Trade Effects of Regional Co-operation: The Case of ASEAN

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INTRODUCTION

Much interest has recently been shown in the effects of regional trade co-operation among developing countries on their trading patterns. This interest stems from the potential for facilitating development in a group of developing countries through preferential arrangements and from the expectation of significant mutual trade gains. However, the experience of the implementation of discriminatory policies among the developing countries has, in general, not yielded significant gains in trade. An important exception is the Andean Pact, which provided an important stimulus to the regional movement in Latin America.

The ASEAN experience also seems to be quite successful if measured by the yard stick of the growth in intra-ASEAN trade — during the period from 1970 to 1984 intra-ASEAN trade expanded almost seventeenfold from 898.5 million US dollars to 15.3 billion US dollars at an annual compound rate of growth of 22.4 percent — which suggests that trading patterns may have responded well to discriminatory policies. Of even more significance for the long-run viability of the ASEAN integrative formation is the distribution of gains from trade participation among the co-operating countries. In this paper, an iterative statistical model is used to measure relative trade gains and losses arising from integration in terms of the rise (or fall) in a specific measure of trade intensity. Regional trade flows are adjusted by removing the trade-size effect so that the remaining differentials can be attributed to regional policies. The impact on trade patterns of the measures adopted to strengthen economic co-operation among ASEAN countries in the late Seventies and early Eighties has also been investigated.[1]

[1] During the period from 1976 to 1979, almost 4,000 product items had been approved for zero tariff rates or preferential margins. In the early Eighties; another 4,000 items were added to this list.

THE ITERATIVE TRADE-INTENSITY MODEL

In recent economic literature, predictive models have been used to analyse the effects of integration on trade. See, e.g., Savage and Deutsch [2] and Carney [1]. In such models, the emphasis is only on measuring the impact of discriminatory policies on changes in trading patterns rather than on measuring the welfare effects of such changes. An iterative model, on the other hand, can be used to quantify trade values for a hypothetical situation that would have prevailed in the absence of a regional (e.g. ASEAN) co-operation and to analyse the effect of discriminatory policies on the pattern of intra-regional trade. Thus, the combined static and dynamic effects of integration on trade are measured under the assumption that trade imbalances are met from the flow of regional resources. The main features of our iterative model are outlined below.

$T = [x_{ij}^t]$ is a $(n \times n)$ matrix of trade flows among n countries for the year t whose diagonal elements, x_{ij}, are assumed to be zero for $i=j$. The rows of the matrix represent the exports of the countries, so that $X = RT$, where R is a $(1 \times n)$ vector of unit elements.

From T a theoretical trade matrix $\hat{T} = [\hat{x}_{ij}^t]$ is derived in which every element of $\hat{T} = [\hat{x}_{ij}^t]$ represents the country i's tendency to export in proportion to the size of its trade on the assumptions that

1. trade among countries is the aggregation of consignments whose money values, denoted by $c_1, \ldots, c_m$, are statistically independent with finite mean C and variance σ_c^2, and

2. traded consignments c_i for $i = 1, \ldots, m$ are independent of P_{ij}, the probability that a consignment goes from country i to country j.

Then

$$P_{ij} = o \qquad \text{for } i = j$$
$$P_{ij} = SP_i Q_j \qquad \text{for } i \neq j \qquad \qquad \cdots \qquad \qquad \cdots \qquad (1)$$

where $S = (1 - \Sigma_k P_k Q_k)^{-1}$ is an adjustment factor for the diagonal elements such that $R\hat{T}R = 1$ and P_i and Q_j are the probabilities to import and export of the ith and jth countries.

The P_i and Q_j are obtained by solving the following two n-equations iteratively:

$$K_i = SP_i (1 - Q_i) \quad (i=1, \ldots \ldots \ldots, n)$$
$$\qquad \qquad \qquad \cdots \qquad \qquad \cdots \qquad (2)$$
$$1_i = SQ_i (1 - P_i) \quad (i=1, \ldots \ldots \ldots, n)$$

and $\underset{j}{\Sigma} P_j = 1, \underset{j}{\Sigma} Q_j = 1$

where $K_i = f(X_i)$ and $1_i = f(M_i)$.

When the vectors P and Q have been estimated, the elements of the matrix of expected trade flows T are derived as follows:

$$\hat{x}_{ij}^t = SP_i Q_j T \text{ for } i \neq j$$
$$\qquad \qquad \cdots \qquad \qquad \cdots \qquad (3)$$
$$\hat{x}_{ij}^t = 0 \text{ for } i=j$$

The matrix of trading intensity $N = [\delta_{ij}^t]$, $[\delta_{ij}^t = (x_{ij}^t/x_{ij} - 1)]^{-1}$ with $-1 \leqslant \delta_{ij}^t \leqslant \infty$, gives the relative deviations of the expected trade values from the observed ones, while $\Delta N = [\delta_{ij}^t - \delta_{ij}^o]$ indicates an intensification of trade when $(\delta_{ij}^t - \delta_{ij}^o) > 0$ and the opposite of it when $(\delta_{ij}^t - \delta_{ij}^o) < 0$.

GROWTH OF ASEAN TRADE

The ASEAN region experienced a significant trade expansion during the late Seventies and early Eighties. The years from 1970 to 1984 witnessed a compound rate of growth of almost 20 percent per annum in commodity trade among the ASEAN countries, which was slightly higher than the growth of the ASEAN trade with the rest of the world. As a result, by 1984 regional trade accounted for a little over 20 percent of the total, which was almost the same as in 1970 but represented a substantial gain when compared with its relative importance in the early Seventies.

Intra-regional trade has grown exceptionally fast since 1976, when a detailed programme of action for promoting economic co-operation was adopted by the ASEAN countries. The share of intra-regional trade in total trade grew from only 16.3 percent in 1976 to 17.5 percent in 1980 and 20.4 percent in 1984. The impetus to the growth of intra-regional trade during the Eighties, averaging 11.5 percent per annum as compared with the 8.1-percent trade with the rest of the world, was provided by the operation of relatively free trade regimes and additional measures to promote regional trade.

Among the ASEAN countries, the country which registered the highest annual growth rate (30.5 percent) of trade with other ASEAN countries during the 1970–84 period was the Philippines. In 1984, the trade of the Philippines with ASEAN countries was as much as 9.7 percent of that country's total world trade. An interesting aspect of this trade is the negative trade balance with all ASEAN countries, except with Singapore, which is the largest single regional trade partner of the Philippines (See Table 1).

Other ASEAN countries also attained impressive growth rates in their regional exports during the same period, even though the growth tempo was much slower during the years from 1979 to 1984. During the same period, the regional trade of Malaysia, Philippines and Singapore grew faster than their trade with the rest of the world, and in 1984 the regional trades of those countries accounted for 26.7 percent, 9.7 percent and 28.6 percent respectively of their total trades as compared with 20.1 percent, 4.1 percent and 22.2 percent respectively in 1979.

Table 1

Cumulative Export Trade Balance

Country	Years	Malaysia	Philippines	Singapore	Thailand
Indonesia	1970–1975	225.1	42.1	1130.4	−254.8
	1976–1979	49.0	449.7	2974.5	−560.3
	1980–1984	45.0	966.8	3857.2	−477.7
Malaysia	1970–1975		193.3	−232.0	−311.9
	1976–1979		205.7	1772.0	−352.5
	1980–1984		331.6	7126.0	271.1
Philippines	1970–1975			−72.0	−100.9
	1976–1979			13.7	−31.2
	1980–1984			117.0	−21.8
Singapore	1970–1975				−144.2
	1976–1979				228.1
	1980–1984				1935.6

By far, the greatest contribution to the ASEAN trade is provided by Singapore which receives an overwhelming proportion of the regional exports of the member countries. In 1984, Singapore absorbed 86 percent of the regional exports from Indonesia, 76 percent from Malaysia, 66 percent from the Philippines, and 59 percent from Thailand. Except with Thailand, Singapore has consistently had a negative trade balance with fellow ASEAN countries.

Changes in Trade-Intensity Coefficients

The matrix of the differences in relative deviations of the expected trade flows from the actual ones, ΔN, has been computed for three different periods and reported in Table 2. Each $(\delta_{ij}^{t1} - \delta_{ij}^{t2})$ indicates changes in intensification in the aggregate volume of trade. For the period 1970–84, the changes in relative trade intensities indicate overall gains or losses in aggregate intra-area trade arising from intergration; the ΔNs for the sub-periods 1976–1980 and 1979–84 represent shifts in relative trade intensities within the ASEAN area arising from the implementation of discriminatory policies during the late Seventies and early Eighties.

Table 2

Changes in Intra-ASEAN Gross-Trade Intensity

Exporting Countries	Importing Countries				
	Indonesia	Malaysia	Philippines	Singapore	Thailand
1984–1970					
Indonesia	0.00	2.59	0.03	0.06	−42.43
Malaysia	1.50	0.00	−0.48	0.09	−0.88
Philippines	3.96	−46.14	0.00	−2.21	2.96
Singapore	0.06	−0.01	−6.91	0.00	0.36
Thailand	−1.20	−0.33	0.47	0.15	0.00
1984–1979					
Indonesia	0.00	−0.59	−0.01	−0.02	−1.37
Malaysia	−2.02	0.00	−2.92	0.06	−0.17
Philippines	3.82	0.02	0.00	−1.01	2.96
Singapore	−0.35	0.05	1.09	0.00	0.13
Thailand	1.24	−0.05	−1.14	−0.28	0.00
1980–1976					
Indonesia	0.00	1.33	0.15	0.03	−11.38
Malaysia	−0.05	0.00	−0.06	0.04	0.14
Philippines	−0.44	−2.39	0.00	1.47	−0.14
Singapore	0.12	0.01	−1.44	0.00	−0.01
Thailand	−0.07	−0.14	0.75	−0.17	0.00

Two general observations can be made on the basis of the figures in Table 2. Firstly, in general the $\Delta\delta_{ij}s$ do not show that ASEAN trade has intensified significantly in the wake of discriminatory policies. In many cases, intensification of trade with one country has been accompanied by disintensification of trade with another ASEAN country. In other cases, changes in trading intensity are only minimal. Secondly, the two sub-periods from 1976 to 1980 and from 1979 to 1984 are characterized by contrasting changes in trading intensities resulting from the implementation of discriminatory policies.

Various factors can explain this pattern of changes in trade intensities. Firstly, the relative importance of intra-ASEAN trade has changed only slightly because of

the minimally faster growth as compared with the growth of the ASEAN trade with the rest of the world. ASEAN economies are still heavily dependent on industrialized countries which account for around 60 percent of the total ASEAN trade. Secondly, the bulk of intra-ASEAN trade consists of primary products and expansion of trade in manufactures is limited because of lack of industrial complementarity. Thirdly, with the exception of Singapore, ASEAN countries continue to follow restrictive trade policies in varying degrees. This has affected intra-regional trade directly and more seriously by creating distorted economic structures which include less efficient industries of the import-substitution type. Fourthly, ASEAN trade liberalization programmes have been ineffective as far as the regional orientation of trade is concerned. Lower margins of tariff preferences have been accepted for only around 8,000 products which have little trade content.[2] And, finally, the more or less random distribution of trade gains and losses, as evident from the values of the $\Delta\delta_{ij}$s in Table 2, reflects the concern of ASEAN countries regarding the problem of distributive gains. In fact, there is much delay in implementing intra-regional trade-liberalizing policies to ensure an equitable distribution of gains and losses.

Indonesia

The structure of intensity change in Indonesia's regional trade during the period from 1970 to 1984 shows that except with Thailand there was a marked intensification of trade with Malaysia and the Philippines and some improvement in both imports from and exports to Singapore. That exports intensified more than imports is reflected in the positive trade balance of Indonesia with these countries. In the case of Thailand the opposite is true. Exports 'disintensified' faster than imports during the period from 1970 to 1984 as well as during the two sub-periods, 1976–80 and 1979–84, resulting in a negative cumulative trade balance of Indonesia with Thailand. As compared with the early Seventies and, in some cases, the second half of the Seventies, the Eighties witnessed a 'disintensification' of Indonesian exports to ASEAN countries, while Indonesia's imports intensified sharply with the Philippines and Thailand, partly as a result of the easing of import restrictions.

Malaysia

With the exception of trade with Indonesia, Malaysia's regional trade from 1970 to 1984 was affected negatively by ASEAN discriminatory policies. Exports to Singapore intensified slightly, but because of the large share of Singapore in Malaysia's exports the effect of this intensification on the cumulative trade balance was substantial. The implementation of discriminatory policies during the late

Seventies improved the intensity of Malaysia's exports to Singapore and Thailand. On the other hand, exports to Indonesia and Philippines were negatively affected. The situation worsened during the Eighties. The $\Delta\delta_{ij}$s for Malaysia's exports include –2.02 for Indonesia, –2.92 for the Philippines and –0.17 for Thailand. However, import intensity was not much effected during this period.

The Philippines

During the period from 1970 to 1984 the intensity of the total trade of the Philippines with Indonesia and Thailand increased but it declined for trade with Singapore and Malaysia. Discriminatory policies during the late Seventies and early Eighties had a contrasting effect on the Philippines' bilateral trade with ASEAN countries. The $\Delta\delta_{ij}$s for its exports from 1976 to 1980 include –0.44 for Indonesia, –2.39 for Malaysia, 1.47 for Singapore and –0.14 for Thailand. On the other hand, the $\Delta\delta_{ij}$s for the period from 1979 to 1984 are 3.82 for Indonesia, 0.02 for Malaysia, –1.01 for Singapore and 2.96 for Thailand.

Singapore

Among ASEAN countries, Singapore has the largest share in intra-regional trade. The relative importance of this trade to Singapore remained the same in 1984 and 1970 even though the relative importance of its partners has changed. The implementation of discriminatory policies during the subperiods 1976 – 1980 and 1979 – 1984 has had opposite effects on its pattern of trade. The $\Delta\delta_{ij}$s for the subperiod 1976–80 include 0.12 for Indonesia, 0.01 for Malaysia, –1.44 for the Philippines and –0.01 for Thailand. For the subperiod from 1979 to 1984 the signs are reversed in three cases, and in the case of the Philippines import intensities were not affected much.

Thailand

The effect of ASEAN integration on Thailand's regional trade from 1970 to 1984 has been to intensify its bilateral trade with the Philippines and Singapore while trade with Indonesia and Malaysia has been negatively affected. Thailand's trade behaviour with respect to other ASEAN countries has been significantly different during the two sub-periods from 1976 to 1980 and from 1979 to 1984, as is evident from the values of $\Delta\delta_{ij}$s given in Table 2. The $\Delta\delta_{ij}$s for Thailand's exports in the latter period include 1.24 for Indonesia, –0.05 for Malaysia, –1.14 for the Philippines, and –0.28 for Singapore, while for the subperiod 1976–1980 they are –0.07 for Indonesia, –0.14 for Malaysia, 0.75 for the Philippines, and –0.17 for Singapore. Changes in import intensity are also significantly different for the two periods.

[2] Since tariff reductions are negotiated at the Seven-digit level of commodity disaggregation, a very large number of articles on the preferential trading arrangements list are extremely refined and have little trade content.

CONCLUSIONS

The impact of co-operation policies on ASEAN trading patterns has been evaluated for the period from 1970 to 1984. The effect of discriminatory policies followed in the subperiods from 1976 to 1980 and from 1979 to 1984 was also examined to provide some insight into the relative effectiveness of these policies.

While there is no evidence that intra-area trade has intensified for the ASEAN region as a whole during the 1970–1984 period, regional trading patterns have been altered in varying degrees because of discriminatory policies.

The ineffectiveness of discriminatory policies in promoting intra-regional trade reflects the strength of institutional biases and structural problems impeding the growth of intra-ASEAN trade. It is possible that the restrictive trade strategies followed by member countries and the heavy trade and economic dependence on the industrialized countries also contributed to the ineffectiveness of discriminatory policies.

Progress in intra-regional trade liberalization has been extremely slow due to the overwhelming concern of the member countries for ensuring an equitable distribution of benefits and costs of any liberalization scheme before its implementation. The values of the $\Delta\delta_{ij}$s are evidence that no member country has unduly benefited from the preferential schemes. However, so far trade liberalization has affected only a small percentage of total intra-regional trade. More efforts are required to extend the preferential trading arrangements so as to significantly intensify intra-ASEAN trade.

REFERENCES

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Comments on "Trade Effects of Regional Co-operation: The Case of ASEAN"

The fact that many less developed countries are making efforts for the promotion of regional trade on preferential basis, similar to EEC and ASEAN, underscores the importance of such co-operation and of the analysis presented in this paper. Utilizing a statistical model, the paper attempts to measure the change in trade volume arising from integration and preferential tariff policies among ASEAN countries. The model should preferably have been provided with a theoretical basis. I do not have anything to say on the methodology or the validity of the model as such, because its application does offer some useful information. There are, however, some suggestions which may prove to be worth while.

The findings of the paper are as follows.

(i)   There is no evidence that intra-area trade has intensified for the ASEAN region as a whole, or that regional trading patterns had been altered; and

(ii)   Discriminatory policies have been ineffective in promoting intra-regional trade.

The essence of promoting regional trade rests on the perception that it will benefit the member countries. However, as shown in the literature on customs unions, this depends on whether, as a result of preferential tariff policies, increase in trade volume of the member countries is due to trade creation or to trade diversion. Thus, simply showing that preferential tariff policies increase trade volume does not necessarily imply that they are conducive to the promotion of welfare. Although an analysis of welfare aspects of preferential policies is not the objective of this paper, it would have been interesting if the authors had gone a step further to show trade-creation and trade-diversion effects. The authors conclude in the paper that, owing to preferential policies, increase in intra-regional trade is negligible, thus suggesting that promoting regional trade on preferential basis is not all that beneficial. If the small increase in trade volume was due purely to trade creation, then, given the fact that trade-liberalization policies among the member countries have affected only a small percentage of total intra-regional trade, further liberalization and, hence, promotion of regional trade is beneficial.

The authors have used aggregate data in their analysis which conceal a considerable amount of important information. An important aspect of promoting regional

trade is that it should conform with the comparative advantage of the country concerned, which is reflected in the trading pattern. Applying the model used in this paper to disaggregated data, it would be easy and interesting to see whether the change in the trade volume of different goods among ASEAN countries due to preferential policies conforms with the comparative advantage of the country concerned.

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