A Study to Analyse the Impact of Diverse Input Mix on Output (Exports) Generated By SEZs in India: A Case of Noida SEZ

Babita
Research Scholar
Haryana School of Business
Guru Jambeshwar University of Science & Technology
F-5, University Campus,
Hisar, Haryana 125001 – India

Abstract: It is well known that special economic zone (SEZs) play vital role in development of an economy through creation of exports. Government of India has taken various measures for the promotion of export generated by these zones. Entire output produced by these zones is meant to export. A bunch of attractive fiscal and non-fiscal benefits are provided to these enclaves for promotion of exports. In this perspective, this paper investigates the output (exports) generate by Noida zone and other state & private operational SEZs working under the jurisdiction of Noida zone. It also analyse the impact of some independent variable on this dependent variable, output (export).The independent variables considered for this study are import of raw material and capital goods and total labour employed in these zones. A panel regression technique is used to analyse the impact of various independent variables on dependent variable. Results indicates that two variables namely raw material and labour are found to be statistically significant ($P< 0.05$) and makes positive contribution in exports. The value of R2 and Adjusted R2 are 0.745 and 0.734 respectively implying that 74% variation in model is explained by the independent variable. Findings shows that two inputs namely import of raw material & no. of labour have positively affect the exports whereas import of capital goods not confirms any considerable impact.

Keywords: Development, Exports, Panel data regression, Special economic zone, SEZs policy, SEZs Act.

JEL Classification: C2, C3, D57, F1, G18, O2, P45

I. INTRODUCTION

Over a decade after independence, India has experienced instrumental growth. Various policies has introduced over the period. One of the policies in this direction is introduction of import substitution policy. Indian government switches import substitution to export oriented policy in order to induce vigorous industrial growth and large absorption of foreign direct investment. Indian government implements number of concrete measures to promote exports such as creation of special economic zone (SEZs). SEZs can be defined as geographical region that has liberal economic laws than country's typical economic laws. India's first zone was established in Kandla in 1965. In this direction, over a time various zones were set up in different parts of country. In April 2000, government of India announced SEZ policy with a provision of various fiscal and non fiscal incentives. Later on SEZ act was passed in parliament in 2005 to provide the legal framework to SEZs. These zones work under the valuable privileges granted by the government. Privileges like exemption from excise and custom duty, sales tax, income tax, easy availability of loans, single window clearance, easier documentation, free flow of capital and goods are enjoyed by the developers of zones and units working under these zones. SEZ policy 2000 permits setting of these zones by public, private and combination of both. Units operating in these zones will have full flexibility of operation. They can import capital goods and raw materials duty free and would also be able to access the same from Domestic Tariff Area (DTA) without payment

Babita et al.,

International Journal of Advance Research in Computer Science and Management Studies
Volume 5, Issue 9, September 2017 pg. 61-68

of Terminal Excise Duty. Units are not allowed to sale their outputs in domestic tariff area (DTA) and this sale is subjected payment of full applicable customs duties and additional duties. Hence, the entire output produced by these zones is meant to be export only restricting fostering the forward linkages. It means that generation of more output leads to more exports which result in raising the level of foreign exchange reserve. This is one of the underlying objectives of SEZs policy that are expected to fulfil by these zones. Therefore, efforts should be made to boost up the output. In production theory, it is well defined by the production function that output is a function of inputs used for generating output. A conventional Cobb –Douglas production function also states that an optimum mix of input will leads to optimum output. Labour and raw material & capital goods are major inputs variable in context of SEZs. There should be a proper mix of these three inputs variable which result in optimum level of output. Hence this paper is an attempt to measure the significance and impact of above said independent input variables on dependent variable i.e. output (export) produced by these zones. In addition to this, present paper also provides the suggestions and recommendation for better policy implication.

For attaining this objective, present paper is divided in to 5 sections. Section 1 deals with introduction of SEZs, policy feature, their history in India, structure, rules & regulations and their role in economic development. Section 2 describes the relevant literature related to study. Section 3 highlights the objectives, methodology adopted including data sources types, description of model and input outputs variables. Section 4 elaborates the results of the study. At last, conclusion and policy implications are presented in section 5.

II. REVIEW OF LITERATURE

The present article covers the various relevant studies conducted by many researchers nationally and internationally. The review of relevant literature is reported as follows.

2.1. Exports Performance of a Zone

Dave (2012) analysed the growth & contribution of SEZ in growth of export of India. Through analysis it is found that total share of SEZ in total exports has increased from 4.2% in 2001-02 to 4.8% in 2005-06. At last, paper concludes that development of SEZ in a country have a favourable effect on employment generation, infrastructure development, domestic and private investment. Thus it can be said that SEZ are the engine of overall development of economy. Kumar *et al. (*2011) has identified the contribution of SEZ in terms of employment generation and export promotion. They found that export of SEZ has increased from year to year. Hence, visible economic benefits for the nation are generated by the way of increase exports, improved investment climate, increase employment due to implementation of SEZs concept in India. Agarwal (2007) found the significant impact of SEZs in human development, poverty reduction, and technological innovation in an economy. Khurud (2013) concluded that SEZ leads to rapid growth in total exports. The study reveals that the overall exports performance of SEZs is satisfactory. However, SEZs wise, State wise and Sector wise achievement is not uniform.

SEZs lead to import substitution, earning ample foreign exchange earnings to accommodate import needs, trade liberalisation through promoting the exports (Lakshmanan, 2009; Agarwal, 2010; Palit, 2010; Kumar *et al*, 2011; Tantri, 2011; Dave, 2012; Vinit, 2012; Elangoven, 2013; Khurud, 2013; Leong, 2013; Nideesh 2013). Zones developed backward linkages through importing the raw material, intermediate inputs and technology from domestic producers (Wijewardane, 1993; Amirahmadi and Wei, 1995; Madani, 1999; Lakshmanan, 2009; Hazakis, 2014). Amirahmadi and Wei (1995) put the domestic share of total raw materials used in the zones at 15 percent.

2.2. Panel Regression

Dhamija *et al.* (2014) analyse the impact of corporate governance practises on financial performance of on nifty companies. Firm performance is measured by taking ROA and Tobin Q as dependent variable whereas duality of chairman's role, board size, proportion of institutional investors, concentrated ownership, audit committee chairman, percentage of non-executive are taken as independent directors . By the use of panel regression, they found that both ROA and Tobin Q is statistically significant

with Duality of chairman's role and Debt to Total Capital ratio. Roy (2014) investigates the trend of NPAs in Indian banks along with its determinants. Panel regression, results show that GDP growth, exchange rate and global volatility have major effects on NPAs level. Tripathi (2013) examined the impact of urban agglomeration on urban economic growth by using data of 52 large cities from 2000 to 2009. Results show that agglomeration has a strong positive effect on urban economic growth In addition; the results indicate that human capital accumulation promotes urban economic growth. The results support the logic of the recent urban development programme by the government. Ravi (2014) has analysed the growth of entrepreneurship in India. Study is based on sample of small and medium sector in total 35 states and union territories from 1991 to 2006. Findings suggest that general improvements in physical and financial infrastructure have contributed significantly more to growth of entrepreneurship in India, than specific targeted policies of the government such as financial subsidies and creation of special economic zones aimed at entrepreneurship development. Deep *et al.* (2014) analysed the association between intellectual capital components with economic, financial and stock market performance in manufacturing & technology sector. Study shows that human capital efficiency (HCE) is positively associated with financial performance and negatively associated with stock market performance in all sectors and structural capital efficiency (SCE) is not playing any role in improving the economic, financial and stock market performance of the companies whereas the capital employed efficiency (CEE) has a significant impact on economic and financial performance of the companies of all the sectors. Yameen *et al.* (2015) examined the impact of corporate governance practises on financial position of firm. Results shows that corporate governance practises have a positive impact on shareholder wealth and financial performance of firm. Agarwal (2013) makes endeavour to determine the relationship between corporate governance and corporate profitability. Through analysis of secondary data she found that government rating has a positive but insignificant impact on corporate profitability and this profitability has insignificant impact on governance rating of a firm. Mashayekhi *et al.* (2008) investigate the role of corporate governance indices on firm performance. Results show that board size is negatively associated with firm performance. Moreover, the presence of outside directors strengthens the firms' performance. We find, however, no relationship between leadership structure and firm performance. Likewise, the presence of institutional investors on the board of directors is not positively associated with firm Performance. Amba (2011) examined the impact of corporate governance variables on firm financial performance. Research finds that corporate governance variables do influence firms' performance. CEO duality, proportion of non-executive directors and leverage has negative influence and board member as chair of audit committee, proportion of institutional ownership has positive influence on firms' financial performance.

2.3 Research Gap

The review of literature show that most of work carried out in the area of export performance of these enclaves. However, these studies are mostly qualitative in nature and mainly focus on the role of SEZs in export promotion, employment generation and attraction of foreign direct investment. In literature, we could not come to pinpoint the analysis of export performance of SEZs by using statistical technique of panel regression in specific.

III. Objectives and Methodology

1.1 Objective

To study the impact of inputs namely imported raw material & capital goods and total labour employed on generation of exports by zone.

1.2 Research Methodology

3.2.1 Sample

All state & private SEZs from the period of 2008 to 2014 working under the jurisdiction of Noida zone along Noida zone are taken as sample for the study. Noida zone is a central government zone which works under the control of government. A development commissioner vested with all powers of monitoring the zone. As per SEZ policy, a central government SEZ exercise control over the various state and private zones comes under its jurisdiction. Hence, presents article analysed the export

generation of all operational state and private SEZs with the help of secondary data. The sample consists of 108 observation (18 zones* 6 years). Due to unavailability of data on some of the variables, result is based on unbalanced panel which includes 69 observations in total.

3.2.2   Data Source And Types

The empirical analysis in this article is based on secondary data collected from various reliable sources such as official records of Noida zone, Ministry of commerce and industry, website of SEZs, Centre for monitoring Indian Economy, articles and research paper published in national and international journal, books, magazines and other reliable sources. Both independent and dependent variables are on ratio scale.

3.2.3   ANALYSIS

The data collected were for the period 2008-2014 (6 years) and includes sample of all operational SEZs working under jurisdiction of Noida zone as on 2014. The data were analysed using E-views software.

3.2.4 Panel Regression Model

To examine the impact of independent variable on dependent variable we choose a one regularly used statistical model i.e., panel regression model. To run the model, we have used a set of one dependent variable that is exports generated by zones and three input variables in our empirical analysis by literature survey. These variables are defined below with the particular notation to be used.

3.2.5. Dependent Variable

Exports: - Total output generated by units working under zone is meant for export to foreign countries. Total exports include both international exports and deemed exports by respective zone. In analysis, value of exports is denoted by *Y* and measure in terms of rupees in crores.

3.2.6. Independent Variables

1. Import of Raw material: - Units working under zone can import raw material for carrying put necessary authorised operations. These imports are free from import and custom duty. It is denoted by *RM* and measured on market price. The coefficient's expected sign is positive and significant, i.e., larger the import of raw material, higher the output.

2. Total labour employed in zone: - It denotes the total number of labour employed in zone. It includes all skilled, semi-skilled and unskilled staff. This variable is denoted by *L* and it is measured on market price. The coefficient's expected sign is positive and significant, i.e., larger the manpower, more generation of output resultant in more exports by zone.

3. Import of Capital goods: - Units working in zones are allowed to import necessary capital goods like machinery and equipments for their operations without payment of any import duty. Likewise other variables it is also measured on constant price and alternatively denoted by *CG*. The coefficient's expected sign is positive and significant, as more inflow of capital leads to creation of more output.

We run the panel regression model in the form:-

$$Yt \ (Exp) = \alpha + \beta_1 \ln RM + \beta_2 \ln L + \beta_3 \ln CG + \varepsilon$$

Where,

Yt represents the dependent variable, i.e., exports in zone.

RM represents import of Raw material

CG represents import of capital goods

L represents total labour employed in zone

Ln denotes natural logarithm

IV. RESULTS AND DISCUSSIONS

This section deals with the analysis and interpretation of the data. Descriptive statistics related to all variables in model is exhibits by Table-1.

(Refer Table 3 here)

4.1 Results of Unit Root Test

There are various model are available for checking the stationary of data such as Levin, Lin and Chut, Augmented Dickey Fuller test and Dickey-Fuller GLS. But in the present article, most popular ADF test is used for checking the stationary of data. As per ADF test if the t-statistics is more than the critical level, null hypothesis is rejected otherwise accepted. From the Table-2 it can be seen that, all variables including dependent and independent are satisfying the condition of stationary at level as their t-statistics value is more than the critical value except that the variable raw material has t-statistics lees than the critical value but more than at 5 percent and 10 percent, thus they are fulfilling the condition of stationary.

(Refer Table 2 here)

4.2 Results of the Model

The result of panel regression is depicted in Table 3. From the results, we can observe that variables namely import of raw material and labour are significant at 5 percent level meaning that these variables have significant impacts on exports generation by zones.

To validate the results, we need to focus on sign on coefficient rather than its value. From the Table 3 we can see that the sign of all independent variables are positive but variable raw material and labour makes significant contribution in dependent variable. It means that imports of raw material in more quantity and employing more labour positively leads to more exports by the zone. On the other hand, Import of capital goods, an independent variable does not make any contribution towards generation of exports by the zone. The value of R^2 and Adjusted R^2 are 0.745 and 0.734 percent respectively, which implies that chosen variables are explaining the dependent variable to great extent. The effect of dependent variable is found to be significant; the F-statistic is being significant at 1 percent level. The Durbin-Watson Statistic is 1.7895 and not very far from but near to 2.

(Refer Table 3 here)

V. SUMMARY AND RECOMMENDATIONS

5.1 Conclusion and Policy Implication

The two independent variables which were found to be significant are:-

- Total raw material imported by the zone
- Total number of workers employed in zone

The result of these two variables is in accordance with the existing literature. The positive coefficient of these two variables shows that a boost in import of material and number of workers leads to generation of more output by the operational units. Whereas, the variable import of capital goods shows a positive sign but not making any significant contribution in exports creation by zone. However, existing literature have contradictory view on import of capital goods, whereby high import of capital goods makes add on in the capacity of units result in large volume of exports through investment in capital goods. But non- significance of capital goods obtained in this study gives clear indications that any type of add on in capital do not show

any considerable impact on zone's output. As per the provision of SEZ rules 2006, units working in a zone will have to export all produced output in foreign countries. Output produced by units is meant for exports. It means that more output, more exports and large volume of exports will leads to economic development. Therefore, Government should make efforts for encouragement to exports. Reduction in unemployment is one of the objectives of SEZ policy, and it is observe from the results that employing more number of labours will enhance the export capacity of zones. In this path, efforts should be made for attracting the manpower from outside the zones towards the zones. This can be done by variety of ways such as providing higher wages, conducive environment, better health and infrastructural facilities, opportunity for advancement, appropriate working hours, attractive policies and many others. Second variable, purchasing of raw material also has significant effect on exports. Government should encourage purchasing of raw material from domestic producers as well for fostering backward linkages. Therefore it is important to encourage employing more number of manpower and purchasing of material, which can helps to zone in generation of more exports.

5.2   LIMITATIONS OF THE STUDY

1. Only one central government SEZ namely Noida SEZ and other state and private SEZs working under its jurisdiction are included in the study.

2. Data on some of the variable for some zones was not available. This has lead to construction of the un-balanced panel data. This however may not limit the study in a serious way, as the panel data regression can take care of this.

References

1. Agarwal, A. (2004). Export Processing Zones in India: Analysis of the Export Performance. Working Paper No.148. ICRIER, New Delhi.
2. Agarwal, A. (2010). Economic Impacts of SEZs: Theoretical Approaches and Analysis of Newly Notified SEZs in India. MPRA Paper No. 20902.
3. Agarwal, P. (2013). Corporate Governance and Corporate Profitability: Are They Related?- A Study in Indian Context. International Journal of Scientific and Research Publications, 3(12), 1-8.
4. Amba, S.M. (2011). Corporate Governance and firm's financial Performance. Journal of Academic and Business Ethics, 1-9.
5. Bhatia, A., Agarwal, K. (2015). Intellectual Capital and financial Performance of Indian Software Industry: A Panel Data Analysis. Pacific Business Review International, 7(8), 33-43.
6. D, B. (2003). Ownership Effects on Bank Performance: A Panel Data Analysis. Presented at 5th Annual Conference on Money and Finance in the Indian Economy, 1-28.
7. Dave, R. (2012). Growth and Contribution of Special Economic Zones in India's Export. International Journal of Business Economics & Management Research, 2(6), 61-70.
8. Dhamija, A.K., Yadav, S.S., & Jain, P.K. (2014). The Impact of Corporate Governance on the Financial Performance : A Study of Nifty Companies. International Research Journal of finance and Economics, 121, 59-75.
9. Deep, R., Narwal, K.P. (2014). Intellectual Capital and its Consequences on Company Performance: A Study of Indian Sectors. International Journal of Intellectual Capital, 1-24.
10. Hazakis, J.K. (2014). The Rationale of Special Economic Zones (SEZs): An Institutional Approach. Journal of Regional Science Policy &Practice, 6(1), 85-101.
11. Khurud, B. S. (2013). Export Performance of SEZs in India. International Journal of Economics Research, 4(4), 1-5.
12. Kumar,V., & Singh, Ashu. (2011). Employment and Export through SEZ in India. International Referred Research Journal, 2(22), 80-81.
13. Kumar, V. (2012). SEZs and Industrialization in Uttar Pradesh, Global Research Thought, 1(11), 1-5.
14. Kundra, A. (2001). The Performance of India's Export Zones: A Comparison with the Chinese Approach. The China Quarterly, 168, 1005-1007.
15. Leong, K.C. (2013). Special Economic Zones and Growth in China and India: An Empirical Investigation, Springer Publications, 549-567.
16. Madani, D. (1999). A Review of the Role and Impact of Export Processing Zones. Policy Research Working Paper 2238, World Bank.
17. Mashayekhi, Bita., & Bazaz, S.M.(2008). Corporate Governance and Firm Performance in Iran. Journal of Contemporary Accounting and Economics, 4(2), 156-172.
18. Palit, A. (2010). Growth of Special Economic Zones in India: Issues and Perspective, Journal of Infrastructure Development. 1(2), 133-152.
19. Panda, B.D., Mohapatra, S.P., & Moharana, S. (2012). Capital Structure of Indian Companies: Its Determinants.
20. Pani, U. (2012). Dividend Policy and Stock Price Behaviour in Indian Corporate Sector: A Panel Data Approach, 1-29.
21. Ravi, S. (2014). What Drives Entrepreneurs? Some Evidence from India. Working Paper, 1-20.
22. Roy, S.K. (2014). Determinants of Non-Performing Assets in India- Panel Regression. Eurasian Journal of Economics and Finance, 2(3), 69-78.
23. Seshardi, T. (2011). Is the Path to Higher Exports in India Paved with Export Zones?, Journal of South Asian Development. 6(1), 25-41.

24. Shah, D. (2012). Special Economic Zones in India. Investment, Trade, Employment Generation   and Impact Assessment. MPRA Paper No- 39273.

25. Sharma, S., Sharma, J. (2009). Sales and Advertisement Relationship for Selected Companies Operating in India: A Panel Data Analysis. European Union Journal, 1, 83-96.

26. Tripathi, S. (2013). Large Agglomerations and Economic Growth in Urban India: A Application of Panel Data Model. Working Paper No. 203, 1-17.

27. Yameen, M., Ahmed, Izhar. (2015). Impact of Corporate Governance Practises on Financial Performance of Hindustan Petroleum Corporation Limited. International Journal of Advancements in Research and Technology. 4(2), 135-1.

Appendix

Table-1 Summary of Descriptive Statistics

Variables	Mean	Median	Max	Min	Std Dev	Skewness	Kurtosis
Exports	5.94	6.08	9.70	1.06	1.83	-0.37	2.93
Raw Material	2.23	0.74	8.89	-3.35	3.11	0.63	2.22
Labour	7.38	7.90	10.74	2.70	2.21	-0.56	2.15
Capital Goods	1.93	1.66	5.97	-1.88	2.19	0.16	1.67

Source: Author's Computation

For I (0)

Table- 2 Results of Unit Root

Variables	t-statistics	Critical Values		
		1%	5%	10%
Log Exports	5.18*	3.53	2.90	2.58
Log Raw material	3.23*	3.54	2.91	2.59
Log Labour	4.22*	3.51	2.89	2.58
Log Capital Goods	4.24*	3.54	2.91	2.59

Source: Author's Computation

Table- 3 Panel Regression Result

Variable	Coefficient	Std.Error	t- Statistic	Prob.
Constant	0.419	0.500	0.83	0.4044
Raw material	0.087*	0.043	1.99	0.0498
Labour	0.775*	0.065	11.88	0.0000
Capital Goods	0.057	0.064	0.88	0.3789

R- Squared	0.746
Adjusted R-squared	0.734
S.E of Regression	0.991
Sum- Squared Res.	63.84
F- Statistic	63.84
Prob (F-satatistic)	0.00
Durbin-Watson Stat	1.78

*Significant at 5% level of significance

A list of operational state & private SEZs working under the jurisdiction of Noida zone as on 2014 is presented below:-

1. Noida SEZ

2. Jaipur SEZ

3. Moradabad SEZ

4. Indore SEZ

5. Rajeev Gandhi Chandigarh technology Park, Phase-I, Chandigarh

6. Rajeev Gandhi Chandigarh technology Park, Phase-II Chandigarh

7. DLF Cyber City, Gurgaon

8. DLF Ltd.

9. Gurgaon Infospace Ltd.

Babita et al.,

International Journal of Advance Research in Computer Science and Management Studies
Volume 5, Issue 9, September 2017 pg. 61-68

10. Quarkcity India Pvt. Ltd.

11. Ranbaxy Laboratories Ltd.

12. Moser Baer India Limited

13. HCL Technologies

14. Wipro Limited

15. Seaview Developers Ltd.

16. NIIT Technologies Limited SEZ

17. Arshiya Northern FTWZ Ltd., Khurja, UP

18. Aachvis Softech Pvt. Ltd.