

# Intra Industry Trade between India and ASEAN 5 Nations

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**Abstract:** Intra Industry Trade shows trade in close substitute goods that are demanded by consumers from different countries with different preferences. Many studies suggest that the more developed countries, the more specialized trade structure and thus the higher IIT would be. Thus the industrialized countries like OCED members expected to have very adopting suitable trade policies. In addition, by considering intra industry trade in different significant advantages for specialization in them. This is helpful in trade decision making and to some extent determine how will one can complete in new trade environment and what adjustments are required. The increasing extent of Intra Industry trade in the world trading system has some important implications for adjustment of economies to increase trade by increasing trade: the size of economic sectors may change. In this article we are going to discuss about intra industry trade between India and ASEAN 5 Nations (Malaysia, Philippines, Singapore, Thailand and Vietnam)

**Key words:** Intra –industry trade, Grubel and Lloyd, Imports and exports

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## Introduction

Since its emergence in the late of 1960's, the concept of Intra Industry trade (IIT) has made an enormous impact on the empirical and theoretical analysis of International trade and on ensuring policy recommendations. Balassa (1996) was first in asserting that the observed increase in IIT might imply that “the difficulties of adjustment to free trade have been generally over estimated.” It has been commonly perceived ever since that the observed rise in IIT across the industrialized world greatly facilitated trade liberalization by reducing pressure of each country to concentrate production on a narrow range of industries according to its comparative advantage. Economic interactions among the high income developed countries are characterized by high degrees of both Intra Industry trade and Intra Industry affiliate production and sales.

Traditional trade theory implies one of the major benefits associated with the movement of goods between the regions is due to greater specialization in accordance with principle of comparative advantage. Intra Industry trade is explained in terms of increasing returns to scale, and one of the main benefits of Intra Industry is greater product variety enjoyed by customers.

The work of Grubel and Lloyd (1975), which shows the importance of IIT, Brander (1981) and Brander and Krugman (1985) analyze IIT trade in oligopolistic markets while Krugman (1979, 1980, 1981), Lancaster and Helpman (1981) show how Intra Industry trade may exist in the presence of monopolistic competition.

### **Definition**

Intra-industry trade refers to the exchange of similar products belonging to the same industry. The term is usually applied to international trade, where the same types of goods or services are both imported and exported.

### **Need for Intra Industry trade**

Thakkaran (1983) summarized the studies on Intra Industry trade and observed the following on the basis of the survey and the study conducted by J.Koi and L.B.M.Mennas (1983) and D.Green way (1983) they have analysed and concluded that the possibilities for Intra Industry Trade will increase as the partner countries share a larger similarities with respect to income per capita, Intra industry trade will comprise a larger part of total trade. The scope for Intra Industry will be more in large countries than in small countries, the average level of Intra Industry Trade will be more in developed countries than in less developed countries and Intra Industry Trade will be less for primary products and new materials than for manufactured products. Flavey & Kierzkowski (1987) explained they produced a model that tried to get rid of the idea that all products are produced under identical technical conditions. Their model showed that on the demand side goods are distinguished by the perceived quality of that good and high quality goods are produced under conditions of high capital intensity. However, this explanation has also been dismissed. The benefits of intra-industry trade have been explained by various business researchers, and all of these benefits can be summarised into three points that which is illustrated by Johnson and Taylor (2009) in the following way:

Firstly, intra-industry trade increases the variety of products the same industry, which is beneficial to both, businesses, as well as consumers. This benefit of intra-industry trade is possible because today product range from the same industry can be highly differentiated, and intra-industry trade will provide the opportunity of having a vast range of differentiated products within the markets of trading partners. Secondly, intra-industry trade gives opportunity for businesses to benefit from the economies of scale, as well as use their comparative advantages. In other words countries will get more economic benefits if they concentrate on producing specific types of products within specific range, according to their comparative advantages rather than producing all ranges of specific products. Thirdly, inter-industry trade stimulates innovation in industry, and can assist the economy in cases of short-term economic fluctuations.

### **Measurement of Intra Industry Trade:**

Measurement issues are at the heart of the literature on IIT and adjustment .Different types of trade: horizontal trade in similar products with differentiated products distinguished by quality and price and vertical specialization of production that the results in trade in similar goods at different stages of production.(Clegg, Jeremy 1990). Horizontal Intra Industry trades enable countries with similar factor endowments to benefit from economies of scale by specializing in niche products. Trade in vertically differentiated products may be driven by comparative advantages, for example to use cheap unskilled labour for assembly purpose or specialized personnel for research and development.

Grubel and Lloyd(1975) have developed the index of measuring the level of Intra Industry trade which is used more extensively,  $B_i = [(X_i+M_i) - [X_i-M_i]*100 / (X_i+M_i)]$  (or)

$$GL = 1 - (E_{xi} - I_{mi}) / E_{xi} + I_{mi}$$

The level of aggregation of 1 can be at different levels of SITC classifications. The index lies between 0 and 100 with the former representing complete intra intra industry trade.

The study attempts to construct the index of intra industry trade between India and ASEAN 5 nations at digital level of HS Code for 2011 to 2015 using the method of Verdoom (1960).  $V_r = X_{iHB} / X_{iBH} * 100$  where,  $X_{iHB}$  = exports of ith item to H country to country B  $X_{iBH}$  = imports of ith item from B country to country H and using the method of Grubel and Lloyd

(1975)  $GL=1-[Exi-Imi]$  where,  $Exi$ = exports of  $j$ th item from country A to country B,  $Imi$  = imports of  $j$ th item from country B to country A. The whole HS code has been analysed and the following HS code has been analysed and the following items have an appropriate Intra and trade between India and ASEAN 5 Nations, namely, India and Malaysia, Philippines, Singapore, Thailand, Vietnam.

### HS Code:

- 01 - Animals; Live
- 6 - Live trees and other plants; bulbs, roots and the like, cut flowers and ornamental foliage.
- 15 - Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes
- 17 - Sugars and sugar confectionery
- 18 - Cocoa and cocoa preparations
- 20 - Preparations of vegetables, fruit, nuts or other parts of plants
- 28 - Inorganic chemicals; organic and inorganic compounds of precious metals; of rare earth metals, of radio-active elements and of isotopes
- 29 - Organic chemicals
- 40 - Rubber and article thereof
- 44 - Wood and articles of wood; wood charcoal
- 46 - Manufactures of straw, esparto or other plaiting materials; basket ware and Wicker work
- 47 - Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard
- 48 - Paper and paper board; articles of paper pulp
- 49 - Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans
- 50 - Silk
- 51 - Wool, fine (or) coarse animal hair, horse hair, yarn and woven fabric.
- 54 - Man-made filaments; strip and the like of man-made textile materials
- 56 - Wadding, felt and nonwovens, special yarns; twine, cordage, ropes and cables and articles thereof
- 59 - Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use
- 65 - Headgear and parts thereof
- 69 - Ceramic products
- 79 - Zinc and articles thereof
- 88 - Aircraft, spacecraft and parts thereof
- 89 - Ships, boats and floating structures
- 91 - Clocks and watches and parts thereof

- 92 - Musical instruments; parts and accessories of such articles  
 94 - Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, n.e.c.; illuminated signs, illuminated name plates and the like; prefabricated buildings  
 95 - Toys, games and sports requisites; parts and accessories thereof

### Theoretical Frame work of Intra Industry Trade :

Intra Industry trade in the products has been identified as the two way exchange of goods within standard industrials classifications. The extent of Intra industry trade is commonly measured by Grubel –Lloyd indexes based on commodity group transactions. Thus for any particular product, an index of the extent of intra industry trade in the product has been identified as above given equations. A large theoretical literature has emerged directed at explaining the presence of Intra industry trade (IIT). One of the distinctions which comes out of these models is that between horizontal IIT (where goods are differentiated by attributes) and vertical IIT (where goods are differentiated by quality). Intra -Industry trade based upon the similarity of nations may lead to more costly adjustments, as trade and specialization move factors from contested export – oriented industries. To make our result with simplification the products have been classified by four categories.

1. If indices value between 0.00 to 0.25 - there may be strong inter-industry trade tendencies.
2. If indices value between 0.25 to 0.50 - there may be weak inter-industry trade tendencies.
3. If indices value between 0.50 to 0.75 - there may be weak intra-industry trade tendencies.
4. If indices value between 0.75 to 1.00 - there may be strong intra-industry trade tendencies.

**Table 1: Intra Industry Trade between India and Malaysia (2011- 2015)**

HS Code	Descriptions	Exports from India (In\$)	Imports from Malaysia (In \$)	GL Index (IIT)	VR Index (IIT)
15	Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes	100329558	10284480054	0.99	0.97
48	Paper and paper board; articles of paper pulp	51747320	98632746	0.69	0.52
56	Wadding, felt and nonwovens, special	8442168	52425271	0.28	16.10

	yarns; twine, cordage, ropes and cables and articles thereof				
59	Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use	5036470	14914411	0.50	33.76
89	Ships, boats and floating structures	19817172	578600966	0.66	3.43
92	Musical instruments; parts and accessories of such articles	259019	21314563	0.97	1.21
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, illuminated signs, illuminated name plates	36077499	407163254	0.16	8.86

India and Malaysia are very closely trade related countries. The IIT between India and Malaysia have weak inter Industry and strong Inter Industry trade, weak intra industry and strong intra industry trade .Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, illuminated signs, illuminated name plates may have strong inter industry trade tendencies has recorded 0.16. It implies that India has more comparative advantages with Malaysia .It is suggested that India could get cost benefit if the Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, illuminated signs, illuminated name plates are imported from Malaysia. They may have a vertical IIT where goods are differentiated by quality. Wadding, felt and nonwovens, special yarns; twine, cordage, ropes and cables and articles thereof and Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use have recorded 0.28 and 0.50 respectively. These industries have weak inter industry trade tendencies where the goods are differentiated with attributes. Paper and paper board; articles of paper pulp and Ships, boats and floating structures recorded 0.69and 0.66 respectively. These industries have weak intra industry trade tendency which implies that the industry may have horizontal IIT where goods are differentiated by attributes. Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes and Musical instruments; parts and accessories of such articles have strong intra industry trade tendencies where goods are differentiated by quality. India may have more comparative trade advantages in these industries could create better bilateral on these industries.

**Table 2: Intra Industry Trade between India and Philippines (2011- 2015)**

HS Code	Descriptions	Exports from India (In\$)	Imports from Malaysia (In \$)	GL Index (IIT)	VR Index (IIT)
20	Preparations of vegetables, fruit, nuts or other parts of plants	3740834	12971881	0.88	28.8

46	Paper and paper board; articles of paper pulp	11955	409122	0.05	2.9
79	Zinc and articles thereof	303234	374529	0.15	8.16
91	Clocks and watches and parts thereof	1423271	6947124	0.91	8.51
95	Toys, games and sports requisites; parts and accessories thereof	310084	2053180	0.26	15.10

Preparations of vegetables, fruit, nuts or other parts of plants and Clocks and watches and parts thereof have recorded 0.88 and 0.91 respectively. They have strong intra industry trade tendencies where goods are differentiated by quality. Paper and paper board; articles of paper pulp and Zinc and articles thereof have recorded 0.05 and 0.15 respectively. It implies that India has more comparative advantages with Philippines. It is suggested that India could get cost benefit if above mentioned goods imported from Philippines. Toys, games and sports requisites; parts and accessories thereof has recorded 0.26 .It means weak inter industry trade tendencies where the goods are differentiated with attributes.

**Table 3: Intra Industry Trade between India and Singapore (2011- 2015)**

HS Code	Descriptions	Exports from India (In\$)	Imports from Malaysia (In \$)	GL Index (IIT)	VR Index (IIT)
29	Organic chemicals	1789267000	6719103866	0.42	26.6
40	Rubber and article thereof	147598331	312296006	0.60	47.2
47	Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	14717	193610396	0.99	0.007
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	28735662	877561062	0.49	3.27
54	Man-made filaments; strip and the like of man-made textile materials	29665743	85508635	0.51	34.6
59	Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use	7526149	17789612	0.59	42.3

Organic chemicals, Printed books, newspapers, pictures and other products of the printing industry; manuscripts, type scripts and plans have recorded 0.42 and 0.49 respectively. These industries have weak inter industry trade tendencies where the goods are differentiated with attributes.

Rubber and article thereof, Man-made filaments; strip and the like of man-made textile materials and Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use have recorded 0.60, 0.51 and 0.59 respectively. These industries have weak intra industry trade tendency which implies that the industry may have horizontal IIT where goods are differentiated by attributes. Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard has recorded 0.99 it implies that tendencies where goods are differentiated by quality. India may have more comparative trade advantage in this industry could create better bilateral on these industries.

**Table 4: Intra Industry Trade between India and Thailand (2011- 2015)**

HS Code	Descriptions	Exports from India (In\$)	Imports from Malaysia (In \$)	GL Index (IIT)	VR Index (IIT)
01	Animals; Live	6211	53513	0.20	11.60
06	Live trees and other plants; bulbs, roots and the like, cut flowers and ornamental foliage.	575684	17800483	0.06	3.23
15	Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes	166886939	319012155	0.60	52.3
17	Sugars and sugar confectionery	9398699	30979462	0.46	30.3
18	Cocoa and cocoa preparations	190156	4158895	0.08	4.57
28	Inorganic chemicals; organic and inorganic compounds of precious metals; of rare earth metals, of radioactive elements and of isotopes	116998296	137456401	0.40	85.11
51	Wool, fine (or) coarse animal hair, horse hair, yarn and woven fabric.	4770747	4841851	0.99	98.53

Animals; Live trees and other plants; bulbs, roots and the like, cut flowers and ornamental foliage, Cocoa and cocoa preparations have strong inter industry trade between India and Thailand. They have recorded 0.20, 0.06, and 0.08 respectively. It implies that India has more comparative advantages with Thailand. It is suggested that India could get cost benefit if above mentioned goods imported from Thailand. Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes has recorded 0.60 .It means weak intra industry trade tendencies which implies that the industry may have horizontal IIT where goods are differentiated by attributes. Sugars and sugar confectionery and Inorganic chemicals; organic and



inorganic compounds of precious metals; of rare earth metals, of radio-active elements and of isotopes have recorded 0.46 and 0.40 respectively. It implies that weak inter industry trade tendencies where the goods are differentiated with attributes. Wool, fine (or) coarse animal hair, horse hair, yarns and woven fabric has recorded 0.99; they have strong intra industry trade tendencies where goods are differentiated by quality.

**Table 5: Intra Industry Trade between India and Vietnam (2011- 2015)**

HS Code	Descriptions	Exports from India (In\$)	Imports from Malaysia (In \$)	GL Index (IIT)	VR Index (IIT)
18	Cocoa and cocoa preparations	324226	397545	0.10	81.55
44	Wood and articles of wood; wood charcoal	234744778	282224705	0.90	83.17
50	Silk	654398	33501259	0.03	1.9
65	Headgear and parts thereof	35702	1398278	0.04	2.55
69	Ceramic products	10318116	11622469	0.94	88.77
88	Aircraft, spacecraft and parts thereof	199824	3312088	0.88	6.03
89	Ships, boats and floating structures	6505	1935523	0.99	0.33

India and Vietnam have strong Inter industry trade and simultaneously strong intra industry trade. Cocoa and cocoa preparations, Silk and Headgear and parts thereof have recorded 0.10, 0.03 and 0.04 respectively. Strong Inter industry trade tendencies. It implies that India has more comparative advantages with Vietnam. It is suggested that India could get cost benefit if above mentioned goods imported from Vietnam. Wood and articles of wood; wood charcoal, Ceramic products and Ships, Aircraft, spacecraft and parts thereof ,and ships, boats and floating structures have strong intra industry trade tendencies where goods are differentiated by quality. They recorded 0.90, 0.94, 0.88 and 0.99 respectively.

#### **Conclusion:**

India have strong intra industry trade with Malaysia HS products like Animals or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes and Musical instruments; and with Philippines parts and accessories of such articles as per this studies, Preparations of vegetables, fruit, nuts or other parts of plants and Clocks and watches and parts thereof; and Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard with Singapore and Wood and articles of wood; wood charcoal, Ceramic products, Aircraft, spacecraft and parts thereof and Ships, boats and floating structures

with Vietnam have strong intra industry trade tendencies where goods are differentiated by quality. India may have more comparative trade advantages in these countries could create better bilateral on these above mentioned industries.

India has weak intra industry trade with Malaysia HS products like Paper and paper board; articles of paper pulp and Ships, boats and floating structures. And with Singapore, Rubber and article thereof, Man-made filaments; strip and the like of man-made textile materials and Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use products, and Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes with Thailand. These countries in above mentioned industries have weak intra industry trade tendencies which imply that the industry may have horizontal IIT where goods are differentiated by attributes.

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