

ADVANTAGE FROM TRADE: AN INPUT-OUTPUT APPROACH

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This paper develops a methodology for measuring the advantage which an economy gains from its foreign trade in a static, input-output framework. The advantage is measured in terms of the Stimulus and the Net Stimulus to the output generated by the exports and imports. The methodology has been applied to the Indian economy for the period 1951-52 to 1983-84, using six input-output tables. It is generally expected that with trade liberalisation (i.e., outward-orientation), the advantage to the domestic economy from foreign trade increases. However, the case of the Indian economy shows that the advantage from trade need not increase with opening-up. The share of foreign trade in total output and the advantage from trade seem to be loosely related. The advantage from trade seems to be most affected by the composition of exports and imports. Moreover, it has been found that the increase in manufactured exports need not be more beneficial to the domestic economy as is generally believed.

The purpose of this paper is to develop a methodology for measuring the advantage which an economy gains from its foreign trade and to estimate empirically the advantage which has accrued to the Indian economy. The methodology has been developed in a static, input-output (i-o) framework. Section I gives the methodology for determining the advantage from trade along with the limitations of the approach. Section II discusses the data used for the empirical estimation. The next section gives the results for the Indian economy and the conclusions of the paper are given in the last section.

1. Methodology

1.1 The Input-Output System

The input-output system is given by the following set of equations

$$\begin{array}{r}
 X_1 + M_1 = X_{11} + X_{12} + X_{13} + \dots + X_{1n} + F_1 + E_1 \\
 X_2 + M_2 = X_{21} + X_{22} + X_{23} + \dots + X_{2n} + F_2 + E_2 \\
 \cdot \quad \cdot \quad \cdot \quad \quad \quad \cdot \quad \cdot \quad \cdot \\
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 \cdot \quad \cdot \quad \cdot \quad \quad \quad \cdot \quad \cdot \quad \cdot \\
 X_n + M_n = X_{n1} + X_{n2} + \dots + X_{nn} + F_n + E_n
 \end{array}$$

for $i, j = 1 \dots n$ sectors.

where X_i is the total output in the economy, M_i is the import vector, E_i is the export vector, F_i is the

final demand. X_{ij} is the output of sector i going into the production of output of sector j (i.e., it is the inter-industry use).

Backward Linkages (BL)

Let $a_{ij} = X_{ij} / X_j$. a_{ij} gives the input demanded from sector i by sector j for supplying unit one currency worth of final demand for sector j .

Forward Linkages (FL)

Let $b_{ij} = X_{ij} / X_i$. b_{ij} shows the allocation made as input to sector j by sector i for unit one currency of output of sector i .

1.2 Gain and Loss Through Linkages of Foreign Trade

The concept of the output linkages of foreign trade was introduced by Leontief [1966, p. 63]. In essence, he says that suppose a country were to import 20 x of commodity x , then for the domestic economy 20 x of direct demand gets eliminated and in addition indirect demand for certain other industries also falls. In the case of exports the effect works in the opposite direction.

We have pursued the above idea in the following way.

The output generated due to the BL of exports is a contribution of the foreign trade to the domestic economy. This is because of the fact that exports make certain input demands on the economy. This is the 'gain in production' which

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the economy has got due to exports. It can be captured by $\sum_j \sum_i [A_{ij}^d] [\hat{E}_j]$, where $[\hat{E}_j]$ stands for

the diagonal matrix of exports. The $[A_{ij}^d]$ is the domestic coefficient matrix¹. This has been used so that the backward linkages accruing to the domestic economy are considered and the imported input requirements are excluded.

On the other hand, we see that since exports go outside the economy, they do not enter as inputs into other sectors. Thus, exports do not create any output through the FL with the domestic economy. This is a 'loss in production' which the economy faces due to foreign trade. It is given by $\sum_j \sum_i [E_j] [B_{ij}]$.

The output generated due to the BL of imports measures the demand for inputs which the economy would have experienced if the imported goods had been domestically produced. Since this demand is not being experienced by the economy, the BL of imports constitutes a 'loss in production' to the economy. It is given by the $\sum_j \sum_i [A_{ij}] [\hat{I}_j]$, where $[\hat{I}_j]$ stands for the diagonal

matrix of imports. After the imports have entered the economy, they can be used as inter-industry inputs. Thus the output generated due to the FL of imports is a positive contribution of the foreign trade to the economy. It is the 'gain in production' to the economy and is given by $\sum_j \sum_i [\hat{I}_j] [B_{ij}]$.

For the sake of brevity, we shall call the 'output that could have been possibly generated due to the forward linkages of exports' as the 'FL of exports' and so on for the others also.

We have considered above only the direct linkages and not the indirect linkage effects. This is because, while the interpretation of total (i.e., direct plus indirect) BL is clear cut, there are many difficulties associated with the total FL, related to a unit rise in the value added [Cella, 1984; Sathe, 1990]. Thus to maintain parity, we have considered only the direct backward and forward linkages.

1.3 Stimulus-Deprivation Framework

On the basis of the above discussion, we have

developed the Stimulus-Deprivation framework, where we define

Stimulus = BL of exports + FL of imports

The expression gives us the sum of the 'gain in production' or the output which was made possible due to foreign trade.

Deprivation has been defined

Deprivation = FL of exports + BL of imports

Then,

Overall Net Stimulus = Stimulus - Deprivation

This measure gives the net rise in output due to foreign trade and due to the nature of forward and backward linkages.

The Overall Net Stimulus to the economy is a combination of two forces: (i) foreign trade aspect and (ii) the linkage aspect. Hence the measure can be looked at in two different ways. The first one, from the point of view of foreign trade, can be defined as follows:

(i) Net Stimulus of Exports = BL of exports - FL of exports

Net Stimulus of Imports = FL of imports - BL of imports.

This measure gives us the output contribution of exports and imports.

We can look at the benefit to the economy from the linkage side also. Thus we define

(ii) Net Stimulus of BL = BL of exports - BL of imports

Net Stimulus of FL = FL of imports - FL of exports

The measure of stimulus and different measures of net stimulus developed above have been examined as a percentage of total output. When total output, linkage coefficients and exports/imports are all changing, it is difficult to infer whether these linkages have made a greater or smaller contribution to production over a period of time. To overcome this difficulty, we have expressed the linkage effects as a percentage of total output. It also needs to be noted that the output generated due to the linkages of foreign

trade is a combined result of the linkage coefficients on the one hand and the foreign trade vector on the other hand (i.e., its value and composition), which we have not separated in this study.

1.4 Limitations of the Framework

In the above framework, both cases of 'loss in production' are a bit problematic. With respect to the FL of exports, we cannot be sure as to the way in which the exported goods would have been utilised, had they remained within the domestic boundaries. The assumption of fixed coefficients in an i-o framework is made with respect to input coefficients and not allocation coefficients. Thus, the allocation coefficients (i.e., the FL) could be different if the supply is different.

With regard to the BL of imports, though one can be certain about the input requirements of producing imported goods domestically, domestic production of certain goods may be virtually impossible due to capacity constraints and the non-availability of necessary natural resources. Consequently, the measure used in this paper may not 'correctly' estimate the 'loss in production'. However, since it would be very difficult to estimate empirically the loss after making adjustments for the above, we have continued with the use of the measure.

2. Data

For our analysis, we have made use of six I-O tables, at current prices, viz., 1951-52 [Indian Statistical Institute, 1960], 1959 [Planning Commission, 1967], 1968-69, 1973-74, 1978-79 and 1983-84 [Central Statistical Organization, 1978, 1981, 1989, 1990, respectively].

It needs to be pointed out that the tables have been constructed with different methodologies and sectoral classifications. Though we have made several adjustments, it cannot be claimed that they are completely comparable. Broadly, we can assert that the tables for 1968-69, 1973-74, 1978-79 and 1983-84 are highly consistent, because they have an almost similar sectoral

classification scheme and they have been prepared using the same methodology by the same organization, i.e., the Central Statistical Organisation.

The I-O tables have been used at current prices and this needs a word of explanation. To a certain extent, the effect of price changes have been taken care of by considering the ratios instead of absolute values. Secondly, it was found that when the tables were converted to constant prices (1950-51 as base period), the exports turned out to be higher than the imports. It did not seem correct to use this kind of data base for the Indian economy which for the last forty years has had the Balance of Trade problems.

3. Results

3.1 One of the major strengths of the above-mentioned approach is that it enables us to measure precisely the output generated due to exports and imports. While we have developed a composite index of advantage due to trade, we are also in a position to examine the BL of exports independently, in the context of export-led growth in the economy, and the FL of imports to estimate the growth effects of imports.

3.2 Share of Foreign Trade in Total Output

In Table 1, we have presented the exports and imports of the Indian economy and their share in the total output, for the input-output tables under consideration. It can be observed that the shares of exports and imports in the total output were the highest in 1951-52. In that year, the exports were 5.61 per cent of the total output and imports 7.45 per cent of the total output. In 1959, the share of both exports and imports fell considerably to 3.19 per cent and 5.48 per cent, respectively. Since then, though there has been an expansion in both exports and imports, the shares of exports and imports have never reached the levels of 1951-52. In 1983-84, the share of exports was 4.11 per cent and that of imports was 6.41 per cent. It is common knowledge that, by and large, the share of foreign trade in the total output has been low

for the Indian economy as compared with many other developing countries. But, 'if trade provides crucial components without which whole sectors of the economy cannot function, then this situation must not be identified with unimportance' [Streeten, 1973, p. 16].

TABLE 1. EXPORTS AND IMPORTS OF INDIA

Year	(Rs lakh, at current prices)			
	Exports	Imports	Total Output	Share of Foreign Trade in Total Output
1951-52	64,487 (5.61)	85,640 (7.45)	1,148,955 (100)	13.06
1959	53,270 (3.19)	91,500 (5.48)	1,668,841 (100)	8.67
1968-69	127,064 (3.08)	185,895 (4.51)	4,121,287 (100)	7.59
1973-74	226,961 (3.12)	295,004 (4.05)	7,276,906 (100)	7.17
1978-79	575,225 (4.53)	724,546 (5.70)	12,696,180 (100)	10.23
1983-84	1,101,755 (4.11)	1,716,070 (6.41)	26,769,700 (100)	10.52

Figures in brackets indicate the share in the total output.

3.3 Composition of Foreign Trade

As can be expected in a developing country, the composition of India's exports was skewed in favour of certain traditional goods like tea, jute manufactures and cotton textiles in the early fifties. It can be observed from Table 2, that 'Agriculture' (Sector 1), 'Food, Drink and Beverages' (Sector 4) and 'Textiles' (Sector 5) accounted for around 86 per cent of the total exports in 1951-52. In fact, it has been claimed that the particular composition of India's exports, and the stagnant conditions facing these exports, provided the rationale for diversification of exports. It was, in turn, expected to lead to an increase in exports earnings [Planning Commission, 1956, Pp. 98-99]. The diversification was partially achieved over the decades. In 1983-84, the share of the above mentioned three traditional commodities came down to 35 per cent. The Table also depicts the rising importance of certain non-traditional items. They are 'Metallic products and Machinery' (Sector 13), 'Non-metallic minerals'² (Sector 8), along with 'Other Transport' (Sector 17) and 'Other Industries' (Sector 18). Their combined share in the total, which was 2.22 per cent in 1951-52, rose to 37.64 per cent in 1983-84. It needs to be pointed out that

the year 1983-84 is peculiar because during this year the exports of 'Other Mining' (Sector 3) were quite substantial. This sector includes 'Crude Petroleum' and exports of this commodity were being made only during this period because India was still developing its capacity in refining petroleum. By 1986-87, these exports were discontinued.

It can be observed from Table 3, that in the initial years of development, the share of Agricultural imports (Sector 1) was very high. In 1951-52 it accounted for 45.80 per cent of the total imports. Over the years, this share fell to 6.83 per cent in 1983-84.

Between 1951-52 and 1959, the importance of 'Chemicals and Petroleum' (Sector 9), 'Iron and Steel' (Sector 11) and 'Metallic Products and Machinery' (Sector 13) has increased manifold, as a result of the Second Plan priorities. These sectors have continued to be dominant till 1983-84. Over the years, it can be noted that 'Non-Metallic Minerals' (Sector 8) and 'Other Industries' (Sector 18) have also gained in importance. The sudden rise in the share of 'Other Mining' (Sector 3) to 18.62 per cent in 1973-74, is a result of the well known rise in the price of crude petroleum in 1973.

TABLE 2. INDIA'S EXPORTS

(Rs lakh, at current prices)

Sector	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. Agriculture	10,414 (16.14)	20,770 (38.99)	21,887 (17.22)	29,773 (13.12)	55,234 (9.60)	128,469 (11.66)
2. Coke and Coal	508 (0.78)	240 (0.45)	145 (0.11)	154 (0.06)	284 (0.04)	116 (0.01)
3. Other Mining	3,228 (5.00)	2,180 (4.00)	2,454 (1.93)	5,306 (2.33)	11,750 (2.04)	137,087 (12.44)
4. Food, Drink, and Beverages	10,873 (16.86)	1,770 (3.32)	17,336 (13.64)	48,530 (21.38)	86,565 (15.04)	100,686 (9.13)
5. Textiles	34,066 (52.83)	16,830 (31.69)	31,015 (24.4)	54,599 (24.05)	105,466 (18.33)	156,301 (14.18)
6. Paper and Printing	92 (0.14)	60 (0.11)	515 (0.44)	744 (0.32)	5,532 (0.96)	9,633 (0.87)
7. Leather and Rubber	1,790 (2.77)	2,780 (5.21)	7,031 (5.55)	15,566 (6.85)	33,962 (5.90)	47,128 (4.27)
8. Non-metallic Minerals	68 (0.11)	390 (0.73)	602 (0.47)	2,616 (1.15)	69,921 (12.15)	118,226 (10.72)
9. Chemicals and Petroleum	870 (1.34)	540 (1.00)	4,047 (3.18)	8,796 (3.87)	20,882 (3.63)	79,135 (7.18)
10. Cement	50 (0)	0 (0)	178 (0.14)	194 (0.08)	140 (0.02)	76 (0.01)
11. Iron and Steel	79 (0.12)	450 (0.84)	7,102 (5.58)	5,362 (2.36)	25,597 (4.27)	8,916 (0.80)
12. Non-ferrous Metals	97 (0.15)	10 (0)	1,028 (0.80)	1,357 (0.59)	9,974 (1.73)	2,100 (0.19)
13. Metallic Products and Machinery	248 (0.38)	290 (0.54)	5,278 (4.15)	12,847 (5.66)	60,943 (10.59)	96,595 (8.76)
14. Construction	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
15. Electricity	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	289 (0.02)
16. Railway Transport	986 (1.52)	3,580 (6.7)	3,680 (2.89)	5,500 (2.42)	10,501 (1.82)	16,784 (1.52)
17. Other Transport	797 (1.23)	2,410 (4.25)	14,323 (11.27)	21,315 (9.39)	44,447 (7.72)	88,508 (8.03)
18. Other Industries	324 (0.50)	970 (1.82)	10,443 (8.21)	14,297 (6.29)	35,018 (6.08)	111,706 (10.13)
Total	64,487 (100)	53,270 (100)	127,064 (100)	226,961 (100)	575,225 (100)	1,101,755 (100)

Figures in brackets indicate the share in total exports.

3.4 Direct Linkages of Foreign Trade

With this background, we are in a position to examine the direct linkages of foreign trade,

which have been presented in Table 4. The linkages at absolute levels, have been given (i) percentage share in total output, and (ii) percentage share in exports/imports.

TABLE 3. INDIA'S IMPORTS

(Rs lakh, at current prices)

Sector	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. Agriculture	39,226 (45.80)	22,470 (24.55)	44,346 (23.85)	60,177 (20.39)	29,927 (4.13)	117,231 (6.83)
2. Coke and Coal	52 (0.06)	0 (0)	5 (0)	0 (0)	848 (0.11)	2,953 (0.17)
3. Other Mining	7,770 (9.07)	3,740 (4.08)	12,388 (6.66)	54,952 (18.62)	138,326 (19.09)	386,271 (22.50)
4. Food, Drink, and Beverages	3,867 (4.51)	660 (0.72)	2,834 (1.52)	10,848 (3.67)	62,158 (8.57)	80,128 (4.66)
5. Textiles	4,699 (5.48)	1,830 (2.00)	2,665 (1.43)	952 (0.32)	6,260 (0.86)	20,007 (1.16)
6. Paper and Printing	1,828 (2.13)	1,660 (1.81)	3,138 (1.68)	3,604 (1.22)	22,340 (3.08)	43,580 (2.53)
7. Leather and Rubber	245 (0.28)	160 (0.17)	1,613 (0.86)	633 (0.21)	1,749 (0.24)	5,923 (0.34)
8. Non-metallic Minerals	671 (0.78)	1,350 (1.47)	537 (0.28)	1,414 (0.48)	49,131 (6.78)	116,626 (6.79)
9. Chemicals and Petroleum	6,545 (7.64)	16,730 (18.28)	30,065 (16.17)	52,348 (17.74)	149,872 (20.68)	300,747 (17.52)
10. Cement	48 (0.05)	0 (0)	11 (0)	0 (0)	6,890 (0.95)	10,456 (0.60)
11. Iron and Steel	2,226 (2.59)	8,530 (9.32)	7,972 (4.28)	25,453 (8.62)	50,030 (6.90)	120,298 (7.01)
12. Non-ferrous Metals	2,091 (2.44)	4,100 (4.48)	8,903 (4.78)	14,167 (4.80)	27,434 (3.78)	43,734 (2.54)
13. Metallic Products and Machinery	15,936 (18.60)	29,560 (32.30)	46,892 (25.22)	55,611 (18.85)	111,718 (15.41)	318,020 (18.53)
14. Construction	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
15. Electricity	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
16. Railway Transport	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
17. Other Transport	0 (0)	0 (0)	6,500 (3.49)	8,700 (2.94)	23,860 (3.29)	75,940 (4.42)
18. Other Industries	436 (0.50)	710 (0.77)	18,026 (9.69)	6,145 (2.08)	44,003 (6.07)	74,156 (4.32)
Total	85,640 (100)	91,500 (100)	185,895 (100)	295,004 (100)	724,546 (100)	1,716,070 (100)

Figures in brackets indicate the share in total imports.

The first share would capture the effects of linkages on the production levels over the period of time. The second share would give us the linkages of trade independent of scale. It would tell us the linkages generated per Rs 100 of exports/imports.

(a). *Linkages as percentage share in total output:* It can be observed from Table 4, (first bracket) that the share of FL of exports in the total output has remained almost the same until 1973-74 (i.e., around 1.1 per cent). There has been a rise to 2.03 per cent in 1978-79. In 1983-84, the share had become 2.28 per cent. On the other hand, the share of BL of exports in the total output

was high in 1951-52, viz., 2.31 per cent. It has fallen since then, and continued to be low at 1.59 per cent in 1983-84. While the fall between 1951-52 and 1959 can be attributed to falling exports even in absolute terms, the phenomenon seems to have continued even in the later years.

The share of FL of imports in the total output appears to have been high throughout and has increased over the period. In 1951-52, this share was 3.41 per cent which had increased to 5.37 per cent by 1978-79. The BL of imports as a share of total output was 2.25 per cent in 1951-52. This share fell to 1.50 per cent by 1973-74 but rose to 2.64 per cent in 1983-84.

(b). *Linkages as percentage share in exports/imports*: This index would give us the linkages independent of scale and, hence, enable us to examine the structure of foreign trade. The structure of trade can be arrived at using the Chenery - Watanabe [1958] classification. The second bracket in Table 4 gives the linkages generated by Rs 100 worth of exports/ imports.

TABLE 4. DIRECT LINKAGES OF FOREIGN TRADE

(Rs lakh, at current prices)

Linkages	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
1. FL of exports with T-mat	13,992 (1.21) (21.69)	19,277 (1.15) (36.18)	43,474 (1.05) (34.21)	83,965 (1.15) (36.99)	258,412 (2.03) (49.92)	612,268 (2.28) (55.57)
2. BL of exports with D-mat	26,594 (2.31) (41.24)	19,238 (1.15) (36.11)	51,252 (1.24) (40.38)	103,174 (1.41) (45.45)	243,755 (1.91) (42.37)	427,609 (1.59) (38.81)
3. FL of imports with T-mat	39,261 (3.41) (45.84)	51,401 (3.08) (56.19)	99,234 (2.40) (53.38)	279,171 (3.83) (94.63)	681,917 (5.37) (94.11)	1,386,596 (5.17) (80.80)
4. BL of imports with T-mat	25,965 (2.25) (30.31)	30,744 (1.84) (33.60)	73,262 (1.77) (39.41)	109,622 (1.50) (37.15)	308,018 (2.42) (42.51)	707,370 (2.64) (41.22)

D-mat = Domestic Transactions Matrix

T-mat = Transactions Matrix

Figures in the first brackets show the linkages as percentage of total output

Figures in the second brackets show the linkages as percentage of exports/imports.

It can be noted that the FL of exports have more than doubled for the period considered. Thus in 1951-52, the FL of exports were Rs 21.69 for Rs 100 of exports and this increased to Rs 55.57 in 1983-84. The BL of exports when made independent of scale have also risen from Rs 41.24 in 1951-52 to Rs 42.37 in 1978-79, only to fall to Rs 38.80 in 1983-84. According to the Chenery-Watanabe classification [1958], it can be claimed that the exports are becoming more of 'intermediate' type, because the FL have increased. On the other hand, because the BL have remained within a small band, we cannot, on the basis of linkages, claim that the exports have shifted from 'primary' goods to 'manufactured' goods. But, an examination of the pattern of India's exports made in Table 2 and section 3.3, reveals that such a shift has indeed occurred. An increase in the share of manufactured goods in the total exports should have led to higher backward linkages per Rs 100 of exports. This contradiction can be resolved by stating that a part of backward linkages of the manufactured exports are in fact the import linkages arising out of imported inputs. Another study by the author shows that the import intensity of exports has almost doubled over the period considered [Sathe, 1995]. A part of the

potential backward linkages which the exports are generating are the 'leakages' in the system. Thus, an increase in the manufactured exports need not necessarily lead to a consequent rise in the domestic backward linkages of exports (which has growth implications for the economy). When the linkages of imports independent of scale are observed, we find that there has been a remarkable increase in the forward linkages of imports, which makes imports more of the 'intermediate' type. However, between 1978-79 to 1983-84, there has been a substantial fall in FL of imports as percentage of imports. This points towards imports becoming more of the 'final demand' type. The BL of imports have also increased making the imports more of the 'manufactured' type.

3.5 Impact of Foreign Trade

(a). *Stimulus of Foreign Trade*: The stimulus of foreign trade is the sum of 'gain in production' given by BL of exports and FL of imports. In Table 5 (A), we have put forth the same. It can be seen that in 1951-52, the stimulus of foreign trade as percentage of the total output was 5.72 per cent, it decreased to 3.64 per cent in 1968-69 and reached its highest level in 1978-79 at 7.28 per

cent. However, since then it has fallen to 6.76 per cent in 1983-84. As has been mentioned above, these linkages are a combined effect of the linkage coefficients and the absolute values and patterns of exports and imports. Thus, it can be observed that as the share of foreign trade in total output has fallen from 1951-52 onwards, the share of stimulus in total output has also fallen until 1968-69. However, in 1973-74, the share of foreign trade fell further to 7.17 per cent from 7.59 per cent in 1968-69 (Table 1); but the stimulus as share of total output rose to 5.24 per cent from 3.64 per cent for the same period. As can be seen from Table 4, this was a result of substantial increase in the FL of imports as percentage of total output (first bracket), while BL of exports also increased slightly. Between 1973-74 to 1978-79, the share of foreign trade in total output increased

and the BL of exports and the FL of imports also rose, giving the highest stimulus for the period under consideration. However, between 1978-79 to 1983-84, though the share of foreign trade in total output rose, the stimulus fell to 6.76 per cent. Looking at Table 4, it can be seen that the BL of exports and FL of imports as percentage of total output, both fell in this period. It shows that the exports and imports became less effective in generating output in the early eighties, in spite of increase in the share of foreign trade in the total output. The reason for this seems to be that exports generated less of domestic backward linkages, though they became more of the 'manufactured' type (due to import linkages) and the imports became more of the 'final demand' type in 1983-84.

TABLE 5(A). IMPACT OF FOREIGN TRADE

(Stimulus as percentage of total output)

Year	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
Stimulus to total output	5.72	4.23	3.64	5.24	7.28	6.76

TABLE 5(B). IMPACT OF FOREIGN TRADE

(Net Stimulus as percentage of total output)

Net Stimulus	Year					
	1951-52	1959	1968-69	1973-74	1978-79	1983-84
A. Overall Net Stimulus	2.25	1.23	0.81	2.59	2.83	1.84
B. Net Stimulus of exports	1.09	-0.002	0.18	0.26	-0.12	-0.69
Net Stimulus imports	1.15	1.23	0.63	2.32	2.95	2.53
C. Net Stimulus of BL	0.05	-0.68	-0.53	-0.08	-0.51	-1.05
Net Stimulus of FL	2.19	1.92	1.35	2.68	3.34	2.89

(b). *Net Stimulus of Foreign Trade*: The next step is to examine the net stimulus of foreign trade. The results have been presented in Table 5 (B). The Overall Net Stimulus captures the net effect of the backward and forward linkages of exports and imports. This, as a share of total output, has passed through a downward cycle until 1978-79. That is to say, in 1951-52 the net output generated from trade as percentage of the total output, was high at 2.25 per cent. Then it fell by almost half to 1.23 per cent in 1959. This fall continued until 1968-69, when the Overall Net Stimulus plummeted down to 0.81 per cent. After that it started rising and reached 2.83 per cent in

1978-79. It is intriguing to note that it again fell to 1.84 per cent in 1983-84, though the share of foreign trade in the total output had increased slightly from 10.23 per cent in 1978-79 to 10.52 per cent in 1983-84 (Table 1).

The Net Stimulus of exports/imports shows that it is via the imports that the economy has made increments in its output than via the exports. Thus, the Net Stimulus of exports which was 1.09 per cent of total output in 1951-52, has fallen since then and continues to be negative (or a very small positive figure) for most of the period considered. It implies that for these years the BL of exports was less than FL of exports. It is an important

observation because, if the exports are not stimulating the economy as much as they are depriving it, such a pattern of exports should be viewed with concern. This pattern has negative implications for a scarcity-ridden economy like India. This result is the consequence of exports becoming more of the manufactured type, but not leading to corresponding rise in the backward linkages, and also becoming more of the intermediate type with high forward linkages. On the other hand, the Net Stimulus of imports was 1.15 per cent of the total output in 1951-52 and it has almost doubled to 2.53 per cent in 1983-84. This is a consequence of an increase in the forward linkages of imports while the backward linkages remaining in the same band.

The Net Stimulus of BL (FL) captures the net effect of the backward (forward) linkages of exports and imports. The results show that, as far as the BL is concerned, the economy has, in fact, made a loss. It is via the Net Stimulus of FL that the economy has made substantial gain. Thus FL have played a more fruitful role than the BL.

IV Conclusions

From the above analysis, we reach the following conclusions:

1. The period considered is fairly large (i.e., 32 years) and many important shifts have occurred in the domestic as well as international policies of the Indian economy. While the period between the early fifties and mid-seventies can be taken as 'inward-looking' period when import substitution policies were vigorously followed, the remaining phase is characterised by a slow movement towards liberalisation. However, there does not seem to exist any causality between the 'outward-orientation' of the economy and the advantage from trade (defined as Stimulus and Net Stimulus) in the sense of a more liberalised regime leading to higher advantages and vice versa. Thus, the Overall Net Stimulus as percentage of the total output is less for 1983-84 than for 1951-52, 1973-74 and 1978-79, though the former enjoyed a more liberalised regime.

2. The advantage from trade seems to be positively though loosely related to the share of foreign trade in the total output. Thus, as the share of foreign trade fell after 1951-52, the advantage also fell till 1968-69. In 1973-74, the advantage rose, though there was a slight fall in the share of foreign trade in the total output (i.e., from 7.59 per cent in 1968-69 to 7.17 per cent in 1973-74). In the next period, both the advantage and the share of foreign trade rose, though in the last period (i.e., 1978-79 to 1983-84) an inverse relationship can be observed.

3. The advantage from trade seems to be related to the kind of exports and imports being made. Thus, advantage is higher if less of the final demand imports are made and more of intermediates are imported.

In case of exports the situation is more complex. Prima facie, it would seem that the higher exports of manufactured goods would lead to higher output generated through the backward linkages of exports. Thus, advantage is higher if more of manufactured goods are exported as against less of primary goods. However, though the composition of exports seems to have shifted in favour of manufactured goods, this does not get reflected in the backward linkages generated by the exports. This is because the domestic backward linkages which have been considered, have fallen over the period. The export of manufactured goods has led to an increase in the import intensity of exports, as has been shown by the author elsewhere [Sathe, 1995]. In such a situation, an increase in the value of exports would have the implication of making foreign exchange available which, in turn, would make imports possible. These imports, in turn, would lead to an increase in output in the other sectors, though the backward linkages of exports have themselves fallen for the period considered. Thus, the growth effect of the backward linkages of exports has been much lower than what is apparent from the export data.

NOTES

1. A matrix is defined as the technological coefficient matrix capturing the BL and the B matrix is the allocation matrix, capturing the FL.

2. This sector consists of 1. wood product including furniture, 2. furniture and fixture, 3. non-metallic minerals. The third item includes pearls, precious and semi-precious stones.

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