Growth and Elasticity of Output of MSMEs in India

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Abstract

In the last few years, the phenomenon of a marked slowdown in the growth of employment has been noticed in many countries across the world including India. An important objective of development planning in India has been to provide for increasing employment opportunities not only to meet the backlog of the unemployed but also the new additions to the labour force. Micro, small and medium enterprises (MSMEs), including khadi and village industries generate the highest rates of employment growth and account for a significant share of industrial production and exports. The core objective of the present paper is to analyse the growth and elasticity output in the MSMEs sector. Extended Cobb Douglas Production Function has been utilized based on the secondary data. The study reveals that the output elasticity of employment during the study period is very low as compared to the output elasticity of export.

Introduction

In the last few years, the phenomenon of a marked slowdown in the growth of employment has been noticed in many countries across the world. This is often referred as jobless growth.[1] To be sure, it's not the case that employment has not been rising at all, even output has grown. Rather, for each percentage point of output growth, the associated growth rate of employment has fallen. Hence, a more precise characterisation would be that the output elasticity of employment, which measures the responsiveness of employment to output growth, has been declining over time.[2]

In addition to the almost secular decline in MSME employment elasticities over the long run, asymmetric fluctuations over phases of the business cycles have also been observed. Basu and Foley (2013) note that the responsiveness of employment to output growth in the Indian economy has been different between the downturn and recovery phases of business cycles. In particular, they point out that while labour is shed during the economic slowdown, as is to be expected, the pick-up of employment during the recovery phase has been weakening since the early 1990s.

While these asymmetric employment responses at business cycle frequencies are interesting and important phenomena, the focus of this paper is on long term response of employment to output changes. In this respect, India is no exception to the global trend of failing labour absorption capacity of output growth. Even as the growth rate of real GDP in India has accelerated since the late-1980s, MSME employment growth has slowed down. Thus, the employment growth associated with each percentage point growth of real value added has drifted down over time.[3] We point out the MSME aggregate output elasticity of employment, which measures the percentage change in employment for every percentage in output.

The downward trend in employment elasticity highlights the key challenge facing policy makers in contemporary in India. For a poor and labour surplus economy like India, MSME employment growth is by far the most important mechanism for rapid and robust poverty reduction.[4] The fact that employment elasticity has been declining means that the capability of output growth to absorb labour is weakening. To kick start an employment-intensive growth strategy, it will be necessary to address the issue of employment elasticity.

Total employment elasticity, i.e., employment elasticity of the entire economy, is a blunt tool to investigate the complex of phenomenon that underlies declining labour absorption. Thus it would be analytical more rewarding to adopt a sectoral perspective as has been the practice much of the previous literature. An analysis of changes explain that changes in sectoral elasticities and changes in relative sectoral growth rates have both been important drivers of changes in aggregate employment elasticity, with the manufacturing sector playing an important role.

[1] ILO 2013; "Global Employment Trends 2013", International Labour Office, Geneva. (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_202326.pdf).

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[3] For the sake of brevity, henceforth we will refer "output elasticity of employment" as "employment elasticity".

[4] There is the important consideration of quality of jobs that are being created. But the creation of jobs itself remains a major challenge.

Literature Review

Lahiri, I and Banerjee, M (2019)[5] discuss their article "Development of Sustainable Brands in the Micro, Small and Medium Enterprises (MSME) sector in India". The authors attempt to identify the most significant factors responsible for development of sustainable brands of the MSME sector and to estimate the impact of these factors on firm performance. They used primary data collected from 61 selected MSME units of specific industrial sector. They adopted Cranach's alpha method. The finding reveals that the role of branding in India MSME sector needs to be historic view and not just from a marketing standpoint. The development for Indian MSME to be sustainable in the long run, whereas marketing and branding would definitely be crucial issues.

Golla, S.K., (2018)[6] in his article "Growth and Performance of Micro Small and Medium Enterprises in India after MSMED Act 2006". The objectives are (1) to study the concept of MSMEs with the reference to MSMED Act, 2006, (2) to review the performance of MSMEs before and after MSMEd Act, 2006 in India. This paper is completely relying on secondary data from the year 2006-07 to 2014-15. Annual growth rate and compound annual growth rate were used to analyses the data. He found CAGR is 19.42% over the last 8 years. Employment growth rate of 18.82% and market value of fixed assets has reflected a growth rate of 30%. He remarked institutional framework and policy specifications are essential factors in helping the evolution and success of MSMEs in India.

S. Rajamohan, and A. Sathish., (2018)[7] in their study "Small Scale Industry Contribution to the Entrepreneurship and Employment in Pre and Post reform period in India" studied the growth and performance of small scale industry by evaluating the registered units and employment created by SSI through paired sample t-test result. The researcher found that the pre reform period performed well than the post reform period.

Zanjurne, P., (2018)[8] analysed her article "Growth and Future Prospects of MSME in India". The objective of this article (i) to evaluate the overall growth and developments in the MSMEs sectors in India (ii) to find key challenges faced by the MSMEs sector as well as also to study future prospects of MSMEs and (iii) to examine government initiative to generate the MSMEs sector. She has taken secondary data covering 18 years i.e. 2001 to 2018. The methodology applied on explanatory in nature and calculated average and CAGR. She has concluding with the current market value of Indian MSMEs as $5 billion. Government of India has taken various initiatives to make this sector more vibrant and significant player in development of the Indian economy.

Dr. Meeravali S., K. Ramesh, et.al. (2017)[9] found that though MSME total working enterprises, employment and market value of fixed assets grown at CAGR of 4.39%, 4.75% and 6.64% respectively, the contribution from manufacturing and service sector MSME contribution to GDP is -1.53% and 1.82% respectively. Researchers also suggest that government has to adopt integrated policy, promote skill development to increase productivity and also providing accessible credit through government sponsored agency exclusive to MSME is essential to increase productivity and contribution to economic growth.

K. Vasanth Majumdar, M.K. Krishna (2012)[10], in their paper have stated that since several successful models of the sustainable SME are gradually evolving, networks of SMEs would become essential for addressing the systemic problems under lying the industrial ecology, enterprise resilience, and global supply chain sustainability.

Kumar and Basu (2008)[11] present the perspective of productivity growth in Indian food industry. The authors collect secondary data during the period from 1988-1989 to 2004-2005 using log linear regression model and a data envelopment analysis technique. The findings reveals that Indian food industry is facing inefficiency due to low rate of technological progress which depends on mode of organization and various economic and institutional factors therefore it is necessary to encourage imports along with research and development.

Zahid and Mokhtar (2007)[12] estimated the technical efficiency levels of Malaysian manufacturing SMEs. The Cobb-Douglas stochastic production frontier is applied. The results presented indicate that all coefficients in the stochastic frontier production function are positive and significant. This indicates that inputs have a positive relationship, and are significant, to manufacturing

SMEs' production levels. The average technical efficiency of overall manufacturing SMEs is 0.76 percent. It can be indicated that Malaysian manufacturing SMEs have approximately 24 percent of inefficiency in their production process.

Majumder (2004)[13] discusses the productivity growth in small manufacturing enterprises in Bangladesh. The author has studied the role of inputs, technological progress and learning by doing in enhancing productivity of SMEs from period 1994-1995 and 2000-2001, using Total Factor Productivity growth (TFPG) and Stochastic frontier Production function in its Translog form. The finding reveals that technological improvement and technological diffusion is necessary for pure technical progress. The author suggests improvement of technology to enhance the productivity growth.

Objectives of the Study

1. To study the Growth and elasticity of Employment of MSMEs in India.
2. To study the growth of Export of MSMEs in India.
3. To analyse the relationship between Output and Employment of MSMEs in India.
4. To find out elasticity of export of MSME Sector in India.

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[13]Majumder, R. (2004), Productivity Growth in Small Enterprises – Role of Inputs, Technological Progress and Learning by doing, MPRA Paper No. 4848

Methods

The empirical analysis in this paper is based on secondary data. For the analysis we have used different statistical tools, i.e. correlation matrix, simple regression analysis, elasticity, and Cobb-Douglas Production Function.

Data Analysis
Growth of MSMEs in India

Table – 1 Performance of MSME sector in India

Year	No. of Working Enterprise	Employment (in lakh)	Market value of FAs (in crore)	Gross output (in crore)
2001-02	105.21	249.33	154349	282270
2002-03	109.49	260.21	162317	314850
2003-04	113.95	271.42	170219	364547
2004-05	118.59	282.57	178699	429796
2005-06	123.42	294.91	188113	497842
2006-07	361.76	805.23	868543.79	1351383.45
2007-08	377.37	842.23	917437.46	1435179.26
2008-09	393.70	881.14	971407.49	1524234.83
2009-10	410.82	922.19	1029331.46	1619355.53
2010-11	428.77	965.69	1094893.42	1721553.42
2011-12	447.73	1012.59	1176939.36	1834332.05
2012-13	467.54	1061.40	1268763.67	**
2013-14	488.46	1114.29	1363700.54	**
2014-15	510.57	1171.32	1471912.94	**
Average	318.38	723.89	786901.74	1034122.14
CAGR	11.94%	11.68%	17.48%	14.30%

Source: MSME Annual Report 2017-18, GoI

** Data not Available

Table 1 indicates the growth in Numbers of Working Enterprises, Employment, Market Value of Fixed Assets and Gross Output of MSME from 2001-02 to 2014-15. In 2001-02 Number of working enterprises are 105.21, it increases to 510.57 in 2014-15. The employment position shows 249.33 lakh in 2001-12 and it raised to 1171.32 lakh in 2014-15. Market value of fixed assets point out 154349 crore in 2001-12, now it also continuously went up to 1471912.94 crore in 2014-15. The gross output increased from 282270 crore to 1834332.05 crore in between 2001-02 to 2014-15.

Importance of Output Elasticity of Employment

An important objective of development planning in India has been to provide for increasing employment opportunities not only to meet the backlog of the unemployed but also the new additions to the labour force. The economic reforms have aimed at fostering labour intensive production in India.[14] The employment intensity of economic growth can be understood by the size of output elasticity of employment. In other words the concept of output elasticity of employment in a particular sector of the economy helps in understanding the extent of labour absorption capacity of that sector in the economy. The responsiveness of employment to the changes in macro economic situation (gross domestic product or gross output) and the presence of shift in the responsiveness of employment to the changes in gross output owing to new economic policy introduced since July 1991, needs to be empirically examined by fitting an employment function with an interaction variable to time series data points. The present study is an effort in this direction. From the prospective of the macro production function of the economy, the use of labour with complementary factors of production produces national output or gross domestic product. The demand function for labour can be derived either from Cobb Douglas production function or Constant Elasticity of Substitution (CES) production function by solving the marginal product of labour equation for labour input variable.

Table – 2 Exports from Micro and Small Enterprises (MSEs) in Relation to Total Merchandise Exports.

Financial Year	Total Exports (US $ billions)	Annual Growth Rate (Percentage)	Exports of MSE products (US $ billions)	% share of MSE in total exports
2001-02	43.83		14.94	34.1
2002-03	52.72	20%	17.77	33.7
2003-04	63.84	21%	21.25	33.3
2004-05	83.54	31%	27.69	33.1
2005-06	103.09	23%	33.94	32.9
2006-07	126.41	23%	40.31	31.9
2007-08	163.13	29%	50.2	30.8
2008-09	185.3	14%	66.35	35.8
2009-10	178.75	-4%	82.49	46.1
2010-11	251.14	40%	111.4	44.4
2011-12	305.96	22%	131.48	43
2012-13	300.4	-2%	128.16	42.7
2013-14	314.42	5%	132.9	42.3
2014-15	310.35	-1%	138.94	44.8
2015-16	262.29	-15%	130.65	49.8

Source: Union Ministry of Finance, Economic Division (2016), Economic Survey 2015-16, New Delhi.

Table 2 shows export from micro and small enterprises (MSEs) in relation to total merchandise exports 2001-02 to 2015-16. Total export indicates 43.83 billion in 2001-02 and it increased to 262.29 billion in 2015-16 which is 6 times increase against 2001-02. The MSE total exports is 14.94 billion in 2001-02 which increase to 128.16 billion in 2015-16. The percent share of MSE in total exports is34.1 billion in 2001-02 and it increased to 49.8 billion in 2015-16.

Table 3

SL.NO	STATE/UT	GROSS OUTPUT	TOTAL INPUT (VALUE IN CRORE)	INPUT OUT PUT RATIO OF GROSS OUT PUT & TOTAL INPUT	EXPORT (VALU IN CRORE)	GROSS OUTPUT	PERCENTAGE OF EXPORT	NET WORTH (VALUE IN CRORE)	TOTAL INPUT (VALUE IN CRORE)	RATIO OF NET WORTH RATE TO TATAOL OUTPUT
NA	ALL INDIA	707510.27	443313.7	1.6	67913.85	707510.27	10%	415303.41	443313.7	0.9
1	TAMIL NADU	65281.95	38465.19	1.7	10048.84	65281.95	15%	39914.81	38465.19	1.0
2	GUJARAT	38438.44	14164.82	2.7	4962.45	38438.44	13%	26504.39	14164.82	1.9
3	UTTAR PRADESH	74065.17	44336	1.7	14342.4	74065.17	19%	50514.11	44336	1.1
4	KERALA	24122.65	14163.88	1.7	2278.82	24122.65	9%	17954.16	14163.88	1.3
5	KARNATAKA	41060.27	24004.83	1.7	5470.89	41060.27	13%	17666.17	24004.83	0.7
6	MADHYA PRADESH	26191.6	19748.45	1.3	862.79	26191.6	3%	11348.92	19748.45	0.6
7	MAHARASHTRA	110705.08	70765.8	1.6	5484.26	110705.08	5%	88691.52	70765.8	1.3
8	RAJASTAN	39402.23	29883.85	1.3	4977.93	39402.23	13%	17218.16	29883.85	0.6
9	BIHAR	4661.53	2561.21	1.8	7.98	4661.53	1%	2458.95	2561.21	1.0
10	PUNJAB	62099.27	43484.18	1.4	4700.68	62099.27	8%	28997.51	43484.18	0.7
11	ANDHRA PRADESH	30102.26	19883.29	1.5	1646.69	30102.26	5%	16272.42	19883.29	0.8
12	WEST BENGAL	26906.61	18359.59	1.5	2152.61	26906.61	8%	12972.42	18359.59	0.7
13	HARYANA	43762.97	28653.64	1.5	4833.94	43762.97	11%	25367.71	28653.64	0.9
14	UTTARAKHANDA	13370.36	7878.73	1.7	447.35	13370.36	3%	3772.88	7878.73	0.5
15	CHHATTISGARH	6182.27	4487.24	1.4	89.22	6182.27	1%	3813.36	4487.24	0.8
16	ASSAM	9389.2	4746.55	2.0	32.91	9389.2	0%	4262.53	4746.55	0.9
17	ORISSA	14746.08	7723.4	1.9	440.76	14746.08	3%	6214.42	7723.4	0.8
18	JHARKHAND	4170.1	2618.77	1.6	69.7	4170.1	2%	108.77	2618.77	0.0
19	JAMMU& KASHMIR	14516.78	8391.57	1.7	2071.21	14516.78	14%	6887.32	8391.57	0.8
20	HIMACHAL PRADESH	11786.29	7584.04	1.6	312.02	11786.29	3%	4932.8	7584.04	0.7
21	MANIPUR	199.8	106.08	1.9	0.15	199.8	1%	444.88	106.08	4.2
22	DELHI	19471.1	12846.95	1.5	1233.52	19471.1	6%	10817.25	12846.95	0.8
23	MIZORAM	309.9	127.66	2.4	0	309.9	1%	387.48	127.66	3.0
24	MEGHALAYA	447.31	295.25	1.5	0.07	447.31	1%	218.71	295.25	0.7
25	GOA	6627.57	4688.63	1.4	472.27	6627.57	7%	4157.68	4688.63	0.9
26	DADAR & NAGAR HAVEL	2077.14	728.81	2.9	5.51	2077.14	1%	2297.7	728.81	3.2
27	PUDUCHERRY	5614.33	4160.76	1.3	238.77	5614.33	4%	2002.08	4160.76	0.5
28	TRIPURA	608.3	389.73	1.6	8.89	608.3	1%	291.03	389.73	0.7
29	NAGALAND	1396.04	778.54	1.8	5.17	1396.04	1%	2642.19	778.54	3.4
30	CHANDIGARH	1684.45	1028.59	1.6	103.16	1684.45	6%	777.88	1028.59	0.8
31	ANDAMAN & NICOBAR	111.75	55.59	2.0	1	111.75	1%	48.6	55.59	0.9
32	DAMAN & DIU	7712.89	6028.95	1.3	611.59	7712.89	8%	3421.32	6028.95	0.6
33	ARUNACHAL PRADESH	237.21	137.86	1.7	1	237.21	1%	187.97	137.86	1.4
34	SIKKIM	51.37	35.27	1.5	1.3	51.37	3%	35.48	35.27	1.0

Table 3 shows that Gross output, Total input, Total Input, Input output ratio, Export, Percentage of export, Net worth and net growth rate of MSMEs in India. The highest Gross output is state of Maharashtra with is Rs. 110705.08 crore and lowest state is Andaman and Nicobar with is Rs. 51.75 crore. State of Maharashtra is highest input in the country i.e. Rs. 70765.80 crore and lowest input is Rs. 55.59 crore in the state Andaman and Nicobar. The highest and lowest input output ratio is 209 and 1.3 respectively. Uttar Pradesh is highest export state in MSME in India with Rs. 14342.40 crore in the current period and lowest Export states are Mizorm, Andaman & Nicobar and Arunchal Pradesh i.e. Rs. 1 crore each. **The highest percentage of export is 19 percent in the state of Uttar Pradesh and lowest one is 1 percent.** The highest networth is Rs. 50514.11 crore in the state of Uttar Pradesh and lowest is Rs. 35.48 crore in Sikkim State.

Table – 4. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NUMBER OF WORKING ENTERPRISES	36	2	1563974	86887.44	261456.167	5.447	.393	31.291	.768
EMPLOYMENT(PERSON)	36	2	9309486	517193.67	1552146.226	5.490	.393	31.661	.768
ORIGINAL VALUE OF P&M (VALUE IN CORE)	36	.0000	105024.6100	5834.710556	18498.6286181	4.875	.393	25.271	.768
MARKET VALUE OF FIXED (VALUE IN CORE) ASSETS	36	.0000	449138.4000	26341.022222	77648.9121833	4.992	.393	26.780	.768
GROSS OUTPUT	36	.0000	707510.2700	39306.126111	117324.4134337	5.579	.393	32.424	.768
TOTAL INPUT (VALUE IN CORE)	36	.0000	443313.7000	24628.538889	73561.9323916	5.568	.393	32.331	.768
GAV(VALUE IN CORE)	36	.0000	264196.5700	14677.587222	43859.2947341	5.560	.393	32.267	.768
EXPORT(VALUE IN CORE)	36	.0000	67913.8500	3772.991667	11441.3279547	5.337	.393	30.263	.768
NET WORTH (VALUE IN CORE)	36	.0000	415303.4100	23025.194167	69571.8872782	5.432	.393	31.042	.768

Table 4 indicates the Descriptive statistics in MSMEs in India. The average working enterprises is 86887 and employment shows 517194 lackh person. The market value of fixed assets is Rs. 26341 crore. Total input value shows Rs. 24629 crore and net worth average value of MSME sector is Rs. 23025 crore. The standard deviation pointout 261456 in number of working enterprises and in employment standard deviation is 1552146. Market value of fixed assets standard deviation is 77649 with gross output standard deviation is 117324. In the case of Skewness 5.45 (statistics) in working enterprises, 4.99 market value of fixed assets and 5.43 in net worth. The standard error of Skewness is 0.39 in all the factors which indicates positive performance in MSME sector. The Kurtosis of Descriptive statistics shows 32 in four factors i.e. Employment, Gross output, Total input, GAV and net worth is 31. The standard error of Kurtosis is 0.77 each in all the factors of MSME sector in India.

Table 5 point out correlation matrix table of MSMEs in India. The above table shows all the factors have positive values for MSMEs in India.

Table – 5. Correlation Matrix Table

CORRELATION MATRIX TABLE:

	NUMBER OF WORKING CAPITAL	EMPLOYMENT	ORIGINAL VALUE OF P &M	MARKET VALUE OF FIXED	GROSS OUTPUT	TOTAL INPUT	GVA	EXPORT	NET WORTH
NUMBER OF WORKING CAPITAL	1								
EMPLOYMENT	1.00	1							
ORIGINAL VALUE OF P &M	0.96	0.96	1						
MARKET VALUE OF FIXED	0.97	0.97	0.99	1					
GROSS OUTPUT	0.98	0.99	0.94	0.95	1				
TOTAL INPUT	0.98	0.99	0.93	0.94	1.00	1			
GVA	0.99	0.99	0.95	0.96	1.00	1.00	1		
EXPORT	0.99	0.99	0.93	0.94	0.99	0.99	0.99	1	
NET WORTH	0.98	0.99	0.94	0.95	1.00	1.00	1.00	0.98	1

SIMPLE REGRESSION ANNALYSIS (EMPLOYMENT AND OUTPUT)

Table – 6. Simple Regression Analysis of Employment and Output

odel	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
onstant)	587.290	2911.003		.202	.841
MPLOYMENT(PERSON)	.075	.002	.991	42.153	.000

a. Dependent Variable: GROSS OUTPUT

SIMPLE REGRESSION ANNALYSIS (OUTPUT AND FIXEED ASSETS)

Table – 7   Simple Regression Analysis of Output and Fixed Assets

odel	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1591.658	1591.658	4271.246	.373	.712
ROSS UTPUT	.630	0.35	.951	18.011	.000

a. Dependent Variable: MARKET VALUE OF FIXED (VALUE IN CORE) ASSETS.

COBB-DOUGLAS PRODUCTION FUNCTION:
$$Q=AL^{\beta 1}K^{\beta 2}.$$
ESTIMATED: $A\beta 1$ &$\beta 2$.
$$LN (Q) =LN (A) beta1*LN (L) beta2*LN (K).$$

ble – 8   Cobb-Douglas Production Function

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
tercept	-0.53	1.09	-0.49	0.63	-2.75	1.69	-2.75	1.69
B1	0.43	0.19	2.28	0.03	0.05	0.82	0.05	0.82
B2	0.54	0.16	3.43	0.00	0.22	0.87	0.22	0.87
	LN(A)	-0.53						
EXP()	A	0.59						

Table 6 reveals that simple regression analysis (Employment and Output) of MSME in India. It shows R square is .982. The above calculation found F value (1776.840). It is clear that relationship between employment and output is significant.

Table 7 shows that simple regression analysis (Output and Fixed Assets). The R square shows .905. The above calculation found F (324.406). It is clear that difference between Output and Fixed Assets is significant.

Table 8 indicates COBB-DOUGLAS production function. The above table calculation shows,

B1 Coefficient is 0.43 and standard error is 0.19

B2 Coefficient is 0.54 and standard error is 0.16

LN (A) = 0.53

"= EXP = A 0.59

ELASTICITY OF EMPLOYMENT AND EXPORT

Employment elasticity captures the responsiveness of employment of changes in output. There are two common ways of measuring the output elasticity of employment (Mishra and Suresh, 2014). The first method calculates the *point* elasticity by regressing log-employment on log-output, where the coefficient on the latter is the estimate of elasticity. Since estimation of point elasticity relies on a regression, a researcher requires substantial data points to put it into practice. Often, enough data is not available to run regressions. In such cases, researchers turn to the second method, which calculates the *arc* elasticity as the ratio of the growth rate of employment and growth rate of output over some period of time. In this paper, we use data on employment from the Employment-Unemployment Survey (EUS) of the National Sample Survey Organisation (NSSO), which is available only every 5 years. This makes regression analysis infeasible. Hence, we compute and work with arc elasticities.

The arc employment elasticity for the aggregate economy is defined as.

$$\text{Log } E = a + b \log Y$$

$$\acute{\eta} = \frac{\dfrac{\Delta E}{E}}{\dfrac{\Delta Y}{Y}} = \frac{E \Delta E}{\Delta Y} \times \frac{Y}{E}$$

Where E denotes employment, Y denotes real output (value added) and Δx stands for change in the variable x.

ELASTICITY OF EMPLOYMENT OUTPUT

Table – 9 Elasticity of Employment
Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t
	B	Std. Error	Beta	
ln(EMPLOYMENT(PERSON))	11225.697	1636.220	.772	6.861
(Constant)	-106764.877	18814.515		-5.675

ELASTICITY OF EXPORT

Table – 10 Elasticity of Export

.
Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t
	B	Std. Error	Beta	
EXPORT(VALUE IN CORE)	92.612	12.625	.792	7.336
(Constant)	88810.256	47526.637		1.869

Table 9 indicates Elasticity of Employment. From the above table calculated value of F is 47.070. Unstandardized coefficients B value is 11225.697 and standardized coefficient Beta is .772 which shows elasticity of employment is significant.

Table 10 shows Elasticity of Export of MSME in India. The above table calculated value of F is 53.811, unstandardized coefficients B is 92.612 and standardized coefficients Beta value is .792. It indicates Elasticity of Export is significant.

DESCRIPTIVE STATISTICS

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
INPUT OUT PUT RATIO OF GROSS OUT PUT & TOTAL INPUT	35	2	1	3	1.86	.494	.244	-.349	.398	.971	.778
PERCENTAGE OF EXPORT	35	18.00%	1.00%	19.00%	5.7714%	5.04151%	25.417	.905	.398	-.127	.778
RATIO OF NET GROWTH RATE TO TATAL OUTPUT	35	4	0	4	1.23	.808	.652	2.037	.398	4.434	.778
Valid N (list wise)	35										

In Descriptive statistics shows average input output ratio is 1.86. Percentage of Export average is 5.7714 percent and ratio of net growth rate of total output 1.23. The standard deviation .494 in input output ratio, 5.04151 percent in percentage export and .808 ratio of net growth. The variance shows .244 in input output ratio, 25.417 in percentage of export and 2.037 in ratio of

net growth rate of total output. Skewness standard error indicates .398 in all factors and Kurtosis standard error point out .778 each in all three factors. Now the descriptive statistics indicates the positive in MSME sector in India.

Limitations of the study

The study highlights the relationship between employment, output and export of manufacturing sector. The service sector has been excluded from the study. Further the productivity growth, technical efficiency is out of purview of the study.

[14] Economic Survey 2001-02, Government of India, Ministry of Finance, Economic Division.

Results And Discussion

In this article we have discussed responsiveness of employment to changes in output. There are two common ways of measuring the output elasticity of employment. The first method calculates the *point* elasticity by regressing log-employment on log-output, where the coefficient on the latter is the estimate of elasticity. Since estimation of point elasticity relies on a regression, a researcher requires substantial data points to put it into practice. Often, enough data is not available to run regressions. Researchers turn to the second method, which calculates the *arc* elasticity as the ratio of the growth rate of employment and growth rate of output over some period of time. As the data available is not substantial we compute and work with arc elasticity.

Conclusion

The empirical results of the present study based on the positive magnitude of elasticity of employment with elasticity of export. This reflects the fact that the employment absorption capacity in MSME sector has been high followed by the other sectors. The magnitude of output elasticity of employment is close to unity in manufacturing sector as the employment elasticity has increased. But the result of this exercise for the organized sector as a whole illustrate that the output elasticity of employment during the study period is very low as compared to the output elasticity of export. Output elasticity of employment shows that the economic growth during current period is not labour intensive. The objective of providing employment opportunities not only for the additions to the labour force, but also to reduce the backlog of unemployment accumulated from the past is not attained in the Indian Economy. Hence a coordinated strategy by the government is necessary to promote employment in the manufacturing sector so as to reduce poverty in the country.

Declarations

Availability of data and materials

Data for the research is kept by the different Sources like **Source:** MSME Annual Report 2017-18, GoI,**Source:** Union Ministry of Finance, Economic Division (2016), Economic Survey 2015-16, New Delhi., **Source:** Economic Survey 2001-02, Government of India, Ministry of Finance, Economic Division.

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Authors' contributions

There is two authors in this article. Two authors have huge taking lot of pain taking contribution to make this article at this level.

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Abbreviations

MSME: Micro, small and medium enterprises.

GDP: Gross Domestic Product.

CAGAR: compound annual growth rate.

TFPG: Total Factor Productivity growth.

CES: Constant Elasticity of Substitution.

EUS: Employment-Unemployment Survey.

NSSO: National Sample Survey Organisation,

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Figures
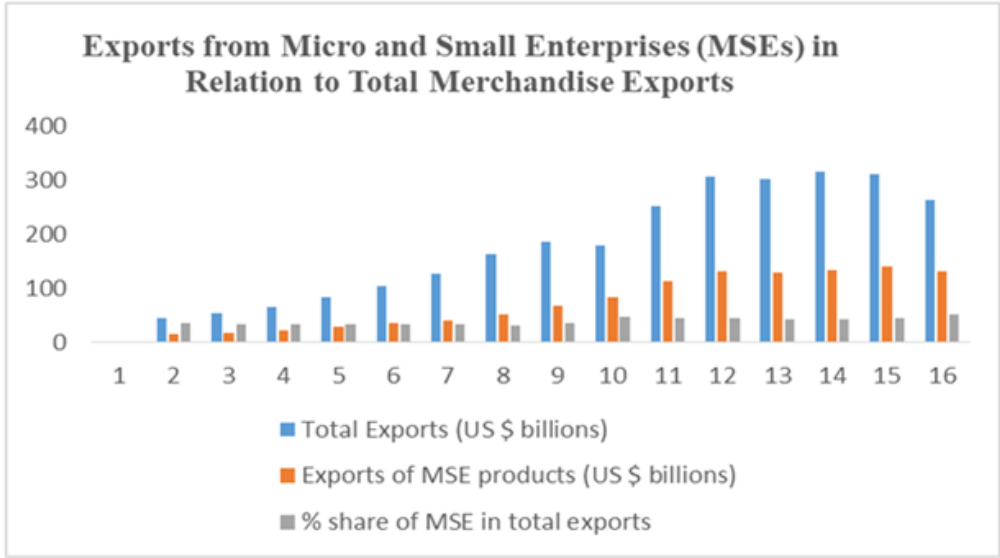
Figure 1

Exports from Micro and Small Enterprises (MSE) in Relation to Total Merchandise Exports
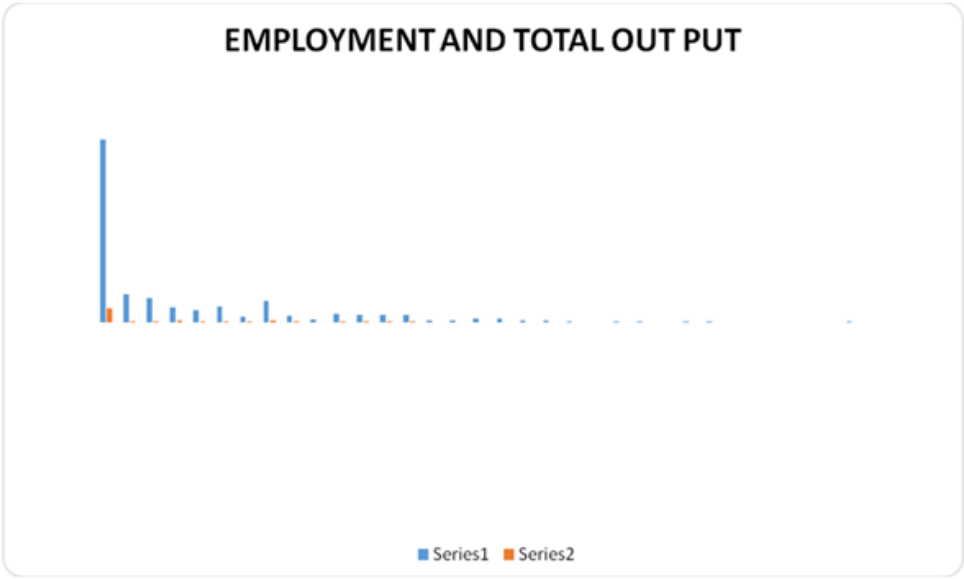
Figure 2

Employment and Total Out Put