

## ECONOMETRIC ANALYSIS OF INDIA'S MSME SEMI-LOG GROWTH MODEL

**S.Saravanan**

*Assistant Professor & Head, Department of Economics  
Rajiv Gandhi Arts and Science College, Puducherry*

**Dr.V.Vijayakumar**

*Guest Faculty, Department of Commerce  
School of Management, Pondicherry University, Pondicherry*

### Introduction

MSME stands for Micro, Small & Medium enterprises, is the pillar of economic growth in many developed, and developing countries in the world. Mostly it has been rightly termed as "the engine of growth" for India. MSME has played a pivotal role in the development of the country in terms of creating employment opportunities to the extent of more than **50 million people**, by scaling manufacturing capabilities, curtailing regional disparities, balancing the distribution of wealth. The contribution to the **GDP by MSME sector is hovering around 8%**. Though, India is still facing infrastructural problems, lack of proper market linkages and challenges in terms of institutional credit flow, it has seen a tremendous growth potential in this sector especially.

The merit of this sector is that it requires less investment, thus creating employment on a large scale, and reducing the employment and underemployment problems. Moreover, this sector has survived almost all threats emerging out of cut throat competition from both domestic and international market.

### Importance of MSME act 2006

With the introduction of the MSME Act in the year 2006, the service sector was not yet included in the definition of the Micro, Small & Medium sized Enterprises, by making a drastic change to this Act the scope of this sector has been widened with online MSME Registration with the paperless work.

### Share of MSME in Manufacturing, Exports and Employment Sectors in India

	Sector	Percentage (%) share
1	Manufacturing	45
2	Exports	40
3	Employment	69

The contribution of MSME to other sectors has been immensely instrumental. It is the biggest employer after agriculture sector, despite the fact that agriculture sector's contribution to GDP is less than MSME. While it contributes about 45% to manufacturing sector, and

perhaps 40% to Exports, it forms the highest share of Employment sector in India, contributing around 69% to it.

Let us take a look at some of the key importance of this sector in the development of India both in terms of economic and social development:

### **Generation of Large Scale Employment**

The enterprises falling under this sector require low capital to start the business; it generates large scale employment opportunities for many unemployed youth. India produces about 1.2 million graduates per year, of the total number about 0.8 million are engineers. And, there is no economy in the world that can provide jobs to so many fresh graduates in one year. MSME is the boon for many of this fresh graduates.

### **Economic Stability and Growth in the Export Sector**

MSME is a significant growth driver in India, with it contributing to the tune of 8% to GDP. As mentioned in the above table, Exports sector in India constitutes about 40% of contribution from MSME alone. Looking at the kind of contribution of MSME to manufacturing, exports and employment, other sectors are also benefitting from MSME. MNCs today are buying semi-finished and auxiliary products from small enterprises, for example, buying of clutches, and brakes by automobile companies. It helps create a linkage between MSME and large scale industry. Even after the implementation of the GST 40% MSME sector also applied GST Registration which increases the government revenue by 11%.

### **Leads to Inclusive Growth**

Around 50% of wealth in India is owned by just 100 people which is due to unequal distribution of wealth. Inclusive growth is on top of the agenda of Ministry for Medium, and Small, and Medium sized enterprises for several years. But poverty and deprivation are a deterrent to the development of India, including marginalized sections of society is a key challenge lying before the Ministry of MSME.

### **Low cost of Labour**

In giant organization, one of the key challenges is to retain the manpower through an effective human resource management. But in case of an MSME, the requirement of labour force is less, and it does not need a highly skilled laborer. Hence, the indirect expenses incurred by the MSME are also low.

### **Simple Management Structure**

MSMEs do not require a huge capital to start. With limited resources available within the control of the entrepreneur, decision-making becomes easy and efficient. As in case of a large corporation wherein a specialist is required for every departmental functioning because of complex organizational structure, a small enterprise does not need to hire an external specialist for its management. The entrepreneur himself/herself can manage it. Therefore, it can be run single-handedly.

### **Makes "Make in India" possible**

Post inception of 'Make in India', a signature initiative by the prime minister of India, the process of incorporating a new business has been made easy. Since the MSME is the backbone in making this dream a reality, the government has directed the financial institution to lend more

credit to enterprises in MSME sector. Micro, Small and Medium-sized Enterprises (MSME) are one among the most important sectors, forming the stamina of the Indian economy. This sector has been instrumental in the growth of the nation, enhancing exports, creating enormous employment opportunities for the untrained, fresh graduates, and the underemployed, also extending the opportunities to banks for giving more credit to enterprises in this sector. The government should take extreme care of this sector in terms of providing more and more MSME Registration benefits through better system, Government enables financial institutions to lend more credit at less interest rate for sustainability of this sector.

### **Objectives of the Study**

The specific objectives of this paper are:

- To Analyse the Growth and Performance of MSME in India.
- To Investigate India's MSME Growth Model is Satisfactory or not.

### **Hypothesis**

**Ho1:** There is significant difference in India's MSME growth model.

**Ho2:** There is no significant difference India's MSME growth model.

### **Research Methodology**

The present study is descriptive and analytical in nature. The data used for the study is secondary in nature and has been collected from annual reports of Ministry of Micro, Small and Medium Enterprises, Government of India, website of Reserve Bank of India, various journals, newspapers and white papers on Micro, Small and Medium Enterprises. The growth and performance of MSMEs has been analysed using Compounded annual Growth Rate (CAGR) Technique. The formula of Compound Annual Growth Rate is stated as under.

### **Limitations**

The study has been undertaken, only the MSME growth model with the availability of data for few years and projected data for the last three consecutive years.

### **Performance of MSME**

The projected trends in regard to performance of MSME sector with respect to Total Working Enterprises, Employment and Market Value of Fixed Assets based on Fourth All India Census of MSME are as noted below: The Compounded annual growth rate of Enterprise during 2001 to 2015 is 14.92% The Compounded annual growth rate of Employment during the below mentioned period is 13.92% and market fixed value assets growth rate is 20.52%.

**Table 1 Performance of SSI/ MSME, Employment and Investments**

Year	Total Working Enterprise (in Lakh)	Employment (in Lakhs)	Market Value of Fixed Assets (In Crore)	Gross Output (In Crores)
I	II	III	IV	V
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	1351383.5
2007-08	377.36	842.23	917437.46	1435179.3
2008-09	393.70	881.14	971407.49	1524234.8
2009-10	410.82	922.19	1029331.5	1619355.5
2010-11	428.77	965.69	1094893.4	1721553.4
2011-12	447.73	1012.59	1176939.09	1834332.1
2012-13	467.54	1052.4	1268763.67	NA
2013-14	488.46	1114.29	1363700.55	NA
2014-15	510.57	1171.32	1471912.94	NA
<b>Growth rate During this Period</b>	<b>14.42 %</b>	<b>13.98 %</b>	<b>20.52%</b>	

**Source:** Author's calculation based on various annual reports of MSME.

### Growth Model

$$\text{Log}(Y) = C_1 + C_2 (T) + E \dots \dots \dots (1)$$

Here Y = Total working Enterprises (in Lakhs) but converted into log. T = Time period 2001 to 2016.

The equation (1) is semi-log model as only one variable (in the case of dependent variable) is in log form. To assess the growth over the period of the study the model fitted in is the estimate equation (1) and the residual test should not have serial correlation, must be free from heteroscedasticity and residual, and also shall be free from normal distribution. Further residual of the model should be stationary, for testing the stationary of the model correlogram has been used.

Dependent Variable: LOG (ENTERPRISES)

Method: Least Squares

Sample: 2001 2014

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.506323	0.166616	27.04612	0.0000
TIME	0.144263	0.019568	7.372371	0.0000

R-squared	0.819146
Adjusted R-squared	0.804075
S.E. of regression	0.295147
Sum squared resid	1.045344
Log likelihood	-1.702161
F-statistic	54.35186
Prob (F-statistic)	0.000009

Mean dependent var	5.588296
S.D. dependent var	0.666797
Akaike info criterion	0.528880
Schwarz criterion	0.620174
Hannan-Quinn criter.	0.520429
Durbin-Watson stat	0.949428

The growth rate of India Enterprises (MSME) 14.42% between 2001-02 to 2014-15. The Model is significant, because p value is less than 5% and F statistic is significant, since p value is less than 5%.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.029960	Prob. F(2,10)	0.1820
Obs*R-squared	4.042618	Prob. Chi-Square(2)	0.1325

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 2001 2014

Included observations: 14

Pre-sample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.013278	0.156462	0.084867	0.9340
TIME	-0.002594	0.018786	-0.138061	0.8929
RESID (-1)	0.629417	0.317008	1.985493	0.0752
RESID (-2)	-0.200421	0.334015	-0.600035	0.5618

R-squared	0.288758
Adjusted R-squared	0.075386
S.E. of regression	0.272671
Sum squared resid	0.743492
Log likelihood	0.683041
F-statistic	1.353307
Prob(F-statistic)	0.312272
Mean dependent var	1.90E-16
S.D. dependent var	0.283568
Akaike info criterion	0.473851
Schwarz criterion	0.656439
Hannan-Quinn criter.	0.456949
Durbin-Watson stat	2.039415

Null Hypothesis there is serial correlation. Alt Hypothesis there is no serial correlation. This model is good because Serial Correlation is not significant, because p value is 13.25% which is more than 5%, hence reject the null hypothesis.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.192765	Prob. F(1,12)	0.6684
Obs*R-squared	0.221337	Prob. Chi-Square(1)	0.6380
Scaled explained SS	0.088543	Prob. Chi-Square(1)	0.7660

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 2001 2014

Included observations: 14

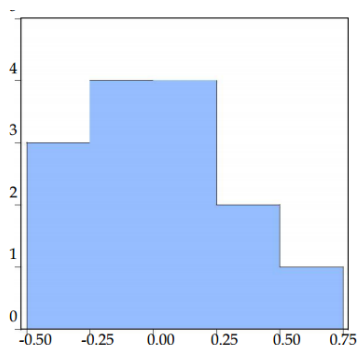
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.092896	0.047134	1.970879	0.0722
TIME	-0.002430	0.005536	-0.439050	0.6684

R-squared	0.015810
Adjusted R-squared	-0.066206
S.E. of regression	0.083494
Sum squared resid	0.083655
Log likelihood	15.97560
F-statistic	0.192765
Prob(F-statistic)	0.668427

Mean dependent var	0.074667
S.D. dependent var	0.080860
Akaike info criterion	-1.996514
Schwarz criterion	-1.905220

Hannan-Quinn criter.-2.004965

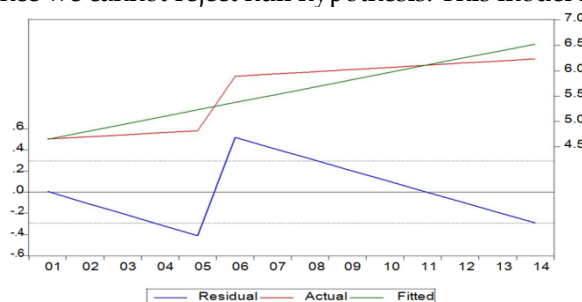
Durbin-Watson stat 0.501923 Null Hypothesis there is Heteroskedasticity. Alt Hypothesis there is no Heteroskedasticity. This model is good because there is no Heteroskedasticity because p value is more than 5%, hence null hypothesis rejected.



Series: Residuals  
Sample 2001 2014  
Observations 14

Mean	1.90e-16
Median	-0.042312
Maximum	0.519079
Minimum	-0.412045
Std. Dev.	0.283568
Skewness	0.399869
Kurtosis	2.088992
Jarque-Bera	0.857218
Probability	0.651415

Null Hypothesis is normally distributed. Alt Hypothesis is not normally distributed since p value is more than 5%, hence we cannot reject null hypothesis. This model is normally distributed.



Sample: 2001 2014

Included observations: 14

Autocorrelation				Partial Correlation					AC	PAC	Q-Stat	Prob
.		****		.		****		1	0.485	0.485	4.0517	0.044
.	*	.		.	*	.		2	0.082	-0.200	4.1775	0.124
.	*	.		.	*	.		3	-0.198	-0.203	4.9788	0.173
.	***	.		.	*	.		4	-0.346	-0.190	7.6681	0.105

Null Hypothesis: Residuals is stationary Alt

Hypothesis: Residuals is Non-stationary

P- Value is more than 5%, so we cannot reject null hypothesis. Residuals are Stationary.

## Conclusion

The Model full fills all the Conditions while estimating the equation (1) and the residual test, the estimated model should not have serial correlation should be free from heteroscedasticity and residual should be normally distributed. In addition to this residual of model should be stationary, for testing the stationarity model shall be using correlogram. If big push is given the economy will achieve towards full employment and sustainable high Economic Growth.

## References

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