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UNION IN THE INDIAN SUB-CONTINENT.

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STATIC EFFECTS OF A HYPOTHETICAL CUSTOMS UNION
IN THE INDIAN SUB-CONTINENT

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT
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DOCTOR OF PHILOSOPHY

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By

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ABSTRACT

This dissertation seeks to apply the theory of customs union to five countries in the Indian sub-continent, namely, Bangladesh, India, Nepal, Pakistan and Srilanka and to measure ex-ante the static effects of such a customs union. The static effects include trade creation, trade diversion and export effects. Net welfare effects for each country in the union and for the union as a whole are calculated.

The study is based on a partial equilibrium approach. Further, two assumptions have been made: (1) The supply elasticities of exports of each member country to other members and to the rest of the world, and those of the rest of the world to the members of the union are infinite; and (2) there is a one-stroke abolition of barriers to trade between the member countries once the customs union is formed.

The methodology utilized is the ordinary least squares single equation regression analysis for estimating pre-union elasticities of import demand of each country with respect to imports from each of the other prospective member countries and the rest of the world. Imports are disaggregated into nine Sections as per Standard International Trade Classification. The pre-union tariff rates are the average implicit tariff rates for each of the nine SITC Sections which reflect the degree of protection due to both tariff and non-tariff barriers. The weights used for averaging purposes are the value added at international prices.

Four different common external tariff structures are considered. Alternative I is the simple arithmetic mean of the pre-union tariff rates

for each SITC Section; Alternative II is the highest pre-union tariff rate prevailing for each section in the region; Alternative III is the lowest pre-union rate, and Alternative IV is the simple average of these two rates for each section.

The base year for calculating the static effects is 1969, which is considered to be free from any abnormalities in the region. However, as there was no trade in 1969 between India and the two wings of former Pakistan, quantum of trade for nine different SITC Sections have been extrapolated from the trend equations fitted for the period 1960-1965 during which there was a substantial volume of trade between these countries.

Ex-ante measurements show that the welfare gains are positive for the union as well as for each of the member countries only when the common external tariff structure, Alternative III, is adopted. Under Alternative II, both the union and each member country experience maximum welfare loss, the worst hit member country being Srilanka, followed by Nepal, India, Pakistan and Bangladesh. Under Alternative I, the union again as a whole, suffers welfare loss; India, Nepal and Srilanka are the three member countries which do not benefit from the union whereas Pakistan and Bangladesh emerge as gainers. Under Alternative IV again there is a welfare loss for the union as well as for three member countries, namely, India, Nepal and Srilanka, but Pakistan and Bangladesh are benefitted by the union.

The above results may be attributed to the following factors: (1) relatively low volume of pre-union intra-regional trade compared to the

volume of trade with the rest of the world for each member country; (2) relatively high elasticities of demand for imports of the rest of the world; and (3) relatively high pre-union tariff rates in the region.

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CHAPTER I

Theory of Customs Union and the Less Developed Countries

Introduction

Protectionist policies pursued by the less developed countries as balance of payments adjustment tools and as industrialization measures have often been found detrimental to economic development. These policies have led to misallocation of resources and various domestic distortions. Overvaluation of domestic currency through protectionist measures has also hurt the development of exports, leading to the further worsening of balance of payments. A second round of restrictionist policies and further rounds have often become necessary.¹ In addition to these distortions, domestic policies such as low cost credit to import substituting manufacturing sector and public utility pricing measures have also created economic inefficiencies driving a wedge between the private and social profitability of particular products and production techniques.²

A realization of these shortcomings of a protectionist regime has led in some cases to adoption of various policy reforms. These reforms came to be adopted in some of those small countries which found their domestic markets insufficient for their import substitution industries. Export subsidies provided to their manufactured products reduced the protective effects of tariffs. Similarly, reforms in the area of credit and capital markets have contributed to the reduction in distortions.³

Though ideally free trade would assure for any country an optimum level of welfare in the long run, a less developed country faces certain difficulties in the immediate short run. A switch from protectionist

policies to a free trade situation might require a substantial degree of devaluation to reach the same initial level of balance of payments equilibrium. Normally as a seller in the world market it may be specializing in a very few commodities with limited external demand which may dominate its total exports whereas as a buyer it may be importing a substantial number of items. In such a situation it is very difficult to escape the adverse effects of unfavorable movement in terms of trade against the country. To meet these adverse effects appropriate export taxes may be called for as part of an optimal policy. Added to this, there is no assurance of any reciprocal measure of removal or reduction in restrictive measures against trade such as tariff and quantitative controls on the part of more developed countries to facilitate free entry of the country's exports. In such an uncertain world, few less developed countries would venture alone into a free trade position. Rather most would find it preferable to join a preferential trading arrangement such as a customs union which assures free trade among member countries but with a commonly agreed and rationalized external tariff against third countries. This second best arrangement may not assure a movement towards a global optimum situation but at least provides an opportunity to remove some distortions in regional trade, though it may introduce some new ones, and promote better allocation of resources on a regional level. This may also offer an opportunity for better bargaining power to the countries in the grouping to seek outlets for their exports by way of reductions in restrictions on the part of more developed countries.

Interest in such preferential trading arrangements for less developed countries is evidenced in the growing literature on the subject as well

as in ex-ante and ex-post empirical studies.⁴ The empirical evidence relating to static effects has not been encouraging in that the immediate effects are more trade diverting than trade creating and hence welfare decreasing. Therefore, the stress has been on the future dynamic effects which are said to be beneficial for the world as a whole.⁵ Being aware of these quantitative measurements elsewhere, this research study has been undertaken in regard to a sub-region in Asia, namely the Indian sub-continent. Regions and sub-regions in the world differ from each other and it is, therefore, hoped that an addition to empirical evidence on the subject would not merely be a repetitive effort but a useful supplement to existing knowledge.

The present chapter seeks to examine the theoretical aspects of a customs union and its applicability to the less developed countries.

The Theory of Customs Union

Lipsey defined the theory of customs union as "that branch of tariff theory which deals with the effects of geographically discriminatory changes in trade barriers."⁶ It consists of the abolition of all restrictions on the movements of goods between the member countries and adoption of a common tariff against third countries.

Though a customs union represents a step towards universal free trade, it does not necessarily increase aggregate welfare by bringing the world closer to the best solution. This was Viner's major contribution to customs union theory and he thereby demonstrated one of the best paradoxes in the theory of the second best.⁷ As long as all conditions for an optimum solution are not fulfilled, a change that increases the number of conditions fulfilled does not necessarily increase welfare.⁸

Viner demonstrated that the effects of a customs union have two components, one welfare increasing and one welfare decreasing. However, Viner concentrated on production effects only and ignored changes in consumption. A union will ordinarily shift the national locus of production of some commodities. If it shifts the production from a higher-cost source to a lower-cost source, it creates trade and moves toward the free position. If the shift is from a lower-cost to a higher-cost source, it diverts trade and moves away from the free trade position. Such shifts in production constitute the allocation effects of a customs union.

If changes in consumption are taken into account, however, there may be some economic gain. The discriminatory tariff change accompanying a customs union would alter relative prices and lead to changes in consumption patterns. If the demand for products is not completely price inelastic, the formation of a union would change consumption and would thereby affect welfare. Efficiency in consumption is just as relevant for welfare as efficiency in production. The formation of a union will have positive and negative consumption effects similar to positive and negative production effects.

Lipsey in formalizing Viner's model showed that it implicitly assumed fixity of consumption pattern irrespective of relative prices. Lipsey provided a better classification of the effects of customs union by dividing them into inter-country substitution and inter-commodity substitution. "Inter-country substitution consists of Viner's trade creation and trade diversion, whereby the locus of production shifts. Inter-commodity substitution consists of the substitution of one commodity for another because of a shift in relative prices. Either substitution normally leads to changes in patterns of both production and consumption."⁹

General Equilibrium Analysis

An analysis of the effects of customs union in a general equilibrium setting is attempted in this section. The discussion relies heavily on the contributions of Lipsey,¹⁰ Bhagwati¹¹ and Batra.¹²

Figure 1 is a model that Lipsey used to demonstrate that trade diversion lowers welfare given the assumption that two goods are consumed in a fixed proportion. Country A produces OA units of commodity Y, the only commodity it produces. Country A exchanges commodity Y for commodity X which is obtained from the lowest-cost producer C. The slope of the line AC is the terms of trade line at which C would exchange X for Y. E is the point at which A maximizes welfare by consuming EF of X and OF of Y through exchanging FA of Y for EF of X.

If country A levies a tariff on imports from C and even if domestic terms of trade changes, the equilibrium point E would remain the same if we assume that the terms of trade line are given so that AC remains unaltered and that the consumers consume X and Y in the same proportion given by the line OD and that the government redistributes the tariff revenue to the consumers.

If a customs union is formed by A with B, a country which is a more expensive producer of X, the new terms of trade line at which Y will be exchanged for X by country C is AB. Though B is a less efficient producer of X, imports from B enter A duty-free while imports from C have to bear the tariff. Assuming that A would continue to consume both goods in the same proportion as indicated by OD as before, the new equilibrium point would be at G, which lies below E. Therefore, it is clear under the assumption of consumption in a fixed pattern, trade diversion reduces

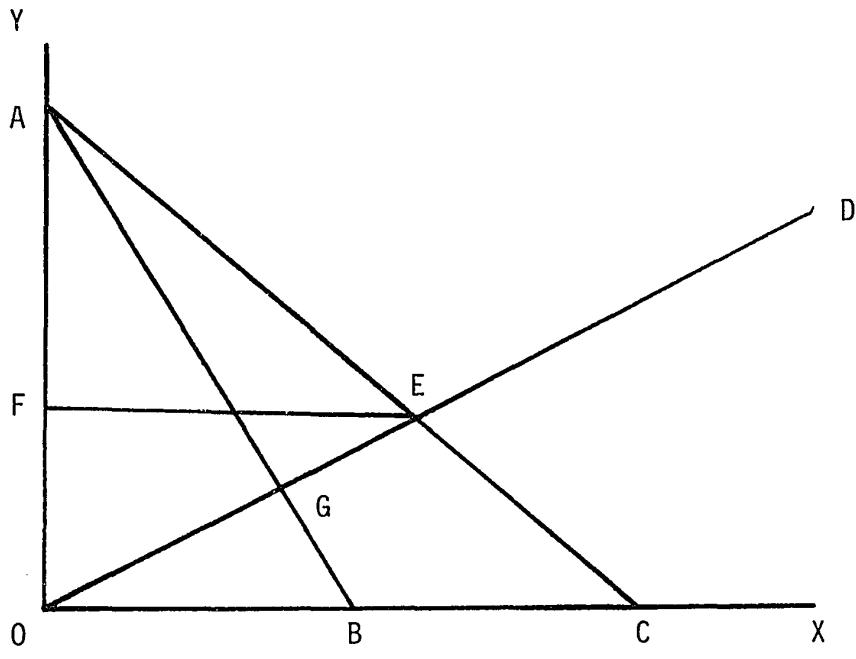


Figure 1

Customs Union With Fixed Pattern of Consumption

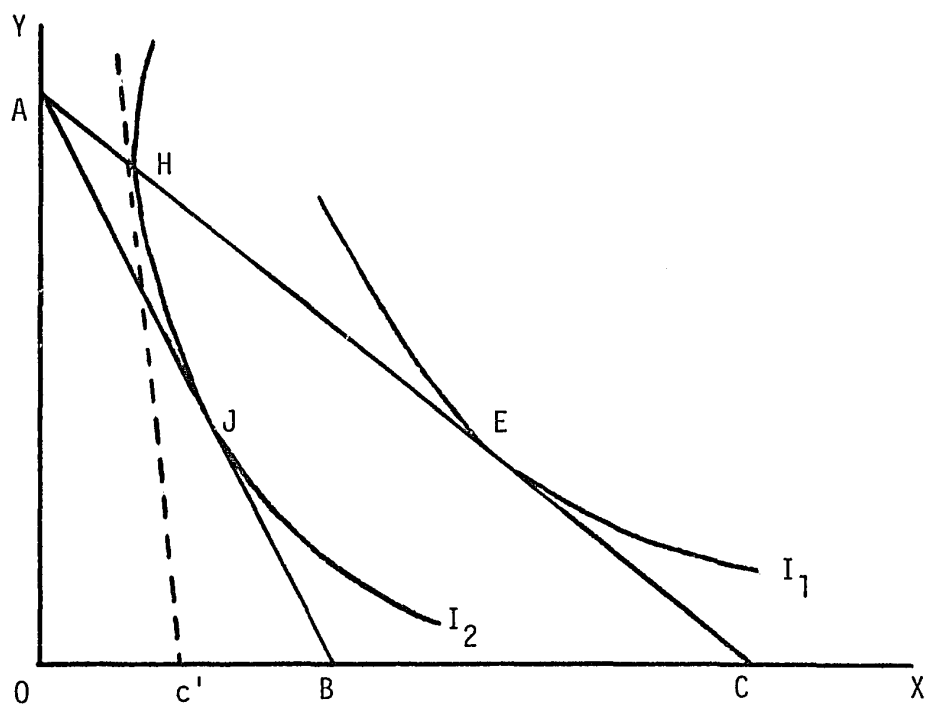


Figure 2

consumption in A and lowers its real income. By contrast trade creation would shift the equilibrium outward on OD and increase real income.

If the pattern of consumption changes in response to a change in the price ratio, trade diversion does not necessarily reduce welfare. This is shown in Figure 2 adopted from Lipsey. Let OA again represent country A's production of Y, the only good it produces. The line AC indicates the terms of trade line at which it exchanges Y for X from country C, the lowest cost producer. A tariff on X would change the marginal rate of substitution between Y and X facing domestic consumers in A and due to change in price ratio, the consumption pattern alters. The new equilibrium would shift from E to H and it would still be on the same line AC as before under the assumption that country A is small and hence is unable to alter foreign rate of transformation between Y and X. Tariff on X from C has clearly lowered welfare as the indifference I_2 lies below I_1 . If country A forms a customs union with B whose terms of trade line is AB which is more expensive than AC. It is clearly a trade diverting customs union but despite the fact, there is a change in the domestic price ratio of Y and X as the goods now enter duty free. Consumers respond to change in price ratio and alter their consumption pattern. They substitute more of X for Y. The favorable consumption effect thus just compensates for the unfavorable effect of trade diversion that is manifest in the worsened terms of trade. Trade diversion would reduce A's welfare only if its terms of trade with B was worse than AB.

If the new terms of trade line is better than AB and lies between AC and AB, the customs union though still trade diverting would increase net welfare since the new indifference curve would be higher to the former

I_2 . Hence the beneficial consumption effects would outweigh the detrimental production effects.

The above analysis adopted from Lipsey shows that there is a complete specialization by country A in Y and there is no change in production pattern.

Bhagwati in his analysis relaxed the above assumption and showed that even under the assumption of fixed proportion of consumption of goods in country A, a trade diverting union would not necessarily reduce welfare if the production pattern responds to changes in rate of foreign transformation.

In Figure 3, a two-goods-and-three-country-case is shown. Country A produces both Y and X. The horizontal axis indicates units of X and vertical axis units of Y. HH' indicates the production possibility frontier of country A. The terms of trade line of C at which A can import X for Y free of tariff is denoted by line FP which passes through point P on the production possibility frontier. It is assumed that country A is small and cannot affect the foreign rate of transformation even if it imposes a tariff on imports from C. The tariff introduces distortion as reflected in the domestic terms of trade signified by D_p . The consumer in A would be at equilibrium if the domestic rate of substitution is equal to the domestic rate of transformation. As trade with C still continues, the point of equilibrium is reached at E where OR, the ray from O signifying fixed proportion of consumption is cut by the foreign rate of transformation FP. However, the social indifference curve is tangential to the domestic rate of substitution equivalent to domestic rate of transformation.

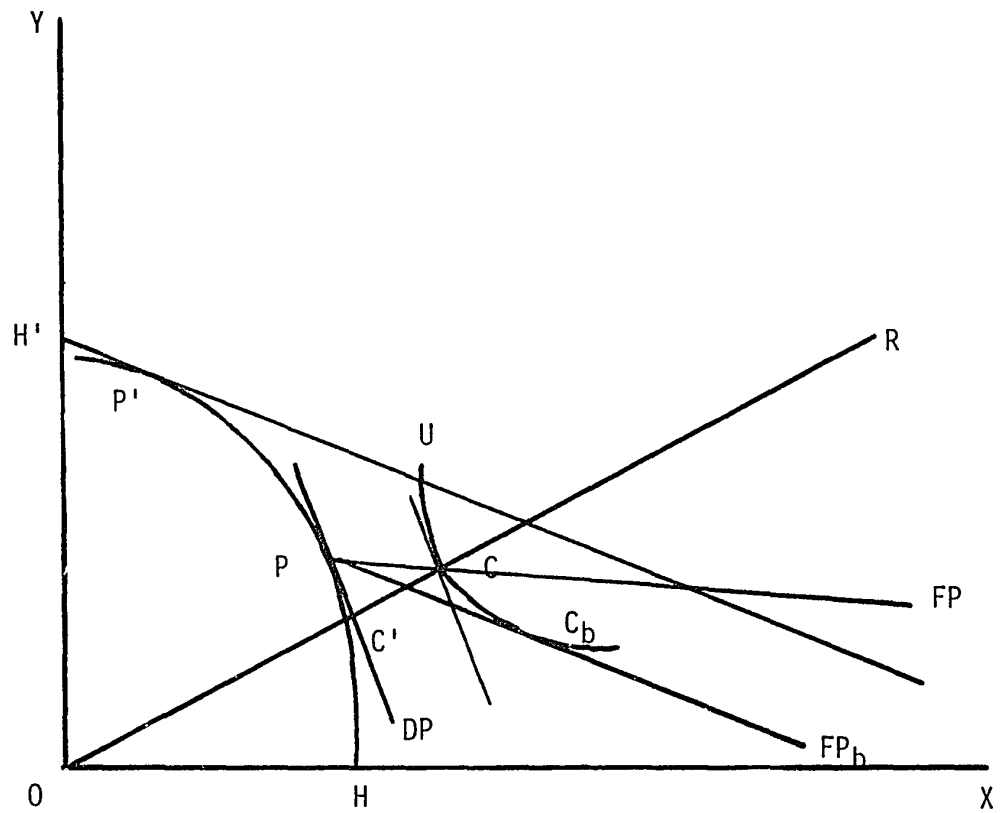


Figure 3
A General Equilibrium Analysis

If A forms a customs union with B, the higher cost producer of X, the union becomes trade diverting as the new terms of trade line FP_B is less favorable. If there is no change in production pattern, production will continue at point P. Under the assumption of constancy of consumption pattern as in Viner's model, the new point of consumption will be E' which is obviously lower than the previous level of consumption E. If we follow Lipsey's substitution possibilities, the new point of consumption would not necessarily be E' . It may be a point on an indifference curve higher than the previous indifference curve signifying the level of welfare U or a point on a lower indifference curve. It all depends upon the new terms of trade line passing through P. In the diagram it has been drawn in such a way that it is tangential to the previous indifference curve at G, showing that with substitution possibilities in response to changes in price ratio being taken into account the previous level of welfare could be maintained. Therefore, trade diverting union need not necessarily reduce welfare.

If we relax assumption of fixed pattern in production, the new point of production will be at P' . The new terms of trade line at which A would exchange Y for X with B, its union partner, free of any tariff, would be tangential at P' and it will cut the ray drawn from the origin denoting the constancy of consumption pattern at E'' . This would be the new level of consumption which is higher than the initial level of welfare E. Thus, even if we adopt Viner's model and if we give up the assumption of constancy of production pattern, a trade diverting union could lead to higher welfare than before.

This possibility is illustrated by the diagram where point "E" signifies higher welfare at which social indifference curve is drawn tangentially to the terms of trade line FP_b' . Of course this conclusion is to be qualified by the statement that it depends on the slope of the new terms of trade line.

If we assume substitution possibilities on consumption side also, a still higher level of welfare is likely to be realized.

To sum up the discussion so far, a trade diverting union does not necessarily reduce welfare and it all depends upon the changes in consumption and production in response to changes in price ratios of the goods traded and the extent of the difference between the terms of trade with the partner and the lowest price world seller.

Certain Criteria for Higher Welfare

The net welfare of the customs union depends on the net effects of trade creation gains and trade diversion losses. Certain tests have been evolved to predict the outcome of the union depending on the following criteria. According to these, the risks of loss from trade diversion are smaller: (1) the more competitive, rather than complementary, the economies of the union partners; (2) the larger the size of the union; (3) the shorter the economic distance between the member countries; (4) the higher the original tariff walls; and (5) the lower the common external post-union tariff.¹³

The first criterion means that the economies of the partner countries should be, before the union actually is competitive in the sense that there should be an overlapping of industries and there should be considerable differences in the price ratios of their products. This would ensure

larger trade creation than trade diversion to start with, but once the union takes place in order to take advantage of the trade creation the economies should grow complementary to each other. This has been termed as actually competitive (before the union) but potentially competitive (after it comes into effect). Another qualification that has been made in connection with this is that a customs union is more likely to raise welfare if the trade with non-member countries is a smaller proportion of total trade than the trade among the union partners as a proportion of the same total trade.

The second criterion refers to the greater possibility of having the least-cost producers if the union is larger in size. At the extreme if the world becomes a customs union and there is free trade, there will be only trade creation and no trade diversion at all.

The third criterion stresses the need for geographically contiguous areas so that distance becomes an insignificant element in cost consideration.

The fourth criterion merely points to the greater possibilities of trade creation due to reduction of price differentials caused by tariff rates. If the elasticities of demand for and supply of traded goods are also high enough, before and after trade, the welfare gains will be greatly reinforced.

The last criterion states that the trade diversion losses will be lower, the smaller is the common tariff adopted after the union takes place. In the limit, a zero external tariff would preclude trade diversion.

In addition to the trade creation and trade diversion effects of customs union, the terms of trade effect is also stressed in the literature on the subject.

The argument runs along the lines that if the intraunion trade is large enough and of such a nature that it reduces the demand for the outside products or reduces the outside supply of the union's exports, terms-of-trade gains are more likely. Further, the size of the union gives stronger bargaining power than if the members acted separately and the union may be able to induce outsiders to reduce their duties on their trade with the union under the threat of imposing an export tax on goods imported by the rest of the world. This bargaining power will be more effective in improving terms of trade the more elastic is the union's demand for outside products and less elastic is the outside world's demand for the union's exports.

The above discussion focuses on the static gains and losses. But more importance has been given to the dynamic effects said to take place in the longer run. This is due to the fact that the estimates prepared ex-ante in respect of the European economic integration were of small magnitude, being as low as 1/20 of one per cent of GNP of all the entire European Economic Community. But the actual gains came to be ascribed to factors other than those influencing static trade-creation and trade-diversion effects.

The most important of these factors are: (1) increased competition; (2) economies of scale; (3) faster technological progress; and (4) increased investment.¹⁴

Increased competition, mainly arising from the partner countries would result in an improved allocation of resources. Monopolistic positions assumed by firms in the protected industries would disappear as their profit margins would be lowered and market structure becomes more competitive. This would then improve allocation of resources.¹⁵

Recently motivational effects of increased competition have come to merit attention. They have been labeled as X-efficiency in the form of less waste, better planning and management.¹⁶

The next factor is economies of scale; the narrow markets do not offer sufficient scope for the plants in industries which require large investments. A wider regional market would enable the firms to operate at a larger output than otherwise possible and to reach a point in the neighborhood of the minimum of average cost curves of the firms concerned. The assumption is that the optimum sized firms are often larger sized than the domestic market can sustain.¹⁷

The logical corollary of large scale production by large firms is their financial strength which enables them to devote their resources to research and development in a larger measure than the smaller ones. This result is faster rate of growth of technological progress. Thus an expanded market due to customs union fosters a rapid availability and application of new technological knowledge.¹⁸

The last important factor is the encouragement given to new investment by the union. This is because of the removal of tariffs and other restrictions which create confidence that the barriers would not be repeated in the future. As the sellers outside the union are likely to lose markets in the union because of trade diversion, they would like to invest

in the union and market their products. This line of reasoning is similar to the one advanced in regard to tariff factories.

Thus, in the longer run the growth possibilities are far greater than the immediate gains or losses by way of trade creation or trade diversion. Empirical investigations in the European case have proved this point beyond doubt. These likely gains as against the likely currency losses have held out an attraction for the less developed countries in their search for preferential trading arrangements. This takes us to consider the special case for customs union among lesser developed countries.

Customs Union and the Less Developed Countries

The rationale for customs union has been examined on both non-economic and economic grounds. The non-economic reasoning behind a customs union requires seeking a utility function which explicitly includes a preference for industrialization even if it means a loss of real income in the short-run. National prestige and rivalry with other groups of countries could be assumed as possible forces underlying the preference function. This sort of approach is called a positivist approach since the economist is expected to find a solution which minimizes the cost involved in seeking what is apparently a non-economic objective. On such lines a customs union is justified because the members by drawing on one another's markets maintain a protected domestic market at less sacrifice in income than is possible through non-preferential protection.¹⁹

However, one need not go far outside the economic calculus to seek a justification for customs union among the less developed countries. Suppose a country has uniform rate of protection on all importables. Matching

such protection by subsidy on all exportables results in net protection equivalent to free trade. But those less developed countries which have protected their industries but have not followed it with any subsidy on exports have a system of overvalued domestic currencies in equilibrium compared to those rates which would have prevailed if there were no trade restrictions. Suppose we take a bloc of less developed countries, B, which have identical rates of overvalued domestic currency (under the assumption of identical international trade elasticities) due to identical protection policies pursued by them. They have overvalued currencies in relation to the rest of the world but not in relation to each other. Due to this reason, the net protection to the industries in each of these less developed countries vis-a-vis the other, amounts to nominal rate since there is no offset to the tariff. But in relation to the rest of the world, protection is reduced by the undervaluation of foreign exchange. This, therefore, creates a bias in favor of imports from the rest of the world and against imports from the other countries of the bloc. Thus the rest of the world is given a competitive advantage over the imports from other countries in the same bloc.

The exporter from the rest of the world to the country A in the bloc B would receive the price F , the world price, but the members of the bloc for the same imports would receive $F(1-U)$ where U is the rate of undervaluation of foreign exchange. For the same reason exporters in A would find their net export price lower than under free trade by the extent of undervaluation of foreign exchange both for sales to the rest of the world and to bloc members. "The net result for each member of adopting

these common protectionist policies is, then, to reduce imports and exports generally and bias the source of imports towards the world, away from bloc members."²⁰

If the tariff is removed for trade among bloc members, but retained for the rest of the world, the bias against trade within the bloc is more than removed as there is now a net advantage for intra-bloc exports over world exports to the bloc. Thus a preferential trade arrangement removes an unwanted bias against their trade with each other.²¹

In a related analysis, a case for payments union between the less developed countries who have the same degree of overvaluation of their domestic currencies has been advocated. Suppose there are two less developed countries, B and C, having 50 per cent overvaluation of their currencies and A is the advanced country whose currency serves as foreign exchange for settling the payments in this three-country world. For all products imported in B and C from A, there must be a 50 per cent difference between world and internal prices. This implies that for two products to be actually exchanged between the two less developed countries, B and C, say shoes and textiles, the relative prices of the two goods must be at least 125 per cent apart. Suppose the world prices for both shoes and textiles are \$1 per unit. If B is to import shoes from C, and C is to import textiles from B, then price of shoes in B and textiles in C must be \$1.5. Because the transactions are to be settled in convertible currency, the price of shoes in C must be the world price of \$1 and the same must be for textiles in B. Thus we obtain two relative price ratios, $\frac{1}{1.5}$ and $\frac{1.5}{1}$. The larger of the two is 125 per cent greater than the other.

As the comparative cost advantage between the less developed countries is not so pronounced as to overcome the price differential due to scarcity of foreign exchange, little trade takes place between them which only hampers growth of exports of the countries and economic development in general.

A payment union, if created, can considerably reduce relative price differences among the less developed countries and promote intra-trade and hence a corresponding movement in resource allocation among the less developed countries. If the payments union is accompanied by a customs union, the difference may be eliminated altogether.²²

The above analysis can thus be seen an economic ground for bringing the less developed countries together when they are similarly placed due to protectionist policies pursued individually mainly against the advanced countries for primary consideration to protect their balance of payments.

However the static effects of a customs union among the less developed countries are feared to be of an adverse nature. The reasons behind this fear are: (1) the economies of the less developed countries are not competitive among themselves; (2) the proportion of pre-union intra-regional trade to their total trade is of a very small magnitude; and (3) the proportion of foreign trade of each member to purchase of domestic commodities is high.

Many less developed countries happen to be at the same stage of industrialization and tend to produce many of the same manufactured goods, but there is no substantial trade among them. To the extent they manufacture the same goods in each of their countries, there is considerable overlapping of the products and hence there should be substantial price

differences depending upon natural resources and costs of production. Opening up free trade between them would lead to reallocation of resources and hence to economic gains. Thus these countries being potentially competitive but not actually competitive due to lack of substantial pre-union trade, would augur well. Further, these countries would tend to become complementary to each other, as industrialization progresses and when an investment plan is drawn and implemented in accordance with the comparative advantage principle in the union. Thus these countries have a good chance of fulfilling the criterion that the countries should be competitive to start with but potentially complementary to each other as they grow as members of the union. These countries may be exporting primary commodities such as tea or jute to the rest of the world and the customs union, if formed, is not going to affect their trade in these commodities with the rest of the world. Anyway, they are not going to trade in these commodities with themselves. So it would be incorrect to conclude that the less developed countries being primary goods exporters and hence competitive to each other in the world market would be less successful in gaining through a customs union. Much depends on present and future levels of their domestic manufacturing and future trade relations between them.²³

As regards the second fear that the pre-union intra-regional trade is so low that a customs union among such less developed countries would not lead to welfare gains, it should be stated that the complement to low intra-union trade is not excess trade with the rest of the world. But as Mikesell would indicate, the reason for low intra-union trade is that each country has been trying to produce a larger proportion of its requirements within its borders, thus inevitably leading to a less efficient utilization

of resources as compared with regional specialization. A customs union offers scope for reallocation of resources due to regional specialization. Similarly, we have to be careful about the implication in the third qualification that since the proportion of trade to domestic expenditures is quite high for many less developed countries, the likelihood of welfare gains is limited. Mikesell argues that if the countries are going to develop on the basis of a rather slow growth of export earnings the ratio of foreign trade to domestic expenditures would decline rapidly in the future. Welfare gains will be achieved through the creation of regional markets because they will tend to retard the rate of decline in the ratio of foreign trade (including intra-regional trade) to domestic expenditures. Mikesell concludes that the applicability of the generalization of the customs union theory relating to complementarity, competitiveness and trade patterns to the potential gains from regional trading arrangements for less developed countries is limited. One should look beyond the existing patterns of productions and trade to those which are likely to emerge.²²

Attention should, therefore, be paid to realization of gains from economies of scale and from increased competition leading to increasing opportunities for profitable foreign and domestic investment, broadening the export base, achieving balance of payments equilibrium and mobilization of unemployed resources. Further, a major impact will result in "as a consequence of the effects on entrepreneurial decisions arising out of the new market structure and out of the accurate awareness of the continual generation of new products, new processes and new methods of distribution on the part of competitors within the broad regional market."²⁴

Conclusion

Thus the successful applicability of the theory of customs union depends much upon the future patterns of production and trade rather than the present pattern.

An ex-ante study of estimates of gains and losses of a prospective customs union among any set of countries should take into account both the immediate and long-run effects. But, the long-run effects are more dynamic and non-tangible in nature and, hence, it is difficult to quantify them. The immediate effects of a customs union are static and quantifiable since they depend largely upon the past patterns of trade, production and consumption. An ex-ante study, which only takes into account static effects, is of limited use but an awareness of dynamic effects of a customs union of a long-run nature nevertheless renders the study useful for policy makers.

NOTES TO CHAPTER I

1. Power, J. H., "The role of Protection in Industrialisation Policy with particular reference to Kenya" in Eastern Africa Economic Review, June 1972, pp. 1-7.
2. Balassa, Bela, "Reforming System of Incentives in Developing Countries," World Development, Vol. 3, No. 6, June 1975, pp. 365-67.
3. Balassa, Bela, ibid., pp. 369-373.
4. Some of the leading theoretical contributions on the subject are:
 - (a) Allen, R. L., "Integration in less developed areas," Kyklos, Vol. 14, 1961, pp. 315-34.
 - (b) Bhambri, R. S., "Customs union and the underdeveloped countries," Economic Internazionale, Vol. 15, 1962, pp. 235-58.
 - (c) Cooper, C. A., and Massell, "Toward a general theory of customs unions for developing countries," Journal of Political Economy, Vol. 73, 1965, pp. 461-76.
 - (d) Mikesell, R. F., "The theory of common markets and developing countries," in International Economic Integration, ed. Robson, P. (Baltimore: Penguin Book Inc., 1971) pp. 166-194.

Some of the important ex-post quantitative studies are :

- (1) Brown, A. J., "Economic separatism versus common market in developing countries," Part 2, Yorkshire Bulletin of Economic and Social Research, Vol. 13, 1961, pp. 88-96.
- (2) EFTA, The EFFECTS of the EFTA on the Economies of Member States, 1969.
- (3) Hazlewood, A., "The Suitability of industry and measurement of gains and losses in East African Common Market," Bulletin of the Oxford Institute of Economics and Statistics, Vol. 28, 1966, pp. 63-72.
- (4) Wilford, W. T. Z., "Trade Creation in the Central American Common Market," Western Economic Journal, Vol. 8, 1970, pp. 61-69.

Some of the important ex-ante quantitative studies are:

- (a) Audic, F and M, and Dosser, D., A Theory of Economic Integration for Developing Countries: The case of Carribean Countries (London: Allen and Unwin, 1971).

- (b) Hitiris, T., Trade Effects of Economic Association with Common Market: The Case of Greece (New York: Praeger Inc., 1972)
5. Mikesell, R. F., op. cit., pp. 177-183.
 6. Lipsey, R., "The Theory of Customs Union: A General Survey," Economic Journal, Vol. 70, 1960, p. 496.
 7. Viner, J., The Customs Union Issue, (New York: Carnegie Endowment for International Peace, 1950).
 8. Negishi, T., "The Customs Union and the Theory of the second Best," International Economic Review, Vol. 10, 1969, pp. 391-397.
 9. Lipsey, R., op. cit., p. 504.
 10. Lipsey, R., op. cit., pp. 496-573.
 11. Bhagwati, J., "The Gains from Trade once again" Oxford Economic Papers, July 1968, pp. 137-48.
 12. Batra, R. N., Studies in the Pure Theory of International Trade (New York: St. Martin's Press, 1937) pp. 101-108.
 13. Balassa, Bela, The Theory of Economic Integration (Homewood, Illinois: Irwin Inc., 1962) p. 68.
 14. Ibid., Chapter 4.
 15. Scitovsky, T., Economic Theory and WESTERN European Integration (Stanford: Stanford University Press, 1962) pp. 22-30.
 16. Leibenstein, H., "Allocative Efficiency Versus X-Efficiency," American Economic Review, June 1966, pp. 560-579.
Krauss, M. B., notes: "X-efficiency has become very popular with advocates of British entry into the Common Market because of the large numbers it produces and because its nebulous and long-run character makes it particularly difficult for opponents to refute." "Recent Development in Customs Union Theory: An Enterpretive Survey," The Journal of Economic Literature, June 1972, p. 432.
 17. Krauss, M. B., op. cit., pp. 431-33.
 18. Haack, W. G. C. M., "The Economic Effect of Britain's Entry into Common Market," Journal of Common Market Studies, Vol. 7, December 1972, pp. 145-146.

19. Johnson, H. G., "An Economic Theory of Protectionism, Tariff Bargaining and the Formations of Customs Union," Journal of Political Economy, Vol. 73, 1965, pp. 256-83.
20. Power, J. H., "Protection and Trade Preferences," a paper prepared for discussion at the Regional Development Seminar of South East Asia Development Advisory Group at the East West Center, Honolulu, 1970, pp. 5-9.
21. Power, J. H., Ibid., p. 10.
22. Vanek, J., "Payments Unions among the less developed countries and their Economic Integration," JCMS, Vol. 5, December 1969, pp. 187-191.
23. Mikesell, R. F., "The Theory of Common Markets as applied to Regional Arrangements among the Developing Countries" in P. Robson, ed. International Economic Integration, London: Penguin 1971, pp. 166-196, Bhambri, R. S., "Customs union and the Under developed countries" in Economic Internationale, May 1962, pp. 177-178.
24. Mikesell, R. F., op. cit., p. 166.

CHAPTER II

An Outline of Methodology for Measurement of Static Effects

Introduction

This chapter outlines the methodology adopted in this study for measuring static effects. The static effects include trade creation, trade diversion and export effects.

Partial Equilibrium Approach

As the complexities involved in a general equilibrium approach are too large, and as the extent of required information about some variables appears too vast, a partial equilibrium approach has been undertaken, instead.

Such a partial equilibrium approach, which would be discussed in detail in succeeding pages, requires information regarding not all variables but only a few quantitatively measureable variables in the form of parameters and flows such as price elasticities and import volume. However, the validity of such a partial equilibrium approach is in doubt since the changes in prices as a result of tariff removal are of a large magnitude, which may possibly violate the ceteris paribus conditions behind the supply and demand curve.

In trade liberalization studies this particular limitation has been well recognized. However, as we are to measure the immediate impact of price changes rather than long-run changes, the limitation might not be as serious.¹

The measurement of static effects relies heavily on the Marshallian concepts of producer's and consumer's surplus. This would give rise to the traditional controversy associated with apparent cardinal measurement as well as interpersonal comparisons of utility. As Hicks made it clear, if one knows the indifference map of the consumer, consumer's surplus for him can be measured in terms of compensating variation and equivalent variation.² However, derivation of an indifference curve for a consumer has to be made from his demand curve. The basic assumption behind the Marshallian demand curve has to be kept in mind, namely that the consumer's elasticity of demand for the given good with respect to income is zero. Marshall took into consideration commodities like tea, expenditure on which forms a very small part of the consumer's income. In other words, changes in income are small enough and so can be ignored. Thus the demand curve has no impact on the income effect as income elasticity of demand for the commodity under consideration is zero.

Therefore, from such a demand curve, an indifference map for a consumer could be obtained and a resultant measurement of consumer surplus could be made and an ordinalist ranking could be done for different price ratio changes.

In the case of an economy or a market, the effects are to be measured not from the view of a single consumer but from that of many consumers. In that case we require an indifference map for each consumer. But when we know only the market demand curve, not the demand curve for each consumer, which is needed for drawing the indifference map for an individual consumer, we cannot obtain indifference maps for each consumer. "In that case the conventional consumers' surplus calculation seems advantageous.

If income distribution and redistribution are of any concern, however, we may wonder whether the value of the resultant knowledge of the aggregate or compensating variations for all households together is not somewhat illusory."³ The general consensus that emerges is best summed up again in the words of Professor Bergson:

"...from the very beginning of the consumer's surplus analysis, it has been widely assumed that the only practicable way to apply it is by reference to the demand schedule of the product in question. That was assumed when the concern was to obtain observations on consumer's surplus in terms of a cardinally scaled utility. It has still been assumed where the concern is instead to calculate such a surplus in terms of Hick's cardinally scaled metrics. According to the standpoint taken here reference to demand schedule may often be computationally convenient. But at least where the concern is with a single household or groups of households with similar tastes and incomes a more accurate calculation might often be feasible--by reference to indifference maps."⁴

The usefulness of such an approach can be seen in many practitioners' analyses, especially in the area of international trade such as trade liberalization among industrial countries and freer trade for Britain with Europe, etc.⁵ Professor Bhagwati justifies the approach thus:

"The measurement of losses and gains in welfare--has also been given great currency by ordinalists such as (H.G.) Johnson..., and the principal reason for this has ultimately to be found in the general demand for such measurement by those who debate policies. Policies are maintained and changed largely for non-economic reasons; and the (economic) cost involved is a magnitude that is commonly demanded and bandied about in discussions of public policy. Whether we like it or not, this is what policy makers do want."⁶

In addition to the adoption of a partial equilibrium approach and reliance on Marshallian consumer's surplus, certain assumptions have been made.

The first assumption is the supply of elasticities of imports from the rest of the world into the proposed customs union and those of exports of the member countries to the rest of the world as well as to each other to approach infinity.

While it may be easy to agree to the first part of the assumption on the ground that the volume of the exports from the rest of the world to the members of the proposed customs union forms a very small part of total exports of the rest of the world, the second part of the assumption may not appear to be realistic. However, if we consider the aspect of presence of excess capacity in the manufacturing sectors of countries in the Indian sub-continent, as borne by the OECD studies, it may not be entirely unrealistic to assume short-run infinite elasticity of supply.⁷ As regards primary commodities, the member countries could perhaps be able to maintain the supply without rise in their price to the members by diverting their supplies from exports to the rest of the world.

Secondly, the tariff rates to be used in the analysis are not simple nominal rates but they are implicit tariff rates arrived at by the comparison of domestic price with the international price.⁸ Such an implicit tariff rate reflects apart from protection afforded by nominal tariff, protection given by import restrictions due to a host of quantitative restrictions operating through quotas, licensing, etc., and scarcity premium due to exchange restrictions.⁹

For each member country the tariff rate for each SITC section is calculated by having a weighted average of the tariff rates of commodities falling into that section, the weights being value added at international prices excluding that of non-traded inputs.¹⁰ Ideally speaking

the weights should be total availability comprising of domestic supply and imports. But the figures relating to the former are not readily available, while the value added at international prices for each commodity sector as per the input-output tables of the member countries are available in a U.N. study on effective protection.¹¹ Therefore, the latter are used for weighting the average rates for each SITC section for a given country.

The third assumption is that there is a one-stroke abolition of both tariff and non-tariff barriers on the member's trade with each other.

The final assumption is with regard to the adoption of common external tariff structure. It is assumed that there would be four alternative tariff structures for consideration for adoption which are discussed in detail in Chapter V.

In the conventional diagram, Figure 4, dealing with the two country and rest of the world case often presented in the textbooks, it is assumed that a given country (A) before entering into a union with another country (B) imports all her needs from the cheapest source, the rest of the world (C) without any imports from B. Once the union is formed, A switches her imports from A to B. The case is illustrated in the accompanying diagram. The diagram shows that the demand for commodity Q is downward sloping, whereas the supply curve is upward sloping reflecting the increasing costs of supply.

As country A is small in relation to its intake of imports from B and C, and as it cannot influence world prices, it is shown as a price taker. Therefore, the supply curves of B and C are shown as horizontal straight lines. The supply curve of C, being the cheapest source is shown below the supply curve of B.

Before the union the importables (commodity Q) are subject to a non-discriminating tariff (namely, a uniform tariff rate t without regard to the origin of supply). The price of imports from C is accordingly $P_C(1+t)$ and from B, $P_B(1+t)$.

Country A imports all her needs from C, which is the cheapest source. Her imports amount to Q_1Q_2 , whereas the domestic production is OQ_1 and total consumption OQ_2 . The amount of imports Q_1Q_2 are subject to the tariff t and the tariff revenue in the area $KLHG$.

After abolition of tariff t on imports from B as a step towards formation of the union but retaining the same t against imports from C, imports from B become cheaper and hence imports from C are replaced by imports from B. The domestic production is reduced from OQ_1 to OQ_3 and consumption is increased from OQ_2 to OQ_4 . The resultant increase in imports is Q_3Q_1 and Q_2Q_4 and the total imports Q_3Q_4 are now from C.

If we look at the area $JLMT$ as an increase in welfare by following the consumer's surplus criterion due to a fall in the price of Q, the area $JKST$ was enjoyed by domestic producers of commodity Q as part of producer's surplus when the price was $P_C(1+t)$ and when the domestic production level was at OQ_1 . Now as a result of a fall in price, domestic production has decreased to OQ_3 and with that there is a decrease in producer's surplus equal to $JKST$. This is now redistributed to consumer's and hence $JKST$ cannot be considered as either gain or loss.

Similarly $KLNR$ was part of tariff revenue $KLHG$ previously collected from the levy of tariff on imports and with the abolition of tariff on imports, there is no longer any tariff revenue. This now gets redistributed from government to consumers and hence $KLNR$ is now also simply

a transfer.

This leaves us to consider only two areas as net gains; they are KSR and LNM. The former can be considered as savings in real cost incurred in previously producing Q_3Q_1 and the latter is consumer's surplus due to increase in consumption Q_2Q_4 following the fall in price. These two areas, when added, represent the gain from trade creation. But looking to the other side of the coin, the previous quantity of imports Q_1Q_2 was imported at a lower price from C than now from B. The increase in costs can be measured by the area RNHG. This could be called a loss due to the diversion of imports from a cheaper source to an expensive source. This trade diversion loss has to be compared with the trade gain to arrive at a net welfare loss or gain.

In the actual world, a country keeps more than one source of supply of imports and, as a result, the measurement of trade gains and trade diversion losses has to be done in two distinct steps. The first would be to measure the trade creation gain by taking the case of the given country entering into union with the member country.

In Figure 5, as before, S_A and D_A are the supply curve and demand curve for the commodity Q of country A and the supply of the importable from country B is perfectly elastic. The abolition of tariff rate, as mentioned earlier, leads to a decline of domestic production and an increase in consumption. Consequently, imports from B also register an increase.

This can be seen as follows:

Figure 4
Trade Creation
and
Trade Diversion

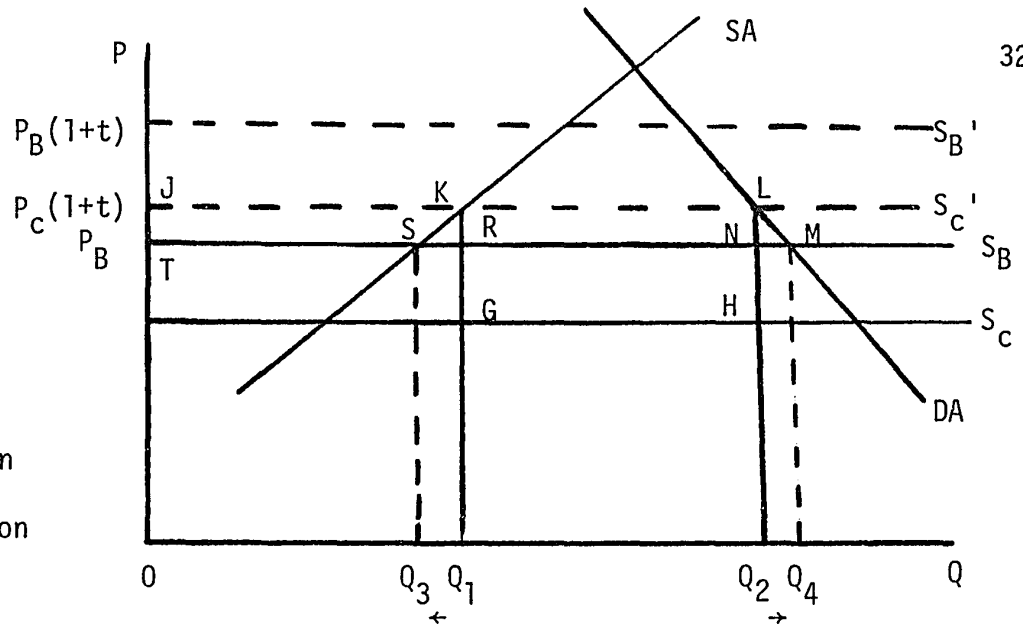


Figure 5
Trade Creation

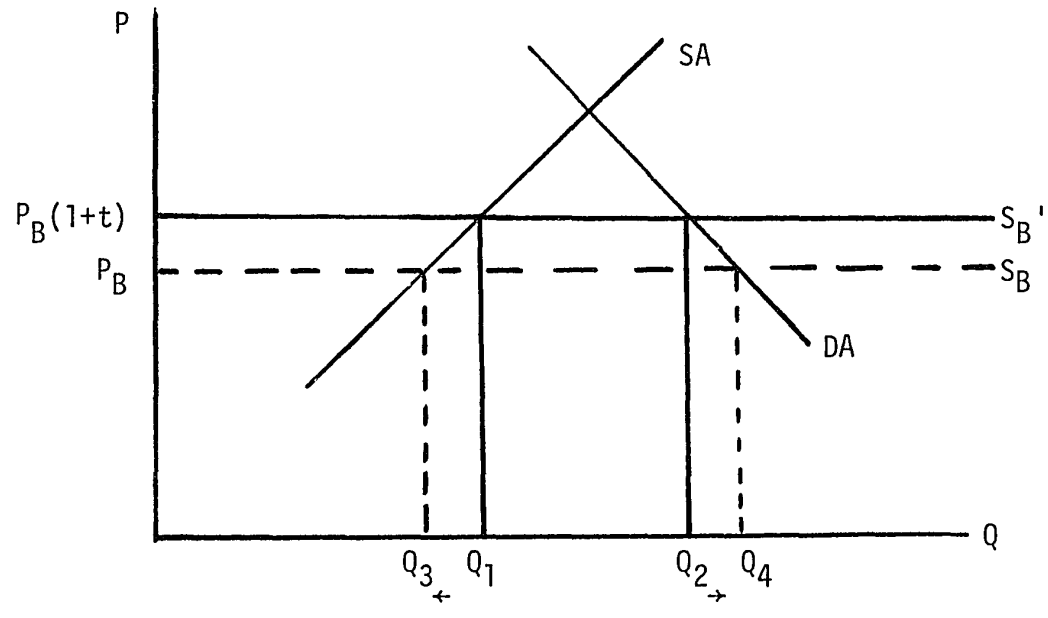
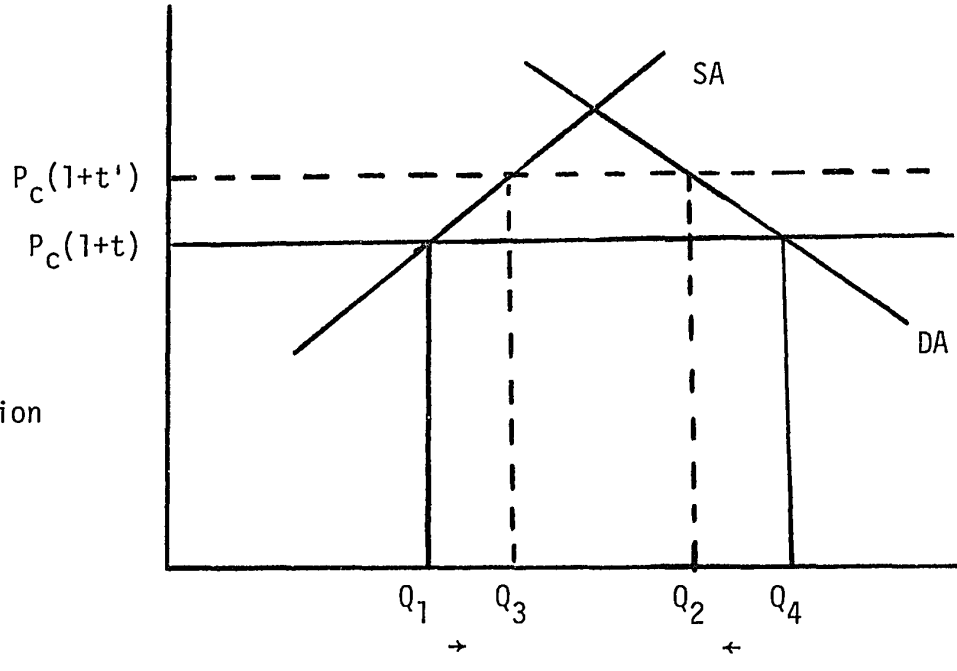


Figure 6
Trade Diversion



| | Production | Consumption | Import |
|------------------|--------------------------------|--------------------------------|--|
| Before the union | 0Q ₁ | 0Q ₂ | Q ₁ Q ₂ |
| After the union | 0Q ₃ | 0Q ₄ | Q ₃ Q ₄ |
| Change | -Q ₃ Q ₁ | +Q ₂ Q ₄ | (Q ₃ Q ₁ + Q ₂ Q ₄) |

Thus the increase in imports reflects the impact of abolition of tariff both on supply side and demand side. This could be seen in the functional relationship of quantity demanded and supplied and price.

$$S = S(p) \quad (\text{Supply function}) \quad 1$$

$$D = D(p) \quad (\text{Demand function}) \quad 2$$

$$M = D(p) - S(p) \quad (\text{Excess demand as imports}) \quad 3$$

Totally differentiating with respect to price:

$$d_m = \frac{dD}{dP} \cdot P \cdot dP - \frac{dS}{dP} \cdot P \cdot dP \quad (4)$$

(4) can be manipulated to yield:

$$dMP = \frac{dD}{dP} \cdot P \cdot dP - \frac{dS}{dP} \cdot P \cdot dP \quad (5)$$

$$\frac{dMP}{dP} = \frac{dD}{dP} \cdot P - \frac{dS}{dP} \cdot P \quad (6)$$

$$e_m^M = e_d^D - e_s^S \quad (7)$$

Since

$$e_m^M = \frac{dM}{dP} \cdot \frac{P}{M}$$

$$e_d^D = \frac{dD}{dP} \cdot \frac{P}{D}$$

$$e_s^S = \frac{dS}{dP} \cdot \frac{P}{S}$$

where e_m^M , e_d^D and e_s^S are elasticity of demand for imports, elasticity of domestic demand and elasticity of domestic supply of the commodity under

consideration.

(7) above can be rewritten as follows:

$$e_m = e_{aM}^D - e_{sM}^S \quad (7(a))$$

As we saw earlier, the import effects of the abolition of tariff on imports of a commodity resolves itself into two components thus,

$$\Delta M_B = -\Delta S_A + \Delta D_A \quad (8)$$

where ΔM_B = increase in imports for member country,

ΔS = change in domestic production (negative)

ΔD = change in domestic consumption (positive)

$$\begin{aligned} \Delta S &= e_S^S \frac{\Delta P}{P} \\ &= e_S^S \frac{p(1+t)-p}{p(1+t)} \\ &= e_S^S \frac{t}{1+t} \end{aligned} \quad (9)$$

$$\begin{aligned} \Delta D &= e_D^D \frac{\Delta P}{P} \\ &= e_D^D \frac{p(1+t)-p}{p(1+t)} \\ &= e_D^D \frac{t}{1+t} \end{aligned} \quad (10)$$

Therefore,

$$\Delta M = \frac{t}{1+t} [e_D^D - e_S^S] \quad (11)$$

$$= \frac{t}{1+t} e_m^M \quad (12)$$

Since $e_m^M = e_D^D - e_S^S$

as shown above in (7)

Thus, the import effect due to trade creation could be calculated directly if we know the elasticity of demand for imports of a given commodity from the given country.

Next we come to the effect of trade diversion consequent to the formation of the customs union. If the common external tariff after the union does not undergo any change, the imports from C are assumed to be the same as before. Hence no trade diversion takes place. If the common external tariff after the union gets reduced, the effect would be one of trade creation.

Our assumption is that trade diversion from the outside members takes place only when the existing tariff against their imports is raised; and that when there is no such increase, but when the existing tariff is continued to be imposed, there is no change in trade volume. A question may be relevantly raised here as to what happens when the tariff against member country's imports is lowered without any change in the tariff against third member country's imports and whether there would still be a diversion in trade volume from third country towards the member country.

In the text book explanation of the theoretical aspects of customs union, prior to the union all imports were from the cheapest source, namely the third countries and after the union, these imports were completely replaced by imports from the more expensive member countries. In such a situation the trade diversion volume is the pre-union quantity of imports. In the real world, each country maintains more than one source of supply even in the case of relatively more homogeneous goods, such as wheat, crude oil, or chemicals, for example, sulphuric acid or caustic soda. In the case of the Indian sub-continent, each country imports the

same good from both sources, the prospective member country as well as the outside world. For example, India imports crude rubber from Srilanka and Malaysia as well. Srilanka imports iron and steel both from India and the United Kingdom.

In such a situation where the tariff is abolished on imports from the member country and the same tariff is maintained against the imports from third countries, there is a change in the ratio of prices of imports from the two sources and as a result there would be a change in the ratio of quantity of imports from these two sources. From an estimate of the elasticity of substitution, one could calculate the change in imports from the outside world. This change in the quantity of imports could be called trade diversion. However, due to estimation procedure adopted for estimating elasticity of demand for imports for a given country from a given source, the elasticity of substitution of imports between the given source and the outside world has also been included as a component in the estimate. A proof is given in the subsequent chapter on Estimation of Elasticities of Demand for Imports: Some Theoretical Considerations.

The above trade diversion effect due to change in price ratio as a result of fall in tariff against imports from a member country accompanied by no change in tariff against imports from the third countries, is included in the import effect calculated by utilizing the estimated elasticity of demand for imports from particular member countries. As it is difficult to distinguish between the increase in imports due to abolition of imports from member countries and increase in imports from member countries due to elasticity of substitution effect, it has been assumed that the trade

diversion takes only when the tariff is raised against imports from third countries and not otherwise.

Further, as the estimation procedure considered the unit value of imports from the given source as one of the explanatory variables for regression analysis and assumed to hold the unit values of imports from third countries unchanged as they are included in the residual term, the trade creation effect so calculated would become a pure trade creation effect only if the unit values of imports from the given source and from the third countries change in the same proportion from period to period. In the absence of such an equal proportionate change, trade creation effect so calculated tends to become overestimated and trade diversion underestimated.

If we take the case of an increase in external tariff after the union against the outside world, C (Figure 6), the import effect is comprised of two effects: one, the increase in domestic production Q_1Q_3 due to additional protection afforded to by the increase in tariff and decline in consumption Q_4Q_2 due to rise in tariff rate. The net result is a fall in imports from the rest of the world. $(Q_1Q_3 + Q_4Q_2)$ and this can be calculated by the same formula with a modification to take account of change in price.

$$\Delta M_C = \frac{\Delta P}{P} e_{m_C} M_C \quad (13)$$

where ΔM_C = change in imports from the rest of the world (negative)

ΔP = change in price as a result of rise in tariff

P = original price inclusive of 't', non-discriminating tariff

M_C = the original quantity of imports from the rest of the world before the union

(16) above can be re-written as

$$\Delta M_C = \frac{P_C(1+t') - P_C(1+t)}{P_C(1+t)} \cdot e_{m_C} \cdot M_C \quad (14)$$

where t' = the new tariff rate after the union against the imports from non members (C)

and t = the original non-discriminatory tariff against imports from the rest of the world before the union.

The above can be simplified as

$$\Delta M_C = \frac{t' - t}{(1+t)} \cdot e_{m_C} M_C \quad (15)$$

For $j = 1, 2, 3, \dots, m$ goods, the change in total imports from $(n-1)$ member countries for a given country due to abolition of tariff rate t_j is

$$\Delta M_B = \sum_{i=1}^{n-1} \sum_{j=1}^m e_{m_j} \frac{t_j}{1+t_j} \cdot M_j \quad (16)$$

As regards change in total imports from the rest of the world for a given country due to a revision of tariff as a result of common external tariff newly agreed to between members of the union,

$$\Delta M_C = \sum_{j=1}^m e_{m_j} \frac{t'_j - t_j}{1+t_j} M_j \quad (17)$$

where t'_j = the new tariff rate which may be lower than or higher than or equal to t_j the pre-union non-discriminating tariff rate.

Welfare effects of trade creations would be in accordance with the measurement of traditional Marshallian consumer surplus. As trade creation is reflected in a positive change in imports, the welfare effects are also positive. As it is the area below the demand curve and it is to be measured in dollar terms, it is given by the formula:

$$\begin{aligned}
\Delta \frac{W}{T.C.} &= \sum^m \frac{1}{2} \Delta P \cdot \Delta M = \frac{1}{2} \sum \Delta P \cdot e_m \cdot \frac{\Delta P}{P} M \\
&= \sum \frac{1}{2} \Delta P \cdot e_m \frac{\Delta P}{P} \cdot \frac{M v_j}{P} \\
&= \sum \frac{1}{2} \left(\frac{\Delta P}{P} \right)^2 e_m M v_j \\
&= \sum \frac{1}{2} \left(\frac{t_j}{1+t_j} \right)^2 e_m M v_j \quad (18)
\end{aligned}$$

where $M v_j$ is the value of pre-union imports of j th. commodity for the given country.

The welfare effect of trade diversion for a given country would also be in dollar terms and is given by the formula:

$$\begin{aligned}
\Delta W_{T.D.} &= \frac{1}{2} \sum_{j=1}^m e_{mj} \frac{t'_j - t_j}{1+t_j} \cdot M v_j \frac{t'_j - t_j}{1+t_j} \\
&= \frac{1}{2} \sum_{j=1}^m e_{mj} \left(\frac{t'_j - t_j}{1+t_j} \right)^2 M v_j \quad (19)
\end{aligned}$$

Welfare effect due to trade creation is positive as lowering of tariff rate leads to greater consumption of imports: welfare effect due to trade diversion is negative as an increase in tariff rate leads to reduction in consumption of imports.

Apart from the welfare effects due to trade creation and trade diversion as discussed above, one more aspect of welfare has to be considered. This is due to an increase in exports to member countries following their abolition of tariff on the given country's exports to them. This effect is called the export effect.

On the export side, the gain arises from the opportunity to sell the products of the country's resources on better terms than would be possible otherwise and could be measured by the loss of income that would result if the productive factors employed in meeting the additional demand created by the customs union has to be diverted to producing for domestic or other foreign markets. But this loss is not estimable on the available information. It is arguable that it would not be great, since manufactures are fairly close substitutes on world markets. But it is possible to fix a maximum for the loss, since at a very worst prices of the products concerned would have to be lowered enough to overcome the disadvantage of the tariff and permit their disposal in member countries.¹²

Two estimates, one upper and one lower, could be prepared. This is illustrated in Figures 7 and 8.

In Figure 7, Country A exports the product Q to country B. The free trade supply curve of exports of A is perfectly elastic at the price P_A . B levies a tariff t . The demand for imports of Q at various prices by country B is shown in the demand schedule D_B . Before the union, country B levies a tariff t and the price of imports bears this tariff as $P_A(1+t)$ and the tariff ridden supply curve S_{A_t} and D_B determine the equilibrium quantity of imports as the level OQ_1 . Abolition of tariff following the customs union leads to an increase in imports to Q_1Q_2 , the total imports being OQ_2 . In the absence of customs union the only way to achieve an increase in exports equal to ΔQ is to reduce supply price such that $P_h = \frac{P_A}{(1+t)}$. Thus the loss would have been:

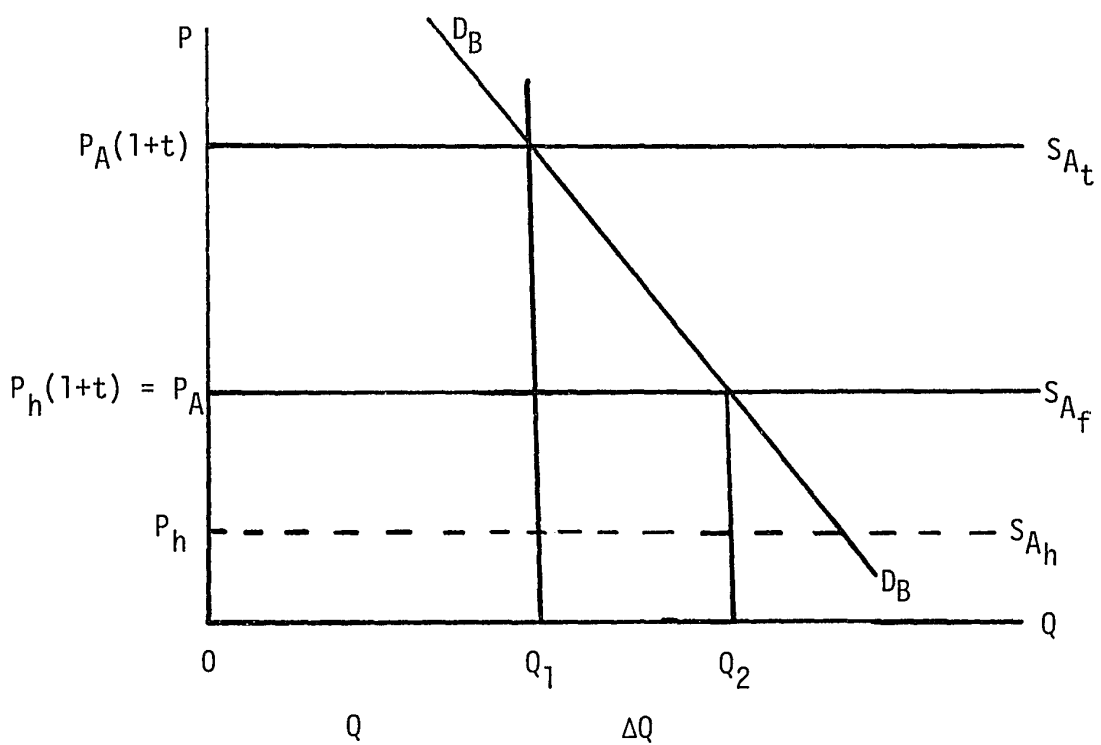


Figure 7
Export Effect--Upper Limit

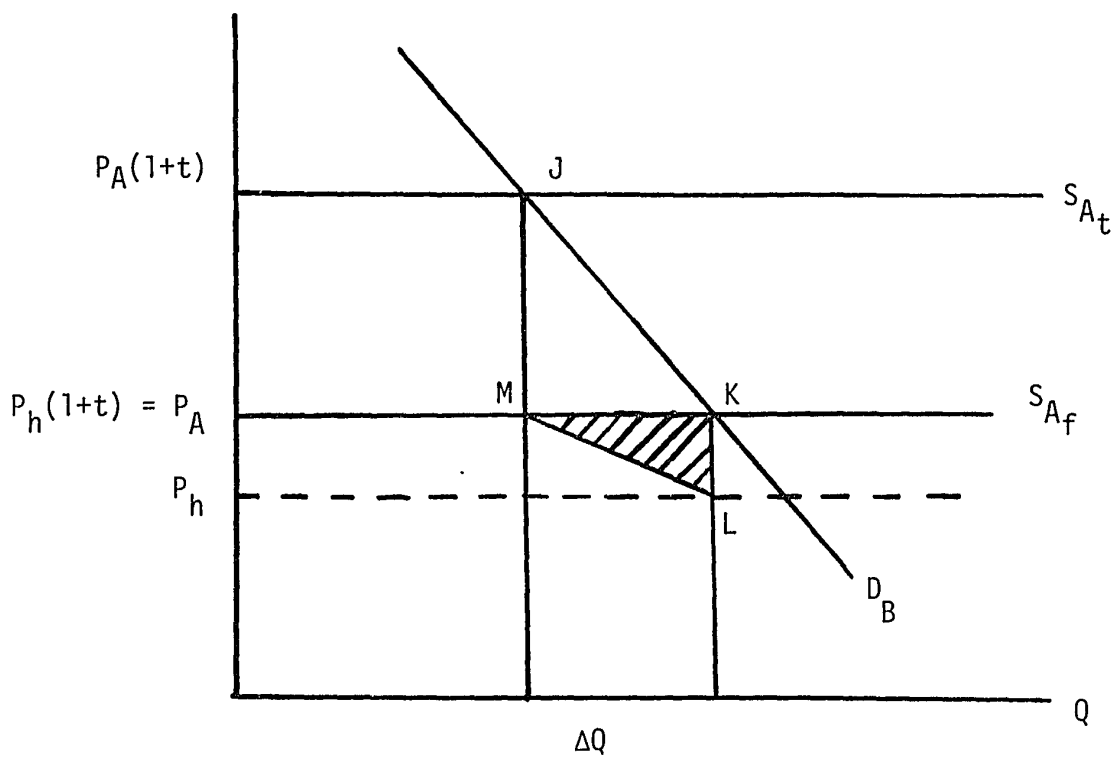


Figure 8
Export Effect--Lower Limit

$$\begin{aligned}
\Delta W &= P_A(Q+\Delta Q) - P_h(Q+\Delta Q) \\
&= P_A(Q+\Delta Q) - \frac{P_A}{1+t}(Q+\Delta Q) \\
&= P_A(Q+\Delta Q) \left\{ \left(1 - \frac{1}{1+t}\right) \right\} \\
&= P_A(Q+\Delta Q) \left(\frac{t}{1+t} \right) \\
&= V_{QA}^* \frac{t}{1+t} \tag{20}
\end{aligned}$$

where V_{QA}^* is the value of exports of country A after the abolition of tariff t . This is the welfare benefit of export effect of customs union.

It is also possible to discriminate between marginal and extra marginal exports. If the demand for each dollar's worth of output is separate and independent, either because of discrimination between buyers is possible or because products are distinct, only the prices of marginal exports will have to be reduced; the supply curve then becomes P_A^{ML} and the loss is the area of the triangle MKL .

Welfare benefit then in dollar terms is equal to:

$$\begin{aligned}
\Delta W_{E_x E} &= \frac{1}{2} \Delta Q P_A \cdot \left(\frac{P_A - P_h}{P_A} \right) \\
&= \frac{1}{2} \Delta Q P_A \left\{ \frac{P_h(1+t) - P_h}{P_h(1+t)} \right\} \\
&= \frac{1}{2} \Delta Q P_A \frac{t}{1+t} \\
&= \frac{1}{2} \Delta V_Q \frac{t}{1+t} \tag{21}
\end{aligned}$$

where ΔV_Q is the value of increase in exports to member country after union.

Thus while the former measure of welfare benefit of export effect is the upper limit, the latter is its lower limit. For our purpose we may take the lower limit for measurement of total welfare effect.

The total welfare effect for a given country on joining the customs union could be described as the algebraic sum of trade creation, trade diversion, and export effects. In symbols:

$$\begin{aligned}
 \Delta W_{A,D,U} &= \Delta W_{T.C} + \Delta W_{T.D.} + \Delta W_{Ex.E.} \\
 &= \frac{1}{2} \sum_{c=1}^{n-1} \sum_{j=1}^m e_{m_{ij}} \left(\frac{t_j}{1+t_j} \right)^2 M_{V_{ij}} + \\
 &\quad \frac{1}{2} \sum_{j=1}^m e_{m_{0j}} \left(\frac{t'_j - t_j}{1+t_j} \right)^2 M_{V_{cj}} + \\
 &\quad \frac{1}{2} \sum_{c=1}^{n-1} \sum_{j=1}^m \Delta V_{Q_{ij}} \left(\frac{t_j}{1+t_j} \right) \quad (22)
 \end{aligned}$$

where $i = 1, 2, \dots, n-1$, countries in the customs union

$j = 1, 2, \dots, m$ products imported or exported

$c =$ rest of the world

$e_{m_{ij}}$ = elasticity of demand for imports of j from country i

$M_{V_{cj}}$ = value of pre-union imports of product j from country i

$\Delta V_{Q_{ij}}$ = value of increase in exports of product j to member country

$M_{V_{cj}}$ = value of pre-union imports of j from rest of the world

t_j = the pre-union non-discriminating tariff on product j

t'_j = the post-union external tariff on product j

The total welfare effect for all member countries in the union will be the sum of individual country's increase in welfare as calculated above.

$$\Delta W_{C.U} = \sum_{c=1}^n \Delta W_{C.U} \quad (23)$$

NOTES TO CHAPTER II

1. Difficulties of this nature have been recognized in the trade liberalization studies such as Balassa, Bela: Trade Liberalisation Among Industrial Countries, New York: McGraw Hill, 1969 and Andic, F. and M., and Dosser, H., Theory of Economic Integration and Developing Countries: The Carribean Case, London: George Allen and Unwin, 1969.
2. Vickrey, William S., Microstatics, New York: Hart Court, Brace and World, 1964, pp. 66-76.
Bertson, Abram., "A Note on Consumer's Surplus," Journal of Economic Literature, Vol. Xiii, No. 1, March 1975, pp. 38-44.
3. Bergson, op. cit., p. 43.
4. Bergson, op. cit., p. 43.
5. Studies referred to include Balassa op. cit. and Johnson, H. G., "The Gains from Freer Trade with Europe: An Estimate," Manchester School, Vol. 26, 1958, pp. 247-55.
6. Bhagwati, J. N., "The Price Theory of International Trade: A Survey," in the American Economic Association and Royal Economic Society, Surveys of Economic Theory, Vol. II, New York, St. Martin's Press, 1965, pp. 156-239, quoted by Bergson op. cit., p. 41.
7. Bhagwati, J. N. and Desai, P., India: Planning for Industrialisation, London: Oxford University Press, 1970.
Lewis, S. R., Pakistan: Industrialisation and Trade Policies, London: O.U.P., 1970.
Little, Scott, and Scitovsky, Industry and Trade in some Developing Countries, London: O.U.P. 1970.
8. The formula is $t = (X_d - X_i)/X_i$
where t is the implicit tariff rate X_i , the landed price of the product (C.i.f. in domestic currency at the official exchange rate and X_d , the ruling price of the product in domestic market.
9. For a detailed discussion on quantitative restrictions, see Chapter 3.
10. United Nations, ECAFE, Intra-regional Trade Projections, Effective Protection and Income Distribution, Vol. II, Effective Protection, Development Programming Technique Series, No. 9, Bangkok, 1972.
11. Ibid., Chapters 1 to 4.
12. Johnson, H. G., op. cit., pp. 250-254.

CHAPTER III

Commercial Policies and Trade Patterns in the Indian Sub-continent

Introduction

This chapter seeks to examine in brief the various restrictive policies adopted by the countries in the Indian sub-continent and to present implicit tariff rates reflecting the degree of restriction on external trade. Further, it is proposed to review the past patterns of intra-regional trade in the Indian sub-continent.

Commercial Policies

Though our discussion would be focussed on import and exchange controls restricting the free flow of goods between countries in the region and the rest of the world, a few words about the basic philosophy of the role of government in the sub-continent would be in order. Especially in India and Pakistan, an approach has been taken that market prices, otherwise being an excellent way of summarizing and conveying information relevant to most decisions of individual enterprises, do not convey adequate information not only of existing capacity and its relation to requirements in the same and in related industries but also of what capacity is planned for or in the process of construction and that only a centralized investment planning could fill the information gap.¹ This has naturally influenced the policy instruments for economic development in India. They are centralized planning with emphasis on investment control, licensing and import restrictions. In Pakistan the policy instruments are import controls and licensing from the late fifties through the mid-sixties with

subsequent relaxation of control giving way to a greater role for the market system through the bonus voucher scheme. Srilanka and Nepal have resorted to import control and exchange regulations for meeting the disequilibrium in their balance of payments and there is no such serious investment planning and licensing as obtained in India.

In the case of India, whose economy is not dominated by the foreign trade sector (Table 1) and whose exports are more diversified than her neighbors, the system of commercial policies is comprised of nominal tariffs, import licensing, exchange controls, export subsidies (both direct subsidies and indirect incentives), direct price and distribution controls.²

As regards Pakistan (both the eastern and western wings of former Pakistan) commercial policies were primarily imposed to meet balance of payments crises and secondarily to develop domestic industries through restriction of imports. They take the form of nominal tariffs, quotas and exchange controls. In the early sixties the export bonus voucher scheme was introduced and with that increasing reliance on market forces was resorted to. It not only increased exports but also encouraged much needed imports. Thus the export bonus voucher scheme was indeed a part of the program for import liberalization.³

Srilanka's economy greatly differed from her neighbors. It is more dependent on her foreign trade sector (Table 1). Lacking in natural resources, Srilanka has to depend on her limited exports such as tea and coconut products, without much diversification possibilities. Her commercial policies are therefore more directed towards meeting balance of payments disequilibrium. Apart from nominal tariffs, quotas and exchange

controls, she has adopted a system of multiple exchange rates in order to encourage exports for which foreign demand was elastic together with the import of essential commodities at lower cost and discourage increased exports of commodities with inelastic demand and import of non-essential goods.⁴

Nepal's foreign trade is dominated by her trade with India to the extent of 75 per cent. Her trade relations with India are governed by special treaties according to which trade between the countries should not be hampered by any kind of restrictions.⁵ Though there are enabling provisions in the treaties for Nepal to levy protective duties on imports from India, there is no definite information. Nepal's trade with third countries is regulated more by nominal tariff than by other restrictive measures.⁶

Implicit Tariff Rates

In view of various restrictive measures affecting the free flow of trade, it would not be appropriate to rely on nominal tariff rates alone for measuring the degree of restriction on trade. There are several measures which are discussed in the literature. For our purpose we may select one measure, namely implicit tariff rate. This is the difference between the landed price of a commodity and the quoted price in the domestic market both expressed in domestic currency as a proportion of the landed price. This measure would under normal circumstances be greater than the nominal tariff rate as it takes into account the restrictive effects of non-tariff barriers.

An United Nations study on protection in India, the two wings of former Pakistan and Srilanka has been utilized to derive implicit tariff

rates for each country in respect of commodities classified according to Standard International Trade Classification. The weights used for averaging the implicit tariff rates are the value added at world prices for each traded commodity given in the same U.N. Study.⁷

For Nepal, there is no such study available and hence nominal tariff rates have to be relied upon. For averaging purposes in the absence of any suitable weights such as total supply (imports and domestic production) or value added at world prices, the procedure of simple arithmetic means has to be used.

Table 2 presents the weighted average of implicit tariff rates relating to imports classification as per SITC procedure for India, Pakistan, Bangladesh and Srilanka. Table 3 presents nominal tariff rates for Nepal in respect of import similarly classified.

Effects of Commercial Policies

The effects of import restrictions on the economy have been found to be adverse in the cases of India and Pakistan.⁸ The visible effect can be seen in the commodity composition of imports of all five countries. In the second half of the sixties as compared to the first half, imports of consumer goods have declined, whereas both intermediate goods and capital goods have increased, both expressed as percentages of total imports (Tables 4 to 7).

While the concern continued with the rationing of limited foreign exchange for increased uses by increasing number of users, both in the public and private sectors of the economies in the sub-continent, the aspects of earning foreign exchange went unnoticed for quite some time.

The stagnation of exports in the late fifties after the end of the Korean War boom and in the early sixties, and the resultant decrease in earnings, could be hastily attributed to the so-called export pessimism.⁹ But there are deeper causes which showed the stagnation in exports reflected in the lower annual compound rates of growth as against the high rates of growth in imports (Table 8) was, to a large extent, due to policies pursued.

Exports of the sub-continent have been only primary commodities for Nepal and Srilanka and a bit more diversified in the case of Pakistan and Bangladesh and most diversified in regard to India. While industrialization policies created a bias against agriculture, protection induced shift of resources towards manufacturing and hurt the development of exports. Protection renders the domestic currency overvalued in regard to foreign exchange and makes the exports less attractive to foreigners. The exporters are discouraged since they earn less than socially optimal return per unit of exports. The incentives to exports were thus absent totally in the initial years, but this position was corrected subsequently to a substantial extent through export subsidies by way of bonus voucher schemes in Pakistan, import entitlement schemes in India and multiple exchanges in Srilanka.

Intra-regional Trade

Intra-regional trade in the sub-continent studied over a period of ten years, i.e., 1962-1971, shows that the volume expressed as percentage of total trade is of a very low level.¹⁰ (Table 9)

Table 10 shows the trade relations between the countries of the Indian sub-continent for the year 1965. This particular year was chosen for the reason that the intra-trade volume reached a high figure and

for subsequent years it declined owing to hostilities in the sub-continent.

Table 11 shows the commodity compositions of intra-regional imports for various categories of imports for the same year.

Two conclusions may emerge from an analysis of the intra-trade relations: one, India is the dominant partner in the area; for example, for the year 1965, out of a total imports of \$157.2 million, 51 per cent were from India, 37 per cent from Pakistan, 24 per cent from Nepal and 16 per cent from Srilanka.

Secondly, intra-regional trade in the Indian sub-continent has been more in the area of agriculture based goods.

The countries whose intra-exports mainly consisted of primary and primary-processed goods were Srilanka and Nepal. India and Pakistan have emerged in the last decade more successful in exporting to other countries in the sub-continent basic manufactures (SITC Section 6), chemicals (Section 5) and machinery and transport equipment (Section 7). The diversification of exports has been due to deliberate industrialization measures at home. Apart from diversifying exports, this has also resulted in reducing imports quantum from other countries in the sub-continent. Both India and Pakistan have to look to regions outside the Indian sub-continent for imports, especially capital and intermediate goods.

Export-intensity Ratio

A measure of trade relationship is the export-intensity ratio, first developed and applied by A. J. Brown.¹¹ This was further utilized by K. Kojima in regard to effects of trade liberalization on Japan.¹²

The intensity of country j's export trade with another country 'i' is measured by the ratio of that country's share in j's total exports to its share in total world imports, less j's imports. Similarly the intensity of j's imports trade with country 'i' is measured by the ratio of j's share in that country's exports to j's share in total world imports less imports with that country in question. In a two-country case, j's export intensity of trade is the same as i's import intensity and vice versa.

In symbols, the export intensity of j's trade with 'i' is:

$$\left(\frac{X_{ji}}{X_j} \mid \frac{M_i}{W-M_j} \right) 100$$

where X_{ji} = Export of country j to country i
 X_j = Total exports of country j
 M_i = Imports of country i
 M_j = Imports of country j
 W = Total imports of the world

Thus an export intensity of more (or less) than 100 indicates that j is exporting more (or less) to a particular country than might be expected from that country's share in the total world trade. Likewise, the intensity of j's import trade indicates the extent to which j takes more (or less) imports from a particular country than might be expected from that country's share in world trade. As Professor Kojima states that the intensity of trade is affected, among other things, by geographical proximity, by economic complementarity and by political and historical ties.

Export intensity indices have been calculated for each of the countries in the Indian sub-continent with each other and are summarized in Table 12.

The years chosen are three alternate years in the early sixties and in the later sixties three consecutive years and 1970. The year 1971 is an abnormal year following the separation of the eastern wing of former Pakistan, hence may be ignored.

It may be seen India's exports intensity of trade with the combined Pakistan declined in 1964 as compared to the figure of 1962 and was negligible in 1966 following the hostilities in the area. On the other hand, India's exports intensity with Srilanka has steadily gone up. But with Nepal, India's exports intensity of trade reached its peak in 1969 but registered a decline in the later years. It obviously means Nepal is looking out to other countries outside the region for its imports.

As regards Pakistan's exports intensity of trade with India, what was said in case of India holds good. However, its export intensity of trade with Srilanka has been fluctuating as seen from the figures. Export intensity index was at its highest in 1966, but came down in 1968 and again rose to a higher figure. Following the creation of Bangladesh, the loss of the Eastern wing market has induced Pakistan to step up her exports to Srilanka in 1971. The index of 2052.8 is a good indicator. Pakistan's minimal trade with Nepal is reflected by the indices.

Srilanka's export intensity of trade with India has been on the decline confirming the belief that Srilanka's exports to India, except for natural rubber and copra (oilseeds), are competitive. The lack of complementarity of Srilanka's exports to India is reflected in the low and decreasing indices. However, Srilanka's export trade with combined Pakistan has been on the increase except for the year 1966. An abnormally

higher index for the year 1971, which itself is an abnormal year as mentioned earlier, is for the reason that Srilanka exported tea in substantial amounts to fully offset the loss of tea supply from Bangladesh, which here to before supplied tea to the western wing of combined Pakistan.

As regards Nepal's trade with India, Nepal's exports intensity index showed an upward increase except for the year 1966. Nepal's exports to India have been playing a complementary role, especially in the supply of rice, butter and crude materials in the earlier years, and now increasingly in the supply of basic manufactures.

Conclusion

The countries in the Indian sub-continent, except Nepal and Srilanka, have high implicit tariff structures. Pakistan has the highest implicit tariff structure followed by Bangladesh and India.

Apart from pre-union tariff structure, an important parameter, which determines the post-union trade creation flows subsequent to abolition of tariff restrictions, is the pre-union volume of trade. Analyses of intra-regional trade shows that the volume of trade is of a very low magnitude. Another important parameter influencing the post-union trade is price elasticity of demand for imports. For a discussion on its estimation, we turn to the next chapter.

Table 1
 BASIC STATISTICS OF COUNTRIES
 IN THE INDIAN SUB-CONTINENT
 1950-1969

| | <u>1950</u> | <u>1955</u> | <u>1960</u> | <u>1965</u> | <u>1969</u> |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| <u>INDIA</u> \$1=Rs 4.77 | | | | | |
| Real GNP (US \$ Mill.) | 22009.44 | 26063.10 | 31658.70 | 38313.00 | 44288.05 |
| Population (Mill.) | 358.29 | 386.62 | 429.02 | 486.63 | 523.98 |
| Real Per Capita GNP | 61.43 | 67.41 | 73.79 | 78.73 | 84.52 |
| Imports (Per Cent of GNP) | 5.45 | 6.47 | 7.82 | 7.23 | 5.03 |
| Exports (Per Cent of GNP) | 5.72 | 6.03 | 4.52 | 3.92 | 4.17 |
| | | | | | |
| <u>PAKISTAN</u> \$1=Rs 4.77 | | | | | |
| Real GNP (US \$ Mill.) | NA | NA | 3428.60 | 5403.76 | 6507.93 |
| Population (Mill.) | NA | NA | 46.20 | 52.57 | 58.28 |
| Real Per Capita GNP | NA | NA | 74.21 | 102.79 | 111.67 |
| Imports (Per Cent of GNP) | NA | NA | 12.6 | 9.94 | 7.98 |
| Exports (Per Cent of GNP) | NA | NA | 3.13 | 4.15 | 4.05 |
| | | | | | |
| <u>BANGLADESH</u> \$1=Rs 4.77 | | | | | |
| Real GNP (US \$ Mill.) | NA | NA | 3308.98 | 3683.9 | 4649.90 |
| Population (Mill.) | NA | NA | 55.2 | 62.9 | 70.13 |
| Real Per Capita GNP | NA | NA | 59.95 | 58.57 | 66.30 |
| Imports (Per Cent of GNP) | 3.87 | 3.26 | 6.21 | 6.12 | 5.58 |
| Exports (Per Cent of GNP) | 10.36 | 9.42 | 7.7 | 6.98 | 5.14 |

Note: NA = Not Available

- Sources: (1) International Monetary Fund, International Financial Statistics, Annual Supplement: 1972 (Washington, D.C.: IMF, 1974)
- (2) Government of Pakistan, Central Statistical Office, Monthly Statistical Bulletin (Islamabad, Government Printing Press) Various Issues
- (3) Government of Bangladesh, Bureau of Statistics, Statistical Digest of Bangladesh: 1972 (Dacca: Government Printing Press, 1974)

Table 1 (Continued)
 BASIC STATISTICS OF COUNTRIES
 IN THE INDIAN SUB-CONTINENT
 1950-1969

| | <u>1950</u> | <u>1955</u> | <u>1960</u> | <u>1965</u> | <u>1969</u> |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|
| <u>SRILANKA</u> \$1=Rs 5.97 | | | | | |
| Real GNP (US \$ Mill.) | 775.38 | 1005.53 | 1169.51 | 1312.56 | 1628.31 |
| Population (Mill.) | 7.68 | 8.72 | 9.90 | 11.16 | 12.25 |
| Real Per Capita GNP | 100.96 | 115.31 | 118.13 | 117.61 | 132.92 |
| Imports (Per Cent of GNP) | 28.35 | 26.32 | 29.61 | 18.19 | 21.81 |
| Exports (Per Cent of GNP) | 37.98 | 39.19 | 26.10 | 24.06 | 16.44 |
| <u>NEPAL</u> \$1=Rs 10.125 | | | | | |
| Real GNP (US \$ Mill.) | NA | NA | 393.801 | 442.627 | 629.522 |
| Population (Mill.) | NA | NA | 9.245 | 10.10 | 10.85 |
| Real Per Capita GNP | NA | NA | 42.496 | 43.825 | 58.020 |
| Imports (Per Cent of GNP) | NA | NA | 7.68 | 14.62 | 9.72 |
| Exports (Per Cent of GNP) | NA | NA | 3.50 | 7.87 | 5.56 |

Note: NA = Not Available

- Sources: (1) International Monetary Fund, International Financial Statistics, Annual Supplement: 1972 (Washington, D.C.: IMF, 1974)
 (2) Government of Pakistan, Central Statistical Office, Monthly Statistical Bulletin (Islamabad, Government Printing Press) Various Issues
 (3) Government of Bangladesh, Bureau of Statistics, Statistical Digest of Bangladesh: 1972 (Dacca: Government Printing Press, 1974)

Table 2

RATES OF IMPLICIT TARIFF: BY
DIRECT COMPARISON OF PRICES

$$\frac{\text{Domestic Price} - \text{World Price}}{\text{World Price}}$$

| <u>SITC Section</u> | <u>India (1968)</u> | <u>West Pakistan (1964)</u> | <u>Bangladesh (1964)</u> | <u>Srilanka (1964)</u> |
|--|-------------------------|---------------------------------|------------------------------|----------------------------|
| 0 Food and Live Animals | 1.796 | 3.136 | 3.628 | 0.166 |
| 1 Beverages and Tobacco | 1.079 | 1.850 | 1.850 | 0.229 |
| 2 Crude Materi- als, Inedible | 0.912 | 3.016 | 1.233 | 2.355 |
| 3 Mineral Fuels, Lubricants, Etc. | 0.505 | 1.070 | 1.070 | 0.300 |
| 4 Animal and Vege- table Oils and Fats | 0.800 | 1.060 | 1.060 | 0.166 |
| 5 Chemicals | 0.869 | 0.510 | 0.424 | 1.360 |
| 6 Manufactured Goods Chiefly Classified by Raw Materials | 1.103 | 1.053 | 0.484 | 0.695 |
| 7 Machinery and Transport Equipment | 0.788 | 1.168 | 2.411 | 0.463 |
| 8 Miscellaneous Manufactured Goods | 1.134 | 1.510 | 1.510 | 1.290 |

Note: Weights for averaging rates for each SITC Section are value added in world prices of commodities included in the relevant section.

Source: United Nations, ECAFE: International Trade Projections, Effective Protection and Income Distribution: Vol. II (Bangkok: U.N. Publishing Service, 1974)

Table 3
NEPAL'S TARIFF STRUCTURE

| <u>SITC Sections</u> | <u>Simple Average Advalorem Rate on Goods From Third Countries</u> |
|---|--|
| 0 Food and Live Animals | 0.35 |
| 1 Beverages and Tobacco | 1.324 |
| 2 Crude Materials | 0.040 |
| 3 Fuels, Lubricants, etc. | 0.126 |
| 4 Vegetable oils, fats, etc. | 0.062 |
| 5 Chemicals | 0.113 |
| 6 Manufactures, Classi- fied Chiefly by Materials | 0.258 |
| 7 Machinery and Transport Equipment | 0.181 |
| 8 Miscellaneous Manu- factured Goods | 0.128 |

Source: Nepal Press Digest, Customs Tariff Schedules, 1973 (Khatmandu: Mimeographed, 1973)

Table 4
 COMMODITY COMPOSITION OF FOREIGN TRADE OF
 INDIA FOR PERIODS 1960-1965 AND 1966-1970
 (Percentage of Total Trade)

| | <u>Imports from 1960-1965</u> | | | | <u>Imports from 1966-1970</u> | | | | <u>Exports to 1960-1965</u> | | | | <u>Exports to 1966-1970</u> | | | |
|---|-------------------------------|------------------------------|-----------------------|--------------|-------------------------------|------------------------------|-----------------------|--------------|-----------------------------|------------------------------|-----------------------|--------------|-----------------------------|--|-----------------------|--------------|
| | <u>World</u> | <u>Combined Pakistan</u> | <u>Sri- lanka</u> | <u>Nepal</u> | <u>World</u> | <u>Combined Pakistan</u> | <u>Sri- lanka</u> | <u>Nepal</u> | <u>World</u> | <u>Combined Pakistan</u> | <u>Sri- lanka</u> | <u>Nepal</u> | <u>World</u> | <u>Combined^a Pakistan</u> | <u>Sri- lanka</u> | <u>Nepal</u> |
| <u>Consumer Goods</u> | | | | | | | | | | | | | | | | |
| Food, Beverages, Tobacco and Edible Oils and Miscellaneous | 33 | 56 | 5 | 53 | 24 | -- | 5 | 57 | 38 | 12 | 57 | 23 | 34 | -- | 45 | 15 |
| <u>Intermediate Goods</u> | | | | | | | | | | | | | | | | |
| Agriculture Based, Minerals, Chemicals and Basic Manufactures | 30 | 44 | 95 | 47 | 47 | 100 | 95 | 41 | 60 | 79 | 35 | 72 | 62 | 100 | 45 | 77 |
| <u>Capital Goods</u> | | | | | | | | | | | | | | | | |
| Electric, Non-electric and Transport Equipment | 37 | -- | -- | -- | 29 | -- | -- | -- | 2 | 9 | 8 | 5 | 4 | -- | 10 | 8 |

a Covers the period for 1966 only

Source: United Nations: Commodity Trade Statistics (Annual) (New York: U.N. Publishing Service)

Table 5
 COMMODITY COMPOSITION OF FOREIGN TRADE OF
 PAKISTAN (COMBINED) 1960-1965 AND 1966-1970
 (Percentages of Total)

| | <u>Imports from 1960-1965</u> | | | | <u>Imports from 1966-1970</u> | | | | <u>Exports to 1960-1965</u> | | | | <u>Exports to 1966-1970</u> | | | |
|---|-------------------------------|--------------|-----------------|--------------|-------------------------------|--------------------------|-----------------|--------------|-----------------------------|--------------|-----------------|--------------|-----------------------------|--------------------------|-----------------|--------------|
| | <u>World</u> | <u>India</u> | <u>Srilanka</u> | <u>Nepal</u> | <u>World</u> | <u>India^a</u> | <u>Srilanka</u> | <u>Nepal</u> | <u>World</u> | <u>India</u> | <u>Srilanka</u> | <u>Nepal</u> | <u>World</u> | <u>India^a</u> | <u>Srilanka</u> | <u>Nepal</u> |
| <u>Consumer Goods</u> | | | | | | | | | | | | | | | | |
| Food, Beverages, Tobacco, Edible Oils, Miscellaneous | 24 | 12 | 74 | -- | 19 | 0 | 65 | -- | 13 | 56 | 78 | -- | 13 | 0 | 69 | -- |
| <u>Intermediate Goods</u> | | | | | | | | | | | | | | | | |
| Agriculture Based, Minerals, Chemicals and Basic Manufactures | 41 | 79 | 26 | -- | 43 | 100 | 35 | -- | 87 | 44 | 22 | -- | 86 | 100 | 31 | -- |
| <u>Capital Goods</u> | | | | | | | | | | | | | | | | |
| Electric, Non-electric and Transport Equipment | 35 | 9 | 0 | -- | 38 | 0 | 0 | -- | 0 | 0 | 0 | -- | 1 | 0 | 0 | -- |

a Covers only 1966

Source: United Nations: Commodity Trade Statistics (Annual)

Table 6
 COMMODITY COMPOSITION OF FOREIGN TRADE OF
 SRILANKA FOR 1960-1965 AND 1966-1970
 (Percentages of Trade)

| | <u>Imports from 1960-1965</u> | | | | <u>Imports from 1966-1970</u> | | | | <u>Exports to 1960-1965</u> | | | | <u>Exports to 1966-1970</u> | | | |
|---|-------------------------------|--------------|-----------------|--------------|-------------------------------|--------------|-----------------|--------------|-----------------------------|--------------|-----------------|--------------|-----------------------------|--------------|-----------------|--------------|
| | <u>World</u> | <u>India</u> | <u>Pakistan</u> | <u>Nepal</u> | <u>World</u> | <u>India</u> | <u>Pakistan</u> | <u>Nepal</u> | <u>World</u> | <u>India</u> | <u>Pakistan</u> | <u>Nepal</u> | <u>World</u> | <u>India</u> | <u>Pakistan</u> | <u>Nepal</u> |
| <u>Consumer Goods</u> Food, Beverages, Tabacco, Edible Oils, Miscellaneous Goods | 49 | 57 | 78 | -- | 46 | 45 | 69 | -- | 58 | 5 | 74 | -- | 68 | 5 | 65 | -- |
| <u>Intermediate Goods</u> Agriculture Based, Minerals, Chemicals, Basic Manufactures | 39 | 35 | 22 | -- | 38 | 45 | 31 | -- | 42 | 95 | 26 | -- | 32 | 95 | 35 | -- |
| <u>Capital Goods</u> Electric, Non-electric and Transport Equipment | 12 | 8 | 0 | -- | 16 | 10 | 0 | -- | 0 | 0 | 0 | -- | 0 | 0 | 0 | -- |

Source: United Nations: Commodity Trade Statistics (Annual)

Table 7
 COMMODITY COMPOSITION FOR FOREIGN TRADE OF
 NEPAL FOR 1960-1965 AND 1966-1970

| | <u>Imports from 1960-1965</u> | | | | <u>Imports from 1966-1970</u> | | | | <u>Exports to 1960-1965</u> | | | | <u>Exports to 1966-1970</u> | | | |
|--|-------------------------------|--------------|------------------|-----------------|-------------------------------|--------------|------------------|-----------------|-----------------------------|--------------|------------------|-----------------|-----------------------------|--------------|------------------|-----------------|
| | <u>World</u> | <u>India</u> | <u>Sri-lanka</u> | <u>Pakistan</u> | <u>World</u> | <u>India</u> | <u>Sri-lanka</u> | <u>Pakistan</u> | <u>World</u> | <u>India</u> | <u>Sri-lanka</u> | <u>Pakistan</u> | <u>World</u> | <u>India</u> | <u>Sri-lanka</u> | <u>Pakistan</u> |
| <u>Consumer Goods</u> Food, Beverages, Tobacco, Edible Oils, Miscellaneous Goods | 29 | 23 | -- | -- | 27 | 15 | -- | -- | 69 | 53 | -- | -- | 55 | 59 | -- | -- |
| <u>Intermediate Goods</u> Agriculture Based, Minerals, Chemicals, Basic Manufacture | 66 | 72 | -- | -- | 66 | 77 | -- | -- | 31 | 47 | -- | -- | 45 | 41 | -- | -- |
| <u>Capital Goods</u> Electric, Non-electric and Transport Equipment | 5 | 5 | -- | -- | 7 | 8 | -- | -- | 0 | 0 | -- | -- | 0 | 0 | -- | -- |

Source: United Nations, ECAFE, Statistical Year Book for Asia and Far East: 1973 (Bangkok: U.N. Publishing Service, 1974)

Table 8

ANNUAL COMPOUND PERCENTAGE RATES
OF GROWTH OF IMPORTS AND EXPORTS
IN CURRENT PRICES: 1950-1969

| | <u>1950-1955</u> | <u>1955-1960</u> | <u>1950-1960</u> | <u>1960-1965</u> | <u>1965-1969</u> | <u>1960-1969</u> |
|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <u>India</u> | | | | | | |
| Imports | 4.2 | 11.2 | 7.7 | 4.2 | 5.3 | 4.7 |
| Exports | 2.0 | 1.0 | 1.5 | 4.8 | 14.4 | 9.0 |
| <u>Pakistan</u> | | | | | | |
| Imports | -3.9 | 17.6 | 6.4 | 5.8 | 3.4 | 4.7 |
| Exports | -12.6 | -6.6 | -9.6 | 17.4 | 8.4 | 13.2 |
| <u>Bangladesh</u> | | | | | | |
| Imports | -4.7 | 25.8 | 8.4 | 5.5 | 8.1 | 6.7 |
| Exports | -3.0 | 3.9 | 0.4 | 3.8 | 2.4 | 3.1 |
| <u>Srilanka</u> | | | | | | |
| Imports | 4.7 | 6.0 | 5.4 | 0 | 6.5 | 2.9 |
| Exports | 4.4 | -2.3 | 2.2 | 2.3 | -0.4 | 1.0 |

Table 9

INTRA-REGIONAL TRADE IN THE INDIAN SUB-CONTINENT
AND ITS SHARE IN THE WORLD TRADE: 1962-1970
(In Million US \$)

| Year | Total Intra Exports of Indian Sub- Continent (F.O.B. Prices) | Total Intra Imports of Indian Sub- Continent (C.I.F. Prices) | Total Exports of World (F.O.B. Prices) | Total Imports of World (C.I.F. Prices) | Share of Intra-trade in World Trade | |
|------|--|--|--|--|--|-----------------------------------|
| | | | | | Share of Exports (Per Cent) | Share of Imports (Per Cent) |
| 1962 | 112.503 | 118.528 | 141,400 | 149,800 | 0.07956 | 0.07912 |
| 1963 | 101.527 | 99.406 | 154,100 | 162,300 | 0.06588 | 0.06124 |
| 1964 | 148.402 | 146.426 | 172,400 | 181,900 | 0.08608 | 0.08409 |
| 1965 | 152.205 | 157.650 | 186,400 | 198,400 | 0.08615 | 0.07986 |
| 1966 | 104.030 | 116.251 | 204,000 | 215,900 | 0.05099 | 0.05384 |
| 1967 | 85.188 | 91.447 | 214,600 | 227,000 | 0.02969 | 0.04028 |
| 1968 | 93.630 | 96.181 | 239,000 | 251,800 | 0.03917 | 0.03819 |
| 1969 | 119.993 | 115.490 | 239,100 | 285,800 | 0.05018 | 0.04040 |
| 1970 | 112.260 | 111.930 | 311,800 | 327,300 | 0.03600 | 0.03419 |

Source: United Nations: Commodity Trade Statistics (New York: U.N. Publishing Service), Annual
United Nations: International Trade Statistics Yearbook (New York: U.N. Publishing Service), Annual

Table 10

INTRA-REGIONAL TRADE IN THE SUB-CONTINENT:
 IMPORTS IN U.S. MILLION DOLLARS WITH PERCENTAGES OF TOTAL
 IMPORTS OF EACH COUNTRY GIVEN IN PARENTHESES FOR YEAR 1965

| <u>To/From</u> | <u>India</u> | <u>Pakistan (Combined)</u> | <u>Srilanka</u> | <u>Nepal</u> | <u>Total Imports from the Region</u> |
|-------------------------------|-----------------|--------------------------------|-----------------|----------------|--|
| India | -- | 27.3 (0.97) | 9.5 (0.34) | 23.8 (0.85) | 60.6 |
| Pakistan (Combined) | 20.6 (1.98) | -- | 6.7 (0.64) | -- | 27.3 |
| Srilanka | 27.8 (8.98) | 9.7 (3.13) | -- | -- | 37.5 |
| Nepal | 31.8 (81.75) | -- | -- | -- | 31.8 |
| All Countries of Region | 80.2 | 37.0 | 16.2 | 23.8 | 157.2 |

Source: United Nations: Commodity Trade Statistics (New York: U.N. Publishing Service, 1965)

Table 11
 COMMODITY COMPOSITION OF INTRA-REGIONAL IMPORTS
 FOR THE YEAR 1965
 (In Million US \$)

(Figures in Parentheses Denote Percentages)

| SITC Sections | Country | | | | Total of Region |
|-------------------|------------------|------------------|------------------|------------------|-----------------------|
| | India | Pakistan | Srilanka | Nepal | |
| 0 | 15.7 (25.91) | 1.7 (6.22) | 18.0 (48.00) | 3.5 (11.01) | 38.9 (24.75) |
| 1 | -- | -- | 0.5 (1.32) | 2.2 (6.92) | 2.7 (1.72) |
| 2 | 39.2 (64.58) | 4.3 (15.75) | 2.6 (7.03) | 2.1 (6.60) | 48.2 (30.66) |
| 3 | -- | 7.7 (28.21) | 0.2 (0.53) | 5.7 (17.92) | 13.6 (8.65) |
| 4 | 0.2 (0.03) | 4.7 (17.22) | -- | 0.5 (1.57) | 5.4 (3.44) |
| 5 | -- | 1.2 (4.40) | 0.8 (2.13) | 1.2 (3.77) | 3.2 (2.04) |
| 6 | 4.8 (7.92) | 4.5 (16.48) | 12.1 (32.27) | 13.8 (43.39) | 35.2 (22.39) |
| 7 | -- | 1.9 (6.96) | 0.9 (2.40) | 1.6 (5.03) | 4.4 (2.80) |
| 8 | -- | 1.1 (3.99) | 2.1 (5.60) | 1.1 (3.46) | 4.3 (2.74) |
| All SITC Sections | 60.6 (100.00) | 27.3 (100.00) | 37.5 (100.00) | 31.8 (100.00) | 157.2 (100.00) |

Table 12(a)

EXPORT INTENSITY OF TRADE WITH OTHER COUNTRIES IN
THE INDIAN SUB-CONTINENT: INDEX OF INDIA

| <u>Countries/Years</u> | <u>1962</u> | <u>1964</u> | <u>1966</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pakistan (Combined) | 275.4 | 193.4 | 0.60 | -- | -- | -- |
| Srilanka | 948.2 | 893.1 | 860.8 | 1043.7 | 1185.6 | 1508.9 |
| Nepal | 31.4 | 8601.8 | 10606.9 | 10326.6 | 11541.3 | 11529.7 |

Table 12(b)

INDEX OF COMBINED PAKISTAN

| <u>Countries/Years</u> | <u>1962</u> | <u>1964</u> | <u>1966</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| India | 631.8 | 503.6 | 2.5 | -- | -- | -- |
| Srilanka | 429.1 | 970.2 | 1159.5 | 740.2 | 1074.2 | 1510.7 |
| Nepal | -- | 90.1 | 3.8 | 1.3 | -- | -- |

Table 12(c)

INDEX OF SRILANKA

| <u>Countries/Years</u> | <u>1962</u> | <u>1964</u> | <u>1966</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| India | 226.5 | 267.4 | 97.6 | 116.4 | 180.1 | 141.9 |
| Pakistan (Combined) | 260.9 | 336.1 | 60.7 | 503.7 | 719.7 | 509.0 |

Table 12(d)

INDEX OF NEPAL

| <u>Countries/Years</u> | <u>1962</u> | <u>1964</u> | <u>1966</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| India | -- | 6968.2 | 6035.3 | 6796.0 | 9185.6 | 9250.8 |

NOTES TO CHAPTER III

1. Little, I. M. D., Scitovsky, T. and Scott, M., Industry and Trade in Some Developing Countries: A Comparative Study, (London: Oxford University Press, 1970) pp. 217-20.
2. Bhagwati, J. N., and Desai, P., India: Planning for Industrialisation, (London: Oxford University Press, 1970).
3. Lewis, S. R., Pakistan: Industrialisation and Trade Policies, (London: Oxford University Press, 1970).
4. United Nations, ESCAP, Intra-regional Trade Projection, Effective Protection and Income Distribution, Vol. II: Effective Protection, (Bangkok: U. N. Publishing Service, 1974)
5. Shrestha, B. P., An Introduction to Nepalese Economy, Kathmandu: Ratna Pustak Bhandar, 1968.
6. Nepal Press Digest, Customs Tariff Schedules, 1973 (Kathmandu: 1973).
7. United Nations, ESCAP, op. cit., Chapters 1 to 4.
8. Bhagwati and Desai, op. cit., Chapter 18.
Little, et al, op. cit., Chapter 7.
Lewis, S. R., op. cit., Chapter 4.
9. Benjamin Cohen refers to this as a self-fulfilling prophecy. Emphasis on industrialization to the neglect of agriculture in less developed countries, which depend on primary commodities to a large extent, leads to a decline in foreign exchange earnings and as a consequence, what is initially believed becomes subsequently a fact. See Cohen, B. I., "The International Development of India and Pakistan," in Robinson, A. and Kidron, M., ed., Economic Development in South Asia (New York: St. Martin's Press, 1970) p. 551.
10. The data sources are:
 - (a) United Nations, Commodity Trade Statistics (Annual), (New York: U. N. Publishing Service) Volumes from 1962 to 1971.
 - (b) Government of India, Director General of Commercial Intelligence, Monthly Foreign Trade Statistics, Vol. 1 and 2 (Calcutta: Government of India Press), Issues for years from 1962 to 1971.
11. Brown, A. J., Applied Economics, Aspects of the World Economy in War and Peace, (London: 1947) pp. 212-216.
12. Kojima, K., "Trade Arrangements among Industrial Countries: Effects on Japan," in Balassa, B., ed., Studies in Trade Liberalisation, (Baltimore: Johns Hopkins Press, 1967) pp. 177-216.

CHAPTER IV

Estimation of Price Elasticities of Demand for Imports

Introduction

This chapter consists of two parts. In the first part theoretical aspects of estimation procedure will be examined. In the second part the regression results will be presented.

Theoretical Considerations

The procedure adopted to estimate the elasticities of demand for imports is the ordinary least squares single equation method. Though there was some controversy about this method,¹ it has now been settled that in case of small countries which do not occupy a dominant position in world trade as suppliers or consumers, their smallness does not have any impact on the exogenously determined world prices or commodities and hence, single equation method could be used with justification.² For better and accurate estimates, it was also suggested that disaggregated studies, both by commodities and by areas of origin of imports should be conducted.³

Functional Form

The general function for import demand closely follows the conventional theory of demand, according to which, the consumer allocates his income among consumable goods, in order to maximize his satisfaction. Therefore, the quantity of imports purchased in case of an economy, depends on its income, price of imports and price of consumable goods domestically

produced. This can be written as:

$$Q_{m,t} = F (P_{m,t} \cdot , P_{w,t} , Y_e) \quad (1)$$

where Q_m = Quantity of imports of the commodity

P_m = Price level of imports

P_w = Price level of domestic goods, generally wholesale price index

Y = Money income

t = The period under consideration

The theory of demand also suggests the transformation on the following lines:

$$Q_{m,t} = f \left(\frac{P_{m,t}}{P_{w,t}} , \frac{Y_e}{P_{w,t}} \right) \quad (2)$$

This assumes the absence of money illusion, that is, a doubling of all prices and money income would leave the quantity demanded unchanged. As Leamer and Stern point out, the theoretical justification for a similar approach to demand analysis in foreign trade is not sufficiently strong to justify the equation but none the less it is the form which has been traditionally used in demand analysis in international trade.⁴

The above form is based on the preposition that imports and domestic goods are not perfect substitutes, and therefore, domestic supply would affect imports only through its impact on domestic prices.

In addition to the above variables, the additional explanatory variables normally include real net foreign assets (net foreign assets as reported in current prices by the concerned Central Bank of the economy deflated by the domestic price level), dummy variables for unusual periods,

and dummy variables for seasonal variation. Real net foreign assets assume significance in the case of less developed countries, since they are indicative of the strictness of controls affecting imports; that is, imports may respond in these countries more to foreign exchange availability than to the level of real income.⁵ As regards unusual periods such as years during and after devaluation, the dummy variable captures the structural shift's influence on imports. Such a variable would assume the value of one for the duration of the unusual occurrence and zero otherwise. If quarterly data are used, it is desirable to employ dummy variables to reflect the seasonal variation in relationship.⁶

Thus, the import demand relationship can be fitted using statistically the least square regression and a particular functional form either linear or log linear. The log linear form has a particular advantage in that the coefficients of either relative price or real income variables gives directly the value of either price or income elasticity of demand for imports. If the data of the independent and dependent explanatory variables are annual observations, the equation takes the form as follows:

$$\log Q_{m,t}^X = \log a_1 + b_1 \log \left(\frac{P_m^X}{P_w} \right)_t + b_2 \log \left(\frac{Y}{P_w} \right)_t + b_3 \log \left(\frac{NFA}{P_w} \right)_t + \log U_t \quad (3)$$

where Q_m^X = quantum index of imports from region X

P_m^X = unit value index of imports from region X

P_w = wholesale price index of importing country

Y = national income of the country in current prices

NFA = net foreign assets in current prices

u = error term

t = period under consideration

This is equivalent to:

$$Q_{m,t}^x = a_1 \left(\frac{P_m^x}{P_w} \right)_t^{b_1} \left(\frac{Y}{P_w} \right)_t^{b_2} \left(\frac{NFA}{P_w} \right)_t^{b_3} u_t \quad (4)$$

where t relates to the period under consideration, b_1 and b_2 measure price and income elasticities of demand respectively. These elasticities are partial elasticities. For example:

$$b_1 = \frac{\partial \log Q_{m,t}^x}{\partial \log (P_m^x / P_w)_t}$$

which assumes all other explanatory variables whether specified in the equation such as $\left(\frac{Y}{P_w} \right)_t$ and $\left(\frac{NFA}{P_w} \right)_t$ and unspecified variables such as price of imports from other regions amalgamated in the error term (u_t) are held constant. Similarly is:

$$b_2 = \frac{\partial \log Q_{m,t}^x}{\partial \log (Y / P_w)_t}$$

Due to this particular nature, as a logical outcome of ceteris paribus conditions, the price elasticity of demand for imports has the component of elasticity of substitution in it, if the equation fits the demand relationship of an economy for imports from a specific country or a specific region. Suppose there are two sources of supply, say X and Z and the equation as above, fits the import demand relationship for imports from X only. In this particular situation, under ceteris paribus conditions,

the price of imports from Z, namely $P_{m,t}^Z$, is considered to be held constant and the partial elasticity

$$\frac{\partial \log Q_{m,t}^X}{\partial \log (P_m^X / P_m^Z)_t}$$

signifies the elasticity of demand for imports from the source X with respect to relative price level of imports from the same source.

This could be illustrated by an indifference curve analysis. It is assumed for simplicity's sake the domestic wholesale price remains unchanged during the period under analysis and the net foreign assets are ignored. Then we have the influence of three variables, namely money income, price level of imports (P_m^X) from source X and price level of imports from source Z, on demand for imports from source X (Q_m^X). At the initial price level signified by the budget line AB quantities consumed of Q_m^X and Q_m^Z are OK and OJ. Suppose only the price of Q_m^X falls whereas other things, including real income and price of Q_m^Z , remain unchanged. Constancy in real income is indicated by the indifference curve reached earlier remaining the same and the fall in P_m^X alone with no price change in Q_m^Z is reflected by the flatter budget line since the slope of the new budget line A'B' is less than that of the previous budget line AB. The increase in consumption of Q_m^X from OK to ON is not only due to the direct price effect (fall in the price of imports from source X) but also due to a change in the price ratio which may be described as one of substitution. To be particular, the quantity ratio $\left(\frac{Q_m^X}{Q_m^Z}\right)$ increase as a result of a decline in price ratio $\left(\frac{P_m^X}{P_m^Z}\right)$.

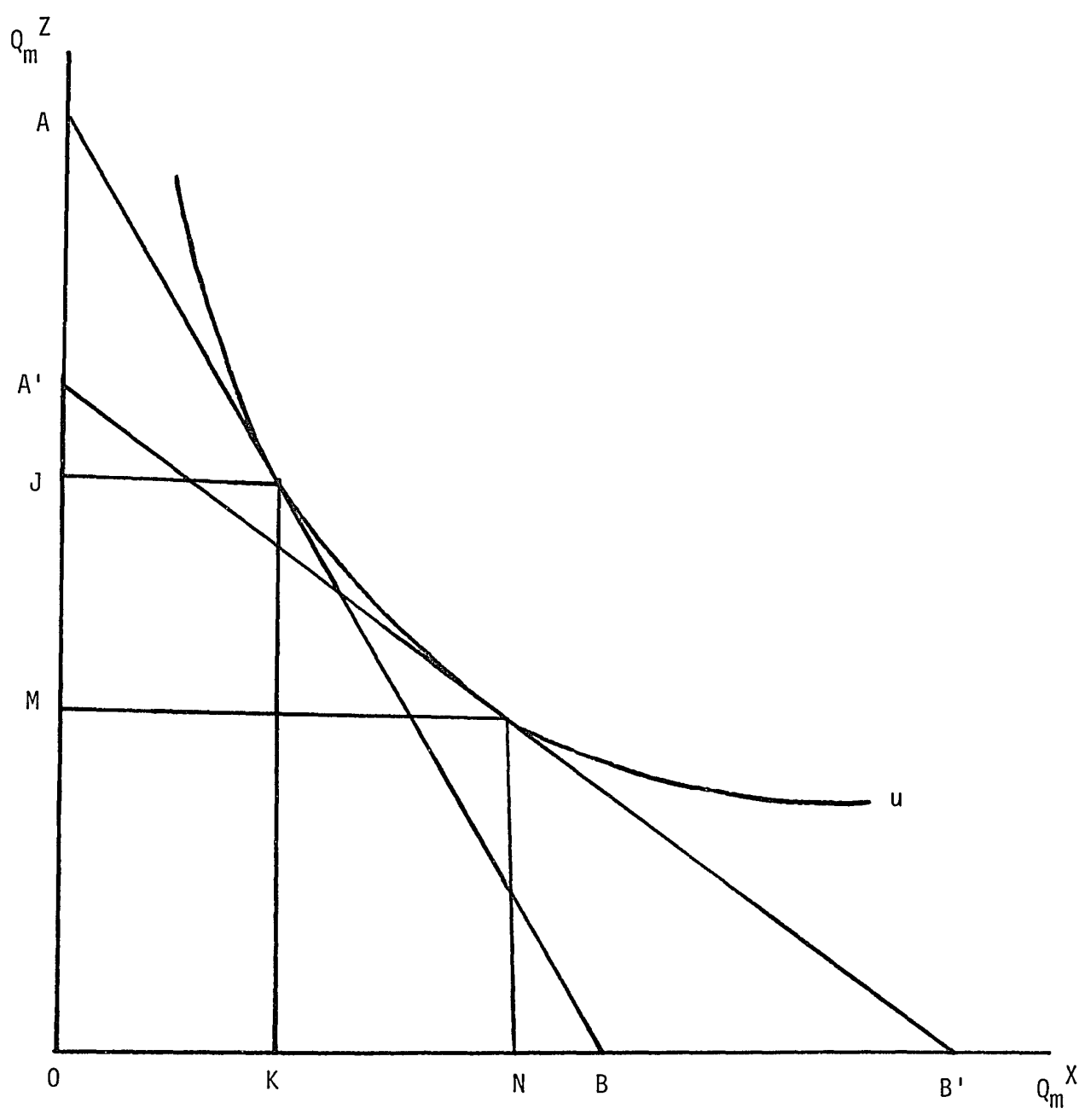


Figure 9
Elasticity of Substitution

This can be shown in a more rigorous manner. Elasticity of substitution between two sources of supply can be shown as follows:

$$\begin{aligned}
 e_s &= \frac{d \log (Q_m^X / Q_m^Z)}{d \log (P_m^X / P_m^Z)} \\
 &= \frac{d [\log Q_m^X - \log Q_m^Z]}{d [\log P_m^X - \log P_m^Z]} \\
 &= \frac{\frac{d \log Q_m^X}{d \log P_m^X} - \frac{d \log Q_m^Z}{d \log P_m^X}}{1 - \frac{d \log P_m^Z}{d \log P_m^X}} = \frac{e_{m,x} - \frac{d \log Q_m^Z}{d \log P_m^X}}{1 - \frac{d \log P_m^Z}{d \log P_m^X}} \\
 \therefore e_{m,x} &= e_x \left(1 - \frac{d \log P_m^Z}{d \log P_m^X} \right) + \left(\frac{d \log Q_m^Z}{d \log P_m^X} \right) \quad (5)
 \end{aligned}$$

where $e_{m,x}$ is elasticity of demand for imports from source X. As there is no change in the price of imports from source Z, the term $\frac{d \log P_m^Z}{d \log P_m^X}$ becomes zero. The term $\frac{d \log Q_m^Z}{d \log P_m^X}$ is the cross partial elasticity of demand for imports from source Z with respect to price of imports from X.

Thus, the import elasticity of demand for imports from source X whose price alone changes, the price of imports from the other source remaining unchanged, is equal to elasticity of substitution plus the cross partial elasticity of demand which is negative since the two imports are close substitutes but not perfect substitutes. Therefore, the sign of the

elasticity of demand for imports from source X has the negative sign since both elasticity of substitution and the partial cross elasticity of demand have negative signs.

Application of the Model

The model for estimating elasticity of demand for imports from a region or a country where data relating to the quantity and price of imports, national income and net foreign assets are available only on an annual basis, the model would be the same as given in equation (3).

Where the data are available on a quarterly basis or where monthly data are available which can be converted in four different quarters of the year, it was found advisable to use a quarterly model despite the fact that GNP figures are available only on an annual basis. The quarterly model thus would have adjustments in regard to the annual figure. The model is:

$$\begin{aligned}
 \log Q_{m,t}^X &= a + b_1 \log \left(\frac{P_m^X}{P_w} \right)_t + b_2 \log \left(\frac{NFA}{P_w} \right)_t \\
 &+ b_3 \log \left(\frac{GNP}{P_w} \right)_t + b_4 \log \left(\frac{GNP}{P_w} \cdot D_2 \right)_t \\
 &+ b_5 \log \left(\frac{GNP}{P_w} \cdot D_3 \right)_t + b_6 \log \left(\frac{GNP}{P_w} \cdot D_4 \right)_t \\
 &+ b_7 D_2 + b_8 D_3 + b_9 D_4 + u_t \quad (6)
 \end{aligned}$$

where in addition to the explanation offered for the variables given in the annual model,

D_2 = dummy variable which assumes the value of unity for second quarter and zero for all other quarters

D_3 = dummy variable which assumes the value of unity for third quarter and zero for all other quarters

D_4 = dummy variable which assumes the value of unity for fourth quarter and zero for all other quarters

Thus in both annual and quarterly models the estimated coefficients b_1 and b_2 would represent price elasticity of demand for imports and net foreign assets elasticity of demand for imports. In the annual model there is a single annual income elasticity of demand for import coefficients but in the quarterly model due to quarterly income elasticities such as:

b_3 = income elasticity coefficient for first quarter

$b_3 + b_4$ = income elasticity coefficient for second quarter

$b_3 + b_5$ = income elasticity coefficient for third quarter

$b_3 + b_6$ = income elasticity coefficient for fourth quarter

The above quarterly model with income adjustment is preferred to the one using the annual GNP for each of the four quarters under the assumption that there is no change in income variation in a given year from quarter to quarter. The model with the quarterly adjustments for income captures the impact of income variations and yields a more accurate price elasticity coefficient, which is our prime concern, than the other quarterly model with no quarterly adjustments.

Another quarterly model with industrial production as substitute for income has also been used. Such a model has been found more useful in yielding accurate price elasticity of demand coefficient when the dependent variable happened to be imports such as basic manufactures (SITC Section 6), machinery and equipment (SITC Section 7), or where imports have been

grouped as intermediate products or capital equipment. Imports of these natures are directly demanded for industrial production and hence, it appears more appropriate to use industrial production as an independent explanatory variable in the place of national income. As industrial production indices are available on a quarterly basis, the model becomes simpler as no quarterly adjustments of the kind made in regard to annual income index are any more necessary. However, the dummy variables are retained to capture the impact of seasonal variations on demand. The model is:

$$\begin{aligned} \log Q_{m,t}^X &= a + b_1 \log \left(\frac{P_m^X}{P_w} \right)_t + b_2 \log \left(\frac{NFA}{P_w} \right)_t \\ &+ b_3 \log \text{INDP}_t + b_4 \cdot D_2 + b_5 \cdot D_3 + b_6 \cdot D_4 \\ &+ u_t \end{aligned} \quad (7)$$

where in addition to the notational explanation given earlier, INDP_t = Industrial production quantum for the t th quarter. The estimated b_3 would represent the elasticity of demand for imports with respect to industrial production.

For each country in the sub-continent elasticities of demand for imports with respect to imports from each prospective member country of the hypothetical union, as well as from the rest of the world, have been estimated. In the case of estimation of the elasticities of imports from the rest of the world, ideally speaking, the total quantum and total value of imports from other member countries should be subtracted from the world imports figures and thereafter the indices should be constructed. But as

the proportion of the pre-intra union trade both in absolute and percentage terms for each country is so small and hence insignificant, the elasticity of demand for imports from the world have been treated as identical to those from the rest of the world. This assumption has enabled the researcher to use the published quantum and unit value for each country in respect of imports for SITC sections from 0 to 8.⁷

| | |
|-----------|--|
| Section 0 | Food and live animals |
| Section 1 | Beverages and tobacco |
| Section 2 | Crude materials inedible |
| Section 3 | Mineral fuels, lubricants, etc. |
| Section 4 | Animal and vegetable oils and fats |
| Section 5 | Chemicals |
| Section 6 | Manufactured goods classified chiefly by raw materials |
| Section 7 | Machinery and transport equipment |
| Section 8 | Miscellaneous manufactured articles |

In regard to intra-trade, however, index members are constructed for each SITC section. The commodities selected for each SITC section were chosen to be representative such that there has been a steady trade over time and the minimum number of such commodities was 15. In certain sections such as SITC 6, the commodities considered numbered as many as twenty-five. For each section for a given country quantity of imports for a given commodity included in that section and its respective value from a particular source, i.e., from one particular member country, were separately calculated and an aggregate quantity and price indices were constructed.⁸

While fitting the equations, several trials were made. Apart from trying industrial production as a substitute variable for national income in appropriate cases like raw materials, chemicals, machinery and transport equipment imports, etc., and also from regressing on time trend in addition to the variables listed lags were introduced in the explanatory variables. Such lags seem reasonable as it appears that current year or quarter imports are a function of past year or quarter relative price level or national income or net foreign assets since the orders placed in a given year or quarter take time for execution of imports.

When no good fit was obtained for a single SITC section of imports, aggregation of two or more sections was done and regression analysis was carried out in respect of such aggregated imports.

The regression results are presented in regard to estimation of elasticities under the heading of each country. The 't' ratios are reported in parentheses instead of the conventional standard errors below each coefficient. This is with a view to readily convey the test for significance.

INDIA

Demand for Imports from the Rest of the World

For calculating elasticities of demand for imports for eight SITC sections of commodities, 21 quarterly observations were utilized covering the period beginning from the first quarter of 1967 to the first quarter of 1972. The first quarter of 1967 marks the early part of the post-devaluation period of Indian rupee as devaluation took place in the second quarter of 1966. The quantum and unit value indices for each SITC section, the wholesale price index for each quarter for the period under

consideration and the net foreign assets index are obtained from the official publications of the country. The net foreign assets consist of gold, foreign exchange and SDR's held both by the Government and the Central Bank.

The best regression results are presented in Table 13.

Imports from Pakistan

Regression analysis was carried out for the six-year period from 1960 to 1965. There was steady trade only during this period and relations were normal. The data available only in semi-annual form and hence 12 observations were used for regression analysis.⁹ The explanatory variables remain the same except the net foreign assets. Since pre-intra union trade was a very small part of total trade of India, it was considered advisable to drop this variable as it did not seem to have any major impact on imports as it did have on imports from the rest of the world.

As the observations were of semi-annual character and as no semi-annual GNP figures are available, the usual semi-annual income adjustments were introduced as was done in the case of the quarterly model.

Imports of India from the former West wing of Pakistan chiefly consisted of SITC section 0 (food and live animals) and section 2 (crude materials). There are no imports under SITC sections 3 and 4. Very small amount of imports under sections 5, 6 and 7 were resorted to, but often there was no steady trade. Hence, it was considered appropriate to aggregate imports under sections 2, 5 and 6 and 7 for regression analysis. Regression analysis was, however, done in case of Section 8, imports

namely miscellaneous manufactured goods. The best regression results are summarized in Table 14.

Imports from Bangladesh

The period under consideration is 1960 to 1965 and the number of observations are 12 semi-annual observations as in the case of Pakistan.¹⁰ Though normalcy in political relations were restored after the birth of a new nation, economic conditions were far from normal.

There were no imports from Bangladesh, then known as East Pakistan, under SITC sections 1, 3, 4 and 5. There were small but unsteady imports under sections 6 and 7, which have been aggregated for regression analysis.

The best regression results are presented in Table 15.

Imports from Srilanka

The period under consideration is 1968 to 1972 giving rise to 20 quarterly observations.¹¹ The quarterly model, was therefore used to run the regressions. The net foreign assets as an explanatory variable was dropped from the variable for the reason that they do not appear to affect pre-intra union trade which forms a very small part of total trade.

India's imports from Srilanka are confined to only three SITC sections, namely section 2 (crude materials), section 4 (vegetables and animal oils and fats), and section 5 (chemicals). The latter two are aggregated into a single group for regression purposes.

Table 16 presents the best regression results.

Imports from Nepal

India's imports from Nepal cover the following SITC sections:

Sections 0, 1, 2, 4, 5 and 6. The period under consideration is 1968 to 1972 and the number of quarterly observations used is 20.¹² The quarterly model without the net foreign assets variable was used for estimation purposes.

The best regression results are given in Table 17.

PAKISTAN

Pakistan's Imports from the Rest of the World

For estimating the elasticities of demand for imports, the period considered was 1969-1972 and in all 17 quarterly observations were taken.¹³ Since the regional GNP figures for Pakistan is available only on an annual basis, quarterly adjustments have been made for the GNP variable. Apart from the dummy variables for taking into account of seasonal variations, a dummy variable is also used for the purpose of capturing the influence of devaluation of the Pakistan rupee which took place in May 1972. Accordingly, the dummy variable K assumes the value of unity for the quarter in which devaluation took place and subsequent quarters to it, and zero for previous quarters.

Table 18 presents regression results in respect of all eight commodity groups.

Imports from India

The period of study refers to the steady trade period of 1960 to 1965. The official documents of Pakistan did not follow the practice of India in reporting import figures separately for the West wing and East wing of former Pakistan. Hence reliance has to be placed on Indian

official trade statistics, which reported the Indian exports to Pakistan by destination of region.¹⁴ This, therefore, yields import value figures at FOB prices of India. Regression analysis then requires assumption of constancy of transport costs. The number of observations is 12, which are the semi-annual observations for the six-year period. The models with semi-annual income adjustments was used.

Table 19 gives the regression results in respect of all commodity groups.

Imports from Srilanka

Difficulties in regard to data were experienced in regard to Srilanka. There are no statistics of trade flows maintained between Srilanka and two wings of Pakistan separately in terms of quantities and values either monthly or quarterly. Hence, an assumption has been made necessary, namely that the elasticities of demand for imports from Srilanka for both Pakistan and Bangladesh are identical. Further, as no quarterly data or monthly data are available, annual observations are used for regression analysis. As the volume of trade with Srilanka is a small part of total trade for Pakistan, both net foreign assets and the dummy variable for devaluation were dropped from the model.

Commodity imports from Srilanka into Pakistan fall under only three SITC categories, namely 0, 2 and 4. Imports under sections 2 and 4 have been aggregated for the purpose of regression analysis.

The regression analysis is presented in Table 20.

BANGLADESH

Imports from the Rest of the World

As the period following the birth of the nation in 1971 was one of reconstruction, the trade figures of an earlier period were used as they reflect normalcy of times. The period under consideration covers fifteen years, from 1956-57 to 1970-71. These figures do not naturally include the inter-wing trade between Bangladesh, the former East wing and the West wing, and they refer only to trade with the rest of the world. As these figures are available only on an annual basis, the annual model has been utilized for estimation purposes. As regards explanatory variables, regional income figures as far as available from the data sources have been used, though the former East wing's published indicators included a wholesale price index, no indicators relating to industrial production are available. Hence, the available gross value added in the industrial section has been used as a proxy for industrial production. As this variable has been quoted in current prices, it has been deflated by the wholesale price index.

As regards the net foreign assets, the total assets of former Pakistan were used as the explanatory variable for the reason that since Bangladesh was politically part of former Pakistan her imports were a function of the former Pakistan's foreign assets.

Table 21 presents the regression results covering all the eight commodity groups.

Imports from India

As in the case of Pakistan's imports from India, the source relied

upon for construction of indices was again the Indian official source which clearly designated her exports to the two wings of Pakistan by destination. The period of observations is also the same, i.e., 1960-65 with 12 semi-annual observations. The former east Pakistan's imports for India were under all SITC sections.

The regression results are given in Table 22.

Imports from Srilanka

The regression analysis is the same as was done in the case of Pakistan's imports from Srilanka. This is for the reason that data in regard to quantity and value of imports from Sirlanka were not separable between the West and East wings of former Pakistan.

Therefore, regression results would be the same as presented in Table 20.

SRILANKA

Imports from the Rest of the World

Quantum and unit value of imports indices are available in respect of her imports for the world under the categories of (a) Food and drink, (b) textiles, (c) consumer goods, (d) intermediate goods, and (e) capital goods. They can be conveniently aggregated as per the SITC sections; for example, intermediate goods refer to SITC sections 2, 3, 4 and 5. Capital goods would go under the description of SITC sections 6 and 7.

The period for which the indices available on an annual basis is 1956-1970. Hence, we have 15 annual observations. There was a devaluation during this period, which took place in 1968. Therefore, a dummy variable has been added to the annual model to take account of the

account of the influence of devaluation on the dependent variable. Further, as no wholesale price index is available for Srilanka, the consumer price index has been used to deflate the explanatory variable as a proxy for wholesale price index.

Table 23 presents the regression results for the five commodity groups.

Imports from India

Srilanka's official trade publication does not give details of her trade with India or countries in the sub-continent but only broad categories and value figures. Hence, for detailed information relating to quantities and value for each of the eight SITC sections, the Indian source has to be relied upon for construction of quarterly index numbers. The period of study is from 1968-1972, and the number of observations is 20. The quarterly model does not include Srilanka's foreign assets as an explanatory variable for the same reason as in regards to intra-union trade.

Srilanka's imports from India are covered by SITC sections 0, 2, 3, 5, 6, 7 and 8. SITC sections 2, 3 and 5 have been aggregated for regression purposes.

The regression results are summarized in Table 24.

Imports from Pakistan and Bangladesh

As no separate figures of imports, in terms of quantity and value, are available in regard to the source of origin, either from the East or the West of former Pakistan, there is no alternative to running regression equations for imports from combined Pakistan.

The period covered is 1962 to 1969 with 8 annual observations. The annual model does not include the net foreign assets as an explanatory variable.

Imports from combined Pakistan have been split into SITC sections 0, 2, 3, 5 and 6. However, imports under sections 3 and 6, and 3 and 5 have been aggregated respectively for regression purposes.

The regression results are summarized in Table 25.

NEPAL

Imports from India

Due to lack of official Nepalese data in regard to quantity and value figures of imports of Nepal both from India and the world, Indian official statistics have to be relied upon.

As imports from India into Nepal dominate to the extent of 75 per cent to 80 per cent of her total imports, and as no such detailed information in regard to her trade with the rest of the world is available, it is assumed for our purpose that elasticities of demand for imports from India and the world are identical.

The period of study is 1968-72 and the number of quarterly observations utilized is 21. The quarterly model has two changes: the net foreign assets variable is exclusively Nepal's holdings of Indian assets (rupees) quoted in Nepal's domestic currency and secondly, as no wholesale price index is available for Nepal, the consumer price index quoted in Kathmandu is used as a proxy.

Nepal's imports from India cover all eight SITC sections.

Table 26 presents the regression results in regard to all commodity groups.

Conclusion

Among the various elasticity estimates, the relevant one for the purposes of calculating the static effects of the hypothetical union is the price elasticity of demand for imports. Hence, the estimates for each country of price elasticity of demand for imports have been summarized and tabulated in the Tables 27, 28, 29, 30 and 31.

All these estimates are statistically significant at 0.05 level except the estimated price elasticity of demand of Srilanka for imports of food and live animals, and beverages and tobacco (section 0 and 1 combined) from the rest of the world. Further, R^2 for this estimate is also very low and it is obvious there are other influences at work than the explanatory variables thrown in the equation. As food imports dominate the imports of Srilanka to the extent of 45 to 50 per cent on an average over the past several years, government policy measures may have been responsible to a greater extent than the mere price, income and foreign assets variables. However, as the estimate is of a credible magnitude (-0.524) for small countries, such as Srilanka, which have to depend on food imports from the outside world to a substantial extent, it appears reasonable to accept it under the circumstances. Further, the method of ordinary least squares assumes at least the property of the best linear and unbiased nature of the estimate.

Table 13

INDIA'S DEMAND FOR IMPORTS FROM REST OF THE WORLD (1967-1972)
(21 Quarterly Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables | | Intercept | $\frac{P_m}{P_w}$ | $\frac{NFA}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | D ₂ | D ₃ | D ₄ | T | R ² | D-W |
|---------------|-------------------------------------|---------------------|---------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|--------------------|--------------------|--------------------|----------------|--------|
| SITC Sections | | | | | | | | | | | | | | |
| 0 | Food and Live Animals and Beverages | 5.079 (12.222) | -1.887 (-3.032) | 0.111 (0.253) | 2.389 (1.381) | -5.064 (02.942) | -0.677 (-0.437) | 2.345 (1.368) | 1.059 (2.197) | 0.153 (0.313) | -0.857 (-1.524) | -0.099 (-4.486) | 0.9016 | 2.276 |
| 2 | Crude Materials | 5.913 (7.426) | -1.637 ^b (-2.137) | -0.068 ^b (-0.706) | -0.793 ^b (0.485) | 0.854 ^b (-0.930) | -1.719 ^b (-1.014) | -2.303 ^b (-0.794) | -0.577 (-1.155) | -0.867 (-0.951) | -0.621 | --- | 0.6703 | 2.659 |
| 3 | Mineral Fuels, Lubricants | 2.429 (7.085) | -4.626 ^d (-7.829) | 2.194 (5.926) | 3.037 ^d (3.512) | -6.275 ^d (-3.144) | 1.999 ^d (1.267) | -1.994 ^d (-1.042) | 1.597 (2.513) | -0.912 (-1.972) | 0.373 (0.643) | --- | 0.9182 | 3.192 |
| 4 | Vegetable Oils and Animal Fats | -3.217 (-1.655) | -1.129 ^d (-1.993) | -4.070 (-3.771) | 25.316 (4.646) | -2.264 (-0.417) | -8.457 (-1.606) | -19.399 (-3.674) | 0.583 (0.313) | 3.081 (1.817) | 6.547 (3.714) | --- | 0.7558 | 1.818 |
| 5 | Chemicals | 12.807 (0.933) | -0.877 (-2.730) | --- | -1.491 (-0.142) | --- | --- | --- | -0.142 (-1.197) | -0.053 (-0.403) | 0.061 (0.492) | 0.018 (0.508) | 0.4985 | 1.312 |
| 6 | Basic Manufactures | -23.863 (-2.406) | -1.454 ^c (-2.428) | -0.264 (-1.811) | 6.210 ^a (2.932) | --- | --- | --- | 0.032 (0.238) | 0.003 (0.026) | -0.159 (1.127) | --- | 0.6155 | 0.8127 |
| 7 | Machinery and Transport Equipment | 18.069 (2.264) | -0.634 (-3.248) | 0.103 (1.655) | 2.787 ^a (1.597) | --- | --- | --- | 0.081 (1.125) | -0.078 (-1.043) | 0.183 (0.026) | -0.003 (-0.016) | 0.7540 | 1.020 |
| 8 | Miscellaneous Manufactured Goods | 4.693 (2.681) | -1.44 (-10.543) | 0.411 (-1.054) | -1.913 (-1.117) | 1.850 (1.081) | 7.570 (4.283) | 5.283 (3.234) | -0.413 (-0.726) | -2.183 (-3.998) | -1.746 (-3.287) | --- | 0.9174 | 1.967 |

a Industrial Production Quantity Index
b Variable Lagged Once
c Variable Lagged Twice
d Variable Lagged Four Times

Table 14

INDIA'S DEMAND FOR IMPORTS FROM PAKISTAN (1960-1965)
(12 Semiannual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables | | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | D_2 | T | R ² | D-W |
|-----------|--|-------------------|---------------------|--------------------|-----------------------------|--------------------|-------------------|----------------|--------|
| SITC | Sections | | | | | | | | |
| 0 | Food and Live Animals | 5.053 (9.859) | -1.886 (-3.147) | -7.979 (-1.666) | -3.752 (-0.687) | -1.466 (-2.143) | 0.060 (0.372) | 0.8522 | 1.9523 |
| 1 | Beverages and Tobacco | | | | | | | | |
| 5 | Chemicals | | | | | | | | |
| 6 | Basic Manufactures Chiefly Classified by Materials | 3.732 (2.750) | -2.821 (-3.036) | 2.031 (0.256) | -1.589 (-0.196) | 0.077 (0.070) | --- | 0.7255 | 2.7234 |
| 7 | Machinery and Transport Equipment | | | | | | | | |
| 8 | Miscellaneous Manufactured Goods | 6.846 (13.808) | -3.314 (-11.733) | 26.254 (3.491) | -4.046 (-0.885) | 0.374 (0.614) | -0.903 (0.614) | 0.9750 | 0.8954 |

Table 15

INDIA'S DEMAND FOR IMPORTS FROM BANGLADESH (1960-1965)
(12 Semiannual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | INDP. | D_2 | T | R^2 | D-W |
|--|----------------------|--------------------|-------------------|-----------------------------|-------------------|--------------------|--------------------|--------|--------|
| 0 Food and Live Animals, Beverages 1 and Tobacco | 6.051 (12.962) | -1.430 (-1.986) | 16.988 (2.135) | 6.069 (1.524) | --- | 0.083 (0.141) | -0.604 (-3.035) | 0.8326 | 1.9152 |
| 2 Crude Materials | -113.061 (-2.617) | -0.855 (-1.926) | --- | --- | 27.735 (2.726) | -1.442 (-4.165) | -1.008 (-4.165) | 0.8201 | 1.3367 |
| 6 Manufactured Goods Chiefly Classified by Materials | -39.285 (-0.334) | -5.862 (-9.561) | --- | --- | 9.848 (0.384) | -0.902 (-0.927) | -0.135 (-0.147) | 0.8991 | 2.0514 |
| 7 Machinery and Transport Equipment | | | | | | | | | |
| 8 Miscellaneous Manufactured Goods | 3.893 (5.514) | -0.910 (-3.383) | 7.487 (1.412) | -4.142 (-0.571) | --- | 0.483 (-0.482) | --- | 0.7372 | 2.0726 |

Table 16

INDIA'S DEMAND FOR IMPORTS FROM SRILANKA (1968-1972)
(20 Quarterly Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables | | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | INDP. | D_2 | D_3 | D_4 | T | R^2 | D-W |
|---------------|---------------------------------|----------------------|--------------------|-------------------|-----------------------------|-----------------------------|-----------------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------|--------|
| SITC Sections | | | | | | | | | | | | | | |
| 2 | Crude Materials | -129.701 (-2.190) | -4.418 (-1.910) | --- | --- | --- | --- | 29.108 (2.263) | -1.543 (-3.437) | -0.112 (-0.024) | 0.548 (1.034) | -0.506 (-2.782) | 0.6453 | 1.6278 |
| 4 | Vegetable and Animal Oils, Fats | 4.037 (5.645) | -0.976 (-2.747) | 21.767 (1.385) | 12.533 0.776 | -3.867 (-0.229) | 6.567 (0.378) | --- | -1.617 (-1.685) | 0.419 (0.609) | -0.700 (0.931) | -0.144 (-2.190) | 0.4600 | 2.0958 |
| 5 | Chemicals | | | | | | | | | | | | | |

Table 17

INDIA'S DEMAND FOR IMPORTS FROM NEPAL (1968-1972)
(20 Quarterly Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | INDP. | D_2 | D_3 | D_4 | T | R ² | D-W |
|---|----------------------|---------------------------------|----------------------------------|--------------------------------|---------------------------------|--------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|----------------|-------|
| 0 Food and Live Animals | 5.671 (18.012) | -3.031 ^a (-5.838) | -10.970 ^a (-2.077) | 19.455 ^a (4.791) | 21.674 ^a (5.076) | 16.797 ^a (3.858) | --- | 0.533 (2.733) | 0.474 (2.651) | -0.498 (-1.825) | -0.074 (-2.434) | 0.8602 | 1.682 |
| 1 Beverages Tobacco | 7.967 (6.881) | -4.353 (-3.176) | 63.021 (2.111) | -16.694 (-0.616) | -19.001 (-0.701) | -0.122 (-3.370) | --- | -1.500 (-0.991) | -0.315 (-0.282) | -0.326 (-0.260) | -0.390 (-3.784) | 0.7821 | 1.624 |
| 2 Crude Materials | 3.289 (2.697) | -2.189 ^b (-2.370) | -15.547 ^b (-0.592) | 7.113 ^b (0.335) | -5.788 ^b (-0.266) | 10.395 ^b (0.478) | --- | -0.299 (-0.361) | -0.338 (-0.566) | 1.100 (1.800) | 0.033 (0.296) | 0.5163 | 1.273 |
| 4 Vegetable Oils and Animal Fats | 4.861 (4.285) | -4.752 (-5.774) | -28.855 (-1.060) | -4.713 (-0.153) | 128.140 (4.180) | -3.464 (-0.116) | --- | 0.663 (0.413) | -5.061 (-4.256) | 1.563 (1.211) | -0.314 (-0.273) | 0.8457 | 1.820 |
| 5 Chemicals | -38.158 (-0.426) | -1.526 (-5.607) | --- | --- | --- | --- | 8.889 (0.456) | 0.651 (1.210) | 0.742 (1.157) | --- | -0.038 (-0.149) | 0.7820 | 1.324 |
| 6 Manufactures Chiefly Classi- fied by Materials | -374.679 (-1.804) | -2.121 (-2.053) | --- | --- | --- | --- | 83.277 (1.847) | -3.650 (-2.407) | 0.590 (0.357) | -2.489 (-1.544) | -1.599 (2.699) | 0.7365 | 2.398 |

a Variable Lagged Twice
b Variable Lagged Four Times

Table 18
 PAKISTAN'S DEMAND FOR IMPORTS FROM REST OF THE WORLD (1969-1972)
 (17 Quarterly Observations)

Results of Regression Analysis in Double Logarithmic Form
 Dependent Variable: Quantity of Imports
 (Figures in parentheses indicate 't' ratios)

| SITC Sections | Variables | Intercept | $\frac{P_m}{P_w}$ | NFA | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | D_2 | D_3 | D_4 | K (Dummy for Devaluation) | T | R ² | D-W |
|---------------|--|-------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|----------------------------------|----------------------------------|--------------------|---------------------|---------------------|------------------------------|--------------------|----------------|--------|
| | | | | | | | | | | | | | | | |
| 0 | Food and Live Animals | 7.020 (1.681) | -2.398 ^b (-2.400) | -2.256 ^b (-1.897) | 4.552 ^b (0.426) | 4.049 ^b (0.362) | 94.098 ^b (2.316) | 10.061 ^b (0.471) | -2.973 (-0.513) | -2.070 (-0.355) | 25.427 (2.552) | 4.168 (4.515) | --- | 0.8399 | 0.9119 |
| 1 | Beverages and Tobacco | 0.435 (0.173) | -3.854 ^c (-3.746) | 0.858 ^c (2.957) | -6.268 ^c (-1.501) | 18.657 ^c (4.321) | -10.560 ^c (-0.977) | 10.402 ^c (1.115) | 5.534 (1.968) | 3.058 (1.029) | 8.446 (2.891) | -0.885 (-4.559) | --- | 0.8109 | 2.1574 |
| 2 | Crude Materials | 1.250 (0.078) | -0.353 (1.923) | 0.414 (1.280) | 0.852 ^a (2.397) | --- | --- | --- | 0.101 (1.035) | 0.021 (0.790) | 0.215 (0.188) | -0.196 (-0.278) | -0.300 (-0.848) | 0.5452 | 2.7927 |
| 3 | Mineral Oils and Vegetable | 5.924 (0.772) | -0.281 (-1.960) | 0.909 (2.176) | --- | --- | --- | --- | -1.135 (-0.872) | -1.499 (-0.226) | -0.265 (-1.785) | -0.560 (-0.978) | --- | 0.5185 | 1.8857 |
| 4 | and Animal Oils and Fats | | | | | | | | | | | | | | |
| 5 | Chemicals | 0.737 (0.470) | -0.830 (-2.816) | 0.791 (4.478) | 1.080 ^a (3.141) | --- | --- | --- | --- | --- | --- | --- | --- | 0.6602 | 1.7427 |
| 6 | Manufactures Classified Chiefly by Materials | 1.267 (1.391) | -0.305 (-1.887) | --- | 0.763 ^a (3.751) | --- | --- | --- | -0.099 (-1.588) | -0.090 (-1.266) | 0.046 (0.719) | 0.033 (0.300) | 0.012 (1.395) | 0.6511 | 1.3123 |
| 7 | Machinery and Transport Equipment | 1.945 (1.291) | -0.860 (-2.653) | -0.241 (-0.737) | 0.762 ^a (2.270) | --- | --- | --- | 0.087 (0.842) | -0.335 (-2.817) | -0.144 (-1.204) | 1.034 (2.635) | -0.079 (-3.968) | 0.7542 | 2.1368 |
| 8 | Miscellaneous Manufactured Goods | 13.128 (5.182) | -2.854 ^d (-3.203) | 0.707 ^d (1.101) | 32.692 ^d (2.066) | 26.648 ^d (1.328) | -97.943 ^d (-4.153) | -69.263 ^d (-3.280) | 8.075 (1.491) | -27.081 (-4.160) | -19.576 (-3.427) | -1.068 (-2.303) | --- | 0.8169 | 2.9477 |

a Industrial Production Quantity Index
 b Variable Lagged Once
 c Variable Lagged Twice
 d Variable Lagged Four Times

Table 19

PAKISTAN'S DEMAND FOR IMPORTS FROM INDIA (1960-1965)
(12 Semiannual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | INDP. | D_2 | T | R^2 | D-W |
|---|----------------------|--------------------|-------------------|-----------------------------|-------------------|--------------------|--------------------|--------|--------|
| 0 Food and Live Animals | 6.007 (8.397) | -3.468 (-9.291) | 5.868 (1.721) | 3.762 (2.193) | --- | -1.050 (-1.561) | -0.623 (-2.697) | 0.9283 | 2.6548 |
| 1 Beverages and Tobacco | 4.695 (6.483) | -2.028 (-4.531) | 8.661 (-2.504) | -3.064 (-1.792) | --- | 0.918 (1.426) | -0.528 (2.23) | 0.7551 | 1.5320 |
| 2 Crude Materials | 4.058 (0.278) | -3.154 (-6.944) | --- | --- | 0.145 (0.045) | -0.293 (-1.255) | -0.027 (-0.132) | 0.9255 | 2.2876 |
| 3 Mineral Fuels Lubricants | 2.670 (2.833) | -3.423 (-2.400) | 4.728 (2.065) | 1.696 (0.469) | --- | -0.008 (-0.007) | --- | 0.5111 | 1.2938 |
| 4 Vegetable Oils and Animal Fats | -31.818 (-1.311) | -3.791 (-5.606) | --- | --- | 8.163 (1.537) | -0.147 (-0.368) | -0.444 (-1.377) | 0.8612 | 1.7038 |
| 5 Chemicals | -23.784 (-0.709) | -1.667 (-3.522) | --- | --- | 6.228 (0.848) | --- | -0.497 (-1.170) | 0.6358 | 2.2688 |
| 6 Manufactures Classified Chiefly by Materials | -52.457 (-2.330) | -0.724 (-3.244) | --- | --- | 12.653 (2.567) | -0.144 (-0.372) | -0.912 (-3.044) | 0.8502 | 2.2053 |
| 7. Machinery and Transport Equipment | -142.956 (-3.302) | -1.269 (-4.309) | --- | --- | 31.902 (3.387) | 1.507 (2.449) | -1.833 (-3.492) | 0.9146 | 1.7923 |
| 8 Miscellaneous Manufactured Goods | 4.861 (11.365) | -1.926 (-4.045) | 3.045 (1.497) | -1.945 (-1.539) | --- | -0.251 (-0.660) | -0.175 (-1.214) | 0.8676 | 1.723 |

Table 20

PAKISTAN'S DEMAND FOR IMPORTS FROM SRILANKA (1962-1970)
(8 Annual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | T | INDP. | R ² | D-W |
|---|--------------------|--------------------|-------------------|--------------------|------------------|----------------|--------|
| 0 Food and Live Animals | 4.816 (8.774) | -2.601 (-3.731) | 2.580 (0.258) | -0.032 (-0.057) | --- | 0.8665 | 2.2812 |
| 2 Crude Materials | -3.053 (-0.219) | -0.906 (-2.123) | --- | -0.148 (0.475) | 1.708 (0.556) | 0.5154 | 1.6711 |
| 4 Vegetable and Animal Oils and Fats | | | | | | | |

Table 21

BANGLADESH'S DEMAND FOR IMPORTS FROM REST OF THE WORLD (1956-1970)
(15 Annual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| SITC Sections | Variables | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | INDP. | $\frac{NFA}{P_w}$ | T | R ² | D-W |
|------------------|---|-------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------------|--------------------|----------------|--------|
| 0 | Food and Live Animals | 4.006 (15.880) | -0.808 ^a (-2.700) | 1.056 (0.673) | --- | 1.199 (2.830) | 0.999 (1.809) | 0.7475 | 2.3324 |
| 1 | Beverages and Tobacco | | | | | | | | |
| 2 | Crude Materials | 5.469 (30.501) | -1.890 ^a (-3.591) | -5.860 (-5.220) | --- | 1.050 ^a (2.473) | 0.136 (3.452) | 0.8009 | 3.1077 |
| 3 | Mineral Fuels and Lubricants | 6.040 (10.973) | -1.902 (-2.322) | -2.170 (-1.673) | --- | 0.735 (2.159) | 0.003 (0.038) | 0.7576 | 3.052 |
| 4 | Vegetable and Animal Oils and Fats | 8.452 (13.973) | -2.618 (-1.934) | -1.084 (-0.274) | --- | 1.930 ^a (2.369) | 0.275 (2.358) | 0.7505 | 1.7443 |
| 5 | Chemicals | 7.290 (33.644) | -1.219 (-3.509) | --- | 5.029 ^a (6.875) | 1.557 ^a (4.414) | -0.625 (-6.025) | 0.9655 | 2.4107 |
| 6 | Manufactured Goods Classified Chiefly by Material | 5.242 (9.167) | -1.737 (-2.987) | --- | 1.043 ^a (0.789) | 1.740 ^a (2.893) | 0.075 (0.397) | 0.9508 | 2.1069 |
| 7 | Machinery and Transport Equipment | 5.905 (7.564) | -1.006 (-2.863) | 0.161 (0.040) | --- | 1.749 (1.661) | 0.154 (1.193) | 0.5420 | 0.9409 |
| 8 | Miscellaneous Manufactured Goods | 4.759 (18.876) | -1.779 ^a (-2.272) | -1.124 ^a (-0.682) | --- | 1.924 ^a (4.245) | 0.235 (4.042) | 0.6939 | 2.2577 |

Table 22

BANGLADESH'S DEMAND FOR IMPORTS FROM INDIA (1960-1965)
(12 Semiannual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | D_2 | T | R ² | D-W |
|---|-------------------|---------------------|--------------------|-----------------------------|--------------------|--------------------|----------------|--------|
| Food and Live Animals | 5.338 (11.586) | -1.830 (-3.399) | 16.622 (1.387) | 6.822 (0.960) | -0.696 (-1.134) | -0.367 (-2.394) | 0.8215 | 2.2516 |
| Beverages and Tobaccos | 4.479 (15.557) | -3.401 (-16.090) | 1.798 (0.576) | -1.747 (-0.396) | -0.010 (-0.029) | --- | 0.9577 | 2.3645 |
| Crude Materials | 4.889 (16.842) | -1.812 (-3.487) | 15.067 (2.174) | -8.187 (-1.776) | 0.037 (0.036) | -0.244 (-2.602) | 0.9044 | 2.7690 |
| Mineral Fuels and Lubricants | 5.292 (10.306) | -1.475 (-6.888) | 22.667 (3.250) | -2.782 (-0.505) | -0.500 (-0.414) | -0.369 (-4.128) | 0.9018 | 1.9004 |
| Vegetable and Animal Oils and Fats | 4.914 (12.178) | -2.019 (-5.187) | -8.166 (-0.945) | -12.951 (-2.106) | -0.378 (-0.709) | 0.084 (0.771) | 0.8397 | 2.772 |
| Chemicals | 4.848 (9.232) | -1.424 (-6.284) | 16.399 (1.429) | -8.505 (-1.016) | 0.519 (-0.725) | -0.223 (-1.538) | 0.8608 | 2.1136 |
| Basic Manufactures Classified Chiefly by Material | 7.606 (11.123) | -2.096 (-2.264) | 24.505 (1.934) | -10.267 (-1.148) | -2.247 (-3.402) | -0.448 (-2.507) | 0.8227 | 1.9838 |
| Machinery and Transport Equipment | 5.140 (16.423) | -2.502 (-7.254) | 29.746 (4.388) | -8.334 (-1.625) | -0.087 (-0.197) | -0.302 (-3.488) | 0.9178 | 1.8229 |
| Miscellaneous Manufactured Goods | 4.030 (4.634) | -1.568 (-3.988) | 9.519 (0.510) | -13.399 (-1.004) | 1.246 (1.827) | 0.190 (0.816) | 0.6306 | 2.1201 |

Table 23

SRILANKA'S DEMAND FOR IMPORTS FROM REST OF THE WORLD (1956-1970)
(15 Annual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| SITC Sections | Variables | Intercept | $\frac{P_m}{P_w}$ | $\frac{NFA}{P_w}$ | $\frac{GNP}{P_w}$ | K (Dummy for Devaluation) | T | R ² | D-W |
|------------------|---|-----------|---------------------|--------------------|--------------------|---------------------------------|----------|----------------|--------|
| 0 | Food and Live Animals | 4.618 | -0.524 ^a | 0.113 | 0.741 | -0.241 | -0.020 | 0.3726 | 2.8428 |
| 1 | Beverages and Tobacco | (45.845) | (-1.342) | (2.730) | (0.647) | (-1.596) | (-0.580) | | |
| 2 | Crude Materials | | | | | | | | |
| 3 | Mineral Fuels, Lubricants | 4.846 | -1.476 ^a | 0.133 ^a | 0.972 ^a | -0.219 | -0.042 | 0.6150 | 2.9867 |
| 4 | Vegetable and Animal Oils and Fats | (41.150) | (-3.407) | (1.782) | (1.230) | (-1.162) | (-2.002) | | |
| 5 | Chemicals | | | | | | | | |
| 6 | Manufactured Goods Classified Chiefly by Material | 4.888 | -0.498 ^a | 0.261 ^a | 4.269 | -0.675 | -0.124 | 0.8062 | 2.2040 |
| 7 | Machinery and Transport Equipment | (19.637) | (-2.041) | (1.947) | (3.565) | (-1.578) | (-2.002) | | |
| 8 | Miscellaneous Manufactured Goods | 5.120 | -1.591 | 0.235 | 7.600 | -0.2161 | -0.304 | 0.7699 | 1.4891 |
| | | (11.602) | (-1.809) | (2.430) | (2.453) | (-0.582) | (-3.472) | | |

a Variable Lagged Once

Table 24

SRILANKA'S DEMAND FOR IMPORTS FROM INDIA (1968-1972)
(20 Annual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | D_2 | D_3 | D_4 | T | R ² | D-W |
|--|-------------------|---------------------------------|--------------------------------|----------------------------------|---------------------------------|----------------------------------|--------------------|--------------------|--------------------|-------------------|----------------|--------|
| 0 Food and 1 Live Animals Beverages and Tobacco | 8.317 (21.362) | -2.077 ^b (-5.569) | 87.294 ^b (3.458) | -33.779 ^b (-1.260) | -60.343 ^b (2.533) | -51.482 ^b (-1.970) | 0.952 (2.831) | 1.273 (2.988) | -1.022 (-2.128) | 0.236 (-6.635) | 0.8555 | 2.1817 |
| 2 Crude Materials 3 Mineral Fuels, Lubricants 5 Chemicals | 4.145 (11.682) | -1.029 (4.672) | -24.759 (-1.090) | 23.078 (0.929) | 30.256 (1.257) | 30.945 (1.363) | -0.679 (-1.506) | -0.033 (-0.069) | 0.669 (0.122) | 0.579 (2.353) | 0.6294 | 1.9550 |
| 6 Manufactured Goods Classi- fied Chiefly by Materials | 2.184 (1.648) | -0.457 ^a (-1.776) | 29.636 ^a (2.989) | -20.009 ^a (-0.757) | 5.898 ^a (1.878) | 4.479 ^a (2.833) | --- | --- | --- | 0.819 (-5.888) | 0.6858 | 2.222 |
| 7 Machinery and Transport Equipment | 5.419 (10.174) | -1.124 (-2.945) | 126.940 (3.712) | -15.780 (-3.981) | -146.300 (-4.111) | -127.475 (-3.365) | 2.303 (3.539) | 2.072 (2.873) | 0.566 (2.945) | 0.024 (0.667) | 0.6127 | 1.5612 |
| 8 Miscellaneous Manufactured Goods | 5.067 (9.886) | 1.458 (-4.932) | -56.049 (-1.707) | 131.584 (3.456) | 1.869 (0.058) | 40.136 (1.919) | -1.626 (-2.466) | -1.339 (1.924) | -0.882 (1.072) | 0.022 (0.634) | 0.6966 | 2.3722 |

a Variable Lagged Once
b Variable Lagged Three Times

Table 25

SRILANKA'S DEMAND FOR IMPORTS FROM PAKISTAN AND BANGLADESH (1962-1969)
(8 Annual Observations)

Results of Regression Analysis in Double Logarithmic Form
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| SITC Sections | Variables | Intercept | $\frac{P_m}{P_w}$ | GNP | T | R^2 | D-W |
|------------------|---|-------------------|---------------------------------|---------------------|-------------------|--------|--------|
| 0 | Food and Live Animals | 3.358 (12.295) | -7.063 ^a (-7.356) | 18.673 (7.035) | 0.934 (6.952) | 0.9007 | 2.4573 |
| 2 6 | Crude Materials Manufactures Classified Chiefly by Material | 4.158 6.836 | -4.261 (-9.919) | -14.859 (-2.283) | 0.572 (-1.870) | 0.9380 | 2.6207 |
| 3 5 | Mineral Fuels and Lubricants Chemicals | 4.767 (3.248) | 3.520 (4.163) | 5.859 (0.677) | 0.155 (-0.336) | 0.9088 | 1.799 |

a Variable Lagged Once

Table 26

NEPAL'S DEMAND FOR IMPORTS FROM INDIA (1968-1972)
(21 Quarterly Observations)

Results of Multiple Regression Analysis in Double Logarithmic Function
Dependent Variable: Quantity of Imports
(Figures in parentheses indicate 't' ratios)

| Variables SITC Sections | Intercept | $\frac{P_m}{P_w}$ | $\frac{GNP}{P_w}$ | $\frac{GNP}{P_w} \cdot D_2$ | $\frac{GNP}{P_w} \cdot D_3$ | $\frac{GNP}{P_w} \cdot D_4$ | $\frac{NFA}{P_w}$ | D_2 | D_3 | D_4 | T | R ² | D-W |
|---|--------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|-------------------------------|---------------------------------|--------------------|--------------------|--------------------|--------------------|----------------|--------|
| Food and Animals | 6.456 (5.726) | -0.989 (-1.905) | -1.446 (-1.234) | 6.043 (4.251) | 1.267 (0.838) | 0.813 (-0.544) | -0.406 (-1.697) | -0.385 (-1.677) | -0.169 (-0.748) | 0.126 (0.549) | --- | 0.7452 | 1.5438 |
| Beverages and Tobacco | 4.751 (17.627) | -1.363 (-5.806) | 4.382 (1.890) | 2.078 (0.876) | 8.601 (3.645) | 0.756 (-0.321) | --- | 0.733 (1.881) | 1.638 (4.469) | 1.606 (4.250) | 0.124 (3.395) | 0.9063 | 2.090 |
| Crude Materials | 10.192 (10.907) | 2.716 (-5.417) | 0.450 (0.575) | 1.606 (1.661) | 1.473 (1.326) | 2.091 (1.661) | -1.205 (-5.935) | -0.481 (-2.896) | -0.44 (-2.772) | -0.132 (-0.697) | --- | 0.8234 | 2.7610 |
| Mineral Fuels Lubricants | 23.706 (10.744) | -1.770 ^b (-5.973) | 9.372 ^b (5.459) | -2.305 ^b (-1.406) | 8.652 ^b (3.590) | 17.009 ^b 7.297 | -4.123 ^b (-8.416) | -0.243 (-1.323) | -1.396 (-6.942) | -1.019 (-4.779) | 0.774 (2.378) | 0.9437 | 3.33 |
| Vegetable and Animal Oil, Fats | 12.927 (4.279) | -2.803 (-2.543) | -0.620 (-0.180) | 4.248 (1.259) | 7.229 (2.035) | -4.338 (-0.828) | -1.815 (-2.797) | 0.724 (1.294) | 0.126 (0.238) | 1.099 (1.224) | --- | 0.7036 | 1.4235 |
| Chemicals | 0.428 (0.133) | -1.307 (-3.182) | 29.155 (3.876) | -17.111 (-0.208) | -30.164 (-4.272) | -16.699 (-2.370) | 0.119 (0.208) | 4.411 (3.205) | 4.829 (3.522) | 4.530 (3.231) | -0.289 (-4.776) | 0.8451 | 2.8954 |
| Manufactures Classified Chiefly by Materials | 3.455 (4.334) | -0.486 ^a (-2.273) | 1.758 (2.331) | 2.067 ^a (3.027) | 1.018 ^a (0.986) | 4.369 ^a (3.398) | 0.211 ^a (1.211) | 0.291 (2.674) | 0.468 (4.676) | 0.405 (3.555) | -0.035 (-2.415) | 0.9431 | 1.6905 |
| Machinery and Transport Equipment | 8.684 (10.270) | -0.853 (-8.014) | -0.588 (-0.592) | 2.017 (2.151) | 2.730 (2.469) | 3.223 (3.283) | -0.881 (-1.807) | 0.664 (4.151) | 0.410 (2.465) | 0.419 (2.624) | -0.041 (-2.135) | 0.9484 | 2.0632 |
| Miscellaneous Manufactured Goods | -8.732 (-3.200) | -1.952 (-3.191) | 13.380 (3.469) | -3.796 (-0.875) | -12.332 (-3.086) | -3.041 (-0.665) | 2.727 (4.303) | 1.403 (1.792) | 2.482 (3.409) | 2.273 (2.962) | -0.461 (-5.511) | 0.8630 | 1.9538 |

a Variable Lagged Twice
b Variable Lagged Three Times

Table 27

INDIA'S ESTIMATES OF PRICE ELASTICITIES
OF DEMAND FOR IMPORTS
(All Significant At 0.05 Level)

| SITC Sections | Imports From Rest of World (1967-1972) | Imports From Pakistan (West) (1960-1965) | Imports From Bangladesh (1960-1965) | Imports From Srilanka (1965- | Imports From Nepal |
|--|--|--|-------------------------------------|------------------------------|--------------------|
| 0 Food and Live Animals 1 Beverages and Tobacco | -1.887 | -1.886 | -1.430 | No Imports | -3.031 |
| 2 Crude Materials, Inedibles | -1.640 | -2.821 | -0.855 | -4.418 | -2.189 |
| 3 Mineral Fuels, Lubricants and Related Materials | -4.630 | -2.821 | No Imports | No Imports | No Imports |
| 4 Animal and Vegetable Oils and Fats | -1.130 | No Imports | No Imports | -0.976 | -4.750 |
| 5 Chemicals | -0.866 | -2.821 | No Imports | -0.976 | -1.526 |
| 6 Manufactured Goods Classified Chiefly by Material (Basic Manufactures) | -1.454 | -2.821 | -5.862 | No Imports | -2.121 |
| 7 Machinery and Transport Equipment | -0.634 | -2.821 | -5.862 | No Imports | No Imports |
| 8 Miscellaneous Manufactured Articles | -1.441 | 3.314 | -0.910 | No Imports | No Imports |

Table 28

PAKISTAN'S ESTIMATES OF PRICE ELASTICITIES
 DEMAND FOR IMPORTS
 (All Significant At 0.05 Level)

| SITC Sections | Imports From Rest of World (1969-1972) | Imports From India (1960-1965) | Imports From Srilanka (1962-1969) |
|---|--|--------------------------------|-----------------------------------|
| 0 Food and Live Animals | -2.398 | -3.468 | -2.601 |
| 1 Beverages, Tobacco | -3.850 | -2.028 | No Imports |
| 2 Crude Materials | -0.353 | -3.154 | 0.906 |
| 3 Mineral Fuels, Lubricants and Related Materials | -0.281 | -3.423 | No Imports |
| 4 Animal and Vegetable Oils and Fats | -0.281 | -3.791 | 0.906 |
| 5 Chemicals | -0.830 | -1.667 | No Imports |
| 6 Basic Manufactures | -0.305 | -0.724 | 0.906 |
| 7 Machinery and Transport Equipment | -0.860 | -1.269 | No Imports |
| 8 Miscellaneous Manufactured Articles | 2.850 | -1.926 | No Imports |

Table 29

BANGLADESH'S ESTIMATES OF PRICE ELASTICITIES
OF DEMAND FOR IMPORTS
(All Significant At 0.05 Level)

| SITC Sections | Imports From Rest of World (1956-1969) | Imports From India (1960-1965) | Imports From Srilanka (1962-1969) |
|--|--|--------------------------------------|---|
| 0 Food and Live Animals | -0.808 | -1.830 | -2.601 |
| 1 Beverages, Tobacco | -0.808 | -3.401 | No Imports |
| 2 Crude Materials | -1.890 | -1.812 | -0.906 |
| 3 Mineral Fuels, Lubricants and Related Materials | -1.902 | -1.475 | No Imports |
| 4 Vegetable Oils, Animal Fats | -2.618 | -2.019 | -0.906 |
| 5 Chemicals | -1.219 | -1.424 | No Imports |
| 6 Basic Manufactures | -1.737 | -2.096 | No Imports |
| 7 Machinery and Transport Equipment | -1.006 | -2.502 | No Imports |
| 8 Miscellaneous Manufactured Articles | -1.178 | -1.568 | No Imports |

Table 30

SRILANKA'S ESTIMATES OF PRICE ELASTICITIES
OF DEMAND FOR IMPORTS
(All Significant At 0.005 Level Except As Marked By *)

| SITC Sections | Imports From Rest of World (1956-1970) | Imports From India (1968-1972) | Imports From Pakistan (1962-1969) | Imports From Bangladesh (1962-1969) |
|---|--|--------------------------------|-----------------------------------|-------------------------------------|
| 0 Food and Live Animals | -0.524* | -2.077 | -7.063 | -7.063 |
| 1 Beverages, Tobacco | -0.524* | No Imports | No Imports | No Imports |
| 2 Crude Materials | -1.476 | -1.029 | -4.261 | -4.261 |
| 3 Mineral Fuels, Lubricants and Related Materials | -1.476 | -1.029 | -3.520 | No Imports |
| 4 Animal and Vegetable Oils and Fats | -1.476 | No Imports | No Imports | No Imports |
| 5 Chemicals | -1.476 | -1.029 | -3.520 | No Imports |
| 6 Basic Manufactures | -0.498 | -0.457 | -4.261 | -4.261 |
| 7 Machinery and Transport Equipment | -0.498 | -1.124 | -4.261 | No Imports |
| 8 Miscellaneous Manufactured Articles | -1.591 | -1.458 | No Imports | No Imports |

Table 31

NEPAL'S ESTIMATES OF PRICE ELASTICITIES
OF DEMAND FOR IMPORTS
(All Significant at 0.05 Level)

| SITC Sections | Imports From India (1968-1972) |
|--|--------------------------------------|
| 0 Food and Live Animals | -0.989 |
| 1 Beverages, Tobacco | -1.363 |
| 2 Crude Materials | -2.716 |
| 3 Mineral Fuels, Lubricants and Related Materials | -1.770 |
| 4 Vegetable Oils, Animal Fats | -2.803 |
| 5 Chemicals | -1.307 |
| 6 Basic Manufactures | -0.486 |
| 7 Machinery and Transport Equipment | -0.853 |
| 8 Miscellaneous Manufactured Articles | -1.952 |

NOTES TO CHAPTER IV

1. For a discussion on pros and cons of the single equation method following studies have been conducted:
 - a. Orcutt, G. H., "Measurement of Price Elasticities in International Trade," Review of Economics and Statistics, Vol. XXXII, May 1950, pp. 117-32.
 - b. Morgan, D. J., and Corlett, W. J., "The Influence of Price in International Trade: A Study Method," Journal of the Royal Statistical Society, Vol. CXIV (1951), pp. 307-52.
 - c. Prais, S. J., "Econometric Research in International Trade," Kyklos, Vol. XV, 1962, pp. 560-579.
2. Kelin, L. R., "Single Equation Vs. Equation System Methods of Estimation in Econometrics," October 1960, pp. 870-871.
3. Orcutt, op. cit., p. 125.
4. Leamer, E. E., and Stern, R. M., Quantitative International Economics, (Boston: Allyn and Bacon Inc., 1970) pp. 8-10.
5. Ibid., p. 12.
6. Suits, D. B., "Use of Dummy Variables in Regression Equations," Journal of the American Statistical Association, Vol. 52, December 1957, pp. 548-51.
7. The official monthly/quarterly import quantum and unit value indices for the countries in the Indian sub-continent are available in the following one or more of the documents:

India: (a) Government of India, Ministry of Commerce, Indian Trade Journal (monthly), Calcutta.

(b) Government of India, Central Statistical Organisation, Monthly Abstract of Statistics, New Delhi.

Pakistan (both wings):

(a) Government of Pakistan, Central Statistical Office, Twenty-five years of Pakistan in Statistics, Islamabad, Pakistan, 1971.

Present Pakistan:

(a) Government of Pakistan, Central Statistical Office, Monthly Statistical Bulletin, Islamabad.

Bangladesh:

- (a) Government of East Pakistan, Bureau of Statistics, Statistical Digest of East Pakistan (Annual)

For Volumes up to 1970:

- (b) Government of Bangladesh, Bureau of Statistics, Statistical Digest of Bangladesh, (Annual).

For Volumes after 1971:

Srilanka:

- (a) Central Bank of Srilanka, Annual Report of Central Bank of Srilanka, 1971 (Colombo: 1972).
- (b) Government of Srilanka, Department of Customs, Customs Returns, (Colombo Monthly).

Nepal: (a) Rastra (Central) Bank of Nepal, Monthly Bulletin, Kathmandu.

- (b) United Nations, ECAFE, Statistical Year Book for Asia and Far East, (Bangkok, 1971).

For region as a whole:

- (a) United National, International Monetary Fund, International Financial Statistics, Annual Supplement 1974, (New York, 1974).

For statistics relating to National Income, price indices and foreign assets:

India: Reserve Bank of India, RBI Monthly Bulletin, (Bombay)

Pakistan: Government of Pakistan, Central Statistical Office, Monthly Statistical Bulletin (Islamabad).

Srilanka: Central Bank of Srilanka, Annual Report 1971, (Colombo, 1974).

Nepal and region as a whole: (a) U.N., ECAFE, op. cit.
(b) U.N., IMF, op. cit.

8. The procedure for construction of index numbers is as follows:
 $Q_{01}, Q_{02}, Q_{03}, \dots, Q_{0n}$ are quantities of imports of commodities from 1 to n, where '0' denotes base period and 1, 2, 3, ..., n, denote description of commodities. $P_{01}, P_{02}, P_{03}, \dots, P_{0n}$, are unit prices commodities of description from 1 to n for the base period '0' with the subscripts have the same meaning as in the former case.

Similarly $Q_{t1}, Q_{t2}, Q_{t3} \dots Q_{tn}$ are quantities of imports for the current period t of commodities of description 1 to n respectively.

$P_{t1}, P_{t2}, P_{t3} \dots P_{tn}$ are unit prices of imports for the current period ' t ' of commodities of the same description 1 to n respectively.

The quarterly index for the current period is then:

$$Q_{mt} = \frac{\sum_{i=1}^n Q_{ti} P_{oi}}{\sum_{i=1}^n Q_{oi} P_{oi}} \cdot 100$$

$$P_{mt} = \frac{\sum_{t=1}^n Q_{ti} P_{ti}}{\sum_{t=1}^n Q_{ti} P_{oi}} \cdot 100$$

The above procedure is convenient and the least expensive in terms of time since the numerator once calculated for Q_{mt} can be used as the denominator for calculating P_{mt} . Further $Q_{oi}P_{oi}$ and Q_{ti} and P_{ti} are the base period and current period values of imports respectively which are directly read into the formula from the data.

Suits, Daniel B., Statistics: An Introduction to Quantitative Economic Research, London: John Murray, 1968.

9. Government of India, Ministry of Commerce, Monthly Statistics of Foreign Trade of India, Vol. II (from 1960-66) (Calcutta).
10. Ibid.
11. Government of India, Ministry of Commerce, Monthly Statistics of Foreign Trade of India, Vol. II (from 1968-72).
12. Ibid.
13. Government of Pakistan, Central Statistical Office, op. cit.
14. Government of India: Directorate of Commercial Intelligence and Statistics, Monthly Statistics of Foreign Trade of India: Exports Vol. II (1960-1966) (Calcutta).

CHAPTER V

Measurement of Static Effects

Introduction

This chapter deals with actual measurement of static effects of a hypothetical customs union in the Indian sub-continent by utilizing the estimates of elasticities of demand for imports and the implicit tariff rates of the member countries discussed in Chapters 4 and 3 respectively. Welfare effects due to trade creation and trade diversion and export effects are calculated for four different post-union external tariff rates.

Selection of Base Year

For measurement purposes, a base year needs to be chosen so as to be representative of a normal period of import and export trade flows between the countries inter-se, and these countries and the rest of the world. Accordingly, the year 1969 has been selected since it appears to be free from any abnormalities associated with economic or political upheavals in the region. Years subsequent to 1969 witnessed the inauguration of a new nation in Bangladesh and its consequent impact on its own economy, and disruption of normal economic relations between Bangladesh and Pakistan, and Pakistan and India. Similarly, years prior to 1969 were normal in one sense up to 1969, but there was a border conflict in 1965 which put a virtual end to trade relations between India and Pakistan.

This actually introduces a difficulty in determining the trade flows between India and Pakistan for the year 1969. To choose the year 1965 or

an earlier one as the base year when Indo-Pakistan trade was at its maximum in terms of value would be realistic in one sense but unrealistic at the same time in another sense. In the former sense years earlier to 1965 were relatively free from political tensions and hence, trade figures reflected the normalcy of times. But in the latter sense 1965 belonged to an era of import substitution and inward looking policies. But the year 1969 was part of a subsequent trade liberalization measure in bonus voucher scheme in Pakistan and similar export promotion measures in India as well.

In order to overcome the difficulty presented by the cessation of economic relations between India and Pakistan following the border conflict between the two countries in 1965-66, a simple extrapolation procedure has been adopted to determine the hypothetical trade flows for the year 1969 from the fit obtained for the years 1960-1965 from the actual trade flows. Such an extrapolation would not be a risky adventure for two reasons: (a) the year 1969, for which extrapolation is done, is only 4 years away from 1965; and (b) the assumption behind extrapolation is that trade flows are mainly a function of time.

Tables 32 and 33 present the time trend equations regarding India's imports from Pakistan and Bangladesh, whereas Tables 34 and 35 present the time trend equations regarding imports of Pakistan and Bangladesh from India respectively.

Though for some commodity groups the time trend is not significant, the estimated coefficients, being the best, linear and unbiased, have been used for extrapolation purposes. The extrapolated figures for the year 1969 are shown in column 2 of each of the tables from 37 to 39 for each SITC section. For those SITC sections for which the extrapolated

figures worked out to be negative, the value of trade is zero and accordingly no figure is shown. This is in keeping with the downward trend displayed by the respective fitted equations.

Post-union External Tariff Structure

The common external tariff structure adopted by the member countries, once the union comes into effect, has a crucial part to play in determining the trade diversion effects. But it is difficult to specify any set of common external tariff rates as the matter has to be decided across a negotiations table. Therefore, it has been decided to calculate the static effects under four alternative common external tariff rate structures such as:

(I) a simple arithmetic mean of the pre-union rates for each SITC section for all member countries;

(II) the highest pre-union rate among member countries for each SITC section;

(III) the lowest pre-union rate among member countries for each SITC section; and

(IV) an average of the highest and the lowest tariff rates before the union for each SITC section.

Table 36 presents the details of post-union alternative common external tariff structures.

Measurement of Static Effects

Trade creation and trade diversion effects along with export effects for each country are worked out in accordance with the formulae developed in Chapter II, utilizing the elasticities shown in Table 27 to 31 and

implicit tariff rates given in Table 32.

In working out the static effects two things are kept in mind: (a) the existing free trade situation between India and Nepal and (b) similar free trade situation as it prevailed in the base year 1969 between Pakistan and Bangladesh, the two wings of former Pakistan. Therefore, there will be no trade creation effects between these two sets of countries.

Detailed calculation procedural steps are shown only with regard to the adoption of the post-union external tariff structure: Alternative I, for each country. Tables 37 to 41 present the welfare effects of trade creation and trade diversion; Tables 42 to 45, export effects. A summary of welfare effects for each country is shown in Table 46.

As regards the other three alternative external tariff structure, only a summary of the welfare effects is shown in Tables 47 to 49.

Conclusion

The hypothetical customs union in the Indian sub-continent proves beneficial only under one common external tariff structure, namely when the lowest pre-union tariff rate among all countries for each SITC section is adopted. However, the gains happen to be of small magnitude being less than one per cent of total GNP of the countries involved; while for individual countries the gains are slightly over one per cent in case of Bangladesh and Srilanka and well below one per cent in case of the other three members, of their respective GNP figures.

Under all the other alternative post-union external tariff structures, the net effects are one of welfare loss, the maximum being when the Alternative II is adopted, the minimum being when the Alternative IV is adopted.

Table 32

INDIAN IMPORTS FROM PAKISTAN: 1960-1965
(6 Annual Observations)

Results of Time Trend Regression Analysis
Dependent Variable: Value of Imports in U.S. \$ (Thousands)

| <u>SITC Sections/Variable</u> | <u>Intercept</u> | <u>T</u> | <u>R²</u> | <u>D-W</u> |
|--|--------------------|---------------------|----------------------|------------|
| 0 Food and Live Animals | 398.799 (0.483) | 503.099 (1.493) | 0.3082 | 2.4903 |
| 2 Crude Materials | 4383.8 (1.871) | -95.8 (-0.082) | 0.0013 | 2.6157 |
| 3 Mineral Fuels and Lubricants | -1.400 (-0.743) | 1.749 (2.275) | 0.5087 | 2.1386 |
| 5 Chemicals | -18.999 | 74.799 | 0.4851 | 1.8950 |
| 6 Manufactures Classified Chiefly by Material | 384.995 (1.567) | -91.198 (-0.909) | 0.1419 | 2.8095 |
| 7 Machinery and Transport Equipment | 190.597 (4.459) | -51.099 (-2.928) | 0.6317 | 2.9375 |
| 8 Miscellaneous Manufactured Goods | 40.799 (13.015) | -1.900 (-1.485) | 0.3059 | 3.600 |

(Figures in parentheses denote 't' ratios)

Table 33

INDIAN IMPORTS FROM BANGLADESH: 1960-1965
(6 Annual Observations)

Results of Time Trend Regression Analysis
Dependent Variable: Value of Imports in U.S. \$ (Thousands)

| <u>SITC Sections/Variable</u> | <u>Intercept</u> | <u>T</u> | <u>R²</u> | <u>D-W</u> |
|--|----------------------|-----------------------|----------------------|------------|
| 0 Food and Live Animals | 5277.797 (2.926) | -22.901 (-0.031) | 0.002 | 2.7670 |
| 2 Crude Materials | 10433.195 (4.388) | -1018.502 (-0.780) | 0.1085 | 1.6881 |
| 5 Chemicals | -70.199 (-0.894) | 71.699 (2.236) | 0.5000 | 1.9029 |
| 6 Manufactures Classified Chiefly by Material | 47.599 (1.452) | 10.549 (-0.789) | 0.1106 | 2.8299 |
| 7 Machinery and Transport Equipment | 10.599 (1.996) | -2.270 (-1.047) | 0.1799 | 1.7864 |
| 8 Miscellaneous Manufactured Goods | | | | |

(Figures in parentheses denote 't' ratios)

Table 34

PAKISTAN'S IMPORTS FROM INDIA: 1960-1965
(6 Annual Observations)

Results of Time Trend Regression Analysis
Dependent Variable: Value of Imports in U.S. \$ (Thousands)

| <u>SITC Sections/Variable</u> | <u>Intercept</u> | <u>T</u> | <u>R²</u> | <u>D-W</u> |
|--|----------------------|----------------------|----------------------|------------|
| 0 Food and Live Animals | 980.199 (2.886) | 69.599 (0.502) | 0.480 | 2.6967 |
| 1 Beverages and Tobacco | 14.199 (2.605) | 1.400 (-0.629) | 0.0734 | 1.6975 |
| 2 Crude Materials | 1386.995 (21.209) | 4.899 (0.184) | 0.0069 | 2.3651 |
| 3 Mineral Fuels, Lubricants | 902.799 (1.162) | 48.599 (0.153) | 0.0047 | 1.5853 |
| 4 Vegetable and Animal Oils and Fats | 85.799 (3.429) | 7.899 (0.773) | 0.1068 | 2.9216 |
| 5 Chemicals | 314.399 (14.975) | 73.299 (8.522) | 0.9360 | 2.6473 |
| 6 Manufactures Classified Chiefly by Material | 3122.397 (9.762) | -615.800 (-4.176) | 0.8164 | 1.4089 |
| 7 Machinery and Transport Equipment | 221.599 (8.930) | -89.599 (-3.098) | 0.7534 | 3.3517 |
| 8 Miscellaneous Manufactured Goods | 119.799 (3.240) | 53.699 (3.558) | 0.7169 | 2.2178 |

(Figures in parentheses denote 't' ratios)

Table 35

BANGLADESH'S IMPORTS FROM INDIA: 1960-1965
(6 Annual Observations)

Results of Time Trend Regression Analysis
Dependent Variable: Value of Imports in U.S. \$ (Thousands)

| <u>SITC Sections/Variable</u> | <u>Intercept</u> | <u>T</u> | <u>R²</u> | <u>D-W</u> |
|--|----------------------|----------------------|----------------------|------------|
| 0 Food and Live Animals | 907.399 (1.672) | 87.599 (0.395) | 0.0303 | 2.2016 |
| 1 Beverages and Tobacco | 0.200 (0.373) | 0.399 (1.826) | 0.400 | 2.0167 |
| 2 Crude Materials | 1541.599 (4.134) | -32.200 (0.212) | 0.0089 | 2.7482 |
| 3 Mineral Fuels, Lubricants | 4551.395 (10.364) | 122.399 (0.683) | 0.0853 | 2.9226 |
| 4 Vegetable and Animal Oils and Fats | 114.199 (3.733) | -14.660 (-1.169) | 0.2146 | 2.3674 |
| 5 Chemicals | 734.199 (11.129) | -38.199 (-1.418) | 0.2867 | 3.3491 |
| 6 Manufactures Classified Chiefly by Material | 3326.798 (3.627) | -246.900 (-0.659) | 0.0800 | 3.0956 |
| 7 Machinery and Transport Equipment | 975.399 (9.820) | 70.000 (1.653) | 0.3535 | 2.501 |
| 8 Miscellaneous Manufactured Goods | 283.000 (4.997) | 112.299 (4.857) | 0.8251 | 1.9788 |

(Figures in parentheses denote 't' ratios)

Table 36
POST-UNION COMMON EXTERNAL TARIFF STRUCTURES

| <u>SITC Section</u> | <u>Alternative I</u> | <u>Alternative II</u> | <u>Alternative III</u> | <u>Alternative IV</u> |
|-------------------------|--------------------------|---------------------------|----------------------------|---------------------------|
| 0 | 2.182 | 3.628 | 0.166 | 1.897 |
| 1 | 1.252 | 1.850 | 0.229 | 1.040 |
| 2 | 1.879 | 3.016 | 0.040 | 1.528 |
| 3 | 0.736 | 1.070 | 1.126 | 0.598 |
| 4 | 0.772 | 1.060 | 1.062 | 0.561 |
| 5 | 0.791 | 1.360 | 0.113 | 0.737 |
| 6 | 0.833 | 1.103 | 0.258 | 0.681 |
| 7 | 1.208 | 2.411 | 0.181 | 1.296 |
| 8 | 1.361 | 1.510 | 0.128 | 0.819 |

Note: For explanation on Alternative Structures, See Chapter V, Section 2

Table 37
INDIA
WELFARE EFFECTS:
TRADE CREATION AND TRADE DIVERSION
Base Year 1969
(In U.S. \$ Millions)

| SITC | Pre-union Imports from | | | | | | Post-Union Imports | | | | | | Welfare Effect | | |
|-------|------------------------|-----------------|---------------|--------|-------------------------------------|-------------------------|---------------------|----------------------------|------------------|-----------------|---------------|---------------------------------|--------------------------------------|--------------------------|--------------------------------|
| | West Pakistan | Bangla- desh | Sri- lanka | Nepal | Total Imports From Members | Rest of the World | $\frac{t_j}{1+t_j}$ | $\frac{t'_j - t_j}{1+t_j}$ | West Pakistan | Bangla- desh | Sri- lanka | Total From Members (+) | From Rest of World (+ or -) | Trade Creation (+) | Trade Diversion (+ or -) |
| 0 | 4.927 | 5.072 | -- | 12.126 | 22.126 | 427.974 | 0.642 | 0.138 | 5.967 | 4.656 | -- | 10.623 | -111.447 | 3.410 | -7.691 |
| 1 | -- | -- | -- | 0.260 | 0.260 | 1.343 | 0.519 | 0.083 | -- | -- | -- | -- | -0.210 | -- | -0.009 |
| 2 | 4.522 | 4.867 | 4.569 | 2.042 | 16.000 | 235.206 | 0.477 | 0.506 | 6.085 | 1.985 | 9.629 | 17.699 | -195.183 | 4.221 | -49.381 |
| 3 | 0.015 | -- | -- | -- | 0.015 | 85.423 | 0.336 | 0.206 | 0.014 | -- | -- | 0.014 | -81.475 | 0.002 | -8.392 |
| 4 | -- | -- | 0.631 | -- | 0.631 | 42.211 | 0.444 | -0.016 | -- | -- | 1.238 | 1.238 | 0.763 | 0.275 | 0.006 |
| 5 | 0.654 | 0.575 | -- | 0.247 | 1.476 | 253.283 | 0.465 | -0.042 | 0.858 | 1.567 | -- | 2.425 | 9.212 | 0.563 | 0.193 |
| 6 | -- | -- | -- | 5.587 | 5.587 | 296.327 | 0.524 | -0.128 | -- | -- | -- | -- | 55.150 | -- | 3.530 |
| 7 | -- | -- | -- | 0.823 | 0.823 | 561.159 | 0.441 | 0.235 | -- | -- | -- | -- | -83.607 | -- | -9.824 |
| 8 | 0.022 | 0.012 | -- | 0.107 | 0.141 | 33.878 | 0.531 | 0.200 | 0.037 | 0.006 | -- | 0.045 | -9.764 | 0.012 | -0.976 |
| Total | 10.140 | 10.526 | 5.2 | 21.192 | 47.058 | 1936.804 | | | 12.963 | 8.214 | 10.867 | 32.172 | -416.561 | 8.483 | -72.544 |

Table 38
 PAKISTAN
 WELFARE EFFECTS:
 TRADE CREATION AND TRADE DIVERSION
 Base Year 1969
 (In U.S. \$ Millions)

| SITC | Pre-union Imports from | | | | $\frac{t_j}{1+t_j}$ | $\frac{t'_j - t_j}{1+t_j}$ | Post-union Imports from | | | | Welfare Effects | |
|-------|------------------------|----------|--------------------|---------|---------------------|----------------------------|-------------------------|----------|--------|---------|--------------------|--------------------------|
| | India | Srilanka | Total From Members | ROW | | | India | Sriianka | Total | ROW | Trade Creation (+) | Trade Diversion (+ or -) |
| 0 | 1.607 | 0.800 | 2.047 | 37.2 | 0.758 | -0.231 | 4.224 | 1.577 | 5.801 | 20.606 | 2.198 | +2.380 |
| 1 | 0.016 | -- | 0.016 | 3.00 | 0.649 | -0.210 | 0.211 | -- | 0.211 | 2.426 | 0.068 | +0.255 |
| 2 | 1.431 | 1.187 | 2.618 | 41.813 | 0.751 | -0.283 | 3.389 | 0.808 | 4.197 | 4.177 | 1.576 | 0.591 |
| 3 | 1.340 | -- | 1.340 | 46.000 | 0.517 | -0.128 | 2.371 | -- | 2.371 | 1.590 | 0.613 | 0.098 |
| 4 | 0.157 | 0.800 | 0.957 | 26.200 | 0.514 | -0.140 | 0.306 | 0.377 | 0.683 | 1.103 | 0.176 | 0.072 |
| 5 | 0.974 | -- | 0.974 | 125.000 | 0.338 | +0.112 | 0.549 | -- | 0.549 | -11.62 | 0.093 | -0.651 |
| 6 | -- | 0.121 | 0.121 | 152.879 | 0.513 | -0.107 | -- | 0.056 | 0.056 | +4.990 | 0.014 | +0.267 |
| 7 | 0.443 | -- | 0.443 | 236.000 | 0.539 | +0.018 | 0.303 | -- | 0.303 | -3.650 | 0.082 | -0.033 |
| 8 | 0.603 | -- | 0.603 | 16.000 | 0.602 | -0.059 | 0.699 | -- | 0.699 | +2.690 | 0.210 | +0.079 |
| Total | 6.571 | 2.908 | 9.479 | 657.892 | | | 12.052 | 2.818 | 14.870 | +25.973 | 5.030 | +3.058 |

Table 39
 BANGLADESH
 WELFARE EFFECTS:
 TRADE CREATION AND TRADE DIVERSION

Base Year 1969
 (In U.S. \$ Millions)

| SITC | Pre-union Imports from | | | | $\frac{t_j}{1+t_j}$ | $\frac{t'_j-t_j}{1+t_j}$ | After Union Imports From | | | | Welfare Effects | |
|-------|------------------------|----------|--------|---------|---------------------|--------------------------|--------------------------|----------|--------|---------|-----------------|-----------------|
| | India | Srilanka | Total | ROW | | | India | Srilanka | Total | ROW | Trade Creation | Trade Diversion |
| 0 | 1.696 | -- | 1.696 | 82.000 | 0.784 | -0.313 | 2.433 | -- | 2.433 | +20.738 | 0.954 | +3.246 |
| 1 | 0.038 | -- | 0.038 | -- | 0.649 | -0.210 | 0.084 | -- | 0.084 | -- | 0.002 | -- |
| 2 | 1.252 | 0.108 | 1.360 | 5.892 | 0.552 | +0.289 | 1.252 | 0.054 | 1.306 | -3.218 | 0.360 | -0.465 |
| 3 | 5.653 | -- | 5.653 | 16.000 | 0.517 | -0.213 | 4.310 | -- | 4.310 | +3.743 | 1.114 | +0.230 |
| 4 | -- | 2.910 | 2.910 | 15.090 | 0.514 | -0.140 | -- | 1.356 | 1.356 | +5.531 | 0.348 | +0.387 |
| 5 | 0.390 | -- | 0.390 | 53.000 | 0.298 | +0.258 | 0.165 | -- | 0.165 | -16.668 | 0.025 | -2.510 |
| 6 | 1.105 | -- | 1.105 | 4.000 | 0.325 | +0.237 | 0.753 | -- | 0.753 | -1.645 | 0.122 | -0.195 |
| 7 | 1.757 | -- | 1.757 | 123.000 | 0.707 | -0.353 | 1.945 | -- | 1.945 | +43.680 | 0.688 | +7.709 |
| 8 | 1.294 | -- | 1.294 | 41.000 | 0.602 | -0.059 | 2.874 | -- | 2.874 | +2.850 | 0.865 | 0.084 |
| Total | 13.185 | 3.018 | 16.203 | 339.982 | | | 13.816 | 1.410 | 15.226 | 55.011 | 4.478 | 11.656 |

Table 40
 SRILANKA
 WELFARE EFFECTS:
 TRADE CREATION AND TRADE DIVERSION

Base Year 1969
 (In U.S. \$ Millions)

| SITC | Pre-union Imports From | | | | | | Post-union Imports From | | | | | Welfare Effects | | |
|-------|------------------------|------------------|-----------------|--------------------------|---------|---------------------|--------------------------|--------|------------------|-----------------|--------------------------|-----------------|--------------------------|--------------------------------|
| | India | West Pakistan | Bangla- desh | Total From Members | ROW | $\frac{t_j}{1+t_j}$ | $\frac{t'_j-t_j}{1+t_j}$ | India | West Pakistan | Bangla- desh | Total From Members | ROW (+ or -) | Trade Creation (+) | Trade Diversion (+ or -) |
| 0 | 9.901 | 8.112 | 1.186 | 19.199 | 140.590 | 0.142 | +1.729 | 2.927 | 8.145 | 1.207 | 12.279 | -127.374 | 0.872 | -110.115 |
| 1 | -- | -- | -- | -- | 0.587 | -- | +0.832 | -- | -- | -- | -- | -0.164 | -- | -0.141 |
| 2 | 1.497 | 0.148 | -- | 1.545 | 7.710 | 0.702 | -0.142 | 1.083 | 0.299 | -- | 1.382 | +1.616 | 0.485 | 9.115 |
| 3 | 2.910 | 0.398 | -- | 3.308 | 23.921 | 0.381 | +0.124 | 1.136 | 0.536 | -- | 1.672 | -4.378 | 0.319 | -0.271 |
| 4 | -- | -- | -- | -- | 1.201 | -- | +0.342 | -- | -- | -- | -- | -0.606 | -- | -0.104 |
| 5 | 0.960 | 0.596 | -- | 1.556 | 34.315 | 0.576 | -0.241 | 0.593 | 1.217 | -- | 1.810 | +12.026 | 0.522 | +1.471 |
| 6 | 12.089 | 1.710 | -- | 13.799 | 72.116 | 0.410 | +0.081 | 2.267 | 2.970 | -- | 5.237 | -2.909 | 1.074 | -0.118 |
| 7 | 7.882 | 0.441 | -- | 8.323 | 89.815 | 0.410 | +0.509 | 2.810 | 0.539 | -- | 3.349 | -22.706 | 0.531 | -5.794 |
| 8 | 0.664 | -- | -- | 0.664 | 7.967 | 0.563 | +0.031 | 0.575 | -- | -- | 0.575 | -0.393 | 0.162 | -0.006 |
| Total | 35.977 | 11.405 | 1.186 | 48.394 | 378.906 | | | 11.391 | 13.706 | 1.207 | 26.304 | -144.948 | +3.965 | -114.963 |

Table 41
 NEPAL
 TRADE DIVERSION AND WELFARE EFFECTS

Base Year 1969
 (In U.S. \$ Millions)

| <u>SITC Sections</u> | <u>Pre-union Imports From Row</u> | <u>$\frac{t_j - t_j}{1 + t_j}$</u> | <u>Diversion (+ or -)</u> | <u>Welfare Effect</u> |
|---|---|---|-------------------------------|---------------------------|
| 0 Food and Live Animals | 3.3 | 1.357 | -3.300 | -2.239 |
| 1 Beverages and Tobacco | -- | -- | -- | -- |
| 2 Crude Materials | 2.2 | 1.768 | -2.200 | -1.944 |
| 3 Minerals, Fuels and Lubricants | 0.7 | 0.542 | -0.672 | -0.182 |
| 4 Vegetable Oils and Animal Fats | 0.1 | 0.668 | -0.100 | -0.033 |
| 5 Chemicals | 1.0 | 0.609 | -0.795 | -0.242 |
| 6 Manufactures Classified Chiefly by Material | 5.7 | 0.457 | -1.266 | -0.289 |
| 7 Machinery and Transport Equipment | 0.8 | 0.869 | -0.593 | -0.258 |
| 8 Miscellaneous Manufactured Goods | <u>1.3</u> | 1.093 | <u>-1.300</u> | <u>-0.710</u> |
| | 15.1 | | -10.196 | -5.897 |

Table 42

INDIA
EXPORT EFFECTBase Year 1969
(In U.S. \$ Millions)

| SITC | Post-union Exports to W.P. | | | Post-union Exports to B.D. | | | Post-union Exports to Srilanka | | | Total Post-union | |
|-------|-------------------------------|---------------------|------------|-------------------------------|---------------------|------------|-----------------------------------|---------------------|------------|------------------|------------|
| | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | ΔW |
| 0 | 4.224 | 0.758 | 1.601 | 2.433 | 0.784 | 0.954 | 2.927 | 0.142 | 0.208 | 9.584 | 2.763 |
| 1 | 0.211 | 0.649 | 0.068 | 0.084 | 0.649 | 0.027 | 0 | -- | -- | 0.295 | 0.095 |
| 2 | 3.389 | 0.751 | 1.273 | 1.252 | 0.552 | 0.346 | 1.083 | 0.702 | 0.380 | 5.724 | 1.999 |
| 3 | 2.371 | 0.517 | 0.613 | 4.310 | 0.517 | 1.114 | 1.136 | 0.381 | 0.216 | 7.817 | 1.943 |
| 4 | 0.306 | 0.514 | 0.079 | 0 | -- | -- | -- | -- | -- | 0.306 | 0.079 |
| 5 | 0.549 | 0.338 | 0.093 | 0.165 | 0.298 | 0.025 | 0.593 | 0.576 | 0.171 | 1.307 | 0.289 |
| 6 | 0 | -- | -- | 0.753 | 0.325 | 0.122 | 2.267 | 0.410 | 0.465 | 3.020 | 0.587 |
| 7 | 0.303 | 0.539 | 0.082 | 1.945 | 0.707 | 0.688 | 2.810 | 0.317 | 0.445 | 5.058 | 1.215 |
| 8 | 0.699 | 0.602 | 0.210 | 2.874 | 0.602 | 0.865 | 0.575 | 0.563 | 0.162 | 4.148 | 1.237 |
| Total | 12.052 | | 4.019 | 13.816 | | 4.141 | 11.391 | | 2.047 | 37.259 | 10.207 |

Table 43

PAKISTAN
EXPORT EFFECTS

Base Year 1969
(In U.S. \$ Millions)

| SITC | Exports to India | | | Post-union Exports to | | | Total | |
|-------|------------------|---------------------|------------|-----------------------|---------------------|------------|------------|------------|
| | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | ΔW |
| 0 | 5.967 | 0.642 | 1.915 | 8.145 | 0.142 | 0.578 | 14.112 | 2.493 |
| 1 | 0 | -- | -- | -- | -- | -- | -- | -- |
| 2 | 6.085 | 0.477 | 1.451 | 0.299 | 0.702 | 0.105 | 6.384 | 1.556 |
| 3 | 0.014 | 0.336 | 0.002 | 0.536 | 0.381 | 0.102 | 0.550 | 0.104 |
| 4 | 0 | -- | -- | 0 | -- | -- | 0 | -- |
| 5 | 0.858 | 0.465 | 0.199 | 1.217 | 0.576 | 0.350 | 2.075 | 0.549 |
| 6 | 0 | -- | -- | 2.970 | 0.410 | 0.609 | 2.970 | 0.609 |
| 7 | 0 | -- | -- | 0.539 | 0.317 | 0.085 | 0.539 | 0.085 |
| 8 | 0.039 | 0.531 | 0.021 | 0 | -- | -- | 0 | 0.021 |
| Total | 12.963 | | 3.588 | 13.706 | | 1.829 | 26.667 | 5.417 |

Table 44

BANGLADESH
EXPORT EFFECTSBase Year 1969
(In U.S. \$ Millions)

| SITC | Post-union Exports to India | | | Post-union Exports to Srilanka | | | Total | |
|-------|-----------------------------|-------------------|------------|--------------------------------|---------------------|------------|------------|------------|
| | ΔX | $\frac{t}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | ΔW |
| 0 | 4.656 | 0.642 | 1.495 | 1.207 | 0.142 | 0.086 | 5.863 | 1.581 |
| 1 | 0 | -- | -- | 0 | -- | -- | -- | -- |
| 2 | 1.985 | 0.477 | 0.473 | 0 | -- | -- | 1.985 | 0.473 |
| 3 | 0 | -- | -- | 0 | -- | -- | -- | -- |
| 4 | 0 | -- | -- | 0 | -- | -- | -- | -- |
| 5 | 1.567 | 0.465 | 0.364 | 0 | -- | -- | 1.567 | 0.364 |
| 6 | 0 | -- | -- | 0 | -- | -- | -- | -- |
| 7 | 0 | -- | -- | 0 | -- | -- | -- | -- |
| 8 | 0.006 | 0.531 | 0.002 | 0 | -- | -- | 0.006 | 0.002 |
| Total | 8.214 | -- | 2.334 | 1.207 | -- | 0.086 | 9.421 | 2.420 |

Table 45
 SRILANKA
 EXPORT EFFECTS
 Base Year 1969
 (In U.S. \$ Millions)

| SITC | <u>Post-union Exports to India</u> | | | <u>Post-union Exports to Pakistan</u> | | | <u>Post-Union Exports to Bangladesh</u> | | | <u>Total Increase</u> | |
|-------|------------------------------------|---------------------|------------|---------------------------------------|---------------------|------------|---|---------------------|------------|-----------------------|------------|
| | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | $\frac{t_j}{1+t_j}$ | ΔW | ΔX | ΔW |
| 0 | 0 | -- | -- | 1.577 | 0.758 | 0.598 | 0 | -- | -- | 1.577 | 0.598 |
| 1 | 0 | -- | -- | -- | -- | -- | 0 | -- | -- | -- | -- |
| 2 | 9.629 | 0.477 | 2.297 | 0.808 | 0.751 | 0.303 | 0.054 | 0.552 | 0.015 | 10.941 | 2.615 |
| 3 | 0 | -- | -- | -- | -- | -- | 0 | -- | -- | -- | -- |
| 4 | 1.238 | 0.477 | 0.275 | 0.377 | 0.514 | 0.097 | 1.356 | 0.514 | 0.348 | 2.971 | 0.720 |
| 5 | 0 | -- | -- | 0 | -- | -- | -- | -- | -- | -- | -- |
| 6 | 0 | -- | -- | 0.056 | 0.513 | 0.029 | -- | -- | -- | 0.056 | 0.029 |
| 7 | 0 | -- | -- | 0 | -- | -- | -- | -- | -- | -- | -- |
| 8 | 0 | -- | -- | 0 | -- | -- | -- | -- | -- | -- | -- |
| Total | 10.867 | -- | 2.752 | 2.818 | -- | 1.027 | 1.410 | -- | 0.363 | 15.095 | 3.962 |

Table 46

SUMMARY OF WELFARE EFFECTS
UNDER ALTERNATIVE I

Post-union External Tariff Being
The Simple Average Of Pre-union Tariff Rates

Base Year 1969
(In U.S. \$ Millions)

| <u>Country</u> | <u>Trade Creation</u> | <u>Export Effect</u> | <u>Trade Diversion^a (+ or -)</u> | <u>Net Effect</u> | <u>GNP</u> | <u>Net Effect As A Percentage of GNP</u> |
|------------------|---------------------------|--------------------------|---|-----------------------|----------------|--|
| India | 8.483 | 10.207 | -72.544 | -53.854 | 45853.489 | -0.117 |
| Pakistan | 5.030 | 5.417 | +3.058 | 13.505 | 9872.632 | 0.137 |
| Bangla- desh | 4.478 | 2.420 | 8.486 | 15.384 | 6285.051 | 0.245 |
| Srilanka | 3.965 | 3.962 | -114.963 | -107.036 | 1833.389 | -5.838 |
| Nepal | <u>None</u> | <u>None</u> | <u>-5.897</u> | <u>-5.897</u> | <u>846.127</u> | <u>-0.697</u> |
| All Countries | 21.956 | 22.006 | -181.86 | -137.898 | 64690.688 | -0.214 |

a - indicates welfare loss due to trade diversion of imports from outside world

+ indicates welfare gains due to trade creation with the outside world

Table 47

SUMMARY OF WELFARE EFFECTS
UNDER ALTERNATIVE II

Post-union External Tariff Being The Pre-union
Highest Rate For Each Section Among All Countries

Base Year 1969
(In U.S. \$ Millions)

| <u>Country</u> | <u>Trade Creation</u> | <u>Export Effect</u> | <u>Trade Diversion^a (+ or -)</u> | <u>Net Effect</u> | <u>GNP</u> | <u>Net Effect As A Percentage of GNP</u> |
|------------------|---------------------------|--------------------------|---|-----------------------|----------------|--|
| India | 8.483 | 10.207 | -457.540 | -438.850 | 45853.489 | -0.957 |
| Pakistan | 5.030 | 5.417 | -50.407 | -39.960 | 9872.632 | -0.405 |
| Bangla- desh | 4.478 | 2.420 | -18.094 | -11.196 | 6285.051 | -0.178 |
| Srilanka | 3.965 | 3.962 | -376.761 | -368.834 | 1833.389 | -20.117 |
| Nepal | <u>None</u> | <u>None</u> | <u>-11.027</u> | <u>-11.027</u> | <u>846.127</u> | <u>-1.303</u> |
| All Countries | 21.956 | 22.006 | -913.829 | -869.867 | 64690.688 | -1.345 |

a - indicates welfare loss due to trade diversion of imports from outside world

+ indicates welfare gains due to trade creation with the outside world

Table 48

SUMMARY OF WELFARE EFFECTS
UNDER ALTERNATIVE III

Post-union External Tariff Being The Pre-union Lowest
Tariff For Each Section Among All Member Countries

Base Year 1969
(In U.S. \$ Millions)

| <u>Country</u> | <u>Creation</u> | <u>Export Effect</u> | <u>Trade Diversion^a (+ or -)</u> | <u>Net Effect</u> | <u>GNP</u> | <u>Net Effect As A Percentage of GNP</u> |
|------------------|-----------------|--------------------------|---|-----------------------|----------------|--|
| India | 8.483 | 10.207 | +272.698 | 291.388 | 45853.489 | 0.635 |
| Pakistan | 5.030 | 5.417 | +66.133 | 76.580 | 9872.632 | 0.776 |
| Bangla- desh | 4.478 | 2.420 | +64.260 | 71.158 | 6285.051 | 1.132 |
| Srilanka | 3.965 | 3.962 | +14.967 | 22.894 | 1833.389 | 1.249 |
| Nepal | <u>None</u> | <u>None</u> | <u>+0.030</u> | <u>0.030</u> | <u>846.127</u> | <u>0.004</u> |
| All Countries | 21.956 | 22.006 | 418.088 | 462.050 | 64690.688 | 0.714 |

^a - indicates welfare loss due to trade diversion of imports from outside world

+ indicates welfare gains due to trade creation with the outside world

Table 49

SUMMARY OF WELFARE EFFECTS
UNDER ALTERNATIVE IV

Post-Union External Tariff Being The Average Of the Pre-union
Highest And The Lowest Rates For Each Section
Among The Member Countries

Base Year 1969
(In U.S. \$ Millions)

| <u>Country</u> | <u>Creation</u> | <u>Export Effect</u> | <u>Trade Diversion^a (+ or -)</u> | <u>Net Effect</u> | <u>GNP</u> | <u>Net Effect As A Percentage of GNP</u> |
|------------------|-----------------|--------------------------|---|-----------------------|----------------|--|
| India | 8.483 | 10.207 | -254.414 | -6.724 | 45853.489 | -0.015 |
| Pakistan | 5.030 | 5.417 | +7.016 | +17.463 | 9872.632 | 0.177 |
| Bangla- desh | 4.478 | 2.420 | +12.950 | +19.848 | 6285.051 | 0.316 |
| Srilanka | 3.965 | 3.962 | -86.933 | -79.006 | 1833.389 | -4.309 |
| Nepal | <u>None</u> | <u>None</u> | <u>-7.423</u> | <u>-7.423</u> | <u>846.127</u> | <u>-0.877</u> |
| All Countries | 21.956 | 22.006 | -99.804 | -55.842 | 64690.688 | -0.086 |

CHAPTER VI

Summary and Conclusions

Introduction

This last chapter seeks to present a summary of static effects of a hypothetical customs union in the Indian sub-continent and to examine the empirical evidence in the light of the theoretical discussion in Chapter I. Further, certain policy implications are also examined.

Welfare Effects and the Theory of Customs Union

Empirical evidence assembled shows that the hypothetical customs union becomes beneficial only under one circumstance, namely when the post-union common external tariff structure consists of the pre-union's lowest tariff rates for each SITC section. The reason for such a result is that trade diversion effects turn out to be greater than trade creating. Further, as the proportion of each country's pre-union trade with the rest of the world to its total trade is substantially larger than the proportion of its respective intra-trade in the region to its total trade, changes in the volume of trade with the rest of the world following a change in the tariff rates against imports from the same source significantly influence the outcome of the union. The countries in the Indian sub-continent except Nepal and Srilanka have adopted a very highly protective tariff structure as reflected in the pre-union implicit tariff rates given in Table 2. Therefore, keeping to the lowest tariff structure as external tariff structure means for India, Bangladesh and Pakistan a

sizeable proportionate change in the tariff rates. Both these factors contribute to a very large increase in trade creation effects with the rest of the world which far exceeds trade creation effects within the union. For example, India's trade creation welfare effects with the rest of the world is \$272.678 million as against its trade creation welfare effects within the union of \$8.483 million. Srilanka's welfare effects due to trade creation with the rest of the world, though larger due to having had a higher proportion of trade with the outside world, are not as great in comparison with its trade creation within the union as either India's or Pakistan's or Bangladesh's for the reason that Srilanka's pre-union tariff structure was one of the lowest in the region.

Nepal's gain from trade creation with the rest of the world is insignificantly small due to the fact that the post-union tariff structure is largely Nepal's own and hence the proportionate change in the tariff rates for almost all SITC sections is zero or negligible.

In the event of the pre-union highest tariff rate for each section among the member countries becoming the post-union common external tariff rate for the same section, Srilanka and Nepal both having had low tariff structures before the union, experience substantial welfare loss. However, Nepal's welfare loss is of a small magnitude than that of Srilanka for the reason that the former's trade with the rest of the world comprises only 15 to 20 per cent of her total trade. On the other hand, Srilanka's trade with the rest of the world as a proportion of her total trade is about 75 to 80 per cent. Thus, her low pre-union tariff structure and large proportion of her pre-union trade with the rest of the

the world to total trade have contributed to Srilanka's substantial trade diversion loss.

Pakistan and Bangladesh emerge as less affected members for the reason that both countries have had a relatively high tariff structure prior to the union and hence the proportionate change in the tariff structure subsequent to the adoption of the preunion highest rates for each section as external tariff rates is not very significant.

The other two alternative tariff structures when adopted as common external tariff rates give rise to similar results which confirm the observation that pre-union volume of trade with the rest of the world and tariff structure substantially influence the trade diversion welfare effects and consequently net welfare effects.

Trade creation effects within the union have less impact on the net effects of the union than the trade diversion effects for the reason that pre-union volume of the intra-regional trade was of a very low magnitude as discussed in Chapter III. For this reason, despite complete elimination of all restrictions on movement of goods with the union and despite the price elasticities of import demand from the union members on an average being higher than price elasticities of demand for imports from the rest of the world, increase in volume of trade within the union in absolute terms is well below the volume of trade diverted from the union in cases under alternative tariff structures I, II and IV.

For example, under the alternative tariff structure I, the total intra-union imports prior to the union were \$157.734 million, forming 4.53 per cent of total imports of the region as a whole. After the formation of the union, the intra-union imports would increase by \$88.572

million or by 56.15 per cent. The pre-union level of imports of the entire sub-continent from the rest of the world totalled \$3326.084 million. The post-union trade diversion in imports from the rest of the world for all members amount to \$490.721 million, which is 14.75 per cent of the pre-union level of imports from the same source.

Thus the empirical application of the theory of customs union in the Indian sub-continent confirms the criteria for higher economic welfare evolved in the literature as discussed in Chapter I. A customs union becomes more beneficial the larger the pre-union volume of trade with the outside members, the smaller the post-union tariff and the higher the pre-union tariff walls, the higher the price elasticities of demand for imports from the member countries, and the lower the price elasticities of demand for imports from the rest of the world.¹

Some Qualifications

It is necessary to point out that trade creation gains so estimated are likely to be higher than otherwise for the reason that the procedure adopted to determine price elasticities of demand for imports from the member countries includes the elasticity of substitution component in the estimated price elasticities of demand for imports. Therefore, for the same reason trade diversion losses tend to become underestimates. Further, we have assumed in our calculation procedure that trade diversion follows only if the tariff rate is raised against imports from the rest of the world. Though this assumption is open to question as discussed in some detail in Chapter II, the empirical application of the customs union theory elsewhere also takes a similar approach.²

Further, the measurement of static effects is based on past patterns of trade and so the potential trade creation gains are likely to be higher than the estimated gains. The reason is that the post-union price elasticities of demand for intra-union imports are likely to be higher than the estimated pre-union price elasticities of demand on the ground that within the union once liberalized trade starts without any kind of impediments, goods produced within the union become substitutes for each other to a larger degree than before. Further, new products hitherto untraded before the union now become available. These factors increase the possibility of greater trade creation gains and hence our estimates of trade creation gains tend to be underestimates. The result would be that the realized welfare gains are likely to be higher and the net welfare loss may be reduced to that extent.

Yet another effect which has not been taken into account is the reduction in excessive transport costs which accrued earlier to Pakistan and Bangladesh, as a result of inter-wing trade between them. But once the customs union comes into being, Bangladesh would buy her manufactured goods from neighboring India, and Pakistan would export her manufactured goods to India free of any impediments and this would release resources that were once used in transportation within former Pakistan and in India. The freight charges between the two wings of former Pakistan have been estimated to be \$8 million for the year 1961, and the likely savings in transportation due to the formation of a customs union would be a significant proportion of this figure.³

Another aspect of the gain likely to arise from the formation of a customs union in the Indian sub-continent is in regard to terms of trade

effect. The Indian sub-continent supplies 60 per cent and 80 per cent of the total imports of the rest of the world of tea, jute and jute manufactures respectively. Therefore, the union could effectively improve its trade in respect of these commodities by following a monopolistic policy of restriction of exports. This is essentially one of optimum tariff argument.

If the countries were to act individually in order to improve their terms of trade, their efforts are likely to be thwarted by the competing countries for the same export markets through price cutting and such other aggressive conflicting measures. Hence, commodity agreements as a common measure have been suggested for suppliers of primary commodities to assume gains for all competing exporters. In the absence of commodity agreements between exporters, the individual country's export promotion measure may hurt the competing country's interests. The history of effect of commodity agreements in respect of commodities like cocoa, coffee, tin, etc., has not been very happy; one of the reasons may be perhaps the lack of greater understanding and far greater mutual trade relations between competing exporters. Such a mutual trade relationship is fostered by the customs union whose interests cover the whole lot of trade in respect of all goods and not merely the subject of the agreement. It is, therefore, assumed the union would be able to exercise a joint monopoly power in respect of tea, jute and jute manufactures much more effectively than if they were to enforce a commodity agreement without forming a union, on an independent basis. Such a cooperation would increase their combined earnings from the exports of these two commodities and would help stabilizing the price of raw jute and jute products and might well raise the average level of export sales.⁴

Some Policy Implications

An evaluation of welfare results shows that only when the alternative tariff structure III is adopted as common external tariff structure, the union becomes beneficial. This is not surprising as the benefits directly flow from adoption of a low tariff structure by the countries involved which have created very high tariff walls against imports from the outside world. The second best alternative tariff structure is IV under which, though trade diversion losses exceed trade creation, the welfare losses are minimum for the union as a whole and for individual member countries; India, Srilanka, and Nepal, whereas the welfare gains for Pakistan and Bangladesh are higher than those under alternative tariff structure I, though less than under alternative II.

The discussion will be incomplete if no reference is made to the aspect of unequal economic gains and economic dualism, as called by Mikesell,⁵ likely to be realized in the event of a customs union in the Indian sub-continent. By its sheer size of the area and population coupled with greater natural resources endowment and head start in industrialization, India is likely to dominate the union. Though the static welfare effects are negative for India, the longer term gains for India are substantial as her exports in manufactured goods would be admitted free of impediments in the regional market in preference to outside imports. The other members, especially Nepal and Srilanka, though able to raise their primary exports to India, would not be able to have substantial gains in exports. Further, they might lose the tariff revenue on imports diverted from third countries towards the union.

Apart from the immediate loss of tariff revenue, the longer term effect of investment flows, in terms of capital, skills, etc., both from

within the region and outside being increasingly drawn towards the advanced areas in the union, such as industrial centers of India and Pakistan, to take advantage of external economies in these centers would have an adverse impact on the less industrialized countries in the region. If polarization effects⁶ are allowed to grow, the political future of the union would be uncertain. Effective intervention by a supra-national agency is needed to encourage investments in less advanced areas through fiscal incentives and building economic overhead facilities in the areas concerned. Measures of this kind to eliminate regional disparities within the country are usual and similarly they have to be undertaken on a supra-national level to deal with the economic dualism of customs union where members differ from each other in terms of size and degree of economic development and industrialization.

NOTES TO CHAPTER VI

1. Balassa, Bela, The Theory of Economic Integration, (Homewood, Illinois: Irwin Inc., 1964) Chapter 3.
2. For a discussion of general approach and empirical results of several studies, see Leamer, E. E., and Stern, R. M.: Quantitative International Economics, (Boston: Allyn and Bacon Inc., 1970) Chapter 8.
3. Cohen, B. I., "The International Development of India and Pakistan," in Economic Development in South Asia, ed. Robinson, Austin and Kidron, M., (New York: St. Martin's Press, 1970) p. 570.
4. Bhagwati, J. N., "International and Regional Development," in Robinson and Kidron, op. cit., p. 540.
5. Mikesell, R. F., "The Theory of Common Markets and Developing Countries," in International Economic Integration, ed. Robson, Peter (London: Penguin, 1967) pp. 183-87.
6. Hirschman, A. O., The Strategy of Economic Development (New Haven: Yale University Press, 1958).

BIBLIOGRAPHY

- Allen, R. L., "Integration in Less Developed Areas," Kyklos, Vol. XIV, Fasc. 3 (1961).
- Andic, F., Andic, S. and Dosser, D., A Theory of Economic Integration for Developing Countries, (London: Allen and Unwin, 1971).
- Arndt, S. W., "Customs Union and the Theory of Tariffs," American Economic Review, Vol. 77, 1969, pp. 108-18.
- Balassa, B., "Reforming System of Incentives in Developing Countries," World Development, Vol. 3, No. 6, June 1975, pp. 365-67.
- Balassa, B., Trade Liberalisation Among Industrial Countries, (New York: McGraw Hill, 1967).
- Balassa, B., The Theory of Economic Integration, (Homewood, Illinois: Irwin, 1961).
- Batra, R. N., Studies in The Pure Theory of International Trade, (New York: St. Martin's Press, 1973).
- Bhagwati, J. N. and Desai, P., India: Planning for Industrialisation, (Oxford: Oxford University Press, 1970).
- Bhagwati, J. N., "The Gains from Trade Once Again," Oxford Economic Papers, Vol. 20, July 1968, pp. 137-48.
- Bhambri, R. S., "Customs Union and the Underdeveloped Countries," Economic Internazionale, Vol. 15, 1962, pp. 235-58.
- Brown, A. J., "Economic Separation versus Common Market in Developing Countries," Part II, Yorkshire Bulletin of Economic and Social Research, Vol. 13, November 1961, pp. 88-96.
- Cooper, C. A., and Massel, B. F., "A New Look at Customs Union Theory," Economic Journal, Vol. 75, December 1965, pp. 742-47.
- Cooper, C. A., and Massel, B. F., "Toward a General Theory of Customs Union for Developing Countries," Journal of Political Economy, Vol. 73, October, 1965.
- Dell, S., A Latin American Common Market, (Oxford: Oxford University Press, 1966).
- Dutta, A., "Domestic Distortions and Customs Union: A Geometric Analysis," The Journal of Development Studies, Vol. 5, January 1969, pp. 87-103.

- Elkan, P. G., "How to Beat Backwash," Economic Journal, Vol. 75, March, 1967, pp. 44-62.
- Gehrels, F., "Customs Union From a Single Country Viewpoint," Review of Economic Studies, Vol. 24, 1956, pp. 61-64.
- Haack, W. G. C. M., "The Economic Benefit of Britain's Entry into Common Market," Journal of Common Market Studies, Vol. 7, December 1972, pp. 130-155.
- Hazlewood, A., "The Shiftability of Industry and Measurement of Gains and Losses in the East African Common Market," Bulletin of Oxford Institute of Economics and Statistics, Vol. 28, 1966, pp. 63-72.
- Hazlewood, A., (ed.), Economic Interpretation in Europe, (London: Weidenfield and Nicolson, 1967).
- Hitiris, T., Trade Effects of Economic Association with the Common Market: The Case of Greece, (New York: Draeger Publisher, 1972).
- Humphrey, D. D., and Ferguson, C. E., "The Domestic and World Benefits of Customs Union," Economia Internazionale, Vol. 13, May 1960.
- Janssen, L. A., Free Trade, Protection and Customs Union, (Leiden: Stenfert Kroese, 1961).
- Johnson, H. G., "A Marshallian Analysis of Customs Union," Indian Journal of Economics, Vol. 28, 1957, pp. 39-48, and Vol. 29, 1958, pp. 177-81.
- Johnson, H. G., "The Economic Theory of Customs Union," Pakistan Economic Journal, Vol. 10, 1960, pp. 14-32.
- Johnson, H. G., "An Economic Theory of Protectionism, Tariff Bargaining and the Formation of Customs Union," Journal of Political Economy, Vol. 73, June 1965, pp. 256-83.
- Johnson, H. G., "The Gains from Freer Trade with Europe: An Estimate," Manchester School, Vol. 26, September 1958, pp. 247-55.
- Johnson, H. G., "The Common Market, The Economists Reaction," in The Free Trade Proposals, Edited by Worswick (Oxford: Blackwell, 1960).
- Johnston, J., Econometric Methods, (New York: McGraw Hill, 1973).
- Klein, L. R., et. al., An Econometric Model of the U.K., (Oxford: Blackwell, 1961).
- Klein, L. R., "Single Equation vs. Equation System Methods of Estimation in Econometrics," Econometrica, Vol. XXVIII, October 1960.

- Kemp, M. C., A Contribution to General Equilibrium Theory of Preferential Trading, (Amsterdam: North Holland, 1969).
- Krauss, M. B., "Recent Developments in Customs Union Theory: An Interpretive Survey," The Journal of Economic Literature, Vol. X, No. 2, June 1972.
- Leibenstein, H., "Allocative Efficiency vs. X-Efficiency," American Economic Review, Vol. 56, June, 1966.
- Lewis, S. R., Pakistan: Industrialisation and Trade Policies, (Oxford: Oxford University Press, 1970).
- Lim, Youngil, "ECAFE's Trade Expansion Proposal for Asia: An Appraisal," Journal of Common Market Studies, Vol. XI, No. 2, 1972, pp. 103-119.
- Linder, S. B., Trade and Trade Policy for Development, (New York: Praeger, 1967).
- Lipsey, R. G., The Theory of Customs Unions: A General Equilibrium Analysis, (London: Weidenfield and Nicolson, 1970).
- Lipsey, R. G., "The Theory of Customs Union: A General Survey," Economic Journal, Vol. 70, September 1960, pp. 496-513.
- Little, I. M. D., et. al., Industry and Trade in Some Developing Countries: A Comparative Study, (Oxford: Oxford University Press, 1970).
- Malinvaud, E., Statistical Methods in Econometrics, (Amsterdam: North Holland, 1966).
- Meade, J. E., The Theory of Customs Union, (Amsterdam: North Holland, 1955).
- Meier, G. M., International Economics of Development, (New York: Harper and Row, 1968).
- Michaley, M., "On Customs Union and the Gains from Trade," Economic Journal, Vol. 75, 1965, pp. 577-83.
- Mikesell, R. F., "The Theory of Common Markets as Applied to Regional Arrangements Among Developing Countries," International Economic Integration, Edited by Robson, P., (London: Penguin Books, 1971) pp. 166-193.
- Ndegwa, P., The Common Market and Development in East Africa, (Nairobi: East African Publishing House, 1968).
- Negishi, T., "The Customs Union and The Theory of the Second Best," International Economic Review, Vol. 10, 1969, pp. 391-97.

- Okigbo, P. N., Africa and The Common Market, (London: Longman, 1967).
- Orcutt, G. H., "Measurement of Price Elasticities in International Trade," Readings in International Economics, Edited by Caves, R., and Johnson, H. G., (Homewood, Illinois: Irwin, 1968).
- Polak, S. J., An International Economic System, (Chicago: University of Chicago Press, 1953).
- Power, J. H., "The Role of Protection in Industrialisation Policy with Particular Reference to Kenya," Eastern Africa Economic Review, June 1962, pp. 1-22.
- Power J. A., "Protection and Trade Preferences," Mimeo, (Honolulu: East West Center, 1968).
- Prais, S. J., "Econometric Research in International Trade," Kyklos, Vol. 15, Fasc. 3, 1962.
- Robson, P., (ed.), International Economic Integration, (London: Penguin Books, 1971).
- Robinson, E. A. G., (ed.), Economic Consequences of the Size G Nations, (New York: St. Martin's Press, 1960).
- Robinson, E. A. G., and Kidron, M., (ed.), Economic Development in South Asia (New York: St. Martin's Press, 1970).
- Scitovsky, T., Economic Theory and Western European Integration, (Stanford: Stanford University Press, 1958).
- Spraos, J., "The Condition for a Trade Creating Union," Economic Journal, Vol. 7A, March 1964, pp. 101-108.
- Streeten, P., Economic Integration: Aspects and Problems, (Leiden: A. W. Sythoff, 1951).
- Truman, E. M., "The European Economic Community: Trade Creation and Trade Diversion," Yale Economic Essays, Vol. 9, No. 1, 1969.
- Urquidi, V. L., "The Common Market as a Tool of Latin America's Economic Development," Latin American Issues: Essays and Comments, Edited by Hirschman, A. O., (New York: Twentieth Century Fund, 1961).
- Vanek, J., General Equilibrium of International Discrimination, (Cambridge, Massachusetts: Harvard University Press, 1965).

- Vanek, J., "Payments Union Among the Less Developed Countries and Their Economic Integration," Journal of Common Market Studies, Vol. 5, December 1969, pp. 187-191.
- Viner, J., The Customs Union Issue, (New York: Carnegie Endowment for International Peace, 1950).
- Wemelsfeder, J., "The Short-run Effects of Lowering of Import Duties in Germany," Economic Journal, Vol. 70, March 1960, pp. 61-69.
- Wilford, W. T. Z., "Trade Creation in the Central American Common Market," Western Economic Journal, Vol. 8, No. 1, 1970, pp. 61-69.
- Wionczek, M. S., (ed.), Latin American Economic Integration, New York: Praeger, 1966)

Official Publications

- Government of Bangladesh, Bureau of Economics, Statistical Digest of Bangladesh, 1971, (Dacca: Government Printing Press, 1973).
- Government of India, Central Statistical Organization, Statistical Abstract of India, 1972, (Delhi: Government of India Press, 1974).
- Government of India, Director General of Commercial Intelligence, Monthly Foreign Trade Statistics, Volumes I and II, (Calcutta: Government of India Press), various issues.
- Government of Pakistan, Central Statistical Office, Monthly Statistical Bulletin, (Karachi: Government Press), various issues.
- Government of Srilanka, Statistical Abstract of Srilanka, (Annual), (Colombo: Government Press), various issues.
- Central Bank of Srilanka, Annual Report of the Monetary Board to Ministry of Finance, (Annual) (Colombo: Government Press), various issues.
- Nepal Press Digest, Nepal Customs Tariff Schedules (Kathmandu: Nepal Press, 1973).
- Reserve Bank of India, RBI Monthly Bulletin, (Monthly) (Bombay: RBI Press), various issues.
- International Monetary Fund, International Financial Statistics, (Monthly) (Washington, D. C.: IMF), various issues.
- International Monetary Fund, International Financial Statistics, Annual Supplement, 1972, (Washington, D. C.:IMF, 1974).

United Nations, Commodity Trade Statistics, (Annual) (New York: U. N. Publishing Service), various issues.

United Nations, ESCAP, Statistical Year Book for Asia and Far East, (Annual) (Bangkok: U. N. Publishing Service), various issues.

United Nations, EFTA, The Effects of EFTA on the Economics of Member States, (New York: U. N. Publishing Service, 1969).

United Nations, CTAD, Trade Expansion and Economic Integration Among Developing Countries, (Geneva: U. N. Publishing Service, 1967).