

SMALL SCALE INDUSTRIES AND ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM INDIA DURING POST ECONOMIC REFORMS ERA

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Abstract

The present study empirically investigates the causality between Growth and Exports (EXP) by small scale industries in India over the period 1991-2014, the post economic reforms era. In the present study Gross Output (GO) is used as proxy of Economic Growth. The study takes into consideration the recent advances in econometric techniques. The study shows the high degree of correlation between GO and EXP. The variables are tested for stationarity applying Augmented Dickey-Fuller (ADF) test. To determine the cause and effect relationship between GO and EXP, Granger Causality test and Vector autoregression (VAR) model have been used. Granger Causality results suggest that there is unidirectional causality between GO and EXP. The Vector auto regression (VAR) model has explained that there is a strong cause and effect relationship between the variables in the present study.

Keywords: SSI, Exports, Gross Output, India, Correlation, ADF, Stationarity, Causality, VAR.

Introduction

Small scale industries play a key role in the industrialization of developing country like India. Small scale industries tend to be labour intensive. In our country, manpower is abundant but capital is relatively scarce. Therefore, these industries are better suited to the country's resources potential. These industries require lower levels of investment and facilitate an effective mobilisation of resources of capital and skill which might otherwise remain unutilised. They are a major source of raw material for giant companies because the finished goods of few small scale industries are the intermediate goods for the large scale companies.

Generally, small scale industries are environment friendly because they use labour intensive technology. The possibility of establishing these industries in different regions particularly in rural areas is favourable because it will help to achieve many of the

social and economic goals such as increasing income of the rural areas, controlling the migration from the rural areas to urban areas, provide employment opportunities to rural people, removal of poverty, etc. Therefore, time to time many policies have been made by centre and state governments to encourage these industries in India.

In India, various Industrial Policy Resolutions have been made to offer a special favour for the development of small scale industries. Originally, the capital investment limit for these industries was restricted to Rs. 5 lakh and later on this limit was raised further to Rs. 10 lakh for small scale unit and Rs. 15 lakh for ancillaries in 1975.

In order to promote the small scale industries in India, the Government of India enacted Micro, Small and Medium Enterprises Development (MSMED) Act, 2006. It was the first act for micro, small and medium enterprises which provided for establishment of a statutory National Board for the promotion, development and enhancement of competitiveness of these enterprises.

In order to enhance further, the existing limit of investment for manufacturing enterprises in plant and machinery and for service enterprises in equipments, government of India has prescribed new limits for micro, small and medium enterprises in the country in Micro, Small and Medium Enterprises Development (Amendment) Bill, 2015. These limits are as under:

Table 1 New limits for micro, small and medium enterprises in India

Manufacturing Enterprises
Micro enterprise: not exceeding Rs. 50 lakh.
Small enterprise: more than Rs. 50 lakh and not exceeding Rs. 10 crores.
Medium enterprise: more than Rs. 10 crores and not exceeding Rs. 30 crores.
Service Enterprises
Micro enterprise: not exceeding Rs. 20 lakh.
Small enterprise: more than Rs. 20 lakh and not exceeding Rs. 5 crores.
Medium enterprise: more than Rs. 5 crores and not exceeding Rs. 15 crores.

[Source: Micro, Small and Medium Enterprises Development (Amendment) Bill, 2015]

These industries also contribute an ample amount to the industrial output of our country. Out of the total output of the manufacturing sector, as much as 40 percent comes from these industries. Almost all the products of this sector are in the nature of consumer goods, with a significant part consisting of luxury goods. The adequate availability of consumer goods plays an important role in stabilizing and developing the economy.

These industries also have registered an exceptional growth in export over the years. The value of exports of these industries has increased to Rs 393 crore in 1973-74 to Rs. 71,244 crore in 2002-03 that is about 35 percent of India's total export. Thus they have been increasing the country's foreign exchange reserves thereby reduce the pressure on country's balance of payment. Many products of the small scale industries

like handloom cotton fabrics, silk fabrics, handicrafts, carpets, jewellery, etc. are exported to foreign countries. Their share in total exports is as much as 40 percent.

Therefore, considering the importance of the small scale industry an attempt has been made in this paper to achieve the following

Objectives

1. To determine the relationship between Exports and Gross Output of Small Scale Industries in India.
2. To analyse the short run behaviour of an economic variable with its long run behaviour.

In the light of the above-mentioned objectives, the study attempts to test the following

Hypotheses

1. The time series are integrated stochastic processes.
2. Exports do not affect Growth (Gross Output) of small scale sector in India.
3. Gross Output of small scale sector does not affect Exports of this sector in India.

Review of Literature

Sountharapandian (1989) analyzed the factors responsible for the growth of entrepreneurship and identified the problems affecting the growth of entrepreneurship in small scale industry in Madurai region. He found that the income from other sources of entrepreneurs, availing institutional finance, level of capacity utilization, period of existence of the industry affects the growth of entrepreneurship. Erosi (1989) observed that in a labour abundant capital scarce country like India, small scale industry has come to occupy a significant position in the planned industrialization of economy. They have great social and economic significance. Hasnat (1991) stated that the small scale industrial sector occupy a place of importance in economy of all labour surplus as they provide employment for a substantial work force, small industries acquire part of their potential value from the employment of trained and educated person. Mohanam (1993) suggested that to enhance the export potentialities of the small scale industries there should be de-licensing and removal of reservation for leather industry and joint venture should be proposed to attract the corporate and foreign investments in training and manufacturing of various leather products and allied industries. He also stated that there should be a proper flow of raw materials, access to credit facilities, manpower development, technology up-gradation, marketing facilities, organized structure of small scale industries, etc to enhance the export potentialities of the small scale industries. Chandra (1994) found that the banks with their low cost financing would be ideal for lending to the agriculture sector, the small industries, small business and the self employed. This would help to relieve the rural poor from the clutches of the informal and unorganized lending agencies. Bhatnagar (1995) studied that the

strongest argument that could be raised in developing countries in the favour of small scale enterprises is their employment generation potential. Abid Hussain Committee (1997) inspected and recommended institutional arrangements, policies and programmes for meeting long term and short term requirements of the small scale industries. The committee found that the reservation policy of the specified products for exclusive manufacture by small scale industries had not served the much purpose as most industrialization had occurred in terms not reserved for small scale industries. Moreover, it had resulted in low efficiency and productivity and restricted the expansion and export potential of important industries like light engineering, food processing, textiles and others. Mali (1998) observed that small, medium and micro enterprises have to face increasing competition in the present scenario of globalization. These industries have to specifically improve themselves in the fields of management, marketing, product diversification, infrastructural development, technological up gradation. Moreover, new small and medium enterprises may have to move from slow growth area to the high growth area and they have to form strategic alliance with entrepreneurs of neighbouring countries. In his study, Subrahmanya (2004) highlighted the impact of globalization and domestic reforms on small-scale industries sector. The study showed that small industry had suffered in terms of growth of units, employment, output and exports. The study also suggested that the focus must be turned to technology development and strengthening of financial infrastructure in order to make Indian small industry internationally competitive and contribute to national income and employment. Jena (2007) concluded in his research paper titled 'Small Scale Industries in the Path of Growth and Promoting Exports' that there are special provisions under the Vishesh Krishi and Gramin Udyog Yojna for the agriculture and agro based industries upon which the livelihood of the rural masses depends and this also leads to increase export potential of this sector. Bargal *et al.* (2009) examined the causal relationship among the three variables GDP, SSI output and SSI exports and also have compared the performance parameters of SSIs in the pre and post liberalization era. The study found that the annual average growth rate of different parameters of SSIs have declined in the period of nineties vis-à-vis the pre-reform years and highlighted the absence of any lead-lag causal relationship between exports and production in small-scale sector and GDP of Indian economy. Sonia and Kansal (2009) conducted a study on "Globalization and Its Impact on Small Scale Industries in India" to analyze the impact of globalization on the growth of small scale industries. They found that globalization had a negative impact on the growth of small scale industries measured in terms of number of units, production, employment and exports. Dixit and Pandey (2011) applied co-integration analysis in their study to examine the causal relationship between SMEs output, exports, employment, number of SMEs and their fixed investment and India's GDP, total exports and employment

(public and private) for the period 1973-74 to 2006-07. Their study revealed the positive causality between SMEs output and India's GDP.

Data and Research Methodology

The present study is based on secondary data to analyze the performance of Small Scale Industries in India, which have been taken from Economic Survey of India, Handbook of Statistics on the Indian Economy and the Annual Reports of Ministry of Micro, Small and Medium Enterprises. The study covers the period of 1991 to 2014. Since the aim of the study is to examine the causal relationship between Gross Output (GO) and Exports (EXP) of Small Scale Industries therefore, the recent advances in econometric techniques have been used for the purpose. To study causal relationship between Gross Output and Exports of small scale industries in India, the Granger causality test and Vector Auto Regression model have been used. The major requirement of the Granger causality test is that the time series under consideration must be stationary. Therefore, unit root test has been used to test the non-stationarity in both of the time series Gross Output and Exports of small scale industries.

Empirical Results and Discussion

At the outset of the study, the correlation between Growth and Exports has been worked out and responsiveness of Growth in relation to Exports has been examined.

Correlation Analysis

To analyze the significance of Growth and Exports, Pearson's correlation coefficient has been computed. The results are summarized in Table 2.

Table 2 Correlation Matrix

	Growth	Exports
Growth	1.0000	0.933*
Exports	0.933*	1.0000

[Source: Authors' Calculation]

Correlation is significant at the 1% level of significance (two-tailed)

The results in Table 2 give a preliminary idea of the relationship among Growth and Exports. A cursory look at Table 2 confirms that there is a positive correlation between Growth and Exports. Correlation cannot be seen as causality. This is because correlation among unrelated series may be strong while causality is non-existent.

Unit Root Test

Before conducting the causality test and the analysis of the long run relationship between the variables Gross Output (GO) and Exports (EXP), the time series properties of the variables have been investigated. The time series properties of the variables are

the absence of unit root problem. To test the unit root problem the most widely used test is Augmented Dickey-Fuller (ADF, 1981) unit root test. The general form of the ADF test at the level, first difference and the second difference can be written as follows:

$$\Delta Y_t = \alpha + \beta t + \delta Y_{t-1} + \sum_{i=1}^k Y_i \Delta Y_{t-i} + u_{1t} \quad \dots (1)$$

$$\Delta \Delta Y_t = \alpha + \beta t + \delta \Delta Y_{t-1} + \sum_{i=1}^k Y_i \Delta \Delta Y_{t-i} + u_{2t} \quad \dots (2)$$

$$\Delta \Delta \Delta Y_t = \alpha + \beta t + \delta \Delta \Delta Y_{t-1} + \sum_{i=1}^k Y_i \Delta \Delta \Delta Y_{t-i} + u_{3t} \quad \dots (3)$$

If $\delta=0$, then the series is said to have a unit root and is non-stationary. Therefore, if the hypothesis, $\delta=0$ is rejected for the above equations it can be concluded that the time series does not have a unit root and is integrated of order zero $I(0)$, i.e. it has stationary properties. The results of ADF test of the concerned series are summarized in Table 3.

Table 3 Stationarity of Time Series and the Order of Integration

Variables	Intercept (Without trend) ADF Results	With Trend ADF Results	None ADF Results	Decision/Order of Integration
Gross Output(GO)	I(2)	I(2)	I(2)	I(2)
Exports (EXP)	I(1)	I(1)	I(1)	I(1)

Note: Optimal lag lengths in the ADF test are determined through Akaike Information Criterion (AIC), [**Source:** Authors' Calculations]

Table 3 reveals that both the variables are not integrated of the same order. Gross output is integrated of order two ie. $I(2)$ and export series is integrated of order one ie. $I(1)$. If two series are integrated of different order then there is no need to test the series for co-integration and model in difference with the highest order of co-integration can be used.

Granger Causality Test

Granger causality test helps to determine the direction of casualty between the variables under consideration say Gross Output (GO) and Export (EXP) in the present model. The test estimates the following pair of regression equations:

$$GO_t = \sum_{i=1}^k a_i EXP_t + \sum_{j=1}^k b_j GO_t + u_{1t} \quad \dots (4)$$

$$EXP_t = \sum_{i=1}^k c_i EXP_t + \sum_{j=1}^k d_j GO_t + u_{2t} \quad \dots (5)$$

Where u_{1t} and u_{2t} are the white noise random disturbance terms and are assumed to be uncorrelated. 'k' is the maximum number of lags. The optimal lag lengths have been determined through Akaike's (1969) information criterion. To test the null hypothesis the following form of standard F-test is used:

$$F = \frac{RSS_R - RSS_{UR} / k}{RSS_{UR} / n - 2k - 1} \quad \dots (6)$$

Where 'k' is the maximum number of lags, 'n' is the total number of observations. RSS_R is the restricted residual sum of square and RSS_{UR} is the unrestricted residual sum of squares. The results of Granger causality test are summarized in Table 4.

Table 4 Results of Granger Causality

Null Hypothesis	F-Statistic	P-value	Direction of causality
Exports do not Granger cause gross output	28.0567*	4.E-06	Exports Granger cause gross output
Gross output does not Granger cause exports	0.48220	0.6256	-

Significant at 5% probability level, [**Source:** Authors' Calculations]

Table 4 shows that since the probability is much less than 0.05 (i.e. $4.E-06 < 0.05$), therefore, the null hypothesis is rejected and can be concluded that exports Granger cause economic growth. Results indicate that there exists a unidirectional causal relationship between Exports and Growth of Small Scale Industries. The study strongly supports the hypothesis of export-led growth (ELG), In other words, the past value of Exports significantly contribute to the prediction of current Exports even in the presence of past values of Growth. More specifically, the present study supports that causality runs from Exports to Growth.

Vector Autoregression (VAR) Model

VAR is another and a better technique to determine the cause and effect relationship between the variables. The test estimates the following pair of regression equations by using OLS method.

$$GO_t = \alpha + \sum_{j=1}^k a_j GO_{t-j} + \sum_{j=1}^k b_j EXP_{t-j} + u_{1t} \quad \dots (7)$$

$$EXP_t = \beta + \sum_{j=1}^k c_j GO_{t-j} + \sum_{j=1}^k d_j EXP_{t-j} + u_{2t} \quad \dots (8)$$

The u 's are white noise random disturbance terms, called impulses, innovations or shocks in the language of VAR. The results of VAR model are presented in Table 5.

Table 5 Vector Autoregression Estimates

	GO (-1)	GO (-2)	EXP (-1)	EXP (-2)	C	R ²	F-Statistics
Gross Output (GO)	0.637	-0.039	1.099	-0.598	-0.185	0.98	F= 224.14
SE	(0.233)	(0.205)	(0.157)	(0.200)	(0.211)		
t-statistic	[2.737]**	[-0.194]	[7.022]*	[-2.994]**	[-0.877]		
Exports (EXP)	-0.047	-0.143	0.865	0.196	0.793	0.0.93	F= 52..21
SE	(0.364)	(0.320)	(0.245)	(0.313)	(0.330)		
t-statistic	[-0.129]	[-0.446]	[3.534]*	[0.627]	[2.416]**		

Significant at 1% probability level. Significant at 5% probability level.

[**Source:** Authors' Calculations]

The results in Table 5 indicate that there is a strong relationship existing between Economic Growth (Gross Output) and Exports (EXP). First, consider the Gross Output regression individually; Gross Output at lag 1 and Exports at lag 1 and lag 2 are statistically significant. Turning to the Exports regression, we see that Exports at lag 1 are statistically significant. This shows the causality between Economic Growth (Gross Output) and Exports of small scale industries in India is unidirectional which goes from exports to economic growth. This implies that the hypothesis of exports led growth has been proved in the present study. With several lags of the same variable, each estimated coefficient will not be statistically significant, possibly because of multicollinearity. But collectively they may be significant on the basis of the standard F-test. Since F-value is so high that we cannot reject the null hypothesis that collectively all the lagged terms are statistically significant. This implies there is a strong cause and effect relationship between the variables in the present study. The beauty of these techniques is that both the techniques Granger causality and VAR produce the same results regarding causality between growth and exports but VAR establishes the causality between growth and exports in a better way as compared to Granger causality.

Conclusion

The results of our analysis reveal that both the variables Gross Output (GO) and Exports (EXP) are significantly correlated with each other. The study has found evidence that Exports (EXP) have a significant role in explaining variations in Gross Output (GO) and not a vice-versa in India over the study period. It is observed that EXP Granger caused GO and GO not Granger caused EXP. That is, there is a unidirectional relationship between GO and EXP during post-economic reforms era. This conclusion implies that the export-led growth (ELG) hypothesis is true in the case of Indian economy during the study period under consideration. The Vector autoregression (VAR) model has explained that there is a strong cause and effect relationship between the variables in the present study.

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