

Industrial Development through MSMEs- A Case Study of Chittoor District in Andhra Pradesh State

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Abstract

Industrial development has direct impact on overall economic development of a region or nation. In the globalized era, it is essential for every nation to progress on par with other countries. Owing to the globalization effect, Micro, Small, and Medium Enterprises (MSMEs) have been providing significant contribution to Gross Domestic Product (GDP), industrial production, and export value. Beside agriculture, MSMEs have been regarded as largest employment provider for people of the nation. Due to the nature of low capital cost, demand for ancillary units and support for large industries, the MSMEs were emerged as the most dynamic industries in India. The MSMEs have become the life bone of the constant progress of the country. In the present study, a critical evaluation is made to examine the impact of MSMEs on industrial development in erstwhile Chittoor District of Andhra Pradesh State in India. The district being the largest venue of MSMEs in the state has significantly contributed for the industrial development in terms of providing largest proportion of total enterprises operating in the state. The study aims to study the significance of introduction of MSME Act, 2006 on generation of investment and employment. Further, the study presents the contribution of MSMEs to GVA.

Keywords

Employment, Facilities, Investment, MSME Act, 2006

1. Introduction

Industrialization has direct impact on development. In the globalized era, it is essential for every nation to progress on par with other countries. One of the most important sources of development is development through industrialization. The industrialization not only benefits the nation to prosper but also empowers the people in terms of providing employment opportunities as well availability of products and services. In India, globalization affects India's economic development and shows a pathway by providing a new economic policy which was adopted by the Government of India in July 1991. The economic policy is regarded as the milestone for the development of industrial and services sector. Particularly the services industry segments such as Information Technology Enabled

Services, Communication and Banking services have witnessed tremendous development. The impact of globalization in India has been observed in the form of the flow of foreign investments in the country.

The main intention to allow foreign investments is to raise the capital of investment and for providing employment for skilled people. Globalization provides independence to the entrepreneurs for the free flow of capital, goods, and services, labor, or human capital. In India, they allowed freedom for business so that there may be a way for doing business without facing the hurdles.

Owing to the globalization effect, MSME's significant contribution to Gross Domestic Product (GDP), industrial production, and export was increased. In the era of globalization and liberalization, there are many changes in the hands of Indian Micro, Small and Medium Industries and also many challenges are being faced for unprecedented opportunities. Global markets provide many opportunities for the business firms in the form of new target markets and the advancement of technology.

The Government of India rightly identified the challenges that might be faced due to globalization and framed well-timed measures for Micro, Small and Medium Enterprises to reap the fruits of liberalization and globalization. The Ministry of Micro Small and Medium Enterprises conducts many workshops and conferences in association with the World Trade Organization to provide knowledge for entrepreneurs. The MSMED Act, 2006 has come in a response to the outstanding demand of the MSME sector. This Act provides legal support and promotes and develops MSMEs both in manufacturing as well as the service sector.

1.1 Conceptual overview of Forms of Business enterprises

Ministry of Finance, Government of India revised the definition of MSMEs. The earlier definition of MSMEs is concentrated on the basis of investments put in, whereas the revised definition focused on turnover of the company. Further, in the new definition, manufacturing and service MSMEs are combined whereas in the earlier definition, MSMEs are differentiated on the basis of its form of business, i.e., Manufacturing and Service.

As per the Gazette Notification issued by the Government of India on 1st June 2020, the MSMEs are classified on the basis of investment in machinery and plant/ equipment and annual turnover. Table 1 presents the detailed classification of MSMEs.

Table 1. Classification of Micro, Small and Medium Enterprises

Sl.No.	Classification	Definition
1.	Micro Enterprises	Investment pattern: Not more than Rs.1 crore
		Turnover: Not more than Rs.5 crore
2.	Small Enterprises	Investment pattern: Not more than Rs.10 crore
		Turnover: Not more than Rs.50 crore
3.	Medium Enterprises	Investment pattern: Not more than Rs.50 crore
		Turnover: Not more than Rs.250 crore

Source: Gazette of India on MSMEs, Government of India, 1st June, 2020

The Micro Enterprises are literally the tiniest enterprises having a limited scope of investment and turnover. When an individual spends an investment towards plant and machinery or equipment which does not exceed the worth of up to 1 crore rupees and also the turnover resulting from the business operations of enterprises does not exceed 5 crore rupees, then the enterprise is referred as 'Micro Enterprise'. When an investor spends an investment pertaining to Plant and Machinery of equipment worth not exceeding Rs.10 crore and the turnover resulting from business operations does not exceed Rs.50 crore rupees is referred as 'Small Enterprise'. An enterprise whose investment pertains to Plant and Machinery or equipment does not exceed Rs.50 crore rupees and the turnover resulting in business operations does not exceed Rs.250 crore rupees is referred as 'Medium Enterprise'.

1.2 Introduction to MSMEs

The Micro, Small and Medium Enterprises (MSMEs) evolved as one of the most vibrant sectors providing huge support to Indian economy over the last five decades. The socio economic development of India is fostered by the rising entry of entrepreneurs in the MSMEs. Beside agriculture, MSMEs have been regarded as largest employment provider for people of the nation. Due to the nature of low capital cost, demand for ancillary units and support for large industries, the MSMEs were emerged as the most dynamic industries in India.

The Micro, Small, and Medium Enterprises (MSMEs) have become the life bone of the constant progress of the country. Industrialization in India is largely supported by MSMEs. Over the years, the MSMEs have transformed from being unorganized into organized enterprises and the support of the State and Central Government have further

contributed towards the growth of MSMEs. MSMEs have become one of the vibrant and dynamic sectors contributing to large employment as well growth of Indian economy. Due to the nature of low capital cost, many potential individual investors from rural and backward areas have chosen MSMEs for economic empowerment. The MSMEs in India represent 40 per cent of India's total exports across various sectors. As per the Ministry of MSMEs, India recorded the 5th largest in terms of the number of MSMEs operating in the country. The MSME Act, 2006 provided the guidelines for the establishment of Micro, Small, and Medium Enterprises.

1.3 Introduction to MSME Act & Provisions

The MSME Act was passed in 2006. The Act was published in a Gazette of India on 16th June, 2006. The purpose of the act is to capacitate the promotion, development and also improve the competitiveness of micro, small and medium enterprises. There is a Micro, Small & Medium enterprises ministry that overlooks the policies, development and the functioning of MSMEs all through the country.

The MSME Act 2006, which came into effect from 02/10/2006 as a single comprehensive Act for growth and regulation of small enterprises which has been a long time demand of the sector so as to free it from profuse laws and regulations, which it had to face with insufficient information and resources in India. Recommendations were asked to be made for a proper legal framework in small sector to relieve it of the requirements to comply with multiple rules and regulations by the Committees such as Abid Hussain Committee and Study Group under Dr. S.P. Gupta. In a rapid growing economy like India, the natural up gradation of small enterprises to medium ones has to be provided through appropriate policy interventions and legal framework.

The Central Government was required to issue necessary notifications under Section 11B of Industrial Development Regulation Act, 1951 - I (D&K) A 1951 and by notified order specify the requirements which shall be complied with by an Industrial Undertaking to be regarded as a Small Scale Industrial undertakings and Ancillary Industrial Undertakings.

1.4 Brief Demographic Profile of Chittoor District

Chittoor District is located in Rayalaseema region situated in Andhra Pradesh State. Chittoor city is the district head quarters of the district. Before forming into a district, Chittoor is part of North Arcot District situated in Tamilnadu. During 19th century, the district is formed by British on 1st April, 1911. The district has historic importance. Several discoveries are made in the district at places including Tirupathi, Sitarampeta, Piler, Mekalavandlapalle and Ellampalle. The Neolithic tools were unearthed Bangarupalem village. Further, Mesolithic tools were extracted at 4 places in Chittoor District. As per census report, 2011, the district comprise of a total population of 41,78,061. The district is well known for world renowned temple situated in the District. The temples such as Tirupati, Kanipakam symbolizes the distinctiveness of the district. The demographic profile of the district is summarised and presented in Table 2.

Table 2. Demographic Profile of Chittoor District

Sl.No.	Details	Value
1.	Constituted year	1 st April, 1911
1.	Total area of the District	15, 563 square kilo metres
2.	District Population	41, 78, 061
3.	Number of Villags	1540
3.	Male Population	22, 50, 082 (53.85%)
4.	Female Population	19, 27, 979 (46.15%)
6.	District map	12-37" to 14-8" northern latitude and 78-33" to 79-55" eastern longitude
7.	Total Mandals	66 Mandals
8.	Revenue Villages	1540
9.	Total Grampanchayats	1394
8.	District Borders	East – Nellore and Chengalpet West – Kolar North – Kadap and Ananthapur Districts South-North Arcot and Dharmapuri Districts(Tamilnadu)

Source: District profile accessed from chittoor.ap.gov.in

The district comprises of a total of three revenue divisions. These include Chittoor, Tirupati and Madanapalli divisions. In the district, a total of 66 Mandals covering about 1372 Gram Panchayat. A total of 612 Panchayat

Secretaries are rendering services among 760 Cluster Head Quarter Grampanchayats. A total of 62 Mandal Praja Parishads are functioning in the district. The district has a total of eight Municipalities and 1540 villages. The total literates of the district are 27, 11, 432. Among the total, 11, 98, 474 literates are female and 15, 12, 958 literates are male. The district has a total of 72.36 per cent literacy rate.

1.4 Objectives of the Study

The core objective of the research study is to evaluate the industrial development in Chittoor District with special reference to Micro, Small, and Medium Enterprises. The following are the sub-objectives of the research study.

1. To present the contribution of MSMEs towards industrial development and national economy.
2. To study the industrial profile of Chittoor District with reference to MSMEs.
3. To examine the industrial development in Chittoor District with special reference to presence of units, employment and investment generated.

2. Literature Review

A review of existing literature pertaining to MSMEs in general and in particular to MSMEs in Andhra Pradesh is presented here.

Shanmugasundaram (2011) in his attempt presented his views, perceptions, attitudes of small scale drug industries (SSDI) towards implications of new structural reforms and industrial licensing policy. The study found that, both respondents of industrial and non-industrial had a positive perception on structural reforms and new industrial policy and held that the policies are favorable to small scale drug industries for the increase of investment opportunities in semi urban areas. Bawa K et al. (2012) in their study made an empirical research to examine the role of MSMEs. The authors stated that, MSMEs played a vital role in Indian Economy and further felt that MSME sector is a key in the growth and wellbeing of the country and concluded that the developmental policy of Small and Medium Enterprises in Indian manufacturing industry has been found an important role in developing MSMEs.

Garg and Walia (2012) studied the performance of MSMEs in India by using Ordinary Least Square (OLS) technique by fitting the exponential function to the available information. They opined that the enterprises do not require a protectionary stance, but contemporary approaches like the cluster approach or harnessing the power of industry associations. Islam S (2012) in his research strived to identify the factors responsible for entrepreneurs for getting motivated and compelled to establish the business enterprises. The finding of the study showed that, money making for family, self-employment, having a rich economic status, use of personal knowledge and using past business knowledge, family business tradition and more profitable nature of business are the key influencing factors for in taking up business.

Kumar P (2014) highlighted the performance of MSME during the pre-liberalization and post-liberalization periods and found that the sector faced a number of amendments in the policies and programs for better performance during the first Industrial Policy and Micro, Small, and Medium Enterprises Development Act. Rao (2014) opined that to increase the grass-roots economy, MSMEs play a key role by not only providing large-scale employment but also providing a source of the utilization of natural resources in India.

Ahmad Lone T and Mehraj Z (2015) have explained the performance of MSMEs towards employment and livelihood opportunities. Authors have observed that due to inadequacy in market linkage, infrastructure deficiencies, finance hurdles, problems pertaining to managerial competencies, obsolete technology have caused as major issues creating hurdles to the growth of MSMEs.

Larimo (2015) has conducted a field study on 2856 companies to examine the performance of the companies in terms of management of facilities, performance on exports and the impact of firm strategies on performance of exports. The results of the study showed that, operations of both international organization and the companies performing effective management practices are significantly affecting the export performance.

Xiang and Worthington (2015) discussed the issue of Model finance-seeking behavior and outcomes of SMEs using firm-level three-year panel data from 2,000 SMEs. The study found that business goals together with a large number of firm-level features, including firm age, size, industry, and sales, profits, growth, and exports significantly affect both finance-seeking behavior and outcomes.

Sharma J and Gill G(2016) in their study have observed that, MSME is acting as one of the corner pillars for the development of Indian Economy. Authors have recommended that, policy makers should support through facilitating the MSMEs for achieving economic growth.

Aruna (2017) presented the major problems associated with MSMEs in Visakhapatnam District. The study was conducted on a sample of 150 enterprises. Factor analysis was conducted to determine the factors influencing the MSMEs. From the results of factor analysis, the author has classified the variables into nine factors. The factors

such as taxes, grants, power issues, cost of labor, raw material supply, availability of machinery, pre commence tax and registration are the factors extracted through factor analysis.

Amutha D (2020) in her study has explained the role of MSMEs in the development of entrepreneurship and employment. Bhat S (2020) has opined that, the decentralization of industrial activity has supported the growth of MSMEs and further, due to the availability of rich human resources, the MSMEs in India has tremendous scope for development. Shelly r et al. (2020) have explored the growth in MSMEs and further analyzed the relationship between MSME sector and Sustainable Development Goals.

Article published in Economic Times (2021) article highlighted the MSME Sector with special reference to its contribution to Economic Growth. In the article, it is specified that, the MSME sector in India is always been challenging due to the low cost imports, competition from rival industries. In the article, it is specified that, though most of the SMEs are working on thin margins, massive presence of SMEs would help the nation to achieve economic growth.

Manohar (2021) stated that MSMEs are providing about 30 per cent to India's GDP. The study has compared the urban and rural wise distribution of enterprises and employment through enterprises.

Based on the observation of literature, it is noticed that most of the studies were concentrated on problems faced by MSMEs, the presence of MSMEs in India, the effect of COVID-19 on MSMEs performance, an increase of exports and employment due to the growth of MSMEs, the impact of industrial policy and Government on the progress of MSMEs.

3. Methods

The study primarily focuses on secondary sources of data. Performance of MSMEs in India, status of MSMEs in India with special regard to Chittoor District in Andhra Pradesh state are studied using Mean, Standard deviation, Compound Annual Growth rate. Significant differences in the performance of MSME units both before after the introduction of MSMED Act, 2006 are examined using Paired Sample t-test.

4. Data Collection

The data is obtained from secondary data sources.

The required data were collected from the following sources.

- a. MSME reports issued by Ministry of Industries, Government of India
- b. MSME reports issued by Department of Industries, Government of Andhra Pradesh
- c. Indian Brand Equity Foundation (IBEF) reports on Industrial Development in Andhra Pradesh
- d. SamagraParishrama Survey, 2020
- e. Reports of Andhra Pradesh Economic Development Board (APEDB)
- f. Dr YSR Navodayam Reports

Apart from these, the data pertaining to literature were collected from books, research papers, journals, newspapers, and internet sources, unpublished theses and Dissertations.

5. Results and Discussion

Objective wise analysis is made, and the key results are presented in the following heads.

5.1 Year wise contribution of MSMEs to Gross Value Added (GVA)

An attempt is made to evaluate the role of MSMEs towards the growth of GVA growth rate of India. As per the statistics extracted from Ministry of Statistics & Panning, Government of India, MSMEs have a significant role towards its contribution to Gross value added(GVA) representing as one of the contributors for economic growth. Results of the reports are presented in Table 3.

Table 3. Contribution to MSME Sector to GVA

Sl.No.	Year	Contribution to GVA	Growth percent
1.	2011-12	31.86	—
2.	2012-13	32.36	1.57
3.	2013-14	32.26	-0.31
4.	2014-15	31.86	-1.24

5.	2015-16	31.60	-0.82
6.	2016-17	29.20	-7.59
7.	2017-18	28.90	-1.03
8.	2018-19	30.50	5.54
9.	2019-20	30.00	-1.64
10.	2020-21	25.92	-13.6
	Mean	30.446	
	SD	2.02522	
	CAGR	-2.26655	

Source: Central Statistics Office, Ministry of Statistics & Panning, Government of India, New Delhi.

As per the revised All India GVA at current Prices (2011-12), the contribution of MSME to Gross Value added lies in the range of 25.92 percent to 32.36 percent. Highest contribution to GA was achieved during 2012-13 period. And the least contribution is witnessed during 2020-21 period. During 2020-21 period, the contribution of MSME to GVA was lesser due to the impact of COVID-19 on MSME sector. The comparison of growth rate results clearly reveals that, there is a high fluctuation in the growth rate of MSME sector contribution to GVA. Highest growth rate is recorded during 2018-19 with 5.54 percent and highest negative growth rate is observed during 2020-21 period. The average contribution of MSME sector to GVA is 30.446 percent with a standard deviation of 2.02 percent. The Compound annual growth rate is -2.26 percent in between 2011-12 to 2020-21 period. The compound annual growth rate is highly influenced by the performance of MSME sector during 2020-21 period.

5.2 District-wise MSMEs functioning in Andhra Pradesh State

District wise MSMEs functioning in Andhra Pradesh State are presented in Table 4. As per MSME reports, 2021 issued by Government of Andhra Pradesh state, a total of 37700 micro enterprises, 2616 small enterprises and 564 Medium enterprises are functioning in the state of Andhra Pradesh. District wise comparison of MSMEs reveals the following observations.

- Highest number of MSMEs is functioning in Chittoor district. The district has a total of 6615 enterprises functioning under MSME segment.
- A comparison of micro enterprises reveals that, Chittoor district represents the highest with 6311 enterprises followed by Krishna district with 4099 enterprises and Visakhapatnam district represents 3293 enterprises.
- The comparison of small enterprises reveal that, Krishna district represents highest number of small enterprise with 372 units functioning followed by Guntur district with 312 units. Vizianagaram district represents the least with 61 small enterprises functioning in the district.
- A comparison of medium enterprises reveal that, Krishna district represents 77 units which is the highest among the districts followed by Chittoor district with 58 units. Least among the districts is represented by Y.S.R. Kadapa district with only nine units are functioning in the district.

It is observed that Chittoor district has 16.74 per cent of total Micro enterprises, 9.4 per cent of small enterprises and 6.20 per cent of medium enterprises. The comparison of total enterprises reveals that, Chittoor district possesses 16.18 per cent of total MSMEs functioning in the Andhra Pradesh state.

Table 4. District-wise MSMEs functioning in Andhra Pradesh State

Sl. No.	District Category	Micro Enterprises	Small Enterprises	Medium Enterprises	Total
1	Srikakulam	1781	105	16	1902
2	Vizianagaram	1614	61	17	1692
3	Visakhapatnam	3293	262	71	3626
4	East Godavari	2889	231	50	3170
5	West Godavari	2965	289	57	3311
6	Krishna	4099	372	77	4548
7	Guntur	3258	312	70	3640
8	Prakasam	1433	227	25	1685
9	S.P.S.R. Nellore	2878	180	35	3093

10	Chittoor	6311	246	58	6615
11	Y.S.R Kadapa	2091	72	9	2172
12	Anantapuramu	3813	135	44	3992
13	Kurnool	1275	124	35	1434
	Total	37700	2616	564	40880

Source: Reports of Department of Industries, Government of Andhra Pradesh, 2022

5.3 District-wise MSMEs in progress in Andhra Pradesh State

MSME reports, 2021-22 issued by Andhra Pradesh Industrial Infrastructure Corporation (APIIC) is considered for analysis of district-wise MSMEs and their progress in 13 districts of Andhra Pradesh state. Category-wise number of MSMEs is portrayed in Table 5.

Table 5. District-wise progress of MSMEs in Andhra Pradesh State

Sl. No.	District Category	Micro Enterprises	Small Enterprises	Medium Enterprises	Total
1	Srikakulam	251	22	6	279
2	Vizianagaram	145	18	7	170
3	Visakhapatnam	424	46	24	494
4	East Godavari	251	20	10	281
5	West Godavari	49	20	20	89
6	Krishna	211	27	10	248
7	Guntur	240	50	23	313
8	Prakasam	121	21	6	148
9	S.P.S.R. Nellore	144	22	12	178
10	Chittoor	345	39	14	398
11	Y.S.R Kadapa	185	8	3	196
12	Anantapuramu	275	26	18	319
13	Kurnool	81	11	4	96
	Total	2722	330	157	3209

Source: APIIC reports, 2021-22

As per MSME reports, 2021 issued by Government of Andhra Pradesh State, a total of 2722 micro enterprises, 330 small enterprises and 157 Medium enterprises are in progress of development in the State of Andhra Pradesh. District wise comparison of total MSMEs in progress reveals the following observations.

- e. Highest number of MSMEs is in progress in Chittoor district. The district has a total of 424 enterprises in progress under micro enterprises
- f. A comparison of micro enterprises reveals that, Chittoor district represent highest with 6311 enterprises followed by Krishna district with 4099 enterprises and Visakhapatnam district representing 3293 enterprises.
- g. A comparison of small enterprises reveals that, Krishna district represents highest number of small enterprises with 372 units functioning followed by Guntur district with 312 units. Vizianagaram district represents least with 61 small enterprises functioning in the district.
- h. A comparison of medium enterprises district-wise reveals that Krishna district represents 77 enterprises with highest number followed by Chittoor district with 58 enterprises. While the least in Y.S.R. Kadapa district only with nine enterprises are functioning in the district.
- i. The study on Chittoor District reveals that, a total of 345 enterprises are functioning as Micro Enterprises followed by 39 enterprises as Small Enterprises and 14 enterprises as Medium enterprises in the select period of study. The proportion of Micro enterprises is highest among the total functioning MSMEs.

The proportion of Micro enterprises is 86.6 and Small Enterprises holds 9.7 percent and Medium Enterprises holds 3.5 percent.

5.4 Industrial Clusters in Andhra Pradesh State

Table-6 exhibits the details of the status of industrial clusters situated in Andhra Pradesh State.

Table 6. Industrial Clusters in Andhra Pradesh State

L.No	Location of the Industrial Cluster	Type of Cluster	No.of Acres	Total Cost of the Project Rs. In Lakhs	MSME (GoI) grant (Rs. In Lakhs)
1	Makavaripalem-Visakhapatnam	Aluminum & General Engg. cluster	111.44	2771.70	800.00
2	Kopparthi – Kadapa	Engineering Cluster	87.48	2149.75	800.00
3	Gandrajupalli – Chittoor	Silk & Garments cluster	100.00	3985.31	800.00
4	Peddapuram – E.G Dist	Traditional Food cluster	20.60	1026.22	800.00
5	Mangalagiri – Guntur Dist	General Engg Park	51.83	2537.52	800.00
6	Machilipatnam – Krishna Dist	Upgradation of existing Imitation Jewellery Park	43.00	1529.03	743.54
7	Palakollu – W.G.dist	Upgradation of existing Coir Park	12.24	750.88	750.88
8	Palasa – Srikakulam Dist	Upgradation of existing Cashew Park	31.61	656.58	656.58
	TOTAL :		458.20	15406.99	6151.00

Source: APIIC reports, 2021-22

It is clear from the table that the clusters in Andhra Pradesh State a total of eight industrial clusters are in progress with 458.20 lakh acres of land with a total cost of project ranging about Rs.15406.99 lakhs. The MSME grant released by Government of India for these eight clusters come to Rs.6151 lakhs. The type of industrial clusters include Aluminium & General, Engineering, Silk & Garments, Traditional food, General engineering, Jewellery, upgradation of Coir park and existing Cashew park. In Chittoor District, the Industrial Cluster is located at Gandrajupalli. This Cluster specifically focuses on Silk & Garments category with a land of 100 acres. The total cost of the project sanctioned for industrial cluster in Chittoor District is Rs.3985.31 lakhs and grant released by Government of India exclusively for MSMEs is Rs.800 lakhs.

5.5 Current Status of MSMEs in Chittoor District

Chittoor District is one of the potential districts for industrial development. Though the district is not blessed with water resources for much agricultural development, the district has been one of the emerging districts in South India with faster industrial development. Especially, the micro enterprises have been the strength of the District. Erstwhile Chittoor District has recorded for being largest district in terms of presence of micro enterprises. As of 2020-21 statistics, a total of 6311 micro enterprises have been functioning in the district. The district has noted Micro and Small Enterprises. Some of the large enterprises such as Amar Raja, Lanco Industries, Vinsary Frutech, Heritage Foods India Limited, Gomathi Spinners, Five Sugar Factories, Fruit Caning Industries and Mango Pulp Units have come up in the district. The other noteworthy business enterprises include Cotton textiles mills, Granite units, Milk and milk products units, Oil mills, Agro based food-processing units, Mineral based and Tannery units. The current status of MSMEs in Chittoor District is summarized and shown in table-7

As of 2021-22 statistics extracted from Samagra Parishrama Survey issued by Department of Industries, Government of Andhra Pradesh, Chittoor district has a total of 6691 industrial units functioning which comprise of 6615 MSMEs and 76 Large and Mega enterprises. Statistics on MSMEs show that 6311 enterprises (94 per cent) are belong to Micro, 246 enterprises constituting about 4 per cent are the Small Enterprises, 58 enterprises (0.86 per cent) belong to Medium Enterprises. The rest of the enterprises are belong to Large (1.06 per cent) and Mega enterprises (0.074 per cent).

Table 7. Status of MSMEs in Chittoor District

Sl.No.	Industry Category	Number of Enterprises	Proportion of Total Enterprises	Proportion of MSMEs to large and mega enterprises
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1.	Micro Enterprises	6311	94.32	Total MSMEs = 6615 (98.86%)
2.	Small Enterprises	246	3.67	
3.	Medium Enterprises	58	0.866	
4.	Large Enterprises	71	1.061	Proportion of Large and Mega Enterprises to total industries = 76 (1.13%)
5.	Mega Enterprises	05	0.074	
	Total	6691	100	100%

Source: Compile from the reports of Samagra Parishrama Survey, 2021-22

5.6 Industrial Development through MSMEs in Chittoor District before the Introduction of MSMED Act, 2006

The number of MSMEs that were present in Chittoor District both before the implementation of Micro, Small and Medium Enterprises Development Act, 2006. A period of 8 years comprising from 1999 to 2006 was taken into consideration to evaluate the total number of units, total investment and total employment generated. In between 1999 to 2006, the number of MSMEs was increased from 1449 units to 2219 units. In terms of total investment, the investment was increased from Rs. 1816.75 lakh rupees to Rs.3000.36 lakhs. The total employment generated has increased from 5556 to 6240. The average number of enterprises recorded in between 1999 to 2006 is 2104 units with a standard deviation of 297 units. The Compound Annual Growth Rate recorded in total number of units is 4.97 per cent. The total investment has recorded a mean value of Rs.2798.96 lakhs in between 1999 to 2007. The standard deviation in total investment is 478.50 lakhs. The Compound Annual Growth Rate recorded is 6.78 per cent. The total employment generated has recorded an average value of 6735 workers with a standard deviation of 651 workers. The Compound Annual Growth rate in the total employment generated has reached 2.35 per cent.

Table 8. Performance of MSMEs in Select categories before the introduction of MSMED Act, 2006

Sl.No	Year	Total number of units	Total Investment in Lakhs	Total Employment generated
1	1999	1449	1816.75	5556
2	2000	1915	2330.03	6673
3	2001	2045	2646.75	6522
4	2002	2071	2782.79	6640
5	2003	2229	2912.65	6899
6	2004	2514	3206.12	7392
7	2005	2255	3217.44	7845
8	2006	2219	3000.36	6240
	Mean	2087.125	2739.111	6720.875
	SD	313.2295	474.1607	695.121
	CAGR	6.28	7.43	1.67

Source: Compiled from DIC Chittoor District, Commissioner of Industries, A.P

The statistics reveal that, the average number of MSME units functioning are 2087 units in the between 1999 and 2006. The standard deviation of number of units is 313 units. The total number of units before the introduction of MSMED Act, 2006 has shown 6.28 percent of compound annual growth rate. The total investment has recorded average value of Rs. 2739.11 lakh in between 1999 to 2006. The standard deviation in total investment is Rs.474.16 lakhs. The compound annual growth rate recorded is 7.43 per cent. The total employment generated has recorded an average of 6721 workers with a standard deviation of 695 workers. The compound annual growth rate in the total employment generated has reached 1.67 per cent.

5.7 Performance of MSMEs in Select categories after the introduction of MSMED Act, 2006

The introduction of MSMED Act, 2006 boosted for the development of industrial development in Chittoor district. Especially in MSMEs segment, the total number of enterprises in the eight select categories of industries gone up tremendously. The total investment in lakhs has also been increased. Beside the total employment generated has been more than doubled during 2008 - 2020. In between 2008 to 2020, the number of MSMEs have been increased from 2255 enterprises to 3160 in the select categories. In terms of total investment, the investment has been increased from Rs.3435.82 lakhs to Rs.4959lakhs. The total employment generated has increased from 7466 to 19245. The average number of enterprises recorded during the period is 2651 enterprises with a standard deviation of 345 units. The compound annual growth rate recorded in total number of units is 2.63 per cent. It is observed that the total investment has recorded a mean value of Rs.4412.52 lakhs during the same period and the standard deviation in total investment Rs.503.46 lakhs. The compound annual growth rate recorded is 2.86 per cent. The total employment generated registered a mean of 13286 workers with a standard deviation of 3981 workers. The compound annual growth rate in the total employment generated has reached 7.56 per cent.

Table 9. Performance of MSMEs in Select categories after the introduction of MSMED Act, 2006

Sl.No	Year	Total No.Of Units	Total Investment in Lakhs	Total Employment generated
1.	2007	2242	3277.77	6845.00
2.	2008	2255	3435.82	7466
3.	2009	2264	3659.36	8195
4.	2010	2275	3885.18	8929
5.	2011	2287	4259.46	9766
6.	2012	2306	4586.88	10142
7.	2013	2476	4369.65	12978
8.	2014	2785	4289.95	14523
9.	2015	2863	4488.76	14913
10.	2016	2898	4665.7	15263
11.	2017	2904	4896.4	16515
12.	2018	2917	5048.4	16562
13.	2019	3074	4818.3	18219
14.	2020	3160	4959.0	19245
Mean		2621.857	4331.469	12825.79
SD		348.8643	570.9311	4194.814
CAGR		2.48	3	7.66

Source: Compiled from DIC Chittoor District, Commissioner of Industries, A.P

5.8 Results of Paired Sample T-test

Paired sample t-test is applied to statistically examine whether there is a significant impact of MSMED Act, 2006 on performance of select category of MSMEs in the district. Results are shown in Table 11. In a period of 13 years' performance, i.e, before the commencement of MSMED Act, 2006 and after the Act is considered for the statistical examination. A total of three variables are tested for the analysis. The following hypotheses statements are framed for the analysis.

H01: There is no statistically significant impact of MSMED Act, 2006 on number of MSMEs functioning in Chittoor district.

H02: There is no statistical significant impact of MSMED Act, 2006 on total investment made on MSMEs in the district.

H03: There is no statistical significant impact of MSMED Act, 2006 on total employment generated through MSMEs.

Level of Significance applied is 1 per cent significance level.

Paired sample t-test is applied for the analysis of hypothesis statements.

Results-1: Results of Means and Standard deviations

The mean value of total number of units before the commencement of MSMED Act, 2006 was 1752 and standard deviation is 508. After the commencement of the Act, the mean value recorded for total number of enterprises is 2580. The mean value of total investment before the commencement of MSMED Act, 2006 is Rs.2162 lakh and standard deviation is 858.71 lakh. After the commencement of MSMED Act, 2006, the total investment recorded is Rs.4283.14 lakh and standard deviation is Rs.563.82 lakh. The mean total employment generated before the commence of MSMED Act, 2006 is 5680 workers and after the commence of MSMED Act, 2006 is 12332.

Results-2: Paired Sample Correlation

- a. The correlation in between total number of units before commencement of MSMED Act, 2006 and total number of units after commencement of Act is 0.942(p-value is $0.000 < \alpha = 0.01$) which is proved significant.
- b. The correlation in between total investment made before commencement of MSMED Act, and total investment made commencement of Act, 2006 is 0.922 (p-value is $0.000 < \alpha = 0.01$) which is proved significant.
- c. The correlation in between total employment generated before commencement and total employment generated after commencement of MSMED Act, 2006 is 0.907 (p-value is $0.000 < \alpha = 0.01$) which is proved significant.

Results-3: Paired sample test results

The results of paired sample t-test are shown in Table 11.

- a. The t-test results on total number of enterprises show p-value is 0.000 which is less than $\alpha = 0.01$ at 1% significance level, hence, null hypothesis is rejected. Therefore, it is proven that there is a statistical significant impact of MSMED Act, 2006 on number of MSME units functioning in the study area.
- b. The t-test results on total investment show that the p-value is 0.000 which is less than $\alpha = 0.01$ at 1% level of significance. Hence, null hypothesis is rejected. Therefore, it is proven that there is a significant impact of MSMED Act, 2006 on total investment made on MSMEs in the district.
- a. The t-test results on total employment generated show that the p-value is 0.000 which is less than $\alpha = 0.01$ at 1 level of significance. Hence, the formulated null hypothesis is rejected. It is therefore, proved that there is a significant impact of MSMED Act, 2006 on total employment generated on MSMEs in the district.
- b.

Table 10. Paired sample statistics and Correlation results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Number of units (before)	1752.00	13	508.282	140.972
	Number of units (after)	2580.4615	13	325.35970	90.23855
Pair 2	Total Investment (before)	2162.0408	13	858.71889	238.16577
	Total Investment (after)	4283.1431	13	563.82845	156.37788
Pair 3	Employment generated (before)	5679.6962	13	1556.17787	431.60609
	Employment generated (after)	12332.0000	13	3919.80055	1087.15707
Paired Samples Correlations					
Pair wise results			N	Correlation	Sig.
Pair 1	Number of units (before) & Number of Units (after)		13	.942	.000
Pair 2	Total Investment ((before) and Total Investment (after)		13	.922	.000
Pair 3	Employment generated (before) & Employment generated (after)		13	.907	.000

Source: Compiled from SPSS results

6. Conclusion

The study on Industrial development and role of MSMEs statistically reveal that, for achieving the industrial development as well as providing the opportunities to the potential entrepreneurs and generation of employment, MSMEs have played pivotal role. The revised definition of MSMEs clearly reveal that, the worth of MSMEs have increased in terms of investment pattern and turnover potential. The introduction of MSMED Act, 2006 is a historic milestone in the development of industries through the support of MSMEs. The study on demographic profile of the Chittoor District shows that, due to the presence of better infrastructure facilities, being boarder to nearby states and presence of industrial hubs have contributed for MSME development in the district. The statistical results show that, contribution to GVA has been steady since last decade and results clearly reveal that decline of growth of

MSMEs during 2020-21 periods due to COVID-19 impact. The study on district wise functioning of MSMEs in the Andhra Pradesh state shows that, Chittoor district remained highest in terms of presence of MSMEs. The district wise progress clearly reveals that, Chittoor district remained 2nd top in terms of establishment of new MSMEs during 2021-2022. The presence of MSMEs in the district remained top with 98.86% of total enterprises established in the district. The statistical results proved that there is a significant increase in the number of units, investment made and employment generated in Chittoor District both before and after the introduction of MSMED Act, 2006. The introduction of industrial clusters reveals that, there is clear evidence of potential of industrial development in Chittoor district through encouragement of MSMEs. Overall, it is to conclude that in order to contribute for industrial development, MSMEs played vital role in terms of investment made, presence of units and employment generated. Study was also shown that COVID-19 has clear impact of MSMEs performance. Study results of Chittoor District show that, substantial industrial development has been shown and the impact of MSMEs proved statistically proved evident.

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