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An Analysis of Intra-Sectoral Productivity Differentials in Micro, Small, and Medium Enterprises in India

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ABSTRACT

This paper examines productivity differentials between the manufacturing and service sector units within Micro, Small and Medium Enterprises in terms of output per enterprise and output per worker. It aims to identify the principal factors contributing to the significant productivity gaps between these two sectors. Our findings indicate that service sector units have underperformed in terms of productivity per enterprise and productivity per worker when compared to the manufacturing sector units. The main cause of the low productivity of service sector entities is the overwhelming presence in micro-enterprises, and more than fifty percent of micro units are found to be stagnating and contracting. Moreover, a bulk of them lie in the service segment of Micro, Small, and Medium Enterprises. It has enabled us to draw two inferences: first, that the productivity of the service sector enterprises is significantly lower than that of the manufacturing enterprises, and second, it also establishes the fact that the prevalence of dwarfism is an irreversible and peculiar characteristic of the service sector segment. Hence, considering this complexity of the sector, the government should resist the 'one size fits all' policy and focus on calibrating the policies accordingly to build a foundation that helps in catalysing the transformation of units from micro to small and small to medium enterprises.

Keywords: MSMEs, productivity differentials, and distribution of MSMEs, stagnating and contracting enterprises.
JEL Classification: O1

I. INTRODUCTION

Micro, Small, and Medium Enterprises form the backbone of the Indian economy (G. Kishan Reddy, 2019) because it is dispersed across the country's urban, semi-urban, rural, and backward areas. That is why most people are engaged in these enterprises after agriculture. Consequently, this sector employs 111 million individuals in the economy (U.K. Sinha Committee Report, 2019). This workforce engaged in the Micro, Small, and Medium Enterprises contributes about 29.2% of the nation's gross domestic product, forming a substantial part of the total output indicating the importance of these small units (Micro, Small, and Medium Enterprises, 2021-22).

The connotation of 'Micro, Small and Medium Enterprises' came into existence in October 2006 with the enactment of the Micro, Small and Medium Enterprises Development Act. Barring the medium enterprises, earlier Micro and Small enterprises were referred to as Small-Scale Industrial Units. This conceptual and legal framework for small-scale undertakings is derived from the Industries (Development and Regulation) Act, of 1951. Which was later on governed by the Ministry of Small-Scale Industries, which was formed in 1999. Subsequently, this ministry was merged with the Ministry of Agro and Rural Industries on 9th May 2007 to form the Ministry of Micro, Small, and Medium Enterprises after including the medium enterprises in the ambit of the governing body. This step resulted in the formation of a three-tier structure of Micro, Small and Medium Enterprises.

This three-tier structure needs assistance from the government in various aspects like market promotion, credit access, technology upgradation, skill development and training, etc. So, to provide them with these facilities based on the intensity of need in a three-tier structure- Micro, Small, and Medium Enterprises have been defined in terms of investment made in the plant and machinery or equipment. Lately, on 26th June 2020, the government of India revised the definition of Micro, Small, and Medium Enterprises for two reasons firstly, to incorporate the increase in inflation over the period in newly raised investment limits and secondly, to resolve the constricted growth of the Micro, Small and Medium Enterprises. In this line, the government introduced one more criterion-

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'turnover of the enterprise' for the classification of Micro, Small, and Medium Enterprises. Now, with effect from 1st July 2020, it is defined in terms of investment in plant & machinery or equipment and turnover both as follows; an enterprise which has investment up to Rs.1 crore and turnover up to Rs.5 crore is known as Micro-enterprise. Enterprises with an investment from Rs.1 crore to Rs.5 crore and a turnover from Rs.5 crore to Rs.50 crore are called Small Enterprise. Lastly, enterprises with an investment of Rs.5 crore to Rs.10 crore and turnover from Rs.50 crore to Rs.250 crore are called Medium Enterprise (RBI/2020-2021/10- notifications). Apart from this three-tier vertical classification, micro, small, and medium enterprises are also bifurcated horizontally into manufacturing and service enterprises based on the nature of the activities in which they are engaged. The 'enterprise' word was introduced in place of the 'industrial units' in 2006-07 to bifurcate the definition for manufacturing and service enterprises. Consequently, the investment limits were separately specified for both categories but, following the reclassified definition of Micro, Small and Medium Enterprises made in July 2020, the government eliminated the demarcation between the manufacturing and service entities. Though there is no specific rationale provided by the government for abrogating the distinction between the manufacturing and services entities with effect from July 2020, thus, efforts have been made in this paper to investigate whether this act of repealing the distinction in the classification of service and manufacturing sector entities is a right decision or not.

Therefore, the purpose of this paper is to thoroughly review the productivity differentials between manufacturing and service sector enterprises from 2001-02 to 2016-17. So, inferences could be drawn about whether the decision to abrogate the distinction between the manufacturing and service sectors is justifiable or not. Before, we proceed to analyze productivity differentials between manufacturing and service enterprises. It is necessary to thoroughly review the various studies related to it.

II. LITERATURE REVIEW

One of the studies that analyzed the growth, productivity, and profitability of micro-manufacturing enterprises (MMEs) was conducted by Das. B, (2013). His study pertains to the state of West Bengal by using the data from the 67th round survey of NSS- Unincorporated Non-Agricultural Enterprises (excluding construction) in India, 2011. This study has revealed that establishments have much higher labour productivity than Own Account Enterprises (OAEs) where Establishments means - an enterprise that hires at least one worker on a regular basis and 86% of own account enterprises are considered micro-enterprises. The observed difference in the productivity of establishments and own account enterprises is because establishments have better access to the market and new technologies than the own account enterprises. Furthermore, results of the survey show that establishments are found to be growing in nature, at the same time most of the Own Account Enterprises are found to be in a state of stagnation. Likewise, Nagraj B. (2013) attempted to analyse the performance of Micro, Small, and Medium Enterprises with special reference to North-Eastern states in terms of productivity, production, and employment. They analysed productivity in terms of the average value of the fixed investment as well as total production per working enterprise and the average value of total production per worker in the Micro, Small, and Medium Enterprises of the northeastern states of India. They found the existence of productivity differentials in the micro, small, and medium enterprises among the states of the northeastern regions based on the aforementioned parameters. In addition to this, he also investigated the constraints faced by the sector in its development, to provide suggestions for further development in the region. Moreover, in this line a study by Li. Y and Rama. M, (2015) found that productivity in micro and small enterprises differs widely among developing and advanced economies. Consequently, it is concluded that the enterprises operating in emerging economies are experiencing relatively slow productivity growth compared to those in advanced economies. Therefore, actions should be taken to raise the productivity of the micro and small enterprises, and these units should also undergo thorough and regular surveys. Chanda A. (2016) has assessed whether disparities exist in factor intensities and partial factor productivity ratios between Micro, Small & Medium enterprises and large enterprises. It has been found that Micro, Small & Medium enterprises had relatively lower labour, capital as well as intermediate input productivity, and factor intensities as compared to large-scale counterparts except for some firms. Hence, it is suggested that the existing Micro, Small & Medium enterprises in India require more policy support to raise their present efficiency and productivity levels to compete with large enterprises and to survive and grow. Furthermore, by using data from the Annual Survey of Industries (ASI), National Sample Survey (NSS), and Economic Survey Mehrotra, S. and Giri, T. (2019); investigated the size structure of all industrial

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sector enterprises—Micro, Small, Medium, and Large—in their working paper. According to their research, micro-enterprises have a propensity to hold onto their current status for extended periods of time instead of growing into medium-sized enterprises. This resulted in the issue of 'dwarfism'. To a certain degree, incentives provided by the government to a particular firm size have only served to impede the expansion of microenterprises. Thus, it is necessary to formulate policies that encourage the growth of the units rather than focusing on a particular firm size. Another study by Chaudhary et al (2020) has estimated the productivity differentials between the enterprises owned by males and females in India by using data from the Fourth All India Census of Micro, Small and Medium Enterprises, 2006-07 in terms of labour productivity, and total factor productivity. They found that female-owned enterprises underperformed in the size, growth, and efficiency of firms due to the discrimination faced by women in access to credit. After controlling for size, age, social background, industry, and state differences, this study reveals a significant performance gap between female and male-owned enterprises. Therefore, the government should address gender discrimination in the small business credit market to help bridge the performance gap between male and female-owned firms.

However, numerous research has been undertaken to analyse the productivity of Micro, Small and Medium Enterprises. A few studies that we have included here aim to analyse the productivity disparities among different regions like- micro & small enterprises in developing and advanced countries and among the north-eastern states in India, between own account enterprises and establishments involved in manufacturing activities, (where 86% of own account enterprises are micro-enterprises), and between small and large enterprises in the country. However, there is hardly any study that exclusively focused on analysing the productivity differentials between manufacturing and service sector units of Micro, Small and Medium Enterprises. In order to fill this void, the emphasis of our study is on analysing disparities between service and manufacturing segments in Micro, Small and Medium Enterprises.

III. OBJECTIVES

In this background, the objective of the paper is to assess the productivity differentials in terms of output per enterprise and output per worker between manufacturing and service sector units in Micro, Small, and Medium Enterprises from 2001-02 to 2016-17 and analyse the underlying reasons for the observed differential in productivity between manufacturing and service subsectors in Micro, Small, and Medium Enterprises.

Analysis of the productivity differentials between manufacturing and service sector units of Micro, Small, and Medium Enterprises would help shed light on whether the abrogation of distribution between the investment limits of the manufacturing and service sectors is justified.

HYPOTHESIS

In order to empirically analyse our objective, we have formulated the following hypothesis:

H_0: There are no significant productivity differentials between manufacturing and service sector units of Micro, Small and Medium Enterprises.

H_a: There are significant productivity differentials between manufacturing and service sector units of the Micro, Small and Medium Enterprises.

Where productivity is measured in terms of output per enterprise and output per worker.

IV. DATA SOURCES AND METHODOLOGY

The term Micro, Small, and Medium Enterprises was introduced in 2006-07, with the implementation of the Micro, Small, and Medium Enterprises Development Act. Before this, Micro and Small enterprises were included under Small-Scale Industrial Units, which were broadened in 2001-02 to include unregistered enterprises.

However, the scope of micro-enterprises in the service segment was expanded to encompass specific activities such as retail/wholesale trade establishment, storage and warehousing (excluding cold storage), legal services, and others, with a total of 147.38 lakh units in 2006-07.

This increase in the service sector enterprises since 2006-07 necessitated an adjustment for the period 2001-02 to 2006-07. This alignment in the data set for the period 2001-02 to 2006-07 is done by gradually curtailing the 147.38 lakh service sector units using the average growth rate of service sector enterprise between 2001-02 to 2006-07 which is almost 11.33%. This homogenized dataset is used in our analysis to test the hypothesis. The entire number of micro, small, and medium enterprises from 2001-02 to 2016-17 is given in Appendix Table A1.

To test the hypothesis, we first estimated productivity per worker and productivity per enterprise for manufacturing and service sector units separately by dividing the total output of each category by the number of workers and enterprises in the corresponding category.

Finally, to test these productivity differentials between manufacturing and service

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sector enterprises we have applied paired t-statistic which is estimated by the following formula-

$$t = \frac{(\sum D)/N}{\sqrt{\frac{\sum D^2 - \left(\frac{(\sum D)^2}{N}\right)}{(N-1)(N)}}}$$

Where **D** indicates productivity differentials; in the case of output per enterprise, D represents the difference in the output per enterprise of the manufacturing and service sector, and in the case of output per worker, D represents the difference between output per worker of the manufacturing and service sector of the Micro, Small and Medium Enterprises. **N** is the number of years in the period of analysis.

V. RESULT AND DISCUSSION

The analysis of the distribution of enterprises between the manufacturing and service sectors revealed that 31% of units are operating in the manufacturing sector and 69% are engaged in the service sector (refer to Table 1). Similarly, the majority of employment is concentrated in the service sector, and on the flip side the manufacturing sector experiences a labour absorption capacity of less than 40% (refer to Table 1). However, in contrast to this perceived distribution of the enterprises and employment between the two categories, a sizeable chunk of the total output i.e., 77% comes from units engaged in the manufacturing sector, while the service sector units contribute just 23% to the output of the Micro, Small and Medium Enterprise between 2001-02 to 2016-17(refer table 1).

Table 1
Distribution of Output and Number of units in the Manufacturing and Service segment of the overall Micro, Small and Medium Enterprises sector

Particulars	**Type of Enterprises**	2001-02 (in crores)	2015-16 (in crores)
Number of enterprises	Manufacturing Enterprises	0.42 (23%)	1.66 (31%)
	Service Enterprises	1.44 (77%)	3.68 (69%)
Employment	Manufacturing Enterprises	1.37 (33%)	4.56 (37%)
	Service Enterprises	2.79 (67%)	7.75 (63%)
Gross output	Manufacturing Enterprises	359079 (72%)	1434910 (77%)
	Service Enterprises	139642 (28%)	440789 (23%)

***Note*:** Figure in parentheses are the distribution of output and number of manufacturing and service units in percentage terms.
Sources: Third All India Census on Small Scale Industries, 2001-02.
Fourth All India Census on Micro, Small and Medium Enterprise, 2006-07
The author's calculation is based on data from Statistical Yearbook 2018.

This prevailing scenario of manufacturing and service sector enterprises has emerged despite the fact that manufacturing enterprises have increased proportionately faster than the service sector units during the period of analysis from 2001-02 to 2016-17, which has resulted in raising the proportion of manufacturing enterprises from 23% to 31% while diminishing the proportion of service sector enterprises from 77% to 69%. Even after this relative change in the number of enterprises between the two sectors, the overall number of service sector units is still more than twice the number of manufacturing sector units. Although the number of enterprises is extremely biased towards the service sector, the contribution to total output is far below that of the manufacturing units.

This bias in the magnitude of enterprises and employment towards the service sector and that

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of output towards the manufacturing sector signifies wide differentials in the output per enterprise and output per worker between the two segments of Micro, Small, and Medium Enterprises. These fairly large differentials in productivity per enterprise and productivity per worker between manufacturing and service sector entities over the period of time are exhibited in Table A3 of the Appendix. Table A3 shows that the manufacturing sector exhibits better productivity per unit and per worker than the service sector. These significant productivity differentials are also substantiated by the paired t-statistic (refer to Table 2).

Table 2
Table for the Paired t-test

	Paired Differences					T	Degree of freedom	Sig. (2 tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the differences				
				Lower	Upper			
Differentials in output per enterprise of manufacturing and service sector	7.214	0.719	0.1798	6.831	7.597	40.125	15	0.000
Differentials in output per worker of manufacturing and service sector	2.341	0.212	0.0531	2.228	2.454	44.109	15	0.000

Source: Author's calculation based on the data taken from various censuses on Micro, Small and Medium Enterprises.

From Table 2, it is discernible that the estimated paired-t value is statistically significant at 1% probability level indicating a substantial difference in the output per unit as well as output per worker between the manufacturing and service sectors. This implies that the service sector is dominated by a fairly large number of micro-enterprises (refer to table A2 in the appendix) which can hardly reap the benefits of economies of scale and scope and there is little opportunity to expand the limit beyond a particular size. On the contrary, the manufacturing sector is more productive and has greater scope for expansion. It can be called the 'engine of growth' of the economy because it fosters technological advancements and can generate forward and backward linkage, thereby creating spillover effects. Our observation is corroborated by the fact that there is a relatively lesser number of stagnant and contracting enterprises in the manufacturing units as compared to the service sector entities in the 67th round (2010-11). Though, for the subsequent 73rd round (2015-16), this bifurcation of manufacturing and service entities is not available but one evident commonality is that- on the whole, the performance of Micro, Small and Medium Enterprises has deteriorated as the percentage of stagnant and contracting enterprises have jumped up significantly (refer table 3).

Table 3
Stagnating and contracting Enterprises in Micro, Small and Medium Enterprises.

Segment of MSME	Own Account Enterprises		Establishment		Total units 67th round
	67th	73rd	67th	73rd	
Stagnant & Contracting enterprises	53%	68%	40%	54%	51%

Sources: - Survey on unincorporated Non-agricultural enterprises (Excluding construction) 2010- 11- 67th round.
- Survey on unincorporated Non-agricultural enterprises (Excluding construction) 2015-16- 73rd round.

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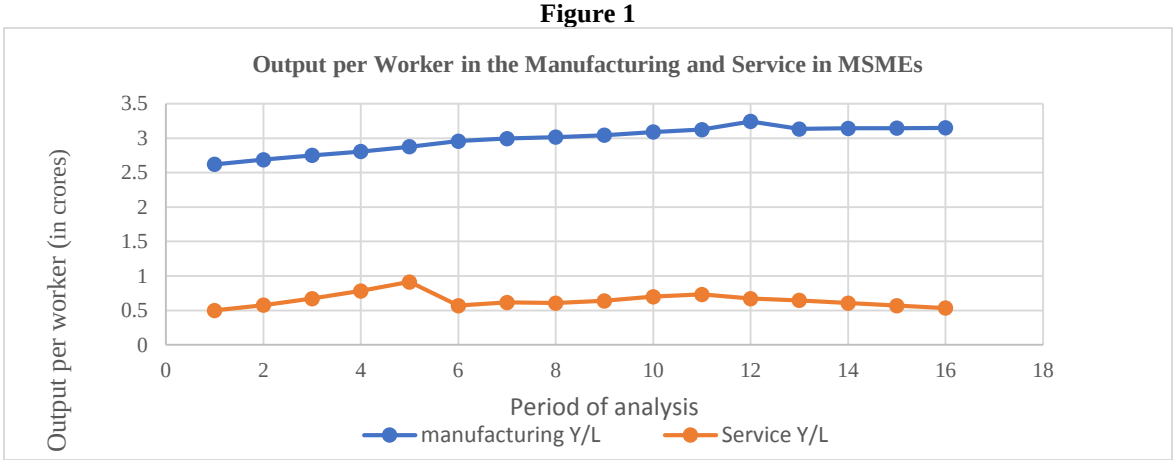
Table 4
Stagnant and Contracting enterprise in the Manufacturing and services segment of MSMEs

Segments of MSMEs	Own Account Enterprises	Establishments Enterprises	Total Enterprises
	Stagnant and contracting enterprises	Stagnant and contracting enterprises	Stagnant and contracting enterprises
Manufacturing enterprises	17%	13%	16%
Services enterprises	36%	27%	35%
Total enterprises	53%	40%	51%

Sources: Survey on unincorporated Non-agricultural enterprises (Excluding construction) 2010- 11- 67th round.

Moreover, it is a matter of common observation that service sector entities are usually extremely small, that dwarfism is their peculiar characteristic, and their earnings are just a source of livelihood for them. Therefore, this poses a capacity constraint for them in expanding their business activities. Nevertheless, expanding the scale of operations gradually over time allows for the possibility of augmenting the productivity of the manufacturing enterprise. But from 2012-13 productivity per enterprise of the manufacturing sector has been declining at a substantially faster rate than the service sector (refer to figure 2). This is a cause of concern for the manufacturing sector enterprises, as they need to be transformed into growing units. It can only be achieved by providing them with easy access to credit facilities and sufficient fiscal incentives to facilitate the expansion of their business activities. This would also enable them to increase the contribution of the manufacturing sector to the country's economy and facilitate them in accomplishing the target of having 25% of the nation's gross domestic product produced by the manufacturing sector, as outlined in the Manufacturing policy of the Union government in 2011.

Figure 1



Source: Based on author's calculation from the table A3 in appendix

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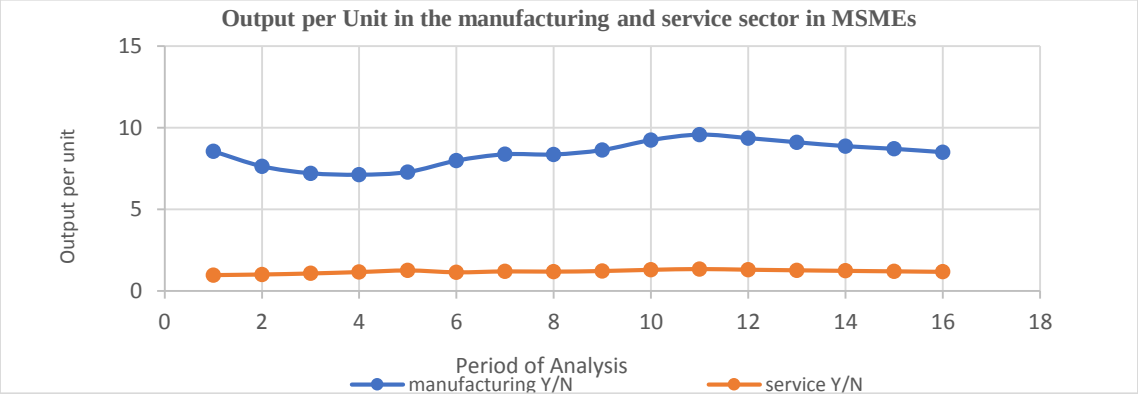
Figure 2



Source: Based on the author's calculation from table A3 in the appendix

Though the output per enterprise and output per worker for manufacturing units has diminished relatively at a higher rate than that of the service sector enterprise since 2012-13 (refer to figures 1 and 2), but in a holistic view, the productivity of manufacturing sector units in terms of output per enterprise and per worker remained proportionately higher than that of service sector units. Since two-thirds of the workers are engaged in the service sector units, therefore low and declining productivity does not argue for the workers engaged in the service sector entities as poor productivity prevalent in this sector is translated into lower remuneration of workers. Thus, there is a need to augment the productivity of service sector enterprises as well as to prevent any further decline in the productivity of the manufacturing sector which has been witnessed from 2012-13 and policies should be formulated by the government to address the problems that are now plaguing Micro, Small and Medium Enterprises.

POLICY IMPLICATIONS

Based on the analysis, it has been observed, despite the fact that the manufacturing sector is found to be more productive than the service sector among all Micro, Small and Medium Enterprises, from 2012-13, output per unit, as well as output per worker in the manufacturing sector, has declined at a proportionately greater rate than in the service sector. This kind of drop in productivity of the manufacturing sector should be a cause of concern for the nation when the goal of the central government is to make India a global manufacturing hub and to raise the contribution of manufacturing output to the economy. It has been observed that 85% of manufacturing entities are in the category of unregistered enterprises, which is why they are deprived of government schemes. This large chunk of manufacturing unregistered units could not avail themselves of the benefits of government programs. Thus, the government should make their registration mandatory so that these enterprises can avail themselves of government schemes that would help them grow further and raise their productivity.

Moreover, it has been observed that more than half of the service sector units employ two-thirds of the total workers engaged in Micro, Small and Medium Enterprises. However, poor productivity is the main characteristic of most of the units involved in the service sector. Therefore, the government should emphasize skill upgradation in individuals engaged in the service sector to augment labor productivity, which would consequently help improve their remuneration.

Our analysis has revealed the existence of a wide gap in the productivity of manufacturing and service sector units for Micro, Small and Medium Enterprises this wide differential signifies manufacturing sector is more capital-intensive than the service sector. Hence, service sector units cannot be treated at par with the manufacturing entities in classifying Micro, Small and Medium Enterprises in terms of investment limit. Hence, there is a need for separate investment limits for enterprises engaged in the manufacturing and service sector otherwise it would not be possible for the service sector entities to move out from the category of Micro-enterprise to small enterprise and avail higher credit facilities provided for the expansion of these enterprises. Therefore, there should be a separate investment limit for categorizing service sector and manufacturing sector entities in Micro, Small and Medium Enterprises. The separate investment limit for service and manufacturing sector units is as follows –

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Table 5
A separate classification for service and manufacturing sector enterprises

Enterprises	Service sector (Investment in equipment)	Manufacturing sector (Investment in plant &Machinery)
Micro enterprises	Upto Rs 40 lakh	Upto Rs 1 crore
Small enterprises	From Rs 40 lakh to Rs 20 crore	From Rs 1 crore to Rs 10 crore
Medium Enterprises	From Rs 20 crore to Rs 25 crore	From Rs 10 crore to Rs 50 crore

Source: Based on the Author's calculations.
Note: The definition for the service sector in Micro, Small and Medium Enterprises has been constructed by taking the same proportion of investment limit set for the manufacturing sector in 2006-07.

VI. CONCLUSION

Our analysis demonstrates that Micro, Small, and Medium Enterprises are overwhelmingly dominated by the micro-enterprises. Further, we have observed that a sizeable portion of micro-enterprises is composed of service sector entities, due to which the contribution of the service sector in the entire output of Micro, Small and Medium Enterprises is barely 30%. Moreover, the lower contribution of the service sector units coupled with the substantially large number of workers engaged in these entities signifies low productivity, consequently translating into low returns, which is a cause of concern for the economy. In contrast to this fact, the contribution of the manufacturing sector to the total output is substantially higher than that of the service sector, signifying the existence of productivity differentials among both the sectors of Micro, Small and Medium Enterprises. Our observation of a sizeable difference in productivity in terms of output per enterprise and output per worker between the service and manufacturing segments of Micro, Small and Medium Enterprises is substantiated by the paired t-test, where the value of the t statistic is significant at the 1% probability level. An important rationale behind this wide gap in the productivity of the two sectors is due to the prevalence of a large number of stagnating and contracting enterprises in establishments as well as in own account enterprises, and the bulk of them belong to the service sector units. Moreover, it establishes a fact that dwarfism is a peculiar and irreversible feature of units engaged in service sector activities in Micro, Small and Medium Enterprises.

Though the performance of the manufacturing sector has been significantly better than that of service sector enterprises in terms of productivity per worker and productivity per enterprise, during the course of analysis a declining trend has been observed in output per enterprise and output per worker for manufacturing units since 2012-13. This is a cause of concern for manufacturing sector entities whose performance has been otherwise far better than that of service sector enterprises. Thus, for this reason, the manufacturing sector should augment its innovative capabilities by focusing more on research and development to make its products more competitive and gain greater acceptance in the market. Finally, considering the substantial difference in the productivity of the manufacturing and service sector entities, there is a need for a distinct classification of the manufacturing and service sector within the Micro, Small and Medium Enterprises. Considering this complexity of the sector, the government should resist the 'one size fits all' policy and focus on calibrating the policies accordingly to build the foundation that helps in catalysing the transformation of units from Micro to Small and Small to Medium Enterprises.

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APPENDIX TABLES

TABLE A1
TOTAL NUMBER OF ENTERPRISES IN MICRO, SMALL AND MEDIUM ENTERPRISE (Units in crore)

Years	Micro Enterprises	Small Enterprises	Medium Enterprises	Total number of enterprises
2001-02	1.85	0.006	0.0001	1.86
2002-03	2.20	0.007	0.0002	2.21
2003-04	2.56	0.008	0.0002	2.57
2004-05	2.91	0.009	0.0002	2.92
2005-06	3.25	0.01	0.0002	3.26
2006-07	3.61	0.011	0.0003	3.62
2007-08	3.75	0.012	0.0003	3.77
2008-09	3.92	0.013	0.0003	3.94
2009-10	4.09	0.013	0.0003	4.11
2010-11	4.27	0.014	0.0003	4.29
2011-12	4.46	0.014	0.0003	4.48
2012-13	4.66	0.015	0.0003	4.68
2013-14	4.87	0.016	0.0004	4.89
2014-15	5.09	0.016	0.0004	5.11
2015-16	5.31	0.017	0.0004	5.34
2016-17	5.56	0.017	0.0004	5.58

Source: Author's calculation based on the data from Statistical Yearbook, 2018. CSO, MOSPI

- Statistical Yearbook 2018, CSO, MOSPI.
- Third All India Census on Small Scale industrial Units 2001-02.
- Fourth All India Census on Micro, Small and Medium Enterprises 2006-07.
- NSS Report no. 581: Operational Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India.

TABLE A2
DISTRIBUTION OF NUMBER OF ENTERPRISES, OUTPUT & EMPLOYMENT IN MICRO, SMALL AND MEDIUM ENTERPRISES ENGAGED IN MANUFACTURING AND SERVICE ACTIVITIES (Units in crore)

Years	Manufacturing Enterprise	Service Enterprise	Manufacturing Output	Service Output	Employment in Manufacturing Enterprises	Employment in Service Enterprises
2001-02	0.42 (22.6%)	1.44 (77.4%)	359079 (72%)	139642 (28%)	1.37 (33%)	2.79 (67%)
2002-03	0.56 (25.3%)	1.65 (74.7%)	427267 (72%)	166159 (28%)	1.59 (36%)	2.88 (64%)
2003-04	0.71 (27.6%)	1.85 (72.4%)	511460 (72%)	198901 (28%)	1.86 (39%)	2.966 (61%)

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2004-05	0.86 (29.5%)	2.06 (70.55%)	611659 (72%)	237867 (28%)	2.178 (42%)	3.04 (58%)
2005-06	1.00 (30.7%)	2.26 (69.32%)	727863 (72%)	283058 (28%)	2.53 (45%)	3.1 (55%)
2006-07	1.15 (31.8%)	2.47 (68.2%)	917145 (76.5%)	281722 (23.5%)	3.1 (39%)	4.95 (61%)
2007-08	1.17 (32.1%)	2.60 (68.96%)	1011924 (76.5%)	310853 (23.5%)	3.38 (40%)	5.04 (60%)
2008-09	1.20 (31.9%)	2.74 (69.54%)	1052326 (76.5%)	323263 (23.5%)	3.49 (40%)	5.32 (60%)
2009-10	1.24 (32.1%)	2.87 (69.8%)	1138589 (76.5%)	349763 (23.5%)	3.74 (41%)	5.48 (59%)
2010-11	1.28 (31.9%)	3.01 (70.2%)	1265021 (76.5%)	388601(23.5%)	4.095 (42%)	5.55 (58%)
2011-12	1.34 (31.9%)	3.14 (70.1%)	1368267(76.5%)	420317 (23.5%)	4.38 (43%)	5.74 (57%)
2012-13	1.40 (31.6%)	3.28 (70.1%)	1384632 (76.5%)	425344 (23.5%)	4.27 (40%)	6.34 (60%)
2013-14	1.48 (31.5%)	3.41 (69.7%)	1401192 (76.5%)	430432 (23.5%)	4.47 (40%)	6.67 (60%)
2014-15	1.56 (31.3%)	3.55 (69.4%)	1417951 (76.5%)	435580 (23.5%)	4.51 (39%)	7.19 (61%)
2015-16	1.66 (30.9%)	3.68 (68.9%)	1434910 (76.5%)	440789 (23.5%)	4.56 (37%)	7.75 (63%)
2016-17	1.76 (30.64%)	3.82 (68.5%)	1452072 (76.5%)	446061 (23.5%)	4.61 (36%)	8.33 (64%)
Growth rate	8.22%	6.18%				

Source: Author's estimation based on data procured from sources same as provided in table A1.

TABLE A3
OUTPUT PER ENTERPRISE AND OUTPUT PER WORKER IN MANUFACTURING AND SERVICE SECTOR OF MICRO, SMALL AND MEDIUM ENTERPRISES (units in crores)

Years	Output per employment in manufacturing sector	Output per employment in service Sector	Output per enterprise in manufacturing Sector	Output per enterprise in service sector
2001-02	262101.460	50050.896	854950	96973.61
2002-03	268721.384	57694.097	762976.786	100702.4
2003-04	274978.495	67060.351	720366.197	106936
2004-05	280577.523	78245.724	711231.395	115469.4
2005-06	287692.885	91309.032	727863	125246.9
2006-07	295853.226	56913.535	797517.391	114057.5
2007-08	299385.799	61677.183	836300.826	119558.8
2008-09	301526.074	60763.722	835179.365	117979.2
2009-10	304435.561	63825.365	862567.424	121868.6
2010-11	308918.437	70018.198	923372.993	129103.3
2011-12	312389.726	73225.958	956830.07	133858.9
2012-13	324269.789	67088.959	935562.162	129678
2013-14	313465.772	64532.534	909864.935	126226.4
2014-15	314401.552	60581.363	886219.375	122698.6
2015-16	314673.246	56876.000	869642.424	119779.6
2016-17	314982.863	53548.739	849164.327	116769.9

Source: Author's calculation based on the data procured from the same sources as mentioned in table A1