

**A BRIEF ANALYSIS OF INDIA-JAPAN BILATERAL TRADE: A TRADE INTENSITY
APPROACH**

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Abstract

Bilateral trade between India and Japan have maintained over a period of time. But the volume of trade between them is at a low level, relative to the size of their economies. This paper is an attempt to measure strength and nature of bilateral trading relationship between India and Japan. Several statistical indices can be used to measure trade relations between two nations. This paper has used one such index such as trade intensity. Trade intensity indices have been calculated for the period from 2001 to 2011. Both countries` bilateral trade relationship described in terms of intensity indices helps to identify how intensively the countries are trading with each other. Thus, this study found that intensity between two countries is low. However, from the analysis made it is obvious that both countries have much trade potential to reap between them.

Keywords: Internal trade, India, Japan, Trade intensity

INTRODUCTION

India and Japan have maintained diplomatic relations and enjoyed cordial relations based on trade and economic and technical cooperation. After the World War II, the focus of Japan's economic relations with India switched from the prewar import of cotton to the import of iron ore. Relations developed steadily as Japan's trade increased with India. Moreover, India and Japan have traditionally enjoyed cordial and friendly relations and the feelings of Indian people towards Japan have been good. Hence the author has shown interest in studying the bilateral trade intensity between these two countries.

A Brief note on Bilateral Trade between India - Japan

The proliferation of free trade agreements (FTAs) has been a key trend in the global trade community since the early 1990s. As of 31 July 2010, 474 Regional Trade Agreements (RTAs) have been notified to the World Trade Organization (WTO) and 283 agreements were in force (World Trade Report, 2008). FTA is the single most important form of RTA. (World Trade Organization, RTA Gateway, 2011).

Recently, there has been active persuasion by both India and Japan to conclude free trade agreement between them. Though Japan has been always a promoter of multilateral agreements, of late due to the emergence of different FTAs initiated by the United States, Japan has felt an acute need for its own treaty with different countries to protect its market share in world trade. India, in the process of increasing its market share has been also keen in making FTAs within the Asian region.

According to Barro et al, Economic growth take place when “liberalization of trade through policy induced measures by reducing and then eliminating tariff and non-tariff barriers promotes efficiency of allocation of resources to productive uses, exploitation of scale economies, encourages competition, increases factor productivity and increases trade flows, thereby, promoting economic growth” (Barro, 1995). However, reality seems to be different from theoretical predictions. “In spite of instituting various measures of trade liberalization in many countries, still there remain some country-specific barriers, which impede the growth of world trade” (Kalirajan, 1999). Elizondo and Krugman is of the view that trade flows are adversely affected when infrastructure development are concentrated on only some developed pockets of the country. (Elizondom, and Krugman, 1992) Further, large government size (Rodrik, 1998), weak and inefficient institutions in home country (Wilson, Mann and Otsuki, 2004) and political lobbying (Gawande and Krishna, 2001) have been identified to constraint trade flows between countries.

Based on the above the author tends to believe that decreasing tariff may promote trade between the countries. On this idea the author has made a hypothesis that as tariff decreases, trade intensity tent to increase between India and Japan.

Table 1: Bilateral trade between India and Japan

Unit: US Dollar thousand

| year | India`s export to Japan | Japan`s import from World | India`s export to world | India`s import from Japan | Japan`s export to world | India`s import from world | World export | World import |
|------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|--------------|--------------|
| 001 | 1551244 | 349300362 | 43878489 | 1788176 | 403363609 | 50671106 | 6118895777 | 6312854542 |
| 002 | 1786977 | 337608873 | 50097958 | 2139663 | 416715260 | 57453469 | 6419966502 | 6589876543 |
| 003 | 1709802 | 383451985 | 59360659 | 2333143 | 471995905 | 72430524 | 7470780287 | 7663653043 |
| 004 | 1847648 | 455253850 | 75904200 | 2962042 | 565761077 | 98981129 | 9101232948 | 9417813893 |
| 005 | 2455239 | 515866388 | 100352637 | 3678528 | 594940866 | 140861667 | 10389054464 | 10642419338 |
| 006 | 2804220 | 579063945 | 121200606 | 4743469 | 646725059 | 178212440 | 12042919050 | 12270185808 |
| 007 | 3263389 | 622243336 | 145898053 | 5832826 | 714327036 | 218645294 | 13849310780 | 14080126378 |
| 008 | 3624209 | 762533921 | 181860898 | 7784411 | 781412163 | 315712106 | 15989372712 | 16393518947 |
| 009 | 3215709 | 551984751 | 176765036 | 6688836 | 580718734 | 266401553 | 12327153144 | 12591039320 |
| 010 | 4805077 | 692620567 | 220408496 | 8265086 | 769839386 | 350029387 | 15055401572 | 15325394862 |
| 011 | 5592608 | 855380474 | 301483250 | 11218263 | 823183759 | 462402791 | 17999547615 | 18333981514 |

Sources: ITC calculations based on UN COMTRADE statistics.

METHODOLOGY

This study analyzes the trade relation between India and Japan. Data was collected from UN COMTRADE statistics database for the period from 2001 to 2011. The simple technique called trade intensity index developed by K. Kojima (Kojima, 1964) has been used. This trade intensity index has been used to measure the share of one country`s trade with other country as a proportion of the latter`s share of world trade.

Trade Intensity: The trade intensity index could be thought as a uniform export share. In other words, the statistic tells us whether or not a region exports more (as a percentage) to a given destination than the world does on average. It is interpreted in much the same way as an export share. It does not suffer from any 'size' bias, so we can compare the statistic across regions, and over time when exports are growing rapidly. The trade intensity statistic is the ratio of two export shares. The numerator is the share of the destination of interest in the exports of the region under study. The denominator is the share of the destination of interest in the exports of the world as a whole.

Range of values: The value of Trade intensity index ranges from 0 to 1 (0 to 100 when multiplied with 100). If the value is 0, it implies no trade relationship between partner countries.

On the other hand, if the value is 1 indicates high trade relations. If import intensity index is more (or less) than 100, it indicates that country India is importing more (or less) from country Japan than might be expected from that country's share in total world trade. In export too, if the value is 0 it implies export link between these two countries is negligible and if the value is nearer to 100 that indicates that performance is significant and if it exceeds 100 it indicates that India is exporting more to country Japan than might be expected from that country's share in world trade.

Mathematical definition

The Export intensity index between India with respect to Japan (XII_{ijt}) is shown as follows:

$$XII_{ijt} = [X_{ij} / X_i] / [M_j / (M_w - M_i)] * 100..... (1)$$

Where:

XII_{ijt} = Export intensity index of trade of India with Japan:

X_{ij} = Exports of India to Japan.

X_i = Total Exports of India.

M_j = Total Imports of Japan.

M_w = Total World Imports.

M_i = Total Imports of India.

t = 2001 to 2011.

Import intensity index (MII_{ijt}) can also be measured in the similar way:

$$MII_{ijt} = [M_{ij} / M_i] / [X_j / (X_w - X_i)] * 100..... (2)$$

Where:

MII_{ijt} = Import intensity index of trade of India with Japan:

M_{ij} = Imports of India from Japan.

M_i = Total Imports of India.

X_j = Total Exports of Japan.

X_w = Total World Exports.

X_i = Total Exports of India.

t = 2001 to 2011.

The Export Intensity index between Japan with respect to India (XII_{jit}) is shown as follows:

$$XII_{jit} = [X_{ji} / X_j] / [M_j / (M_w - M_i)] * 100.....(3)$$

Where:

XII_{jit} = Export intensity index of trade Japan with India.

X_{ji} = Exports of Japan to India.

X_j = Total Exports of Japan.

M_i = Total Imports of India.

M_w = Total World imports.

M_j = Total Imports of Japan.

t = 2001 to 2011.

Import intensity index (MII_{jit}) can also be measured in the similar way:

$$MII_{jit} = [M_{ji} / M_j] / [X_i / (X_w - X_j)] * 100 \dots \dots \dots (4)$$

Where:

MII_{jit} = Import intensity index of trade of Japan with India.

M_{ji} = Imports of Japan to India.

M_j = Total Imports of Japan.

X_i = Total Exports of India.

X_w = Total World Exports.

X_j = Total Exports of Japan.

t = 2001 to 2011.

In this analysis, if the intensities between two countries are well below 100, the author believes that the two countries have much trade potential to reap between them. Bilateral trade relationships between India and Japan, which is described in terms of import and export intensity indices, helps to identify how intensively the countries are trading with each other.

FINDINGS AND CONCLUSION

The trends of export intensities and import intensities of both India and Japan are shown in Table 2. Export and import intensities of both India and Japan have declined over the years. India's export intensity with respect to Japan has declined significantly over the years, which may be seen from the fact that export index has declined from 63.38 during 2001 to 38.76 during 2011. One can conclude from such a declining trend that India has not diversified its export basket over the years to Japanese market, and it basically exported the same items, whose demands have been declining over the years. This shows that India's commodity concentration in export is more than in its import from Japan. In the import front also, trade intensity index has been maintained in a steady manner. During 2001, import intensity index was 53.15, which has been maintained throughout the study period except for the year 2005 and 2010. However, import intensity index is much less noticeable compared to the downslide in export intensity index. Steady trend in imports may be credited to the fact that India is also a

major importer of goods from Japan, and its importance has been growing in recent years (major imports include machinery, plant-related products, transport equipment, and electronic machinery). India's import intensity has declined during 2005, further this index show ups and downs. It indicates that India's import intensity has not drastically declined continuously from 2005 to 2011.

Japan's export intensity index with respect to India was 52.17 during 2001, which marginally declined to 51.51 during 2011. On the other hand, its import index was 57.17 during 2001 that too radically declined to 37.25 during 2011. These figures clearly indicate that Japan's imports from India have declined much more than its exports to India.

Table 2: Trade Intensity index between India and Japan, 2001-2011

| Year | XI_{ijt} | MI_{ijt} | XI_{jit} | MI_{jit} |
|------|------------|------------|------------|------------|
| 2001 | 63.38 | 53.15 | 52.17 | 57.85 |
| 2002 | 69.02 | 56.93 | 55.88 | 63.43 |
| 2003 | 57.02 | 50.58 | 49.68 | 52.57 |
| 2004 | 49.83 | 47.74 | 47.41 | 45.64 |
| 2005 | 49.81 | 45.16 | 44.45 | 46.45 |
| 2006 | 48.31 | 49.07 | 48.12 | 45.53 |
| 2007 | 49.83 | 51.18 | 50.26 | 47.22 |
| 2008 | 42.02 | 49.88 | 49.32 | 39.75 |
| 2009 | 40.62 | 52.53 | 52.05 | 38.71 |
| 2010 | 47.14 | 45.5 | 44.88 | 44.96 |
| 2011 | 38.76 | 52.16 | 51.51 | 37.25 |

XI_{ijt} = India's Export Intensity Index with respect to Japan; MI_{ijt} = India's Import Intensity Index with respect to Japan; XI_{jit} = Japan's Export Index with respect to India; MI_{jit} = Japan's Import Intensity Index with respect to India; i = India; j = Japan; t = 2001 to 2011.

This may be due to the fact that Japan's import items from India are basically composed of primary and intermediary goods (i.e., Traditionally, Japan has been the second largest destination of Indian exports- such as gems, marine products, iron ore, and cotton yarn), whose demands are inelastic compared to its exports items to India. Japan's both import and export intensities are well below 100, which imply that it is trading much less with India than might be expected from Japan's share in world trade. This implies Japan has much potential to increase its trade with India. In this study the author concludes that the overall trade intensity whether its export (or) import, the intensity has declined over the period of study. However, the author feels that both India and Japan do have substantial potential to increase their trade between them.

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