

## Growth of Micro Manufacturing Enterprises during 2010-11 to 2015-16: A Study with Special Reference to West Bengal

Debashruti Jana<sup>1</sup>, Akash Dandapat<sup>2\*</sup>, Dr. Pinaki Das<sup>3</sup><sup>1</sup>M. Phil. Scholar, Department of Economics, Vidyasagar University, Vidyasagar University Rd, Rangamati, Midnapore, West Bengal 721102, India<sup>2</sup>Ph. D. Scholar, Department of Economics, Vidyasagar University, Vidyasagar University Rd, Rangamati, Midnapore, West Bengal 721102, India<sup>3</sup>Associate Professor and HOD, Department of Economics, Vidyasagar University, Vidyasagar University Rd, Rangamati, Midnapore, West Bengal 721102, IndiaDOI: [10.36347/sjebm.2021.v08i01.006](https://doi.org/10.36347/sjebm.2021.v08i01.006)

| Received: 10.01.2021 | Accepted: 21.01.2021 | Published: 30.01.2021

\*Corresponding author: Akash Dandapat

**Abstract****Original Research Article**

Present study analyses the pattern of growth of micro manufacturing enterprises (MMEs) in the context of West Bengal. The growth of MMEs is noticeable in respect of number of MMEs, employment generation and gross value added (GVA). This analysis is based on the unit level data of NSSO 67<sup>th</sup> (2010-11) and 73<sup>rd</sup> (2015-16) rounds. The study reveals that annual growth rate of per enterprise GVA was significantly increased during 2010-11 to 2015-16. But it was not in the case for employment. The number of own account enterprises (OAEs) was significantly higher than establishment enterprises (ESTTs). Female workers were more engaged in MMEs than the male workers. The ownership MMEs increased for Other Backward Caste people. The percentages share of expanding enterprises decreased whereas the percentage share of contracting enterprises increased during 2011-10 to 2015-16. The multinomial regression result of the status of growth of MMEs reveals that rural located, establishment, perennial and higher labour productive MMEs are more likely to be expanding.

**Keywords:** Unorganised Manufacturing, Employment, GVA, Growth.**JEL Classification:** L60, R11, J21, J24.

Copyright © 2021 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

### INTRODUCTION

Unorganized sector has been playing a significant role in Indian economy in the context of employment generation. According to National Sample Survey Organization (NSSO) report, manufacturing, trade, and service sectors are included in the unorganized sectors. According to MSME act 2006, the manufacturing sector is classified by micro, small, and medium enterprises as per their size. Presently, the micro, small, and medium enterprises sector have been considered as a resonant and dynamic sector in India. According to NSSO, enterprises can be classified into two types: own account enterprise (OAE) and establishments enterprise (ESTT). The enterprises that are run without any hired workers who are employed on a fairly regular basis is called OAE and those enterprises who are employing at least one hired worker on a fairly regular basis is called ESTT. In the present study we have considered only micro manufacturing enterprises (MMEs) in the context of West Bengal. MME refers to an economic unit that is involved in the production of manufacturing goods where investment

does not exceed Rs.25 lakh. In India, 99.46 percent of the enterprises were micro-enterprises in nature (NSSO report 2010-11). Among the other states of India, we have laid emphasis on West Bengal and compared it with the rest of the states of India. The number of educated workforce is increasing day by day. But, the potentiality to employ in the organized sector in West Bengal is not accommodative accordingly. Hence, the educated and laborious workforce is trying to find out the space of economic engagement within the space of the unorganized sector, like MMEs. In West Bengal, MMEs are expanding from various aspects like the number of enterprises, employment generation, and gross value addition (GVA). If we compare the NSSO report 2010-11 and 2015-16, we observe that in West Bengal the number of enterprises has increased from 2,763,781 in 2010-11 to 4,175,467 in 2015-16. This indicates that in West Bengal the number of enterprises has increased remarkably. Side by side employment opportunities have also increased in this sector as in 2010-11 the number of employments was 5,002,441 which increased to 6,939,129 in 2015-16. Among the other states of India, West Bengal ranked 1st, 2nd, and

5<sup>th</sup> in respect of the number of MMEs, generation of employment, and gross value added (GVA) in 2010-11 respectively. But in 2015-16, West Bengal ranked 1st in respect of number of MMEs and employment generation whereas backed 5<sup>th</sup> position in respect of GVA.

Subina [1] conducted a study that focused on the growth of Indian Micro, Small and Medium Enterprise (MSME) sector over the last ten years. The paper highlighted the opportunities available for the MSMEs in the Indian economy. Gebreyesus [2] showed that the manufacturing sector is involved in innovative activities and mentioned some factors that affected the growth of the firm i.e., firm's initialize age, access to finance, sector, and owner character, etc. Sathish & Tarpe [3] explained, the trend of MSMEs in Goa from 2007-08 to 2013-14 in the context of several units, employment, and investment. Ganguly [4] discovered that West Bengal faces a major problem in the MSMEs sector as the number of unregistered MSMEs is much higher than the registered units. Dey (2014) mentioned the significant contribution of MSME in developed as well as developing countries. He found that MSME sector contributes greatly to various socio-economic objectives such as higher growth of employment, output, promotion of exports, and fostering entrepreneurship. Sharma *et al.*, [5] emphasized that MSME increases women empowerment through the development of Micro Entrepreneurships and Self-help groups (SHGs). Anupama [6] analysed the level of gender differentiation in the MEME sector and showed how the various factors increases the probability of getting a job in the unorganized manufacturing sector especially for female workers. Agyapong [7] considered two different views of MSMEs; these are the pro-MSMEs and the anti-MSMEs. Kanitekar [8] conducted an experimental study for which he selected 86 villages based on entrepreneurs from different parts of India. He examined why entrepreneurs are motivated to shift their occupation from an agriculture-based to a non-farm activity. Lahiri [9] mentioned some of the opportunities enjoyed by the MSME. On the other hand, he also highlighted some of the major obstacles facing the MSME sector during the period of globalization. Das and Das [10] analyzed the productivity and profitability of micro-manufacturing enterprises in West Bengal using NSSO unit-level data.

The brief review of existing literature reveals that the pattern of growth of MMEs in West Bengal during the recent years is not adequately analysed. The study is also deficient to explore the special characteristics of MMEs in West Bengal and factors that responsible for the growth of MMEs in West Bengal. In this brief background present study sets the following objectives:

1. To analyze the characteristics of MMEs in terms of ownership, nature of operation, per enterprise

employment and per enterprise GVA in West Bengal.

2. To examine the factors that explains the status of growth of MMEs in West Bengal.

Rest of the work is divided into three sections. Section 2 shows database and methodology. In section 3, we have shown the per enterprise growth of employment and GVA in MMEs in West Bengal vis-à-vis other major states of India during 2010-11 to 2015-16 and relative share of MMEs in West Bengal to total MMEs in India. Also this section shows the status of growth of MMEs and analyses it by the means of multinomial logit model. Section 4 concludes.

## DATABASE AND METHODOLOGY

Present study is based on the unit level data of NSSO 67<sup>th</sup> Round (2010-11) and 73rd Round (2015-16) on Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India. NSSO have classified the status of an enterprise under four categories which are expanding, stagnating and contracting based on last three years performance of a particular enterprise. If output and income of enterprises is increasing over the last three years then they are categorized as expanding enterprises. If output or income of the enterprises is remaining constant over the last three years then they are categorized as stagnant enterprises and output or income of enterprises is decreasing over the last three years then they are categorized as contracting enterprises. To analyze the status of enterprises by an econometric model, we have taken into account expanding, stagnant, and contracting enterprises. Therefore, status of growth (STGR) of MMEs is multinomial in nature. We have assigned 0 for expanding, 1 for stagnating, and 2 for contracting enterprises. We have excluded those firms which did not specify their status of growth.

### Multinomial Logit Model

The multinomial logit (MNL) model is used to analyse the status of growth of MMEs in West Bengal because the status of growth is multinomial in nature. The MNL model specifies that

$$P_{ij} = \frac{\exp(x_i' \beta_j)}{\sum_{i=1}^m \exp(x_i' \beta_i)}$$

Where  $X_i$  are case-specific regressors, which includes an intercept and other characteristics. Clearly, this model ensures that  $0 < P_{ij} < 1$  and  $\sum_{j=1}^m P_{ij} = 1$ . To ensure model identification  $\beta_j$  is set to zero for one of the categories, and coefficients are then interpreted with respect to that category called the base category.

Coefficient in a multinomial model can be interpreted in the same way as the parameters of binary logit model are interpreted, i.e., comparison being to the base category. This is a result of the multinomial logit

model being equivalent to a series of pair wise logit models. For simplicity, we set the base category to be

the first category. Then the MNL model implies that:

$$\Pr(y_i = j | y_i = j \text{ or } 1) = \frac{\Pr(y_i = j)}{\Pr(y_i = j) + \Pr(y_i = 1)} = \frac{\exp(x_i' \beta_j)}{1 + \exp(x_i' \beta_j)}$$

Using  $\beta_j = 0$  and cancellation of  $\sum_{i=1}^m \exp(x_i' \beta_i)$  in the numerator and denominator.

Thus,  $\hat{\beta}_j$  can be viewed as parameters of binary logit model between alternative j and alternative 1. So, a positive coefficient from m-logit means that as the regressor increases, we are more likely to choose alternative j than alternative 1. This interpretation will vary with the base category and is clearly most useful when there is a natural base category.

Thus, most of the major states have negative annual growth rate of per enterprise employment. In West Bengal per enterprise employment was 1.8 in 2010-11 which decreased to 1.7 in 2015-16. Annual growth rate of per enterprise employment was -1.1 per cent in West Bengal. Now looking at the GVA, we find that per enterprise GVA increased in most of states during 2010-11 to 2015-16. In terms of annual growth rate of per enterprise GVA, the top five states were Delhi (12.6 per cent), Madhya Pradesh (12.4 per cent), Bihar (10.2 per cent), Uttar Pradesh (10 per cent), and Uttaranchal (9.6 per cent). All the major states have positive growth rates of GVA. In West Bengal, per enterprise GVA increased from Rs. 52,572 in 2010-11 to Rs. 60,240 in 2015-16. Annual growth rates of per enterprise GVA was 2.9 per cent. All the major states have also maintained positive growth rates in per enterprise GVA. The number of OAEs was significantly higher than ESTTs in both 2010-11 and 2015-16 (Table-2). The number of employment and GVA of MMEs across states in India have not significantly increased during 2010-11 to 2015-16 (Table-3).

**RESULTS AND DISCUSSIONS**

Growth of MMEs in West Bengal vis-a-vis Others States of India

MMEs have been studied as the growth engine of the economy. Economy going towards significant growth through MMEs. Table-1 shows per enterprises growth of employment and per enterprises growth of GVA. It is observed that per enterprises employment gradually declined during 2010-11 to 2015-16 but in Delhi and Madhya Pradesh it has increased. Annual growth rate of per enterprise employment was positive only for Delhi, Madhya Pradesh, and Chhattisgarh.

**Table-1: Per Enterprises Employment, GVA and their Growth in West Bengal vis-à-vis other Major States of India, 2010-11 to 2015-16**

States	Per enterprises employment		Annual growth rates (%)	Per enterprises GVA (Constant Prices)		Annual growth rates (%)
	2010-11	2015-16		2010-11	2015-16	
Delhi	3.6	3.8	1.1	361709	590289	12.6
Madhya Pradesh	1.7	1.8	0.1	45112	73023	12.4
Bihar	1.7	1.6	-1.2	72797	109859	10.2
Uttar Pradesh	2.2	2.1	-0.9	68370	102691	10
Uttaranchal	1.8	1.6	-2.2	95939	141848	9.6
Karnataka	1.8	1.7	-1.1	92610	132316	8.6
Punjab	2	1.8	-2	121116	167508	7.7
Haryana	2.4	2.1	-2.5	180062	234317	6
Jammu & Kashmir	1.5	1.4	-1.3	92124	117019	5.4
Chhattisgarh	2.1	2.2	0.1	73133	92535	5.3
Orissa	2.1	1.7	-3.8	46396	58570	5.2
Rajasthan	1.9	1.8	-1.1	114483	142983	5
Gujarat	2.3	1.9	-3.5	137679	167788	4.4
Maharashtra	2.3	2	-2.6	155745	190199	4.4
Kerala	1.9	1.8	-1.1	135938	165116	4.3
Tamil Nadu	2.1	1.9	-1.9	122511	145632	3.8
Himachal Pradesh	1.7	1.5	-2.4	89828	105866	3.6
Assam	1.9	1.7	-2.1	106613	124552	3.4
Jharkhand	1.8	1.5	-3.3	50127	57971	3.1
West Bengal	1.8	1.7	-1.1	52572	60240	2.9
Andhra Pradesh	1.9	1.6	-3.2	78770	80086	0.3
India	2	1.8	-2	94728	114203	4.1

Source: Authors' own calculation based on NSSO Unit Level data of 67<sup>th</sup> Round and 73<sup>rd</sup> Round.

**Table-2: Mean Test of Number of Enterprises between OAEs and ESTTs across States/UTs, 2010-11 and 2015-16**

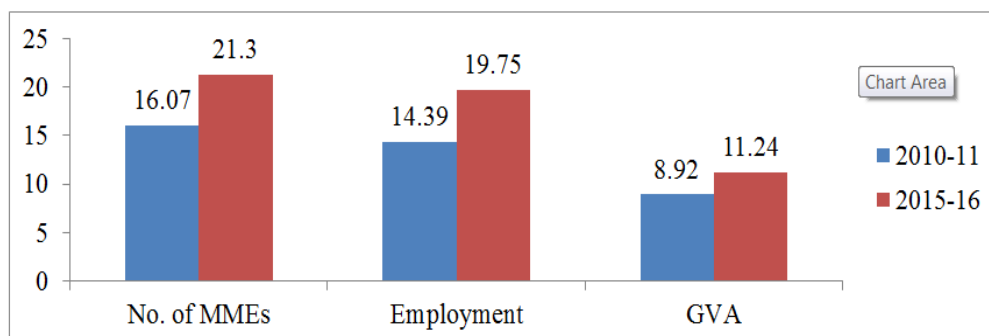
Year	Nature of MMEs	Mean	SD	Observations	F test $H_0: \sigma_1 = \sigma_2$ $H_1: \sigma_1 \neq \sigma_2$	t-test $H_0: \mu_1 = \mu_2$ $H_1: \mu_1 \neq \mu_2$
2010-11	OAE	412285	610594	35	31.73***	3.17***
	ESTT	79193	108395	35		
2015-16	OAE	480323	786454	35	54.25***	2.98***
	ESTT	79656	106768	35		
Nature of MMEs		Year				
OAE	2010-11	412285	610594	35	0.60*	0.4
	2015-16	480323	786454	35		
ESTT	2010-11	79193	108395	35	1.03	0.018
	2015-16	79656	106768	35		
ALL	2010-11	491479	710485	35	0.64*	0.35
	2015-16	559980	883830	35		

Source: Authors' own calculation based on NSSO Unit Level data of 67th Round and 73rd Round

**Table-3: Mean Test of Number of Employment and GVA of MMEs across States/UTs, 2010-11 and 2015-16**

Employment	Mean	SD	Observations	F test $H_0: \sigma_1 = \sigma_2$ $H_1: \sigma_1 \neq \sigma_2$	t-test $H_0: \mu_1 = \mu_2$ $H_1: \mu_1 \neq \mu_2$
2010-11	993409	1448494	35	0.87	0.029
2015-16	1003834	1546620	35		
GVA (Rs. Crore)					
2010-11	465.6	647.5	35	0.59*	0.96
2015-16	639.5	840.8	35		

Source: Authors' own calculation based on NSSO Unit Level data of 67th Round and 73rd Round.



**Fig-1: Relative Share of MMEs of West Bengal to total MMEs in India, 2010-11 and 2015-16**

Source: As in Table 1

Figure-1 shows the percentage share of MMEs in West Bengal to the total MMEs in India. The relative share of the number of MMEs in West Bengal was increased by 5.23 percentage points during 2010-11 to 2015-16. It was 16.07 per cent in 2010-11 which increased to 21.3 per cent in 2015-16. Even the relative

share of employment generation was increased by 5.36 percentage points during 2010-11 to 2015-16. In 2015-16, it was 19.75 per cent which increased from 14.39 per cent in 2010-11. Relative share of GVA increased from 8.92 per cent in 2010-11 to 11.24 per cent in 2015-16.

**Table-4: Number ('000) and Annual Growth Rates of Employment by Gender in West Bengal vis-à-vis Other Major States, 2010-11 to 2015-16**

States	2010-11	2015-16	Annual growth rate	2010-11	2015-16	Annual growth rate
	Female	Female	Female	Male	Male	Male
Andhra Pradesh	1369	1905	7.8	1727	1516	-2.4
Assam	91	60	-6.9	330	291	-2.4
Bihar	86	205	27.6	665	1011	10.4
Chhattisgarh	117	133	2.8	235	284	4.2
Delhi	39	45	3	703	628	-2.1
Gujarat	1230	821	-6.7	1964	1425	-5.5
Haryana	77	70	-1.9	385	312	-3.8
Himachal Pradesh	31	33	1.3	123	104	-3
Jammu & Kashmir	86	85	-0.1	252	250	-0.03
Jharkhand	214	357	13.4	389	396	0.4
Karnataka	669	985	9.4	838	1161	7.7
Kerala	453	480	1.2	520	512	-0.3
Madhya Pradesh	570	502	-2.4	962	939	-0.5
Maharashtra	890	711	-4	2323	1747	-5
Orissa	448	374	-3.3	814	470	-8.4
Punjab	163	161	-0.3	610	522	-2.9
Rajasthan	285	388	7.3	922	939	0.4
Tamil Nadu	1517	1569	0.7	1965	1757	-2.1
Uttar Pradesh	1676	1287	-4.6	3542	3279	-1.5
Uttaranchal	19	16	-2.5	155	100	-7
West Bengal	2365	3542	9.9	2637	3394	5.7
India	12513	13881	2.2	22257	21244	-0.9

Source: As in Table 1

Table-4 shows the annual growth rates of employment by gender during 2010-11 to 2015-16. The numbers of female workers increased in most of the states like Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Jharkhand, Karnataka, Kerala, Rajasthan, Tamil Nadu, and also in West Bengal during 2010-11 to 2015-16. On the other hand, numbers of female workers decreased in Assam, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Uttar Pradesh, and Uttaranchal. Annual growth rate of female workers were maximum in Bihar which was 27.6 per cent. Besides, Andhra Pradesh, Chhattisgarh, Delhi, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Rajasthan, Tamil Nadu, and West Bengal have also positive annual growth rate of female workers. But in many states, there was a negative growth rate of female workers e.g., Assam, Gujarat, Haryana, Uttar Pradesh, Uttaranchal, Madhya Pradesh, Maharashtra, Orissa, Punjab, and Jammu & Kashmir. By considering the male workers during this period we observed that the number of male workers increased in few states such as Bihar, Chhattisgarh, Jharkhand, Karnataka, and Rajasthan. In many states the number of male workers was declining; these were Andhra Pradesh, Gujarat, Assam, Delhi, Haryana, Himachal Pradesh, Kerala, Tamil Nadu, West Bengal, Madhya Pradesh, Maharashtra, Orissa, Uttar Pradesh, and Uttaranchal. Annual growth rate of male workers were positive in Bihar, Chhattisgarh, Jharkhand, Karnataka, and Rajasthan. In West Bengal, number of female workers increased from 2365 in 2010-11 to 3542 in

2015-16 and the number of male workers increased from 2637 in 2010-11 to 3394 in 2015-16. Hence, increase in the number of female workers was higher than the increase in male workers. In West Bengal, the growth rate of female workers was 9.9 per cent whereas for male workers it was 5.7 per cent. Thus, the numbers of female workers have gradually increased in MMEs during 2010-11 to 2015-16.

Table-5 shows the social ownership of MMEs in West Bengal. In both 2010-11 and 2015-16 most of the MMEs were operated by general caste communities. However, the percentage share of general caste entrepreneurs in 2015-16 was less than in 2010-11. In 2010-11, 65.02 per cent OAE enterprises and 72.84 per cent ESTT enterprises were operated by general caste people whereas in 2015-16, 49.34 per cent OAE and 60.17 per cent ESTT enterprises were operated by general caste people. Further, it can be observed that the contribution of the people belonging to the schedule tribes (ST) was normally low as compared to people of other communities. Only 1.95 per cent enterprises were operated by people of ST communities in 2010-11 and 2015-16. In 2010-11, 22.54 per cent OAE and 13.93 per cent ESTT enterprises were operated by the people of SC community and in 2015-16, 20.54 per cent OAE and 15.63 per cent ESTT enterprises occupied by SC communities. Hence, during 2010-11 and 2015-16 the percentage share of SC entrepreneurs were remained unchanged. Now, if we look at the OBC community, we can say that their share has increased significantly

during 2010-11 to 2015-16. As in 2010-11, the percentage share of OBC entrepreneur was only 9.11

per cent which increased to 24.79 percent in 2015-16.

**Table-5: MMEs of West Bengal by type of social Ownership, 2010-11 and 2015-16**

Social group of ownership	2010-11			2015-16		
	OAE	ESTT	ALL	OAE	ESTT	ALL
ST	2.15	0.52	1.95	2.09	0.48	1.93
SC	22.54	13.93	21.5	20.95	15.63	20.48
OBC	8.8	11.36	9.11	25.13	21.22	24.79
General	65.02	72.84	65.95	49.34	60.17	50.3
Not Known	1.5	1.34	1.48	2.48	2.5	2.48
All	2432482 (100)	331300 (100)	2763782 (100)	3805167 (100)	370301 (100)	4175468 (100)

Source: As in Table 1

According to NSSO report, on the basis of the nature of operation, enterprises can be divided into 3 types: perennial, seasonal and casual. Enterprises that are run more or less regularly throughout the year are called perennial enterprises. Seasonal enterprises are those, which are usually run in a particular season or fixed months of a year and those enterprises which run occasionally for a total of at least 30 days in the last 365

days are called casual enterprises. Table-6 explains the percentage share of MMEs in West Bengal on the basis of the nature of operation. In West Bengal, 98.09 per cent in 2010-11 and 96.75 per cent enterprises operated throughout the year. Comparatively, percentage share of seasonal and casual enterprises was very low in 2010-11 and 2015-16.

**Table-6: Distribution of MMEs of West Bengal by Nature of Operation, 2010-11 and 2015-16**

Nature of Operation	2010-11			2015-16		
	OAE	ESTT	ALL	OAE	ESTT	ALL
Perennial	97.93	99.29	98.09	96.58	98.44	96.75
Seasonal	1.8	0.67	1.66	2.29	1.42	2.21
Casual	0.27	0.04	0.24	1.13	0.14	1.04
All	100 (2432481.6)	100 (331300.2)	100 (2763782)	100 (3805167)	100 (370300.9)	100 (4175468)

Source: As in Table 1

Table-7 depicted the distribution of MMEs by their status of growth. In 2010-11, 34.65 per cent expanding enterprises, 46.06 per cent stagnating enterprises and 11.37 per cent contracting enterprises were operated in West Bengal. Besides, in 2015-16 only 18.06 per cent was expanding enterprises, the stagnating enterprises also decreased to 45.96 per cent stagnant. Whereas, the percentage share of contracting

enterprises increased to 23.59 in 2015-16 in West Bengal. Thus, in West Bengal the percentage share of stagnant enterprises was higher than the expanding or contracting enterprises. Table-8 shows that the decrease in the expanding enterprises whereas increase in the contracting enterprises was not statistically significant during 2010-11 to 2015-16.

**Table-7: Percentage Share of MMEs by Type of Growth Status in West Bengal, 2010-11 and 2015-16**

Status of Growth	2010-11			2015-16		
	OAE	ESTT	ALL	OAE	ESTT	ALL
Expanding	34.22	37.75	34.65	17.08	28.21	18.06
Stagnating	46.57	42.28	46.06	47.05	34.75	45.96
Contracting	11.44	10.81	11.37	23.86	20.88	23.59
Others	7.76	57.01	7.93	12.02	16.16	12.39
All	100 (2432481)	100 (331300)	100 (2763782)	100 (3805167)	100 (370300.9)	100 (4175468)

Source: As in Table 1

**Table-8: Mean Test of Number of Enterprises between OAEs and ESTTs across States/UTs, 2010-11 and 2015-16**

Year	Nature of MMEs	Mean	SD	Observations	t-value
Expanding	2010-11	31.13	13.56	35	0.53
	2015-16	29.45	12.8	35	
Stagnating	2010-11	44.48	11.73	35	0.33
	2015-16	45.48	12.92	35	
Contracting	2010-11	8.40	5.57	35	1.04
	2015-16	9.91	6.51	35	

Source: Authors' own calculation based on NSSO Unit Level data of 67th Round and 73rd Round

**Analysis of Status of Growth of MMEs**

Table-9 presents the notations, specifications and summary statistics of the variables used in the regression model.

Nature of enterprise is a dummy variable taking the value 1 for ESTT and 2 for OAEs. Location of enterprises (LOCN) is another dummy variable

taking the value 1 if the enterprises are located in urban areas and 2 if located in rural areas. Other dummies like nature of operation (NOPN) taking the value 1 if it is perennial and 2 otherwise and government assistance (GOVA) taking the value 1 if it received assistance in the form of subsidy from the government and 2 otherwise. Labour productivity (LPRD) of MME is measured by gross value added per worker.

**Table-9: Notation, Specification and Summary Statistics of Variables used in the Regression Model**

Notation	Specification	Average	SD
<b>Dependent variable</b>			
STGR	Status of growth is categorized as 0 if expanding, 1 if stagnating, 2 if contracting	1.74 (1.95)	0.007 (0.009)
<b>Independent variables</b>			
EST	Nature of enterprises: Whether the enterprise is establishment or not (Yes= 1, No = 0)	1.53 (1.48)	0.005 (0.006)
LOCATION	Location of enterprises: Whether the enterprise is urban located or not (Yes= 1, No = 0)	1.60 (1.55)	0.005 (0.006)
NATOP	Nature of operation: Whether the enterprise is perennial or not (Yes= 1, No = 0)	1.01 (1.03)	0.001 (0.002)
GOVASST	Government assistance: Whether the enterprise receives government assistance or not (Yes= 1, No = 0)	1.01 (1.99)	0.002 (0.001)
LPRD	Labour productivity (in Rs. '000) of MMEs is measured by gross value added per worker.	3.49 (5.77)	41.81 (69.71)

Note: Values in parentheses denote 2015-16

Source: Authors' own calculation based on NSSO Unit Level data of 67th Round and 73rd Round

**Table-10: Multinomial Logistic Regression for the Status of Growth of MMEs in West Bengal**

Regression Results for the Year 2015-16				Regression Results for the Year 2010-11		
Number of Observations = 5926				Number of Observations = 8170		
Log likelihood = -6160.8503				Log likelihood = -7982.0982		
LR $\chi^2$ (16) = 270.14				LR $\chi^2$ (16) = 209.74		
Prob> $\chi^2$ = 0.0000				Prob> $\chi^2$ = 0.000		
Pseudo R <sup>2</sup> = 0.0221				Pseudo R <sup>2</sup> = 0.0130		
STGR	Coefficient	z-Statistic	P values	Coefficient	z-Statistic	P values
Expanding (= 0)	(base outcome)					
Stagnating (= 1)						
Constant	-0.718	-1.04	0.299	-0.250	-0.48	0.628
URLOCN	-0.085	-1.32	0.186	-0.153	-3.03	0.002
NOPN	0.479	2.54	0.011	0.482	9.52	0.000
GOVA	0.153	0.47	0.639	-0.257	-1.30	0.193
ESTT	0.554	8.24	0.000	0.175	0.75	0.454
LPRD	-0.052	-7.45	0.000	-0.001	-4.39	0.000
Contracting(= 2)						
Constant	-2.265	-2.15	0.031	-2.049	-2.48	0.013
URLOCN	-0.205	-2.78	0.005	-0.425	-5.85	0.000
NOPN	0.644	3.16	0.002	0.421	5.58	0.000
GOVA	0.990	1.95	0.052	0.560	2.41	0.016
ESTT	0.192	2.43	0.015	0.323	0.83	0.407
LPRD	-0.001	-9.60	0.000	-0.001	-4.11	0.000

Source: As in Table 1

The results of two multinomial logit regressions, one for the year 2015-16 and other for the year 2010-11, are given in Table-10. From the regression results we can say that, rural located enterprises are more likely to be expanding than stagnating and contracting in 2010-11 whereas they are more likely to be expanding than contracting in 2015-16. Secondly, ESTT enterprises are more likely to be expanding than stagnating and contracting in 2015-16. Thirdly, perennial enterprises are more likely to be expanding than stagnating and contracting in 2010-11 as well as in 2015-16. Finally, enterprises with the higher labour productivity are more likely to be expanding than stagnating and contracting.

## CONCLUSIONS

From the above discussion we concluded that, MMEs effected favourably on job creation and GVA in West Bengal. But per enterprise employment gradually declined and per enterprise GVA increased during 2010-11 to 2015-16. Annual growth rate of per enterprise employment was positive in three states namely, Delhi, Madhya Pradesh and Chhattisgarh during 2010-11 to 2015-16. The relative share of the number of MMEs of West Bengal increased from 16.07 per cent in 2010-11 to 21.3 per cent in 2015-16. The number of OAEs type MMEs was significantly higher than ESTTs type MMEs in 2010-11 as well as in 2015-16. Relative share of employment generation in MMEs of West Bengal also increased from 14.39 per cent in 2010-11 to 19.75 per cent in 2015-16. Similarly, relative share of GVA in MMEs of West Bengal increased from 8.92 per cent in 2010-11 to 11.24 per cent in 2015-16. Annual growth rate of per enterprise GVA of MMEs was more than 10 per cent in Delhi, Madhya Pradesh, Bihar and Uttar Pradesh during 2010-11 to 2015-16. In West Bengal, the MMEs owned by general caste people were around 65 percent in 2010-11 which reduced by 15 percentage points in 2015-16 whereas OBC caste enterprises increased by 13 percentage points during this period. In West Bengal, more than 95 per cent of MMEs were perennial in nature that is these MMEs run throughout the year. The percentage share of expanding MMEs had reduced whereas the percentage share of contracting MMEs had increased in West Bengal during this time period. Although, the number of expanding MMEs and stagnating MMEs reduced during 2010-11 to 2015-16 but the reduction was not significant. Numbers of female workers increased in Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Jharkhand, Karnataka, Kerala, Rajasthan and Tamil Nadu including West Bengal. The most noteworthy thing is that the number of male workers increased in only five states namely Bihar, 11.

Jharkhand, Kerala and Rajasthan including West Bengal during 2010-11 to 2015-16. Annual growth rate of both female and male workers in MMEs were positive in Bihar, Chhattisgarh, Jharkhand, Karnataka, Rajasthan and West Bengal during this period. The rural located, establishment and perennial MMEs are more likely to be expanding. MMEs with higher labour productivity are also expanding in nature.

## REFERENCES

1. Syal S. Role of MSMEs in the growth of Indian economy. *Glob. J. Commer. Manag. Perspect.* 2015;4(5).
2. Gebreyesus M. Innovation and microenterprises growth in Ethiopia. *Entrepreneurship, innovation, and economic development.* 2011 Apr 28:122-45.
3. Sathish A, Tarpe AM. Issues and Problems in the Growth of Micro, Small and Medium Enterprises in Goa: An Empirical Study. *International Journal of Science and Research.* 2014;3(7):102-6.
4. Ganguly S. Micro, small and medium enterprises in West Bengal: An evaluation. *CLEAR International Journal of Research in Commerce & Management.* 2013 Oct 1;4(10).
5. Sharma A, Dua S, Hatwal V. Micro enterprise development and rural women entrepreneurship: way for economic empowerment. *Arth Praband: A Journal of Economics and Management.* 2012 Sep;1(6):114-27.
6. Uppal A. Gender discrimination in quality of employment and wages in unorganized manufacturing sector of India. Paper presented in Seminar on Problem of Gender Inequality and Expansion of Education of Women in West Bengal. *The Indian Journal of Labour Economics,* 2007; 50(4).
7. Agyapong D. Micro, small and medium enterprises' activities, income level and poverty reduction in Ghana-A synthesis of related literature. *International Journal of Business and Management.* 2010 Dec 1;5(12):196.
8. Kanitkar A. Entrepreneurs and micro-enterprises in rural India. *Economic and Political Weekly.* 1994 Feb 26:M25-30.
9. Lahiri R. Problems and prospects of micro, small and medium enterprises (MSMEs) in India in the era of globalization. In *International conference on the interplay of economics, politics, and society for inclusive growth* 2012 Oct (pp. 15-16).
10. Das P, Das B. Status of Micro Manufacturing Enterprises in West Bengal: An Analysis based on NSSO Unit Level Data. *Vidyasagar University Journal of Economics.* 2013;18:2013-14.