DISINTEGRATION AND INTERNATIONAL TRADE FLOWS: SOME THEORY AND EMPIRICAL EVIDENCE FROM PAKISTAN

by

Sajjad Akbar

B.A. (Hon.), M.A. Economics, University of Karachi, 1977, Karachi, Pakistan

M.A. Economics, University of Waterloo, 1980, Waterloo, Canada

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APPROVAL

Name: Sajjad Akbar

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                      Theory and Empirical Evidence from Pakistan

Examining Committee:

Chairman: Clyde Reed

                              Stephen T. Easton
                              Associate Professor
                              Senior Supervisor

                              Herbert G. Grubel
                              Professor

                              Dennis R. Maki
                              Professor

                              John Heaney
                              Assistant Professor

                              Paul M. Boothe
                              Associate Professor
                              Department of Economics
                              University of Alberta
                              External Examiner

                              Date Approved: _6 april 1989_

                              ii

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Empirical Evidence from Pakistan.

Author: _____

(signature)

Sajjad Akbar

(name)

19 April 1989

(date)

ABSTRACT

Since World War II a number of countries have disintegrated and separated into smaller units and some are yet in danger of fragmentation. This study recognizes disintegration as an important area for research. Specifically, it uses the theory of economic integration to examine the effects of Pakistan's disintegration on international trade flows. The theory of integration has been applied to this case of disintegration by providing some explanation for integration. In the traditional analysis, a simple general equilibrium model highlights the potential for economic gain that contributes to the formation and survival of a Preferential Trading Arrangement.

Empirical evidence is presented on the effects of Pakistan's disintegration on international trade flows. To provide some background information, a brief discussion of the political economy of Pakistan from creation to disintegration indicates that: (1) the economic conditions of Muslims of the Indian subcontinent were helpful in the creation of Pakistan on August 14th, 1947; and (2) the economic conditions of Pakistan during 1947~71 can be linked to its disintegration on December 16th, 1971.

Most importantly, however, the effects of disintegration have been analyzed in terms of the changes in trade flows, which are classified as the trade reduction and trade switching effects. Trade reduction has been defined as the decline in trade brought about by the substitution of domestic production for the imports from former partners. Trade switching has been defined as the substitution of some imports from nonpartners for those of the former partner countries.

Two different techniques are used to identify and measure the two effects. (1) Income elasticities of demand for imports are used to identify the effects of a disintegration. It is shown that: (i) a decline in the ex-post income elasticity of demand for inter-wing imports indicates a trade reduction; (ii) an increase in the ex-post income elasticity of demand for total (inter- and extra-area) imports depicts a gross trade switching; and (iii) an increase in the ex-post income elasticity of demand for imports from the rest of the world shows the proper trade switching. (2) A partial equilibrium model is developed to quantify the effects of Pakistan's disintegration. Simple computable measures of trade reduction and trade switching effects are derived using the

movements along a demand curve and shifts in the curve. A binary variable technique is used to identify the shift in the demand curve, and the extent of the shift is captured with a dummy variable in the estimation procedure that uses time series data to compute the import demand function.

For the empirical analysis, combined Pakistan's foreign trade data for ten major commodity groups, – 1 digit standard international trade classification (SITC), – have been separated into Bangladesh and (West) Pakistan trade with the rest of the world for the 1951/52–1970/71 period. For inter-wing trade data, (West) Pakistan's one hundred exports to, and sixty-five import goods from East Pakistan have been classified according to the SITC. Three distinct flows – total (inter- and extra-area) imports; imports from the rest of the world; and inter-wing imports – are used to estimate import demand functions for (West) Pakistan and Bangladesh.

The trade reduction and trade switching effects of disintegration on these flows have been estimated using the price elasticities and coefficients of the dummy variables. The results indicate that:

(1) (West) Pakistan has experienced substantial trade switching and very limited trade reduction.

(2) Bangladesh has recorded a substantial decline in trade, while there is strong evidence of trade switching.

DEDICATION

To my parents: Mr. Hasan Akbar and Mrs. Taeed Fatima

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INTRODUCTION

Recently a few countries have disintegrated and separated into smaller units (North Korea from South, Singapore from Malaysia and Bangladesh from Pakistan). There are some in danger of fragmentation (Punjab from India, the Basque Provinces from Spain and Quebec from Canada). Over one billion people (one-fifth of the world population) have been affected by some form of disintegration since World War II.[1] This makes it an important subject for economic research and analysis. In addition, there exists an extensive literature on economic integration, but none on disintegration.[2] The objective of this study is to begin to fill the gap and use the theory of economic integration for the analysis of a specific disintegration.

For a detailed examination of a disintegration, we need some theoretical framework and a set of data to provide empirical evidence on the effects of a specific disintegration. In this study, the theory of integration is used for the former under the assumption that it is symmetrical, and the data on Pakistan is used for the latter.

Assuming that the theory of integration is symmetrical, it can be applied to a case of disintegration by examing two related questions: (1) What forces give rise to a preferential trading arrangement (PTA)? and (2) What are the conditions for survival of a PTA? In the context of these questions, some explanation for the formation and survival of a PTA is provided in Part III. Having examined questions (1) and (2) above, the study provides empirical evidence on the effects of Pakistan's disintegration on international trade flows. Pakistan's disintegration provides an interesting case for research, since undivided Pakistan fits perfectly into the definition of an economic integration. Further, the economic reasons behind the creation and disintegration of Pakistan may also provide some possible explanation for an integration. Thus, we discuss Pakistan's political economy from its creation in 1947 to its disintegration in 1971.

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[1] Disintegration of the Indian subcontinent in 1947 and of Pakistan in 1971 alone has affected 940 million people.

[2] An extensive library and literature search did not reveal any independent study on disintegration.

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Pakistan's trade before disintegration had two components. First, there was a flow of goods between former East and West Pakistan, and second, both regions had trade with the rest of the world. The data on total imports and exports of Bangladesh and (West) Pakistan with the rest of the world is available, but there is no separate account of the commodity trade of each region. Therefore, considerable effort has been made to separate the data of combined Pakistan's commodity trade with the rest of the world into that of the two regions: Bangladesh and (West) Pakistan. To this end combined Pakistan's foreign trade data for the ten major commodity groups – 1 digit Standard International Trade Classification (SITC) – have been separated into Bangladesh and (West) Pakistan trade with the rest of the world during the 1951/52–1970/71 period.

The predisintegration trade flows between East and West Pakistan were published as 'inter-wing' trade in a crude fashion without consistency or classification of goods. To generate consistent time series data for the commodity trade between Bangladesh and (West) Pakistan, the inter-wing trade data for the predisintegration period have been classified according to the SITC.[3] To this end the published inter-wing trade data have been classified according to the Pakistan Standard Trade Classification (PSTC). The PSTC has been matched with the corresponding SITC to rearrange data in accordance with the SITC. These data not only help in analysing the economic disintegration, the subject of this thesis, but also should be useful to other researchers interested in the trade flows across the Southeast Asian countries as well as trade between Pakistan and Bangladesh. Section 1, Part V provides a detailed account of data organization. The thesis has been divided into six parts. Each, in turn, consists of several sections.

Part I discusses the economic factors that may have contributed to the creation and disintegration of Pakistan. Part II provides a critical review of the theoretical literature of preferential trading. Part III presents some explanation for the formation and survival of PTAs. Part IV deals with preferential trading and international trade flows and presents a brief survey of the various techniques of estimating the effects of a PTA. Assuming that the theory of integration is symmetrical, we set forth a technique for identifying the effects of a disintegration. In this

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[3] Over 100 commodities exported to East from West Pakistan and 65 goods imported from East into West Pakistan have been classified according to the SITC.

context, a new concept of trade reduction and trade switching is defined. Part V provides empirical evidence on the effects of Pakistan's disintegration on international trade flows. A model consistent with Balassa (1967) is developed to identify the effects of Pakistan's disintegration on international trade flows, and a partial equilibrium framework is used to measure the trade reduction and trade switching experienced by (West) Pakistan and Bangladesh.[4] Part VI concludes the study with a summary of the main results and some recommendations for future research. Also included in this part is a brief discussion on the limitations of the study.

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[4] (West) Pakistan and Bangladesh are the two countries that emerged from the disintegration of Pakistan and are treated separately to measure the effects of disintegration on each region, while the term 'combined Pakistan' refers to the undivided country.

The Political Economy of Pakistan: From Creation to Disintegration

INTRODUCTION

In the creation and disintegration of Pakistan economic reasons are important. For example, Muslim landlords had a fear of becoming subservient to non-Muslims, specifically Hindu industrialists in an independent Indian state.[5] This fear was the result of economic disparity between Hindus and Muslims of the Indian subcontinent. The political forces behind the disintegration of Pakistan have always been linked to economic disparity between former East and West Pakistan. Setting aside the ethnic and cultural differences between the people of the two regions, the creation of Bangladesh has been justified on economic grounds (Jahan 1972; Khan 1972).

Politically, the main argument for the creation of Pakistan was that Muslims are markedly different in their cultural, ethnic and religious practices from the other communities of the subcontinent. It was argued that they needed a separate homeland in which to live in accordance with their religious beliefs and practices. The analysis of political forces behind the creation and disintegration of Pakistan are outside the realm of this thesis. We are, however, interested in the possible economic reasons for and implications of these events.[6]

It is now four decades since the creation and over 18 years since the disintegration of Pakistan. The sentiments and passions aroused by the civil war in former East Pakistan and subsequent intervention by the Indian armed forces in 1971 have largely subsided. It is appropriate to summarize objectively the economic factors that may have contributed to the creation and

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[5] It should be noted that the political forces in the creation of Pakistan were so intense that the economic reasons became merely a footnote to the entire history of the division of the Indian subcontinent.

[6] By discussing the economic reasons, this study does not intend to imply that the people who fought for Paksitan's creation had only economic motives. We do not intend to understate the sincerity or sacrifices of those who worked hard and had no economic motives associated with the creation of Pakistan.

disintegration of Pakistan, and to find out what insight these conditions provide for economists as well as policy makers. We have divided the discussion into two sections. Section 1 explores the economic reasons for Pakistan's creation, and Section 2 describes the economic conditions in Pakistan during the 1947–71 period.

Economic Reasons for the Creation of Pakistan

The economic conditions of Muslims during the late 1940s clearly reflect the economic disparity between Hindus and Muslims of the Indian subcontinent.[7] Some researchers have argued that the economic conditions of Muslims, indicated by their absolute and relative poverty, created a fear of their becoming subservient to non-Muslims {1}. Whether this fear was the result of political exploitation is difficult to prove. However, the economic disparity between the two groups can be seen from the economies of Muslim majority regions of the Indian subcontinent.

Economists usually look at economic indicators such as the gross national product, unemployment and the inflation rate to analyse the economic performance of a region or community. Unfortunately such indicators are not available for the prepartition Indian economy and especially for the Muslim majority regions of the Indian subcontinent. Therefore, to understand the economic conditions of Muslims one must rely on other variables. We have used three variables for this purpose: (1) economic structure of Muslim majority regions of the Indian subcontinent; (2) population of undivided India classified according to the economic activity; (3) economic interests of the various subgroups of Muslims in prepartitioned India.

ECONOMIC STRUCTURE OF MUSLIM MAJORITY REGIONS.

The Indian subcontinent is surrounded by the Himalayas and China on the north, Burma on the east, the Arabian Sea and Iran on the west, Afghanistan and the U.S.S.R. on the northwest and the Indian Ocean on the south (see map I.1). It was divided into various administrative zones under British rule {2}. These included Baluchistan, North West Frontier Province (NWFP), and Punjab and Sind on the western side; on the eastern side Assam, East and West Bengal; and, respectively, the United and Central Provinces in between the west and east.

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[7] It is, however, important to note that the division of the Indian subcontinent was also inevitable due to political, ethnic, religious, and cultural differences between the Hindus and Muslims.

Figure 1.1

Map of the Indian Subcontinent

Figure 1.1
Map of the Indian Subcontinent
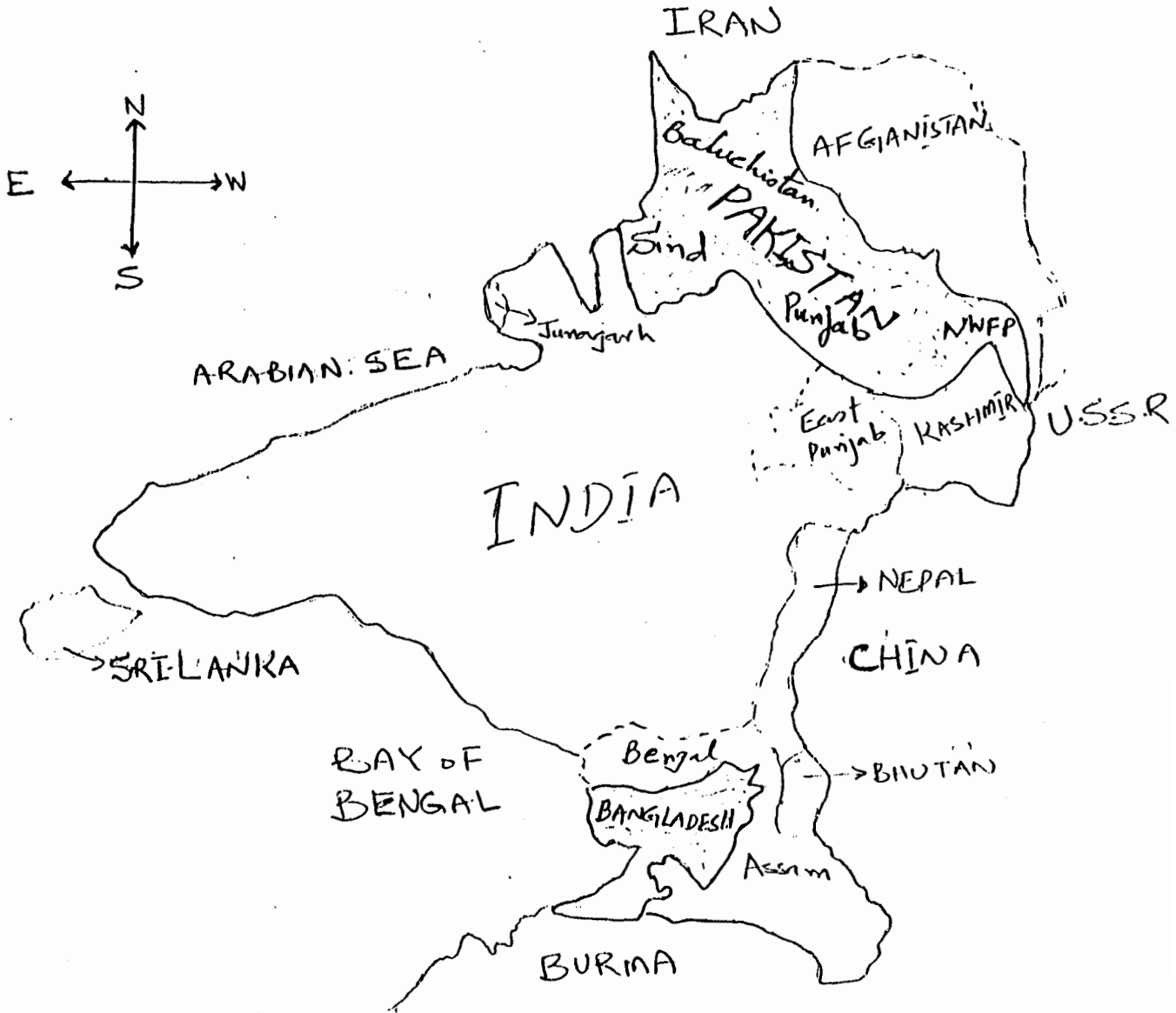
Baluchistan, NWFP, Punjab, Sind and East Bengal were the Muslim majority regions and the rest of India was dominated by the Hindus. The Muslim majority regions accounted for nearly a quarter of the entire subcontinent, with a population density of 192 persons per square mile. The remaining three-quarters consisted of a Hindu majority, with a population density of 300 persons per square mile {3}. This indicates that the Muslim majority regions had a higher land-person ratio when compared to the non-Muslim majority areas.

The Indian economy was predominantly agriculture based. However, along with the establishment of colonial power in the late 18th century came the seeds of industrialization. By the early 19th century, Calcutta, Bombay, Ahmdabad and Madras (located in the non-Muslim majority regions), emerged as the main industrial centers of the Indian subcontinent. For the Muslim majority regions, the economic story was totally different.

Until the 1940s, the economies of Muslim majority regions (which later became part of Pakistan), were underdeveloped.[3] These regions had neither a major industry, nor an efficient communication or commercial system. Tayyeb (1968) has documented that these regions had less than one percent of all registered industrial plants and an even smaller proportion of the industrial labour force in the entire Indian subcontinent {4}. A number of industrial raw materials like jute, cotton and hides were produced in Muslim majority regions; but manufacturing industries and economic activities revolved around non-Muslim majority regions.

Industrial progress was particularly poor in East Bengal. It had only ten cotton factories out of the four hundred in India, none of Bengal's one hundred jute mills, not a single iron and steel plant, paper mill, chemical works, coal mine or hydroelectric project. There were forty-nine seasonal jute baling presses, three sugar factories, fifty-eight small rice mills of all types and one cement plant. Surprisingly, no industrial use was made of East Bengal's tobacco, hides and skins {5}.

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[3] The term 'underdeveloped' refers to the poor standard of living and economic hardship caused by the shortage of transportation, communication, commercial and industrial facilities.

Banking and financial institutions were mainly under the control of non-Muslims. Muslim majority areas had only a fifth of all banking offices in the Indian subcontinent, which accounted for less then ten percent of bank deposits and about five percent of bank clearing.[9] The lack of banking facilities was a result of the fact that all major industries were located in the non-Muslim regions and the majority of money lenders (endogenous bankers) were non-Muslims {6}.

In the agriculture sector, seventy percent of the raw jute and forty percent of the long and medium staple cotton was produced in the Muslim majority areas, but these areas had no jute mills and only a few cotton ginning mills. Punjab and Sind produced bumper crops of wheat, but the surplus was sent to feed the population of food-deficient areas in the non-Muslim majority regions of the Indian subcontinent. These two areas also produced large quantities of fine quality cotton, but the fibre was shipped to factories established in Bombay, the United Provinces and the British Isles {7}.

Until the late 1940s, the Muslim majority regions did not have the industrial base required for the economic progress of a community. Because of the poor infrastructure of the Muslim majority regions, the economic well-being of Muslims was largely under the control of non-Muslims.

Muslims of the undivided India nurtured many economic grievances which were channelled into an acute political discontent and was finally resolved by the Muslims' demand for an independent state. The popular belief was that if Muslims were to have some control over the economic resources of the Indian subcontinent and were not to remain merely suppliers of raw material for the non-Muslim dominated industries, they would have to gain an independent state.

POPULATION OF THE SUBCONTINENT ACCORDING TO ECONOMIC ACITIVITY

The population of undivided India can be classified into two distinct groups: (1) Hindus; and (2) Muslims. Hindus, a non-Muslim majority, were economically active and dependent on commerce,

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[9] It should be noted here that the Muslims constituted ten to fifteen percent of the Indian population, but their share in banking, commerce and industry was less than five percent. Even in the Muslim majority region (Muslim population up to 90 percent), trade, industry and commerce were in the control of non-Muslims.

trade, money lending and agriculture. They also controlled the major industrial, banking and commercial centers of the entire Indian subcontinent. Muslims, the largest minority, were mainly dependent on agriculture. They had some control over the supply of raw materials to the industrial sector of the Indian subcontinent.

The Muslim majority regions accounted for nearly a fifth of the population. However, owing to the lack of industrial development, less than one percent of Muslims were part of the industrial labour force of the entire Indian subcontinent {8}. Moreover, while the provinces of the northwestern regions, particularly Punjab and NWFP, contributed more personnel to the Indian army than any other region of India, all defence related industries were established in the United Provinces or elsewhere in the non-Muslim majority regions.

The above classification of the undivided Indian population into two distinct economic interests (aside from those engendered by cultural, ethnic and religious differences), provides some indication of another economic reason for the partition of the Indian subcontinent. The Muslim aristocracy, as opposed to the non-Muslim landlords, industrialists and money lenders, would have had very little control over the decision-making process in an independent Indian state. Muslims believed that being a minority, they would be discriminated against in the economic policies and decisions made by non-Muslims. As mentioned above, Muslims were mainly suppliers of raw material for the non-Muslim controlled industrial sector. They considered their economic well-being to be at stake since it was under the control of non-Muslims.

ECONOMIC INTEREST OF THE VARIOUS SUBGROUPS OF MUSLIMS

Muslims of British India can be classified into three distinct subgroups. These include: Muslims of northwest India, East Bengal, and those living in the non-Muslim majority regions of the Indian subcontinent. A close scrutiny of the economic interests of these groups would indicate that their coalition because of the religious homogeneity; despite the cultural, ethnic and linguistic differences, created a political alliance that contributed to the creation of Pakistan.

Muslims of northwest India were economically the most prosperous. They were primarily rural dwellers and had considerable political and economic power for two reasons. First, the Punjab Alienation of Land Act in 1901 made it illegal for the non-Muslim money lenders to foreclose mortgages in cases of bad debts {9}. Second, the big Muslim landlords of Punjab provided leadership to the entire community.

Muslim landlords of northwestern India, especially of Punjab saw a clear opportunity for gaining control over the economic and political decision-making in the proposed Muslim state. The idea of a Muslim state therefore provided them with an opportunity for gaining control over the economic resources outside their regions. In fact, this possibility became a reality once Pakistan was created.[10]

Muslims of northeast India, especially of east Bengal, were economically the least prosperous. The majority of the people of Bengal and Assam were rural in character and economically weak. Muslims of Bengal were against British rule in the 18th century and so were penalized by the Land Settlement System which reduced them to the status of sharecroppers and agricultural labourers {10}. They lost most of their agricultural land to non-Muslims, mainly Hindus. They also suffered from uneven industrial development of East and West Bengal. These were the two main economic reasons for their support of the idea of Pakistan. The possibility of a Muslim state provided them with a hope of recovering their agricultural land, (Burki 1977).

Some Muslims also lived in the non-Muslim areas of Bihar, and the United and Central Provinces. They were mostly urbanized professionals. Because they had been competing in the economic sphere with the non-Muslim majority, this group was among the early converts to the idea of Pakistan. An independent Muslim state was a guarantee of their being among the few professionals who would be free from competition. They would now have considerable monopoly in a number of professions.

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[10] It is also interesting to note that the Muslims of northwestern India were among the last converts to the idea of Pakistan. This was indicated by the defeat of the Muslim League, a party of Muslims committed to the creation of Pakistan, in the northwestern provinces (except Sind), in the legislative elections prior to 1947.

A close look at the economic interests of the three subgroups of Muslims together reveals that the division of the Indian subcontinent into two separate states was probably to the advantage of Muslims, notwithstanding political reasons.

The discussion above reveals that the economic reasons implicit in the political forces in the creation of Pakistan were as follow: first, the poor industrial development of the Muslim majority regions of the Indian subcontinent;[11] second, the distinct economic interests of Muslims and non-Muslims, along with the Muslims' desire to have control over the economic resources and decision making in an independent Indian state;[12] and third, the coalition of economic interests of the various subgroups of Muslims in the undivided India.[13]

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[11] For the economic arguments against the creation of Pakistan, see Vakil, C. N., Economic Consequences of Divided India, Bombay: Vora & Co., 1965.

[12] For the demographic features of the Indian subcontinent, see Kingsley, D., The Population of India and Pakistan, Princeton: Princeton University Press, 1968.

[13] For discuusion on the economic interests and coalition of the various subgroups of Muslims, see Burki, S. J., "Economic Decision-Making in Pakistan" in Ziring, L., R., et. al; (eds.), Pakistan: The Long View, Durham, N.C., Duke University Press, 1977.

Economy of Pakistan from 1947 to 1971

At the time of partition, Pakistan inherited Muslim majority regions that were industrially underdeveloped.[14] Most economic experts had doubts abouts its survival, and there were problems of political instability caused by the rehabilitation of masses of refugees from India. Despite poor economic conditions and other problems, Pakistan made remarkable progress during the first two decades after its birth.

By the end of the 1960s, the economic structure of the country was altered and it had diversified significantly. The gross national product increased substantially, and modern techniques of production were in place. While progress was slow during the 1950s, the economy grew at the rate of four to six percent per annum during the 1960s. This was more than double the rate of population growth, a sound record for a nation that began with a modest technological base and few resources.

This section examines briefly the performance and problems of Pakistan's economy during the period from 1950–1970. The gross domestic product and per capita income are considered to be relevent indicators of aggregate economic performance. Foreign aid, domestic savings and investment are regarded as important contributors to the economic growth of Pakistan, and are also included in the discussion. The distribution of income and economic disparity between former East and West Pakistan are also examined.

GROSS DOMESTIC PRODUCT AND PER PERSON INCOME

The gross domestic product (GDP) of Pakistan, as is clear from Table I.1, increased by 98 percent in real terms during the 1952–70 period. This translates into an annual average rate of 3.6 percent. The increase was less marked in the first decade, in which a 26.6 percent overall (or a 2.7 percent per annum) growth was registered, than in the second decade, which accounted for a 47.6 percent

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[14] See footnote No. 8 on page 8.

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TABLE I.1

Total & Per Person Gross Domestic Product for Selected Years: Combined Pakistan, Bangladesh and (West) Pakistan
(GDP Million Rs. in 1959/60 factor costs)

Year	Combined Pakistan			Bangladesh[1]			West Pakistan		
	GDP	Population (Million)	Per Person (Rs.)	GDP	Population (Million)	Per Person (Rs.)	GDP	Population (Million)	Per Perso (Rs.)
1950/51	25408	80.59	315.3	12527	44.41	282.1	12882	36.2	356.1
1960/61	33117	101.45	326.4	15468	55.35	280.0	17649	46.2	382.0
1970/71	51759	131.89	392.4	19391	70.40	275.4	32434	61.5	527.5
Average Annual Growth Rate*									
1950/60	2.7	2.33	0.35	2.1	2.21	-0.07	3.2	2.47	0.71
1960/70	4.6	2.67	1.86	2.3	2.45	-0.17	6.3	2.90	3.28
1950/70	3.6	2.49	1.10	2.2	2.33	-0.12	4.7	2.69	1.98

Source: 25 Years of Pakistan in Statistics, 1970/71, Ministry of Finance, Government of Pakistan, Islamabad, 1971.

* Calculated using compound growth rate formula.

1 GDP & population figure for Bangladesh are based on Naseem, S.M., "A Consistent Series of National Accounts for East & West Pakistan", The Pakistan Development Review, Islamabad.

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overall (or a 4.6 percent per annum) growth. The marked difference in the annual growth rate of gross domestic product between the first and the second decade was highly significant for the growth rate of per person income.

With a population growth rate of 2.3 percent per year during the first decade, the growth rate of per capita output was almost stagnant and recorded an insignificant increase of 0.35 per cent per year. However, it did improve substantially during the second decade when the growth of gross domestic product was almost double the population growth rate. During the second decade per capita output rose at an annual rate of 1.86 percent. However, impaired by a slow growth of GDP in the 1950s and a high population growth, the per person output during the two decades grew at the low rate of 1.1 per cent per year. Along with the growth of total and per person GDP, the economy also experienced substantial structural change.

ECONOMIC STRUCTURE.

Economic growth in Pakistan during the 1950–70 period was the result of a healthy progress in the manufacturing sector along with a substantial development of the agriculture sector. The growth of industries, however, was much more spectacular than the progress in agriculture. This was because of a number of institutional arrangements, such as the establishment of the Pakistan Industrial Development Corporation, the Investment Corporation of Pakistan and the Industrial Development Bank of Pakistan.[15] These institutions were set up to develop the industrial sector of the economy. As a result, the index of manufacturing output rose from 30 in 1950 (for 1959–60=100) to 258.7 in 1967–68, an increase of over 762 percent or an annual rate of 11.4 percent during the 20 years of independence {11}.

The composition of gross domestic product also changed significantly during the two decades. The value of agriculture grew by 2.6 percent; of manufacturing by 7.9 percent; of construction by 13 percent; and other sectors grew at a rate of 4.7 percent per year. The structural change in the economy was illustrated by the decline in the share of the agriculture sector in the value added

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[15] These institutions provided financial, technical and managerial skills to the private sector of the economy. Basic metal, light engineering, cement, machine tool and chemical industries were built under the supervision of these institutions.

from 60 percent in 1950 to 45 percent in 1970. The share of the manufacturing sector rose from 6 to 12 percent during the same period {12}.

The major factors that contributed to the income growth and structural change in Pakistan during the first two decades of independence were domestic savings, investment and foreign aid.

SAVINGS, INVESTMENT AND FOREIGN AID

The average savings rate rose from 2.2 percent of GNP in 1950 to 9.7 percent in 1970, while the marginal savings rate was 15 percent during the first 15 years of independence. Domestic savings rose from Rs. 3.23 billion to Rs. 11.69 billion between 1958 and 1969. Bank credits increased by 700 percent during the same period. The domestic savings financed 69, 64 and 72 percent of investment in 1959, 1964 and 1970, respectively {13}.

Until 1970, the rate of investment had increased steadily and capital was put to more efficient use. The investment rate increased from 10.5 percent of gross national product in 1959–60 to 18.5 percent in 1964–65 {14}.

The large flow of foreign aid during the 1960s was the main source of the escalation of investment and GNP ratios. Investment as a percentage of GNP increased from less than 4 percent in 1950 to 13.5 percent in 1970; whereas foreign aid in 1964 accounted for 40 percent of the total investment, that is 3 billion US dollars {15}.

Despite the strong growth by historical standards, the standard of living generally remained poor. While the income of wage earners and agricultural labourers was declining, the concentration of wealth in the hands of a few was increasing, (Singhal 1972). The formation of monopolies was justified for the sake of economic progress {16}. As a result 66 percent of the country's industrial capital was owned by 22 families who also had controlling interest in 80 percent of the banking and 97 percent of the insurance business of the country.[16] The economy was also plagued by a series of other problems, some of which are discussed below.

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[16] Dr. Mahbub–ul–Haq, Minister of Economic Affairs, Government of Pakistan since the early 1980s to present, was chief economist at the Planning Commission of Pakistan in the 1960s. He revealed this information at the 1968 convention of the Pakistan Management Association.

Shortage of food, severe poverty, skewed income distribution, and increasing inflation were the major economic problems during the 1950-70. Despite the impressive progress of the agriculture sector, Pakistan was unable to achieve self-sufficiency in its food requirements. While the country started with self-sufficiency, by the end of the first decade 1.2 million tons of food grains were imported, accounting for 10 percent of the domestic supply. The per person availability of food grains had declined from 14.9 ounces per day in 1949-50 to 14.2 ounces in 1959-60 {17}. This situation was, however, improved marginally during the second decade. The imports of food grains had declined to 5 percent of the domestic supply, and per person availablity rose to 15.7 ounces per day by the end of 1960s.

Small increments in per capita income (Rs.134 per month for the average family income in 1965), a small real farm income per head for farmers, and the increase in landless labour were indications of the severe poverty and a poor standard of living {18}.

In the urban sector of the economy real wages declined by one-third during the 1960s, while the fixed income earners were hurt by an overall increase in prices of about 40 percent by the end of 1969-70. Along with these problems, the inherited economic disparity between former East and West Pakistan continued, (see Figure I.2) ultimately resulting in the dismemberment of Pakistan.

During the first decade of independence, East Pakistan's economy was relatively stagnant as compared to that of West Pakistan. While the real per capita GDP increased in West Pakistan from Rs. 477.3 in 1949-50 to Rs. 507.9 in 1959-60, in East Pakistan it had declined from Rs. 378.5 to Rs. 369.8. This gap in the real per capita GDP was further widened during the second decade when the West experienced a 3.78 percent per annum increase as compared to only a one percent rise in the East's per capita income.[17] An insignificant growth of 0.38 percent per annum in East Pakistan's per capita GDP as against 2.2 percent per annum in West Pakistan over the two

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[17] These figures are based on the discussion given in "Socio-economic Objectives of the Fourth Five Year Plan 1970-75", Pakistan Planning Commission, Islamabad, April 1968.

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Figure 1.2

Per Capita Income: East and West Pakistan, 1950-1970
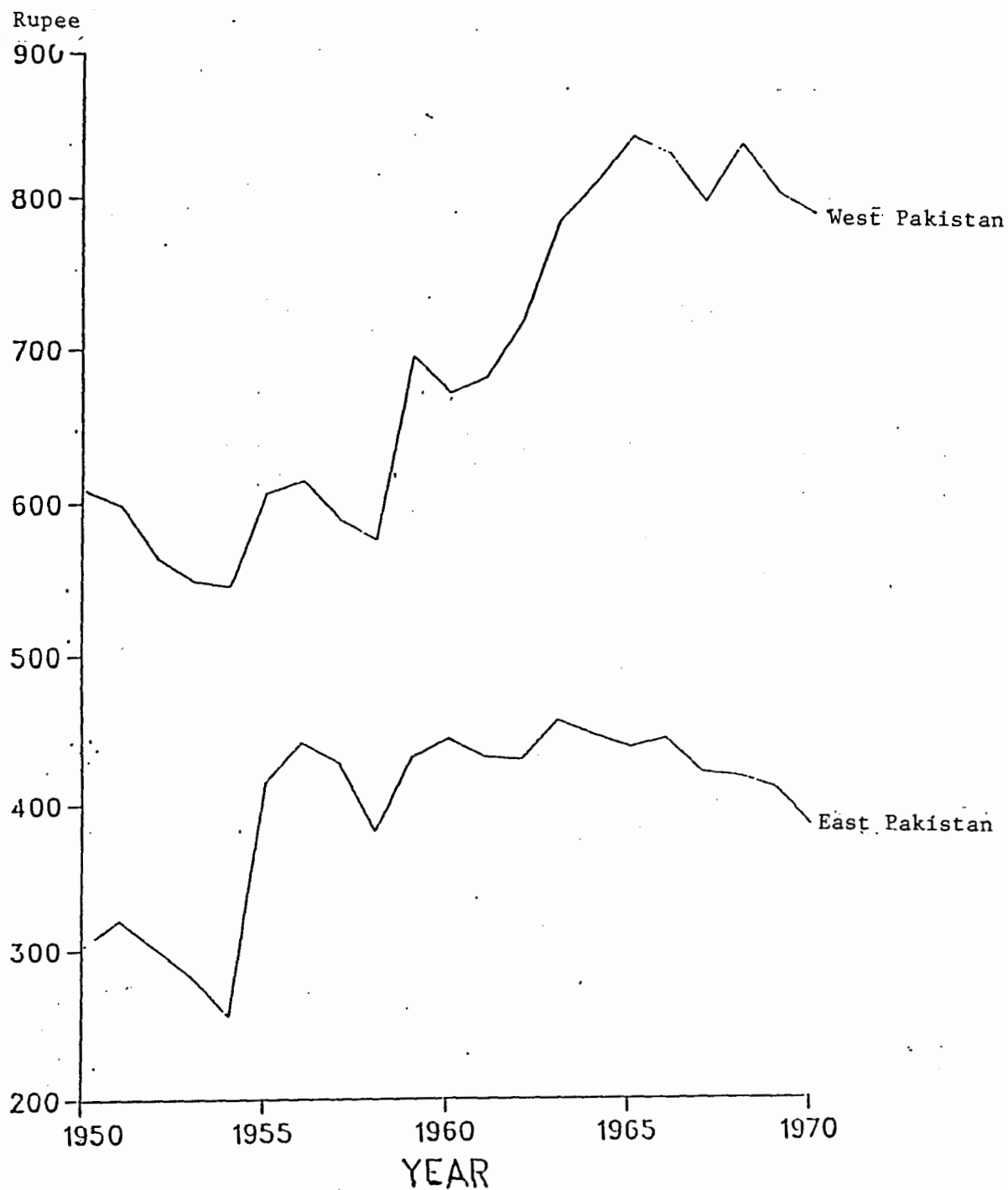
Source: Appendix 2, Data, Table A2.18

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decades is a reflection of the persistent gap in the incomes of the two regions.

The economic disparity between the two regions can also be seen from the difference in the cost of living between former East and West Pakistan, (Jahan 1972). Moreover, real wages in both urban and rural East Pakistan were much lower than in West Pakistan. A Bangladeshi economist (Khan 1972) has argued that the disparity between former East and West Pakistan rose from 28 percent in 1959-60 to 62 percent in 1968-69.[18]

The causes of sharp economic disparity between former East and West Pakistan are debatable and complex. Their detailed analysis is outside the realm of this thesis, {19}. The following variables, however, may have contributed to the income inequality and growing disparity between the two regions.

(1) Private Investment, Public Sector Allocation and Development Expenditure

As is clear from Table I.2, most of the private investment occurred in West Pakistan. The East's share was only 24% and 22% of the total private investment during the 1960-65 and 1965-70 periods respectively.[19] While the total private investment in combined Pakistan continued to grow during 1950-70, the shares of East and West remained almost fixed at 22% and 78% respectively. Similarly, it is important to note that, while East Pakistan's population accounted for more than 50 percent of undivided Pakistan, its share in public sector funds allocated for investment was 44.8% and 48.4% during the second and third five year plans respectively, (Table I.1).[20] In addition, the share of East in development expenditure, both private and public, had always been less than that of West Pakistan. As is evident in Table I.1, 69% and 64% of the total

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[18] It should be noted that the economists from Pakistan and Bangladesh have sharp disagrement over the extend of disparity between the two regions. See, Report of the Advisory Panels for the Fourth Five Year Plan 1970-75, Planning Commission, Government of Pakistan, Islambad, July 1970.

[19] 1960-65 and 1965-70 covers the second and third five year plan periods.

[20] For a five-year period, a development plan called the "Five Years Development Plan" is prepared by the Pakistan Planning Commission. These plans have been prepared every five years since the 1950s. The funds (referred to as "public sector allocation") are designated for the various projects to be completed or started during the plan period.

TABLE I.2
Private Investment, Public Sector Allocation and Development Expenditure in 2nd and 3rd Five Year Plan: % Share of East & West Pakistan

	2nd Five year Plan (1960-65)		3rd Five Year Plan (1965-70)	
	East	West	East	West
Private Investment	24	76	22	78
Public Sector Allocation	44.8	55.2	48.4	51.6
Development Expenditure				
Total	31	69	36	64
Private	21.9	78.1	25.6	74.4
Public	38.3	61.7	45.2	54.8

Source: The Mid-Plan Review of the Third Five Year Plan (1965-70), Planning Commission, Pakistan, p. 35 and p. 39.

An outline of the Fourth Five Year Plan, 1970-75, Planning Commission, Pakistan, p. 26.

funds were channelled into West Pakistan's development during the second and third five year plans, while East Pakistan received the remaining 31% and 36% during the two plan periods respectively. A similar pattern is indicated by the private and public sector development expenditure data (Table I.2).

Asymmetric private investment, allocation of public sector funds, and development expenditures led to the markedly different economic progress of East and West Pakistan during the 1950-70 period. These factors may also be responsible for the poor development of the industrial sector in East Pakistan, causing an increase in the regional disparity. Further, a lack of industrial progess in East Pakistan, on the one hand meant fewer economic opportunities for its people, while on the other hand it made East Pakistan more dependent on the imports of manufactured and semi-manufactured goods from West Pakistan.

(2) Distribution of Foreign Aid

In the allocation of foreign development and U.S. commodity aid, East Pakistan's share was smaller than that of West Pakistan. Table I.3 indicates that East Pakistan received 17.3% and 31.5% of total development aid and U.S. commodity aid during the 1948-60 period respectively. The corresponding figures for West Pakistan were 64% and 61.8%. This indicates that the aid funds were distributed heavily to meet the requirements of West Pakistan's industrial development. Thus, the inequitable allocation of foreign aid may have contributed to acontinous income gap between the two regions.

(3) Commercial and Foreign Exchange Policies

Pakistan's trade and commercial policies had asymmetric effects on the trade flows of the two regions. The main elements of these policies were the direct control of foreign exchange resources, import licensing and capital issues. The discrimination against East Pakistan, as is seen in Table I.4, was obvious. During 1951-58, the value of import licences issued for imports of raw materials and spare parts was much higher for West Pakistan which received two-thirds (close to 70%) of the value. Another tool of these polices was the so-called Bonus Voucher Scheme [20].

TABLE I.3

Share of East and West Pakistan in Foreign Aid and Loans: 1948-1960
(Rs. Million)

	Development Aid	U.S. Commodity Aid
East Pakistan	938.90	1290.00
% Share	17.3	31.5
West Pakistan	3352.20	2620.00
% Share	61.8	64.0
Federal Government	1130.30	180.00
% Share	20.9	4.5
TOTAL	5421.40	4090.00

Source: Adopted from Jahan, R., <u>Pakistan: Failure in National Integration</u>,
New York: Columbia University Press, 1972, p. 35.

The Bonus Voucher Scheme allowed exporters to receive a voucher priced at a certain proportion of the value of a good sold abroad. The voucher could be sold at a premium in the market. These vouchers were bought by importers to obtain foreign exchange to buy foreign goods which were placed on the bonus list, usually consisting of consumer durables and industrial raw materials. It was thought that this scheme would promote exports, but it became a tool to shift resources from one region (East) to another (West).[21] The allocation of foreign exchange funds was such that East Pakistan could not buy consumer durables and industrial raw materials required for the development and progress of its industry. The large amounts of foreign exchange earned through exports was generally designated to meet the needs of industries in West Pakistan, although the East Pakistan's exports, mainly jute, earned 68% of the entire foreign exchange, {21}.

A close look at the the commercial and foreign exchange policies reveals that former East Pakistan did not receive a fair share of the foreign exchange resources of combined Pakistan. Such policies had an unfavourable impact on its economy.

(4) Foreign Trade and Exchange Rate Policies

The foreign trade and exchange rate policies were designed to protect the interests of domestic industries. The important elements of these policies were high effective tariff rates and direct control of the exchange rate.[22]

Imports were restricted through very high effective tariffs which had an asymmetrical effect on the trade pattern of East and West Pakistan.[23] As a result, a large flow of exports from West to East Pakistan was created which may have caused some transfer of resources through inter-wing

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[21] For a detailed discussion on the Bonus Voucher Scheme and its effects, see Adams, J. and S. Iqbal, Exports, Politics and Economic Development: Pakistan 1970-82, Colorado: Westview 1983, and Burki, S. J. op. cit.,

[22] For a detailed analysis of protection in Pakistan, see Lewis, S. R. and Guisinger, "The Structure of Protection in Pakistan" in Bela Balassa et. al. eds., The Structure of Protection in Developing Countries, Baltimore: John Hopkins's Press, 1970.

[23] For a detailed analysis of this issue, see Lewis, S. R. Jr., Pakistan: Industrialization and Trade Policies, London: Oxford University Press, 1970.

TABLE I.4
Share of East and West Pakistan in Value of Import Licenses
Allocated for Raw Materials and Spare Parts, 1951-58
(Rs. Million)

Year	East Value	East % Share	West Value	West % Share
1951	52.40	37.1	88.98	62.9
1952	42.58	23.7	137.47	76.3
1953	45.53	35.6	82.24	64.4
1954	43.23	29.2	104.61	70.8
1955	51.07	26.2	144.20	73.8
1956	84.78	50.2	84.18	49.8
1957	94.12	49.8	94.85	50.2
1958	84.83	49.3	87.27	50.7
Total	498.54	37.7	823.80	62.3

Source: Adopted from Jahan, R., Pakistan: Failure in National Integration, New York: Columbia University Press, 1972, p. 35.

trade.[24] This effect was also revealed in the balance of trade between the two regions. Column 2 of Table I.5 indicates that East Pakistan had a trade surplus with the rest of the world in 17 out of 22 years, during the period of its union with West Pakistan. With the exception of 1950/51, West Pakistan always had a deficit. Further, East Pakistan invariably had a deficit in the inter-wing trade.

East Pakistan's imports were partly paid for by its exports to West Pakistan. The rest were paid for through the conversion of its share of foreign exchange resources at an officially overvalued rate of exchange. There was a systematic discrimination in the exchange rate policy making West Pakistan's imports of tea, paper and jute from East Pakistan cheaper. Thus, the important exports of East Pakistan were redirected to West Pakistan through the use of an unfavourable exchange rate. The exchange rate and trade policies, therefore, led to some transfer of resources from East to West Pakistan, {22}.

The discussion above reveals that regional economic disparity was possibly the main economic reason behind the disintegration of Pakistan. The factors which may have contributed to the regional disparity and income inequality between the regions include: (1) the inequitable allocation of public sector funds, development expenditure and foreign aid; and (2) the discriminatory commercial, trade, foreign exchange and exchange rate policies. These two factors together were responsible for the economic grievances that created severe political differences between the people of East and West Pakistan leading to the disintegration of the country.

In summary, we have identified some of the possible economic causes for both the creation and the disintegration of Pakistan. The main conclusions are that the possibility of economic gains led to the integration of East Bengal with the Northwestern Provinces of the Indian subcontinent; but the inability of former East and West Pakistan to share the economic benefits, achieved in part by the integration, resulted in its disintegration.

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[24] There are differences among the economists of two the regions with respect to the issue of transfer of resources from East to West Pakistan. For the further discussion on this issue, see Report of the Advisory Panels for the Fourth Five Year Plan 1970-75, op. cit.

TABLE I.5
Balance of Trade: (West) Pakistan, Bangladesh and Combined Pakistan
1949-50 to 1970-71

	West Pakistan	Bangladesh	Combined Pakistan	Inter-wing Trade*
(Exports-Imports:	Million Rs.	in Constant	Factor Cost of	1969-70)
1949-50	- 660.76	545.26	- 115.49	n/a
1950-51	292.85	1260.44	1553.29	n/a
1951-52	- 847.19	496.20	- 351.00	n/a
1952-53	- 244.57	450.51	205.93	95.25
1953-54	- 316.64	607.34	290.69	300.55
1954-55	- 523.93	738.72	214.78	135.03
1955-56	- 372.44	1138.39	765.94	189.57
1956-57	-1233.47	137.22	-1096.25	480.39
1957-58	-1251.89	358.07	- 893.82	704.73
1958-59	- 849.59	479.49	- 370.10	618.95
1959-60	-1417.93	577.78	- 840.15	286.35
1960-61	-2111.57	316.03	-1785.54	669.72
1961-62	-2210.66	557.43	-1653.23	620.66
1962-63	-2300.47	293.88	-2006.59	739.67
1963-64	-2467.28	- 290.06	-2757.35	480.10
1964-65	-3088.73	- 529.66	-3618.40	429.95
1965-66	-1963.87	217.60	-1746.27	681.05
1966-67	-2445.83	52.19	-2393.64	700.12
1967-68	-1790.66	399.55	-1391.11	461.15
1968-69	-1370.89	- 248.93	-1619.83	387.62
1969-70	-1675.99	- 84.99	1760.99	631.66
1970-71	-1530.90	- 202.33	-1733.24	616.73

Source: Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

* West Pakistan's exports minus imports to and from Bangladesh.

{1} For a detailed discussions on Muslims' fear of subservience to non-Muslims, see Tayyeb, A., Pakistan: A Political Geography, London: Oxford University Press, 1968. Wilcox, W. A. "The Wellsprings of Pakistan", in Pakistan: The Long View, edited by Ziring, L., R. Braibanti and W.H. Wriggins, Durham, N.C., Duke University Press, 1977 and Sayeed, K. B., Pakistan The Formative Phase 1857-1947, London: Oxford University Press, 1968 also provide some analysis of this issue.

{2} This map has been adopted from A. Tayyeb, op. cit.; The dotted area indicates former East and, West Pakistan that are now Bangladesh and Pakistan.

{3} A. Tayyeb, op. cit.; provides a detailed appraisal of demographic features of Muslim majority regions of the Indian subcontinent which became part of Pakistan in 1947.

{4} This has been discussed by Singhal, P.D. Pakistan, New Jersey: Prentice Hall Inc. 1972. See also A. Tayyeb, op. cit., for the analysis of industrial structure of the Muslim majority regions in the Indian subcontinent.

{5} Ahmad, Nafis; An Economic Geography of East Pakistan, London: Oxford University Press, 1968.

{6} Singhal, P. D. op. cit.; page 120.

{7} Tayyeb, A. op. cit.; page 61.

{8} Tayyeb, A. op. cit.; page 61.

{9} Punjab Alienation of Land Act 1900. For a detailed discussion on the features and impact of this bill, see Norman G. Barrier, The Punjab Alienation of Land Bill 1900, Durham, N.C. Center for International Studies. Duke University 1966.

{10} A detailed discussion on "Economic Decision-Making" in Pakistan is provided by Shahid J. Burki in Ziring, R., et. al; (ed.) op. cit.

{11} Singhal, D. P., op. cit.; page 129.

{12} Government of Pakistan, Planning Commission, Socio-economic Objective of the Fourth Five Year Plan 1970-75, Planning Commission, Islamabad, April 1968.

{13} Government of Pakistan, Planning Commission, op. cit.; page 8.

{14} Singhal, D. P. op. cit.; page 130.

{15} Singhal, D. P. op. cit.; page 130.

{16} Singhal, D. P. op. cit.; page 132. Dr. Mahbub-ul-Huq, Minister for Economic Affairs, Pakistan has also reported the figures/data on the rising concentration of wealth during the 1950s and 1960s.

{17} Figures adopted from Pakistan Planning Commission, op. cit..

{18} Government of Pakistan, Planning Commission, op. cit. ; page 11.

{19} See Khan, A. R. The Economy of Bangladesh, London: Macmillan, 1972 for the estimates, extent and causes of disparity between the former East and West Pakistan. (West) Pakistani economists had a different view of the issues related to the regional disparity in the predisintegration Pakistan. Their estimates of disparity and it's extand are given in the Report of the Advisory Panels for the Fourth Five Year Plan 1970-75, Op. cit.

{20} For a brief discussion on effects of the Bonus Voucher Scheme, see Shahid J. Burki, "Economic Decision Making in Pakistan in Pakistan: The Long View, op. cit.

{21} This issue has been analysed by Singhal, J. P., op. cit.

{22} For a detailed analysis of the exchange rate and trade policies and their effect of transferring resources from former East to West Pakistan, see Khan, A. R., op. cit.

A Review of the Theoretical Literature on Preferential Trading

INTRODUCTION

The analysis of PTAs dates back to the late 18th century. Smith (1776) examined the gains for preference recipients and Taussig (1892) analysed the effects of a PTA {1}. Formal theoretical work in this branch of international trade theory, however, did not start until the publication of Viner's book in 1950 {2}.[25]

The basic work of developing a theory of PTAs was done by Viner and Meade. Their interests were focused on the welfare effects of a PTA. There are two central issues regarding PTAs. First, why do PTAs exist? Second, what are the effects of forming a PTA? While the latter has been investigated by a number of researchers, the former has largely been ignored due to the assumption that a PTA is a non-economic institution {3}.

As mentioned earlier, assuming that the theory of PTA's is symmetrical, we will use it to examine the effects of a disintegration. For this reason, we summarize the theory of preferential trading from Viner to the present. The discussion is divided into two sections. Section 1 explores the theoretical developments in a partial equilibrium framework, and Section 2 surveys the literature from a general equilibrium perspective.

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[25] Viner's contributions to the analysis of PTAs date back to the early 1930s. See Viner, J. "The Most-Favoured-Nation Clause", Index VI, Number 61, Stockholm, January 1931.

SECTION 1

Theory of Preferential Trading: A Partial Equilibrium Approach

It was Viner who, in 1950, first explicitly identified the effects of a PTA on international trade flows.[26] His pioneering contribution was the distinction between trade creation and trade diversion effects of PTAs such as custom unions (CUs). Trade creation refers to the increase in trade brought about by the substitution of relatively cheaper imports for domestic production as a consequence of the formation of a PTA. Trade diversion is the substitution of member countries' goods for imports previously purchased from countries that are not members of the PTA. Theoretical developments in the analysis of PTAs since Viner's seminal work have revolved around this distinction. A number of economists have identified and explained these concepts in a partial equilibrium framework: Viner (1950); Makower & Morton (1973); Meade (1955); Scitovsky (1958); Lipsey (1960); Humphrey & Ferguson (1960); Balassa (1961); Kreinin (1964); Cooper & Massell (1965); Johnson (1965); and Krauss (1972) are but a few. In this section, we present a brief review of some of these attempts.

To explain trade creation and trade diversion effects, some of these studies have divided the world into three countries called A, B, and C. A and B are viewed as two small countries and C as the rest of the world. It is assumed that imports from the various sources of supply are perfect substitutes and that supply elasticities are infinite. The demand for imports is assumed to be a function of prices inclusive of the tariff rate and income. It is also assumed that a PTA does not affect the members' terms of trade with the rest of the world. Therefore, the effects of a PTA formed between A and B on the rest of the world are disregarded. Having made these assumptions, researchers have analysed trade creation and trade diversion effects of a PTA between the countries A and B.

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[26] Throughout the theoretical sections our interest lies in the part of the theory that deals with the effects of an integration on international trade flows, since trade flows will be used in Part V to quantify the effects of a disintegration.

A's pre-PTA import demand curve is $D_0 D_0$. The supply curves of imports from country B and C are perfectly elastic, therefore A can import as much as liked at the given prices. A's domestic supply, as well as B and C's import supply curves are presented in Figure II.1.

Under a uniform tariff on all imports, consumers in country A will purchase OM_0 of import goods from the domestic sources and import $M_0 M_1$ from country C at price $P_C + t$. Country C is the least cost supplier.

As the tariff is removed on imports from B, the import price declines to P_B. At this new price, domestic producers are willing to supply only OM_0', while the demand for imports has risen to M_1'. A's consumers will substitute $M_0' M_0$ of imports for the reduced domestic supply. Moreover, the demand for imports has also risen from M_1 to M_1' moving along the demand curve $D_0 D_0$. Before the PTA, domestic producers in A were supplying OM_0. But after the PTA is reached, country B's producers enter A's market and replace some of the domestic production. This is referred to as the trade creation effect of a PTA. Moreover, prior to the PTA, A was importing $M_0 M_1$ from country C. But after the PTA, B displaces previous imports from C. This is referred to as the trade diversion effect of a PTA.

Country A benefits due to the reduction in original (pre-PTA) deadweight loss by an amount equal to the two dotted triangles, abc+def. This can be viewed as a benefit of the trade creation effect of the PTA. A's welfare will be increased due to the reduction of pre-PTA deadweight losses.[27]

Imports from country C stop and $M_0' M_1'$ is imported at price P_B from country B. Prior to a PTA, ahgd is tariff revenue, which is lost due to the PTA. Country B gains hceg, which is a cost to A due to the trade diversion. This can be regarded as the welfare reducing effect of a PTA. The net welfare effect of a PTA on country A depends on the relative magnitude of these two counteracting forces.

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[27] Pre-PTA tariff rates caused a deadweight loss equal to the two triangles, aa'h+gdd'.

Figure II.1

Trade Creation and Trade Diversion: A Partial Equilibrium Model

Price / Tariffs

$P_B + t$

$P_C + t$

P_B

P_C

D_o S_d

S_c

S_b

a   d

b   c   e   f

a   h   g   d

S_d

D_o

Imports

M_0' M_0 M_1 M_1'

O
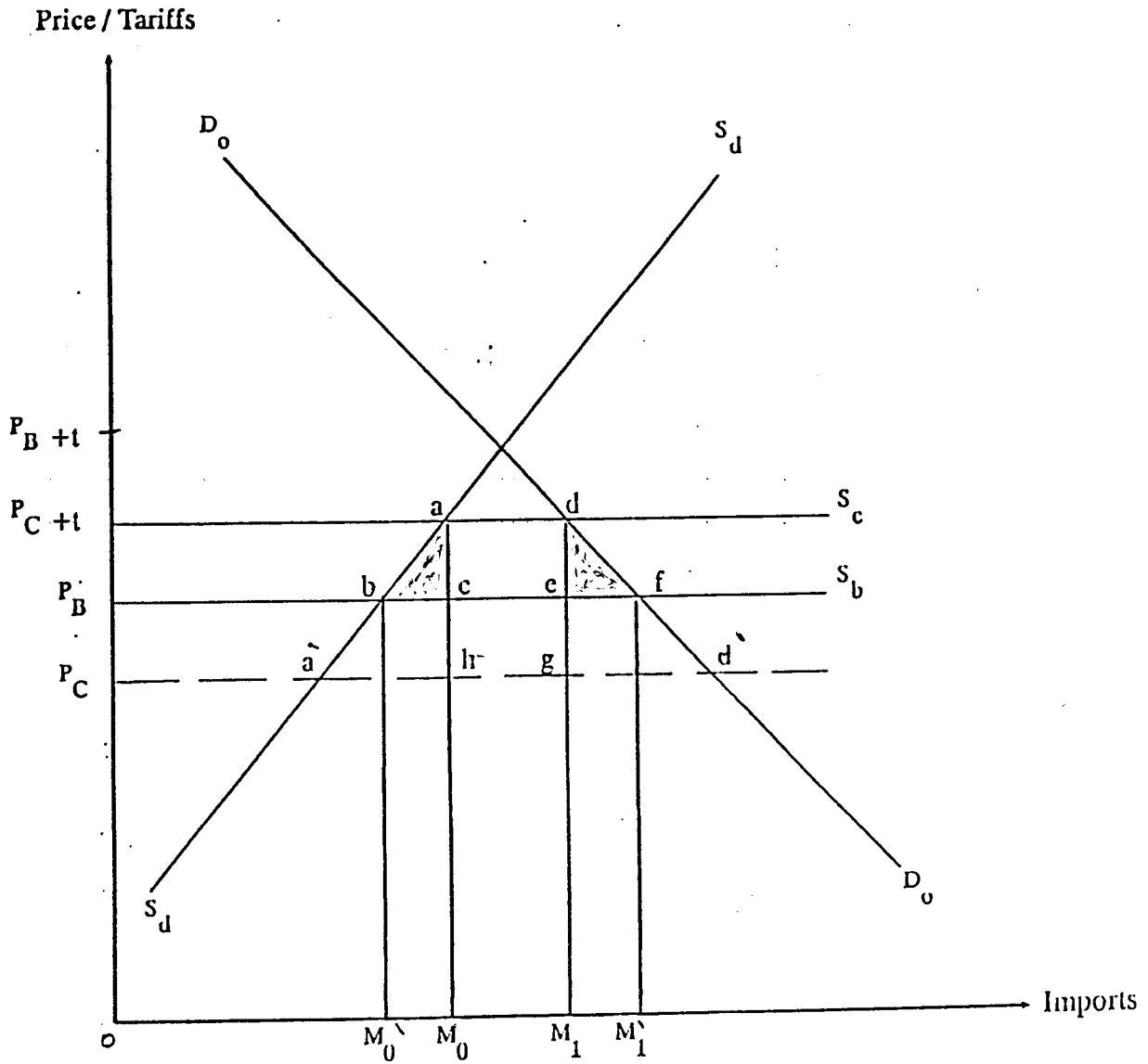
The trade creation resulting from reduced tariffs on some imports was viewed as the main benefit, and trade diversion leading to the misallocation of resources was considered as the basic cost of a PTA. There is no logical necessity for one to dominate the other. The net welfare effect, as Viner argued, remains indeterminate, since a PTA could be benefical or harmful to a particular community {4}.

The analysis of PTAs during the 1950s and 1960s was mainly confined to the clarification of trade creation and trade diversion effects. The only major progress during this period was Meade's identification of the welfare-improving aspect of trade diversion {5}. He argued that lower prices for member countries would lead to additional consumption of foreign goods, involving a further reduction in pre-PTA deadweight loss. This was referred to as the trade expansion effect of a PTA. However, Viner's basic conclusions (discussed above) remain intact.

The indeterminate conclusion discussed above led to the belief that the dynamic effects should be brought into the analysis. That is, scale and technical efficiency needed to be incorporated into the analysis of a PTA. This was done by a number of researchers. For example, Humphrey and Ferguson incorporated the decreasing costs of production into the analysis of PTAs {6}. Scitovsky looked into the welfare effects of a PTA through scale economies and increased efficiency due to the greater competition among members of a PTA {7}. Lipsey introduced technical efficiency, growth and terms of trade into the analysis of resource allocation effects of a PTA {8}. But these attempts did not change many of the earlier conclusions. Other writers have linked welfare changes to the production and consumption effects: Balassa (1961), Corden (1976) amd Krauss (1972).

Balassa (1961) has discussed production and consumption effects and their determinants at length. It suffices here to mention that the differences in per unit costs of production between members and the non-member countries of a PTA give rise to the trade creation and trade diversion which constitute the production effects of a PTA.

The magnitude of production effects depends on the following factors: (i) size of a PTA (union), (ii) complementarity and competitiveness of the member economies of a PTA indicated by

the similarities and differences in per unit costs of production in the member countries, (iii) transportation costs, and (iv) initial tariff levels; whereas consumption effects arising out of the availability of partner countries' goods depend on the substitutability among the tradable goods. Depending on the relative magnitude of the trade creation and trade diversion effects of a PTA, both consumption and production effects could serve to increase or decrease the welfare of the member countries once a PTA is reached.

Until the 1960s the above diagram was a popular way of analysing PTAs such as CUs. The problem with this framework is the assumption that the supply elasticities of all foreign suppliers are infinite. In other words, constant foreign costs of production were assumed. Given this assumption, the above diagram shows trade creation and diversion in a simple manner with the conclusion that the net welfare may be positive or negative.

Utilizing a similar framework, it can be shown that a unilateral tariff reduction on a nondiscriminatory basis would be as good as or better than a PTA. This led Johnson (1965) and Cooper and Massell (1965) to conclude that PTAs are economically irrational and can only be explained by non-economic motives {9}.

The Vinerian theory of PTAs and its subsequent development has two major drawbacks. First, it was based on highly restrictive assumptions, some of which are discussed above. A second, and probably more important weakness, was the lack of rigor of the original exposition. To circumvent these problems, a number of researchers have analysed PTAs in a general equilibrium framework: (Vanek 1965; Kemp 1965 & 1969; Negishi 1969; Lipsey 1970; Wan & Kemp 1976; Corden 1976; Collier 1979; Riezman 1979 & 1980; Berglas 1979; McMillan & McCann 1981; Lloyd 1982; Ethier & Horn 1984; and Wonnacott & Wonnacott 1985). Some of these are discussed in Section 2.

Theory of Preferential Trading: A General Equilibrium Analysis

The need for a general equilibrium model for the analysis of PTAs was recognized by both Viner and Meade. While Viner had criticized the application of a partial equilibrium technique to the analysis of a CU, Meade alluded to the use of a general equilibrium framework for the analysis of PTAs by emphasizing the secondary and tertiary effects of a CU. Figure II.2. presents trade creation and trade diversion in a general equilibrium framework.[28]

OaOa' is the production possibility locus, TT' is the domestic price ratio, Wi, CiCj and BiBj, for i=0, 1 and 2, are respectively the community indifference curves (welfare levels) and the various prices on which country A can trade with countries B and C. Prior to a PTA, A's production is at point P_0 and consumption at W_0. A trades with the least cost supplier country C at CC' and a tariff is imposed on the import good 1. Consider a PTA between countries A and B.

As the tariff declines due to a PTA, A's production moves to P_1 and the welfare level indicated by W_1 is reached. This move could be welfare improving or reducing. For example, if initially country A is at W_0 then B_3B_2 is trade diversion and B_3B_1 is trade creation, with B_3B_2 being smaller than B_3B_1. This indicates a welfare improvement. However, if initially at W_0', B_3B_2 is greater than B_3B_1 then there would be a loss. The welfare gain or loss thus is dependent on the pre-PTA community welfare level. It is difficult to predict, on an a priori basis, that trade creation would be larger (smaller) than trade diversion. The net welfare effect of a PTA, therefore, remains indeterminate.

While the above diagram indicates the welfare effects of a PTA in a general equilibrium framework, its formal application to the analysis of PTAs did not start until the late 1960s.

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[28] This diagram has been adopted from H. G. Grubel, International Economics, Illinois; Richard Irwin 1981, PP. 590.

Figure 11.2

Trade Creation and Trade Diversion: A General Equilibrium Model
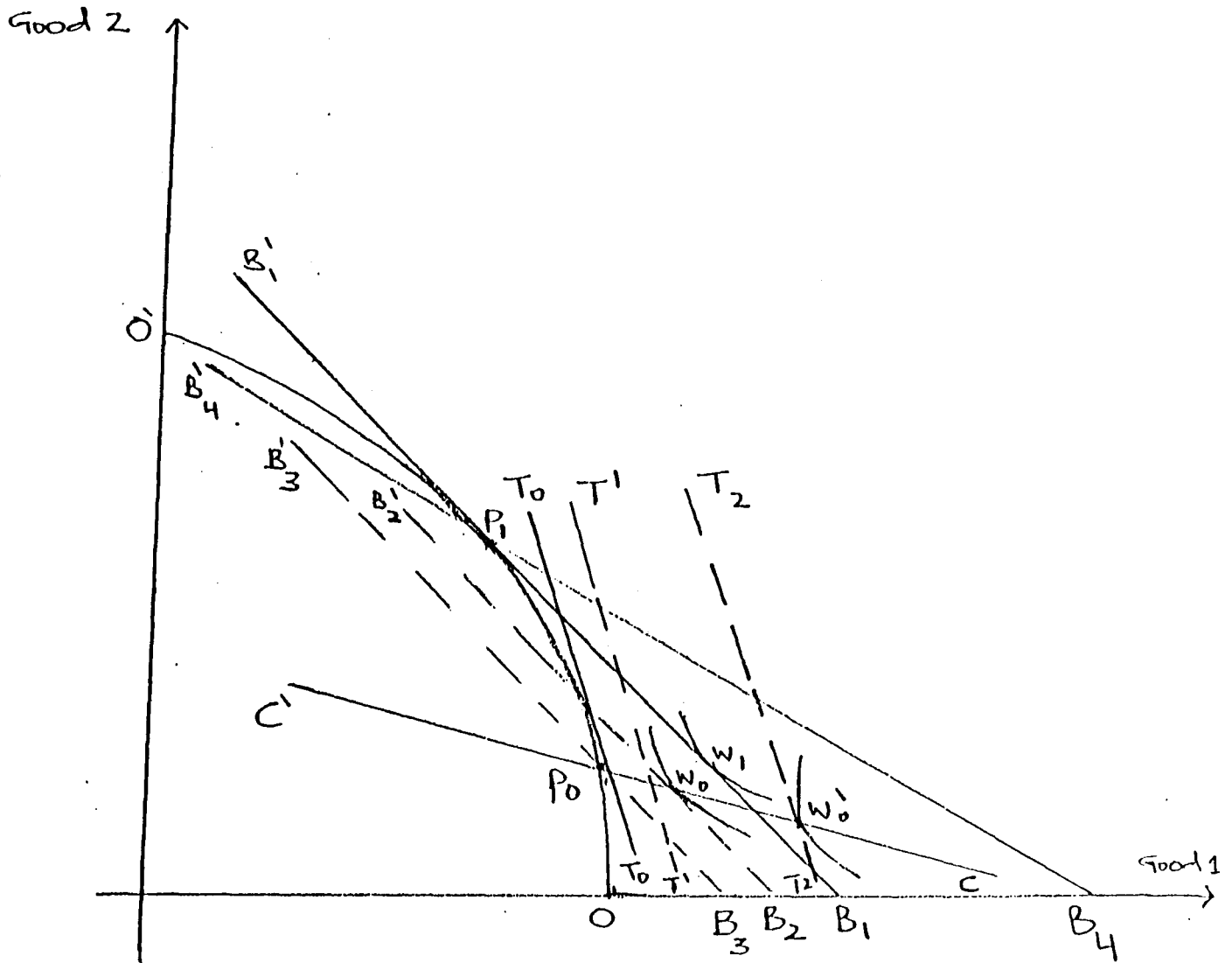
Vanek (1965) and Kemp (1969) incorporated the production possibility frontier and community indifference curves into the analysis of PTAs. Vanek used a general equilibrium framework and emphasized the terms of trade effect of a PTA. In a three country world similar to the one discussed above in Section 1, he concluded that a PTA between countries A and B would be welfare improving if A's terms of trade improve, B's deteriorate, C's (rest of the world) remain unchanged and B's loss can be compensated. It would be welfare improving, since no country is worse off and at least one is better off.

To explore Vanek's conclusion above, other writers analysed the impact of a PTA separately on the countries A and B, (Negishi 1969; Kemp 1969; and Kemp & Wan 1976). The conclusion was that a PTA would be advantageous to a member who trades only with the other member(s), while it could be a disadvantage to the member who trades mainly with the nonmember countries.

While Vanek's approach placed prices on the center stage in PTA analysis, it relied on some very strong assumptions. First, country A's gains would be sufficiently large to be better off even after compensating for B's loss. This would be possible only if the post–PTA community indifference curve is superior to that of the pre–PTA. Second, country C's terms of trade will remain unchanged in the post–PTA period. Finally, it assumes a trading pattern which leads to asymmetrical effects of PTAs.

Resource allocation and consumption effects of a PTA discussed in Section 1 above were rejected by Cooper and Massell. They argued that a nondiscriminatory tariff policy is superior to a PTA. They split the welfare effect of a PTA into two components, a tariff reduction component and a trade diversion component. While a tariff reduction would be welfare improving due to the trade creation and consumption effects, the trade diversion would be harmful. We will not go into the details of their argument here. It is suffcient to mention that their analysis indicates that a PTA would be inferior, since trade diversion could, at least in some cases, be greater than trade creation. They also questioned the so–called terms of trade and dynamic effects, {10}.

Having eliminated the production and consumption effects as a possible economic rationale for PTAs, Cooper and Massell argued that the difficulty in justifying a PTA on economic grounds

lies with the inability of classical trade theory to explain the economic motives of a tariff. It was suggested that an economic theory of protection is needed which would permit a comparison of nondiscriminatory tariff policy with a PTA as an alternative device of protection, rather than as a trade liberalizing force.

A number of researchers have developed a theory of protection: (Johnson 1965, Cooper and Massell 1965, Bhagwati 1965). To develop a theory of protection, some of these writers introduced into the country's social welfare function the concept of the public good along with the private good {11}. The public good is defined, in these studies, as a collective preference for a certain type of economic activity (e.g. industrial goods) which provides satisfaction over and above the private consumption of industrial goods. The desire for such a public good results from the divergence of prices from the social opportunity costs. This desire for the public good leads to the imposition of tariffs. Similarly, the PTAs are alternative devices for protection which can be explained by the existence of public goods.

The explanation of PTAs based on the desire for a public good has two problems. First, it lends itself to abuse by governments as a justification for whatever they wish to do. Second, the desire for a public good, based on the wedge between the prices and social opportunity costs, is not sufficient to explain PTAs. Moreover, the wedge can be filled by a production subsidy to private producers. While production subsidies on exportable private goods are prohibited under GATT, PTAs are permitted. Thus, despite the discriminatory nature of PTAs, they can best be viewed as a production subsidy.

In the search for an economic motive for PTAs, researchers have identified three other possible sources for the gains from PTAs: economies of scale, terms of trade, and tariffs in the rest of the world. The role of economies of scale in enhancing the gain from PTAs has been recognised by Scitovsky (1958), Balassa (1961) and Corden (1976). There are two types of economies of scale: internal and external. The former leads to a lower cost of production through specialization in technical skills, managerial skills, and in research and development. The latter also leads to a cost reduction. A PTA enlarges the market size for producers, thus permits a greater specialization in production and an efficient length of run in the production of differentiated goods

within a given plant size, {12}.

For a large country, a nondiscriminatory tariff reduction could result in a drop in the terms of trade (under certain conditions); while a decline in tariffs under a PTA could improve its terms of trade.[29] Moreover, the trade diversion effect of a PTA involving a shift in demand in favour of the partner's goods, could also improve the members' terms of trade. There are two other factors which influence members' terms of trade. One is the elasticity of demand for each others' goods and the other is the size of a PTA. While the elasticity of demand for the partner's goods depends on the elasticities of demand and supply for goods traded by members with the rest of the world; the larger the PTA, the greater the country's bargaining power vis-a-vis the rest of the world. The size of a PTA has also been linked to elasticities of demand for imports from member countries. The larger the preferential trading community, the greater the elasticity of demand for each others' goods and the smaller the elasticity of demand for its goods in the rest of the world. This would also lead to better terms of trade.

In a three goods–three countries model, the rest of the world's tariffs open a wedge between the prices that country A receives from exports to C and the price which country B pays to import the same good from country C. By entering into a PTA, A and B divert trade to one another, while both can trade within the wedge and thus gain C's (foreign) tariff revenue. The possibility of this wedge occurring, however, is questionable {13}. The wedge is formed by A and B facing two different offer curves from C, since C (rest of the world) consists of many countries. Moreover, a part of the tariff burden is shared by the domestic consumers in C. However, a difference in transportation costs can also create this wedge {14}.

Analysis in the context of general equilibrium has been continuing. Berglas (1983) has demonstrated that gains similar to that of a PTA can also be achieved via a unilateral reduction in tariffs {15}. He used the assumption of constant world prices and therefore continued in the sprite of Johnson, Cooper and Massell.

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[29] A large country can influence world prices of its traded goods.

Recently, a number of authors have introduced higher dimensional models into the theory of PTAs: (Corden 1972; Collier 1979; Riezman 1979 & 1980; McMillan & McCann 1981; Lloyd 1982; and Ethier & Horn 1984). In attempts to explain the existence of PTAs, these studies have extended the analysis of customs unions to three goods-three countries dimensions. There are three main benefits of these models. First, these studies have helped to introduce Meade's secondary effects into the analysis. Second, the problem of asymmetry which plagued Vanek-Kemp's two goods-two countries models has been avoided, due to the higher dimensionality of the models. Third, they have linked the welfare changes caused by a PTA to the degree of substitution in production and consumption.

The higher dimensional models have introduced four elements into the analysis of PTAs. First, the introduction of more than one relative price has allowed the exploitation of further second best possibilities which result from the wedge between the ratio of marginal rate of substitution in consumption and marginal rates of transformation. The use of more than one relative price revealed that three goods-three countries is the minimum dimension required for the study of such PTAs as a CU. {16}. Second, the complementarity and substitutability among the goods of various countries has been analysed. This has been considered one of the most important determinants of the welfare change {17}. Third, the changes in import patterns are explicitly examined. In the case of more than one import good, a country can experience changes in import structure once a PTA is reached. This would also contribute to the welfare changes {18}. Fourth, some of the higher dimensional models are symmetrical, and thus are free from the problem of asymmetry {19}.

While higher dimensional models are a definite improvement over the earlier attempts to provide an economic rationale for PTAs, they are not free of shortcomings. The main problem is that they lead to widely differing conclusions. The operation of elements introduced in these models depends upon the assumed trade pattern. Each model, therefore, becomes a special case. Moreover, some of these models are highly technical and are based on the assumed mathemetical axioms. Thus, despite the benefits of using three by three dimensions, such models were unable to justify the existence of PTAs.

The discussion above reveals that this branch of trade theory has made limited progress in providing an economic motive for the existence of PTAs. However, the partial equilibrium technique remained popular due to its simple exposition, particularly in empirical studies of PTAs. At the same time, research has continued in the Vanek–Kemp spirit, since this has been the only branch of preferential trading theory presented in a general equilibrium framework. The main conclusions of these studies are: First, a PTA can be used as a bargaining tool. Second, the terms of trade and gains for exporters are not possible under the unilateral tariff reductions (UTR). The terms of trade have distributional effects. Gains for the members of a PTA and costs to rest of the world (third countries) are not available in UTR. Third, increasing or decreasing costs brings prospects of gains from increased exports as much as do those of UTR. Fourth, nondiscriminatory trade barriers can be adopted in preferences. These are some of the reasons for the existence of PTA's.

While it may be difficult to justify the existence of a PTA on purely economic grounds, the benefits of PTAs (such as the EEC) are well established and are hard to refute.[30] Moreover, despite the conflicts among the policy makers of some of the existing PTAs, the desire for forming new PTAs in various parts of the world has always been present {20}. This makes it imperative to look into the circumstances and forces which give rise to a PTA. For these reasons, in the next part of this study, we provide some explanation for the formation and survival of a PTA.

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[30] A number of studies have estimated the benefits of PTAs such as the EEC and EFTA, e.g. Aitken, N. D., 'The Effects of EEC and EFTA on European Trade: A Temporal Cross-section Analysis', A.E.R., 63, 1973. Also see, EFTA Secretariate, The Effects of EFTA and the EEC 1959–67 , EFTA Secretariate, Geneva, 1972.

{1} For the earlier discussions and analyses of the effects of a PTA, see Taussig, F. W. "Reciprocity" Quarterly Journal of Economics 7, October 1892, and Torrens, R. The Budget: A Series of Lecters on Financial Commercial and Colonial Policy , London: Smith Elder & Co., 1844. Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations. London, 1776, also provides some discusion of the gains to preference recipients.

{2} While the earlier preferential trading theories were largely embodied in the oral tradition, Viner's (1950) was the first systematic study on this subject. See Viner, J. The Customs Union Issue. New York: Carnegie Endowment for International Peace, 1950.

{3} Lately some economists have attempted to develop an "economic" theory of preferential trading on the basis of a wedge between the private and social productivity and presence of externalities.

{4} Viner basically concluded that a generalized judgement cannot be made about the net welfare effects of a customs union, (Viner, op. cit., page 12).

{5} For the detailed analysis of this conclusion see, Meade, J. E. Theory of International Economic Policy. Vol. 2, Trade and Welfare. New York: Oxford University Press, 1955 and The Theory of Customs Unions. Amsterdam: North-Holland, 1956.

{6} Humphrey, D.C., and Ferguson, C.E. "The Domestic and World Benefits of a Customs Union" Economia Internationale, 13 May 1960.

{7} Scitovsky, T. "Economies of Scale, Competition and European Integration." A.E.R., 46 March 1956.

{8} Lipsey, R. G. "The Theory of Customs Unions: A General Survey." EJ, Sept. 1960.

{9} Johnson, H. G. The Gains from Freer Trade with Europe: An Estimate, Manchester School of Economic and Social Studies, Sept. 1958, and also see his paper "Income Distribution, the Offer Curve and Effects of Tariffs". Manchester School of Economic and Social Studies, (28) 1960, and "An Economic Theory of Protectionism, Tariff Bargaining, and the Formation of Customs Unions". J.P.E., June 1965.

{10} Cooper, C.A., and Massell, B.F., "A New Look at Customs Union Theory", Economic Journal, vol. 75, 1965.

{11} Cooper, C.A. and Massell, B.F., op. cit.

{12} For the discussion on the length of run in production of differentiated goods see Grubel, H. International Economics. Illinois: Richard Irwin, 1981.

{13} Pomfret, R., "The Theory of Preferential Trading Arrangements", Forthcoming, Weltwirtschafliches Archiv.

{14} Wonnacott, P. and Wonnacott, R.J., "Is Unilateral Tariff Reduction Preferable to a Customs Union? The Curious Case of the Missing Foreign Tariffs." AER 71 September 1981.

{15} Berglas, E. "Preferential Trading Theory: The n Commodity case. J.P.E., 87, April 1979. Also see his paper "The Case for Unilateral Tariff Reductions: Foreign Tariff Rediscovered." A.E.R., 73, December 1983.

{16} For the details of this element, see Lipsey, R. op. cit. , and also his book, The Theory of Customs Union: A General Equilibrium Analysis. London: Weidenfeld and Nicholson, 1970, also see Lloyd, P. J. "3 x 3 Theory of Customs Union". J.I.E., 12, February 1982.

{17} This was emphasized by Meade, op. cit., and analysed by Berglas, op. cit., McMillan, J. and E. McCann, "Welfare Effects in Customs Union" E.J. (91) 1981 and Ethier, W. and Horn, H. "A New Look at Economic Integration." In Monopolistic Competition and International Trade, Edited by Henryk Kierzkowski, Oxford: Clarendon Press, 1984.

{18} This element was introduced by Corden, W. Max. "Economies of Scale and Customs Union Theory." J.P.E., 80, May 1972, and Collier, P. "The Welfare Effects of Customs Union: An Anatomy." Economic Journal 89, March 1979.

{19} The issue of symmetry was recognised by Vanek, J. General Equilibrium of International Discrimination, Combridge: Harvard University Press, 1965 and was emphasized by Collier, op. cit. , and used by Riezman, R. "A 3 x 3 Model of Customs Union", J.I.E., (9) 1979.

{20} For example, Turkey has been trying to become a full member in the EEC. There are also discussions of forming a PTA in Southeast Asia.

Some Explanation of the Formation and Survival of Preferential Trading Arrangements

INTRODUCTION

The expectations of economic gains, as discussed in Part I above, contributed to the integration of East Bengal and the Northwestern Provinces of the Indian subcontinent.[31] The potential for economic gain was one among the many social and political factors which played a significant role in the creation of Pakistan. Former East and West Pakistan, however, were unable to share the benefits of economic progress achieved, at least in part, by integration and this was one of the many social, political and economic reasons for Pakistan's disintegration. Since World War II, other countries have fragmented into smaller units, for example, North Korea from South Korea, and Singapore from Malaysia. Economic disintegration begs some plausible explanation.

To examine a case of disintegration, one needs a theoretical framework and a set of data to perform some empirical analysis. Assuming that the theory of integration is symmetrical, one can use it to explain the effects of a disintegration by examining two related questions; (1) What forces give rise to a PTA? and (2) what are the conditions for survival of a PTA? In the context of these questions, a simple explanation for the formation and survival of a PTA is provided in this part. The empirical evidence on the effects of Pakistan's disintegration has been presented in Parts IV and V.

In the context of questions (1) and (2) above, we analyse a preferential trading arrangement which entails the complete elimination of tariffs between two countries and the imposition of a mutually acceptable common external tariff.[32] To provide some explanation for the formation and survival of a PTA, we need expressions for the tariff rates, terms of trade, domestic and world prices, income, and the balance of trade for each of the countries under consideration. The model

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[31] This integration can best be viewed as a fully integrated customs union.

[32] This type of a PTA is generally known as a customs union.

we use for this purpose is developed in the next section. Section 2 provides some explanation for a PTA. The derivation of tariff rates, terms of trade, and domestic and world prices is included. The effects of changes in tariff rates and the terms of trade on income and the balance of trade are examined.

A 3 by 2 Model for a PTA

To analyse the effects of a PTA, we consider two distinct groups of countries. First, we deal with a set of countries that enter into a PTA, (referred to as 'the members'). Second, we examine those countries that are left out of the arrangement, which we will henceforth call 'the rest of the world'. We also divide the entire world into three countries called A, B and C; where A and B are two small countries and C represents the rest of the world.[33] In this world, there are only two tradeble goods (called 1 and 2). Each country exports one good in exchange for the imports of the other. It is assumed that the countries A and C import 2 and export good 1. Therefore, B's export good is 2 and its import good is 1. By having three countries and two goods, one of the possible pre-PTA trading patterns is indicated in the Figure III.1.

Figure-III.1

Pre-PTA Trading Pattern
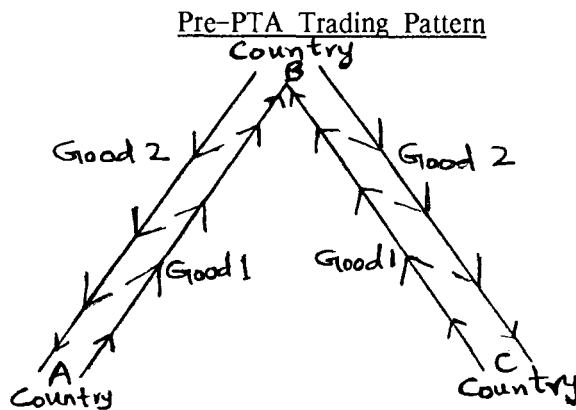
Figure III.1 above reveals that A and C both trade with B but not with each other {1}. Given this trading pattern, our objective is to provide a plausible explanation for the formation and survival of a PTA between A and B.

The three by two model, with the trading pattern indicated by Figure III.1, permits an analysis of the terms of trade effects of a PTA. This type of analysis cannot be done in a two by two trade model. A three goods-three countries (higher dimensional) model would be preferable to

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[33] A and B are small countries relative only to the rest of the world (C).

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a three by two model.[34] But the direction of results would remain unchanged. Finally, the derivation of results remains simple and manageable, another blessing of the model used here.

To start with, we assume that: (i) goods are both produced and consumed in each country. This, therefore, rules out the possibility of complete specialization in production. (ii) The production function for each good is twice differentiable, homogenous of degree one, and strictly convex. Hence, production is a function of domestic prices. (iii) The demand functions are continuous, differentiable, and are generated by a separable utility function. The demand for importables is therefore a function of the domestic prices and income. (iv) The production plus tariff revenue constitutes the aggregate income of the country under investigation. (v) The tariff proceeds are distributed via a lump sum transfer among residents of the country.

Based on the above assumptions, our model consists of the following set of equations:

$$P_J^i D_J^i + P_{J-1}^i D_{J-1}^i = P_J^i X_J^i + P_{J-1}^i X_{J-1}^i \qquad \text{Domestic Budget Constraint (I)}$$

$$D_J^i = D_J^i \{P^i, Y^i\} \qquad \text{Domestic Demand Function (II)}$$

$$M_{JK}^i = M_{JK}^i \{P^i, Y^i\} \qquad \text{Import Demand Function (III)}$$

$$X_J^i = X_J^i \{P^i\} \qquad \text{Production Function (IV)}$$

$$P^* M_{J-1}^i = M_{Ji}^K \qquad \text{Balance of Trade Condition (V)}$$

$$P_J^i = (1+t^i)P_J^* \qquad \text{Price Relation (VI)}$$

$$P^i = M_{JK}^i / M_{J-1 K}^K \qquad \text{Terms of Trade (VII)}$$

$$M_{Ji}^K = M_{Ji}^K \{P^*\} \qquad \text{Export Supply Function (VIII)}$$

$$Y^i = E^i(Y^i) + M_{Ji}^K(P^*, Y^i) - P^* M_{J-1K}^i(Y^i, P) - t^i P^* M_{JK}^i \qquad \text{Income (IX)}$$

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[34] Due to the advantages of three goods–three countries model discussed in Section 2, Part II above.

$$T^i = M_{ji}^k \{P_j^*, Y^i\} - P^* M_{j-1 k}^i \{P^i, Y^i\} \qquad \text{Balance of Trade (X)}$$

Where i = A, B & C and j = 1 & 2. P_j^i is the price of good j in country i. D_j^i is the demand for good j in country i. X_j^i is the production of good j in country i. M_{jk}^i is the imports of good j in country i from k or import of j in i. M_{ji}^k is the imports of good j in country k from i or export of j of i. P_j^* is the world price of good j in terms of good j-1. t_{jk}^i is the tariff rate on imports of good j in country i. P^i is the barter terms of trade faced by country i. Finally Y^i, T^i, and E^i are respectively the income, the trade balance, and the domestic expenditure in country i {2}.

Having defined a three by two model, we provide a plausible explanation for the formation and survival of a PTA, which follows in the next section.

Some Explanation of Preferential Trading

The prospects for economic benefits, as discussed above, can be sufficient for forming a PTA. The survival of a specific PTA, at least in part, depends on the realization of the expectation which led to its enactment {3}. Economic gains from a PTA can occur in a number of ways; for example, an increase in the level of output, or a rise in the growth rate of output (and/or some component of it). These benefits in turn depend on the following factors: first, a rise in production as a result of specialization in accordance with comparative advantage; second, an increase in output due to the economies of scale; third, an improvement in the members' terms of trade with the rest of the world; fourth, an increase in efficiency due to greater competition between the members; and last, better resource allocation due to the greater efficiency in production and consumption.

To understand the formation and survival of a PTA, we make the following assumptions: first, if the pre–PTA tariff rates are suboptimal, then a large country can increase its income by adjusting tariff rates to an optimal level. This may happen, as a large country can influence world prices whereas a small country cannot. Second, in the presence of trading barriers imposed by the various countries, a country (whether small or large) will not unilaterally opt for a tariff reduction {4}. Therefore the only option for a country in our model is to enter into a PTA. The implications of these assumptions are: (1) the pre–PTA tariff rates are set to maximize income, and (2) a country will be interested in a PTA only if in creating it one can raise its income over and above the pre–PTA level or improve its balance of trade.[35]

An increase in income and an improvement in the balance of trade once a PTA is reached, depends on the reaction of markets for the tradebles. A decline in the import price would cause a rise in exports of each member country and a decline in imports from the rest of the world.[36] For

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[35] An improvement in the balance of trade and an increase in income are among the many economic goals of policy makers.

[36] A decline in price due to a reduction or removal of the tariff barriers consequent upon the formation of a PTA, holding prices constant otherwise, would ensure a substitution of partners' goods for those of the non-member countries.

example, a PTA between countries A and B should lead to a decline in prices and an increase in imports of both countries from each other. This would happen if initial tariff rates are optimal and trading equilibrium is stable {5}. This brings us to the expression for the intial tariff rates.

Tariff Rates

Assuming that the pre–PTA tariff rates are set to maximize income, these rates can be derived using equations I, V and VI of the model as:[37]

$$t^a = 1/(E^b - 1) \tag{1}$$

$$t^b = 1/\{\theta E^a + (1-\theta)E^c - 1\} \tag{2}$$

$$t^c = 1/(E^b - 1) \tag{3}$$

Where E^i is the elasticity of demand for imports in country i (for i = A, B, and C) and θ and $(1-\theta)$ are the shares, respectively, of A and C in the total imports of country B.

These results imply that prior to a PTA, tariff rates would be based on the sum of the price elasticities of demand for imports of the trading partners weighted respectively by their shares in the total imports {6}.

Notice that for $t_i > 0$ (for i=A, B and C), the elasticity of demand for imports is greater than one, that is, an elastic demand for importables. This also indicates that the offer curves of two trading partners intersect in the elastic range and therefore their trading equilibrium is stable. This would ensure a sufficient increase in the exports (imports) to and from the partner countries.

PTAs create some monopolized access for the members. They would be beneficial only if demand curves for each others' goods in the member countries are elastic and the offer curves of the trading partners intersect in the elastic range {7}. That is, the markets for goods traded by the member countries are characterised by stable equilibria.

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[37] For the detailed derivation of equations (1) – (3), see Appendix 1.

Given the initial tariff rates above, we suggest that for a country like A or B market stability is a precondition for forming a PTA. That is, if the initial tariff rates are optimal and trading equilibrium is stable then a country may opt for a PTA.

Once the precondition discussed above is met, then a PTA which leads to an improvement in income or trade would be beneficial to the member countries, and thus would be reached.[38]

A trading arrangement which entails an elimination of the tariff rates between two countries and the imposition of a mutually acceptable common external tariff would lead to a reduction in relative prices of imports from the member countries. At constant world prices, a decline in the relative price of imports from the member countries would raise income and may also improve the balance of trade given that the markets for tradebles in member countries are stable.[39]

A reduction in the tariff rates caused by a PTA leads to changes in the terms of trade. Changes in the terms of trade in turn influence the income and the balance of trade between partner and non-member countries. The effects of a PTA, therefore, can be analysed using this chain of relations between the tariff rates, terms of trade, incomes, and the balance of trade.

Effects of a PTA

The effect of a PTA on the level of income and balance of trade can be analysed in two ways. First, it can be done by means of an examination of the changes in income and balance of trade caused by a change in the tariff rates. Second, an investigation of the effects of a change in the terms of trade on the income and balance of trade can be undertaken. Both of these methods would lead to similar results. Their explicit consideration is important since a change in tariff rates does not necessarily mean a change in the terms of trade, and vice versa. This would be true particularly for a small country {8}.[40] For this reason we analysed the effect of changes in the

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[38] Holding all other (social, political and non-economic) factors which influence income and the balance of trade constant, and setting aside other motives for PTAs.

[39] Notice that the optimal tariff rates derived above (1)–(3) describe conditions for optimization and may not actually be used in the real world to set the tariff rates.

[40] In the case of a small country, it can be shown that the changes in the tariff rates cause

tariff rates and terms of trade on income and on the balance of trade separately.

To analyse the effect of changes in tariff rates and the terms of trade on income and the balance of trade, we assume that: (1) imports are functions of the domestic prices inclusive of tariff rates, and (2) exports are functions of world prices. Given these assumptions, equation (IX) and (X) of our model can be written as:

$$\dot{Y}^i = \dot{E}^i(\dot{Y}^i) + \dot{M}^K_{ji}(\dot{P}^*_j) - \dot{P}\dot{M}_j(\dot{P}^i, \dot{Y}^i) + t\dot{P}^* \dot{M}_j(\dot{P}^i, \dot{Y}^i) \tag{4}$$

$$\dot{T} = \dot{M}^K_{ji}(\dot{P}^*_j) - \dot{P}_j \dot{M}_j(\dot{P}^i, \dot{Y}^i) \tag{5}$$

Changes in Tariff Rates

Writing equations (4) and (5) above separately for the countries A and B, totally differentiating each equation and solving for dYi/dti and dTi/dti, (where i=A and B), we obtain:[41]

$$dYa/dta = M^b/(s^a + m^a) \{E^a - 1\} > 0 \tag{6}$$

$$dYb/dtb = (M^a + M^c)/(s^b + m^b) \{E^b - 1\} > 0 \tag{7}$$

$$dTa/dta = M^b/(1+t^a)(s^a + m^a) \{E^a s^a + m^a\} > 0 \tag{8}$$

$$dTb/dtb = (M^a + M^c)/(1+t^b)(s^b + m^b) \{E^b s^b + m^b\} > 0 \tag{9}$$

Where s and m, for i=A, B and C, are the propensities to save and consume respectively the export and import goods in country i. $\dot{E}^i$ is the elasticity of demand for imports in country i.

As is clear from equations (6) and (7) above, the changes in the tariff rates could lead to a higher (lower) income if the demand for importables is elastic (inelastic). While the change in income would be proportional to the value of imports adjusted by the propensities to save and consume the exportables and importables respectively, the direction of change will depend on the value of the elasticity of demand.

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[40](cont'd) fluctuations in its income and balance of trade, without affecting the terms of trade.

[41] For the detailed derivation of equations (6)–(9), see Appendix 1.

In the context of improvement in the balance of trade, equations (8) and (9) above reveal that the marginal propensities to save (s) and consume (m), respectively for the exportables and importables, determine the effect of a change in the tariff rate on the balance of trade. The higher the s compared to the m , the greater would be an improvement in the balance of trade and vice versa.

Notice that s>m would improve the balance of trade, once a PTA is reached. An increase in imports caused by a decline in the tariff rates would be compensated by a simultaneous increase in exports. Consumers in the member countries would save more of the domestically produced exportables as compared to what they will import, since s>m. The effects of a change in the tariff rates on the balance of trade, therefore, depend on the relative magnitude of these two propensities. Next we consider changes in the terms of trade.

Changes in Terms of Trade

Totally differentiating equations (4) and (5) above and solving for dyi/dPi and dTi/dPi, we obtain:[42]

$$dYa/dP^* = M^a/(s^a + m^a) \{E^a + E^b - 1 + t^a(E^a - 1\} > 0 \tag{10}$$

$$dTa/dP^* = M^a \{s^a/(s^a + m^a)(E^a + E^b - 1) + m^a t^a E^a/(1+t^a)(s^a + m^a)\} > 0 \tag{11}$$

$$dYb/dP^* = M^b/s^b + m^b \{\Theta E^b + (1-\Theta)E^a + E^c - 1 + t^b(E^b - 1)\} > 0 \tag{12}$$

$$dTb/dP^* = M^b \{S^b(\mathcal{E}^b + E^b - 1) + Wt^b E^b/(1+t^b)\} > 0 \tag{13}$$

Where $S^b = s^b/s^b + m^b$, $\mathcal{E}^b = \Theta E^b + (1-\Theta)E^a$, $W = m^b/s^b + m^b$ and all other symbols are the same as in equations (6)–(9) above.

The effect of changes in terms of trade on income and the balance of trade is indicated by equations (10)–(13) above. In addition to the variables discovered in equations (6)–(9), these results include a term representing the familiar Marshall–Lerner condition {9}. It has been revealed that if the markets for tradables are stable, then a change in the terms of trade would lead to a higher

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[42] For the detailed derivation of equations (10)–(13), see Appendix 1.

income and may also improve the balance of trade.[43] Next, we turn to the effects of a PTA on income of the member countries. To this end the expressions for changes in the real income for each of the countries under consideration are derived.

Changes in Real Income

The changes in real income for countries A and B, in our model can be derived as:[44]

$$dYa = -MadP^* + dtaP^*Ma \tag{14}$$

$$dYb = -MbdP^* + dtbP^*Mb \tag{15}$$

Where dYa, dYb, Ma, Mb, ta, tb and dP* denote respectively the changes in real income, imports, tariff rates and changes in international terms of trade. a and b indicate the two countries.

Equations (14) and (15) above reveal two sources for a change in real income: (i) a terms of trade component; and (ii) a tariff revenue component. These two together indicate that an arrangement which depresses the relative price at which a country purchases its imports in the world market will raise real income by an amount proportional to the volume of imports minus the loss of tariff revenue.

If A and B enter into a PTA and reduce tariff rates on each other's imports, then the gain in their real income depends on these two components. If tariffs are reduced to zero, then the second term goes to zero. The loss of tariff revenue, therefore, would lead to a decline in real income; however it would be offset by an increase in real income due to the terms of trade effect. In addition, if it can be assumed that the loss of the tariff revenue would be insignificant, then its effect on income could be ignored. The terms of trade, therefore, become a crucial factor in forming a PTA.

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[43] Notice that the changes in terms of trade affect the income and balance of trade in the same way as the changes in tariff rates. The only difference is that the former includes the stability condition which was not explicit in the latter.

[44] For the detailed derivation of equations (14) and (15), see Appendix 1.

Thus, if the tariff revenue effect is insignificant or if the terms of trade benefits are greater than the losses in tariff revenue then it would be benefical for both countries to sign a PTA. Consider the terms of trade for each of the countries under consideration.

Terms of Trade

The terms of trade can be defined as the relative price of an import good in terms of the price of an export good, or as the ratio of exports (imports) to imports (exports). Assuming that the exchange rate is equal to one, that is e=1, equation (VII) of our model can also be written as:[45]

$$\underset{\sim}{p}^i = P^*/P_i \qquad \text{For i= A, B, and C.}$$

Notice that for $\underset{\sim}{P}$ less than unity (for i= A and C), an increase in $\underset{\sim}{P}^i$ implies a worsening of the terms of trade for countries A and C. For $\underset{\sim}{P}$ less than unity (for i=B), an increase in $\underset{\sim}{P}^i$ means an improvement in the terms of trade for country B.

Looking from country A's point of view, its terms of trade will improve as tariff rates decline, and its total imports come from B.[46] This implies that if gains in real income due to the terms of trade effect are high enough to offset the loss of tariff revenue, then A would welcome a PTA with B.

Consider country B. As tariffs on imports from country A are removed, B loses tariff revenue, while its terms of trade with A also deteriorate. On both accounts B's real income will decline. Only a fraction of B's imports, however, come from A. The decline in B's real income on both accounts will be just proportional to its imports from A. The loss in B's real income would be minimal if its initial imports from A were small. Some of this loss would also be offset by the improvement in its terms of trade with country C. The PTA which improves B's terms of trade with C would therefore be beneficial, and hence B will opt for it.

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[45] Being the ratio of exports (imports) of good 1 to imports (exports) of good 2, the terms of trade can be defined as: $\underset{\sim}{p}^i = -M^i_{jk}/M^k_{j-1i}$, for i= A, B and C and j= 1 and 2.

[46] As indicated by the assumed trading pattern above, country A trades only with country B.

The discussion above reveals that the formation of a mutually benefical PTA between countries A and B depends on the following factors: (1) Pre-PTA tariff rates and the stability of the trading equilibrium. (2) The country which trades with both A and C imports very little from A prior to a PTA. (3) The terms of trade effect dominates over the loss of tariff revenue caused by a PTA, assuming that the world prices are constant except for PTA.

Having identified some of the factors which explain the formation of a PTA, we turn to the question of its survival. This is important since a few trading arrangements have disintegrated, as discussed above, and there are yet some in danger of dismemberment.

This study suggests that the survival of a PTA depends on two factors. First, the markets for tradebles in the member countries must remain stable once a PTA is reached. The decline in some prices due to a reduction in the tariff rates should raise imports from member countries, whereas the consumption of domestically produced importables and imports from the rest of the world should decline. Second, the demand for tradebles in the member countries should be fairly sensitive to the price changes. To this end the elasticity of demand for tradebles should be large enough to ensure a sufficient increase in exports to and imports from member countries. Thus if the markets for tradebles remain stable once a PTA is reached, and the demand for member countries export goods are responsive to the price changes, then a PTA would survive.

To explain the continuation of a PTA, we derive expressions for domestic and world prices. Indeed, the notion of these prices is embedded in the terms of trade discussion. A conclusion based on the latter can therefore be enriched by an explicit analysis of the former.

Domestic and World Prices

To derive domestic and world prices, we assume that the initial tariff rates are optimal and positive {10}. Using equations II-VII of our model, changes in the domestic and world prices can be derived as:[47]

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[47] For the detailed derivation of equations (16)–(19), see Appendix 1.

$$\hat{P}_a = \{E^b + S^a r^a/1+t^a -1\}1/\nabla_a(1+t^a)\, dt^a \qquad (16)$$

$$\hat{P}_b = \{\Theta E^a +(1-\Theta)E^c + S^b r^b/(1+t^b)\}1/\nabla_b(1+t^b)\, dt^b \qquad (17)$$

$$\hat{P}_c = \{E^b + S^c r^c/1+t^c -1\}1/\nabla_c(1+t^c)\, dt^c \qquad (18)$$

$$\hat{P}^* = W_i(\bar{n}^i + e^i)1/\nabla_i\, dt^i \qquad (19)$$

Where hat implies a relative change, E^i is the elasticity of demand for imports in country i, $\bar{n}^i$ and e^i are the elasticities of demand and supply of domestically produced importables and r^i is the marginal propensity to save the export goods in country i. i = A, B and C, $W_i = 1/1 + t^i(1-r^i)$, $S^i = (1+t^i)/1+t^i(1-r^i)$. ∇_i refers to ∇_a, ∇_b, and ∇_c. $\nabla_a = E^b + E^a -1$, $\nabla_b = \Theta E^a + (1-\Theta)E^c - 1$, and $\nabla_c = E^b + E^c -1$.

The results derived above show that the elasticity of demand for imports in country B is equal to the marginal propensity to save exports in country A weighted by the fraction of A's tariff rates. Similarly, the sum of import demand elasticities in countries A and C weighted by their share in total imports of country B, is equal to the marginal propensity to save export good in B adjusted by B's optimal tariff rate. The term 'delta' indicates the Marshall-Lerner condition for market stability.

Equations (16)-(19) above indicate that the market stability and the response of demand for imports to the changes in prices are the important factors for the survival of a PTA. The former has been reflected by the Marshall-Lerner condition and the latter by the price elasticity of demand for imports.

Assuming that the relative prices are constant except for PTA, we can solve equations (16)-(19) above for the exact value of the price elasticities of demand for imports in the countries under investigation. For countries A and B, these elasticities are:[48]

$$E_b = 1-(r^a)/\{1+t_a(1-r^a)\} \qquad (20)$$

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[48] For the detailed derivation of equation (20)-(23), see Appendix 1.

$$\theta Ea+(1-\theta)Ec = 1-(r^b)/\{1+tb(1-r^b)\} \tag{21}$$

The estimates above imply that the markets for importables are stable in the two countries and that they would remain stable once a PTA is reached. Once a PTA is formed, the tariff rates could decline to zero. Thus, substituting ta and tb = 0 in equations (20) and (21) above, the specific value of elasticity of demand for imports in countries A and B are:

$$Eb = 1-r^a \tag{22}$$

$$\theta Ea+(1-\theta)Ec = 1-r^b \tag{23}$$

The responsiveness of demand to fluctuations in prices is indicated by the elasticity. Calculations indicate that the demand for tradables in the two countries should be fairly responsive to price changes. Thus for a PTA, the elasticities of demand for imports in the two countries should not be too small. The critical values for these elasticities are indicated by the equations (22) and (23) above.[49]

The explanation for a PTA above reveals that, at constant world prices, a decline in the tariff rates will raise the demand for imports and discourage resource allocation in the import competing sector. It will also raise the demand for imports through a substitution effect. The substitution effect refers to the replacement of domestically produced importables by the cheaper imports from the partner countries.

The results derived thus far lead to two conclusions. First, the formation of a PTA depends on the relative magnitude of terms of trade and the tariff revenue effect of a change in the tariff rates. For this, the preconditions are that the pre-PTA tariff rates are optimal, and that the country trading with both A and C imports little from the potential partner in a PTA.

Second, the survival of a PTA depends on the stability of the markets for importables, the demand conditions (as indicated by the elasticities), and the marginal propensities to save and consume exportables and importables (respectively) in the two countries.

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[49] Similar results are derived by Cave & Jones (1973) in a different context.

The discussion above reveals that if equations (6)–(13) hold, than a country will opt for a PTA. This would raise its income and improve the balance of trade. Specifically, it is indicated that the changes in the tariff rates caused by a PTA would lead to a higher (lower) income if the demand for importables is elastic (inelastic). The direction of change depends on the value of the elasticity of demand for imports. The critical value for the elasticity is indicated by equations (22) and (23) above. The elasticities of demand for importables should be sufficiently high for the survival of a PTA.

The benefits of a higher income or improvement in balance of trade once a PTA is reached, would result from the reallocation of resources. A PTA would discourage production of the import–competing goods. The increased supply of imports or free access to foreign goods would help in releasing resources from the import–competing sector. These would in turn be used in the production of exportables. Notice that the exports would also have easy access to foreign markets, specifically to partner countries. These two factors together would ensure a higher income once a PTA is reached.

In conclusion, the results derived in this section indicate that the effect of a change in tariff rates and the terms of trade on income and the balance of trade, depends on the marginal propensities to save (consume) export (import) goods and on the price elasticity of demand for imports. These variables reveal the demand and supply conditions which in turn govern trade flows.

An investigation of the effects of a PTA on trade flows would therefore be an appropriate next step. For this purpose, a partial equilibrium framework is developed in Part IV of this study.

{1} For other possible trading patterns in a 3 by 2 trade model, see H. G. Grubel, International Economics, page 593, Illinois: Richard Irwin, 1977.

{2} Equation (I) − (X) of our model presents a modified version of the income expenditure model for a small open economy. This type of model has been used in a different context by Dornbusch, R., Open Economy Macro-economics, New York: Basic Books, Inc. Publishers, 1980.

{3} Pakistan's creation and disintegration indicates that this may be the case.

{4} We do not intend to analyse the superiority or inferiority of a PTA vis-a-vis a UTR. However, the possibility of a UTR has been ruled out for two reasons. First, there is no incentive for a UTR in presence of the various trading restrictions imposed by a number of countries. Second, theoretically a UTR could be superior than a PTA, but in practice it is very hard to sell due to the political consequences.

{5} A decline in prices in country A's import goods due to the lower tariff rates would lead to a higher demand for importables, and a simultaneous fall in prices in partner country B would cause a rise in A's exports.

{6} The optimum tariff rate formula is also derived by Cave, R. and R. W. Jones, World Trade and Payments: An Introduction, 3rd edition, page 520, Boston: Little Brown & Co. 1981. They assumed that intial tariff rates are zero, while we did not use this assumption.

{7} For the similar reasons a monopolist operates in the elastic range of the demand curve for his product.

{8} In the case of a small country, it can be shown that the changes in the tariff rates caused fluctuations in its income and the balance of trade without affecting its' terms of trade.

{9} Marshall-Lerner condition states: for the stability of the markets, demand curves of the trading partners should be elastic and their offer curves should intersect in the elastic range. This would ensure a stable trading equilibrium.

{10} The precondition for a PTA between countries A and B, discussed earlier, holds.

Preferential Trading and International Trade Flows

INTRODUCTION

While the rationale for analysing the effects of changes in tariffs lies in the theory of PTA, the impetus for empirical studies arises from studies of the effects of European economic integration. In the more than two decades since the formation of the European Economic Community (EEC), researchers have used a wide variety of methods for analysing the effects of economic integration. These include: (i) the simple extrapolation of time trends in trade flows, (ii) the use of models explaining the trade flows in terms of economic and non-economic variables, and (iii) the analysis of income and price elasticities and other parameters underlying the demand and supply relations. Our interest, however, lies with disintegration and its effects on the international trade flows.

We suggest that the theory of integration is symmetrical in the sense that it can be reversed to explain the effects of a disintegration. To demonstrate this, Section 1 reviews some of the existing methods of analysing the effects of a PTA. Section 2 develops a partial equilibrium model to identify the effects of a disintegration on international trade flows. In this context, we define two new concepts of trade reduction and trade switching, as counterparts to trade creation and trade diversion.

A Survey of the Empirical Studies of PTAs

The effects of integration on trade flows are generally analysed in terms of trade creation and trade diversion. Trade creation refers to the increase in trade brought about by the substitution of relatively cheaper imports for domestic production (as a consequence of the formation of a PTA). Trade diversion is the result of the substitution of imports for goods previously imported from countries that are not members of the PTA. The measurement of the relative sizes of trade creation and trade diversion effects forms the core of all studies that attempt to evaluate the effects of integration.

One early study utilized a model developed by Jan Tinbergen and two Finnish economists, Poyhonen and Pullianinen. Applying a regression technique, the following model was used to explain trade flows:

$$X_{ij} = C \, c_i c_j \cdot Y_i^a \, Y_j^b / r_{ij}^d$$

Where X_{ij} is the exports of country i to j. Y_i^a and Y_j^b are the gross national product of the two countries and r_{ij}^d is the distance between them. c_i and c_j are their export and import parameters, and C is the scale factor. These parameters indicate the openness of their economies.

Assuming that the C, c_i and c_j will remain constant over time, Waelbroeck (1964) has utilized the values of coefficients a and b (estimated in a cross section investigation of the world trade matrix for 1958), to extrapolate the matrix of world trade for the 1958–62 period. Comparing the hypothetical estimates of trade with actual trade, he found that intra–EEC trade increased considerably and that there was no evidence of trade diversion on imports from North America and European Free Trade Area (EFTA) countries.

Having used a similar type of model in 1967 to estimate the changes in trade flows due to the formation of the European Common Market (ECM), Bela Balassa (1967) suggested that a comparison of ex-post income elasticities of import demand in intra–area and extra–area trade for periods preceding and following integration can provide a way of abstracting from the effects of

economic growth on trade flows. This was a problem that plagued the gravity model described earlier. Assuming that the income elasticities of import demand are constant in the absence of integration, a rise in income elasticity of demand for the intra-area imports will show gross trade expansion, while an increase in the income elasticity of demand for imports from all other sources will indicate proper trade creation. The trade diversion will be depicted in the fall in the income elasticity of demand for extra-area imports. In addition to abstracting from changes in the growth rate, this procedure also gives separate consideration to the individual commodity groups and supplying regions.

While the method used by Balassa was a definite improvement over earlier attempts, it did rely on the assumption that all other parameters underlying trade (except income elasticities), would remain fixed after integration.

To circumvent these assumptions, other studies tried widely differing techniques to evaluate the changes in trade flows. These were: Kreinin (1969); EFTA (1969); Williamson and Bottrill (1971); Krause (1973); UNCTAD (1975); Murray (1977); Pelzman (1977), and Baldwin and Murray (1977).

In their 1969 study of the effects of the EFTA, the EFTA secretariat projected preintegration trends in the share of imports in total consumption for major commodity groups. They assumed that the share of imports from the EFTA in the apparent consumption of a given commodity in any EFTA country would develop in the same fashion during the post-EFTA period as in the pre-EFTA period. The difference between the actual and expected share was the contribution of the EFTA formation. In this study, trade creation (TC) is estimated as:

$$TC = M_{65} - \{(m_{59} - m_{54})6/5 + m_{59}\}C_{65}$$

and trade diversion (TD) as:

$$TD = N_{65} - \{(n_{59} - n_{54})6/5 + n_{59}\}C_{65}$$

Where M is the total imports, N is the imports from non-EFTA countries, C is consumption, n = N/C, m = M/C, and the subscripts indicate years.

In the EFTA study total change in trade flows was attributed to integration. This may not be true, since there are some other factors besides integration which also affect import consumption ratios. These include income, prices, and intangibles such as tastes, etc. Therefore, it is necessary to isolate integration from other factors to achieve its net effect on trade.

Improving upon the EFTA procedure, Kreinin (1972) in his study of the effects of the EEC on imports of manufactured goods, has shown that the effects of integration can be isolated from other factors in two ways. The first method is to use the changes in the import consumption ratio in other countries over the same period, while considering these countries as a control group or normalizer for the EEC changes. The second method is to adjust the results emerging from changes in the ratios themselves for their quantifiable bias. Kreinin (1972) used the U.S. as normalizer for the EEC and assumed that in the absence of integration the EEC ratio of external imports to consumption would have moved by the same amount as the relevant import consumption ratio in the U.S., while the ratio of external to total imports would have remained unchanged from its base period value. He has shown that the actual change in the EEC ratio of total imports to consumption minus the adjusted change in the U.S. import consumption ratio yields an estimate of trade creation. Further, the increase in the U.S. import consumption ratio minus the increase in EEC external import consumption ratio indicates a trade diversion.

The discussion above reveals that the majority of earlier studies have tried to circumvent the explicit consideration of demand and supply factors, which directly or indirectly govern international trade flows. Once it is recognised that the actual demand and supply conditions are key factors in the analysis, it becomes obvious that estimating trade creation and trade diversion effects requires explicit consideration of the shifts in demand and supply functions.

The simultaneous analysis of shifts in demand and supply curves in the empirical context is quite intractable. It is therefore assumed that the supply curve is infinitely elastic and investigators consider only the shifts in the demand functions.

Assuming an infinitely elastic supply curve, and concentrating only on the shifts in the various demand curves, Baldwin and Murray (1977) have analysed the benefits of the Generalized

System of Preferences (GSPs).[50] They showed that trade creation, resulting from GSPs, can be computed by the following relationship:

$$TC = M_i \cdot n \; \nabla t' / 1 + t' \tag{A}$$

Where M_i is the initial level of the preference granting country's imports from the beneficiaries of the scheme, n is the price elasticity of demand for imports, delta(∇) t is the change in tariff rate, ti is the original tariff rate and subscripts denote the particular commodity group.

For computing the trade diversion, Baldwin and Murray assumed that the nonbeneficiaries as well as the donor countries are generally developed countries. Therefore, the substitution of beneficiaries' for nonbeneficiaries' products can be considered to be similar to the substitution of beneficiaries' products for those of the donor. They also assumed that the consumers in the donor country will simply substitute beneficiaries' goods for nonbeneficiaries' goods and will not change their total spending or savings patterns. Trade diversion, therefore, would be shown to equal a fixed share of the donor imports from nonbeneficiaries as:

$$TD = x_i \cdot M_i \tag{B}$$

Where x_i is the share coefficient and M_i is total imports from nonbeneficiaries.

The former substitutability is shown as trade creation and can also be written as a share of domestic production, i.e.

$$TC = w_i \cdot V_i \tag{C}$$

Where V_i is the domestic production and w_i is the share coefficient.

From equation (C) above $w = TC/V_i$. Assuming share coefficients in (B) and (C) are equal, i.e. $x_i = w_i$, trade diversion is :

$$TD = TC(M_i)/V_i \tag{D}$$

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[50] The Generalized System of Preferences is a scheme under which some developed countries have granted special treatment to imports from a number of developing countries. The countries which receive preferential treatment are referred to as beneficiaries, preference granting countries are called donors and the rest of the world (all others) are referred to as nonbeneficiaries.

Trade diversion becomes trade creation weighted by the ratio of imports from nonbeneficiaries to domestic production.

While this method of quantifying trade creation and trade diversion is an improvement over earlier methods, it requires some assumptions which may not be justifiable on a priori basis. For example, apparently it may not be easy to justify the equality of two share coefficients in (B) and (C) above.

In summary, there are a number of techniques for quantifying the effects of a PTA. None of these, however, can be considered separately as a complete and entirely satisfactory method. The reasons lie in the assumptions made in order to measure the impact of integration on international trade flows. The estimates of trade creation and trade diversion are affected by a number of factors. Some examples are: a selection of the benchmark year, the length of pre- and post-PTA periods, and the technique used to isolate the effect of a PTA from other variables which directly or indirectly govern international trade flows.

In the next section we develop a model similar to that of Baldwin and Murray (1977) for measuring the effects of a disintegration. However, we use the binary variable technique to capture shifts in the demand curves and thus avoid some of the assumptions made in the earlier studies.

The Effects of a Disintegration on Trade Flows

In the introduction to this study, we indicated that there exists a long history and a large body of theoretical as well as empirical literature on economic integration, but none on disintegration. Since a few trading arrangements have disintegrated and some remain in danger of fragmentation, the issue of disintegration appears to be an important one.

Abstracting from the political and social reasons, we suggest that the effects of a disintegration can be analysed using the theory of integration. For this purpose, it is assumed that the analysis of a disintegration is opposite to that of an integration. The advantage of this assumption is that the effects of a disintegration will be symmetrical to those of an integration.

The input for empirical studies of PTAs was provided by the formation of the EFTA and EEC. In the more than three decades since the emergence of these organisations, researchers have developed a number of techniques to quantify the effects of a PTA. Some of these were discussed in Section 1 above. It was noticed that none of the existing methods can separately be regarded as being a satisfactory technique. The problem lies in the assumptions made in these studies. Avoiding some of these problems, we have developed a simple technique to identify the effects of a disintegration.

This study suggests that the effects of a disintegration can be analysed in terms of the changes in trade flows.[51] We can therefore work backward on the integration models and develop a technique to identify and evaluate the effects of a disintegration on international trade flows.

The changes in trade flows are classified as the trade reduction and trade switching effects of disintegration. Trade reduction is defined as the decline in trade brought about by the substitution of domestic production for imports from the partners of a PTA. A trade switching

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[51] The effects of a disintegration can also be analysed in terms of the changes in terms of trade. The analysis of both the changes in trade flows and terms of trade could be ex-ante (providing estimates of the expected effects), or ex-post (furnishing evidence on the actual changes experienced after the disintegration).

effect will be the result of the substitution of some imports from nonpartners for those of the partner countries.

To explain trade reduction and trade switching effects, we divide the world into three countries called A, B and C. A and B are assumed to be two small countries and C is the rest of the world. We also assume that A and B are partners of a PTA, and permit free mobility of goods across their borders. It is also assumed that the imports from partners and nonpartner countries are perfect substitutes and that the supply elasticities are infinite.[52] The assumption of perfect substitution implies that the consumers will import from the cheaper source only, and thus the analysis reduces to the consideration of only two countries. Moreover, a country can import as much as it wants since the supply of imports is assumed to be perfectly elastic.

The demand for imports is assumed to be a function of prices, income, and the PTA.[53] It is also assumed that the disintegration does not affect the partner's terms of trade with the rest of the world. This means that the effects of disintegration on the rest of the world can be disregarded. Finally, the postdisintegration tariff proceeds are assumed to be distributed via a lumpsum transfer to the residents of the country. Given these assumptions, Figure IV.1 represents the demand and supply of the import good in country A during the pre- and postdisintegration periods.[54]

The $D_O D_O'$ is the post-PTA import demand curve for country A. Sd, Sb and Sc are, respectively, A's domestic supply and B and C's supply curves of import goods. Under a PTA with country B, consumers in country A purchase OM_O of import goods from domestic sources and

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[52] The difference in quality, delivery time, credit arrangements and product differentiation among different sources of supply makes this assumption a realistic one. The assumption of an infinitely elastic supply curve is common in empirical studies of international trade since, as mentioned earlier, a simultaneous analysis of shifts in demand and supply curves is empirically intractable. Also notice that the domestic supply curve is upward sloping and only the foreign supply curve is infinite.

[53] For reasons to be discussed later, we assume that the PTA is an independent argument in the demand function.

[54] Figures IV.1 and IV.2 can be used to demonstrate the symmetry between the analysis of an integration and disintegration. By working backward on this section, we can identify the effects of a specific integration.

Figure IV.1

Disintegration: Demand and Supply of the Import Good
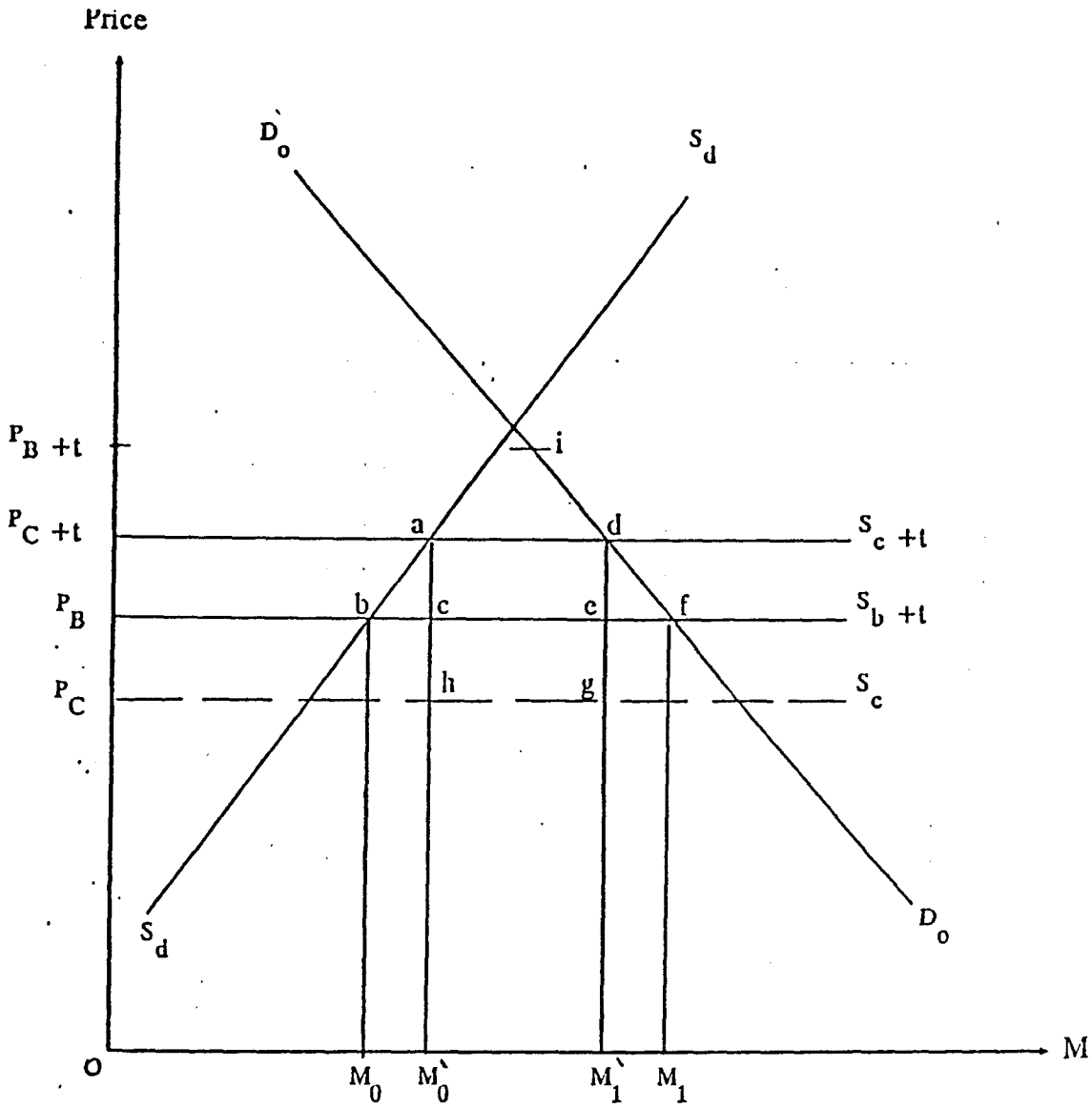
import $M_0 M_1$ from country B at the price P_B. Notice that country B is the least cost supplier due to a PTA. Let us assume that the PTA has been broken due to political or other reasons.

As the PTA disintegrates, A imposes a tariff on the imports from country B equivalent to that on the imports from C. The import price P_B increases to P_B+t, and imports decline, moving up along the demand curve $D_0 D_0$ from the point f towards i. This decline will continue until point d is reached. Notice that at point d, country A can import $M_0 M_1$ from country B. However, at the price P_C+t domestic suppliers are willing to supply OM_0', and the demand for imports has declined to M_1'. A's consumers will substitute $M_0 M_0'$ of increased domestic supply for the reduced imports.

The demand for imports has declined from M_1 to M_1' moving up along the ordinary demand curve $D_0 D_0$.[55] This can be viewed as the trade reduction resulting from the disintegration of a PTA.[56] Due to the trade reduction, country A will lose consumers' and producers' surplus, which is equivalent to the triangles fde and abc.[57] The loss of consumers' and producers' surplus has a welfare–reducing effect for country A.

The imports from country B will be stopped and $M_0 M_1'$ would be imported at the price P_C+t from country C. Notice that country C is the least cost supplier in the presence of a uniform tariff on the imports from all countries. A's consumers, therefore, will benefit by shifting imports from country B to C. This benefit would be the result of an improved allocation of resources.

In addition to the benefit of switching imports to country C, A's consumers gain tariff revenue equivalent to the rectangle cegh. Due to the gain in tariff revenue and improved allocation of resources, A's welfare will be increased. The total effect of a disintegration on the welfare of country A depends on the relative magnitudes of the trade reduction and trade switching effects.

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[55] $D_0 D_0$ = f(Relative Prices, Money Income and PTA).

[56] This is symmetrical to the trade creation effect of the integration. This can also be viewed as the negative trade creation.

[57] This indicates an increase in predisintegration deadweight losses.

In this study, we suggest that the exact amount of trade reduction and trade switching can be quantified using the import demand and supply curves. Ignoring the domestic supply curve and assuming that the import good is a normal good, Figure IV.2 represents the trade situation before and after disintegration.

The letters D_0 and D_c represent respectively the ordinary and compensated demand curves, S the supply curve, P the price and M the imports. The solid and broken lines show respectively the situation before and after the disintegration.

This diagram suggests that as a result of the breakdown of a PTA, the quantity of imports demanded decreases from M_4 to M_i. There are two components of this decline in the demand for imports. First, a rise in price from P_B to $P+t_C$ resulting from the imposition of a tariff decreases the quantity demanded from M_4^a to M_3 (trade reduction) due to the substitution effect. Second, consumers experience a fall in their real income due to the rise in import prices. This leads to a further decrease in the imports from M_3 to M_1.[58]

The consumers in country A will also experience a rise in income due to the trade switching. These involve gains from the tariff revenue and a better allocation of resources.[59] This rise in income shifts the ordinary demand curve $D_0 D_0'$ to the right. While the magnitude of this shift depends on changes in income, the extent of shift reflects the amount of trade switching effect. We may, therefore, argue that the move from M_4^a to M_3 and M_3 to Mi (where i=2,3,4,5) reflects respectively the trade reduction and trade switching effects of a disintegration.

During the postdisintegration period, the consumers in country A may experience a rise, a fall, or no change in their real income. Their money income, however, will be higher due to the increased tariff revenue {1}. We suggest, therefore, that the magnitude of trade reduction and trade switching effects can be quantified by evaluating the changes in real and money incomes

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[58] The move from M_4^a to M_3 and M_3 to M_1 represents respectively the substitution and income effects of the rise in import prices.

[59] The improved allocation of resources refers to a move from previous partner countries expensive goods to a less expensive nonmember countries. The nonmembers perhaps have a lower per unit cost of production as compared to the previous partners of the PTA.

Figure IV.2

Trade Reduction and Trade Switching: A Partial Equilibrium Model
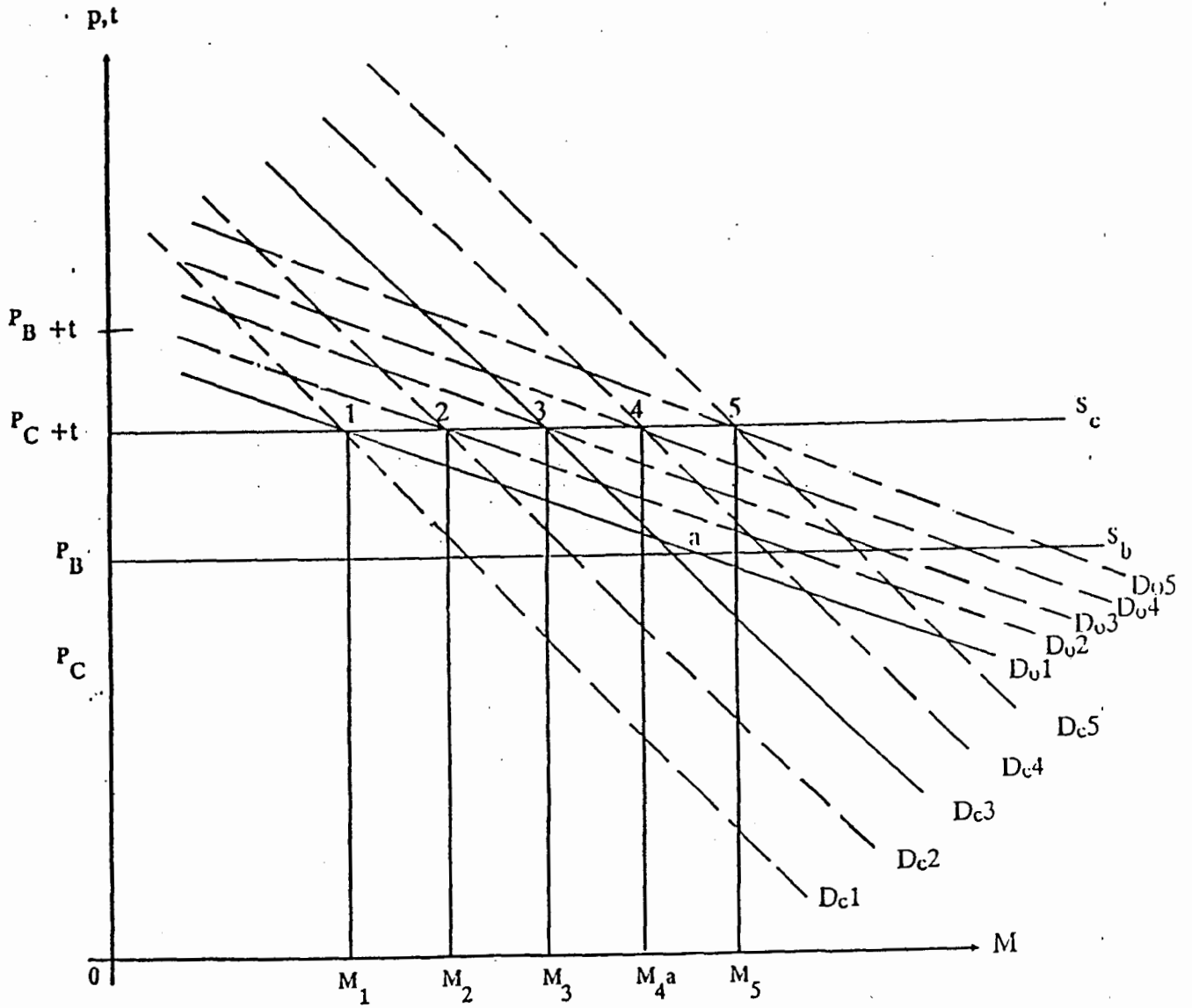
experienced during the postdisintegration period.

Under the alternative assumptions regarding the changes in real and money income, the following four cases represent the different magnitudes of the trade reduction and trade switching effects.

CASE I: <u>Real Income is Constant and Money Income has Risen</u>

We assume that the loss in real income due to the rise in import prices is equivalent to the gains resulting from the increased tariff revenue and an improved allocation of resources. Therefore, it can be argued that real income is constant, while money income has increased.[60]

In this case, at the import price $P+t_c$, the demand for imports has decreased moving along the compensated demand curve D_c^3 from point a to 3. The fall in quantity demanded from M_4^a to M_3 represents the trade reduction. The quantity of imports demanded at the price $P+t_c$, however, is M_1 along the ordinary demand curve. Holding real income constant, only a rise in money income can shift the ordinary demand curve to the right. The ordinary demand curve D_o^1 thus shifts to D_o^3 and imports rise to M_3. This shift in the ordinary demand curve therefore represents the extent of the trade switching effect.

CASE II: <u>Real Income has Decreased and Money Income has Risen</u>

We assume that the rise in real income, resulting from tariff revenue and improved allocation of resources, is significant but smaller than the fall in income caused by the increase in import prices. Real income has therefore decreased but money income has increased.

In this case, the compensated demand curve will shift to the left to D_c^2, while the ordinary demand curve will shift to the right to D_o^2. The quantity demanded of imports decreases from M_3 to M_2. Assuming that real income is lower and money income has increased due to the disintegration, these shifts in the ordinary and compensated demand curves reflect the trade

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[60] This can be explained in two ways. First, the fall in real income due to the rise in import prices is completely offset by the gain in tariff revenue and an improved allocation of resources. Second, the rise in consumers' real income is removed compensating for losses incurred as a result of the rise in the import prices.

reduction and trade switching effects of a disintegration.

CASE III: Both Real and Money Incomes have Increased

We assume that the rise in real income because of increased tariff revenue and improved distribution of resources is significant and high enough to offset the entire decrease in income resulting from a rise in import prices. Both real and money incomes, therefore, have increased.

In this case, the compensated and ordinary demand curves will shift to the right. That is, D_c^3 shifts to D_c^4 and D_o^1 to D_o^4. The demand for imports at the price $P+t_c$ increases from M_3 to M_4. Moreover, the quantity demanded is identical to the quantity purchased before disintegration. At a higher price $P+t_c$, the quantity demanded is unchanged. Thus, the trade reduction would be zero. This would also imply that consumers are better of in the postdisintegration than in the predisintegration period. Further, if consumers are not only more affluent but able to purchase more imports than before the disintegration, then the compensated and ordinary demand curves will shift respectively to D_c^5 and D_o^5 and imports will rise to M_5. These shifts in the demand curves represent the trade switching effect.

CASE IV: Real Income has Decreased and Money is Constant

We assume that consumers suffer a loss in their real income due to the rise in import prices, and gains from increased tariff revenue are negligible. Thus real income has decreased, while money income is constant.

In this case, the ordinary demand curve will remain fixed at D_o^1. The compensated demand curve D_c^3 however, will shift to D_c^1 and imports will decrease from M_3 to M_1. The compensated demand curve D_c^1 corresponds to the lower level of real income. Assuming that real income is smaller only due to the fragmentation of a PTA, the shift in the compensated demand curve from D_c^3 to D_c^1 represents trade reduction, while trade switching is zero.

Having identified the trade reduction and trade switching effects of a disintegration, we next use a simple binary variable technique to measure the relative magnitudes of these two effects.

Trade Reduction and Trade Switching

Assuming that the imports from the former partner countries, the imports from the rest of the world, and domestic products are perfect subsititutes for one another, an imposition of a tariff rate on imports from the former partner countries has two effects. First, there is a trade reduction effect resulting from the substitution of domestic products for the former partner's goods. Second, there is a trade switching effect resulting from the substitution of imports from the rest of the world for imports previously purchased from the former member countries. To measure both of these effects separately, the import demand function can be written as:

$$Mi = f \{ Ppi/Pdi, Ppi/Pri, Yi \} \tag{1}$$

Where Mi is the quantity of imports of good i from the former partner countries. Ppi is the import price for imports from the former partner countries. Pdi is the domestic price of import good i. Pri is the price of good i for imports from the rest of the world. Yi is the income.

The first partial derivative of the import demand function (1) above, indicates the trade reduction effect, and the second partial derivative shows the trade switching effect. The trade switching effect is, however, much harder to measure since it involves a shift in the import demand schedule.

If it can be assumed that Ppi/Pri is constant, except for a disintegration, then the shift in demand function can be captured with the help of a dummy variable. Furthermore, notice that holding Ppi/Pri and Yi constant, a change in Ppi/Pdi would imply a movement along the demand curve indicating the trade reduction. While holding Yi and Ppi/Pdi constant, a change in Ppi/Pri would imply a shift in the demand curve, depicting the trade switching effect of a disintegration. It should also be mentioned that in Figure IV.1 above, we have Ppi/Pdi on the vertical axis and thus a change in Ppi/Pri shifts the demand schedule. This shift represents the extent of the trade switching caused by a disintegration.

Thus, to measure the exact magnitude of the trade switching effect, we included PTA in the demand function as an independent argument {2}. That is, we assumed that the demand for

imports is a function of a PTA.

Assuming that the shifts in the demand curves are solely due to the disintegration, we can quantify the exact amount of the trade switching effect with the help of a dummy variable. We can use an estimation procedure which utilizes time series data to compute the import demand function:

$$Q = f\{P, Ym, D\}$$

Where Q is the demand for the import good, P is the relative price, Ym is money income and D=1 & 0 respectively during the pre- and postdisintegration periods {3}.

There are two main conclusions to be drawn from the above analysis. First, the ordinary demand curve may shift to the right, while the compensated demand curve can shift in either direction depending on the relative magnitudes of the rise in tariff revenue income, the improved allocation of resources, and the losses resulting from the increased import prices. Second, trade reduction can be quantified by the movement along the demand curve (ordinary or compensated). Moreover, the trade switching effect can be captured using the shift in demand curves, assuming that the shift in demand curve is solely due to a disintegration {4}.

Having defined the trade reduction and trade switching effects of the disintegration, the empirical problem under the alternative assumptions of the shifts in demand curve is to measure the area $13M_1M_3$, $23M_2M_3$, $14M_1M_4$, $34M_3M_4$ and $35M_3M_5$ respectively of Figure IV.2 above. We also need the estimates of the relative magnitudes of the trade reduction and trade switching effects.

NOTES TO PART IV

{1} Generally, a loss of tariff revenue has been ignored on the assumption that it has a very insignificant impact on consumer income. In this study, we have relaxed this assumption.

{2} PTA has been used as a proxy for the Pp/Pni. A change in Pp/Pni shifts the demand curve.

{3} PTA has been replaced by 'D', a dummy variable to capture the shift in the demand curve caused by the enactment or disintegration of a PTA.

{4} The analysis of this section can be applied to a specific integration. The effects of an integration would be opposite and symmetrical to those of a disintegration discussed here.

{5} It should be noticed that the relationship (1) can be used to measure the trade creation as well as the trade reduction. The only difference is that for the latter it captures a movement downward along the demand curve, while for the former it represents a movement upward along the demand schedule.

The Effects of Pakistan's Disintegration on International Trade Flows: Empirical Evidence

INTRODUCTION

In Part IV, we suggested that changes in trade flows resulting from a disintegration (in the form of trade reduction and trade switching) can be quantified. For this purpose a simple partial equilibrium model is developed. In order to provide empirical evidence for the technique developed, we chose Pakistan's disintegration in 1971.

Pakistan's disintegration provides an interesting case for empirical analysis since predisintegrated Pakistan perfectly fits into the definition of an economic integration. Former East and West Pakistan had complete free trade, free mobility of factors influencing production, a common currency, and integrated monetary and fiscal policies. Further, both countries now trade with each other and substantial inter-wing trade existed during the predisintegration period.

To analyze the effects of Pakistan's disintegration on international trade flows, we used two different methods. First, we developed a model consistent with that of Balassa (1967), who described a technique of quantifying the changes in trade flows following the formation of the European Common Market.[61] Second, we developed a partial equilibrium model based on the technique discussed in the preceding part.

For the empirical analysis we require two sets of trade data. First, we need consistent time series data on the commodity trade of the two disintegrated regions with the rest of the world. Second, we also need a detailed record of the flow of the goods across the two disintegrated regions for the pre- and postdisintegration periods. While the former is used to examine the effects of a disintegration on international trade flows, the latter is used to analyze changes in trade flows across newly emerged countries. The organization of data for this purpose is discussed

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[61] Assuming that the method used by Balassa (1967) is symmetrical and can therefore be applied to Pakistan's disintegration.

in the next section. Section 2 develops a technique based on Balassa (1967) which identifies and quantifies the effects of a disintegration. Section 3 provides empirical evidence to support the methods proposed in this study for the quantification of the disintegration effects on international trade flows.

Section 1

Data Organization

The trade flows of undivided Pakistan had two components. First, there was a flow of goods between former East and West Pakistan, and second, there was trade with the rest of the world. To quantify the effects of a disintegration on these flows, we need to consider three distinct data sets, which contain the following information: (1) the total trade of each region, that is total imports and exports of former East and West Pakistan; (2) trade with the rest of the world, which includes the imports and exports of both regions from the rest of the world (or the total imports and exports excluding the trade with each other), and (3) the exports and imports to and from each other, that is, the inter-wing imports and exports. Along with a detailed account of the trade flows, we also need data on import and export prices, tariff rates, and income of combined Pakistan, Bangladesh, and (West) Pakistan.

Trade with the Rest of the World

The data are available on total imports and exports of Bangladesh and (West) Pakistan with the rest of the world, but there is no separate data on trade by commodities for each region. A substantial effort was therefore required to separate the data of combined Pakistan's (East and West Pakistan together) commodity trade with the rest of the world into that of Bangladesh and (West) Pakistan. The foreign trade statistics of predisintegrated Pakistan, and the flow of goods between the two regions (called inter-wing trade) are reported in the various publications of the Ministry of Finance, Government of Pakistan. However, such data are not suitable for the purpose of this work. This is due to a variety of reasons. First, we need separate consistent time series data for the predisintegration period of Bangladesh and (West) Pakistan. Second, the available data are not comparable for the different periods since the classification of goods is often changed. Third, consistent trade data are essential for any meaningful analysis of a disintegration.

The separation of predisintegrated Pakistan's data into Bangladesh and (West) Pakistan is necessary, since it must be matched with the postdisintegration data reported in accordance with

the latest standard international trade classification (SITC).

Using the figures of total imports and exports of Bangladesh and (West) Pakistan, the share of each region in the total imports and exports has been calculated as:[62]

$$SMi = TMi/PM \tag{1}$$

$$SXi = TXi/PX \tag{1'}$$

Where S, M, X, T and P denote respectively the share, imports, exports, total of a region and undivided Pakistan, i=East and West.

Using (1) above, imports and exports of West Pakistan by commodity group have been separated from those of combined Pakistan as:

$$Mij = PMj*SMi \tag{2}$$

$$Xij = PXj*SXi \tag{2'}$$

Where i=W represents West Pakistan. J = 1 to 10 indicates ten 1–digit SITC commodity groups. These include food and live animals; beverages and tobacco; crude materials; animal and vegetable oils and fats; chemical preparations and related materials; mineral fuels; manufactured goods; machinery and transportation equipment; miscellaneous manufactured goods, and miscellaneous commodities. All other symbols are the same as before.

Following the above procedure, West Pakistan's imports and exports of the ten major commodity groups, – 1 digit SITC, have been separated from combined Pakistan's imports and exports of the same commodity groups for the 1952–1971 period.

Having separated the imports and exports of the ten major commodity groups for West Pakistan from those of the same group for undivided Pakistan, Bangladesh's imports and exports according to the same ten groups have been calculated as:

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[62] Shares of East and West Pakistan in the total imports and exports of undivided Pakistan vary from year to year, but the variation lies in a narrow margin. Thus, one can also assume that the share of each region was fixed during the period of 1951–70.

$$EMj = PMj - Mij \qquad\qquad (3)$$

$$EXj = PXj - Xij \qquad\qquad (3')$$

Where E indiactes East Pakistan (Bangladesh), J= 1 to 10 amd all other symbols are the same as before.

For the postdisintegration period, we obtained data on ten commodity groups, – 1 digit SITC, – from the international publications of both Bangladesh and (West) Pakistan for the period 1971-72 to 1982-83. Unfortunately, Bangladesh's trade data for the 1971-72 to 1973-74 period are not available.

In summary, using the shares of former East and West Pakistan in the total imports and exports of undivided Pakistan, we separated combined Pakistan's total commodity trade data into Bangladesh's and (West) Pakistan's imports and exports for ten commodity groups, using the 1-digit SITC. This enabled us to generate consistent trade data for the two regions with the rest of the world from the 1951/52 to 1970/71 period.

Combining 1951/52-1970/71 (predisintegration period) and 1971/72-1982/83 (postdisintegration period) data, we obtained (West) Pakistan's and Bangladesh's data for commodity trade with the rest of the world for the 1951/52-1982/83 period. These data, along with the relevent sources, are reported in Appendix-2, Tables A2.1-A2.6.

Inter-wing Trade

The predisintegration trade flows were published as inter-wing trade in a very crude fashion without any consistency on classification of goods. This made the task of organizing data of the trade flows between Bangladesh and (West) Pakistan for the pre- and postdisintegration periods more difficult than originally anticipated. However, the postdisintegration trade figures have been reported in international publications in accordance with the SITC.

To match predisintegration inter-wing trade data with that of postdisintegration, inter-wing trade data for the predisintegration period has been classified according to the SITC. This has

been done in three steps. First, the published commodity trade data of (West) Pakistan's one hundred export to, and sixty-five import goods from former East Pakistan have been arranged according to, – 3 digit, – Pakistan Standard Trade Classification (PSTC). Second, the 3 digit PSTC has been matched with the corresponding SITC, and data rearranged in accordance with the 3 digit SITC. Third, the 3 digit SITC data have been merged into 1 digit SITC to match with the published postdisintegration data. The commodities used in the organization of inter-wing trade data and their PSTC corresponding to the relevent SITC are reported in Appendix 3.

Having classified the inter-wing data for the predisintegration period of 1951/52–1970/71, the data on trade between Bangladesh and Pakistan have been adopted from the various international publications for the postdisintegration period of 1971/72–1982/83. Finally, combining the two data sets, consistent time series data on trade between the two disintegrated regions have been created. These data have been reported in Appendix 2, Tables A2.7 and A2.8.

Prices

The relevant data on import and export prices are the unit value indices for the ten commodity groups and the total imports and exports. The unit value indices were obtained from the various publications of the Government of Pakistan. The unit value indices have been adjusted by a common factor in order to convert the entire series into the 1969–70 base year.[63]

The unit value indices of imports and exports during the predisintegration period for undivided Pakistan and former East and West Pakistan, are reported in various publications of the Government of Pakistan. The data for the postdisintegration period are only for what is now called Pakistan (former West Pakistan). For East Pakistan, which is now Bangladesh, the total import and export unit values for the postdisintegration period were used for the entire series and for all ten commodity groups.[64] These unit value indices are reported in Appendix 2, Tables A2.9–A2.16.

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[63] The unit value indices have been published for the various base years and thus cannot be used without a conversion into a single base.

[64] It would have been better to use individual commodity group's unit value of imports and exports, but such data are not available.

Tariff Rates

Following the disintegration, both Bangladesh and Pakistan imposed tariffs on each others' goods at the rate charged for imports from the rest of the world. Both countries adopted, in the initial period, the tariff schedule that was in place for undivided Pakistan. In this study, therefore, we have used combined Pakistan's tariff schedule for both (West) Pakistan and Bangladesh.

Using the tariff rates for individual commodities, an average tariff rate has been calculated for commodity groups. Further, a minimum and maximum tariff rate has been obtained for each commodity group. This means that the average tariff rate for a commodity group, for example, food and live animals, has been calculated by using the rates on all goods that belong to the food and live animal category. At the same time, the minimum and maximum tariff rate for this group refers to the goods with, respectively, a lowest and highest rate. The tariff rate data have been reported in Appendix 2, Table A2.17.

Income

The gross domestic product (GDP) of combined Pakistan, Bangladesh and (West) Pakistan has been used as a proxy for the income variable, and the relevant figures are taken from Government of Pakistan publications and from International Financial Statistics. The predisintegration GDP of former East and West Pakistan is available only for the 1959/60 to 1970/71 period. Undivided Pakistan's GDP for 1951/51–1958/59 has therefore been separated into East and West Pakistan's GDP for the above period. For this purpose, the shares of East and West Pakistan in undivided Pakistan's GDP during the 1959/60–1969–70 period have been used. The income (GDP) data is reported in Appendix 2, Table A2.18.

To obtain combined Pakistan's data for the postdisintegration period, Bangladesh and (West) Pakistan's data in terms of US dollars have been used. Using the (West) Pakistan exchange rate with the US dollar, these data have been converted into Pakistani rupees (Rs.). This enabled us to match the predisintegration data with those of the postdisintegration period.

The gross domestic product, as well as the imports and exports of combined Pakistan, Bangladesh, and (West) Pakistan, were deflated with the relevent price indices. This enabled us to obtain consistent time series data on the relevant variables in 1969/70 prices. The consumer price indices are reported in Appendix 2, Table A2.18.

A Model Consistent with Balassa (1967)

In analyzing the impact of Pakistan's disintegration on its trade with the rest of the world and with former East Pakistan, we are faced with two distinct problems. First, identification of the trade reduction and trade switching effect requires a measurement of the import levels of disintegrated regions in the event of the absence of disintegration. Second, there are many factors that influence international trade flows, and thus their effects have to be isolated from those of a disintegration.

While there are no specific studies related to the impact of Pakistan's disintegration on international trade flows, there are many techniques for estimating the effects of integration, some of which have been discussed in Part II. Assuming that the theory of integration is symmetrical, it can be applied to a case of disintegration. The advantage of this assumption is that any of the existing techniques for identifying and evaluating the effects of an integration can be used to examine the effects of Pakistan's disintegration on international trade flows.

We chose Balassa (1967), perhaps one of the most prominent studies among the earlier attempts to analyse the effects of the European Common Market, to examine the effects of Pakistan's disintegration on international trade flows. Following are other important considerations of this selection. First, it is now more than 18 years since Pakistan's disintegration, the application of an ex-post method, such as used by Balassa, seems more reasonable. Second, Balassa's method is one of the simplest, and thus easier to use in a disintegration study. Third, the two problems mentioned in our opening paragraph are similar to those raised by Balassa. It is therefore appropriate to work backward and develop a similar model.

Following Balassa, we suggest that a comparison of ex-post income elasticities of import demand in the disintegrated regions and in the rest of world trade would provide a way to address the above problems. In the case of Pakistan, we assume that the disintegration has not affected the income elasticity of demand for imports from Bangladesh and from the rest of the

world. That is, the income elasticities would have remained constant in the absence of disintegration. Thus we postulate that: 1) a fall in the ex-post income elasticity of demand for the inter-wing imports would indicate a trade reduction; 2) an increase in the ex-post income elasticity of demand for total (inter-wing and rest of the world) imports shows the gross trade switching; and 3) an increase in the ex-post income elasticity of demand for imports from the rest of the world depicts the proper trade switching. Similar results should hold for the changes in the trade flows of Bangladesh.

The empirical problem boils down to the estimation of the income elasticity of demand for imports from the various sources of supply in (West) Pakistan and Bangladesh. The income elasticity of demand for imports is defined as the percentage change in the quantity of imports demanded due to a percentage change in income.

In a loglinear specification of an import demand function, the coefficients of the income variable gives a precise estimate of the income elasticity under the assumption that the estimated coefficient has properties of a best linear unbiased estimator. However, due to the short data series, we rely on the definition used by Balassa (1967).[65] Therefore, the ex-post income elasticity of import demand has been defined as the ratio of average annual rate of change in imports to that of gross national product. The underlying assumption for this definition is that the income elasticity of demand for imports would remain unchanged during the periods preceding and following disintegration.

The assumption of the constant income elasticity of demand for imports both preceding and following disintegration implies that the disintegration has been the most important influence on the trade flows of Bangladesh and (West) Pakistan. It also implies that the long run influence of special factors would not have significantly altered the relationship between the imports and gross domestic product. This is indicated by the income elasticity of import demand for the periods preceding and following disintegration. A further advantage of this procedure is that a comparison of the relationship of both inter-wing and external trade to the GDP, together with a comparison

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[65] It is also appropriate to define the ex-post income elasticity in a similar way, as defined by Balasssa (1967), since we are interested in using a model consistent with his method.

of the pre- and postdisintegration periods enables us to abstract from changes in the growth rate of income. It also provides a comparable estimate of trade reduction and trade switching.

It may also be mentioned that instead of comparing trade shares at the start and end of the period, the above procedure implicitly encompasses changes in the shares of imports. The proposed procedure can also be used to give separate consideration to the commodity groups and supplying regions.

The imports of each commodity group should be related to a variable that is a more direct influence on its import demand than the gross domestic product. However, we have chosen GDP because of two distinct problems. First, it is difficult to obtain data on variables which are in close proximity to the income. Second, the use of the other variables would make the results incomparable. Therefore, it would be incorrect to compare trade reduction and trade switching experienced by the different commodity groups.

Abstracting from the influence of a change in the rate of growth of GDP on trade, this procedure indicates the static effects of a disintegration. In other words, it indicates the influence of the trade barriers under ceteris paribus assumptions. However, the results are not expected to indicate the full effects of the disintegration on economic growth. In the case of the actual growth rate falling below the rate that would have been obtained in the absence of disintegration, the decline in inter-wing trade as a result of the disintegration would be underestimated. Furthermore, the increase in imports from the rest of the world would generally be overestimated.

The influence of nonrecurring factors, structural changes and uncertainties relating to the underlying relationships may also give rise to errors. Moreover, the statistical reliability of the estimates cannot be verified. Thus, the empirical result should be viewed with a great degree of caution.

The commodity groups included in the present study are: food and live animals; beverages and tobacco; crude materials; animal and vegetable oils and fats; chemical preparations and related materials; mineral fuels; manufactured goods; machinery and transportation equipment;

miscellaneous manufactured goods, and miscellaneous commodities.

In estimation, the period has been taken to include 1952/53 to 1970/71 and 1972/73 to 1982/83, respectively, for pre- and postdisintegration. The 1971/72 data have been excluded since it was the year in which disintegration took place. That is, 1971/72 has been treated as the benchmark year separating the two periods.

The growth rates of total (inter- and extra-area) imports, imports from the rest of the world (extra-area), gross domestic product and intra-area imports have been calculated for the pre- and postdisintegration periods for (West) Pakistan and Bangladesh. For this purpose, the following compound growth rate formula has been used:

$$R_y = (GDP_t/GDP_o)^{1/n} - 1 \qquad\qquad (4)$$

$$R_m = (M_t/M_o)^{1/n} - 1 \qquad\qquad (4')$$

Where R_y and R_m are the growth rates of income and imports, GDP_t, GDP_0, M_t and M_o are, respectively, income and imports in current year (t) and original or base year (o). n is the number of years for which a specified growth rate has been estimated. For the predisintegration period t is 1970/71, o is 1952/53 and n is 20. For the postdisintegration period t is 1982/83, o is 1972/73 and n is 11.

Empirical Results

The estimated growth rates and income elasticities of import demand for the various commodity groups from the different sources of supply for (West) Pakistan and Bangladesh are reported in Tables V.1-V.6 and are examined in the same order.

(West) Pakistan

As is clear from Table V.1-V.3, the demand for imports in Pakistan of all commodities taken together from all sources of supply (inter- and extra-area), from the rest of the world (extra-area) and from Bangladesh (inter-area) experienced an average annual growth rate respectively of 6.08 and 8.39, 5.76 and 8.27 and 6.3 and 14.01% during the pre- and postdisintegration periods. But the

TABLE V.1
Expost Income Elasticity of Demand for Imports in Pakistan
(Total Imports)

| Commodity Group | Annual Growth Rate | | Expost Income Elasticity | | |
	1952/53-1970/71	1972/73-1982/83	1952/53-1970/71	1972/73 1982/83	Difference
All Commodities	6.08	8.39	1.29	1.48	+0.19
Food & Live Animals	6.34	1.17	1.34	0.21	-1.13
Beverages & Tobacco	n/a	n/a	n/a	n/a	n/a
Crude Materials	6.62	11.55	1.40	2.04	+0.64
Animal & Veg. Oils/Fats	1.22	16.77	0.26	2.96	+2.70
Chemicals & Related Prep.	9.45	10.82	2.28	1.91	-0.37
Mineral Fuels	10.80	26.77	2.60	4.72	+2.72
Manufactured Goods	3.37	9.38	0.71	1.65	+0.94
Machinery & Trans. Equip.	8.95	11.59	1.89	2.04	+0.15
Misc. Manufactured Goods	4.90	8.26	1.04	1.46	+0.42
Misc. Commodities	n/a	15.36	n/a	2.71	+2.71
Gross Domestic Product	4.73	5.67	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

n/a = not available or there was no trade during the pre- or post-disintegration period.

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TABLE V.2
Expost Income Elasticity of Demand for Imports in Pakistan
(Imports from Rest of the World)

Commodity Group	Annual Growth Rate 1952/53-1970/71	Annual Growth Rate 1972/73-1982/83	Expost Income Elasticity 1952/53-1970/71	Expost Income Elasticity 1972/73 1982/83	Difference
All Commodities	5.76	8.27	1.22	1.46	+0.24
Food & Live Animals	4.57	0.28	0.97	0.05	-0.92
Beverages & Tobacco	n/a	n/a	n/a	n/a	n/a
Crude Materials	6.57	10.89	1.39	1.92	+0.53
Animal & Veg. Oils/Fats	1.22	16.78	0.26	2.96	+2.70
Chemicals & Related Prep.	9.35	10.82	1.98	1.91	-0.07
Mineral Fuels	10.80	26.77	2.28	4.72	+2.44
Manufactured Goods	2.27	9.13	0.48	1.61	+1.13
Machinery & Trans. Equip.	8.95	11.59	1.89	2.04	+0.15
Misc. Manu-factured Goods	3.08	8.26	0.65	1.46	+0.81
Misc. Commodities	n/a	15.35	n/a	2.71	+2.71
Gross Domestic Product	4.73	5.67	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

n/a = not available or there was no trade during the pre- or post-disintegration period.

TABLE V.3
Expost Income Elasticity of Demand for Imports in Pakistan
(Imports from Bangladesh)

Commodity Group	Annual Growth Rate		Expost Income Elasticity		
	1952/53-1970/71	1972/73-1982/83	1952/53-1970/71	1972/73 1982/83	Difference
All Commodities	8.30	14.01	1.76	2.47	+0.71
Food & Live Animals	7.72	18.26	1.63	3.22	+1.59
Beverages & Tobacco	n/a	n/a	n/a	n/a	n/a
Crude Materials	7.52	18.74	1.59	3.31	+1.72
Animal & Veg. Oils/Fats	n/a	n/a	n/a	n/a	n/a
Chemicals & Related Prep.	7.74	8.25	1.64	1.46	-0.18
Mineral Fuels	n/a	n/a	n/a	n/a	n/a
Manufactured Goods	9.86	16.69	2.08	2.94	0.86
Machinery & Trans. Equip.	n/a	12.24	n/a	2.16	+2.16
Misc. Manu-factured Goods	3.49	n/a	0.74	n/a	-0.74
Misc. Commodities	4.84	n/a	1.02	n/a	-1.02
Gross Domestic Product	4.73	5.67	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

n/a = not available or there was no trade during the pre- or post-disintegration period.

average annual growth rate varied to a significant extent between commodity groups.

The highest rate of growth was registered by mineral fuels, with 10.8% and 26.77% during the two periods. This group also experienced the highest percentage increase in the postdisintegration period as compared to the predisintegration. One possible explanation for the substantial growth of mineral fuels could be the rise in oil prices following OPEC's formation in 1973. An increase in international oil prices resulted in a large import bill. Since the growth rate has been calculated using the import values, the estimated figures are higher than what they would have been otherwise.[66]

During the predisintegration period, the average annual growth rate of total (inter- and extra-area) imports of mineral fuels was followed by: chemical preparations and related materials (9.45%); machinery and transportation equipment (8.95%); crude materials (6.62%); food and live animals (6.34%); and miscellaneous manufactured goods (4.9%). But these results varied to a considerable degree for the postdisintegration periods.

Following mineral fuels, the highest average annual growth rate was registered by animal and vegetable oils and fats (16.78%). It was followed by: miscellaneous commodities (15.36%); machinery and transportation equipment (11.59%); crude materials (11.55%); chemical preparations and related materials (11.55%); manufactured goods (9.38%); and miscellaneous manufactured commodities (8.26%).

In order to calculate the income elasticities of demand for imports in (West) Pakistan from the various sources of supply, the average annual growth rates of gross domestic product are calculated and are reported in Tables V.1–V.3. (West) Pakistan's GDP registered 4.73% and 5.67% respectively during the pre- and postdisintegration periods.

Taking the ratio of the average annual growth rate of imports and that of gross domestic product, the ex-post elasticities of demand for imports are calculated, and are also reported in

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[66] The figures of imports have been defleted by the relevent price indices (1969–70=100). However, these figures are not fully adjusted for the increase in prices caused by the creation of OPEC.

Tables V.1–V.3.

Effects of Disintegration on (West) Pakistan's Trade

An analysis of ex–post income elasticities of demand for imports of all commodities taken together indicates a trade switching effect, while there is no evidence of a trade reduction effect. Between the pre– and postdisintegration periods income elasticity of demand increased from 1.29 to 1.48 with respect to total (inter– and extra–area) imports. It rose from 1.22 to 1.46 for extra–area trade and it increased from 1.76 to 2.47 for inter–area imports.[67] However, the results vary to a significant extent between commodity groups, and more interesting conclusions emerge from the disaggregated data.

A consideration of ex–post income elasticities of demand for imports by commodity groups suggests that seven and three out of ten groups under investigation experienced, respectively, trade switching and trade reduction to varying degrees.

While the estimates of trade switching vary from one commodity group to another, the highest trade switching has been experienced by animal and vegetable oils and fats, followed by miscellaneous manufactured goods and crude materials. Further, the data indicate the existence of trade switching inasmuch as changes in the income elasticity of demand between the pre– and postdisintegration periods show a shift from Bangladesh to the rest of the world.

The ex–post income elasticities of demand for imports from Bangladesh of all commodities taken together does not provide evidence of trade reduction. There is some indication of a decline in trade from the disaggregated data of Bangladesh's exports to Pakistan. In the case of three commodity groups, (chemical preparations and related materials, miscellaneous manufactured goods and miscellaneous commodities) the income elasticity of demand for imports has declined respectively by 0.18, 0.74, and 1.02.

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[67] The income elasticity of demand for imports from Bangladesh for the postdisintegration period has been overestimated due to large estimated growth rates. After disintegration, intially there was very little trade between Pakistan and Bangladesh and thus the formula used in calculations leads to very large figures of both growth rates and elasticities.

In summary, while there is ample evidence of the trade switching effect of disintegration on (West) Pakistan's trade flows, the estimates of ex-post income elasticity of demand for imports from Bangladesh do not indicate trade reduction.[68]

Bangladesh

The estimates of growth rate for total (inter- and extra-area) imports, imports from the rest of the world (extra-area), and from Pakistan (inter-area), are reported in Tables V.4-V.6. As is quite clear, the growth rates of import demand in Bangladesh from all sources of supply and in all commodity groups declined in the postdisintegration period.

The demand for imports in Bangladesh of all commodities taken together from all sources of supply (inter- and extra-area), from the rest of the world (extra-area), and from Pakistan (inter-area) reveal an average growth rate of 7.67 and 6.45, 6.79 and 6.11, and 8.99 and 6.24% during the pre- and postdisintegration periods respectively.

The disaggregated data also point to the decline in the growth rate of imports during the postdisintegration period. However, the commodity group animal and vegetable oils and fats registered an increase in the average annual growth rate from 1.47 to 4.68 and from 3.94 to 5.14% for extra-area imports and total imports respectively during the two periods.

The gross domestic product of Bangladesh showed an annual average growth rate of 1.90% and 4.44% respectively during the pre- and postdisintegration periods. This indicates a substantial rise in the GDP in the postdisintegration as compared to the predisintegration, periods.

Taking the ratio of average annual growth rate of imports and the gross domestic product, the ex-post income elasticities of import demand are calculated and are also reported in Table V.4-V.6

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[68] The data points to the existence of trade reduction. This is discussed at the end of this section.

TABLE V.4
Expost Income Elasticity of Demand for Imports in Bangladesh
(Total Imports)

Commodity Group	Annual Growth Rate		Expost Income Elasticity		
	1952/53- 1970/71	1972/73- 1982/83	1952/53- 1970/71	1972/73 1982/83	Difference
All Commodities	7.67	6.45	4.04	1.45	-2.59
Food & Live Animals	11.10	5.48	5.84	1.23	-4.61
Beverages & Tobacco	6.34	3.33	3.34	0.75	-2.59
Crude Materials	6.10	1.42	3.21	0.32	-2.89
Animal & Veg. Oils/Fats	1.47	4.68	0.77	1.05	+0.28
Chemicals & Related Prep.	13.15	3.29	6.92	0.74	-6.18
Mineral Fuels	9.97	4.89	5.25	1.10	-4.15
Manufactured Goods	5.95	3.43	3.13	0.77	-2.36
Machinery & Trans. Equip.	7.17	3.99	3.77	0.90	-2.87
Misc. Manu- factured Goods	3.09	3.36	1.63	0.76	-0.87
Misc. Commodities	10.31	3.94	5.43	0.89	-4.54
Gross Domestic Product	1.90	4.44	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

TABLE V.5
Expost Income Elasticity of Demand for Imports in Bangladesh
(Imports from Rest of the World)

Commodity Group	Annual Growth Rate		Expost Income Elasticity		
	1952/53-1970/71	1972/73-1982/83	1952/53-1970/71	1972/73 1982/83	Difference
All Commodities	6.79	6.11	3.57	1.38	-2.19
Food & Live Animals	14.47	5.21	7.62	1.17	-6.45
Beverages & Tobacco	n/a	3.07	n/a	0.69	+0.69
Crude Materials	3.87	1.02	2.04	0.23	-1.81
Animal & Veg. Oils/Fats	3.94	5.14	2.07	1.16	-0.91
Chemicals & Related Prep.	12.70	3.60	6.68	0.81	-5.87
Mineral Fuels	9.99	5.35	5.26	1.21	-4.05
Manufactured Goods	1.34	3.44	0.71	0.78	+0.07
Machinery & Trans. Equip.	6.53	4.30	3.44	0.97	-2.47
Misc. Manu-factured Goods	2.57	3.59	1.35	0.81	-0.54
Misc. Commodities	n/a	2.72	n/a	0.61	+0.61
Gross Domestic Product	1.90	4.44	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

n/a = not available or there was no trade during the pre- or post-disintegration period.

TABLE V.6
Expost Income Elasticity of Demand for Imports in Bangladesh
(Imports from Pakistan)

Commodity Group	Annual Growth Rate		Expost Income Elasticity		
	1952/53-1970/71	1972/73-1982/83	1952/53-1970/71	1972/73 1982/83	Difference
All Commodities	8.99	6.24	3.28	1.41	-1.87
Food & Live Animals	8.79	5.99	3.15	1.35	-1.80
Beverages & Tobacco	8.88	n/a	4.67	n/a	-4.67
Crude Materials	6.60	4.84	2.55	1.09	-1.46
Animal & Veg. Oils/Fats	n/a	n/a	n/a	n/a	n/a
Chemicals & Related Prep.	16.07	10.65	8.46	2.40	-6.06
Mineral Fuels	n/a	n/a	n/a	n/a	n/a
Manufactured Goods	15.33	7.75	8.07	1.75	-6.32
Machinery & Trans. Equip.	6.42	20.61	3.38	4.64	+1.26
Misc. Manufactured Goods	5.25	4.18	2.76	0.94	-1.82
Misc. Commodities	11.07	22.42	5.83	5.05	-0.78
Gross Domestic Product	1.90	4.44	-	-	-

Source: Calculated using the method discussed in the text Part V, Section 3.

n/a = not available or there was no trade during the pre- or post-disintegration period.

Effects of Disintegration on Bangladesh's Trade

An investigation of the income elasticities of demand for imports of all commodities taken together reveals a trade reduction. There is limited evidence of a trade switching effect. Between the pre- and postdisintegration periods, the income elasticity of demand decreased from 4.04 to 1.45 with respect to total imports. It declined from 3.57 to 1.38 for extra-area trade and fell from 3.28 to 1.41 for inter-area imports. Similar results emerge from the disaggregated data which also indicate a significant trade reduction for almost all commodity groups. The income elasticity of demand for imports from (West) Pakistan declined in all commodity groups except machinery and transportation equipment.

The disaggregated data, with the exception of the commodity group animal and vegetable oils and fats, does not provide much evidence for gross trade switching. However, animal and vegetable oils and fats is the only commodity group for which income elasticities of demand for imports rose (from 0.77 to 1.05) between the two periods with respect to the total imports. There has also been some proper trade switching.

Proper trade switching has been indicated by beverages and tobacco, manufactured goods and miscellaneous commodities. These groups registered an increase in the income elasticity of demand for imports from the rest of the world. The data also point to the existence of these effects on the trade flows of both (West) Pakistan and Bangladesh. This has been clearly indicated by the graph of imports as a percentage of real GDP (see Figure V.1).

In summary, the effect of Pakistan's disintegration on Bangladesh's trade seems to be a substantial decline in trade. While there is ample evidence of trade reduction, there is an indication of some limited trade switching.

An examination of the ex-post income elasticities of demand for imports, as mentioned earlier, provides a way of abstracting from the effects of other variables on trade flows. However, it attributes all changes in trade flows to the disintegration. In other words, it regards disintegration as the most important influence on the trade flows of the countries under

Figure V.1

Inter-wing and Extra-area Imports as % of GDP: Bangladesh and (West) Pakistan, 1952-1982
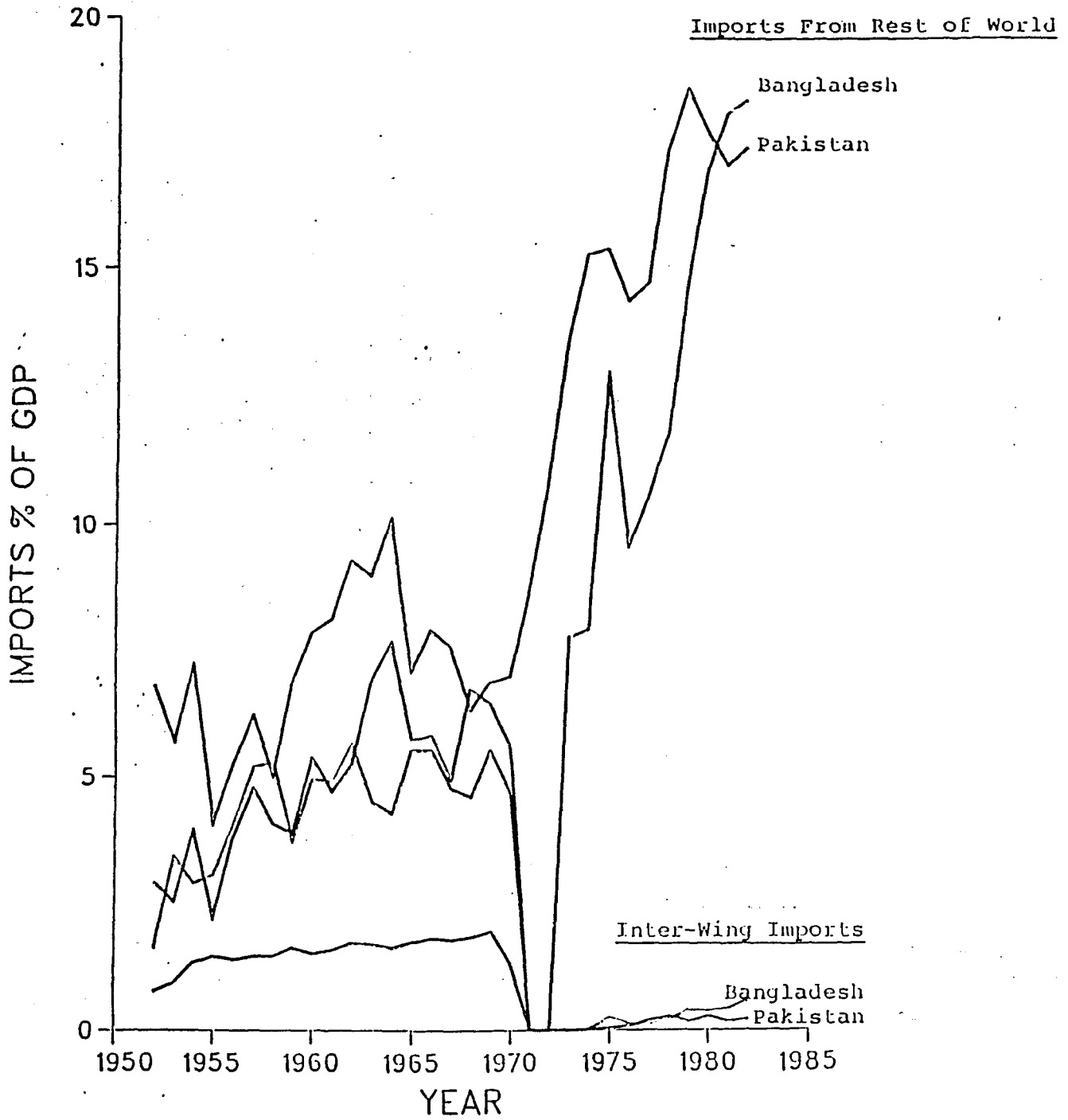
investigation. To address this problem we examine some of the factors that directly or indirectly influence exports of the rest of world to Bangladesh and (West) Pakistan.[69] Assuming again that the technique used by Balassa (1967) is symmetrical, it can be applied to Pakistan's disintegration.

Following Balassa, we have analyzed three factors that influence exports of the rest of the world to Bangladesh and (West) Pakistan, along with the exports of the two disintegrated regions to one another. These include price effects, a competitive effect, and a disintegration effect. The results of this excercise are reported in Appendix 4. The analysis of these effects on the rest of the world and on inter-wing exports to (West) Pakistan and Bangladesh reveals that there has been a trade reduction along with ample trade switching. (West) Pakistan has experienced mainly trade switching and Bangladesh has registered a trade reduction. To further identify these effects, the following import demand function is used to simulate extra-area and inter-wing imports of Bangladesh and (West) Pakistan.

$$M_{ij} = a_{i0} + a_{i1}Y_i + a_{i2}\,P_{fi}/P_{di} + a_3 t_i \qquad (1)$$

Where M = imports, Y = income, Pf and Pd are respectively foreign and domestic prices of the import good. t is the degree of protection measured by the ratio of tariff revenue to total value of imports. i = (West) Pakistan and Bangladesh. j = inter-wing and extra-area.

Using the data for the 1954-1970 period, the import demand function (1) above, has been estimated, and the inter-wing and extra-area imports of Bangladesh and (West) Pakistan have been simulated for the 1954-1982 period.[70] The actual and simulated imports are graphed in Figure V.2. For the postdisintegration period, both countries' imports from the rest of the world are much higher than the simulated imports, suggesting some trade switching, whereas actual inter-wing imports are much lower than the simulated imports, indicating a trade reduction. To measure these effects, a simple partial equilibrium model is developed next.

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[69] Notice that the exports of the rest of the world to Pakistan and Bangladesh are the same as the imports of the countries under investigation.

[70] The estimates of equation (1) are available from author.

Figure V.2

Estimated and Actual Imports: Bangladesh and (West) Pakistan 1952–1982
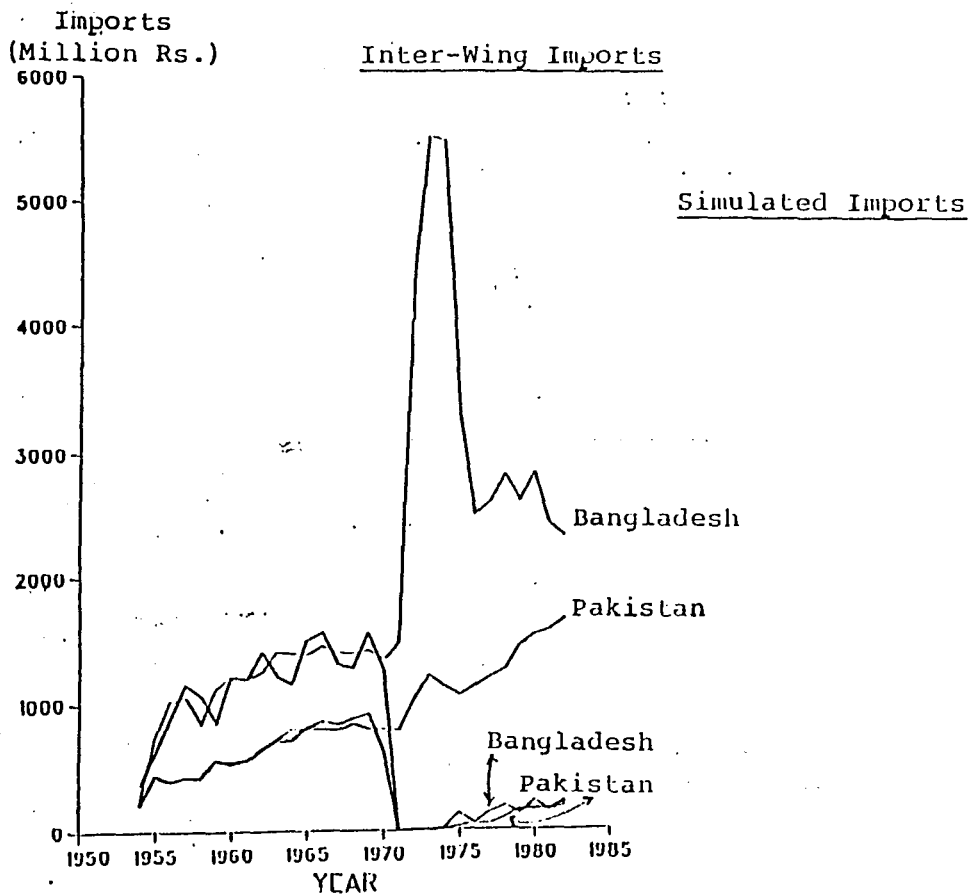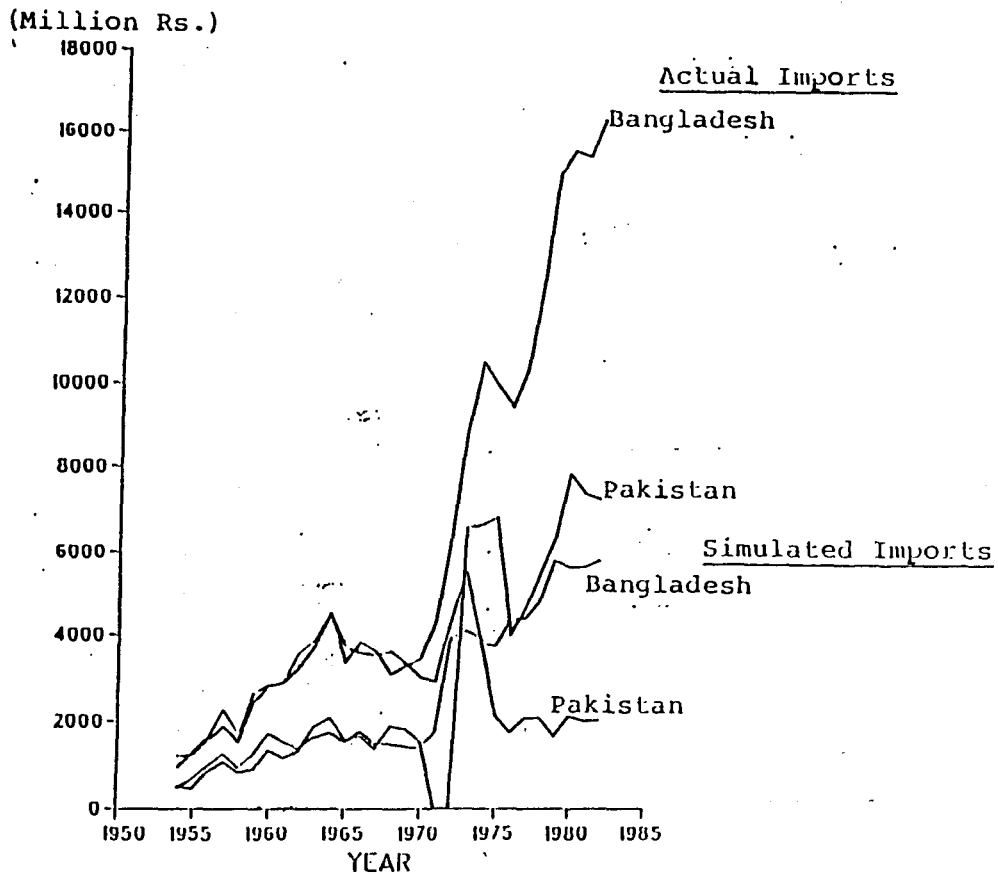
A Partial Equilibrium Model

The empirical evidence presented above points out the changes in trade flows caused by the disintegration of Pakistan. Clearly, the demand for inter-wing imports had shifted towards the extra-area (rest of the world) imports, and inter-wing imports had declined. Assuming that the inter-wing and extra-area imports are close substitutes and that the supply elasticities are infinite, Figure V.3. represents (West) Pakistan and Bangladesh's trade situation before and after the disintegration.

Let WP, B, R, and I denote respectively (West) Pakistan, Bangladesh, rest of the world and inter-wing trade. The letters D, S, P and M respectively represents the demand, supply, price, and imports. The solid and broken lines indicate respectively the situation before and after disintegration.

Figure (2A) above indicates that prior to disintegration (West) Pakistan imported Qb of goods i from Bangladesh at the price Pb. It also imported Qr at the price Pr + t from the rest of the world. Thus the average per unit price of import goods i in (West) Pakistan can be calculated as follows:

$$P^* = Qb/Q_T Pb + (Q_T - Qb)/QT \ (Pr+t) \tag{1}$$

$$P^* = \Theta Pb + (1-\Theta)Pr' \tag{1'}$$

Where $\Theta = Qb/Q$ is Bangladesh's share in total imports of good i. Pr' > P* > Pr indicates that if the tariff rate t = 0, Pb > Pr=P*, then all imports might have come from the rest of the world. However, Bangladesh received preferential treatment and was protected from foreign competition.

At the weighted average world price P* total imports are QT (Figure A2C). Where QT = Qb + Qr. At Pr' OQr is imported from the rest of the world (Figure A2B) and at price Pb Qr-QT (Figure A2C) is imported from Bangladesh. Again notice that the Qr-QT of Figure (A2C) equals OQb of the Figure (A2A).

Figure V.3

Pakistan's Disintegration and International Trade Flows

Panel A: (WEST) PAKISTAN
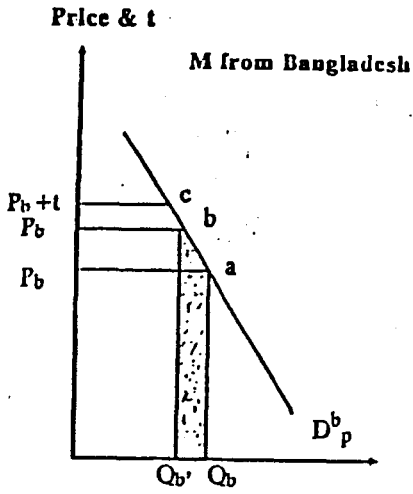
Fig. (A2A)
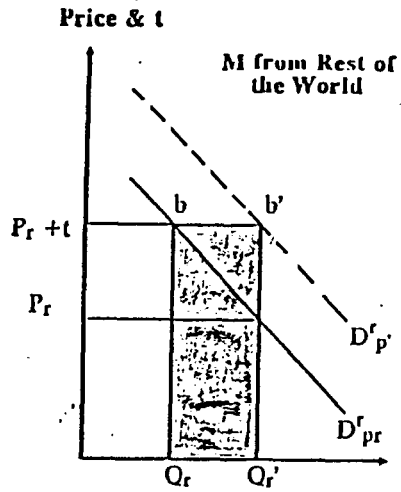
Fig. (A2B)
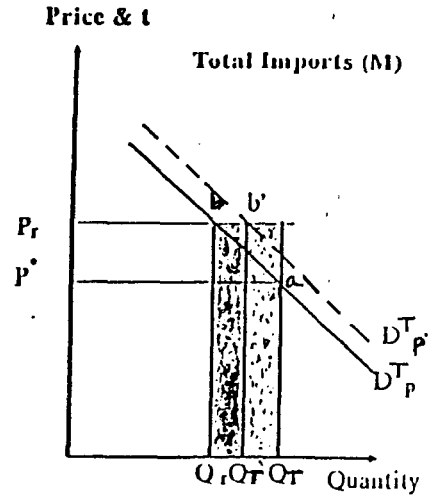
Fig. (A2C)

Panel B: BANGLADESH
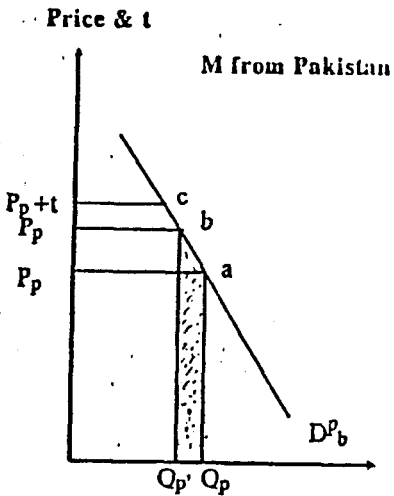
Fig. (B2A)
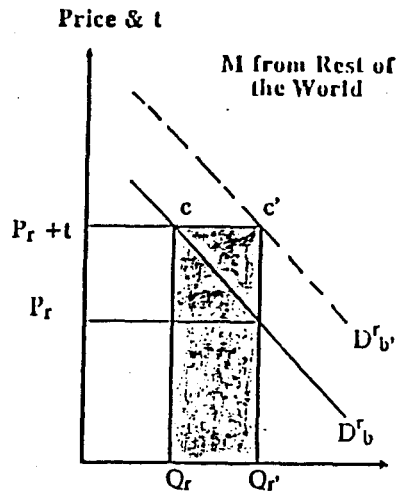
Fig. (B2B)
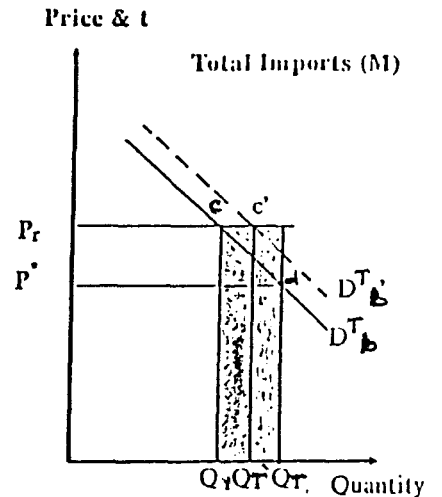
Fig. (B2C)

After disintegration, a tariff is imposed on the imports of good i from Bangladesh. The price Pb increases to Pb + t and imports start declining, moving along the demand curve D_p^b (from point a towards c in Figure A2A). At point b along the demand curve D_p^b, Pr is less then Pb + t. Therefore, consumers will switch their imports to the rest of the world.

At the price Pb', imports from Bangladesh declined to Qb', Qb' is less than Qb, while at the old price Pr', more is imported from the rest of the world. The decline in imports from Bangladesh is indicated by the move along the demand curve D_p^b (Figure A2A). At the same old price Pr', the rise in imports from the rest of the world can be captured by a shift in the demand curve D_p^r. The quantity Qr' greater than Qr will be imported from rest of the world in the postdisintegration period. Further, Pb + t > Pr + t, Pb has to decline (to be equal to Pr), so that Bangladesh can retain some of its share in (West) Pakistan's total imports.

The total demand for imports has declined, since Pr > Pr' = P*. That is P* has increased due to the imposition of tariffs on imports from Bangladesh. The new weighted average price would be equal to Pr + t, if the tariff on imports from Bangladesh is the same as that on imports from the rest of the world.

The Qb Qb' (Figure A2A) indicates the decline in imports from Bangladesh caused by a rise in prices resulting from the disintegration. This is indicative of the trade reduction effect of the disintegration on (West) Pakistan's trade. However, at the old price Pr' QrQr' (Figure A2B) represents an increase in imports from the rest of the world. This indicates the trade switching effect.

Consider the total demand curve D_p^T. Movement along the curve from a* towards b' indicates a decline in imports (trade reduction). A shift of D_p^T to $D_p^{T'}$, caused by a shift of import demand curve D_p^r to $D_p^{r'}$, indicates an increase in imports from the rest of the world (trade switching). During the postdisintegration period OQT' is total imports of which OQr' is imported from the rest of the world, and Qr'−QT' = Qb' from Bangladesh. The shaded and dotted areas represent respectively the trade reduction and trade switching effects of the disintegration on (West) Pakistan's imports. Similarly, analysis of Bangladesh's imports is presented in Figure 2B.

The empirical problem is to measure the shaded and dotted areas of the two panels in Figure V.3. For this we need to measure the area Qrbb'Qr', QT'b'aQT, Qrcc'Qr' and QT'c'dQT. This requires knowledge of the import demand functions Dp and Db. Once the import demand functions have been estimated the trade reduction can be measured as follows:

$$TRw = Q_r bb'Q_T = Q_T N^w \nabla t^w / 1 + t^w \qquad (2)$$

$$TRb = Q_r cc'Q_T = Q_T N \nabla t^w / 1 + t^w \qquad (2')$$

Where TRw and TRb represent trade reduction respectively for (West) Pakistan and Bangladesh. Nw and Nb are the price elasticities of demand for imports; Q_r and Q_T are the predisintegration levels of imports; and t is the tariff rate respectively of the two countries. Delta (∇) indicates the change in tariff rates.

The relationship (2) above provides a simple computable measure of the trade reduction. The trade switching effect, however, is more difficult to compute as it involves a shift in the import demand curve rather than movement along the curve. What we need is a measure of the distance b'b and c'c. If it can be assumed that the shift in the demand curve is solely due to the disintegration, then we can capture the extent of the shift with the help of a dummy variable. This requires the estimation of the import demand functions $\hat{Dp}$ and $\hat{Db}$. For example, in the linear import demand function below, the coefficient of the dummy variable D, q3 is exactly equal to the distance ab in Figure A2C above.

$$Mi = qi0 + q1iYi + q2i Pfi/Pdi + q3iDi \qquad (3)$$

Where D = 0 and 1 respectively in pre- and postdisintegration periods and all other variables are the same as before.

Once the import demand function (3) above is estimated, the trade switching effect can be measured using the coefficient Q3 as:

$$TSw = Q_T'b'aQ_T = ab \, P_r (1+\nabla t^w) \qquad (4)$$

$$TSb = Q_T'c'dQ_T = cd \, P_r (1+\nabla t^b) \qquad (4')$$

Where TS represent trade switching and all other variables are same as before.

In the loglinear formulation of import demand function, which is most popular among researchers, a simple transformation of the coefficient q3 can be used to obtain the distance ab and cd. Assuming that the import demand function is:[71]

$$\log M_i = g0_i + g1_i\log Y_i + g2_i\log(pf_i/pd_i) + g3_iD_i \tag{5}$$

The relevent effect of a dummy variable (D) on the imports can be measured by:[72]

$$G = \{\exp(g3)-1\} \tag{6}$$

and therefore:

$$ab = Q_{\underset{1}{\sim}}g3 = Q_{1}\{\exp(g3\ )-1\} \tag{7}$$

$$cd = Q_{\underset{1}{\sim}}g3 = Q_{T}\{\exp(g3\ )-1\} \tag{7'}$$

After the disintegration there was no change in tariffs on imports from the rest of the world. Therefore, the term $(1+\nabla t\ )$ in relationship (4) above goes to 1. Assuming that $1+\nabla t=1$ and substituting (7) above into (6), the trade switching becomes:

$$TSw = Q_{\underset{1}{\sim}}\{\exp(g3\ )-1\}P_{\gamma} \tag{8}$$

$$TSb = Q_{\underset{1}{\sim}}\{\exp(g3\ )-1\}P_{\gamma} \tag{8'}$$

Once the import demand function has been estimated, the relationships (2) and (8) can be used to quantify the trade reduction and trade switching effects. The empirical problem further reduces to obtaining the estimates of the price elasticities and the coefficients of dummy variables q3 and g3 for the import demand functions (3) and (5) above.

Finally, it should be mentioned that our measure of trade reduction and trade switching may look similar to the techniques previously used to estimate the trade creation and trade diversion effects; (Baldwin and Murray 1977; Akbar 1980, and Kumar & Akbar 1983). In fact, they are

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[71] The use of the loglinear specification may also help in avoiding the specification error caused by the incorrect functional form of the estimated import demand function.

[72] Halvorsen, R. & R. Palmquist (1980), and Peter E. Kennedy (1985) have provided a simple explanation for the interpretation of the dummy variables on the semi-logarithmic functions. We have used former authors' approach.

different in a number of ways. First, we are discussing a case of a tariff imposition consequent upon a disintegration. This makes our measures a reversal of those used in the above mentioned studies. Second, we are concerned with an economic disintegration, and in this respect suggested technique can be viewed as the first attempt to quantify the effects of a disintegration. Third, our measures of the trade reduction and trade switching effects are ex-post, and the proposed method is applicable only in a time series context. Fourth, our technique seems less general, since it varies with the specification of the import demand function, however it is free of some assumptions which may or may not be easily justifiable on a priori grounds. For example, our method is free of the assumption of the benchmark year, or the year in which to expect the full effect of an integration to take place. Lastly, our method can be used to analyze the impact of disintegration on the various supplying regions. It can help in measuring the extent of trade reduction and switching experienced by each of the supply regions.

Given that trade reduction and trade switching can be measured respectively by (2) and (8) above, the empirical problem reduces to obtaining the estimates for the price elasticities of demand for imports from the various sources of supply, and the coefficients of dummy variables q3 and g3. While there are no specific studies relating to Pakistan's disintegration and international trade flows, the methodology for estimating import demand functions for Pakistan is well established. Naquvi (1971), Mahmud (1981) and Naquvi, et. al; (1981) are the more recent studies.[73] Following essentially the procedures employed by these authors, we estimate a set of linear and loglinear import demand functions for ten commodity groups and total imports using annual data for the 1951/52-1982/83 period. The use of annual data provides sufficient coverage of pre- and postdisintegration periods as well as sufficient degrees of freedom for the regression analysis. The empirical results are presented in the next section.

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[73] Naquvi (1971) and Mahmud (1981) used a dummy variable technique to capture the effects of East Pakistan's separation on the imports and exports of (West) Pakistan, and concluded that the disintegration had no effect on the trade flows of (West) Pakistan.

Empirical Results

(West) Pakistan

The demand functions specified in (3) and (5) above were estimated for (West) Pakistan's imports from the rest of the world (extra-area), and Bangladesh (inter-area), and for total imports (inter- and extra-area). Estimates for total imports and the ten commodity groups were made using the procedure of generalized least squares (GLS). The application of GLS method was warranted by the presence of autocorrelation.[74] A number of residual plots over time revealed the presence of first order autocorrelation, thus we used GLS technique to correct for this problem.[75] The empirical results are reported in Tables V.7-V.12.

As is clear, for both linear and loglinear specifications, the estimated coefficient of income, prices and dummy variables are in accordance with a priori expectations. In most cases (linear as well as loglinear), coefficients of income and price variables are statistically significant and positive and negative respectively. They indicated the correct signs for the income and price elasticities.

The coefficient of the income variable from both formulations (linear and loglinear) is significant for total imports, imports from the rest of the world, and imports from Bangladesh. While the coefficient of the price variable is significant for total imports and imports from the rest of the world, it is insignificant for imports from Bangladesh. The disaggregated data, however, provide better evidence for the effects of prices and income on the demand for imports in (West) Pakistan.

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[74] Intial ordinary least squares (OLS) estimates of regression equations indicated the presence of serial correlation. Durbin-Watson statistics for a number of commodity groups has a value of less than one. Thus GLS first order correction has been used. In some of the cases, it did not help in correcting serial correlation and therefore a second order GLS was applied.

[75] From the GLS estimates, D-W statistics is close to a value of two. Therefore, it is assumed that the residuals are unrelated. That is, the problem of serial correlation does not exist any longer.

TABLE V.7

Estimated "Linear Import Demand Functions" (West) Pakistan: Total Imports

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	12.34* (0.77)	-45.30 (3.39)	0.002* (0.35)	-44.14 (4.06)	37.99 (4.11)	0.89	2.03	58.38	6.49	0.78 -0.11
Food & Live Animals	8.83 (1.95)	-1.47* (0.61)	0.0001* (0.98)	-4.25 (1.58)	1.01* (0.43)	0.36	1.96	4.95	2.30	0.63 -0.22
Beverages & Tobacco	0.09* (0.03)	0.04* (0.85)	0.00001* (0.74)	0.10 (1.52)	-0.31* (0.63)	0.20	1.97	2.75	0.05	0.38 0.06
Crude Materials	-0.33* (0.27)	-1.32 (1.69)	0.0001 (6.54)	-0.97 (1.33)	0.38 (0.68)	0.71	2.08	18.00	0.52	0.80
Animals & Veg Oils/Fats	5.87 (3.12)	-4.60 (3.99)	0.0001 (1.88)	-4.82 (6.44)	4.28 (5.74)	0.94	2.00	107.34	0.79	0.68 -0.60
Chemicals & Rel. Prep.	1.37* (0.58)	-6.16 (2.33)	0.0002 (8.13)	-5.49 (4.90)	3.33 (3.03)	0.96	2.02	168.65	1.30	0.58 -0.69
Mineral Fuels	-18.41 (2.38)	-4.10 (1.79)	0.001 (4.39)	-6.05 (2.24)	4.93 (2.20)	0.51	1.91	7.68	2.10	0.49 -0.58
Manufactured Goods	0.97* (0.41)	-3.75 (2.10)	0.0003 (8.12)	-2.34 (1.70)	2.60 (2.07)	0.93	2.08	90.40	1.42	0.41 -0.31
Machinery & Trans.Equip.	0.23* (0.05)	-6.75 (2.29)	0.0004 (8.13)	-6.32 (2.58)	7.13 (3.57)	0.92	1.98	76.52	2.05	0.42
Misc.Manu. Goods	-0.45 (1.29)	-0.05* (0.57)	0.00004 (8.28)	-0.0001* (0.0001)	0.11* (0.57)	0.85	2.06	39.37	0.17	0.72
Misc. Commod.	-0.65 (1.06)	-0.16* (0.26)	0.00002 (1.97)	1.06 (3.17)	-0.19 (0.65)	0.43	1.97	6.21	0.31	0.13

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

TABLE V.8

Estimated "Linear Import Demand Functions" (West) Pakistan: Imports from Rest of the World

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	18.82 (1.11)	-46.24 (3.34)	0.002 (8.37)	-52.25 (4.52)	39.09 (3.99)	0.87	2.05	49.39	6.75	0.84 -0.16
Food & Live Animals	11.87 (2.75)	-1.30* (0.54)	0.0001* (0.12)	-8.19 (3.28)	1.38* (0.62)	0.59	1.95	11.19	2.25	0.58 -0.26
Beverages & Tobacco	0.09* (0.94)	-0.05 (1.21)	0.00001 (1.09)	0.07 (1.06)	-0.03* (0.66)	0.96	1.97	1.74	0.05	0.38
Crude Materials	0.15* (0.14)	-1.71 (2.28)	0.0001 (6.95)	-1.51 (2.35)	0.77 (1.45)	0.85	1.93	42.06	0.50	0.75 -0.14
Animals & Veg Oils/Fats	5.87 (3.12)	-4.60 (3.99)	0.00004 (1.88)	-4.81 (6.44)	4.28 (5.74)	0.94	2.00	107.34	0.80	0.68 -0.60
Chemicals & Rel. Prep.	1.48 (0.63)	-6.15 (2.34)	0.0002 (8.03)	-5.58 (4.96)	3.37 (3.04)	0.96	2.02	167.24	1.31	0.58 -0.69
Mineral Fuels	-18.41 (2.38)	-4.10 (1.79)	0.001 (4.39)	-6.05 (2.24)	4.93 (2.20)	0.51	1.91	7.68	2.10	0.49 -0.53
Manufactured Goods	3.66 (1.50)	-4.33 (2.29)	0.0003 (6.71)	-6.09 (4.36)	2.99 (2.33)	0.94	2.09	116.37	1.51	0.29 -0.25
Machinery & Trans. Equip.	0.23* (0.05)	-6.75 (2.29)	0.00004 (8.13)	6.32 (2.58)	7.12 (3.57)	0.92	1.98	75.52	2.05	0.43
Misc.Manu. Goods	-0.21* (0.56)	-0.02* (0.18)	0.00004 (6.76)	-0.43 (1.53)	0.12* (0.60)	0.82	2.05	33.46	0.19	0.64 0.01
Misc. Commod.	-	-	-	-	-	-	-	-	-	-

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

TABLE V.9

Estimated "Linear Import Demand Functions" (West) Pakistan: Imports from Bangladesh

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	-3.90 (2.26)	-0.80 (1.11)	0.0001 (3.01)	6.66 (5.28)	-0.14* (0.15)	0.69	2.40	16.52	0.85	0.74 -
Food & Live Animals	-2.27 (3.01)	-0.15* (0.54)	0.0001 (4.29)	3.54 (7.40)	-0.36* (0.95)	0.78	2.13	25.93	0.38	0.51 -
Beverages & Tobacco	-	-	-	-	-	-	-	-	-	- -
Crude Materials	-0.48* (0.70)	-0.16* (0.63)	0.00002 (2.12)	10.83 (3.20)	-0.35 (1.28)	0.39	1.92	5.54	0.31	0.19 -
Animals & Veg Oils/Fats	-	-	-	-	-	-	-	-	-	- -
Chemicals & Rel. Prep.	-0.09 (3.15)	-0.003 (0.22)	0.00001 (2.59)	0.09 (4.38)	-0.0001* (0.004)	0.57	1.60	10.13	0.015	0.72 -
Mineral Fuels	-	-	-	-	-	-	-	-	-	- -
Manufactured Goods	-1.26 (1.57)	-0.28* (0.88)	0.00004 (2.86)	2.99 (5.53)	-0.24* (0.60)	0.70	2.16	17.15	0.39	0.60 -
Machinery & Trans. Equip.	-	-	-	-	-	-	-	-	-	- -
Misc.Manu. Goods	-0.26 (1.60)	-0.01* (0.29)	0.00001 (1.61)	0.39 (3.75)	-0.01* (0.09)	0.56	2.42	9.98	0.06	0.89 -
Misc. Commod.	-0.31* (0.55)	-0.32 (1.35)	0.00002 (2.55)	0.72 (1.60)	-0.16* (0.55)	0.41	1.91	5.89	0.31	0.21 -

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

TABLE V.10

Estimated "Loglinear Import Demand Functions" (West) Pakistan: Total Imports

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	8.38 (7.37)	-1.01 (4.12)	1.57 (15.01)	-0.68 (6.79)	0.55 (5.41)	0.97	1.99	267.90	0.12	0.11 -
Food & Live Animals	-4.27 (1.22)	-0.13* (0.51)	1.02 (3.17)	-0.28* (0.80)	-0.07* (0.12)	0.37	1.98	5.40	0.30	0.87 -
Beverages & Tobacco	-1.95* (0.67)	-0.36 (1.47)	0.39 (1.44)	0.85 (3.25)	-0.34 (1.37)	0.44	1.98	6.97	0.28	0.50 -0.15
Crude Materials	-7.59 (7.82)	-0.75 (3.55)	1.23 (14.03)	-0.72 (9.06)	0.33 (4.86)	0.99	2.02	757.39	0.11	0.05
Animals & Veg Oils/Fats	5.09 (1.71)	-0.72 (1.50)	0.06* (0.21)	-1.70 (5.83)	0.89 (3.16)	0.77	1.84	26.39	0.33	0.36
Chemicals & Rel.Prep.	-12.39 (6.50)	-0.12* (0.31)	1.75 (10.19)	-0.52 (2.75)	0.07* (0.32)	0.93	1.96	93.41	0.22	0.57
Mineral Fuels	-18.20 (1.95)	0.60 (1.08)	2.24 (2.59)	-0.36* (0.50)	-0.01* (0.20)	0.85	2.14	37.55	0.38	0.71 -0.33
Manufactured Goods	-4.04 (2.83)	-0.34 (2.32)	1.01 (7.75)	-0.24 (1.72)	0.29 (2.23)	0.81	2.00	33.28	0.13	0.52
Machinery & Trans.Equip	-8.31 (3.71)	-0.56 (1.38)	1.44 (6.93)	-0.33 (1.53)	0.33 (1.54)	0.81	2.06	33.61	0.24	0.36
Misc.Manu. Goods	-7.50 (4.93)	-0.04* (0.52)	1.16 (8.26)	-0.06* (0.34)	0.09* (0.65)	0.80	1.99	31.39	0.14	0.57
Misc. Commodities	25.19 (5.20)	-2.51 (2.30)	2.31 (5.19)	2.64 (6.41)	1.90 (4.45)	0.88	2.10	54.59	0.51	0.26 -0.25

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

TABLE V.11

Estimated "Loglinear Import Demand Functions" (West) Pakistan: Imports from Rest of the World

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	-8.06 (5.59)	-1.10 (3.62)	1.54 (11.62)	-0.94 (7.24)	0.58 (4.45)	0.96	1.99	185.51	0.15	0.17 -
Food & Live Animals	-2.83* (0.45)	0.18* (0.32)	0.91 (1.54)	-1.00 (1.58)	-0.23 (0.42)	0.33	1.81	4.73	0.58	0.59 -
Beverages & Tobacco	-7.40 (1.84)	-0.85 (2.52)	0.90 (2.43)	0.54 (1.56)	-0.42 (1.19)	0.25	1.97	3.40	0.40	0.60 -
Crude Materials	-7.22 (6.15)	-0.75 (3.20)	1.20 (11.27)	-0.80 (7.89)	0.26 (2.77)	0.98	1.93	316.83	0.13	0.05 -
Animals & Veg Oils/Fats	5.09 (1.71)	-0.72 (1.50)	0.06* (0.21)	-1.70 (5.83)	0.89 (3.16)	0.77	1.84	26.39	0.33	0.36 -
Chemicals & Rel. Prep.	-12.29 (6.36)	-0.12* (0.30)	1.74 (9.99)	-0.54 (2.81)	0.07* (0.31)	0.92	1.96	91.20	0.22	0.57 -
Mineral Fuels	-18.20 (1.95)	0.60 (1.08)	2.24 (2.59)	-0.36* (0.50)	-0.01* (0.02)	0.85	2.14	37.55	0.38	0.71 -0.33
Manufactured Goods	-3.03 (1.44)	-0.41 (1.96)	0.91 (4.76)	-0.64 (2.98)	0.35 (1.82)	0.70	2.07	18.75	0.19	0.59 -
Machinery & Trans. Equip.	-8.31 (3.71)	-0.56 (1.38)	1.44 (6.93)	-0.33 (1.53)	0.33 (1.54)	0.81	2.06	33.61	0.24	0.36 -
Misc.Manu. Goods	-5.30 (2.55)	0.02 (0.14)	0.95 (4.97)	-0.48 (2.22)	0.15* (0.78)	0.78	2.03	27.43	0.22	0.41 -
Misc. Commod.	0.48* (0.04)	-3.71 (1.84)	0.03* (0.03)	-2.83 (2.10)	2.09 (1.68)	0.34	2.05	7.27	1.02	0.87 -0.28

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

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TABLE V.12

Estimated "Loglinear Import Demand Functions" (West) Pakistan: Imports from Bangladesh

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	-11.67 (1.37)	-0.40* (0.40)	1.20 (1.54)	4.98 (5.48)	1.38 (1.99)	0.83	1.60	37.87	0.53	0.97 -
Food & Live Animals	-20.37 (2.61)	-0.30* (0.56)	1.97 (2.75)	4.91 (6.22)	0.47 (0.79)	0.73	1.96	21.10	0.59	0.84 -
Beverages & Tobacco	-0.29* (0.09)	-0.08* (0.22)	0.02* (0.07)	1.22 (5.05)	0.07* (0.27)	0.76	1.97	25.07	0.44	-0.30 -
Crude Materials	-15.25 (2.52)	-0.46* (0.61)	1.48 (2.66)	0.85 (1.48)	1.45 (3.03)	0.48	1.83	7.82	0.48	0.73 -
Animals & Veg Oils/Fats	-	-	-	-	-	-	-	-	-	-
Chemicals & Rel. Prep.	-27.01 (6.52)	1.48 (1.50)	2.52 (6.84)	4.76 (11.92)	-2.62 (5.37)	0.84	2.63	39.64	0.60	-
Mineral Fuels	-	-	-	-	-	-	-	-	-	-
Manufactured Goods	-21.18 (2.62)	-1.03 (1.38)	2.02 (2.72)	3.99 (4.48)	1.44 (1.54)	0.66	1.65	15.80	0.68	0.71 -
Machinery & Trans. Equip.	-	-	-	-	-	-	-	-	-	-
Misc.Manu. Goods	-15.68 (4.93)	-0.12 (1.58)	1.38 (4.79)	3.43 (12.28)	0.02* (0.12)	0.93	2.58	97.82	0.23	0.69 -
Misc. Commod.	-26.19 (5.08)	-0.85 (0.75)	2.40 (5.05)	5.12 (11.37)	-0.45* (0.99)	0.92	1.93	81.41	0.55	0.05 -

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)

The disaggregated data indicate that, for the loglinear specification, the price coefficient is significant for six commodity groups in the case of total imports and in the case of imports from the rest of the world. However, it is significant only for two commodity groups in the case of imports from Bangladesh. The income variable proved to be significant for nine commodity groups in the case of total imports, eight for imports from the rest of the world, and six in the case of imports from Bangladesh. Similar estimates have been obtained from the linear specification of the import demand function.

The estimates of the linear import demand function show that the price coefficient is significant for six, seven and one commodity groups respectively for total imports, imports from the rest of the world, and from Bangladesh. The income variable in the case of the linear estimation is significant in eight commodity groups for total imports; seven for imports from the rest of the world; and six for imports from Bangladesh.

Generally, an insignificant coefficient for the price variable is difficult to reconcile with the theoretical framework. If imports from Bangladesh are substitutes for those from the rest of the world (no matter how imperfect) then an increase in the price level must imply a decline in the quantity of imports demanded. However, if the economy is experiencing a rise in overall prices along with the increase in imports, aggregate price indices data such as those utilized here may not show any decline in the demand for a particular commodity group. While this may be one explanation, it is certainly not the only one. (West) Pakistan's high dependence on imports may also be responsible for the insignificant relationship between import prices and the demand for imported goods. An increase in import prices with an increase in imports may also be manifestation of (West) Pakistan's greater dependence on imports from Bangladesh. This has been reflected by the insignificant coefficients of price variables for six commodity groups, in the case of imports from Bangladesh.

The coefficient of the dummy variable from both formulations (linear and loglinear) is significant for total imports, imports from the rest of the world, and from Bangladesh. In the case of the loglinear specification, the dummy variable is significant for seven, nine and seven commodity groups respectively for total imports, imports from the rest of the world, and from

Bangladesh. Similarly, in the case of linear specification it is highly significant for nine, eight and six commodity groups respectively for the three sources of supply.

The statistically significant coefficient of the dummy variable implies a significant trade switching effect for the various commodity groups. This is a finding that is at variance with earlier studies dealing with the effect of the secession of East Pakistan on the trade flows of (West) Pakistan.

As mentioned earlier, Mahmud (1981) and Naqvi et al. (1981) concluded that the separation of East Pakistan had no effect on the trade flows of (West) Pakistan. They used a similar technique as employed here and found the dummy coefficient to be insignificant in most cases. Their study, however, utilized a much shorter data series and thus perhaps was unable to identify the full effect of the disintegration. In the absence of any theoretical or empirical reasons to doubt our results, it can be argued that they are indicative of actual trade switching. An obvious explanation is the increase in demand for imports from the rest of the world for all commodities taken together, as well as the increase in imports of each commodity group. This perhaps is sufficient evidence to conclude that the disintegration has led to trade switching.

To avoid the possibility that these results may be biased because of specification errors through ignoring some variables, time trend and lagged dependent variables were also introduced in the import demand function specified above. The inclusion of these variables, rather than improving the estimates, caused further problems.[76] Further, the dependent variable (imports) were ploted against the independent variables (prices and income) to identify the functional form of the import demand function. In some cases, nonlinear relationship between the dependent and independent variables was suspected. This warranted the use of a loglinear specification of the import demand functions.

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[76] The signs and significance of the income and price variables were severely affected, possibly owing to the increased multicolinearity. The estimates of the R-square were substantially high even without these variables; therefore, they were dropped from the specifications.

Table V.13 presents the income and price elasticities implied by the figures presented in Tables V.7–V.12. While the signs of the elasticities are never altered because of the specification, both income and price elasticities estimated from loglinear specifications are generally larger in magnitude than those obtained from the linear model. This indicates generally a more elastic demand with respect to both income and prices than that implied by the average level of trade. Since imports of developing countries, particularly in the case of (West) Pakistan, have been generally increasing, a rise in elasticities may be implied over the period under consideration.[77]

Considering the actual magnitude of elasticities, Table V.13 illustrates that they are substantially higher than what one would expect to find on an a priori basis. The majority of the income elasticities are significantly larger than unity. This implies highly elastic demand, contrary to what one would expect in the case of developing countries. However, the problem is less serious when one considers disaggregated data.

The linear specification provides ex–post income elasticities of: (i) 0.34 and 0.52 respectively of food and live animals and animal and vegetable oils and fats for total imports; (ii) 1.09 and 1.30 respectively of machinery and transportation equipment and manufactured goods for imports from the rest of the world; and (iii) 1.03 and 1.42 respectively of manufactured goods and food and live animals for imports from Bangladesh. These estimates indicate that the disaggregated data at the level attempted here is able to generate reasonable results.

The majority of price elasticities are significantly smaller than unity, indicating highly inelastic demands. This is what we would expect in the case of developing countries like Pakistan and Bangladesh. For example, the linear specifications imply elasticities of 0.74, 0.80, and 0.34 respectively for the total imports, imports from the rest of the world and imports from Bangladesh. These estimates are not at all unreasonable. Similarly, corresponding figures for loglinear specifications are 1.06, 1.54, and 1.2, which indicates that the aggregate data at the level attempted here can generate reasonable results in the absence of appropriate price data. Since there is not much evidence to use as a comparison, we have accepted these estimates as they are.

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[77] This would somewhat limit our assumption of constant elasticities during the pre– and postdisintegration periods.

TABLE V.13

Price and Income Elasticities of Demand for Imports: (West Pakistan)

| | Imports From Rest of World | | | | Imports From Bangladesh | | | | Total Imports | | | |
| | Linear | | Loglinear | | Linear | | Loglinear | | Linear | | Loglinear | |
	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income
All Commodities	-0.80	1.46	1.10	1.54	-0.34	1.29	-0.40*	1.20	-0.74	1.45*	-1.01	1.57
Food & Live Animals	-0.16*	0.01*	-0.18*	0.91	-0.13*	1.42	0.30*	1.97	-0.15*	0.34*	-0.13*	1.02
Beverages & Tobacco	-0.52	-.07	-0.85	0.90	-	-	-0.80*	0.02*	-0.31*	0.04*	-0.36	0.39
Crude Materials	-0.51	1.53	-0.75	1.20	-0.62*	2.05	-0.46*	1.48	-0.37	1.57	-0.75	1.23
Animals & Veg. Oils/Fats	-1.36	0.52	-0.72	0.06*	-	-	n/a	n/a	-1.36	0.52	0.72	0.06*
Chemicals & Related Prep.	-0.65	1.50	-0.12*	1.74	-0.16*	0.25	-1.48*	2.52	-0.65	1.50	-0.12*	1.75
Mineral Fuels	-0.65	3.37	0.06*	2.24	-	-	n/a	n/a	-0.65	3.37	0.60*	2.24
Manu. Goods	-0.35	1.30	-0.41	0.91	-0.24*	1.03	-1.03	2.02	-0.27	1.11	-0.34	1.01
Machinery & Trans. Equip.	-0.46	1.09	-0.56	1.44	-	-	n/a	n/a	-0.46	1.30	-0.56	1.44
Misc. Manu. Goods	-0.02	1.27*	0.02*	0.95	-0.08	0.10	-0.12	1.08	-0.04*	1.25	-0.04*	1.16
Misc. Commodities	-	-	-3.71	0.03*	-1.48	2.55	-0.85*	2.40	-0.42*	1.91	-2.51	2.31

Source: Estimated using the results reported in Tables V.7-12.

 * Calculated from an insignificant coefficient.

 n/a - not available

Trade Reduction and Trade Switching

Using the price elasticities computed from both loglinear (LL) and linear (LN) specifications, trade reduction effects have been estimated using (2) above. Table V.14 depicts these calculations. Since the estimates of the price elasticities are lower in the linear case, this specification generates significantly lower trade reduction. If it can be assumed that the actual price elasticities lie between the two estimates, trade reduction amounts to between Rs.84.11 million (LN) and Rs.98.95 million (LL) in terms of 1969/70 rupees. This is nearly 2.5% and 2.8% of predisintegration levels of imports.

In the case of individual commodity groups the estimates range from Rs.1.61 million (LN) and Rs.2.42 million (LN) for miscellaneous manufactured goods, to Rs.24.57 million (LN) and Rs.1.05 million (LN) for manufactured goods. Estimates for individual commodity groups also suggest that substantial trade reduction has been experienced in such commodity groups as food and live animals {Rs.14.80 million (LN) to Rs.34.15 million (LL)}, crude materials {Rs.2.41 million (LN) to Rs.1.76 million (LL)}, miscellaneous commodities {Rs.8.22 million (LN) to Rs.4.72 million (LL)}, and chemical preparations and related materials {Rs.0.54 million (LN) to Rs.5.0 million (LL)}. In percentage terms, trade reduction ranges from 3.3% (LN) of the change in imports to 14.3% (LL) of the changes in imports for individual commodity groups.

Table V.14 also shows the estimates of trade switching computed with the help of q3 and g3 respectively using (8) above. If the coefficient of the dummy variable was insignificant at 10% for a particular commodity group, it has been assumed that for this particular commodity group trade switching is zero.

The computations indicate that total trade switching amounts to Rs.5851.49 million for the linear (LN) specifications and Rs.6007.22 million for loglinear (LL) in terms of 1969/70 rupees. For individual commodity groups, the estimates vary from Rs.6.77 million (LN) to Rs.0.10 million (LL) for beverages and tobacco, and Rs. 947.12 million (LN) for food and live animals, to Rs.823.47 million (LL) for animal and vegetable oils and fats. The important commodity groups in this regard are food and live animals {Rs.353.64 million (LL) and Rs.174.12 million (LN)};

TABLE V.14
**Estimates of the Trade Reduction and Trade Switching Effects
of Disintegration on (West) Pakistan**

Commodity Group	Linear Model			Loglinear Model		
	Trade-Reduction	Trade-Switching	Total-Trade	Trade Reduction	Trade Switching	Total Trade
All Commodities	84.11	5851.49	5767.38	98.95	6007.22	5908.27
Food & Live Animals	14.80*	974.12	959.32	34.15	353.64	319.49
Beverages & Tobacco	n/a	6.77	6.77	0.10*	8.99	8.89
Crude Materials	2.41	143.53	141.12	1.76	227.00	225.24
Animal & Veg. Oils/Fats	n/a	510.57	510.57	n/a	823.47	823.47
Chemicals & Related Prep.	0.54*	597.95	597.41	5.00*	330.56	325.56
Mineral Fuels	n/a	n/a	n/a	n/a	133.36	133.36
Manufactured Goods	24.57	712.03	687.46	105.47	772.50	667.03
Machinery & Trans. Equip.	n/a	777.33	777.33	n/a	651.61	651.61
Misc. Manufactured Goods	1.61	65.09	63.48	2.42*	88.26	85.84
Misc. Commodities	8.22	119.02	110.80	4.72	5.72	1.00

Source: Estimated using the results reported in Tables V.7-12.

n/a = not available.

* Calculated using insignificant coefficients.

manufactured goods {Rs.772.5 million (LL) and Rs712.03 million (LN)}; machinery and transportation equipment {Rs.777.33 million (LN) and Rs.651.61 million (LL)}; chemical preparations and related materials {Rs. 597.95 million (LN) and Rs.330.56 million (LL)}, and crude materials {Rs.227.00 million (LL) and Rs.143.53 million (LN)}.

Comparing the estimates of trade reduction and trade switching, the calculations indicate that trade switching constitutes a larger percentage of total change in the trade flows. In fact, for some individual commodity groups such as food and live animals, manufactured goods, machinery and transportation equipment and miscellaneous commodities, the estimates of trade switching are much larger than those for trade reduction.

The estimates of the total changes in the trade flows are also reported in Table V.14. Total trade has been estimated by subtracting trade reduction from trade switching. The total trade changes amount to Rs.5908.27 million (LL) and Rs.5767.38 million (LN) in terms of 1969/70 rupees. It ranges from Rs.6.77 million (beverages and tobacco, LN) to Rs.959.32 million (food and live animals, LN), and Rs.5.72 million (miscellaneous commodities, LL) to Rs.823.47 (animal and vegetable oils and fats, LL). From the viewpoint of changes in total trade, the important commodity groups are those which experienced higher trade switching or trade reduction.

In summary, comparing the estimates of trade reduction and trade switching quoted above with the actual changes in trade during 1952–82, it may be concluded that (West) Pakistan's trade flows with the rest of the world and with Bangladesh were significantly affected by the disintegration.

Bangladesh

For Bangladesh's total imports (inter– and extra–area), extra–area imports (rest of the world), and Pakistan (inter–area), the demand functions specified as (3) and (5) above were estimated for the total imports and ten commodity groups using the procedure of generalized least squares. The empirical results are reported in Tables V.15–V.20.

As may be seen from Tables V.15–V.20, the estimated coefficients of income, price, and dummy variables are in accordance with a priori expectations (for both linear and loglinear specifications). In almost all cases (linear as well as loglinear) the coefficient of income variables is statistically significant and positive for imports from the rest of the world, as well as for total imports. However, in the case of imports from Pakistan, the income coefficient is significant only for three commodity groups.

The coefficient of the price variable has been significant for all commodities taken together, imports from the rest of the world and total imports. However, it is not significant in the case of imports from Pakistan. The disaggregated data for the ten commodity groups show that the price variable has not been very significant in determining the demand for imports from the various sources.

As is seen from Tables V.15–V.20, while having a correct sign in all cases, the coefficient of the price variable is significant only in less than half the commodity groups. One possible explanation for a number of low significant and/or insignificant coefficients for the price variables could be that Bangladesh had to rely heavily on imports from the rest of the world.

Bangladesh is a small open economy that is very underdeveloped and affected by serious shortages of commodities. Its import needs range from basic necessities (such as food) to the technical equipment (including machinery and transportation equipment, semidurable and durable goods). For this reason, Bangladesh has had to be a price taker. This has been reflected in a low or insignificant price coefficient for the import demand function.

The coefficient of the dummy variable from the loglinear specification is signficant only in two cases for total imports, and for imports from the rest of the world. However, it is signficant for all cases for the import demand from Pakistan. Contrary to this, the dummy coefficient from the linear specification for the import demand function is significant in nine, eight and nine commodity groups respectively for total imports, imports from the rest of the world, and for imports from (West) Pakistan. This reflects the trade switching effect of the disintegration on Bangladesh's imports.

TABLE V.15

Estimated "Linear Import Demand Functions" Bangladesh: Total Imports

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	4.50* (0.15)	-25.99 (1.18)	0.08 (1.90)	-20.88 (1.40)	49.15 (3.23)	0.69	1.95	16.73	1330.00	-0.05 -
Food & Live Animals ¢	0.65* (0.11)	-3.94* (0.93)	0.01 (1.51)	-2.53* (0.87)	7.32 (2.49)	0.51	1.89	8.29	2.54	- -
Beverages & Tobacco	0.31* (0.46)	-0.26* (0.54)	0.0001* (0.15)	0.64 (1.96)	0.09* (0.30)	0.32	1.95	4.27	0.27	0.35 -0.12
Crude Materials	1.19* (0.54)	-1.01* (0.64)	0.002* (0.64)	0.24* (0.22)	2.07 (1.91)	0.16	1.92	2.36	0.92	0.31 -
Animals & Veg Oils/Fats ¢	0.88* (0.29)	-0.88* (0.41)	0.004* (0.90)	-3.51 (2.38)	4.03 (2.68)	0.68	1.92	15.70	1.29	- -
Chemicals & Rel. Prep.	-2.70 (1.02)	-2.48 (1.30)	0.02 (3.50)	-2.15 (1.62)	6.16 (4.67)	0.70	1.84	17.65	1.25	-0.15 0.30
Mineral Fuels	-1.04* (0.63)	-0.60* (0.50)	0.006 (2.23)	-1.38 (1.63)	2.71 (3.30)	0.42	1.92	6.14	0.74	0.14 0.28
Manufactured Goods ¢	0.97* (0.12)	-5.01* (0.85)	0.02 (1.65)	-6.09 (1.51)	12.83 (3.13)	0.64	1.98	13.26	3.54	- -
Machinery & Trans.Equip. ¢	3.96* (0.47)	-8.49 (1.42)	0.02 (1.67)	-7.49 (1.84)	12.18 (2.95)	0.75	2.07	22.44	3.57	- -
Misc.Manu. Goods ¢	0.05* (0.06)	-0.44* (0.72)	0.002 (1.59)	-0.91 (2.21)	1.31 (3.14)	0.70	1.98	16.95	0.36	- -
Misc. Commod. ¢	-0.44* (0.40)	-0.70* (0.90)	0.002 (1.53)	1.22 (2.31)	0.34* (0.64)	0.40	1.65	5.72	0.47	- -

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.

** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.

(Figures shown in parentheses are t-values.)

¢ Estimated using the Ordinary Least Squares technique.

TABLE V.16

Estimated "Linear Import Demand Functions" Bangladesh: Imports from Rest of the World

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	6.55* (0.22)	-22.23 (1.05)	0.07 (1.73)	-33.85 (2.38)	47.14 (3.25)	0.78	1.99	26.44	12.60	-0.05 -
Food & Live Animals	-0.11* (0.02)	-2.35* (0.68)	0.01 (1.65)	-5.31 (2.26)	7.44 (3.10)	0.73	1.96	19.54	2.10	-0.05 -
Beverages & Tobacco	0.08* (0.51)	-0.04* (0.39)	0.0002* (0.68)	-0.26 (3.35)	0.21 (2.68)	0.76	1.97	22.99	0.07	0.11 -
Crude Materials	0.23* (0.15)	-0.40* (0.38)	0.003 (1.18)	-2.09 (2.19)	2.21 (3.05)	0.72	1.96	18.66	0.63	0.05 0.05
Animals & Veg Oils/Fats α	1.35* (0.45)	-1.70* (0.79)	0.004 (1.02)	-3.34 (2.29)	3.84 (2.59)	0.72	2.02	19.03	1.28	-
Chemicals & Rel. Prep. α	1.21* (0.42)	-3.19 (1.55)	0.008 (1.84)	-2.32 (1.65)	4.14 (2.90)	0.75	2.12	22.05	1.23	-
Mineral Fuels	-1.07* (0.65)	-0.58* (0.49)	0.006 (2.25)	-1.39 (1.64)	2.72 (3.31)	0.43	1.92	6.18	0.75	0.13 0.28
Manufactured Goods	-8.66 (1.29)	-3.50* (0.72)	0.04 (3.60)	-10.58 (3.05)	17.18 (5.12)	0.71	1.87	17.91	3.26	-0.09 0.43
Machinery & Trans. Equip. α	3.76* (0.45)	-7.79 (1.32)	0.02 (1.62)	-8.22 (2.04)	12.19 (2.98)	0.76	2.08	23.51	3.54	-
Misc.Manu. Goods	0.07* (0.09)	-0.41* (0.73)	0.002 (1.62)	1.07 (2.78)	1.30 (3.32)	0.76	2.01	23.35	0.34	0.05 -
Misc. Commod.	-	-	-	-	-	-	-	-	-	-

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)
α Estimated using the Ordinary Least Squares technique.

TABLE V.17

Estimated "Linear Import Demand Functions" Bangladesh: Imports from Pakistan

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities	108.55* (0.31)	-410.11 (1.45)	0.01 (1.45)	9.99 (5.775)	2.66 (1.38)	0.85	0.78 α^1	40.84	226.87	-
Food & Live Animals	-65.11* (0.46)	5.36* (0.05)	0.001* (0.62)	2.08 (2.98)	0.23* (0.30)	0.47	1.23 α^1	7.29	91.14	-
Beverages & Tobacco	15.30* (0.37)	-29.57* (0.89)	0.0003* (0.65)	0.70 (3.43)	0.13* (0.61)	0.67	1.53	15.25	26.50	-
Crude Materials	61.24* (0.70)	-117.36 (1.70)	0.001 (1.20)	1.79 (4.23)	0.78 (1.68)	0.79	1.46	28.10	55.35	-
Animals & Veg Oils/Fats	-2.55* (0.09)	16.90* (0.75)	-0.0001* (0.85)	0.39 (2.95)	-0.09* (0.62)	0.51	1.20 α^1	8.17	17.31	-
Chemicals & Rel. Prep.	10.33* (0.41)	-34.79 (1.75)	0.0001 (1.72)	0.49 (4.03)	0.17 (1.27)	0.75	0.58	22.13	15.99	-
Mineral Fuels	-	-	-	-	-	-	-	-	-	-
Manufactured Goods	65.81* (0.70)	-138.65 (1.86)	0.002 (1.41)	3.43 (7.46)	0.78 (1.55)	0.91	1.20 α^1	72.33	59.98	-
Machinery & Trans. Equip.	4.44* (0.15)	-26.19 (1.08)	0.0001 (1.24)	0.28 (1.90)	0.17 (1.06)	0.39	0.51 α^1	5.38	19.42	-
Misc.Manu. Goods	11.99* (0.85)	-14.75 (1.31)	0.0001* (0.54)	0.10 (1.44)	0.06* (0.77)	0.39	2.16	5.54	9.07	-
Misc. Commod.	13.85* (0.18)	-68.42 (1.14)	0.002 (1.23)	0.81 (2.17)	0.35 (0.85)	0.45	1.31 α^1	6.60	48.37	-

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parentheses are t-values.)
α^1 GLS, 1st and 2nd order transformation were not successful in correcting for autocorrelation. The OLS results are reported, since they were better in terms of the signs and significance of estimated coefficients.

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TABLE V.18

Estimated "Loglinear Import Demand Functions" Bangladesh: Total Imports

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities ₵	-25.62 (1.70)	-1.93 (1.03)	2.63 (1.87)	0.84* (0.49)	6.10 (3.94)	0.59	2.65	11.26	1.38	-
Food & Live Animals ₵	-24.92 (1.89)	-1.40 (0.85)	2.52 (2.05)	0.36* (0.24)	5.07 (3.75)	0.54	2.51	9.24	1.21	-
Beverages & Tobacco ₵	-8.19 (1.12)	-0.70 (0.77)	0.86 (1.26)	1.47 (1.80)	2.37 (3.15)	0.66	2.21	14.70	0.67	-
Crude Materials ₵	-15.94 (1.56)	-1.27 (1.00)	1.65 (1.72)	1.04 (0.89)	4.03 (3.84)	0.61	2.51	11.99	0.94	-
Animals & Veg Oils/Fats ₵	-12.17 (1.04)	-1.03* (0.71)	1.32 (1.20)	-0.47* (0.36)	4.29 (3.57)	0.54	2.38	9.28	1.07	-
Chemicals & Rel. Prep. ₵	-27.36 (2.46)	-2.02 (1.46)	2.72 (2.62)	0.65* (0.51)	4.50 (3.94)	0.61	2.84	11.95	1.02	-
Mineral Fuels ₵	-32.15 (2.60)	-2.11 (1.37)	3.15 (2.72)	0.61* (0.43)	4.20 (3.31)	0.53	2.05	8.78	1.13	-
Manufactured Goods ₵	-20.67 (1.60)	-1.49* (0.93)	2.14 (1.77)	0.52* (0.35)	5.20 (3.91)	0.58	2.58	10.82	1.18	-
Machinery & Trans. Equip. ₵	-26.23 (2.06)	-2.29 (1.45)	2.64 (2.22)	0.61* (0.42)	5.05 (3.86)	0.61	2.73	11.98	1.17	-
Misc. Manu. Goods ₵	-15.34 (1.65)	-1.10* (0.96)	1.56 (1.81)	-0.33* (0.32)	3.58 (3.78)	0.58	2.52	10.74	0.85	-
Misc. Commod. ₵	-24.69 (3.29)	-1.56 (1.67)	2.37 (3.39)	2.76 (3.24)	2.35 (3.05)	0.73	2.19	19.78	0.69	-

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
(Figures shown in parenthesis are t-values.)
₵ Estimated using the Ordinary Least Squares technique.

TABLE V.19

Estimated "Loglinear Import Demand Functions" Bangladesh: Imports from Rest of the World

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities α	-27.57 (1.84)	-2.15 (1.16)	2.81 (2.01)	0.40 (0.23)	6.05 (3.94)	0.60	2.69	11.39	1.37	-
Food & Live Animals α	-29.43 (2.09)	-1.40* (0.80)	2.94 (2.24)	-0.33* (0.20)	5.26 (3.64)	0.52	2.39	8.71	1.27	-
Beverages & Tobacco	22.75 (2.95)	-1.95 (2.16)	2.01 (2.71)	-1.31 (1.66)	-0.51* (0.67)	0.71	1.91	17.92	0.71	0.76 -0.62
Crude Materials α	-10.49* (0.98)	-0.71* (0.53)	1.15 (1.15)	-1.09* (0.90)	3.95 (3.59)	0.56	2.27	9.92	0.98	-
Animals & Veg Oils/Fats α	-16.99 (1.46)	-1.61 (1.12)	1.76 (1.61)	-0.31* (0.23)	4.19 (3.51)	0.58	2.56	10.52	1.07	-
Chemicals & Rel. Prep. α	-29.39 (2.60)	-2.24 (1.59)	2.91 (2.75)	0.45* (0.35)	4.48 (3.86)	0.62	2.88	12.44	1.04	-
Mineral Fuels α	-32.28 (2.60)	-2.12 (1.38)	3.16 (2.73)	0.62* (0.44)	4.20 (3.30)	0.53	2.05	8.76	1.13	-
Manufactured Goods α	-23.87 (1.86)	-1.87 (1.17)	2.43 (2.02)	-0.02* (0.01)	5.12 (3.88)	0.60	2.63	11.52	1.18	-
Machinery & Trans. Equip. α	-25.38 (1.99)	-2.24 (1.41)	2.57 (2.15)	0.49* (0.34)	5.03 (3.85)	0.61	2.71	11.91	1.17	-
Misc. Manu. Goods α	-16.60 (1.84)	-1.24 (1.11)	1.69 (2.00)	-0.60* (0.58)	3.56 (3.84)	0.63	2.60	12.94	0.83	-
Misc. Commod.	25.00 (3.13)	-1.21 (1.38)	2.24 (2.90)	-0.95 (1.23)	-0.30* (0.40)	0.46	1.79	6.84	0.68	0.81

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.

** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.

(Figures shown in parentheses are t-values.)

α Estimated using the Ordinary Least Squares technique.

TABLE V.20

Estimated "Loglinear Import Demand Functions" Bangladesh: Imports from Pakistan

Commodity Group	Constant	Price	Income	Dummy	War** Dummy	$\bar{R}^2$	D-W	F-Stats	SE	RHO1 RHO2
All Commodities α	-5.43 (1.20)	-0.95 (1.12)	0.51 (1.23)	2.24 (4.49)	4.82 (9.43)	0.92	1.47	83.49	0.64	-
Food & Live Animals	-15.94 (3.61)	-0.58* (0.60)	1.49 (3.72)	3.33 (5.71)	2.68 (6.00)	0.91	1.84	81.11	0.78	-0.20 -0.53
Beverages & Tobacco α	-5.71 (1.20)	-0.29* (0.33)	0.53 (1.21)	4.02 (7.37)	0.54 (1.05)	0.89	1.48	61.48	0.67	-
Crude Materials	-0.06* (0.01)	-0.74* (0.52)	0.02* (0.02)	1.92 (2.18)	3.26 (3.92)	0.69	1.84	17.89	1.06	0.05
Animals & Veg Oils/Fats	3.88 (1.09)	-0.07* (0.12)	-0.36 (1.07)	3.19 (7.82)	0.01* (0.01)	0.87	1.94	51.97	0.43	0.57
Chemicals & Rel. Prep.	-2.69* (0.23)	-0.01* (0.02)	0.17* (0.60)	4.09 (8.30)	0.003* (0.01)	0.82	1.96	34.79	0.35	0.99
Mineral Fuels	-	-	-	-	-	-	-	-	-	-
Manufactured Goods α	-4.77* (0.75)	-1.60 (1.32)	0.45* (0.77)	2.48 (3.37)	3.42 (4.95)	0.82	1.49	35.08	0.90	-
Machinery & Trans. Equip. α	-19.40 (2.28)	-2.48 (1.54)	1.80 (2.31)	1.80 (1.84)	2.29 (2.84)	0.44	1.10 α^1	6.97	1.20	-
Misc. Manu. Goods α	-2.19* (0.66)	-0.96 (1.54)	0.21* (0.69)	1.78 (4.68)	0.82 (2.29)	0.84	1.80	41.18	0.47	-
Misc. Commod. α	-18.16 (4.02)	-2.65 (3.12)	1.69 (4.09)	3.82 (7.35)	1.25 (3.55)	0.90	1.42	70.79	0.64	-

* The estimated coefficients with '*' are insignificant and all others are significant at 10%.
** War Dummy = 0 for 1971/72 - 1973/74 and 1 otherwise, to account for war years.
   (Figures shown in parentheses are t-values.)
α Estimated using the Ordinary Least Squares technique.
α^1 GLS, 1st and 2nd order transformation were not successful in correcting for autocorrelation. The OLS results are reported, since they were better in terms of the signs and significance of estimated coefficients.

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To avoid the possibility that these results may be biased due to the specification errors because of missing some variables, time trend and lagged dependent variables were also included in the import demand specifications. Rather than improving the results, the inclusion of these variables created further problems.[78]

Table V.21 presents the income and price elasticities implied by the estimates presented in Tables V.15-V.20. While the signs of the elasticities are not altered because of the specification, both income and price elasticities estimated from loglinear specifications are generally larger in magnitude than those obtained from the linear model. This suggests a generally more elastic demand with respect to both income and prices than that implied by the average level of trade. Since Bangladesh's trade and particularly its imports have been generally increasing, it may imply growth in elasticities over the time period under consideration. This would somewhat vitiate our assumption of constant elasticities during the pre- and postdisintegration periods.

The estimates indicate that the actual magnitudes of the price elasticities are substantially higher than what one would expect to find on an a priori basis. In the case of loglinear specifications for example, the estimates for imports from the rest of the world and total imports are larger than unity, suggesting a highly elastic demand. For some of the commodity groups estimates are not at all in accordance with a priori expectations. However, the estimates of the price elasticities from the linear specifications are less than unity for a number of commodity groups as well as total imports from the three sources of supply. This may implies that the linear specification is able to generate better results in the absence of appropriate price data.

The estimates of the income elasticities of demand for total imports, imports from the rest of the world, and imports from Pakistan are also somewhat higher in the case of the loglinear specification than what one would expect. In almost all cases the estimated coefficients of the income elasticities of demand for imports are greater than unity, indicating a highly income elastic demand for imports.

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[78] See footnote No. 76 at page 117.

TABLE V.21

Price and Income Elasticities of Demand for Imports: Bangladesh

| | Imports From Rest of World | | | | Imports From Pakistan | | | | Total Imports | | | |
| | Linear | | Loglinear | | Linear | | Loglinear | | Linear | | Loglinear | |
	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income	Price	Income
All Commodities	-0.68	0.69	-2.15	2.81	-0.66	0.49	-0.95	0.51	-0.64	0.64	-1.93	2.63
Food & Live Animals	-0.46*	0.70	1.40	2.94	-0.65*	0.28*	-0.58*	1.49	-0.61*	0.62	-1.40*	2.52
Beverages & Tobacco	-0.33*	0.36*	-1.95	2.01	-0.72	0.22*	-0.29*	0.53	-0.40*	0.07*	-0.70*	0.86
Crude Materials	-0.27*	0.52	-0.71*	1.15	-0.85	0.22	-0.74*	0.02*	-0.31*	0.20*	-1.27	1.65
Animals & Veg. Oils/Fats	-0.60*	0.48	-1.61	1.76	-0.79	-0.14*	-0.07*	-0.36*	-0.29*	0.40*	-1.03*	1.32
Chemicals & Related Prep.	-1.01	0.75	-2.24	2.91	-1.23	0.09	-0.01*	0.17*	-0.70	1.21	-2.02	2.72
Mineral Fuels	-0.33*	0.98	-2.12	3.16	n/a	n/a	n/a	n/a	-0.34*	0.97	-2.11	3.15
Manu. Goods	-0.42*	1.37	-1.87	2.43	-0.66	0.29	-1.60	0.45*	-0.46*	0.55	-1.49*	2.14
Machinery & Trans. Equip.	-0.85	0.65	-2.24	2.57	-1.33	0.15	-2.48	1.80	-0.90	0.65	-2.29	2.64
Misc. Manu. Goods	-0.49	0.68	-1.24	1.69	-1.81	0.37*	-0.96	0.21*	-0.47*	0.64	-1.10*	1.56
Misc. Commodities	-	-	-1.21	2.24	-1.49	1.31	-2.65	1.69	-1.02*	1.07	-1.56	2.37

Source: Estimated using the results reported in Tables V.15-20.

 * Calculated from an insignificant coefficient

 n/a - not available

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It is difficult to reconcile the difference in estimates of two import demand function specifications. However, the linear specification provides estimates of income elasticities which are, in most cases, less than unity. These estimates are closer to a priori expectations. It should be noted that the data particularly on Bangladesh trade flows are not quite as reasonable as one would like to obtain. This may have affected, to some degree, our estimates of income and price elasticities.

Trade Reduction and Trade Switching

Using the price elasticities computed both from loglinear (LL) and linear (LN) specification, the trade reduction effect has been estimated using (2) above. Table V.22 presents these calculations. Since the estimates of price elasticities are lower in the linear case, this specification generates considerably lower estimates. If it can be assumed that the actual elasticities lie between the two estimates, then trade reduction amounts to between Rs.333.42 million (LN) and Rs.465.81 million (LL) in terms of 1969/70 rupees. This is nearly 22% and 31% of the predisintegration level of imports.

In the case of individual commodity groups, the estimates range from Rs.4.23 million (LN) and Rs.0.34 million (LL) for animal and vegetable oils and fats, to Rs.105.55 million (LN) and Rs.255.88 million (LL) for manufactured goods.

Estimates for individual commodity groups also indicate that a substantial trade reduction has been experienced in such commodity groups as crude materials {Rs.72.85 million (LN) and Rs.60.57 million (LL)}; miscellaneous commodities {Rs.57.43 million, (LN) and Rs.105.68 million (LL)}; food and live animals {Rs.6.18 million (LN) and Rs.71.73 million (LL)}; machinery and transportation equipment {Rs.17.70 million, (LN) and Rs.33.51 million (LL)}, and miscellaneous manufactured goods {Rs.8.31 million (LN) and Rs.48.59 million (LL)}. It should be noted that the trade reduction in the case of all commodities taken together has been much higher for Bangladesh than for (West) Pakistan.

TABLE V.22
Estimates of the Trade Reduction and Trade Switching Effects
of Disintegration on Bangladesh

Commodity Group	Linear Model			Loglinear Model		
	Trade-Reduction	Trade-Switching	Total-Trade	Trade Reduction	Trade Switching	Total Trade
All Commodities	333.42	3351.38	3017.96	465.81	732.01	266.20
Food & Live Animals	6.18*	467.30	461.12	71.73	131.07	59.34
Beverages & Tobacco	20.15	231.20	211.05	8.12*	1.73	-6.39
Crude Materials	72.85	353.04	280.19	60.57	140.47	79.90
Animal & Veg. Oils/Fats	4.23*	347.49	343.26	0.34*	40.27	39.93
Chemicals & Related Prep.	23.16	243.39	220.23	0.20	170.05	169.85
Mineral Fuels	n/a	142.07	142.07	n/a	109.29	109.29
Manufactured Goods	105.55	952.53	846.98	255.88	4.02	-251.86
Machinery & Trans. Equip.	17.70	879.55	861.85	33.51	210.84	177.33
Misc. Manu-factured Goods	8.31	96.46	88.15	48.59	22.73	-25.86
Misc. Commodities	57.43	120.95*	63.52	105.68	1.59	-104.09

Source: Estimated using the results reported in Tables V.15-20.

* Calculated using insignificant coefficients.

n/a - not available.

Table V.22 also presents estimates of the trade switching effect calculated with the help of q3 and g3 respectively using (8') above. If the coefficient of dummy variables was insignificant for a particular commodity group, we assume that, for this commodity group, trade switching is zero.

The computations reveal that total trade switching amounts to Rs.3351.38 million for linear specification and Rs.732.01 million for loglinear specification in terms of 1969/70 rupees. For individual commodity groups the estimates vary from Rs.96.46 million (miscellaneous manufactured goods) to Rs.952.53 million (manufactured goods) in the case of linear specification. However, in the case of the loglinear specification, estimates of trade switching vary from Rs.1.59 million (miscellaneous commodities) to Rs.210.84 million (machinery and transportation equipment). The important commodity groups in this regard are food and live animals {Rs.467.3 million, (LN) and Rs.131.07 million (LL)}; machinery and transportation equipment {Rs.879.55 million (LN) and Rs.217.84 million (LL)}; crude materials {Rs.353.04 million, (LN) and Rs.140.47 million, (LL)}; animal and vegetable oils and fats {Rs.347.49 million, (LN) and Rs.470.27 million (LL)}; chemical preparations and related materials {Rs.243.39 million (LN) and Rs.175.05 million (LL)}, and miscellaneous commodities {Rs.120.95 million, (LN) and Rs.1.59 million (LL)}.

Comparing estimates of trade reduction and trade switching, the calculations indicate that there are some cases in which trade reduction has been much larger than trade switching. In fact, for some individual commodity groups such as manufactured goods, miscellaneous manufactured goods, and beverages and tobacco, estimates of trade reduction are much larger than those for trade switching. This finding is at variance with our earlier estimates of ex-post effects of a disintegration on Bangladesh's trade flows. This may also be an indication of the possibility that actual trade switching was limited to less than what is implied by the calculations because of other factors. An obvious explanation is the delay caused by the time required to find new import markets.

The estimates of total change in trade flows are also reported in Table V.22. The total change in the trade flows amounts to Rs.3017.96 million (LN) and Rs.266.20 million (LL) in terms of 1969/70 rupees. It ranges from Rs.63.52 million (LN) for miscellaneous commodities to Rs.861.85 million (LN) machinery and transportation equipment in the case of the linear

specification. However, in the case of the loglinear specification, it varies from a reduction in total trade of Rs.104.09 million for miscellaneous goods to as high as Rs.177.33 million for machinery and transportation equipment. The important commodity groups, from the viewpoint of a change in total trade, are those that experienced higher trade reduction and trade switching effects.

In conclusion, it should be mentioned that Bangladesh's trade flows have experienced both the trade reduction and trade switching effects of the disintegration. It is also important to note that the disaggregated data indicate a substantial trade reduction in the case of four commodity groups: beverages and tobacco, manufactured goods, miscellaneous manufactured goods, and miscellaneous commodities. Comparing the estimates of trade reduction and trade switching quoted above with the actual changes in trade experienced during the 1952–82 period, it may be concluded that Bangladesh's trade flows have not been able to fully recover from the effects of disintegration.

The discussion above reveals that both (West) Pakistan and Bangladesh have experienced trade reduction, and there is strong evidence of trade switching. The rise in the rest of the world's exports to the two countries illustrates that the disintegration has been beneficial for the rest of the world, whereas it has been detrimental for inter-wing trade. In the following part, we conclude with a summary of the main conclusions and findings in the theoretical and empirical analysis above.

Summary, Conclusions and Limitations

Since World War II, a number of countries have disintegrated and separated into smaller units and there are yet some in danger of fragmentation. This study has identified disintegration as an important area for research. Extensive literature on economic integration exists, but there is none available on disintegration. This study has tried to fill this gap. For this purpose, the theory of economic integration has been used to examine the effects of Pakistan's disintegration on international trade flows.

To provide some background information on Pakistan's disintegration, a brief discussion on the political economy of Pakistan from creation to disintegration has been presented in Part I. It has been suggested that there were perhaps three economic reasons for the creation of Pakistan August 14, 1947: (1) poor economic development of the Muslim majority regions in the Indian subcontinent, which fostered political discontent which in turn led to the demand for a Muslim state; (2) distinct economic interests of Muslims and non-Muslims and the desire for the former to have control over their economic resources and some influence in decision-making; and (3) the collusion of the economic interests of the various Muslim subgroups in India.

The economic situation of Pakistan has also been analysed, since the economic conditions of the 1947-71 period have largely been blamed for its disintegration on December 16th, 1971. Specifically, the disintegration has been linked to the economic disparity between former East and West Pakistan. In this context, it has been concluded that there were many reasons for persistent regional economic inequality and growing disparity between the two regions of undivided Pakistan. These include: (1) a lack of private investment, which led to the poor industrial growth of East Pakistan, while West Pakistan enjoyed the benefits of private economic activity; (2) an inequitable allocation of foreign aid and government development expenditure between East and West Pakistan; (3) East Pakistan did not receive its fair share of foreign exchange resources, and thus was unable to import the necessary raw material and other equipment required for industrial development; (4) East Pakistan could not develop a basic infrastructure, while West Pakistan was growing due to the

enormous amount of public sector allocations; and (5) the discriminatory commercial, trade, and exchange rate policies which caused some transfer of resources from East to West.

Part II of this study provides an extensive survey of the theoretical literature on integration, highlighting the main weaknesses. While there have been many attempts at theorizing the existence of the various PTAs, unfortunately some important questions remain unanswered. For this reason, in Part III, a simple general equilibrium model has been used to provide some explanation for the creation and survival of a preferential trading arrangement. In this context, this study suggests that the potential for economic gain is necessary for the formation of a PTA notwithstanding the social, political and other non-economic reasons for creating a specific PTA. The realization of economic benefits is needed for the survival of a PTA.

The potential for economic gains depends on the relative magnitude of the terms of trade and the tariff revenue effect of a PTA. Moreover, the terms of trade effect has been linked to the pre-PTA tariff rates and the trading pattern of the member countries. In this connection, it has been shown that if the pre-PTA tariff rates are optimal, and if a country that trades extensively with nonmembers had very little trade with potential members prior to PTA, then the possibility exists for economic gains from a PTA.

The continuation of a PTA depends on market stability conditions. The stability conditions are linked to the elasticities of demand for imports and the marginal propensities to save export and consume import goods in the member countries. Finally, it has been shown that the effect of changes in terms of trade and the tariff revenue on income and the balance of trade depends on these propensities and the elasticity of demand for imports. These variables reveal the demand and supply conditions which ultimately govern trade flows.

This study suggests that the effects of disintegration can be analyzed using the theory of integration. The advantage of this assumption is that the effects of a disintegration are symmetrical to those of an integration. To use the theory of integration for examining a disintegration, a brief critical survey of existing methods of analysing the effects of an integration on international trade flows is presented in Part IV.

There are many techniques for quantifying the effects of a preferential trading arrangement. None of these, however, can be considered separately as an entirely satisfactory method. The reasons lie in the assumptions made to measure the impact of integration on international trade flows. The estimates of trade creation and trade diversion are influenced by a number of factors; for example, the selection of the benchmark year, the length of pre– and postpreferential trading arrangement periods, and the technique used to isolate the effects of a preferential trading arrangement from other variables, which directly or indirectly govern international trade flows.

Improving upon some of the existing methods, a simple partial equilibrium model has been developed to analyze the effects of a preferential trading arrangement on international trade flows. It has been shown that trade creation can be measured by the movement along the demand curve, and trade diversion can be captured using the shifts in demand curves. Working backward on this model, a simple partial equilibrium framework has been used to identify the effects of a disintegration on international trade flows.

The effects of disintegration have been analyzed in terms of the changes in trade flows, while the changes in trade flows are classified as trade reduction and trade switching. Trade reduction has been defined as the decline in trade brought about by the substitution of domestic production for imports from former partners. The trade switching effect has been defined as the substitution of some imports from the nonpartner for those of the former partner countries. To identify these two effects a simple partial equilibrium model has been proposed. In this context, the two main conclusions are: (1) the ordinary demand curve will shift to the right as a result of the disintegration; and (2) trade reduction can be quantified by the movement along the demand curve, while trade switching can be captured using the shifts in demand curves.

In empirical Part V, two different methods have been used to analyze the effect of Pakistan's disintegration on international trade flows. First, a model similar to that of Balassa (1967) has been used to identify the trade reduction and trade switching effects of a disintegration. Second, a partial equilibrium model has been developed to measure these effects.

It has been suggested that Pakistan's disintegration perhaps has not affected the income elasticities of demand for imports from Bangladesh and the rest of the world. Following Balassa, it has been shown that: (i) a decline in the ex-post income elasticity of demand for inter-wing imports indicates a trade reduction; (ii) an increase in the ex-post income elasticity of demand for total (inter- and extra-area) imports depicts gross trade switching; and (iii) proper trade switching has been indicated by an increase in the ex-post income elasticity of demand for imports from the rest of the world. Similar results hold for the changes in the trade flows of Bangladesh.

The ex-post income elasticity of import demand has been defined as the ratio of the average annual rate of change in imports to that of the gross domestic product. The average annual growth rate of imports from the various sources of supply and the gross domestic product were estimated for (West) Pakistan and Bangladesh. The results indicate:

(1) (West) Pakistan has experienced substantial trade switching and very limited trade reduction.

(2) Bangladesh has recorded a substantial decline in trade and there is ample evidence of trade switching.

Three factors which directly influence exports of the rest of the world and inter-wing exports are also examined. These include: (i) price effect, (defined as the difference between imports in current and constant prices); (ii) competitive effect, (defined as the difference between the actual and hypothetical imports in constant prices); and (iii) disintegration effect, (defined as the difference between the two sets of hypothetical imports into a country under investigation). The hypothetical imports are calculated by applying the actual growth rates of imports in the pre- and postdisintegration periods respectively to the 1969/70 imports of each commodity group, and all commodities taken together. The results point to the existence of all three factors influencing the rest of the world's and inter-wing exports to (West) Pakistan and Bangladesh. It was revealed that there has been trade reduction, along with trade switching, as a result of Pakistan's disintegration.

To quantify the trade switching and trade reduction effects, a simple partial equilibrium model has been developed. Utilizing the movements along and shifts in a demand curve, a simple

computable measure of trade reduction and trade switching effects has been derived. A binary variable technique has been used to capture the shift in the demand curve. The extent of the shift has been captured by a dummy variable in the estimation procedure, which uses a time series data to compute the import demand function.

Next, the import demand functions have been specified and are estimated using the generalized least squares procedure. The linear as well as loglinear import demand functions have been estimated to provide two comparable sets of trade switching and trade reduction effects.

A regression analysis has been used to estimate the price and income elasticities of demand for imports and the coefficients of dummy variables for the linear and loglinear specifications of import demand functions. For this purpose, three distinct flows; total (inter- and extra-area) imports, imports from the rest of the world (extra-area), and inter-wing imports are used for (West) Pakistan and Bangladesh.

The trade reduction and trade switching effects of disintegration on (West) Pakistan and Bangladesh have been estimated using price elasticities and the coefficient of dummy variables. The results from this set of empirical analysis lead to the following conclusions:

(1) (West) Pakistan's trade reduction ranges from Rs.84.11 million (LN) to Rs.98.95 million (LL) in terms of 1969/70 rupees, which is nearly 2.5% and 2.8% of the predisintegration level of imports. Individual commodity groups also have registered a trade reduction. In percentage terms, trade reduction ranges from 3.3% (LN) of the changes in imports to 14.3% (LL) of the changes in imports for individual commodity groups.

(2) The estimates of trade switching for (West) Pakistan indicate a total trade switching of Rs.5851.49 million for the linear specification of import demand function and Rs.6007.22 million for loglinear specification in terms of 1969/70 rupees. The individual commodity groups also indicate trade switching.

(3) Trade switching constitutes a larger percentage of total changes in trade flows. In fact, for individual commodity groups such as food and live animals, manufactured goods, machinery

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and transportation equipment, and miscellaneous commodities, the estimates of trade switching are much larger than for trade reduction.

(4) Comparing the estimates of trade reduction and trade switching effects and the actual changes in trade experienced during 1952–82, it can be concluded that (West) Pakistan's trade with the rest of the world and Bangladesh has been seriously affected by disintegration.

(5) Trade reduction for Bangladesh ranges from Rs.333.42 million to Rs.465.81 million in terms of 1969/70 rupees, which is nearly 21% and 31% of the predisintegration level of imports.

(6) The estimates for individual commodity groups also indicate a substantial reduction in Bangladesh's trade. The commodity groups; crude materials, miscellaneous commodities, food and live animals, machinery and transportation equipment, and miscellaneous manufactured goods recorded the highest trade reduction. The estimates of trade reduction for Bangladesh's imports of all commodities, taken together, are much higher than those obtained for (West) Pakistan.

(7) Bangladesh has also experienced substantial trade switching which ranges from Rs.3351.38 million (for linear specification of import demand function), to Rs.732.01 million (for loglinear specification) in terms of 1969/70 rupees. The individual commodity groups also indicate trade switching of varying degrees.

(8) Comparing the estimates of changes in trade flows experienced by Bangladesh, we find that for some individual commodity groups, such as manufactured goods, miscellaneous manufactured goods, and beverages and tobacco, the estimates of trade reduction are much larger than trade switching.

(9) Bangladesh's trade flows have indicated both trade reduction and trade switching effects of the disintegration. However, trade switching in the case of Bangladesh has been much smaller than that in the case of (West) Pakistan. Furthermore, trade reduction for Bangladesh has been much larger than that experienced by (West) Pakistan.

Notwithstanding the limitations mentioned in the following section, this study has achieved a reasonable level of success. As far as the author is aware, this is the first attempt to analyze the

effects of Pakistan's disintegration in any reasonable detail. In addition, this study furnishes as a by-product evidence on the parameters of (West) Pakistan's trade with the rest of the world and trade between Pakistan and Bangladesh.

Specifically, estimates of the price and income elasticities demand for imports in (West) Pakistan and Bangladesh are presented for a large number of commodity groups from the various sources of supply. In this context, calculations indicate that for the majority of commodity groups, both price and income elasticities are substantially higher than what is generally accepted in the context of developing countries such as those considered here.

This study also generates, for the first time, conclusive evidence of the trade reduction and trade switching effects of Pakistan's disintegration. In this connection, estimates imply a trade reduction effect of approximately 3% and a trade switching effect of nearly 30% of the predisintegration level of (West) Pakistan's imports. For (West) Pakistan, the important commodity groups which experienced substantial trade reduction and trade switching are: manufactured goods; machinery and transportation equipment; chemical preparations and related materials; animal and vegetable oils and fats; food and live animals, and miscellaneous manufactured commodities. Similar results have been obtained for Bangladesh.

The estimates of the trade reduction and trade switching effects experienced by each country were compared with the actual changes in trade during 1952-82. It may be concluded that (West) Pakistan and Bangladesh have not been able to reach the trade flows which would have been reached in the absence of disintegration. However, steadily improving trade relations between (West) Pakistan and Bangladesh have prevented the full decline in trade which might have been expected as a result of the disintegration.

The study has also provided important results for both theoretical and empirical analyses. For the theoretical analysis, this study has provided a different approach to the explanation of PTAs. The new concepts of trade reduction and trade switching consequent upon a disintegration have also been developed. A simple framework for estimating these effects has been proposed, and important empirical conclusions have been drawn.

Finally, this study is by no means exhaustive, it can only be regarded as a first step in the right direction towards analyzing the effects of a disintegration. In this respect, it has provided substantial groundwork for further research in the area of integration, as well as in that of disintegration.

Limitations

As is invariably the case with empirical studies, the present study is not entirely free from shortcomings which limit its scope and contributions.

It is evident that the data used are not the most suitable for the purpose. While the data on the volume of imports may be taken to be reasonably satisfactory in the case of (West) Pakistan's trade flows (even though these sometimes had to be disaggregated over a number of diverse commodity groups), the data on the other variables are generally no more than reasonable proxies. No price data for Bangladesh are directly available for individual commodity groups. This study, therefore, had to make do with aggregate indices.

The data for (West) Pakistan and Bangladesh's total imports and exports to and from the rest of the world, as well as data for inter-wing trade, were available for both the pre- and postdisintegration periods. However, the disaggregated data for (West) Pakistan and Bangladesh for the predisintegration period had to be separated from that of the total imports and exports of undivided Pakistan. This may have created some error in computations. In view of this, the aggregate results relating to the total imports of the two countries, i.e. (West) Pakistan and Bangladesh, are relatively reliable.

Apart from the problems of data, the study may also suffer from specification bias. If the assumptions of constant supply elasticity are not correct, the import demand function cannot be appropriately identified, introducing bias in the coefficients. Moreover, there are the usual problems of multicolinearity and serial correlation. The former, in particular, kept us from further improving the specification.

Trade, and particularly imports in the developing countries such as Bangladesh and (West) Pakistan are subject to a number of quantitative restrictions and administrative regulations which are frequently altered. This could not be taken into account and may have resulted in some bias, both in the computations as well as the identification of trade reduction and trade switching effects for each of the regions investigated.

After the disintegration, Pakistan adopted a liberal trade policy. The currency was also devalued twice during the early 1970s. The impact of these measures on the trade flow have not been isolated from that of the disintegration. Moreover, the benefits from the dynamic effects of integration – creation of Pakistan in 1947 – are irreversible in the event of a disintegraion. The technique proposed in this study is unable to incorporate these factors in studying the effects of a disintegration.

It is generally known that (West) Pakistan's and Bangladesh's trade flows are subjected to a variety of nontariff barriers (quotas, and other restrictions). Lacking precise information on these restrictions, we have not been able to account for the distortions in the import demand functions estimations. While their presence may partly explain why actual changes in the trade flows have been larger than those implied by the disintegration, their exclusion may also have introduced some specification error, biasing the results. This may be particularly important because the commodity groups experiencing large changes are also those that are subjected to most of these restrictions. The results of this study, therefore, must be viewed as preliminary, and their robustness remains to be checked.

TARIFF RATES

The income maximizing tariff rates are derived as follows:

Step-I   Consider equation I of the model presented in Part III.

$$P_j^i D_j^i + P_{j-1}^i D_{j-1}^i = P_j^i X_j^i + P_{j-1}^i X_{j-1}^i \qquad \text{I}$$

For country A, this equation can be written as:

$$P_1^A D_1^A + P_2^A D_2^A = P_1^A X_1^A + P_2^A X_2^A \qquad (1)$$

Define the relative price of importables in terms of exportables:

Country A exports good 1, so

$$P^A = P_2^A / P_1^A$$

Dividing equation 1 by P_1^A, we obtain,

$$D_1^A + P^A D_2^A = X_1^A + P^A X_2^A \qquad (2)$$

Adding tariff renevue to (2), we get

$$D_1^A + P^A D_2^A + X_1^A + P^A X_2^A + t^A P^A M^A \qquad (3)$$

Notice that   country A trade/with   B, so $P^B = P_2^B / P_1^B$ is the
                              only   country
same as the world price P^* faced by the consumers in country A.

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Totally differentiate equation (3) to obtain the change in real income.

$$dD_1^A + P^A dD_2^A + D_2^A dP^A = dX_1^A + P^A dX_2^A + X_2^A dP^A + dt^A P^A M^A$$

Shift $D_2^A dP^A$ to Right hand side and substitute $dX_1^A + P^A dX_2^A = 0$. Given that the espression $dX_1^A + P^A dX_2^A = 0$ along the production possibility frontier, the above expression becomes:

$$dD_1^A + P^A dD_2^A = -(D_2^A - X_2^A)dP^A + dt^A P^A M^A \qquad (4)$$

Define $dY^A = dD_1^A + P^A dD_2^A$ as changes in real income for country A, and $M_2^A = D_2^A - X_2^A$ is imports of good 2. Substituting dY^A and M_2^A in (4) above,

$$dY^A = -M^A dP^A + dt^A P^B M^A \qquad (5)$$

<u>Step-II</u>   Consider equation VI of the model in Part III,

$$P_j^i = (1 + t^i)P_j^* \qquad (VI)$$

In terms of the relative price for country A, this can be written as

$$P^A = (1 + t^A) P^B \qquad (6)$$

To obtain the changes in real income evaluated at the world

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prices, substitute (6) into (3) and solving it, we obtain

$$D_1 + (1 + t^A)P^B D_2^A = X_1^A + (1 + t^A)P^B X_2^A + t^A P^B M^A$$

$$D_1^A + P^B D_2^A + t^A P^B D_2^A = X_1^A + P^B X_2^A + t^A P^B X_2^A + t^A P^B M^A$$

Substitute $M^A = D^A = D^A - X^A$ in the above expression

$$D_1^A + P^B D_2^A + t^A P^B D_2^A = X_1^A + P^B X_2^A + t^A P^B X_2^A + t^B P^B D_2^A - t^A P^B X_2^A$$

Collecting the terms in the above expression, yields:

$$D_1^A + P^B D_2^A = X_1^A + P^B X_2^A \qquad (7)$$

To obtain the changes in real income, totally differentiate (7) above.

$$dD_1^A + P^B dD_2^A + D_2^A dP^B = dX_1^A + P^B dX_2^A + X_2^A dP^B$$

Add and subtract $P^A dD_2^A$ from L·H·S· and $P^A dX_2^A$ from R·H·S

$$dD_1^A + P^B dD_2^A + D_2^A dP^B + P^A dD_2^A - P^A dD_1^A = dX_1^A + P^B dX_2^A + X_2^A dP^B$$

$$+ P^A dX_2^A - P^A dX_2^A$$

Taking $P^B dD_2^A + D_2^A + D_2^A dP^B - P^A dD_2^A$ to R·H·S, gives:

$$dD_1^A + P^A dD_2^A = dX_1^A + P^B dX_2^A + X_2^A dP^B + P^A dX_2^A - P^A dX_2^A - P^B dD_2^A$$

$$-D_2^A dP^B + P^A dD_2^A$$

Rearranging terms,

$$dD_1^A + P^A dD_2^A = dX_1^A + P^A dX_2^A + P^B dX_2^A - P^B dD_2^A + X_2^A dP^B - D_2^A dP^B$$

$$+ P^A dD_2^A - P^A dX_2^A$$

Again from the production possibility frontier,

$$dX_1^A + P^A dX_2^A = 0 \text{ and taking } P^B, \ dP^B \text{ and } P^A \text{ common we get}$$

$$dD_1^A + P^A dD_2^A = (X_2^A - D_2^A)dP^B + P^B(dX_2^A - dD_2^A) + P^A(dD^A - dX_2^a) \text{ and}$$

this can be simplified to:

$$dD_1^A + P^A dD_2^A = (X_2^A - D_2^A)dP^B + P^A(dD_2^A - dX_2^A) - P^B(dD_2^A - dX_2^A)$$

and

$$dD_1^A + P^A dD_2^A = (X_2^A - D_2^A)dP^B + (P^A - P^B)(dD_2^A - dX_2^A)$$

Given that $\quad dD_1^A + P^A dD_2^A = dY^A \quad$ and $\quad M^A = X^A - D^A$

we can solve for dM^A & dY^A as:

$$dM^A = dX^A - dD^A \quad = \quad dM^A = -dD^A + dX^A = -[dD^A - dX^A]$$

$$dY^A = +M^A dP^B + (P^A - P^B) - [dD^A - dX^A]$$

$$dY^A = -M^A dP^B + (P^A - P^B)dM$$

where $P^A - P^B = t^A P^B$ or $t^A P^*$ and $P^* = P^B$ then dY^A

becomes $-M^A dP^D + t^A P^D dM^A$ (8)

To derive t^A assume that the change in real income is equal to zero; i.e., $dY^A = 0$, thus (8) above can be solved to obtain t^A as follows:

$$-M^A dP^* + t^A P^* dM^A = 0$$

or

$$-M^A dP^B + t^A P^B dM^A = 0$$

or

$$t^A P^B dM^A = M^A dP^B$$

$$\frac{t^A dM^A}{M^A} = \frac{dP^B}{P^B}$$

or

$$t^A \hat{M}^A = \hat{P}^B$$

or

$$t^A = \hat{P}^B / \hat{M}^A$$

This can be written as:

$$t^A = 1 / \hat{M}^A / \hat{P}^B \tag{9}$$

Step-III   Consider equation V of the model in Part III.

$$P \, M^i_{j-1,K} = M^K_{ji} \tag{V}$$

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For country A, this can be written as

$$P^B M^A = M^B$$

Taking a relative change, the above expression becomes:

$$P^B dM^A + M^A dP^B = dM^B \qquad\qquad (V')$$

Divide (V') above by $P^B M^A$ to obtain:

$$\frac{P^B dM^A}{P^B M^A} + \frac{M^A dP^B}{P^B M^A} = \frac{dM^B}{P^B M^A} \qquad \text{and } P^B M^A = M^B$$

$$\hat{M}^A + \hat{P}^B = \hat{M}^B \qquad\qquad (V\ A)$$

To find $\hat{M}^A / \hat{P}^B$, divide (V A) above by $\hat{P}^B$

$$\frac{\hat{M}^A}{\hat{P}^B} + 1 = \frac{\hat{M}^B}{\hat{P}^B}$$

$$\frac{\hat{M}^B}{\hat{P}^B} = \frac{\hat{M}^B}{\hat{P}^B} - 1$$

Notice that the term $\quad \dfrac{\hat{M}^B}{\hat{P}^B} = \dfrac{dM^B}{M^B} \dfrac{P^B}{dP^B} = \Sigma^b$, i.e., elasticity

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of demand for imports in country B, and this can be written as:

$$\frac{\hat{M}^A}{\hat{P}^B} = \Sigma^{b-1} \qquad \text{(V B)}$$

Substitute (V B) above into (9), and solve for t^A as:

$$t^A = \frac{1}{\Sigma^{b-1}} \qquad \text{(10)}$$

This is the income maximizing tariff rate for country A. Similarily, we can derive income maximizing tariff rate for country C as,

$$t^C = \frac{1}{\Sigma^{b-1}} \qquad \text{(11)}$$

Notice that country C trades with only country B and imports good 2 from B in exchange for good 1.

To derive t^B, we modify equation V of our model, since B trades with both A and C. Assume that $P^B = (1 + t^B)P^A$ and $(1 + t^B)P^C = (1 + t^B)P^*$, i.e., $P^A = P^B = P^*$ for country C.

The expression of change in real income for country B can be written as

$$dY^B = -M^B dP^* + t^B P^* dM^B \qquad \text{(12)}$$

Notice that equation (12) above is similar to (8). Again assuming

that initial changes in real income are zero, equate (12) to
zero,

$$-M^B dP + t^B P \, dM^B = 0$$

or

$$t^B = 1/\hat{M}^B/\hat{P}^A \qquad\qquad (13)$$

Equation (13) is parallel to (9) above.

Repeating step III above for country B, the balance of trade
constraint for B can be written as:

$$P^* M^B = M^A + M^C \qquad\qquad (VI)$$

Taking a relative change for (VI) above, we get:

$$M^B dP^* + M^B dP^* = dM^A + dM^C \qquad\qquad (VI')$$

Divide (VI') above by $P^* M^B$

$$\frac{M^B dP^*}{P^* M^B} + \frac{M^B dM^*}{P^* M^B} = \frac{dM^A}{P^* M^B} + \frac{dM^C}{P^* M^B}$$

$$\hat{P}^* + \hat{M}^B = \frac{dM^A}{P^* M^B} + \frac{dM^C}{P^* M^B}$$

From $P^* M^B = M^A + M^C,$

$$\hat{P}^* + \hat{M}^B = \frac{dM^A}{M^A + M^C} + \frac{dM^C}{M^A + M^C} \qquad (VI'')$$

Divide and multiply (VI'') above by M^A/M^A and M^C/M^C

$$\frac{M^A}{M^A} \frac{M^C}{M^C} \hat{P}^* + \frac{M^A}{M^A} \frac{M^C}{M^C} \hat{M}^B = \frac{M^A}{M^A(M^A+M^C)} \frac{M^C}{M^C} dM^A + \frac{M^C}{M^C(M^A+M^C)} \frac{M^A}{M^A} dM^C$$

$$\hat{P}^* + \hat{M}^B = \frac{M^A}{M^A+M^C} \hat{M}^A + \frac{M^C}{M^A+M^C} \hat{M}^C \qquad (VI''')$$

Define $\theta = \dfrac{M^A}{M^A+M^C} \qquad = \qquad \dfrac{M^A + M^C}{M^A + M^C} = 1 \qquad (VII)$

or

$$\frac{M^A}{M^A+M^C} + \frac{M^C}{M^A+M^C} = 1 \qquad (VII')$$

or

$$\theta + \frac{M^C}{M^A+M^C} = 1 \qquad (V)$$

$$\frac{M^C}{M^A+M^C} = 1 - \theta \qquad (VII''')$$

Substituting (VII) – (VII''') into (VI''') above, we obtain

$$\hat{P}^* + \hat{M}^B = \theta\hat{M}^A = (1 - \theta)\hat{M}^C \qquad (VIII)$$

To find $\dfrac{\hat{M}^B}{\hat{P}^*}$ divide (VIII) above by $\hat{P}^*$ and solving for t^B:

$$1 + \frac{\hat{M}^B}{\hat{P}^*} = \theta\frac{\hat{M}^A}{\hat{P}^*} + (1 - \theta)\frac{\hat{M}^C}{\hat{P}^*}$$

$$\frac{\hat{M}^B}{\hat{P}^*} = \theta\frac{\hat{M}^A}{\hat{P}^*} + (1-\theta)\frac{\hat{M}^C}{\hat{P}^*} - 1$$

Define

$$\frac{\hat{M}^A}{\hat{P}^*} = \Sigma^a \qquad \text{and} \qquad \frac{\hat{M}^C}{\hat{P}^*} = \Sigma^C$$

$$\frac{\hat{M}^B}{\hat{P}^*} = \theta\Sigma^a + (1 - \theta)\Sigma^C - 1$$

$$t^B = \frac{1}{\theta\Sigma^a + (1 - \theta)\Sigma^C - 1} \qquad (14)$$

Summary of results,

$$t^A = \frac{1}{\Sigma^b - 1} > 0$$

$$t^B = \frac{1}{\theta\Sigma^a + (1 - \theta)\Sigma^C - 1} > 0$$

$$t^C = \frac{1}{\Sigma^b - 1} > 0$$

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For $t^i > 0$, we need elasticity of demand for imports to be greater than one. Moreover, for country B which trades with both countries A and C, elesticities would be weighted by the relative shares of A and C in total imports of B.

PRICES

Domestic and international prices can be derived as follows:

<u>Step-1</u>

For country A, equation II - VI and VIII of the model in Part III can be written as:

$$D_2^A = D^A{}_2(P^A, Y^A) \qquad\qquad II$$

$$M^A = M^A(P^*, t^A) \qquad\qquad III$$

$$X_2^A = X_2^A(P^A) \qquad\qquad IV$$

$$P^B M^A = M^B \qquad (P^B = P^*) \qquad V$$

$$P^A = (1 + t^A)P^* \qquad\qquad VI$$

$$M^B = M^B(P^*) \qquad\qquad VIII$$

Derive the domestic and foreign import demand functions in terms of relative change. For this purpose totally differentiate III, IV and VIII.

(i) Totally differentiate (III) above and solve for dM^A.

$$M^A = M^A(P^*, t^A)$$

$$dM^A = \frac{\sigma M^A}{\sigma P^*} dP^* + \frac{\sigma M^A}{\sigma t^A} dt^A \qquad\qquad (III'A)$$

Multiply (IIIA) above by $\dfrac{M^A}{P^*}\ \dfrac{P^*}{M^A}$

$$dM^A = \frac{\sigma M^A}{\sigma P^*}\ \frac{P^*}{M^A}\ \frac{M^A}{P^*}\ dP^* + \frac{\sigma M^A}{\sigma t^A}\ dt^A$$

Define $\dfrac{\sigma M^A}{\sigma P^*}\ \dfrac{P^*}{M^A} = -\Sigma^a$ and substitute into (IIIB) above.

$$dM^A = -\Sigma^a M^A\ \frac{dP^*}{P^*} + \frac{\sigma M^A}{\sigma t^A}\ dt^A \qquad\qquad (IIIC)$$

Divide (IIIC) above by M^A and solve for $\hat{M}^A$.

$$\frac{dM^A}{M^A} = -\Sigma^a\ \hat{P}^* + \frac{1}{M^A}\ \frac{\sigma M^A}{\sigma t^*}\ dt^A$$

$$\hat{M}^A = -\Sigma^a \hat{P}^* + \beta dt^A \qquad\qquad (15)$$

$$\text{where } \beta = \frac{1}{M^A}\ \frac{\sigma M^A}{\sigma t^A}$$

(ii) Totally differentiate (IV) and solve for $\hat{P}^A$.

$$P^A = (1 + t^A)P^*$$

$$dP^A = (1 + t^A)dP^* + P^* d(1 + t^A)$$

$$\frac{dP^A}{P^A} = (1 + t^A)\ \frac{dP^*}{P^A} + P^*\ \frac{d(1+t^A)}{P^A}$$

$$\hat{P}^A = (1 + t^A)\ \frac{dP^*}{(1+t^A)P^*} = P^*\ \frac{P^* d(1+t^A)}{(1+t^A)P^*}$$

$$\hat{P}^A = \hat{P}^* + \frac{1}{1 + t^A} dt^A \qquad (16)$$

(iii) Totally differentiate (VIII). We obtain:

$$M^B = M^B(P^*)$$

$$dM^B = \frac{\alpha M^B}{\alpha P^*} dP^* \qquad (VIIIA)$$

Define

$$\frac{\alpha M^B}{\alpha P^*} \frac{P^*}{M^B} = \Sigma^b \quad \text{and multiply (VIIIA) above by } \frac{P^*}{M^B} \cdot \frac{M^B}{P^*}$$

$$dM^B = \frac{\sigma M^B}{\sigma P^*} \frac{P^*}{M^B} \frac{M^B}{P^*} dP^*$$

$$dM^B = M^B \Sigma^b \hat{P}^*$$

$$\hat{M}^B = \Sigma^b \hat{P}^* \qquad (17)$$

Step-2

For country A, balance of trade constraint equation V above can be written as:

$$P^B M^A = M^B$$

$$P^* M^A = M^B \qquad\qquad P^* = P^B$$

Totally differentiate above expression and solve for $\hat{M}^B$

$$M^A dP^* + P^* dM^A = dM^B$$

$$M^A \frac{M^A}{M^A} \frac{dP^*}{P^*} P^* + \frac{P^*}{P^*} M^A \frac{dM^A}{M^A} = \frac{1}{M^A P^*} dM^B$$

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$$\hat{P}^* + \hat{M}^A = \hat{M}^B \qquad (18)$$

Substitute (15) and (17) into (18) and solve for $\hat{P}^*$

$$\hat{P}^* + \{ -\Sigma^a\,\hat{P}^* + \beta dt^A \} = \Sigma^b \hat{P}^*$$

$$\hat{P}^* - \Sigma^a \hat{P}^* + \beta dt^A = \Sigma^b \hat{P}^*$$

$$\hat{P}^*(1-\Sigma^a) + \beta dt^A = \Sigma^b \hat{P}^*$$

$$\hat{P}^*(1 - \Sigma^a) - \Sigma^b \hat{P}^* = -\beta dt^A$$

$$-\hat{P}^*(1 - \Sigma^a) + \Sigma^b \hat{P}^* = \beta dt^A$$

$$(\Sigma^b + \Sigma^a - 1)\hat{P}^* = \beta dt^\Delta$$

Define $\quad \Sigma^a + \Sigma^b - 1 = \Delta_a$

$$\Delta_a \hat{P}^* = \beta dt^\Delta$$

$$\hat{P}^* = \frac{\beta}{\Delta_a}\, dt^A \qquad (19)$$

Substitute (19) into (16)

$$\hat{P}^* = \frac{\beta}{\Delta_a}\, dt^A = \frac{1}{1+t^*}\, dt^\Delta$$

$$\hat{P}^* = [(1 + t^A)\beta + \Delta_a]\, \frac{1}{\Delta_a(1+t^A)}\, dt^\Delta \qquad (20)$$

<u>Step-3</u>

To find 'β', define $M^A = D^A - X^A$, and totally differentiate to find $\hat{M}^A$

$$M^A = D^A(P^A, Y^A) - X^A(P^A)$$

$$dM^A = \frac{\sigma D^A}{\sigma P^A}\, dP^A + \frac{\sigma D^A}{\sigma Y^A}\, dY^A - \frac{\sigma X^A}{\sigma P^A}\, dP^A$$

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$$dM^A = \frac{\sigma D^A}{\sigma P^A} \frac{P^A}{M^A} \frac{M^A}{P^A} dP^A + P^A \frac{\sigma D^A}{\sigma Y^A} \frac{dY^A}{P^A} - \frac{\sigma X^A}{\sigma P^A} \frac{P^A}{M^A} + \frac{M^A}{P^A} dP^A$$

where $\quad \dfrac{\sigma D^A}{\sigma P^A} \dfrac{P^A}{M^A} = -\bar{n}^a$, $\quad P^A \dfrac{\sigma D^A}{\sigma Y^A} = r^a \quad$ and $\quad \dfrac{\sigma X^A}{\sigma P^A} \dfrac{P^A}{M^A} = e^a \quad$ and thus

dM^A can be written as:

$$dM^A = -\bar{n}^a M^A \hat{P}^A + r^a \frac{dY^A}{P^A} - e^a M^A \hat{P}^A$$

OR

$$dM^A = -M^A(\bar{n}^a + e^a)\hat{P}^A + \frac{r^a}{P^A} dY^A$$

From equation (8)

$$dY^A = -M^A dP^* + t^A P^* dM^A$$

Thus dM^A becomes

$$dM^A = -M^A(\bar{n}^a + e^a)\hat{P}^A + \frac{r^a}{P^A}[-M^A dP^D + t^A P^D dM^A]$$

OR

$$dM^A = -M^A(\bar{n}^a + e^a)\hat{P}^A - \frac{r^a}{P^A} M^A dP^* + \frac{r^a}{P^A} t^A P^* dM^A$$

Substitute $P^A = (1 + t^A)P^*$ into above expression for dM^A and

solve for $\hat{M}^A$.

$$dM^A = -M^A(n^a + e^a)\hat{P}^A - \frac{r^a}{(1+t^A)P^*} M^A dP^* + \frac{r^a}{(1+t^A)P^*} t^A P^* dM^A$$

$$dM^A = -M^A(\bar{n}^a + e^a)\hat{P}^A - \frac{r^a M^A}{1+t^A} \hat{P}^* + \frac{r^a t^A}{1+t^A} dM^A$$

$$dM^A - \frac{r^a t^A}{1+t^A} dM^A = -M^A(\bar{n}^a + e^a)\hat{P}^A - \frac{r^a M^A}{1+t^A}\hat{P}^*$$

$$dM^A\left(1 - \frac{r^a t^A}{1+t^A}\right) = -M^A(\bar{n}^a + e^a)\hat{P}^A - \frac{r^A}{1+t^A} M^A \hat{P}^*$$

$$\hat{M}^A\left(1 - \frac{r^a t^A}{1+t^A}\right) = -(\bar{n}^a + e^a)\hat{P}^A - \frac{r^a}{1+t^A}\hat{P}^*$$

From equation (16) $\hat{P}^A = \hat{P}^* \dfrac{1}{1+t^A} dt^A$. Substitute this into above expression and solve for $\hat{M}^A$.

$$\hat{M}^A\left(1 - \frac{r^a t^A}{1+t^A}\right) = -(\bar{n}^a + e^a)\left[\hat{P}^* + \frac{1}{1+t^A} dt^A\right] - \frac{r^a}{1+t^A}\hat{P}^*$$

$$\hat{M}^A\left[\frac{1+t^A - r^a t^A}{1+t^A}\right] = -(\bar{n}^a + e^a)\hat{P}^* - \frac{r^a}{1+t^A}\hat{P}^* - (\bar{n}^a + e^a)\frac{1}{1+t^A} dt^A$$

$$\hat{M}^A\left[\frac{1+t^A(1-r^a)}{1+t^A}\right] = -(\bar{n}^a + e^a + \frac{r^a}{1+t^A})\hat{P}^* - (\bar{n}^a + e^a)\frac{1}{1+t^A} dt^A$$

$$\hat{M}^A = -\left\{\left[\frac{1+t^A}{1+t^A(1-r^a)}\right]\left[\left(\bar{n}^a + e^a + \frac{r^a}{1+t^A}\right)\hat{P}^* + (\bar{n}^a + e^a)\frac{1}{1+t^A} dt^A\right]\right\}$$

Define

$$w^a = \frac{1}{1+t^a(1-r^a)} \qquad \text{and} \quad \delta^a = (1+t^A)w^a \text{ \& substitute into}$$

above.

$$\hat{M}^A = -\left\{\delta^a\left(\bar{n}^a + e^a + \frac{r^a}{1+t^A}\right)\hat{P}^* \quad w^a(n^a + e^a)dt^A\right\} \tag{21}$$

Notice that equation (21) is just parallel to equation (15), so equivating the coefficients of the two equations, we suggest that:

$$\Sigma^a = -\delta^a \left(\overline{n}^{\,a} + e^a + \frac{r^a}{1+t^A} \right) < 0$$

and $\beta = -w^a(\overline{n}^{\,a} + e^a) < 0$

Substitute β value into equation (19) and solve for $\hat{P}^*$

$$\hat{P}^* = -\frac{w^a}{\Delta^a}(\overline{n}^{\,a} + e^a)dt^A \qquad\qquad (22)$$

Substitute β value into equation (20) and solve for $\hat{P}^A$.

$$\hat{P}^A = [(1+t^A)w^a(\overline{n}^{\,a} + e^a) + \Delta_a] \frac{1}{\Delta^a(1+t^A)} dt^A \qquad\qquad (23)$$

Recall that $\Delta_a = \Sigma^a + \Sigma^{b-1}$, substitute this into (23) above.

$$\hat{P}^A = [-(1+t^A)w^a(\overline{n}^{\,a} + e^a) + \Sigma^a + \Sigma^{b-1}] \frac{1}{\Delta^a(1+t^A)} dt^A$$

Notice that $\Sigma^a = \delta^a \left(\overline{n}^{\,a} + e^a + \frac{r^a}{1+t^A} \right)$. Where $\delta^a = (1+t^A)w^a$.

Substitute Σ^a and δ^a into (23) above. Collecting the terms and

solving for $\hat{P}^A$, we obtain:

$$\hat{P}^A \left[-\delta^a(\bar{n}^a + e^a) + \delta^a \left(\bar{n}^a + e^a + \frac{r^a}{1+t^A} \right) + \Sigma^{b-1} \right] \frac{1}{\Delta_a(1+t^A)} \, dt^A$$

$$\hat{P}^A = \left[\Sigma^b + \delta^a \frac{r^a}{1+t^A} - 1 \right] \frac{1}{\Delta_a(1+t^a)} \, dt^A \tag{24}$$

Similarly for country 'C', we can define $\hat{P}^C$

$$\hat{P}^C = \left[\Sigma^b + \delta^c \frac{r^c}{1+t^C} - 1 \right] \frac{1}{\Delta_c(1+t^C)} \, dt^C \tag{25}$$

For country B, we modify balance of trade constraint as it trades with both countries A and C.

$$P^* M^B = M^A + M^C$$

Totally differentiate the above expression and express in terms of relative changes.

$$M^B dP^* + P^* dM^B = dM^A + dM^C$$

$$\frac{M^B}{M^B} \frac{dP^*}{P^*} + \frac{P^*}{M^B} \frac{dM^B}{P^*} = \frac{1}{P^*} \frac{dM^A}{M^B} + \frac{1}{P^*} \frac{dM^C}{M^B}$$

$$\hat{P}^* + \hat{M}^B = \frac{1}{M^A+M^C} dM^A + \frac{1}{M^A+M^C} \frac{dM^C}{M^C}$$

$$\hat{P}^* + \hat{M}^B = \frac{1}{M^A+M^C} dM^A + \frac{1}{M^A+M^C} dM^C$$

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$$\hat{P}^* + \hat{M}^B = \frac{M^A}{M^A \; M^C} \; \frac{dM^A}{M^A} + \frac{M^C}{M^A + M^C} \; \frac{dM^C}{M^C}$$

$$\hat{P}^* + \hat{M}^B = \theta\hat{M}^A + (1 - \theta)\hat{M}^C \tag{26}$$

B's exports to A and C are functions of world prices and can be written as:

$$M^A = M^A(P^*) \qquad\qquad M^C = M^C(P^*)$$

These can also be written in terms of relative changes as:

$$dM^A = \frac{\sigma M^A}{\sigma P^*} \; dP^* \quad (A') \qquad\qquad dM^C = \frac{\sigma M^C}{\sigma P^*} \; dP \quad (B')$$

Define $\Sigma^a = \dfrac{\sigma M^A}{\sigma P^*} \quad \dfrac{P^*}{M^A}$ and $\Sigma^C = \dfrac{\sigma M^C}{\sigma P^*} \; \dfrac{P^*}{M^C}$, and multiply (A')

and (B') respectively by $\dfrac{P^*}{M^A}$ and $\dfrac{P^*}{M^C}$

$$dM^A = \frac{\sigma M^A}{\sigma P^*} \; \frac{P^*}{M^A} \; dP^* \; \frac{M^A}{P^*} \qquad\qquad dM^C = \frac{\sigma M^C}{\sigma P^*} \; \frac{P^*}{M^C} \; dP^* \; \frac{M^C}{P^*}$$

Solve the above expression for $\hat{M}^A$ and $\hat{M}^C$ and substitute it into (26). Solving for $\hat{P}^*$, we obtain:

$$\hat{P}^* + \hat{M}^B = \theta\Sigma^a\hat{P}^* + (1-\theta) \; \Sigma^C\hat{P}^*$$

$$\hat{P}^* - \theta\Sigma^a\hat{P}^* - (1-\theta)\Sigma^C\hat{P}^* = - \hat{M}^B$$

$$\hat{P}^* (1 - \theta\Sigma^a - (1-\theta)\Sigma^C) = -\hat{M}^B \qquad (27)$$

Consider import and function for country 'B': $M^B = M^B(P^*, t^B)$

$$dM^B = \frac{\sigma M^B}{\sigma P^*} dP^* + \frac{\sigma M^B}{\sigma t^B} dt^B$$

Multiply the above expression by $\dfrac{P^*}{M^B}$ and $\dfrac{M^B}{P^*}$, dM^B becomes:

$$dM^B = \frac{\sigma M^B}{\sigma P^*} \frac{P^*}{M^B} \frac{dP^*}{P^*} M^B + \frac{\sigma M^B}{\sigma t^B} dt^B \qquad (A)$$

Define $\quad -\Sigma^b = \dfrac{\sigma M^B}{\sigma P^*} \dfrac{P^*}{M^B} \quad$ and substitute into (A) above.

$$dM^B = -\Sigma^b M^B \hat{P}^* + \frac{\sigma M^B}{\sigma t^B} dt^B \qquad (B)$$

Solve (B) above for $\hat{M}^B$

$$\hat{M}^B = -\Sigma^b \hat{P}^* + \frac{1}{M^B} \frac{\sigma M^B}{\sigma t^B} dt^B$$

$$\hat{M}^B = -\Sigma^b \hat{P}^* + \beta dt^B \qquad (28)$$

Substitute (28) into (27) above and solve for $\hat{P}^*$.

$$\hat{P}^*(1 - \theta\Sigma^a - (1-\theta)\Sigma^C) = \Sigma^b\hat{P}^* - \beta dt^B$$

$$\hat{P}^*[1-\theta\Sigma^a + (1-\theta)\Sigma^C] - \Sigma^b\hat{P}^* - \beta dt^B$$

$$\hat{P}^*(\Sigma^b + \theta\Sigma^a + (1-\theta)\Sigma^C - 1) = \beta dt^B \qquad (29)$$

Define $\Delta_b = \Sigma^b - \theta\Sigma^a + (1-\theta)\Sigma^C - 1$

$$\hat{P}^b \Delta_b = \beta dt^B$$

$$\hat{P}^* = \left[\beta/\Delta_b\right] dt^B \qquad (30)$$

From equation (16), $\hat{P}^B$ can be written as:

$$\hat{P}^B = \hat{P}^* + \frac{1}{1 + t^B} dt^B \qquad (C)$$

Substitute (30) above into (C) and solve for $\hat{P}^B$:

$$= \left[\frac{\beta}{\Delta_b}\right] dt^B + \frac{1}{1+t^B} dt^B$$

$$\hat{P}^B = \left[\frac{\beta(1+t^B) + \Delta_b}{\Delta_b(1+t^B)}\right] dt^B \qquad (31)$$

Following equation (21), we can write

$$\beta = -w^b(\bar{n}^b + e^b) \quad < \quad 0$$

and $\qquad \Sigma^b = -\sigma^b\left(\bar{n}^b + e^b = \frac{r^b}{1+t^b}\right) \quad < \quad 0$

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Substitute β into (30) above and again solve for $\hat{P}^*$.

$$\hat{P}^* = w^b(\overline{n}^{\ b} + e^b)\ \frac{1}{\Delta_b}\ dt^B \qquad (32)$$

Substitute β into Equation (31) above and again solve for $\hat{P}^B$.

$$\hat{P}^B = [\ -w^b(\overline{n}^{\ b} + e^b)(1 + t^b) + \Delta_b]\ \frac{1}{\Delta_b(1+t^b)}\ dt^B$$

and

$$\hat{P}^B = [-w^b(\overline{n}^{\ b} + e^b)(1 + t^b) + \Sigma^b + \delta\Sigma^a + (1-\theta)\Sigma^e - 1]\frac{1}{\Delta_b(1+t^b)}\ dt^B$$

Substitute E^b and note that $w^b(1+t^b) = \sigma^b$, thus $\hat{P}^B$ becomes:

$$\hat{P}^B = \left[\ -\delta^b(\overline{n}^{\ b} + e^b) + \delta^b\left(\overline{n}^{\ b} + e^b + \frac{r^b}{1+t^b}\right) + \theta\Sigma^a + (1-\theta)\Sigma^c - 1\right]$$

$$\frac{1}{\Delta_b(1+t^b)}\ dt^B$$

$$\hat{P}^B = \left[-\delta^b\overline{n}^{\ b} - \delta^b e^b + \delta^b(\overline{n}^{\ b}) + \delta^b\left((e^b) + \delta^b\frac{r^b}{1+t^b}\right) + \theta\Sigma^a + (1-\theta)\Sigma^c - 1\right]$$

$$\frac{1}{\Delta_b(1+t^b)}\ dt^B$$

$$\hat{P}^B = \left[\theta\Sigma^a + (1-\theta)\Sigma^c + \delta^b\frac{r^b}{1+t^b} - 1\right]\ \frac{1}{\Delta_b(1+t^b)}\ dt^B \qquad (33)$$

Summary of results,

$$\hat{P}^* = w^i(\bar{n}^i + e^i)\frac{1}{\Delta_i}\,dt^i \qquad\qquad i = A,\ B,\ C$$

$$\hat{P}^A = \left[\Sigma^b + \delta^a\,\frac{r^a}{1+t^a} - 1\right]\frac{1}{\Delta_a(1+t^a)}\,dt^A$$

$$\hat{P}^B = \left[\theta\Sigma^a + (1-\theta)\Sigma^c + \delta^b\,\frac{r^b}{1+t^b} - 1\right]\frac{1}{\Delta_b(1+t^b)}\,dt^B$$

$$\hat{P}^C = \left[\Sigma^b + \delta^c\,\frac{r^c}{1+t^c} - 1\right]\frac{1}{\Delta_c(1+t^c)}\,dt^C$$

where

$$w^i = \frac{1}{1+t^i(1-r^i)} \qquad\text{and}\qquad \delta^i = \frac{1}{1+t^i(1-r^i)}(1+t^i)$$

· The results derived above have been used in Part III of the text to provide some explanation for the formation and survival of a preferential trading arrangement.

Table A2.1
Combine Pakistan, Bangladesh and (West) Pakistan's
Total Imports and Exports from Rest of the World
(Million Rupee in 1969-70 Prices)

Year	Combine Pakistan Exports	Imports	Bangladesh Exports	Imports	West Pakistan Exports	Imports
1952-53	2384.06	1526.5	1015.11	404.46	1368.95	1122.04
1953-54	2173.92	1272.01	1090.34	334.5	1083.58	937.51
1954-55	2098.0	1662.76	1255.74	482.72	842.3	1180.04
1955-56	1969.26	1653.2	1734.08	449.26	1235.18	1202.94
1956-57	1414.04	1401.53	1371.55	841.07	1052.49	1559.46
1957-58	2022.455	2916.3	1405.06	1047.02	617.39	1869.28
1958-59	1938.06	2308.12	1288.77	809.25	649.28	1498.88
1959-60	2505.63	3341.61	1468.3	889.49	1037.33	2452.12
1960-61	2326.71	4121.83	1628.31	1311.87	698.4	2809.96
1961-62	2407.1	4059.77	1697.9	1139.96	709.2	2919.82
1962-63	2868.86	4875.13	1594.66	1299.7	1274.2	3575.44
1963-64	2974.66	5731.52	1583.72	1874.13	1390.93	3857.4
1964-65	2937.17	6555.88	1546.65	2076.02	1390.52	4479.86
1965-66	3184.56	4931.19	1773.88	1556.18	1410.67	3375.02
1966-67	3058.85	5452.73	1696.91	1645.19	1361.94	3807.55
1967-68	3326.46	4955.47	1692.04	1348.25	1634.41	3607.22
1968-69	3297.27	4983.45	1601.24	1882.78	1696.02	3100.67
1969-70	3271.41	5098.14	1694.04	1813.06	1577.37	3285.08
1970-71	3101.46	4941.62	1258.3	1503.39	1843.17	3438.24
1971-72	8468.66	8143.23	2661.61	5038.11	5807.05	3105.12
1972-73	8728.42	13005.00	2985.32	7303.44	5743.10	5701.55
1973-74	8756.12	14023.90	2361.00	7460.71	6395.12	6563.18
1974-75	7484.42	16946.60	1643.57	7672.43	5840.85	9274.18
1975-76	6211.84	13582.20	1755.02	4052.35	4456.82	9529.83
1976-77	6612.18	13874.40	1920.11	4886.53	4692.07	8987.83
1977-78	6221.20	14877.10	1930.78	5784.34	4290.42	9092.79
1978-79	6803.22	15636.70	1768.86	4631.37	5034.36	11005.30
1979-80	8545.92	18035.00	2042.13	4870.54	6503.79	13164.50
1980-81	9345.56	21040.40	1941.84	5625.61	7403.72	15414.80
1981-82	10272.58	22207.90	1901.26	5448.82	8371.32	16759.10

| 1982-83 | 9513.21 | 22349.10 | 1988.79 | 5451.80 | 7525.02 | 16897.20 |
| 1983-84 | 12376.83 | 22200.20 | 2376.03 | 4816.91 | 10000.80 | 17383.30 |

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific, (Various Issues), E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

Table A2.2
Combine Pakistan, Bangladesh & (West) Pakistan's
Imports from Rest of the World: By Commodity Group
(Million Rupee in 1969-70 Prices)

Year	Food & Live Animals			Beverages & Tobacco		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	96.35	25.23	70.82	24.04	6.37	17.67
1953-54	53.40	14.04	39.36	12.73	3.35	9.38
1954.55	51.79	15.03	36.75	11.75	3.38	8.27
1955-56	50.70	13.78	36.92	22.78	6.19	16.59
1956-57	567.30	192.92	368.38	15.71	5.51	10.20
1957-58	974.56	349.89	624.67	5.62	2.02	3.61
1958-59	562.10	197.08	365.02	2.67	0.94	1.73
1959-60	566.88	82.82	484.07	12.59	0.91	11.68
1960-61	811.20	304.12	507.08	12.83	0.82	12.02
1961-62	514.65	96.79	417.85	15.89	0.79	15.10
1962-63	621.39	214.71	406.68	21.44	0.83	20.61
1963-64	855.88	359.09	496.79	18.91	2.46	16.45
1964-65	1021.91	141.83	880.08	32.75	2.04	30.71
1965-66	549.93	177.77	372.16	17.52	3.20	14.32
1966-67	942.14	176.32	665.82	13.79	2.19	11.60
1967-68	770.63	156.17	614.46	14.24	1.11	13.13
1968-69	566.93	405.51	161.42	12.89	0.67	12.22
1969-70	575.26	430.15	145.10	13.08	0.80	12.28
1970-71	553.90	380.95	172.95	12.24	0.72	11.52
1971-72	1100.58	592.33	508.25	22.37	14.44	7.93
1972-73	2610.16	1142.99	1467.17	26.06	17.56	8.50
1973-74	2440.26	1167.60	1272.65	26.94	17.91	9.04
1974-75	2485.25	1191.12	1294.13	26.32	18.44	7.88
1975-76	2306.34	609.44	1696.90	16.46	10.01	6.45
1976-77	1978.68	762.23	1216.45	8.92	2.35	6.57
1977-78	1752.50	909.62	842.89	17.77	11.96	5.81
1978-79	1930.47	674.34	1256.13	12.44	9.36	3.08
1979-80	2416.64	904.58	1512.06	16.52	8.79	7.73
1980-81	1922.26	925.77	996.49	17.35	9.88	7.46
1981-82	1804.54	725.56	1114.98	29.39	22.49	6.90

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1982-83	2123.85	974.39	1149.45	12.78	12.69	0.09
1983-84	1730.22	607.33	1122.89	20.55	14.13	6.42

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific, (Various Issues), E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

Table A2.3
Combine Pakistan, Bangladesh & (West) Pakistan's
Imports from Rest of the World: By Commodity Group
(Million Rupee in 1969-70 Prices)

Year	Crude Materials excl. Fuels			Animal & Vegetable Oils/Fats		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	74.32	19.69	54.63	185.51	49.15	136.36
1953-54	95.24	25.05	70.20	173.41	45.60	127.21
1954-55	98.39	28.56	69.83	206.90	60.06	146.83
1955-56	118.38	32.17	86.21	219.291	59.59	159.70
1956-57	171.68	60.20	111.48	175.70	61.61	114.09
1957-58	153.14	54.98	98.16	139.66	50.14	89.52
1958-59	137.53	48.22	89.31	162.78	57.07	105.71
1959-60	215.29	109.22	106.08	431.27	377.55	53.72
1960-61	166.14	57.98	108.161	133.13	71.08	62.05
1961-62	194.41	47.97	146.44	132.54	56.70	75.84
1962-63	225.10	67.14	157.97	265.55	113.91	151.64
1963-64	233.22	59.19	174.03	212.92	100.64	112.29
1964-65	234.40	88.23	146.17	314.46	153.91	160.55
1965-66	177.72	37.33	140.39	237.07	106.76	130.31
1966-67	205.06	45.04	160.02	159.14	65.75	93.39
1967-68	176.13	29.90	146.23	233.05	135.27	97.78
1968-69	186.69	30.04	156.65	145.33	65.34	79.99
1969-70	232.02	42.76	189.25	213.22	104.23	108.99
1970-71	237.06	42.10	194.97	280.19	106.55	173.64
1971-72	377.61	195.71	181.90	405.43	289.25	116.18
1972-73	1000.53	673.38	327.15	678.43	458.66	219.77
1973-74	1201.16	687.88	513.28	810.95	468.53	342.42
1974-75	1175.92	708.45	467.47	1321.45	482.55	838.90
1975-76	862.48	324.82	537.66	780.94	261.94	519.00
1976-77	899.18	438.29	460.89	944.02	309.72	634.30
1977-78	1069.62	536.93	532.69	1027.25	365.96	661.29
1978-79	1313.51	619.27	694.24	1075.40	267.83	807.57
1979-80	1019.42	332.98	686.44	1320.40	266.17	1054.22
1980-81	1162.70	391.27	771.42	1314.33	388.80	925.53
1981-82	1598.09	400.54	1197.55	1498.70	356.50	1142.19

| 1982-83 | 1177.53 | 283.98 | 893.55 | 1436.62 | 387.88 | 1048.74 |
| 1983-84 | 1345.67 | 414.77 | 930.90 | 1549.38 | 340.27 | 1209.11 |

Source: Figures derived by the method discussed in the text.

Foreign   Trade   Statistics   of   Asia   and   Pacific,   (Various   Issues),
E.S.C.A.P., Bangkok, United Nations.

Pakistan   Economics   Survey,   Ministry   of   Finance,   Government   of
Pakistan, Islamabad, 1970-71 and 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government
of Pakistan, Islamabad, 1970-71.

Table A2.4
Combine Pakistan, Bangladesh & (West) Pakistan's
Imports from Rest of the World: By Commodity Group
(Million Rupee in 1969-70 Prices)

Year	Chemicals			Mineral Fuels etc.		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	98.35	26.06	72.29	–	–	–
1953-54	108.74	28.59	80.14	–	–	–
1954-55	120.10	34.87	85.23	–	–	–
1955-56	166.34	45.20	121.14	13.47	3.95	9.52
1956-57	176.80	61.99	114.81	53.04	18.60	34.44
1957-58	184.31	66.17	118.14	92.60	33.25	59.34
1958-59	151.99	53.29	98.70	905.26	33.40	61.86
1959-60	251.52	27.11	224.41	288.23	223.64	64.59
1960-61	421.34	130.72	290.62	469.79	181.37	288.42
1961-62	380.97	104.30	276.67	392.21	138.98	253.26
1962-63	391.38	102.65	288.72	372.77	152.58	220.19
1963-64	517.58	142.05	375.53	379.47	159.48	219.99
1964-65	590.65	185.29	405.35	246.74	148.20	98.54
1965-66	512.97	191.48	321.48	247.90	149.90	98.00
1966-67	652.02	216.42	435.60	318.86	133.44	185.42
1967-68	575.13	198.71	376.41	313.12	55.03	258.09
1968-67	639.00	196.11	442.89	341.33	83.34	258.99
1969-70	851.32	252.06	599.26	297.91	77.73	220.18
1970-71	716.43	184.97	431.46	392.38	124.75	267.63
1971-72	934.81	589.16	345.65	707.59	446.44	261.15
1972-73	1568.20	918.05	650.15	1246.38	801.92	444.46
1973-74	2186.42	937.82	1248.60	1350.84	819.18	531.66
1974-75	2183.65	965.86	1217.79	2124.45	843.68	1280.77
1975-76	1419.82	524.30	895.52	2168.87	457.98	1710.89
1976-77	1695.05	619.59	1075.45	2181.37	537.56	1643.81
1977-78	1873.37	731.66	1141.71	2097.23	639.86	1457.38
1978-79	2197.40	587.21	1610.19	2802.89	686.94	2115.95
1979-80	2453.98	583.53	1870.36	2807.76	576.78	2230.99
1980-81	2839.35	698.62	2140.73	4764.36	549.57	4214.79
1981-82	2512.34	722.74	1789.60	5129.67	421.38	4708.12

1982-83	2422.50	660.51	1761.99	5976.67	692.80	5283.88
1983-84	2652.20	724.85	1927.35	5519.54	527.97	4991.58

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific, (Various Issues), E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

Table A2.5
Combine Pakistan, Bangladesh & (West) Pakistan's
Imports from Rest of the World: By Commodity Group
(Million Rupee in 1969-70 Prices)

| Year | Manufactured Goods | | | Machinery & Transportation Equip. | | |
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	639.46	169.43	470.03	331.73	87.89	243.83
1953-54	403.95	106.23	297.73	366.58	96.40	270.18
1954-55	418.64	121.54	297.11	687.46	199.58	487.88
1955-56	557.90	151.61	406.29	436.85	118.72	318.14
1956-57	534.37	187.37	347.00	616.42	216.14	400.28
1957-58	547.50	196.57	350.93	718.84	158.08	460.76
1958-59	448.47	157.24	291.24	673.80	236.24	437.56
1959-60	618.40	209.19	409.21	1057.76	291.63	766.13
1960-61	921.57	288.03	633.54	1074.85	252.74	822.11
1961-62	966.98	361.39	605.58	1347.67	307.48	1040.19
1962-63	1002.32	253.25	749.07	1823.91	365.64	1468.27
1963-64	1367.49	504.86	862.63	1994.49	504.71	1489.78
1964-65	1732.81	634.74	1098.07	2197.36	669.05	1528.31
1965-66	1039.85	363.94	675.91	2008.11	486.74	1521.37
1966-67	1223.73	397.24	826.49	1818.11	483.35	1334.77
1967-68	860.23	273.97	586.26	1888.87	470.67	1418.19
1968-69	1087.35	424.57	662.78	1848.76	642.28	1206.48
1969-70	925.73	387.01	638.73	1854.16	584.25	1269.90
1970-71	957.51	221.01	736.50	1666.62	311.62	1355.00
1971-72	1731.45	1070.73	660.73	2649.44	1714.30	935.14
1972-73	2539.05	1484.06	1054.99	2994.36	1638.16	1356.19
1973-74	2747.70	1516.02	1231.69	2908.07	1673.43	1234.64
1974-75	3416.59	1561.35	1855.24	3847.96	1723.48	2124.48
1975-76	2516.10	831.93	1684.17	3211.97	935.57	2276.40
1976-77	2357.72	997.06	1306.66	3501.26	1106.02	2395.24
1977-78	2791.59	1148.45	1643.13	3891.67	1306.04	2585.63
1978-79	2349.01	808.81	1540.20	3606.27	867.94	2738.33
1979-80	3212.28	891.19	2321.08	4370.96	1186.08	3184.88
1980-81	3166.03	1090.85	2075.18	5411.36	1443.81	3967.55
1981-82	4014.14	1473.13	2541.01	5041.46	1189.04	3852.42

1982-83	3465.85	1049.36	2416.49	5236.83	1268.71	3968.12
1983-84	3144.98	965.24	2179.74	5740.73	1112.59	4628.14

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific, (Various Issues), E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

Combine Pakistan, Bangladesh & (West) Pakistan's
Imports from Rest of the World: By Commodity Group
(Million Rupee in 1969-70 Prices)

| Year | Misc. Manufactured Goods | | | Misc. Commodities | | |
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	69.86	18.51	51.35	6.92	1.83	5.09
1953-54	53.02	13.94	39.08	4.94	1.30	3.64
1954-55	56.46	16.39	40.07	11.32	3.29	8.03
1955-56	67.38	18.31	49.07	13.54	3.68	9.86
1956-57	75.03	26.31	48.72	15.56	5.46	10.10
1957-58	70.00	25.13	44.87	30.20	10.85	19.35
1958-59	47.01	16.48	30.53	26.66	9.35	17.31
1959-60	111.34	18.31	93.03	15.46	3.57	11.89
1960-61	110.91	25.59	85.31	0.65	0.58	0.07
1961-62	114.31	27.25	87.05	1.82	1.69	0.13
1962-63	151.04	31.95	119.09	3.20	2.97	0.23
1963-64	150.96	41.41	109.55	0.64	0.28	0.36
1964-65	183.08	52.31	130.77	1.73	0.41	1.32
1965-66	139.88	40.05	99.83	1.31	0.06	1.25
1966-67	118.85	25.64	93.21	1.23	0.20	1.03
1967-68	123.51	27.30	96.21	0.58	0.13	0.45
1968-69	153.54	34.80	118.73	0.63	0.11	0.52
1969-70	134.24	33.88	100.36	1.20	0.19	1.01
1970-71	124.97	30.72	94.25	0.33	0.01	0.32
1971-72	213.09	125.64	87.45	0.85	0.46	0.39
1972-73	322.44	149.72	172.72	21.55	21.18	0.37
1973-74	330.69	152.95	177.74	23.13	21.64	1.49
1974-75	342.79	157.52	185.27	24.53	22.28	2.25
1975-76	286.74	85.50	201.24	13.72	12.10	1.62
1976-77	287.01	100.92	186.09	22.65	14.28	8.37
1977-78	329.15	118.74	210.41	28.68	16.84	11.84
1978-79	317.27	93.19	224.08	28.48	16.49	11.99
1979-80	400.73	110.68	290.05	16.42	9.76	6.66
1980-81	430.18	117.21	312.97	12.47	9.80	2.67
1981-82	511.72	114.49	397.23	32.03	22.95	9.08
1982-83	469.96	107.63	362.33	19.95	13.86	6.09

| 1983-84 | 476.65 | 98.93 | 377.72 | 20.28 | 10.84 | 9.44 |

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific, (Various Issues), E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

Table A2.7

Pakistan's Exports to Bangladesh
'BY COMMODITY GROUPS'

(Million of Rs. in 1969-70 Prices)

YEAR	TX	FL	BT	CM	AV	CD	MF	MG	MT	MMG	MC
1952-53	222.66	61.11	10.21	68.38	41.36	2.99	0.05	22.4	0.25	3.51	12.4
1953-54	454.52	56.31	46.16	122.44	63.57	9.2	0.39	126.9	3.47	13.99	12.07
1954-55	353.89	31.72	39.31	79.84	23.42	11.28	0.13	149.05	2.19	6.83	10.12
1955-56	619.9	65.03	70.65	111.01	30.28	26.91	0.23	291.98	0.	11.19	12.61
1956-57	892.08	104.74	70.95	183.95	89.6	37.09	0.06	358.94	11.68	13.31	21.75
1957-58	1142.34	197.11	51.6	235.69	68.38	34.24	0.14	503.93	15.92	10.7	24.62
1958-59	1055.59	295.76	67.71	175.51	74.75	43.23	0.34	352.81	13.53	12.71	19.24
1959-60	858.1	115.68	69.75	215.11	33.45	45.07	0.37	279.76	9.6	12.82	76.49
1960-61	1204.81	131.67	46.79	298.42	47.14	64.98	0.34	467.72	20.26	19.55	107.93
1961-62	1184.49	91.11	90.25	305.68	53.9	42.52	0.01	494.94	24.42	19.37	62.28
1962-63	1397.74	249.56	95.09	243.29	16.85	48.64	0.22	457.48	26.06	15.01	245.53
1963-64	1203.17	187.27	101.26	238.61	18.57	52.83	1.86	419.41	57.48	11.14	114.74
1964-65	1145.04	84.6	119.6	236.01	31.29	70.46	1.71	387.86	49.442	57.59	106.5
1965-66	1499.39	315.77	83.59	386.97	23.1	78.42	1.85	460.55	64.75	13.41	70.98
1966-67	1562.25	358.05	145.57	235.38	39.01	82.74	0.85	486.2	59.9	5.61	148.85
1967-68	1299.18	156.49	145.22	275.62	33.83	86.82	0.	397.58	69.39	10.34	123.89
1968-69	1274.22	216.37	24.65	294.68	11.22	80.74	0.	425.85	65.12	16.74	138.87
1969-70	1547.76	433.61	47.6	304.65	8.96	78.97	0.	452.02	64.06	7.06	150.84
1970-71	1244.67	329.8	55.97	245.55	14.58	58.87	0.	388.37	40.54	9.77	101.23
1971-72	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1972-73	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1973-74	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1974-75	12.86	12.86	0.	0.	0.	0.	0.	0.	0.	0.	0.
1975-76	129.51	47.27	0.	65.19	0.	0.	0.	17.05	0.	0.	0.
1976-77	47.	9.97	9.86	17.07	0.	0.34	4.11	5.27	0.17	0.19	0.02
1977-78	44.67	2.48	2.1	0.38	0.	0.88	0.	36.97	1.11	0.75	0.06
1978-79	91.47	2.82	0.06	26.7	0.	0.48	0.	59.64	0.74	0.74	0.3
1979-80	162.56	75.61	0.	28.6	0.	1.65	0.	21.95	33.03	1.55	0.16

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	TX	FL	BT	CM	AV	CP	MF	MG	MT	MMG	MC
1980-81	167.58	3.78	0.	99.29	0.	1.28	0.	44.87	16.8	1.29	0.31
1981-82	165.23	5.82	0.	113.54	0.	2.08	0.	28.71	11.86	1.83	1.39
1982-83	224.9	80.	0.	97.84	0.	0.95	0.54	34.57	7.57	1.03	2.4
1983-84	134.41	7.31	0.	68.43	0.	6.21	0.03	24.01	22.4	1.61	1.24

Source: Figures derived by the method discussed in the text.

Foreign Trade Statistics of Asia and Pacific. (Various Issues),
E.S.C.A.P., Bangkok, United Nations.

Pakistan Economics Survey, Ministry of Finance, Government of
Pakistan, Islamabad, 1970-71 and 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance,
Government of Pakistan, Islamabad, 1970-71.

TX	=	Total Exports
FL	=	Food and Live Animals
BT	=	Beverages and Tobacco
CM	=	Crude Materials
AV	=	Animal and Vegetable Oil/Fats
CP	=	Chemicals and Related Preparations
MF	=	Mineral Fuels
MG	=	Manufactured Goods
MT	=	Machinery and Transportation Equipment
MMG	=	Miscellaneous Manufactured Goods
MC	=	Miscellaneous Commodities

Table A2.8

Pakistan's Imports From Bangladesh
'BY COMMODITY GROUPS'

(Million of Rs. in 1969-70 Prices)

YEAR	TM	FL	BT	CM	CP	MG	MMG	MC
1952-53	127.41	68.59	2.78	2.69	0.21	37.91	0.	15.24
1953-54	153.97	64.05	3.28	5.78	0.56	74.41	0.79	5.1
1954-55	218.86	84.31	5.31	6.71	0.39	117.34	3.01	1.78
1955-56	430.33	200.55	4.15	9.28	0.81	184.56	15.64	15.34
1956-57	411.79	152.8	2.84	10.36	2.28	206.78	19.8	16.94
1957-58	437.61	180.31	2.72	13.39	2.58	191.26	22.5	24.85
1958-59	436.64	174.87	5.33	11.65	2.73	187.57	32.18	22.31
1959-60	571.75	226.65	3.5	20.15	3.48	232.72	39.77	45.48
1960-61	535.09	203.7	2.11	13.02	1.78	225.22	39.54	49.71
1961-62	563.83	181.26	5.87	9.98	2.92	240.89	44.13	78.78
1962-63	658.07	278.41	1.77	19.	2.97	226.42	38.92	90.59
1963-64	723.07	310.12	3.46	17.32	5.52	280.71	42.14	63.8
1964-65	715.09	290.36	5.28	18.33	7.46	306.29	35.05	52.32
1965-66	818.34	343.88	8.41	16.09	9.08	346.78	50.01	64.09
1966-67	862.13	389.1	4.78	25.08	4.41	312.44	35.29	91.04
1967-68	838.08	302.33	5.11	17.79	4.36	370.74	34.11	103.6
1968-69	886.6	311.7	0.89	16.24	5.02	383.58	43.79	125.4
1969-70	916.1	303.43	5.94	18.1	8.36	363.02	44.76	172.47
1970-71	627.94	303.58	16.8	11.47	10.12	248.67	39.32	13.1
1971-72	0.	0.	0.	0.	0.	0.	0.	0.
1972-73	0.	0.	0.	0.	0.	0.	0.	0.
1973-74	0.	0.	0.	0.	0.	0.	0.	0.
1974-75	3.27	0.	0.	2.56	0.	0.71	0.	0.
1975-76	25.	12.56	0.	10.76	0.1	1.58	0.	0.
1976-77	51.32	13.94	0.	25.31	0.09	11.97	0.	0.
1977-78	139.73	40.34	0.	40.11	0.2	59.03	0.	0.
1978-79	191.05	61.84	0.	38.66	0.1	89.5	0.06	0.
1979-80	125.93	52.22	0.	22.31	0.46	50.26	0.27	0.

	TM	FL	BT	CM	CP	MG	MMG	MC
1980-81	233.	82.41	0.	42.19	0.1	107.63	0.01	0.
1981-82	142.29	68.37	0.	41.43	0.96	18.78	0.06	0.
1982-83	190.16	78.91	0.01	55.35	0.19	47.23	0.02	0.
1983-84	216.56	94.78	0.	82.05	0.73	37.2	0.03	0.

TM = Total Imports
FL = Food and Live Animals
BT = Beverages and Tobacco
CM = Crude Materials
CP = Chemicals and Related Preparations
MG = Manufactured Goods
MMG = Miscellaneous Manufactured Goods
MC = Miscellaneous Commodities

Table A2.9
Combine Pakistan, Bangladesh and (West) Pakistan's
Unit Value of Total Imports and Exports
(1969-79 = 100)

Year	Combine Pakistan		Bangladesh		West Pakistan	
	Exports	Imports	Exports	Imports	Exports	Imports
1949-50	76.90	47.40	70.30	49.22	92.10	46.37
1950-51	93.00	50.40	84.90	52.39	111.40	49.35
1951-52	97.60	56.50	89.10	58.63	116.80	55.23
1952-53	57.60	46.40	52.60	48.21	69.00	45.42
1953-54	56.00	51.00	51.63	52.94	67.10	49.88
1954-55	58.69.	48.50	53.63	50.33	70.29	47.40
1955-56	69.70	66.80	65.83	66.94	79.03	66.20
1956-57	77.33	82.80	73.57	84.28	85.29	83.00
1957-58	84.14	81.60	78.00	78.41	98.62	88.50
1958-59	75.32	78.20	71.64	76.50	83.35	79.70
1959-60	74.26	76.50	68.75	71.40	86.11	79.10
1960-61	109.19	81.90	119.66	81.30	89.49	81.90
1961-62	91.58	70.70	92.35	77.57	90.85	80.10
1962-63	84.70	81.80	81.73	84.00	91.07	80.00
1963-64	82.86	77.20	80.00	72.96	88.13	79.70
1964-65	92.69	68.50	95.33	74.52	89.80	66.40
1965-66	93.04	91.00	92.35	86.50	96.32	92.50
1966-67	109.12	93.40	81.73	86.75	94.07	95.70
1967-68	95.16	94.10	80.06	92.11	94.81	94.30
1968-69	100.90	94.90	95.33	95.61	97.74	93.70
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	104.39	110.22	101.92	100.73	106.86	119.70
1971-72	115.95	128.68	101.92	100.73	106.86	119.70
1972-73	189.20	193.70	105.76	102.19	272.64	285.20
1973-74	274.80	283.91	110.64	155.23	438.96	412.60
1974-75	275.15	417.31	140.59	220.13	409.72	614.50
1975-76	262.89	391.39	114.98	200.10	410.80	582.70
1976-77	306.52	410.27	124.49	193.25	488.54	627.30
1977-78	326.54	434.02	144.61	184.15	508.48	683.90
1978-79	361.12	460.74	148.49	210.79	573.76	710.70

1979-80	415.17	571.77	156.95	273.75	673.39	869.80
1980-81	439.57	658.58	181.31	259.59	697.83	1057.60
1981-82	467.38	706.84	199.42	247.39	735.33	1166.30
1982-83	523.93	776.72	250.50	285.67	797.36	1267.80
1983-84	563.79	838.68	261.35	341.98	876.24	1335.40
1984-85	609.23	967.56	283.48	493.67	934.98	1441.50

Source: Figures derived by the method discussed in the text.

Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

International Financial Statistics, International Monetary Fund (IMF), 1980 and 1984.

Table A2.10
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Imports: By Commodity Group
(1969-70=100)

Year	Food and Live Animals			Beverages and Tobacco		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	35.40	64.62	31.66	27.00	51.99	23.32
1953-54	41.40	75.39	36.94	31.50	60.65	27.21
1954-55	46.80	85.47	41.90	35.70	68.76	30.90
1955-56	66.60	98.86	64.70	50.80	79.54	47.70
1956-57	87.60	116.11	85.00	66.80	93.41	62.60
1957-58	89.70	136.74	83.70	67.00	110.01	61.60
1958-59	83.80	96.45	86.30	63.90	77.59	63.50
1959-60	89.20	96.52	83.40	67.90	77.65	61.50
1960-61	87.30	82.65	90.30	66.50	66.49	66.50
1961-62	97.40	60.96	117.00	74.20	49.04	86.10
1962-63	63.90	62.74	61.70	48.70	53.13	45.40
1963-64	83.80	104.86	85.70	63.90	84.36	63.10
1964-65	64.70	165.25	62.90	49.30	132.95	46.30
1965-66	89.10	83.97	92.50	84.70	106.85	83.20
1966-67	90.00	84.13	93.90	96.30	118.35	94.70
1967-68	86.60	85.79	87.30	99.60	84.64	100.60
1968-69	90.80	98.35	86.00	94.30	101.93	93.90
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	127.40	89.67	127.40	111.20	90.16	111.20
1971-72	162.60	n/a	162.60	202.00	n/a	202.00
1972-73	293.20	n/a	293.20	289.10	n/a	289.10
1973-74	354.30	n/a	354.30	420.80	n/a	420.80
1974-75	444.90	n/a	444.90	481.30	n/a	481.30
1975-76	432.20	n/a	432.20	730.10	n/a	730.10
1976-77	420.80	n/a	420.80	841.20	n/a	841.20
1977-78	504.80	n/a	504.80	873.60	n/a	873.60
1978-79	492.00	n/a	492.00	982.30	n/a	982.30
1979-80	520.90	n/a	520.90	1138.60	n/a	1138.60
1980-81	567.00	n/a	567.00	1258.90	n/a	1258.90

1981-82	635.90	n/a	635.90	1147.80	n/a	1147.80
1982-83	681.90	n/a	681.90	911.90	n/a	911.90
1983-84	873.80	n/a	873.80	997.30	n/a	997.30

Source: Figures derived by the method discussed in the text.

Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

International Financial Statistics, International Monetary Fund (IMF), 1980 and 1984.

Table A2.11
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Imports: By Commodity Group
(1969-70=100)

Year	Crude Materials excl. Fuels Combine Pakistan	Bangladesh	(West) Pakistan	Animal & Vegetable Oils/Fats Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	67.50	82.50	67.20	85.80	81.00	89.80
1953-54	64.40	78.53	63.90	81.70	77.10	85.40
1954-55	60.20	73.53	60.00	46.20	72.19	80.00
1955-56	89.50	82.35	102.90	92.80	91.08	95.80
1956-57	92.50	90.32	106.00	108.10	103.84	108.90
1957-58	102.80	73.80	119.00	117.00	109.18	124.40
1958-59	78.90	78.26	94.20	100.10	97.57	102.00
1950-60	101.40	112.83	105.50	97.30	83.02	102.90
1960-61	100.70	90.91	103.50	95.10	88.42	104.30
1961-62	75.10	79.80	93.60	104.30	92.49	114.00
1962-63	100.50	78.70	106.30	95.20	84.31	107.20
1963-64	89.50	109.96	84.90	102.30	101.49	102.40
1964-65	84.70	87.05	88.80	117.20	104.56	126.50
1965-66	114.70	104.09	119.90	107.20	90.36	138.00
1966-67	105.10	87.27	114.10	106.60	83.91	137.50
1967-68	100.00	98.00	100.90	106.10	100.71	112.80
1968-69	108.00	93.55	115.20	100.90	101.33	108.40
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	102.70	175.55	102.70	113.60	106.10	113.60
1971-72	141.50	n/a	141.50	140.60	n/a	140.60
1972-73	263.10	n/a	263.10	306.20	n/a	306.20
1973-74	338.80	n/a	338.80	401.30	n/a	401.30
1974-75	394.60	n/a	394.60	538.60	n/a	538.60
1975-76	390.30	n/a	390.30	405.90	n/a	405.90
1976-77	401.60	n/a	401.60	445.50	n/a	445.50
1977-78	417.40	n/a	417.40	522.50	n/a	522.50
1978-79	456.70	n/a	456.70	590.50	n/a	590.50
1979-80	495.70	n/a	495.70	602.10	n/a	602.10
1980-81	593.10	n/a	593.10	525.40	n/a	525.40

1981-82	611.00	n/a	611.00	508.70	n/a	508.70
1982-83	647.10	n/a	647.10	518.00	n/a	518.00
1983-84	645.10	n/a	645.10	797.60	n/a	797.60

Source: Figures derived by the method discussed in the text.

Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

International Financial Statistics, International Monetary Fund (IMF), 1980 and 1984.

Table A2.12
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Imports: By Commodity Group
(1969-70=100)

| Year | Chemicals & Related Prep. | | | Mineral Fuels | | |
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	52.76	53.50	52.39	44.19	59.60	36.70
1953-54	50.21	51.00	49.87	42.06	56.73	35.00
1954-55	47.00	47.72	46.90	39.40	53.12	32.70
1955-56	57.00	60.39	55.40	56.80	77.27	43.70
1956-57	59.40	60.55	61.10	64.30	81.77	61.40
1957-58	64.20	60.45	69.30	70.80	89.05	74.90
1958-59	56.70	57.09	62.50	71.10	93.44	58.70
1959-60	53.80	53.83	55.90	66.00	76.49	56.00
1960-61	60.70	60.24	61.00	63.40	74.79	57.60
1961-62	68.10	66.96	67.90	57.20	70.39	51.10
1962-63	65.10	66.08	64.30	55.60	71.11	54.80
1963-64	65.30	58.77	66.70	52.10	66.00	56.50
1964-65	59.00	59.28	60.10	52.60	67.79	54.90
1965-66	65.70	70.66	63.60	82.10	90.65	79.20
1966-67	73.60	77.41	71.50	89.50	91.17	88.80
1967-68	69.30	74.28	67.10	85.70	99.10	79.10
1968-69	85.20	75.24	89.60	84.20	102.39	74.90
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	102.10	106.45	102.10	114.50	104.41	114.50
1971-72	100.60	n/a	100.60	130.20	n/a	130.20
1972-73	183.30	n/a	183.30	339.60	n/a	339.60
1973-74	256.90	n/a	256.90	696.20	n/a	696.20
1974-75	436.30	n/a	436.30	1485.20	n/a	1485.20
1975-76	405.40	n/a	405.40	1587.70	n/a	1587.70
1976-77	432.10	n/a	432.10	1710.20	n/a	1710.20
1977-78	435.20	n/a	435.20	1820.20	n/a	1820.20
1978-79	443.60	n/a	443.60	1888.90	n/a	1888.90
1979-80	612.10	n/a	612.10	2838.60	n/a	2838.60
1980-81	628.70	n/a	628.70	4315.60	n/a	4315.60

1981-82	643.60	n/a	643.60	5063.10	n/a	5063.10
1982-83	703.30	n/a	703.30	5806.40	n/a	5806.40
1983-84	744.70	n/a	744.70	5303.10	n/a	5303.10

Source: Figures derived by the method discussed in the text.

Pakistan   Economic   Survey,   Ministry   of   Finance,   Government   of
Pakistan, Islamabad, 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government
of Pakistan, Islamabad, 1970-71.

International   Financial   Statistics,   International   Monetary   Fund
(IMF), 1980 and 1984.

Table A2.13
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Imports: By Commodity Group
(1969-70=100)

| Year | Manufactured Goods | | | Machinery & Transportation Equip. | | |
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	42.10	41.10	42.90	58.40	57.50	58.60
1953-54	46.20	45.20	47.40	64.10	63.00	64.40
1954-55	41.60	40.61	42.40	60.90	59.95	61.20
1955-56	60.10	57.96	61.40	81.70	83.44	82.70
1956-57	81.60	88.24	78.80	100.50	94.33	102.30
1957-58	82.80	80.81	96.40	90.20	83.39	90.80
1958-59	74.20	72.17	77.40	92.70	85.93	95.10
1959-60	69.30	65.79	80.40	91.70	82.20	92.20
1960-61	80.80	86.51	78.40	97.70	93.11	98.50
1961-62	73.80	73.01	75.90	93.30	99.59	92.60
1962-63	83.80	84.72	83.40	96.40	104.70	96.20
1963-64	71.60	69.74	73.60	97.90	83.45	99.90
1964-65	69.20	75.70	63.00	75.40	77.16	73.90
1965-66	88.00	88.24	88.00	108.30	91.71	111.40
1966-67	89.30	90.40	88.80	109.50	88.18	113.40
1967-68	93.90	94.81	93.50	115.80	101.77	118.40
1968-69	90.80	98.53	88.10	111.00	103.91	112.10
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	127.60	96.80	127.60	131.40	109.50	131.40
1971-72	164.70	n/a	164.70	195.40	n/a	195.40
1972-73	271.20	n/a	271.20	374.30	n/a	374.30
1973-74	354.00	n/a	354.00	506.60	n/a	506.60
1974-75	505.30	n/a	505.30	545.20	n/a	545.20
1975-76	437.80	n/a	437.80	485.80	n/a	485.80
1976-77	426.70	n/a	426.70	669.90	n/a	669.90
1977-78	454.70	n/a	454.70	754.20	n/a	754.20
1978-79	509.50	n/a	509.50	706.60	n/a	706.60
1979-80	601.00	n/a	601.00	775.50	n/a	775.50
1980-81	644.60	n/a	644.60	935.90	n/a	935.90

1981-82	694.20	n/a	494.20	992.80	n/a	992.80
1982-83	744.30	n/a	744.30	987.70	n/a	987.70
1983-84	704.00	n/a	704.00	1133.00	n/a	1133.00

Source: Figures derived by the method discussed in the text.

Pakistan   Economic   Survey,   Ministry   of   Finance,   Government   of
Pakistan, Islamabad, 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government
of Pakistan, Islamabad, 1970-71.

International   Financial   Statistics,   International   Monetary   Fund
(IMF), 1980 and 1984.

Table A2.14
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Imports: By Commodity Group
(1969-70=100)

| Year | Misc. Manufactured Goods | | | Misc. Commodities | | |
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	86.60	64.70	39.70	n/a	n/a	n/a
1953-54	95.00	71.00	43.60			
1954-55	90.30	67.50	41.30			
1955-56	91.20	80.01	40.60			
1956-57	96.90	73.52	45.80			
1957-58	85.20	40.68	39.90			
1958-59	99.10	65.07	46.40	. . .	.	.
1959-60	110.80	74.83	51.40	. . .	.	.
1960-61	105.80	70.27	117.70			
1961-62	120.30	64.07	55.30			
1962-63	142.40	87.44	65.80			
1963-64	143.80	101.22	68.90			
1964-65	214.10	107.63	99.90			
1965-66	126.10	83.20	140.40			
1966-67	118.20	87.42	129.00			
1967-68	125.40	91.91	136.50			
1968-69	116.90	100.28	122.30			
1969-70	100.00	100.00	100.00			
1970-71	169.70	97.05	169.70			
1971-72	393.70	n/a	393.70			
1972-73	409.30	n/a	409.20			
1973-74	621.90	n/a	621.90			
1974-75	931.10	n/a	931.10			
1975-76	10909.60	n/a	1090.60			
1976-77	1314.70	n/a	1314.70			
1977-78	1277.40	n/a	1277.40			
1978-79	1243.50	n/a	1243.50			
1979-80	1975.40	n/a	1975.40			
1980-81	2165.90	n/a	2165.90			

1981-82	2143.60	n/a	2143.60
1982-83	1924.90	n/a	1924.90
1983-84	2004.50	n/a	2004.50

Source: Figures derived by the method discussed in the text.

Pakistan Economic Survey, Ministry of Finance, Government of Pakistan, Islamabad, 1984-85.

25 Years of Pakistan in Statistics, Ministry of Finance, Government of Pakistan, Islamabad, 1970-71.

International Financial Statistics, International Monetary Fund (IMF), 1980 and 1984.

Table A2.15
Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Exports: By Commodity Group
(1969-70=100)

Year	Food, Beverages & Tobacco Combine Pakistan	Bangladesh	(West) Pakistan	Crude Materials Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	43.50	42.20	38.50	60.30	53.70	85.00
1953-54	42.30	41.00	37.50	58.60	52.20	82.60
1954-55	44.39	42.96	39.27	61.64	54.70	86.60
1955-56	44.53	47.03	34.91	74.94	68.18	101.81
1956-57	44.66	43.24	34.39	84.80	78.32	112.03
1957-58	81.58	50.51	88.73	84.08	82.02	103.43
1958-59	71.73	51.80	70.71	76.00	74.87	89.46
1959-60	62.09	51.42	58.62	76.65	71.38	99.63
1960-61	64.27	40.46	69.35	120.19	133.15	99.95
1961-62	78.51	57.99	78.58	94.77	98.26	96.83
1962-63	84.29	59.42	87.72	84.80	85.35	93.21
1963-64	83.64	61.32	84.52	82.27	82.81	89.85
1964-65	72.43	64.08	69.76	97.39	100.40	100.46
1965-66	80.07	61.44	81.50	95.02	96.33	101.45
1966-67	94.96	51.58	95.19	111.66	124.113	92.67
1967-68	109.31	51.67	115.57	90.89	100.64	83.42
1968-69	104.12	99.91	105.55	100.09	105.39	93.60
1969-70	100.00	100.00	100.00	100.00	100.00	100.00
1970-71	90.18	90.88	99.90	101.46	103.61	108.03

Source: Figures derived by the method discussed in the text.

Pakistan   Economic   Survey,   Ministry   of   Finance,   Government   of Pakistan, Islamabad, 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government of Pakistan, Islamabad, 1970-71.

International   Financial   Statistics,   International   Monetary   Fund (IMF), 1980 and 1984.

Combine Pakistan, Bangladesh & (West) Pakistan's
Unit Value of Exports: By Commodity Group
(1969-70=100)

Year	Manufactured Goods			Misc. Manufactured Goods		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	81.50	80.90	84.90	73.30	n/a	73.30
1953-54	79.30	78.70	82.60	71.10	n/a	71.10
1954-55	83.10	82.47	86.56	74.71	n/a	74.71
1955-56	99.94	97.51	120.05	85.41	n/a	85.41
1956-57	88.66	85.11	111.74	92.94	n/a	92.94
1957-58	106.12	104.83	112.48	107.70	n/a	107.70
1958-59	79.67	73.95	110.80	87.33	n/a	87.33
1959-60	83.65	78.62	108.91	118.41	n/a	118.41
1960-61	107.41	105.64	110.69	88.02	n/a	88.02
1961-62	89.55	83.80	118.27	92.35	n/a	92.35
1962-63	86.30	85.96	89.26	80.10	n/a	80.10
1963-64	93.19	91.69	95.40	105.90	n/a	105.86
1964-65	101.89	100.10	103.75	84.89	n/a	84.89
1965-66	119.80	118.21	125.44	167.84	n/a	167.84
1966-67	148.55	150.57	118.99	103.19	n/a	103.19
1967-68	130.76	134.61	90.30	103.03	n/a	103.03
1968-69	104.40	103.83	95.61	96.03	n/a	96.03
1969-70	100.00	100.00	100.00	100.00	n/a	100.00
1970-71	101.71	107.79	108.71	118.62	n/a	118.62

Source: Figures derived by the method discussed in the text.

Pakistan   Economic   Survey,   Ministry   of   Finance,   Government   of Pakistan, Islamabad, 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government of Pakistan, Islamabad, 1970-71.

International   Financial   Statistics,   International   Monetary   Fund (IMF), 1980 and 1984.

Table A2.17
Tariff Rates: Pakistan

Commodity Groups	Minimum*	Maximum**	Average***
All Commodities	15 percent	200 percent	65 percent
Food & Live Animals	40 percent	125 percent	60 percent
Beverages & Tobacco	40 percent	150 percent	100 percent
Crude Materials	15 percent	75 percent	50 percent
Animal & Vegetable Oils/Fats	25 percent	50 percent	50 percent
Chemicals & Related Preparations	50 percent	125 percent	50 percent
Mineral Fuels	40 percent	50 percent	50 percent
Manufactured Goods	25 percent	200 percent	70 percent
Machinery & Trans. Equipment	15 percent	75 percent	50 percent
Miscellaneous Manufactured Goods	40 percent	200 percent	100 percent
Miscellaneous Commodities	15 percent	200 percent	65 percent

* Lowest Tariff rate on a commodity falling in the commodity group.
** Highest rate on a commodity belongs to the commodity group
*** Simple mean of all rates on the various grids in a commodity group.

Source: Pakistan's   custom   tariffs,   Central   Board   of   Revenue,   Ministry   of   Finance.   Government of Pakistan, Islamabad, 1973.

Table A2.18
Gross Domestic Product and Consumer Price Index
of Combined Pakistan, Bangladesh and (West) Pakistan)

Year	Gross Domestic Product (Million Rs. in 69/70 Factor Cost			Consumer Price Index (1969/70 = 100)		
	Combine Pakistan	Bangladesh	(West) Pakistan	Combine Pakistan	Bangladesh	(West) Pakistan
1952-53	35569.50	18079.80	17489.80	59.60	n/a	60.74
1953-54	37833.10	18691.50	19141.50	66.14	n/a	62.06
1954-55	37951.30	18282.30	19699.00	64.69	53.82	62.06
1955-56	37892.90	17530.50	20362.30	61.78	55.20	61.42
1956-57	40146.90	19178.20	20941.50	64.69	60.48	65.75
1957-58	40412.00	18911.80	21500.20	70.50	65.71	71.71
1958-59	41006.10	18329.90	22676.20	72.68	67.87	74.18
1959-60	42785.70	19911.00	22874.70	70.50	65.35	71.78
1960-61	45022.00	21028.50	23993.50	74.86	68.17	76.59
1961-62	47689.30	22253.40	25435.90	76.31	69.19	77.81
1962-63	49430.80	22165.00	27265.80	76.31	71.41	77.02
1963-64	53562.40	24529.20	29033.20	77.04	72.92	77.03
1964-65	56402.30	24644.70	31757.60	79.51	75.80	79.47
1965-66	59402.70	25244.30	34158.40	84.28	81.44	84.32
1966-67	59975.10	24763.00	35212.10	88.60	88.53	88.55
1967-68	64710.10	27108.10	37602.00	96.38	93.09	98.65
1968-69	67745.80	27703.60	40042.30	98.54	95.26	98.81
1969-70	72026.90	28066.60	43960.30	100.00	100.00	100.00
1970-71	70365.60	26361.80	44093.60	105.71	103.54	104.51
1971-72	75972.70	27948.30	48024.40	107.76	102.94	112.57
1972-73	109106.40	52625.70	56480.70	134.00	149.61	118.39
1973-74	111292.00	51682.30	59609.70	181.31	216.93	145.70
1974-75	101663.40	40829.90	60833.50	260.04	335.54	184.55
1975-76	25770.00	26591.10	59178.90	316.09	409.04	223.14
1976-77	87260.60	23863.10	63397.50	321.56	403.99	239.13
1977-78	92996.60	25272.20	67724.40	350.97	438.59	263.35
1978-79	98469.60	27880.40	70589.20	370.67	461.83	279.51
1979-80	102319.90	23799.30	78520.60	416.09	529.57	302.61
1980-81	10854.20	24881.60	83659.60	469.66	600.56	338.75

1981-82	106095.40	20920.70	85174.70	538.27	697.55	378.99
1982-83	110815.30	19681.50	91133.80	593.14	784.93	401.36
1983-84	120005.40	21714.20	98291.20	642.39	858.74	426.05

Source: Figures derived by the method discussed in the text.

Pakistan   Economic   Survey,   Ministry   of   Finance,   Government   of
Pakistan, Islamabad, 1984-85.

25   Years   of   Pakistan   in   Statistics,   Ministry   of   Finance,   Government
of Pakistan, Islamabad, 1970-71.

International   Financial   Statistics,   International   Monetary   Fund
(IMF), 1980 and 1984.

APPENDIX 3: SITC

The list of commodities included in the inter-wing trade between former East and West Pakistan.

{A} Commodities exported to East from West Pakistan. That is East's imports from West.

Commodity Groups	PSTC
1. Books, printed and printed matter.	892
2. Boots and shoes.	851
3. Cement.	661
4. Chemicals.	512
5. Drugs and medicines.	541
6. Fruits and vegetables dried, salted or preserved.	005
7. Fruits and vegetables, other sorts.	005
8. Rice.	042
9. Wheat and wheat flour.	046
10. Gram.	054
11. Grain, other sorts.	043
12. Gums and resins.	292
13. Hardware.	692
14. Instruments.	695
15. Leather.	611
16. Liquor.	112
17. Machinery and mill work.	711
18. Matches.	899
19. Metals and ores.	281
20. Oil, mineral.	332
21. Rape and mustard seed oil.	422

51.	Earthenware and porcelain.	666
52.	Cutlery.	691
53.	Metals and ores.	281

{B} The commodities imported in West from East Pakistan. That is East's exports to West Pakistan.

54.	Coir manufactures, excluding rope.	654
55.	Cordage and rope of vegetable fibre, excluding jute and cotton.	265
56.	Drugs and medicines.	541
57.	Dyeing and tanning substances.	531
58.	Fruits and vegetables, dired, salted, or preserved.	051
59.	Fresh fruits.	051
60.	Fresh vegetables.	051
61.	Pulses.	043
62.	Other grains.	048
63.	Hardware and cutlery.	692 & 691
64.	Hides and skins.	211
65.	Leather.	611
66.	Mats and matting.	659
67.	Matches.	899
68.	Paper and pasteboard.	641
69.	Provisions and oilman's stores.	102
70.	Seeds, essential.	222
71.	Seeds, non–essential.	223
72.	Betelnuts.	053
73.	Cardamom.	075
74.	Chillies.	075
75.	Ginger.	075
76.	Turmeric.	075
77.	Other spices.	075

APPENDIX 4: DISINTEGRATION: INTER-WING AND EXTRA-AREA EXPORTS TO PAKISTAN AND BANGLADESH

Following Balassa (1967), we analyze three factors influencing the exports of the rest of the world to Bangladesh and (West) Pakistan, along with the exports of the two disintegrated regions to one another. These include price effects, a competitive effect, and a disintegration effect.

Price Effects

The effect of changes in prices on quantity of export supply could be analyzed by examining the various price elasticities and changes in the related prices of the ten commodity groups. However, reliable estimates of price elasticities and data of changes in the relative prices for each commodity group are not available. The price effect, therefore, has been defined as the difference between imports in current and constant prices.

Competitive Effect

The competitive effect shows the changes in the shares of the rest of the world and of the disintegrated regions in the imports of a country under investigation. To identify the competitive effect, we estimate hypothetical imports by applying average annual import growth rates in the postdisintegration period to the 1969-70 imports of each commodity group and for each supplying region. The supply regions included in this study are the former partner country and the rest of the world. The difference between the actual 1982/83 imports measured in constant prices and the hypothetical imports gives an estimate of the competitive effect.

Disintegration Effect

The disintegration effect has been defined as the difference between two sets of estimates of hypothetical imports into the country under investigation. Hypothetical imports are calculated by applying actual growth rates of imports in the pre- and postdisintegration periods respectively to the 1969/70 imports of each commodity group, and all commodities taken together. The results of the calculations are discussed in the following order: (West) Pakistan and Bangladesh.

<u>(West) Pakistan</u>

As is clear from Tables A4.1–A4.2, changes in the export prices have benefitted the rest of the world. That is, the price effect has been favourable for the rest of the worlds' exports (Table A4.1). Along with the rest of the world, Bangladesh's exports to Pakistan also appear to have a benefitted by the changes in prices (Table A4.2).

The results for the disaggregated data also point to a favourable price effect on exports of each commodity group. The major beneficiaries of price effects are three commodity groups: (i) mineral fuels; (ii) machinery and transportation equipment; and (iii) manufactured goods. While all goods seem to have benefitted from the rise in export prices, the greatest beneficiary of the price effect has been mineral fuels. This is quite understandable in the wake of the OPEC formation and the consequent substantial rise in international oil prices.

The competitive effect appears to have benefitted the rest of the world's exports to (West) Pakistan. The disaggregated data also supports this result. However, the competitive effect has been negative for the commodity group machinery and transportation equipment.

The majority of (West) Pakistan's imports come from the advanced industrialized countries, most of which have become more competitive due to the availability of new advanced technology. A number of countries among the rest of the worlds' exporters to (West) Pakistan, therefore, have improved their competitive positions. However, the situation is completely different in the case of Bangladesh's exports to Pakistan.

Bangladesh's exports to Pakistan became less competitive, as indicated by a negative competitive effect for all commodity groups. This can be explained by the fact that before disintegration Bangladesh's exports to Pakistan were not subjected to international competition.

The disintegration effect has been favourable for exports of the rest of the world, except in the cases of food and live animals, and beverages and tobacco. However, the disintegration effect has been unfavourable for Bangladesh's exports to (West) Pakistan.

TABLE A4.1

Pakistan's Imports from Rest of the World: 1970/71 & 1982/83

(Million Rs.)

Commodity Group	Actual Imports 1970/71 (1)	Hypothetical Imports* 1982/83 1952/71 (2)	Hypothetical Imports* 1982/83 1972/83 (3)	Actual Imports 1982/83 1969/70 Prices (4)	Actual Imports 1982/83 1982/83 Prices (5)	Difference Between Actual and the Hypothetical Imports in 1982/83 Price Effect (5)-(4)	Competitive Effect (4)-(3)	Disintegration Effect (3)-(2)	Total Effect (5)-(2)
	In 1969/70 Prices								
All Commodities	3438.2	6366.1	8240.0	16898.1	67818.0	50919.9	8658.1	1873.9	61451.9
Food/Live Animals	173.0	282.8	178.4	1149.5	4613.4	3463.9	971.1	-104.4	4330.6
Beverages/Tobacco	11.5	n/a	n/a	6.6	26.6	20.0	n/a	n/a	n/a
Crude Materials	195.0	392.7	607.9	893.6	3586.3	2692.7	285.7	215.2	3193.6
Animal & Veg. Oils/Fats	173.6	198.4	956.3	1048.8	4209.2	3160.4	92.5	757.9	4010.8
Chemicals & Related Prep.	431.5	1153.4	1335.9	1762.1	7071.9	5309.8	426.2	182.5	5918.5
Mineral Fuels	267.6	826.8	3636.4	5283.6	21204.8	15921.2	1647.2	2809.6	20378.0
Manufactured Goods	736.5	942.8	1925.6	2416.6	9698.7	7282.1	491.0	982.8	8755.9
Machinery & Transp. Equip.	1355.0	3478.9	4527.1	3968.3	15926.3	11958.0	-558.8	1048.2	12447.4
Miscellaneous Manufactured Goods	94.3	131.7	225.8	362.3	1454.2	1091.9	136.5	94.1	1322.5
Miscellaneous Commodities	0.3	n/a	1.5	6.1	24.4	18.3	4.6	n/a	n/a

Source: Appendix A2, Table A2.1

* Estimated using the growth rate of imports during the two periods.

n/a - not available

TABLE A4.2

Pakistan's Imports from Bangladesh: 1970/71 & 1982/83

(Million Rs.)

Commodity Group	Actual Imports 1970/71 (1)	Hypothetical Imports* 1982/83 1952/71 (2)	Hypothetical Imports* 1982/83 1972/83 (3)	Actual Imports 1982/83 1969/70 Prices (4)	Actual Imports 1982/83 1982/83 Prices (5)	Difference Between Actual and the Hypothetical Imports in 1982/83 Price Effect (5)-(4)	Competitive Effect (4)-(3)	Disintegration Effect (3)-(2)	Total Effect (5)-(2)
		In 1969/70 Prices							
All Commodities	627.94	1509.5	2656.4	204.400	820.50	616.10	-2452.0	1146.9	-689.0
Food/Live Animals	303.58	687.9	1920.8	83.000	333.10	250.10	-1837.8	1232.9	-354.8
Beverages/Tobacco	1.68	n/a	n/a	0.010	0.03	n/a	n/a	n/a	n/a
Crude Materials	11.47	25.5	75.9	59.500	238.80	179.30	-16.4	50.4	213.3
Animal & Veg. Oils/Fats	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Chemicals & Related Prep.	10.12	23.0	24.2	0.200	0.80	0.60	-24.0	1.2	-22.2
Mineral Fuels	n/a	n/a	n/a	0.600	2.30	1.70	n/a	n/a	n/a
Manufactured Goods	248.67	699.6	1358.3	61.500	246.90	185.40	-1296.8	658.7	-452.7
Machinery & Transp. Equip.	n/a	n/a	n/a	0.200	0.60	0.40	n/a	n/a	n/a
Miscellaneous Manufactured Goods	39.32	57.4	n/a	0.020	0.08	0.06	n/a	n/a	n/a
Miscellaneous Commodities	13.10	22.0	0.0	0.002	0.01	0.01	n/a	n/a	n/a

Source: Appendix A2, Table A2.7

* Estimated using the growth rate of imports during the two periods.
n/a - not available

The trade switching experienced by (West) Pakistan, as discussed earlier, has been the major effect of disintegration. This would clearly support a rise in the exports of the rest of the world to Pakistan. In seven out of ten commodity groups, disintegration in fact has been favourable for the rest of the world's exports to Pakistan.

The unfavorable disintegration effect on Bangladesh's exports to (West) Pakistan can be explained by the very fact that disintegration has led to trade reduction. The disaggregated data for (West) Pakistan's imports from Bangladesh, as discussed earlier, has also clearly indicated the trade reduction.

Bangladesh

Tables A4.3 and A4.4 present the estimate of the price, competitive and disintegration effects on the rest of the world's and (West) Pakistan's exports to Bangladesh.

As is quite clear, the price effect appears to be favourable for both the rest of the worlds' and Pakistan's exports to Bangladesh, while the competitive effect has been beneficial only for the rest of the world's exports. In fact, the results indicate that the competitive effect has been negative for Pakistan's exports to Bangladesh of all major commodity groups. This can be regarded as an indication of Pakistan's less competitive position in comparison to the rest of the world.

The disintegration effect on rest of the world's exports, as well as Pakistan's exports to Bangladesh, has been negative. This can be viewed as evidence of the trade reduction effects of disintegration on Bangladesh's trade flows.

The effect of disintegration on Bangladesh's trade flows, as discussed earlier, had been of a dominant trade reduction and some limited trade switching. After the disintegration of Pakistan, it had to look to other world markets for imports. The lack of institutional arrangements, an absence of the appropriate world markets, and most of all a serious shortage of foreign exchange with which to buy imports, all contributed to reduced exports from the rest of the world to Bangladesh. Pakistan's exports to Bangladesh are still below the level they were prior to the disintegration despite the resumption of trade in 1973/74.

TABLE A4.3

Bangladesh's Imports from Rest of the World: 1970/71 & 1982/83
(Million Rs.)

Commodity Group	Actual Imports 1970/71 (1)	Hypothetical Imports* 1982/83 1952/71 (2) In 1969/70 Prices	1972/83 (3) In 1969/70 Prices	Actual Imports 1982/83 1969/70 Prices (4)	Actual Imports 1982/83 1982/83 Prices (5)	Difference Between Actual and the Hypothetical Imports in 1982/83 Price Effect (5)-(4)	Competitive Effect (4)-(3)	Disintegration Effect (3)-(2)	Total Effect (5)-(2)
All Commodities	1503.40	3096.8	2886.60	5489.7	22032.0	16542.3	2603.1	-210.2	18935.2
Food/Live Animals	381.00	1684.7	666.20	990.2	3974.0	2983.8	324.0	-1018.5	2289.3
Beverages/Tobacco	0.72	n/a	1.00	12.7	50.9	38.2	11.7	n/a	n/a
Crude Materials	42.10	63.9	47.10	305.6	1226.5	920.9	258.5	-16.8	1162.6
Animal & Veg. Oils/Fats	106.60	163.1	185.00	387.8	1556.5	1168.7	202.8	21.9	1393.4
Chemicals & Related Prep.	285.00	1061.7	420.50	660.6	2651.0	1990.4	240.1	-641.2	1589.3
Mineral Fuels	124.80	355.7	221.40	692.8	2780.6	2087.8	471.4	-134.3	2424.9
Manufactured Goods	221.00	255.9	320.60	1055.7	4236.7	3181.0	735.1	64.7	3980.8
Machinery & Transp. Equip.	311.60	624.9	495.10	1259.9	5056.5	3796.6	764.8	-129.8	4431.6
Miscellaneous Manufactured Goods	30.70	40.6	45.30	108.0	433.4	325.4	62.7	4.7	392.8
Miscellaneous Commodities	0.01	n/a	0.01	16.4	65.9	49.5	16.4	n/a	n/a

Source: Appendix A2, Table A2.1

* Estimated using the growth rate of imports during the two periods.

n/a = not available

TABLE A4.4

Bangladesh's Imports from Pakistan: 1970/71 & 1982/83

(Million Rs.)

Commodity Group	Actual Imports 1970/71 (1)	Hypothetical Imports* 1982/83 1952/71 (2)	Hypothetical Imports* 1982/83 1972/83 (3)	Actual Imports 1982/83 1969/70 Prices (4)	Actual Imports 1982/83 1982/83 Prices (5)	Difference Between Actual and the Hypothetical Imports in 1982/83			
		In 1969/70 Prices				Price Effect (5)-(4)	Competitive Effect (4)-(3)	Disintegration Effect (3)-(2)	Total Effect (5)-(2)
All Commodities	1244.7	3208.6	2422.3	204.20	819.5	615.3	-2218.1	-786.3	-2389.1
Food/Live Animals	329.8	833.2	625.4	70.20	281.9	211.7	-555.2	-207.8	-551.3
Beverages/Tobacco	56.0	142.8	n/a	0.00	0.0	n/a	n/a	n/a	n/a
Crude Materials	245.6	496.1	413.1	83.60	335.4	251.8	-329.5	-83.0	-160.7
Animal & Veg. Oils/Fats	14.6	n/a	n/a	0.01	0.3	0.2	n/a	n/a	n/a
Chemicals & Related Prep.	58.9	303.4	179.3	1.00	4.1	3.1	-178.3	-124.1	-299.3
Mineral Fuels	0.0	n/a	n/a	0.60	2.3	1.7	n/a	n/a	n/a
Manufactured Goods	388.4	1864.9	882.8	30.90	124.1	93.2	-851.9	-982.1	-1740.8
Machinery & Transp. Equip.	40.5	80.3	318.2	17.00	68.2	51.2	-301.2	237.9	-12.1
Miscellaneous Manufactured Goods	9.8	17.2	15.4	0.80	3.0	2.2	-14.6	-1.8	-14.2
Miscellaneous Commodities	101.2	321.2	936.6	0.02	0.1	0.1	-936.6	615.4	-321.1

Source: Appendix A2, Table A2.8

* Estimated using the growth rate of imports during the two periods.

n/a = not available

In summary, the analysis of price, competitive, and disintegration effect on the rest of the world and inter-area exports to (West) Pakistan and Bengladesh reveals that there has been a trade reduction along with trade switching, as a result of Pakistan's disintegartion.

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