



Original Article

Geographical Pattern of Industrial Diversification and Employment Generation in Sangli District, Maharashtra

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Abstract:

Industrial diversification is an important dimension of regional economic development because it influences employment opportunities, investment patterns, resource utilization and the spatial organization of economic activities. Sangli district of Maharashtra presents an interesting case of industrial development because its economic structure combines agriculture, agro-processing, manufacturing, engineering, textiles, food processing and service activities. The present study examines the geographical pattern of industrial diversification and employment generation in Sangli district using secondary data, particularly the Brief Industrial Profile of Sangli District prepared by the MSME Development Institute, Mumbai. The study focuses on the sectoral structure of micro, small and medium enterprises, employment generation, investment and selected industrial clusters. The analysis shows that the industrial structure of Sangli is relatively diversified, although employment and enterprise concentration varies considerably among sectors. Textile manufacturing, fabricated metal products, food and beverages, basic metals, chemicals, rubber and plastics, machinery and electrical equipment constitute important components of the industrial economy. The district's agro-climatic diversity and agricultural resource base have encouraged the development of agro-based industries, while urban centres and established industrial locations have supported manufacturing and service activities. The study also highlights the importance of raisin, textile and turmeric clusters in employment generation. The findings indicate that industrial diversification in Sangli is closely associated with resource availability, market access, infrastructure, labour, historical industrial development and cluster formation. The paper concludes that balanced industrial development requires technological upgrading, improved common infrastructure, skill development, testing and certification facilities, and stronger linkages between agricultural production and processing industries.

Keywords: *Industrial Diversification, Employment Generation, MSMEs, Industrial Geography, Industrial Clusters, Spatial Distribution, Sangli District, Maharashtra*

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Introduction:

Industrialization is an important component of regional transformation. It influences the economic structure of a region by creating employment, generating investment, stimulating markets and establishing linkages between agriculture, manufacturing and services. From a geographical perspective, industrial development is not distributed uniformly across space. Industries tend to concentrate in locations where raw materials, labour, markets, transport, infrastructure, capital and institutional support are relatively accessible. At the same time, the nature and intensity of industrial diversification may vary between different parts of the same district.

Industrial diversification refers to the development of a range of industrial activities rather than dependence on a single industrial sector. A diversified industrial structure can provide a broader employment base and reduce excessive dependence on a particular commodity or industry. However, diversification does not necessarily mean that all parts of a region receive equal benefits. Industrial activities may remain concentrated around selected urban centres, transport corridors, industrial estates or resource-rich locations. Therefore, the study of industrial diversification requires both a sectoral and a spatial perspective.

Sangli district provides an appropriate setting for such an analysis. The district is situated in the western part of Maharashtra and covers approximately 8,572 sq. km. It is associated geographically with the Krishna and Warna river basins. The district exhibits considerable environmental variation, ranging from relatively high-rainfall western areas to drought-prone eastern areas. The official

industrial profile identifies the western hilly region, the river-basin plain and the eastern plateau as distinct geographical environments.

The economic geography of Sangli is also closely connected with agriculture. The district has an important grape-producing base and a substantial wholesale grape market. Kirloskarwadi represents an important historical industrial location in the district and is associated with the early development of engineering industry. These characteristics have contributed to the emergence of both agro-based and manufacturing industries.

According to the *Brief Industrial Profile of Sangli District*, the district had 5,099 micro, small and medium enterprises cumulatively up to March 2012, providing employment to 56,423 persons. The total investment in plant and machinery was reported at approximately ₹71,060 lakh, while production capacity was approximately ₹225,636 lakh. The report also recorded MSME turnover of ₹3,200 crore and exports of ₹289 crore during 2011–12.

These figures demonstrate the scale of the industrial economy, but they do not by themselves explain the geographical organization of industrial activity. The present study therefore moves beyond a simple description of industrial growth and examines the relationship between industrial diversification and employment generation.

Study Area:

Sangli district is located in western Maharashtra. According to the industrial profile used for this study, the district covers an area of approximately 8,572 sq. km. and lies within the Krishna and Warna river basins. The district is surrounded by Satara and Solapur districts to



the north, Vijayapura to the east, Kolhapur and Belagavi to the south and Ratnagiri to the west.

The physical environment of the district displays considerable spatial variation. The western part is characterized by higher rainfall and hilly terrain, while the central river-basin region consists largely of plains with moderate rainfall. The eastern part is comparatively dry and drought-prone. The report notes rainfall variation from more than 4,000 mm in the Chandoli–Shirala region to around 500 mm in parts of Atpadi and Jat.

This environmental variation is important from an industrial-geographical perspective because agriculture, raw-material availability and industrial possibilities differ spatially. Agricultural production in the district provides a resource base for food processing and agro-based industries, while urban centres and established industrial locations provide opportunities for engineering, textile, metal and service industries.

Objectives of the Study:

The study has the following objectives:

1. To examine the sectoral structure and geographical pattern of industrial diversification in Sangli district.
2. To analyse the contribution of different industrial sectors to employment generation.
3. To examine the relationship between industrial units, investment and employment.
4. To identify the major industrial clusters and geographical factors influencing industrial diversification in the district.

Database and Methodology:

1. Database:

The study is primarily based on secondary data. The principal source is the *Brief Industrial Profile of Sangli District*, prepared by the MSME Development Institute, Mumbai, Ministry of Micro, Small and Medium Enterprises, Government of India. The report contains information on industrial units, employment, investment, production capacity, industrial sectors, large-scale industries, exportable products, potential enterprises and industrial clusters.

The industrial profile reports cumulative industrial information up to March 2012. Therefore, the quantitative results in this paper should be interpreted as a **historical industrial baseline**, not as a description of the present industrial structure of Sangli district.

2. Methods of Analysis:

Percentage analysis, comparative analysis, employment intensity and sectoral interpretation have been used to examine the industrial structure.

Employment intensity has been considered using:

$$\text{Employment Intensity} = \frac{\text{Total Employment}}{\text{Number of Enterprises}}$$

This indicator helps identify sectors that generate comparatively greater employment per enterprise.

Industrial Structure of Sangli District:

The industrial profile provides a useful picture of the scale and composition of MSME activity in Sangli district.



Table 1. MSME Industrial Profile of Sangli District, up to March 2012

Category	Manufacturing Units	Service Units	Total Enterprises	Manufacturing Employment	Service Employment	Total Employment
Micro	3,769	266	4,035	33,731	1,225	34,956
Small	972	88	1,060	19,499	1,646	21,145
Medium	3	1	4	230	92	322
Total	4,744	355	5,099	53,460	2,963	56,423

Source: MSME Development Institute, Mumbai, Brief Industrial Profile of Sangli District.

The data demonstrate the dominance of manufacturing within the MSME structure. Out of 5,099 enterprises, 4,744 were manufacturing enterprises, while 355 were service enterprises. Manufacturing activities also accounted for 53,460 of the 56,423 recorded MSME employment opportunities.

This indicates that, during the reference period, manufacturing constituted the principal

employment-generating component of the district's MSME economy.

The micro-enterprise category was numerically dominant, with 4,035 enterprises and 34,956 employment. Small enterprises accounted for 1,060 enterprises and 21,145 employment. The medium-enterprise category was comparatively very small, with four enterprises and 322 employment.

Sectoral Pattern of Industrial Diversification:

The sectoral distribution of enterprises reveals a diversified industrial structure.

Table 2. Selected Industrial Sectors in Sangli District

Industrial Sector	Enterprises	Employment	Investment in Plant & Machinery (₹ lakh)
Food Products & Beverages	480	5,738	9,278
Textiles	874	7,504	11,934
Wearing Apparel	10	72	77
Leather & Footwear	101	543	899
Paper & Paper Products	163	2,162	2,732
Printing & Publishing	140	1,373	2,797
Chemicals & Chemical Products	391	4,129	5,596
Rubber & Plastic Products	286	3,251	4,221
Basic Metals	306	4,994	1,064
Fabricated Metal Products	570	7,419	5,982
Machinery & Equipment	414	3,623	5,664
Electrical Machinery & Apparatus	258	3,549	3,271
Other Service Activities	226	2,157	5,588

Source: MSME Development Institute, Mumbai, Brief Industrial Profile of Sangli District.



The table indicates substantial variation between industrial sectors. Textile manufacturing recorded 874 enterprises and 7,504 employment, making it one of the largest sectors in terms of both enterprises and employment. Fabricated metal products accounted for 570 enterprises and 7,419 employment. Food products and beverages recorded 480 enterprises and 5,738 employment. Basic metals accounted for 306 enterprises and 4,994 employment.

Chemical industries, machinery, rubber and plastics and electrical machinery also made substantial contributions.

The presence of these sectors demonstrates that Sangli's industrial structure was not dependent on a single manufacturing activity. Instead, it incorporated agricultural processing, textiles, metals, engineering, chemicals, plastics and electrical manufacturing.

Industrial Diversification and Employment:

One of the important findings emerging from the sectoral data is that the number of enterprises does not always correspond directly with employment generation.

For example, textile manufacturing had 874 enterprises and generated 7,504 employment, whereas fabricated metal products had 570 enterprises but generated 7,419 employment. Thus, the average employment per enterprise was relatively higher in fabricated metal manufacturing than in textiles.

Similarly, the basic metals sector had 306 enterprises and 4,994 employment. This indicates relatively high employment intensity compared with several sectors having a larger number of enterprises.

Using the available data, approximate employment intensity can be calculated.

Table 3. Employment Intensity of Selected Industrial Sectors

Industrial Sector	Enterprises	Employment	Approx. Employment per Enterprise
Food & Beverages	480	5,738	11.95
Textiles	874	7,504	8.59
Chemicals	391	4,129	10.56
Rubber & Plastics	286	3,251	11.37
Basic Metals	306	4,994	16.32
Fabricated Metals	570	7,419	13.02
Machinery	414	3,623	8.75
Electrical Machinery	258	3,549	13.76

Calculated from the industrial sector data reported in the MSME industrial profile.

The calculated values demonstrate that employment generation is sector-specific. Basic metals and electrical machinery show comparatively high employment intensity among the selected sectors, while textiles and

machinery show comparatively lower employment per enterprise.

This finding is important because the geographical impact of industrialization cannot be assessed simply by counting industrial units.



The employment-generating capacity of those units must also be considered.

Temporal Pattern of Registered Industrial Units:

The report provides year-wise information on industrial units registered with the District Industries Centre.

Table 4. Year-wise Registered Industrial Units, Employment and Investment

Year	Units Registered	Employment	Investment (₹ lakh)
Up to 2005–06	1,074	7,518	9,666
2006–07	1,300	9,100	11,700
2007–08	414	4,060	7,174
2008–09	615	6,733	7,348
2009–10	335	3,864	8,209
2010–11	518	7,377	7,644
2011–12	439	4,657	8,713

Source: MSME Development Institute, Mumbai.

The data show substantial year-to-year variation. The highest number of units registered during the reported annual period occurred in 2006–07, when 1,300 units were recorded along with 9,100 employment. The subsequent years show fluctuations in both registration and employment.

This variation suggests that industrial development does not necessarily occur through a smooth linear process. Economic conditions, investment decisions, government policies, market demand, availability of credit and sector-specific circumstances can influence the establishment of enterprises.

The annual data should therefore be interpreted as an indicator of changing industrial activity rather than as a continuous measure of the total industrial stock.

Geographical Pattern of Industrial Development:

The spatial organization of industry in Sangli is influenced by a combination of physical, economic and historical factors.

1. Resource-Based Industrial Development:

Agriculture is an important component of the district's economic base. The industrial profile identifies Sangli as an important grape-producing district and records a substantial wholesale grape market. The availability of agricultural raw materials has encouraged the development of food processing and agro-based activities. Potential industries identified in the report include fruit processing of grapes, tomatoes, pomegranates, papaya and mango, dairy products, essential oils, organic products and other agro-based activities. This indicates an important agricultural–industrial linkage in the district.

2. Urban and Market Influence:

Industrial activities tend to benefit from access to urban markets, transport facilities,



labour and services. The presence of established urban and industrial centres has therefore influenced the development of manufacturing and service activities. Sangli–Miraj and surrounding industrial locations have historically provided an important industrial base. The existence of Kirloskarwadi as an established industrial location also demonstrates the importance of historical industrial investment in shaping the present industrial landscape.

3. Regional Environmental Variation:

The east–west environmental contrast is significant for industrial geography. The western region has higher rainfall and stronger agricultural and forest resources, while the eastern region experiences much drier conditions. Consequently, the nature of raw-material availability, agricultural production and economic opportunities varies spatially. Industrial diversification can therefore be understood partly as a response to differences in resource availability and accessibility.

Major Industrial Clusters and Employment Generation:

The industrial profile identifies three major manufacturing clusters:

1. Raisin Making Cluster
2. Textile Cluster
3. Turmeric Cluster

These clusters demonstrate how localized concentrations of enterprises can create employment and strengthen regional economic linkages.

1. Raisin-Making Cluster:

The raisin cluster is associated with grape processing, particularly the production of raisins. The report records 138 functional units, a turnover of approximately ₹150 crore, exports

of ₹80 crore and employment of approximately 2,000 persons. The average investment in plant and machinery was reported at ₹15 lakh.

The cluster is significant because it links agricultural production directly with processing and marketing. At the same time, the report identifies technological and quality-related limitations. Traditional processing, manual destemming, grading and sorting, lack of adequate testing facilities and limitations in export-quality packaging were identified as important issues. Thus, the raisin cluster represents both the strength and the constraints of agro-based industrial diversification.

2. Textile Cluster:

The textile cluster is located in the Vita area and consists of 50 functional units. The report records approximately 1,000 employment and turnover of ₹1,600 lakh. Average investment in plant and machinery was approximately ₹19.68 lakh.

An important geographical issue is the cluster's dependence on facilities outside the immediate region. The report notes that textile units obtain facilities such as sizing and testing of yarn and fabric from Ichalkaranji, approximately 85 km away. This demonstrates how industrial clusters are influenced not only by local resources but also by inter-regional linkages.

3. Turmeric Cluster:

The turmeric cluster consists of 54 units, including 38 registered and 16 unregistered units. The principal products are turmeric processing and turmeric powder. The report records turnover of approximately ₹1,000 lakh and employment of approximately 900 persons.

The turmeric cluster demonstrates the importance of agricultural commodity



processing in the industrial diversification of Sangli.

Factors Influencing Industrial Diversification:

The industrial geography of Sangli can be interpreted through several interconnected factors.

- 1. Agricultural Raw Materials:** The agricultural resource base supports food processing, grape processing, raisin production and turmeric processing.
- 2. Labour Availability:** Manufacturing enterprises create employment opportunities for both skilled and semi-skilled workers. Labour availability also encourages the development of labour-intensive industries such as textiles and food processing.
- 3. Market Accessibility:** Markets influence the location and growth of enterprises by reducing transportation costs and facilitating the movement of raw materials and finished goods.
- 4. Historical Industrial Development:** Established industrial locations create institutional memory, skilled labour pools, supplier networks and supporting infrastructure. Kirloskarwadi represents an important historical example in Sangli's industrial development.
- 5. Industrial Infrastructure:** Industrial estates, roads, testing facilities, power supply, storage facilities and common service centres can influence the competitiveness of MSMEs.
- 6. Cluster Formation:** Industrial clusters encourage specialization and interaction among enterprises. The raisin, textile and turmeric clusters demonstrate the importance of spatial concentration and common facilities.

Discussion:

The analysis demonstrates that industrial diversification in Sangli is a multidimensional process. The district's industrial economy consists of a combination of agro-based, textile, engineering, metal, chemical, plastic, electrical and service activities.

The dominance of manufacturing within the MSME structure is particularly important. Of the 5,099 MSMEs recorded up to March 2012, 4,744 were manufacturing enterprises. Manufacturing also generated 53,460 of the 56,423 reported MSME employment opportunities.

The sectoral distribution further indicates that employment generation is not determined simply by the number of enterprises. Fabricated metal products, textiles, food and beverages and basic metals each demonstrate substantial employment contributions, but their employment intensity varies.

The industrial structure also reflects the geographical character of the district. Agro-processing industries are connected with agricultural production, while manufacturing and service activities benefit from urban markets, transport, labour and industrial infrastructure.

The cluster structure reinforces this geographical specialization. Raisin, textile and turmeric clusters demonstrate different forms of regional specialization. The raisin cluster is strongly connected with the grape economy, the textile cluster is associated with manufacturing and garment activities, and the turmeric cluster is based on agricultural processing.

The study therefore suggests that industrial diversification in Sangli should not be interpreted as complete spatial uniformity.



Rather, diversification exists at the district level while individual sectors and clusters show varying degrees of geographical concentration.

This distinction is important for regional planning. A district may possess a diversified economy overall while particular areas remain highly specialized or relatively underdeveloped.

Major Findings:

The major findings of the study are as follows:

1. **Sangli has a diversified MSME industrial structure.** The industrial profile records 5,099 MSME enterprises up to March 2012.
2. **Manufacturing is the dominant component of the MSME economy,** accounting for 4,744 enterprises and 53,460 employment.
3. **Textile, fabricated metal and food-processing industries are major employment-generating sectors.**
4. **Employment intensity varies considerably among industrial sectors.** Therefore, the number of enterprises alone cannot be used to assess employment contribution.
5. **Agriculture provides an important resource base for industrial diversification,** particularly through grape, raisin and turmeric processing.
6. **Industrial clusters play an important role in regional employment generation.** Raisin, textile and turmeric clusters together represent important examples of specialized industrial activity.
7. **The raisin cluster has considerable employment and export potential,** but technological, testing, packaging and

certification limitations constrain its development.

8. **The textile cluster demonstrates the importance of inter-regional industrial linkages,** particularly through its dependence on facilities outside the immediate cluster area.
9. **Industrial development is geographically influenced by physical and economic diversity,** including rainfall, agricultural resources, markets, labour and infrastructure.
10. **Industrial diversification creates opportunities for balanced regional development,** but infrastructure and technological disparities can limit the distribution of benefits.

Suggestions and Policy Implications:

Based on the findings, the following measures may contribute to strengthening industrial diversification and employment generation in Sangli district.

1. **Promote Agro-Processing:** Greater emphasis should be placed on processing agricultural commodities locally. This can increase value addition and create employment beyond primary agriculture.
2. **Strengthen Common Facility Centres:** Common facilities can reduce the burden on individual MSMEs and provide access to testing, packaging, processing and quality-control infrastructure.
3. **Improve Technology Adoption:** Traditional production processes should gradually be complemented by appropriate modern technologies, particularly in food processing, textiles and agro-based industries.
4. **Develop Skill-Based Training:** Industrial diversification requires skilled labour. Training



programmes should therefore be linked with the requirements of local industries and clusters.

5. Improve Testing and Certification

Facilities: Local testing and certification facilities can help MSMEs improve quality and access wider domestic and international markets.

6. Strengthen Industrial–Agricultural

Linkages: Closer integration between farmers, processors, cooperatives, producer organizations and MSMEs can strengthen local value chains.

7. Encourage Spatially Balanced Industrial

Development: Industrial infrastructure should not remain concentrated around a limited number of established centres. Suitable industrial opportunities can be encouraged in relatively less-developed areas according to local resources and environmental conditions.

8. Strengthen Branding and Marketing:

Products associated with specific geographical areas can benefit from stronger branding, packaging and market promotion. This is particularly relevant to agricultural processing products.

Conclusion:

Industrial diversification is an important component of regional development in Sangli district. The available industrial data indicate the presence of a broad range of manufacturing and service activities, with manufacturing forming the principal component of the MSME economy. Textile, fabricated metal, food and beverage, basic metal, chemical, machinery, rubber and plastic and electrical industries contribute to the diversity of the industrial structure.

The employment analysis demonstrates that industrial diversification has a significant

employment dimension. However, different sectors generate employment at different intensities. Consequently, industrial planning should consider not only the number of enterprises but also their capacity to generate sustainable employment.

The geographical character of Sangli's industrial development is closely related to its agricultural resource base, urban centres, markets, infrastructure and historical industrial locations. Agro-processing industries demonstrate strong linkages between primary production and manufacturing, while industrial clusters provide opportunities for specialization and collective development.

The raisin, textile and turmeric clusters illustrate different dimensions of this process. The raisin cluster connects grape cultivation with processing and export activity; the textile cluster demonstrates the importance of manufacturing and inter-regional linkages; and the turmeric cluster illustrates agricultural commodity processing. At the same time, technological, infrastructural, testing, packaging and certification constraints restrict the full realization of their potential.

Overall, the industrial geography of Sangli can be understood as a combination of **district-level diversification and localized sectoral specialization**. The future strengthening of employment generation would depend upon technological upgrading, skill development, better industrial infrastructure, common facilities, agricultural–industrial integration and improved market access.

The present study is based principally on industrial data reported up to March 2012 and should therefore be treated as a historical baseline. A contemporary assessment would benefit from integrating more recent enterprise,



employment and investment data with GIS-based taluka-level analysis. Such an approach would allow changes in Sangli's industrial geography to be examined more precisely over time.

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