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Statistical Analysis of India's Export to Southeast Asia 2000-13

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Abstract

Southeast Asia is rapidly growing regional group which is effectively managing its diversity and growth. Southeast Asian countries have the highest trade to GDP ratio among the developing economies. Moreover the new economic policy of India has transformed the foreign trade scenario of India towards Southeast Asian countries. India has also earned a significant place in the global stage as far the trade is concerned. For the international investors, India and Southeast Asia both can provide a market of huge potential for growth. The present paper aims at to study statistical significance of the association between India's exports to Southeast Asia and total exports of India to the world and the association between total imports of Southeast Asia and India's exports to Southeast Asia during 2000-13. For this purpose the data for the period 2000-2013 have been collected regarding India-Southeast Asian trade. The study concluded that the association between India's exports to Southeast Asia and India's exports to the world as well as total imports of Southeast Asia and India's exports to Southeast Asia is significant.

Keywords: GDP, Exports, Correlation, Regression, ANOVA.

1. Introduction

Exports play a significant role in developmental process of any nation and it stimulates growth and exports could be productive for the economies to gain wealth and become prosperous. There is a positive relationship exists between export growth rate and the GDP of any nation (Onafowara, (1998) ^[14]). Various researchers have suggested that exports can be very effective in promoting economic growth of nations. Since the countries have to pay for their imports which they can't produce at home, therefore exports play an important role in international exchange. Exports lead to the product specialization and paves way for rapid development of the economies. Thus exports have an invaluable effect on the economic growth of the nation and export expansion can lead to higher economic growth, increases the employment opportunities in the economy and hence the betterment and the welfare of societies. India's growing economic profile has tempted the Southeast Asian countries to foster closer engagement with India at regional and multilateral level. A big push to the trade has been given due to the fact that both the regions are complementary rather than competitive with each other. The share of South-East Asian countries in the total exports of India has increased from 6.28% in 2000 to 12.45% in 2013. Considering this fact, it becomes imperative to study the significance of the association between India's exports to South East Asian countries and India's total exports to the world. Moreover it is equally important to study the association between South East Asian total imports and India's exports to South East Asian.

2. Objectives

The objectives of the paper are

- To study the significance of the association between India's exports to Southeast Asia and India's total exports to the world.
- To study significance of the association between total imports of Southeast Asia and India's exports to Southeast Asia.

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3. Review of Literature

Rupa Chanda and G. Sasidaran's (2008) ^[15] examines the reasons underlying India's growing interest in framing various kinds of regional and bilateral agreements with Asian economies. The study concludes by looking at the prospects for future Preferential Trade Agreements by India and the various issues and interests that should shape India's future regional initiatives to assure the realization of its long term economic, strategic, and geopolitical objectives. Razeen Sally and Rahul Sen (2005) ^[9], analyze the tradepolicies in Southeast Asian countries in their wider Asian and global contexts. The paper concludes that for ASEAN countries the engine of liberalization and regulatory reform has to be home-driven, with governments taking unilateral measures in response to internal and external conditions. Suparna Karmakar (2005) ^[10], analyses the economic scenario in the Asia-Pacific region. This paper is an analysis of the economic scenario in the Asia-Pacific region and a macro overview of the trade creation potential of an agreement on trade in services among members of ASEAN and India. Mukul Asher and Amitendu Palit (2008) ^[7] explore India's Look East Policy. India's economic engagement with Southeast Asia has expanded rapidly since the early 1990s. Merchandise trade between India and ASEAN has grown from US\$2.3 billion in 1991-92 to US\$38.4 billion in 2007-08. Bilateral trade has diversified in terms of commodity composition. This further suggests that acceleration in India-ASEAN trade coincided with the onset of a robust period of expansion for the global as well as the Indian economy. Laurence Henry (2007) ^[6], suggests that the development of trade and economic arrangements between India and Southeast Asia must be rooted within the larger processes of economic and diplomatic exchanges in Asia. The article further highlights ASEAN as a successful model of regional cooperation that started its revolutionary growth in the 1990's. According to the author, a major reason for the evolution of the ASEAN-India entente is the perceived hegemony of China in Asia. Southeast Asian States are very interested in balancing Chinese power through India, in the region. The association between India and Southeast Asia, in particular ASEAN and its member states, reflects the overall tendencies of the emerging regional infrastructure of East Asia.

4. Research Methodology

Since the study is descriptive in nature therefore it is based upon secondary source of data like UN-COMTRADE, IMF-Foreign Trade Statistics Yearbook and ASEAN Merchandise Trade Statistics Database. The statistical tools such as correlation coefficients, regression analysis and ANOVA have been used to achieve the objectives of the paper. For calculating the share of Southeast Asia in India's total Exports and India's share in Southeast Asia trade, percentage method has been used.

5. Data Analysis and Discussions

a) Share of Southeast Asia in Total Exports of India and Share of India's Exports in Southeast Asia Imports

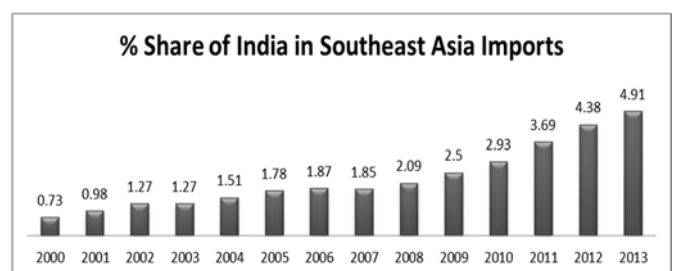
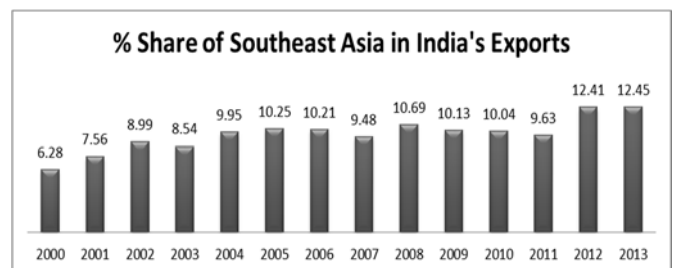
There is no denying fact that the new relationship of the 1990s between India and Southeast Asia is defined by the phenomenal economic success in the recent times. A reason for ASEAN economic community progressing well has to do with the complementarities that exist in the trading relation. Complementarities exist in terms of trade in energy,

consumer durables and food items (Banik, 2011) ^[1]. It is clear from the fact that the share of Southeast Asia in the total exports of India and the share of India's exports in Southeast Asia imports has increased during the period of the study. The following table clearly reveals that the share of Southeast Asia in total exports of India has increased from 6.28% in 2000 to 12.45% in 2013 and the share of India's exports in Southeast Asia imports has increased from 0.73% in 2000 to 4.91% in 2013.

Table 1: Share of Southeast Asia in India's Exports 2000-2013

Year	% Share of Southeast Asia in India's World Exports	% Share of India in Southeast Asia Imports
2000	6.28	0.73
2001	7.56	0.98
2002	8.99	1.27
2003	8.54	1.27
2004	9.95	1.51
2005	10.25	1.78
2006	10.21	1.87
2007	9.48	1.85
2008	10.69	2.09
2009	10.13	2.50
2010	10.04	2.93
2011	9.63	3.69
2012	12.41	4.38
2013	12.45	4.91

Source: Author's calculations using UNCOMTRADE database, United Nation Statistical Division.



b) Significance of the Association between India's Exports to Southeast Asia and India's Exports to the World

Since the share of Southeast Asia in total exports of India has increased over the period of time therefore it becomes necessary to examine the significance of the association between India's exports to Southeast Asia and India's exports to the world. In other words it is equally important to study that whether the association between India's exports to Southeast Asia and India's exports to the world is significant or not?

Table 2: India's Exports to the world and Southeast Asia(US\$ Billion)

Year	India's Exports to World	India's Exports to Southeast Asia
2000	42.35	2.66
2001	43.88	3.32
2002	50.10	4.51
2003	59.36	5.07
2004	75.90	7.55
2005	100.35	10.28
2006	121.20	12.37
2007	145.89	13.82
2008	181.86	19.43
2009	176.76	17.90
2010	220.41	22.13
2011	301.48	29.04
2012	289.56	35.95
2013	336.01	41.86

Source: Author's calculations using UNCOMTRADE database, United Nation Statistical Division.

Descriptive Statistics				R-Square	ANOVA	Regression
		India World Exports(X)	India Export Southeast Asia(Y)			
India World Exports(X)	Pearson Correlation	1	0.985	0.971	F=394.852	Constant= -2.354 Regression Coefficient=0.121
	Sig. (2-tailed)		0.000		Sig. Value 0.000	Sig. Value=0.00
	N	14	14			
India Export Southeast Asia(Y)	Pearson Correlation	0.985	1			
	Sig. (2-tailed)	0.000				
	N	14	14			

Clearly, there is positive and high correlation (0.985) between India's exports to Southeast Asia and India's exports to the world. The p-value 0.00 is less than level of significance 0.01 therefore it can be concluded that the association between India's exports to Southeast Asia and India's exports to the world is statistically significant. Moreover R square is 0.971 which means around 97% changes in India's exports to Southeast Asia are explained by the changes in total exports of India to the world. Since the value of R square is almost equal to one therefore it can be concluded that model is more reliable. The regression equation of India's export to ASEAN(X) on total exports of India to the world (Y) is $X = -2.354 + 0.121 Y$ and the value of regression coefficient of India's export to Southeast Asia on total exports of India to the world is statistically significant as the p-value 0.00 is less than level of significance 0.01. Hence, results show that the dependence of India's export to Southeast Asia on total exports of India to the world is statistically significant. ANOVA is one of the important applications of F-test and is used to test the overall strength of the model under study. Since p-value 0.00 is less than level of significance 0.01, therefore it may be concluded that regression equation of India's exports to Southeast Asia on India's exports to the world is statistically significant.

c) Studying the Association between Total Imports of Southeast Asia and India's Exports to Southeast Asia

Ever since India started to engage seriously with Southeast Asia, it has emerged on global landscape for which the India-

Southeast Asia summits provided a significant opportunity to become a credible interlocutor with the major powers of the rest of the world sector. The trend of India's share in Southeast Asia imports is rising and it has risen sharply even in the period of world recession. Considering this fact it becomes interesting to study whether the association between total imports of Southeast Asia and India's exports to Southeast Asia is significant or not?

Table 3: Imports of Southeast Asia and Exports of India to Southeast Asia (US\$ Billion)

Year	Total Imports of Southeast Asia	India's exports to Southeast Asia
2000	365.35	2.66
2001	338.66	3.32
2002	355.05	4.50
2003	397.92	5.07
2004	501.22	7.55
2005	576.45	10.28
2006	660.13	12.37
2007	748.25	13.82
2008	929.38	19.43
2009	715.78	17.90
2010	753.56	22.13
2011	786.28	29.04
2012	819.00	35.95
2013	851.72	41.86

Source: Author's calculations using UNCOMTRADE database, United Nation Statistical Division.

Descriptive Statistics						
		Total Imports of Southeast Asia (X)	India Exports to Southeast Asia (Y)	R-Square	ANOVA	Regression
Total Imports of Southeast Asia	Pearson Correlation	1	0.834	0.696	F=27.514	Constant=-15.791
	Sig. (2-tailed)		0.000		Sig. Value =0.00	Regression Coefficient = 0.051
	N	14	14			Sig. Value=0.00
India Exports to Southeast Asia	Pearson Correlation	0.834	1			
	Sig. (2-tailed)	0.000				
	N	14	14			

Clearly, there is positive and high correlation (0.834) between total imports of Southeast Asia and exports of India to Southeast Asia. The p-value 0.00 is less than level of significance 0.01 therefore it can be concluded that the association between total imports of Southeast Asia and exports of India to Southeast Asia is statistically significant. Moreover R square is 0.696 which means around 69% changes in India export to Southeast Asia are due to changes in the total imports of Southeast Asia. Since the value of R square is more than 60% (thumb rule) therefore it can be concluded that model is more reliable. The regression equation of India export to Southeast Asia on total imports of Southeast Asia is $Y = -15.791 + 0.051X$ and the value of regression coefficient of India export to Southeast Asia on total imports of Southeast Asia is statistically significant as the p-value 0.00 is less than level of significance 0.01. Hence, results show that the dependence of India's export to Southeast Asia on total imports of Southeast Asia is statistically significant. ANOVA is one of the important applications of F-test and is used to test the overall strength of the model under study. Since p-value 0.00 is less than level of significance 0.01, therefore it may be concluded that regression equation of India export to Southeast Asia on total imports of Southeast Asia is statistically significant.

6. Conclusion

The upshot is that the wide ranging and substantive commercial links between India and Southeast Asia constituted an extremely important component of the modern period trade. Since India has experienced sustained economic growth therefore there is large potential for the expansion of India- Southeast Asia merchandise trade which has remained untapped so far. In the recent time Southeast Asia has shown great dynamism in terms of trade with India and moreover the trade between India and Southeast Asia has shown the significant association statistically during the period of study. Therefore the relevance of Southeast Asia has increased because India's largest partners i.e. European Union and the US are yet to exhibit any sign of economic expansion. India and Southeast Asia can be combined together to provide a market of huge potential for growth and investment by both domestic and international investors. Today Southeast Asia has as much to offer to India as India has to offer Southeast Asia and the relationship is seen as mutually beneficial in largely economic terms. The Southeast Asia's phenomenal success as a group of modern industrial and trading nations has opened new avenues for renewed India –Southeast Asia interaction.

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