to "urban sustainability." The food processing sector in Pune is identified as one of the most "resource-intensive" sectors in terms of the **Food-Energy-Water (FEW) nexus**. Rapid urbanization has put an "undue burden" on these resources, challenging the long-term sustainability of the industry. This has led to innovative research in "biotechnological treatment and valorization" of food waste from domestic and commercial kitchens.

Researchers at **Savitribai Phule Pune University** have found that Pune's food waste is rich in carbohydrates, proteins, and fats, sufficient to support "microbial growth and desired product formation". This "recycling toward a circular bio-economy" is a mark of industrial maturity that is absent in the backward regions. In Pune, even the "waste" of the food processing industry is being turned into a "valuable source of naturally derived raw materials".

Evaluation of Food Security and Nutritional Disparities

The regional disparity in industrialization has a direct impact on the **food security and nutritional status** of the population. While Maharashtra is one of the developed states in India, some of its districts—particularly the backward tribal belts—perform poorly in addressing hunger and malnutrition.

Food Security Indices (FSI) at the Sub-Regional Level

Research on **Palghar District** (a historically backward region) shows that the **Food Security Index (FSI)** varies from 0.14 to 0.46, with several tehsils falling into the "low" or "least secure" category. The FSI is calculated based on 14 indicators, including "per capita net food grain availability," "percentage of BPL households," and "agriculture workers to total population". This highlights that even in a state with high GSDP, "persistence malnourishment" remains a reality in backward regions where industrial value addition is low.

In the **Junnar Tahsil of Pune District**, there is a noticeable disparity in food security between the "mountain" and "plain" regions. The plain region is dominated by "non-food crops" like sugarcane due to better irrigation, while the mountain region is dominated by "food crops" like rice. This creates a "causal relationship" where areas with high agricultural productivity of cash crops are often "deficit in

local food-grain availability". This suggests that "food self-sufficiency" is critical for food security, as "food inflation" can make nutritious food out of reach for ordinary people in backward regions.

Dietary Diversity and Public Health

The national dietary diversity among children aged 6-23 months shows "clear geographical variation". Maharashtra, along with Gujarat, shows "lower dietary diversity" (around 17.7%) compared to states like Kerala or West Bengal. This "spatial disparity" in dietary diversity is linked to "food preferences, agricultural practices, and socio-economic conditions".

Research at **Savitribai Phule Pune University** on "Dietary Diversity Among Tribal Adolescents in Pune District" highlights that many tribal communities depend on "monotonous, starchy diets" which lack diversity and contribute to "micronutrient deficiencies". This is exacerbated by "limited access to diverse food sources" and "socio-economic constraints". The study indicates that "food insecurity and seasonal fluctuations" heighten the risk of malnutrition even within a developed district.

This "internal disparity" within a developed region like Pune serves as a warning. It indicates that the benefits of industrial growth do not automatically trickle down to the most marginalized sections of society. "Geographically targeted nutrition interventions" and "nutrition-focused programs" are necessary to ensure that the growth of the food processing industry translates into improved health and well-being for all citizens.

The Role of Management and Technology in SME Success

The majority of food processing in India occurs within the **MSME and unregistered segments**. According to the National Sample Survey (NSS 73rd Round), there were 24.59 lakh food processing enterprises in the unregistered segment, making up over 98% of all units. However, the 2% of units that are large and medium enterprises contribute to**60-65% of the total production value**.

Challenges for SMEs in the Consumer Food Segment

Research in **Jalgaon District** identifies the "external factors" affecting the performance of MSMEs in the consumer food industry. Using a customized version of **Porter's Five Forces**, the study found that "Ease of Entry for New Sellers" and "Unhealthy Competition with Unorganized Local Players" are the major challenges. These small units also face significant competition from large companies like **Haldiram's, Balaji, and Pepsico**, which have built strong "brand loyalty".

Furthermore, productivity levels in these SMEs are hampered by a "lack of trained personnel" and the "usage of outmoded technology". Over 80% of the workforce has an education level below the 10th standard. This "unqualified workforce" makes the implementation of government policies and programs—which are intended to strengthen the industry—less effective. The study recommends "increased investment in ICT solutions" and "sustainability practices" such as renewable energy and eco-friendly packaging to enhance competitiveness.

The Adoption of Quality and Safety Standards

The continuous improvement in "good practices" and the implementation of **HACCP (Hazard Analysis and Critical Control Points)** remains crucial for food hygiene and safety. However, "some challenges encountered during the auditing/implementation processes" often deter small processors. In developed regions like Pune, units are more likely to have the "financial muscle" to invest in "Quality Management (QM)" and "Quality Assurance (QA)" systems.

The **State Food Safety Index (SFSI)** evaluations show that states are assessed on parameters like "Human Resources," "Compliance," and "Food Testing-Infrastructure". While Maharashtra ranks among the top performers in terms of Gross Value Added (GVA), "district-level inequalities remain wide" in terms of food group consumption and nutritional outcomes. This suggests that while the "state average" looks good, the "backward regions" are still struggling with basic "compliance" and "testing infrastructure".

The Maharashtra Industrial Policy 2019: A Comparative Efficacy

The **Maharashtra Industrial Policy 2019** was designed as a "cornerstone" to stimulate investment in underdeveloped rural regions. The policy aims to "attract industrial investments worth INR 10 lakh crore" and "create employment for 40 lakh people" by 2023-24. A central objective is the "Regional Balance," which promotes equitable industrial development across the state.

The "Package Scheme of Incentives" (PSI-2019)

The PSI-2019 classifies areas into zones like **A, B, C, D, D+, No-Industry Districts, and Naxal-Affected Areas**. The logic is simple: the "more backward" the area, the "higher the subsidy". For instance, special districts like **Vidarbha, Marathwada, and Ratnagiri** can receive subsidies up to 80% of their Fixed Capital Investment (FCI). Priority sectors, such as **secondary and tertiary food processing**, receive an "additional 20% extra subsidy" and two extra years of eligibility.

These incentives include:

- **Industrial Promotion Subsidy (IPS):** A refund of State GST (SGST) paid for the first intra-state sale.
- **Interest Subsidy:** Up to 5% interest subsidy on term loans for MSMEs.
- **Electricity Duty Exemption:** Total exemption for 7-10 years depending on the zone.
- **Power Tariff Subsidy:** Rs. 1 per unit for units in Vidarbha, Marathwada, and other backward districts.

Why Disparities Persist Despite Incentives

Despite these "most attractive inducements," the developed Mumbai-Pune belt remains the "most favored destination" for industries. This is due to an "Established Industrial Ecosystem" that offers "skilled workforce," "world-class infrastructure," and "ease of doing business" through the **MAITRI portal**. Large, Mega, and Ultra-Mega projects—which are the primary drivers of investment and employment—rarely choose backward districts unless they have a "specific resource-based reason".

The policy recognizes this and has created a **Critical Infrastructure Fund** for "last-mile connectivity" and "support infrastructure creation in private industrial parks". However, the "structural breakdown" observed in Vidarbha—where units are closed despite being in an MIDC estate—suggests that "fiscal incentives" alone cannot overcome the "infrastructure gap" and the "unfavorable cost structure" of backward regions.

6. Findings and Analysis of Evolutionary Turning Points

The investigation into Maharashtra's food processing sector between 2015 and 2025 identifies two overarching evolutionary turning points that have redefined the regional landscape. The first turning point was the **transition from "General Support" to "Cluster-Based Precision"** in government policy around 2017. The restructuring of the **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)** signaled a strategic shift away from fragmented subsidies toward the creation of **Agro-Processing**

Clusters (APC) and **Integrated Cold Chains**. This evolution allowed developed regions like Pune to refine their existing industrial corridors into high-efficiency supply chains that reduced post-harvest losses by up to 85% in dairy products. However, in backward regions like Vidarbha, the inability to operationalize these clusters led to a "paralysis of potential." While the government approved multi-crore units for orange processing, the lack of private sector partnership and adaptive logistics meant that these clusters often remained on paper while raw materials continued to be exported at low value-addition levels.

The second major turning point was the **"Paradigm Shift in Regulatory Formalization"** initiated by the **PMFME scheme and the FSSAI's State Food Safety Index (SFSI)** initiative. Since 2020, the focus has shifted toward the formalization of the **24.5 lakh unregistered food enterprises** that constitute 98% of the sector. This turned food processing from a "subsistence activity" into a "monitored industry." The implementation of mandatory **PAN compliance** for petty Food Business Operators (FBOs) and the introduction of credit-linked subsidies for modernization created a "formalization divide". Developed regions like Pune, with a high density of educated entrepreneurs and a supportive banking ecosystem, saw a cumulative loan sanction rate of 28.2%, whereas backward districts struggled with pendency and documentation gaps. This turning point suggests that the future of the industry will be defined by "compliance readiness," where the ability to meet global standards like ISO 22000 becomes the primary determinant of a region's industrial growth.

Evolutionary Synthesis of Developed vs. Backward Regions

The developed regions have evolved into **"Tech-Enabled Export Hubs,"** leveraging high urbanization, cosmopolitan consumption patterns, and Industry 4.0 applications to capture global markets. In contrast, the backward regions have evolved into **"Resource-Heavy Input Zones,"** where high primary production is undermined by a structural breakdown in the secondary and tertiary value chains. The 2019 Industrial Policy provided the "fiscal pull" for these backward regions, but the COVID-19 pandemic revealed that without **"adaptive logistics" and "stakeholder cooperation,"** fiscal incentives are insufficient to build a resilient industry. The divergence is now a matter of **"systemic integration"**—Pune is integrated into the global grid, while Vidarbha and Marathwada are still struggling to integrate into the national one.

7. Conclusion

The comparative study of food processing units in Maharashtra from 2015 to 2025 reveals a profound historical divergence between the developed Western belt and the backward hinterlands. **Historical Conclusions** indicate that while the state has maintained its industrial leadership, accounting for over 15% of national output, the spatial distribution of value-addition has remained highly concentrated. The developed regions, particularly Pune City, have successfully transitioned into sophisticated manufacturing clusters driven by high urban demand and superior connectivity to global markets. Conversely, the backward regions of Vidarbha and Marathwada remain caught in a primary production cycle where raw agricultural wealth—such as cotton and oranges—fails to translate into regional industrialization due to a structural breakdown in processing infrastructure and logistical connectivity.

The **Implications** of these findings suggest that the traditional reliance on fiscal incentives, as seen in the Package Scheme of Incentives (PSI), is insufficient to rectify regional imbalances. The "saturation" of developed regions has not naturally pushed investment into the hinterlands because the "USP" of infrastructure and skilled manpower in the Mumbai-Pune corridor remains unparalleled. For backward

regions, the "missing link" is not just capital but "compliance readiness" and "managerial autonomy." The formalization of micro-enterprises through the PMFME scheme is a vital step, but it must be supported by a robust banking ecosystem and decentralized food-testing laboratories to help small units overcome the high barriers to standardization and export.

The **Future Scope** of the food processing industry in Maharashtra lies in the strategic development of "GI-based clusters" and the integration of "Industry 4.0" technologies. As India moves toward the "Viksit Bharat@2047" vision, the sector is projected to become a USD 2 trillion global powerhouse. To capture this growth, Maharashtra must move beyond "generic industrialization" toward "region-specific value chains." Future research should explore the role of digital transformation in leapfrogging the technological gap in Vidarbha and Marathwada. Achieving a "Balanced Regional Industrialization" will require not only government support but a concerted effort to build resilient, sustainable, and locally-owned food systems that can compete on quality, safety, and innovation in the international arena.

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