A Review of the Comparative Advantage of India vis-a-vis Southeast Asian Nations

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Abstract

The period post-1990 has witnessed unprecedented increase in globalization and international business. Political boundaries between countries seem to have become less significant as firms seek opportunities to appropriate cost differentials and efficiency gains by sourcing resources from across the globe. Recent developments in world trade are expected to become more pronounced as the US political administration continues to play difficult and adopt a protectionist stance, vouching for 'America first' by imposing increased tariffs on imports from several countries particularly, China. Although early to measure the impact, these developments may have important implications for the direction of international trade and investment in the coming years. Among other things, this may affect the comparative cost advantage enjoyed by countries. The trade war between the US and China also has special implication for India, China being its major competitor.

In this context, it is important to review the position of comparative advantage, or otherwise, of India by examining its exports vis-a-vis its major competitors. This paper seeks to identify areas in which India may have a comparative advantage over the Southeast Asian countries. For this purpose, the measure of revealed comparative advantage has been used at two stages. At the initial stage, the comparative advantage of India is calculated for all product categories vis-a-vis Southeast Asian nations. In the second stage, the study investigates into the

comparative advantage of India against the three top exporters from among the Southeast Asian nations in those product categories where the group enjoys substantial share in world exports.

Keywords: International Trade, Comparative Advantage, India, Southeast Asian Nations

JEL Classification: F10, F14

Introduction

The period post 1990 has witnessed unprecedented increase in globalization and international business. Political boundaries between countries seem to have become less significant as firms seek opportunities to appropriate cost differentials and efficiency gains by sourcing resources from across the globe. As per the World Bank data, World trade as a percentage to World gross output has consistently increased from 24 percent 1960 to 56 percent in 2016.

Recent developments in world trade are expected to become more pronounced as the US political administration continues to play difficult and adopt a protectionist stance, vouching for 'America first' by imposing increased tariffs on imports from several countries particularly, China.These developments, although early to measure the impact, may have important implications forthe direction of international trade and investment. Among other things, this may affect the comparative cost advantage enjoyed by countries.Comparative advantage has become significant due to the increased focus on global value chains. The trade war between the US and China also has special implication for India as China is a major competitor of India.

The Trade to GDP ratio for India has come a long way from 17 percent in 1991 to 40 percent in 2016, after reaching a peak of 56 percent in 2012, registering a growth of three times over the period of 25 years. For the same period, Export to GDP ratio for India more than doubled from 8.5 percent to 19 percent, after peaking at 25 percent in the year 2012. This shows increasing engagement of India in international trade. However, India's share in world exports is only two percent currently and the EXIM policy (2015-20) aims at increasing it to 3.5 percent.

In this context, it is important to review the position of comparative advantage or otherwise, of India by examining its exports vis-a-vis its major competitors. Identifying the broad areas of comparative advantage would provide the necessary directions as to the sectors which can be influenced through appropriate policy formulations. This paper seeks to identify areas in which India may have a comparative advantage over its trade rivals, particularly, the

Southeast Asian (SEA) countries. SEA nations are significant for India not only because the common export basket but also because of the geographical proximity which offers alternative supply sources for common markets globally.

Review of Literature

There are several studies that have examined the comparative advantage of countries. Veeramani (2006) and Bagariaet. al. (2014) have examined the changing pattern of revealed comparative advantage of China and India. Both report that India and China compete in some of the commodities while in others there is complementarity found in their exports to the world. Veeramanihas examined the comparative advantage of India and China as per commodity groups as well as factor intensity. He report thats both countries have comparative advantages in different product categories although India lags behind China in terms of share in world exports. In other words, India lags behind China in international competitiveness. Shinoj and Mathur (2008) have examined the comparative advantage of India in agricultural exports vis –a-vis other Asian countries using Balassa's (1965) revealed comparative advantage (RCA) measure. The study conducted over the period of 1991 to 2004 reveals that in most of the commodities examined India fairs poorly in relation to the other Asian countries. In those commodities where India does have an edge, its comparative advantage is showing a falling trend.

A similar study has been undertaken by Burange and Chaddha (2008) who have examined India's revealed comparative advantage in merchandise trade for the period 1996 to 2005. They report comparative advantage of India in labour intensive and scale intensive sectors. Alessandrini et. al. (2011) state that liberalization measures taken towards foreign trade have improved the international competitiveness of Indian industries. Kowalski (2011) has examined the various sources of comparative advantage to explain the incidence of trade between different group of countries. Jagdambe (2016) has examined the comparative advantage of India in agricultural commodities vis-a-vis ASEAN countries. His study reports declining comparative advantage of India in agriculture products over the study period of 2001 to 2013, and comparative disadvantage in some of the years.

Mallick and Marques (2018) employ the transformation of Hanson (2012) RCA index by taking the ratio of difference and sum of relative shares exports and imports of a product in the country's total exports and imports in order to examine its impact in determining export prices. Earlier studies (Chow 1990, Lim 1997, Leu 1998, Ferto and Hubbard 2002, Li and

Bender 2003, Batra and Khan, 2005 etc.) have examined different formulations of RCA for Japan, North Korea, other newly industrialized countries in the eastern region, Hungary, and so on.

Objectives and Significance of the Study

In light of the review of literature, the objectives of the present study are as follows:

- To identify the broad areas in which India has a revealed comparative advantage vis-a-vis the Southeast Asian countries.
- To identify the major rivals of India within the Southeast Asian region and examine the level and trends in comparative advantage of these countries.

An examination of the RCA of India is warranted by the fact that comparative advantage does not depend only on endowments of resources but also on the particular trade liberalization and promotional policies adopted by the country, on account of which the areas of comparative advantage changes over time. Identifying the status of comparative advantage of India would throw light on the kind of policies required to create a conducive environment for the sectors concerned. This paper focuses on examining India's competitiveness vis-a-vis SEA nations because in most product categories, these countries constitute the major competitors of India. Apart from commonalities of resources, the geographical proximity of these countries with India also adds the degree to competition between these countries for their export markets.

While most studies on RCA measure commodity wise comparative advantage, our study measures RCA in a product category rather than a particular commodity because exports of emerging economies in particular commodities are highly dynamic and may not be the pure result of only the comparative advantage enjoyed by a particular country. Exports of a country are influenced, besides comparative advantage, by the net impact of factors such as cost advantages, export promotion measures, market power as reflected in higher prices that a country can command, intra-industry trade, currency volatility, etc. A broad idea of product category wise RCA would throw light on sectors that need focussed policies with regard to exports.

Methodology and Data

We adopt a two-stage RCA method. At the initial stage, the RCA of India is calculated for all product categories vis-a-vis Southeast Asian nations using the following method:

$RCA_{Ij} = (E_j/E_t)_I/(E_j/E_t)_{SEA}$

where, RCA_{Ij} = Revealed Comparative Advantage of India in product category *j*

$(E_j/E_t)_I$ = Exports of India in productcategory *j*/Total exports of India

$(E_j/E_t)_{SEA}$ = Exports of Southeast Asian nations in product category*j*/Total export of Southeast Asian nations

Based on the above formula, we identify the product categories in which India has a comparative advantage against the SEA countries. RCA values greater than unity would indicate that India has a comparative advantage in that particular product group. From among these product categories we then focus on those categories in which the SEA Nations have a relatively higher share in total world exports over the study period. The reason behind doing this is to identify those areas in which India has a stronger competition with its competitors. Having done so we then identify the top three countries within the SEA nations, which have a higher share of world trade in those product groups.

The second stage of analysis involves measuring the RCA of each of these countries and India in the identified product categories adopting the following formula:

$RCA_{ij} = (E_j/E_t)_i/(E_j/E_t)_n$

where, RCA_{ij}= Revealed Comparative Advantage of Country *i*in product category *j*

$(E_j/E_t)_i$= Exports of country *i* in productcategory *j*/Total exports of country *i*

$(E_j/E_t)_n$= Exports of *n*set of countries in product category *j*/Total exports of *n* set of countries

The period of study is 2000 to 2016 which is much longer than most studies found in the literature on this area and captures the trends in Indian exports in a phase of liberalization and greater openness towards international trade. The data has been obtained from WTO database.

Results and Interpretation: Part I

This section discusses the results obtained for stage one of RCA analysis which involves identifying the areas in which India exhibits comparative advantage over the SEA nations.

Table 1 shows the RCA of India in the context of SEA nations for 2000 to 2016. The table highlights the product categories in which India has enjoyed RCA in excess of 1 for most of the years of the study period. It can be seen that over the years, the number of product categories in which India's RCA exceeds one has increased from 10 to 12. The table also shows in bold those product categories in which the SEA nations have a larger share in world exports and indicating their greater international competitiveness. These product categories represents a greater challenge to Indian exports even though India has a comparative advantage over SEA nations in those categories.

The study excludes the examination of some of the product categories despite India exhibiting high RCA over the SEA nations, because in these categories the latter countries have an insignificant share in world exports, which indicates that in this limited context they are not strong competitors to India. For this reason, further comparison of India's RCA with selected SEA countries is not warranted within the scope of this paper. This is borne out by the high RCA of India in Pharmaceuticals and Iron and Steel one on hand and lower share of SEA in world exports in these category, on the other.

The product categories selected for comparison include, Agriculture, Food, Clothing, Textilesand Manufactures. The present study limits itself to these five categories, although it can be observed from Table 1that India has comparative advantage in Chemicals and Transport Equipment and has gained comparative advantage in the categories of fuels and mining products as well. However, these are excluded from the study to avoid the repetitiveness of the nature of analysis.

Results and Interpretation: Part II

This section discusses the results obtained for stage two of RCA analysis which involves comparison of India's comparative advantage with top three exporters among the SEA nations according to 2016 data, for the selected product categories. The results are presented in Fig 1 to 5.

Agriculture

Fig. 1 depicts the RCA of the top exporters within the SEA nations and India for the product category Agriculture. The SEA nations as a group comprised 9.47 percent share of the world exports in Agriculture. While India has enjoyed RCA greater than unity over the SEA nations, when juxtaposed against the top three SEAnations exporters, namely, Indonesia, Thailand and Vietnam, India fairs poorly. Since the year 2003 to 2014, India does not enjoy any comparative advantage in Agriculture compared to these three countries. Indonesia gained comparative advantage since the mid-2000s. There after its RCA has been consistently rising and is around 2.5 times higher than that of India in the recent years.Indonesia has the advantage of conducive climatic and land conditions and is also the largest producer of several agricultural output. While India also ranks among the top world producers of some agricultural produce, it suffers from issues like low productivityand high procurement prices, tariff and non-tariff barriers against Indian agriculture exports and quantitative restrictions on exports, are some of the issues of concern.

Food

Fig. 2 represents the RCA of India and top three SEA exporters of Food as per 2016 export data, which includes Indonesia, Thailand and Vietnam. In this category also, Indonesia has registered the most robust growth exhibiting comparative advantage since the year 2005. Vietnam, on the other hand, has experienced loss of its comparative advantage in the recent years. For most of the period barring the first two years, India exhibits no comparative advantage in Food against the three countries. Sluggish policies towards food exports have negatively impacted Indian exports in this category. Rejections and ban of several exports of Food items from Indian for various reasons in key markets have also been one of the reasons of poor performance.

Textiles

Fig. 3 depicts the RCA of the top exporters within the SEA nation category and India for Textiles. SEA nations in totality claim 5.75 percent share in world exports for this category. India emerges as having much higher RCA compared to three top exporters within SEA nations namely, Vietnam, Indonesia and Thailand. For instance, India's RCA in the year 2016 is nearly 3.5 times higher than its immediate competitor Indonesia, although there has been 32 percent fall in India's comparative advantage over the 16 year study period. Vietnam

is one country to check out with as there has been a 120 percent improvement in its RCA vis-a-vis the other three rivals in this category, over the study period.

The strong position of India in comparison to its SEA counter parts may be attributed in part to the relative labour intensity of the sector combined with easy entry conditions into the supply chain in the US and EU as they seek low-cost suppliers. India is one of the dominant suppliers to the world market, along with China. Robust growth in global textiles and clothing market even during the phase of recession in the world economy, increased production of yarn in India and strong base of domestic textile market, increase in labour cost in China, have been some of the important reasons behind the consistently strong position of India.

Clothing

Fig. 4 depicts the RCA of three major exporters of Clothing among the SEA nations and India. The share of SEA nations in world exports of Clothing in 2016 was 11.09 percent. While Indonesia and Vietnam are the common claimants between Textile and Clothing categories, the new and prominent entrant in the list is Cambodia. India has lost nearly 60 percent in terms of its RCA vis-a-vis Cambodia, Indonesia and Vietnam since 2000. Not only has Cambodia's RCA been substantially high against the remaining three countries, it has been able to retain and marginally improve its position over the study period. According to the World Bank, higher duties on import of manmade fibre and complex labour policies are some of the hindering factors for India. On the other hand, free trade agreements between the US and the Pacific Rim countries have given advantage to Vietnam and Cambodia over India. Non-price factors such quality and reliability and lead time are other significant advantages of the SEA nations over India despite its having substantial RCA.

Part of the strong position of Cambodia in Clothing exports may be attributed to its being exploited as a conduit of quota-free entry in the US and EU markets by other SEA nations. Moreover, its relatively cheaper labour has given it the advantage over other countries, besides increased foreign direct investments and export oriented units in its garments industry. 80 percent of Cambodia's exports is constituted of clothing which underlines the significance of the sector for the country.

Manufactures

Manufactures exports of SEA nations constitute 7.11 percent of world exports in the category. Although India did exhibit low magnitude of comparative advantage over the SEA nations in manufactures, against the top three exporters, viz. Singapore, Malaysia and Thailand, it does not enjoy any comparative advantage. **Fig. 5** shows the comparative position of India and top SEA manufactures exporters.

One of the reasons for the poor position of India in manufactured exports could be traced to its relatively lower proportion of high technology exports. In the year 2015, only 7.51 percent of India's manufactured exports were high-tech exports, whereas the same for Singapore, Malaysia and Thailand was 50, 43 and 21 percent, respectively. When Medium and High Technology Exports are combined together, India's manufacture exports proportion is 34 percent. Whereas this proportion for Singapore, Malaysia and Thailand is 71, 62 and 63 percent, respectively in their total manufactured exports.

Conclusions

The above analysis clearly brings forth that in most of the product categories in which India has comparative advantage against the SEA nations, its immediate rival countries within this group are consistently Indonesia, Thailand and Vietnam. Despite being small in size these countries have exhibited higher comparative advantage in all the categories analysed barring Textiles. This means that the differentiating factor is productivity which may be traced to better technology. Across all the five categories studied, India's comparative advantage has either declined or its comparative disadvantage vis-à-vis its competitors has increased over the study period. This clearly hints at decreasing international competitiveness of Indian exports. Although, India's large domestic market absorbs much of the output produced within the economy.

Nonetheless, India has been found wanting in many aspects of export competitiveness that cannot be justified only by a large domestic market. There is a need for concerted effort to capture the fall in competitive position of India against its rivals. Suitable and focussed policy measures need to be adopted to undo the negative factors that have been identified in relation to the competitors. Upgradation of technology used in the export sectors and improvement in the level of skills of its labour, which are the winning points for its competitors, are also important for a flourishing export sector.

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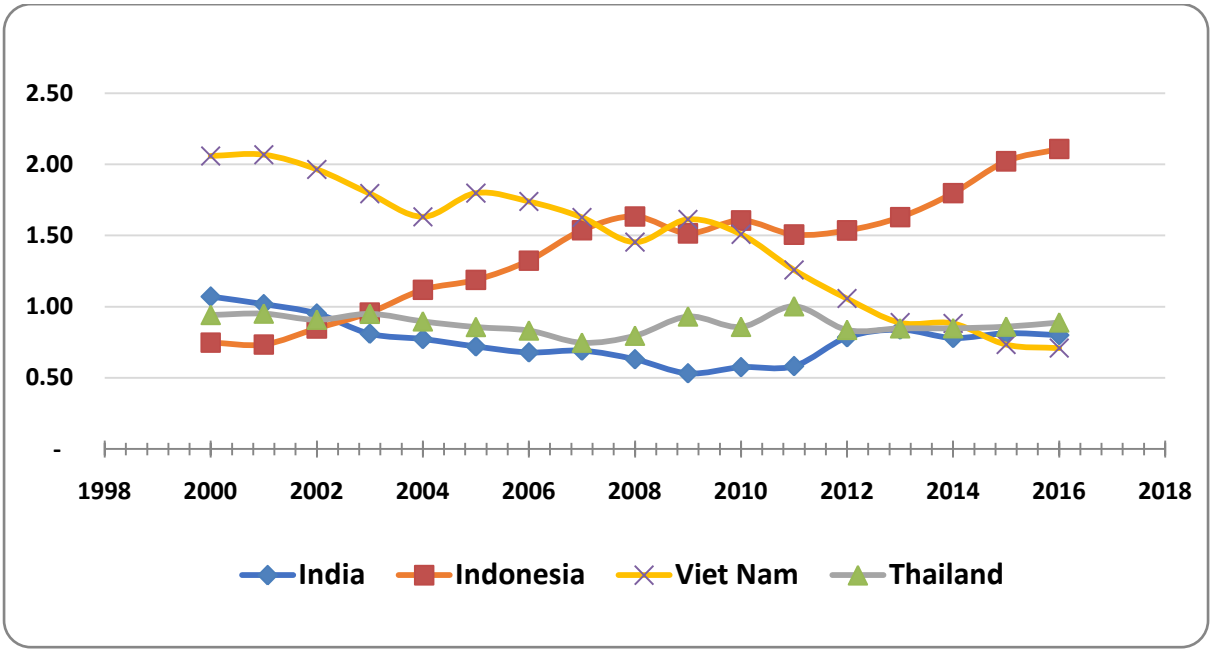
Table No. 1. INDIA'S REVEALED COMPARATIVE ADVANTAGE VIS-À-VIS SOUTH-EAST ASIAN NATIONS

Product Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Agricultural products	**2.48**	**2.33**	**2.12**	**1.80**	**1.74**	**1.61**	**1.53**	**1.46**	**1.23**	**1.01**	**1.08**	**1.02**	**1.34**	**1.40**	**1.29**	**1.30**	**1.23**
Automotive products	2.12	1.64	1.59	1.73	1.86	1.76	1.60	1.31	1.30	1.53	1.71	1.42	1.41	1.35	1.48	1.61	1.69
Chemicals	3.24	3.02	2.88	2.40	2.33	2.20	2.20	2.03	2.14	1.90	1.79	1.54	1.61	1.68	1.62	2.05	2.11
Clothing	**5.01**	**4.18**	**3.95**	**3.75**	**3.49**	**3.62**	**3.25**	**2.89**	**2.57**	**2.75**	**2.16**	**2.02**	**1.87**	**1.81**	**1.85**	**2.08**	**1.93**
Electronic data processing and office equip.	0.05	0.08	0.06	0.07	0.07	0.05	0.05	0.04	0.04	0.05	0.04	0.05	0.05	0.04	0.04	0.05	0.04
Food	**2.89**	**2.66**	**2.44**	**2.10**	**2.03**	**1.86**	**1.78**	**1.58**	**1.34**	**1.06**	**1.11**	**1.09**	**1.27**	**1.45**	**1.32**	**1.36**	**1.31**
Fuels	0.51	0.73	0.69	0.82	0.95	1.10	1.46	1.57	1.29	1.19	1.41	1.28	1.36	1.47	1.50	1.31	1.38
Fuels & mining products	0.79	0.98	1.13	1.16	1.45	1.62	1.89	1.91	1.54	1.50	1.72	1.35	1.41	1.45	1.51	1.39	1.45
Integrated circuits and electronic components	0.01	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.03	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.01
Iron and steel	7.88	6.10	8.13	8.32	7.60	7.51	6.43	5.27	5.36	4.61	6.14	4.10	3.98	4.58	4.20	4.03	4.40
Machinery and transport equipment	0.22	0.26	0.26	0.28	0.30	0.32	0.34	0.35	0.44	0.51	0.47	0.51	0.47	0.45	0.49	0.50	0.50
Manufactures	**1.58**	**1.49**	**1.52**	**1.52**	**1.46**	**1.42**	**1.31**	**1.27**	**1.26**	**1.31**	**1.24**	**1.27**	**1.18**	**1.14**	**1.15**	**1.22**	**1.24**
Office and telecom Equip.	0.03	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.16	0.09	0.13	0.10	0.08	0.05	0.04	0.04
Pharma-ceuticals	13.76	12.08	15.54	16.82	15.22	7.61	5.24	5.17	7.10	5.52	6.08	6.04	5.41	6.56	6.36	8.25	9.49
Telecomm. equipment	0.05	0.07	0.07	0.08	0.07	0.07	0.10	0.11	0.10	0.83	0.36	0.56	0.41	0.31	0.15	0.10	0.11
Textiles	**10.66**	**9.68**	**9.80**	**9.71**	**9.39**	**8.32**	**7.77**	**7.09**	**6.53**	**5.38**	**5.78**	**5.09**	**5.40**	**5.33**	**5.20**	**5.74**	**5.33**
Transport equipment	2.13	1.82	1.78	1.68	1.80	1.72	1.54	1.43	1.67	1.85	1.98	1.89	1.58	1.62	2.07	2.04	1.90
No. of Categories with India's RCA > 1	10	10	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12

Source: Authors' computations based on export data sourced from WTO database.

Fig. 1 Comparative Advantage in Export of Agriculture



Note: Revealed Comparative Advantage calculated for each country against the remaining three set of countries under each of the selected product categories

Fig.2 Comparative Advantage in Export of Food

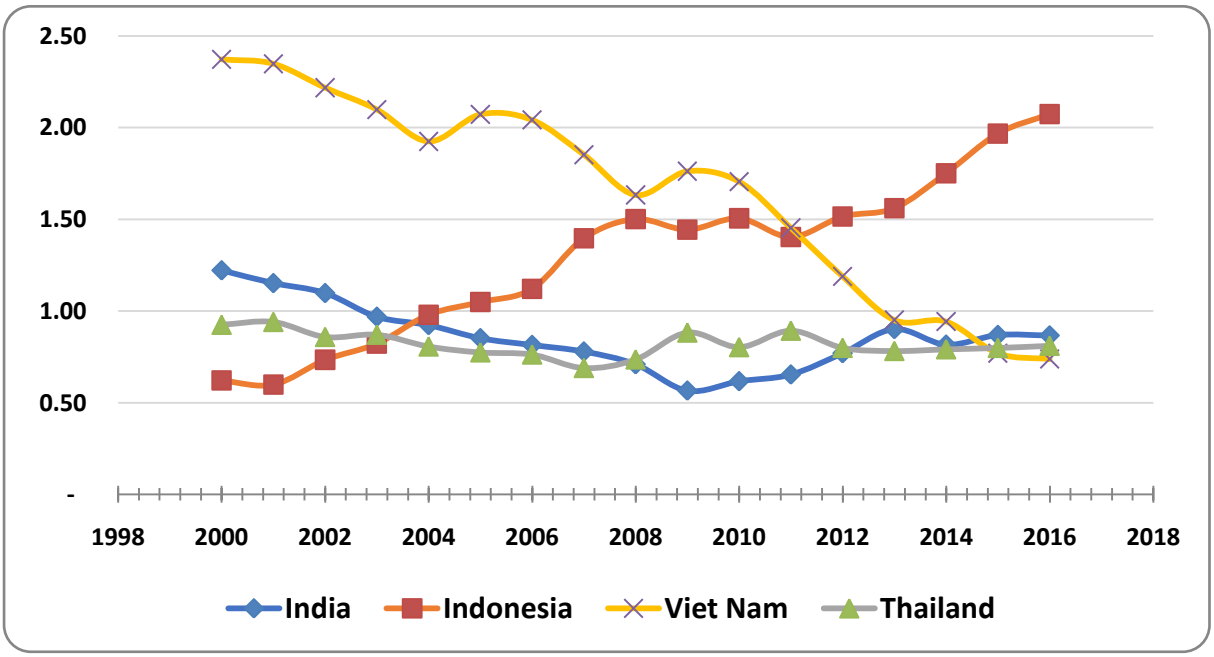


Fig. 3 Comparative Advantage in Export of Clothing

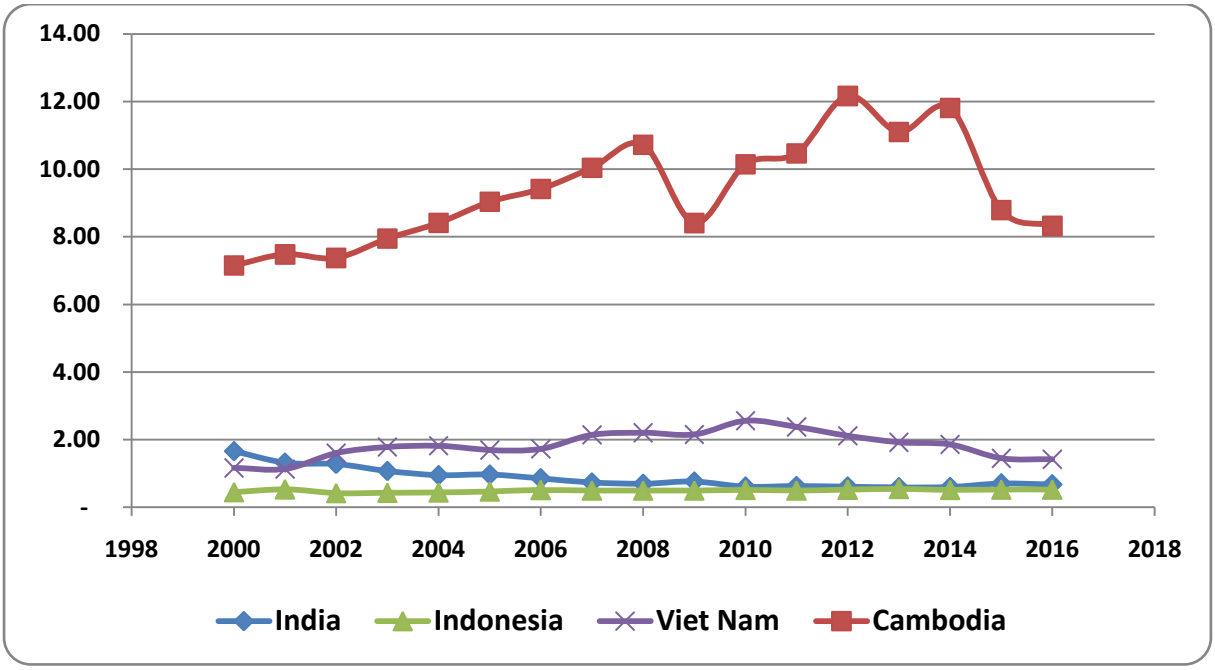


Fig. 4 Comparative Advantage in Export of Textiles

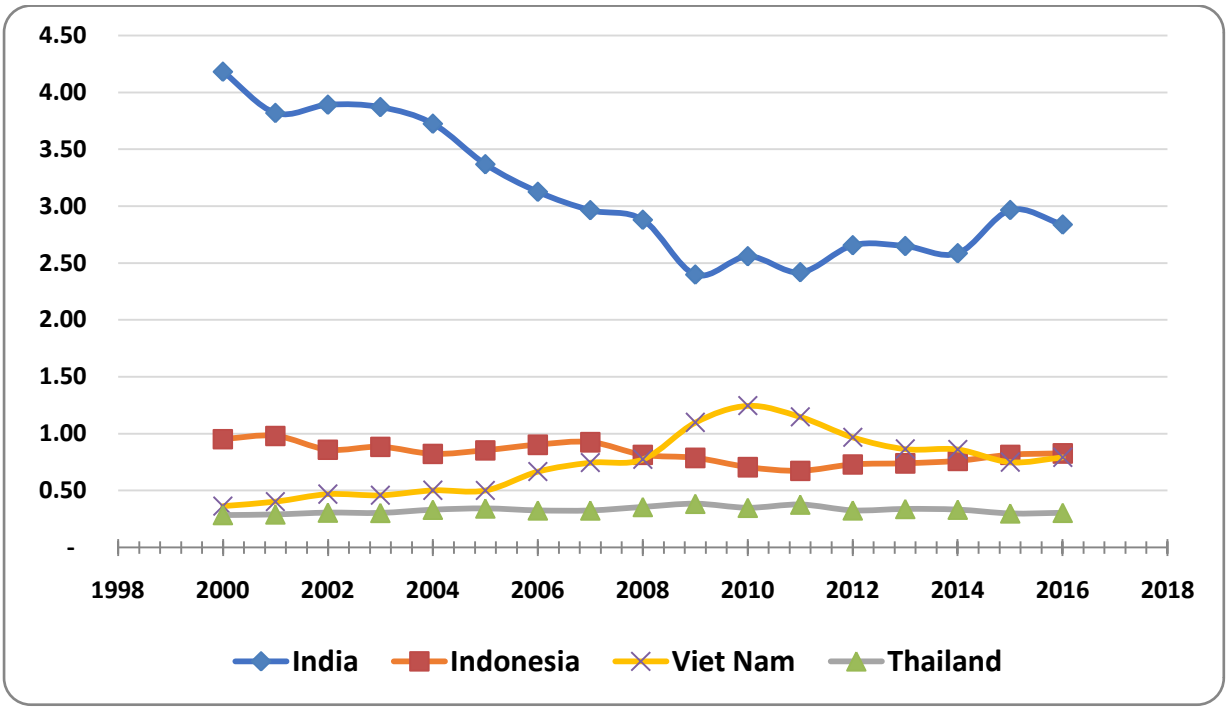


Fig. 5 Comparative Advantage in Export of Manufactures