

Research Report Series No. 147

ON EXPANDING BILATERAL TRADE
BETWEEN PAKISTAN AND INDIA:
AN ECONOMETRIC APPROACH

SYED NAWAB HAIDER NAQVI
in collaboration with
MUSLEHUDDIN

January 1986

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS
POST BOX NO. 1091, ISLAMABAD
(Pakistan)

Research Reports Editorial Committee

DR M. GHAFFAR CHAUDHRY (Convener)

ACKNOWLEDGEMENTS

The authors are respectively Director, Pakistan Institute of Development Economics (PIDE), Islamabad, and Staff Economist at the PIDE. The present study is a part of a wider study on the subject. An earlier version of this paper was presented at the South Asian Regional Cooperation Meeting held under the auspices of Jawaharlal Nehru University, New Delhi, from 2-4 December, 1985. The authors are thankful to Mr M. Rafiq and Mr Zamir Ahmad for their computational help. They are also grateful to Syed Hamid Hasan Naqavi for making stylistic improvements.

ON EXPANDING BILATERAL TRADE BETWEEN PAKISTAN AND INDIA: AN ECONOMETRIC APPROACH

1. Introduction

Regional trade expansion has been recognized as promoter of economic growth in developing countries. This is true even if regional grouping leads to some trade diversion. This is because, in view of the rising protectionist sentiments in the developed countries the developing countries are finding it increasingly difficult to expand trade with them. Hence the need for mutual economic co-operation among the developing countries, focusing mainly on expanding intra-regional trade.

An attempt has been made in this paper to provide an analytical framework for studying trade relations between Pakistan and India and for exploring the possibilities of changing the existing situation through a conscious policy action. Notwithstanding severe data problems, the quantitative approach developed here enables us to look back on the past with dissatisfaction and towards the future with reasonable hope.

For whatever reasons, trade between Pakistan and India has remained very small despite an immense potential for promoting bilateral trade. As should be clear from Table 1, bilateral import flows have exhibited wide fluctuations. While imports of Pakistan from India grew at a compound growth rate of 5.39 percent during the 1967-1971 period, imports of India from Pakistan declined by 73.81 percent during the same period. However, during the five-year period from 1972 to 1976 imports of the two countries from each other grew appreciably: while Pakistan's imports from India rose at a compound growth rate of 183.96 percent, Indian imports from Pakistan grew by 262.27 percent. Then, from 1977 to 1981, India's imports from Pakistan grew at a compound rate of 12.04 percent, while Pakistan's imports from India declined sharply by 58.24 percent.

Note that although growth rates of bilateral trade have been very high, here is a case of appearances being deceptive, for these high rates are entirely due to negligible absolute values of trade in each of the three base years - viz. 1967, 1972 and 1977. Also, bilateral trade between Pakistan and India has never been more than 0.67 percent of the total imports of these countries. We appear to have been doing a lot of running to stay at the same place!

Table 1
Bilateral Trade of Pakistan and India

Years	In percentage terms			
	Imports of Pakistan from India		Imports of India from Pakistan	
	Compound growth rate	As percent of total imports	Compound growth rate	As percent of total imports
1967-71	5.39	0.0235	-73.81	0.0408
1972-76	183.96	0.0372	262.27	0.0833
1977-81	-58.24	0.6697	12.04	0.3379

Source: Appendices B-1 & B-2.

It should therefore be clear that the present state of bilateral trade between the two countries is highly unsatisfactory, and that a conscious effort will have to be made by both the countries to change the 'reality on the ground'.

The discussion in the paper is divided into six sections. The second section presents the estimated (import) trade equations for India and Pakistan while the third section sets out the results of the 'validation' exercise. The fourth section forecasts bilateral trade up to the year 1990, assuming reasonable values of the exogenous variables. The fifth section is in a way the most important one as it shows

how, through a set of conscious policies, these forecasts (the set of "control" solutions) can be suitably modified to produce alternative trade scenarios. The final section concludes the discussion.

2. An Econometric Link Model for Pakistan and India

In order to see the possibilities of trade expansion in quantitative terms, we present, in Appendix A, highly 'stylized' 11-equation models for India and Pakistan, which are linked together through the (import) trade equations of the two countries.¹ Despite the stylized nature of these models, they appear to do very well in dynamic simulations and are reasonably satisfactory tools for making long-term forecasts. Here we present only trade equations, but validation, forecasting and policy simulations have been done for the 'complete' models including the domestic variables. The foreign-trade equations, explaining bilateral and international trades of both India and Pakistan are reported below:²

¹ The models presented in the Appendix are part of a wider regional link model for Pakistan, India, Sri Lanka and Bangladesh. The link model, which is still in preliminary stages of estimation, is a revised version of a paper published earlier. (See: Syed Newab Haider Naqvi et al., "Possibilities of Regional Trade Expansion: A Link Model for Pakistan, India, Bangladesh and Sri Lanka", Pakistan Development Review, Vol. XXIII, No. 1, Spring 1984.)

² Note that we have estimated only import equations for each country since by identity 10 of the models, reproduced in Appendices A-1 and A-2, imports are assumed equal to exports. This strategy has the advantage of leaving export as an exogenous variable, which can be used for simulation purposes.

PAKISTAN

$$\begin{aligned} \text{MPI} &= 139.07 + 0.01\text{YP} - 789.42(\text{PMP}/\text{PGNP}) - 0.01\text{YP}(\text{D}) + \\ &\quad (3.12) \quad (-3.90) \quad \quad \quad (-2.66) \\ &\quad 675.19(\text{PMP}/\text{PGNP})\text{D} \quad \quad \quad (1) \\ &\quad (2.55) \end{aligned}$$

$$\bar{R}^2 = 0.80 \quad F = 12.77 \quad \text{DW} = 2.35$$

$$\begin{aligned} \text{MPRW} &= -53.02 + 0.22\text{YP} - 3405.04(\text{PMP}/\text{PGNP}) \quad \quad \quad (2) \\ &\quad (6.34) \quad \quad (-1.29) \end{aligned}$$

$$\bar{R}^2 = 0.65 \quad F = 13.94 \quad \text{DW} = 1.66$$

INDIA

$$\begin{aligned} \text{MIP} &= -80.02 + 6.07\text{MI} - 73.78(\text{PXP}/\text{PMI}) \quad \quad \quad (3) \\ &\quad (3.28) \quad \quad (-1.62) \end{aligned}$$

$$\bar{R}^2 = 0.88 \quad F = 43.88 \quad \text{DW} = 2.04$$

$$\begin{aligned} \text{MIRW} &= -573.49 + 49.94\text{YI} \quad \quad \quad (4) \\ &\quad (6.65) \end{aligned}$$

$$\bar{R}^2 = 0.77 \quad F = 44.28 \quad \text{DW} = 1.91$$

where

- MPI = Imports of Pakistan from India;
- MPRW = Imports of Pakistan from rest of the world;
- MIP = Imports of India from Pakistan;
- MIRW = Imports of India from rest of the world;
- PMP = Import Price Index (Pakistan);
- PXP = Export Price Index (Pakistan);
- PGNP = GNP Deflator (Pakistan);
- YP = GNP (Pakistan);
- PMI = Import Price Index (India);
- PGNI = GNP Deflator (India);
- MI = Total Imports (India);
- YI = GNP (India); and
- D = Dummy Variable (assumes a value of unity for the years from 1967 to 1975 and of zero elsewhere).

Equation (1) explains Pakistan's imports from India in terms of Pakistan's GNP, the ratio of import prices to domestic prices, and two dummy variables that capture the effects of 'abnormal' events.³ All the

³ These 'abnormal' events refer to the years 1967 to 1975, when trade between the two countries was either very small or remained suspended.

explanatory variables are statistically significant and the equation fits the data very well. Equation (2) explains imports of Pakistan from the rest of the world in terms of Pakistan's GNP and the ratio of import prices to domestic prices. Again, the equation is fairly reliable.

Equations (3) and (4) explain India's trade with Pakistan and the rest of the world. Equation (3) explains India's imports from Pakistan in terms of total imports of India and the ratio of export price index of Pakistan to import price index of India.⁴ While the coefficient of total imports measures that part of total imports of India which originates in Pakistan, the coefficient of the relative-price variable indicates shifts in the composition of total imports, by origin, induced by changes in relative prices. Equation (4) explains imports of India from the rest of the world. Both the equations are very good, and all the coefficients are significant.

The equations reported above can prove helpful in formulating policies designed to promote inter-country trade. For example, in equations (1) and (3), which explain bilateral trade between Pakistan and India, the statistically significant coefficients of domestic explanatory variables suggest that domestic factors in the importing countries do exert a significant influence on bilateral-trade flows. Furthermore, these equations highlight the importance of appropriate price policies for promoting bilateral trade.

⁴The specification used in the text is the same as used for estimating bilateral-trade flows among the EEC countries. See Chap. 2 in Herbert Glejser (ed.), Quantitative Studies of International Economic Relations. Amsterdam: North-Holland, 1976. We could not, however, estimate a similar equation for Pakistan.

The results noted above need to be interpreted with caution because of severe data limitations: trade between India and Pakistan remained suspended for five consecutive years, so that minimum values were assumed to fill in these 'blank' years.

3. Validation of the Model

To test the dynamic behaviour of the link models, reported in the Appendices A-1 and A-2, during the estimation period and their forecasting strength, a validation (within-the-sample simulation) exercise has been carried out. The Theil Inequality Coefficients (TICs) for the (import) trade equations are reported below:

Table 2
Forecasting Strength of the Model⁵

Endogenous Variables	Theil Inequality Coefficient (TIC)
Imports of India from rest of the World (MIRW)	0.03
Imports of Pakistan from rest of the world (MPRW)	0.06
Imports of India from Pakistan (MIP)	0.19
Imports of Pakistan from India (MPI)	0.35

The first two values of the TIC statistic show that the estimated equations 'track' the actual course of events with error margins of only 3 percent and 6 percent. The TIC value for MIP, which is below 20 percent, is marginally acceptable. However, the TIC value for (MPI) is much too high. Considering the fact that bilateral trade between the two countries has been fluctuating very widely owing to political and other reasons, the performance of the trade equations is not too bad.

⁵ TIC values have been worked out for the entire models reported in Appendices A-1 and A-2. Here we report only the values of trade equations, which are the relevant ones for purposes of discussion in the text.

4. Forecasting Bilateral Trade

An attempt has been made in this section to make (conditional) forecasts for both bilateral and international trades of the two countries for the period from 1982 to 1990. The forecasts and their mean values are reported in Table 3.

A look at this table clearly shows that while the inter-country trade will continue to rise in absolute terms, it will decline quite substantially from 1983 onwards in percentage terms. Also, Pakistan's imports from India will be increasing at a significantly higher rate than that of India's imports from Pakistan. It should be noted that these forecasts are conditional upon the assumed values of the exogenous variables. For instance, in the case of Pakistan, net foreign-capital inflows and domestic-credit availability are assumed to grow at 5 and 7 percent respectively in real terms, while total exports and net factor income from abroad are assumed to grow at 22 and 15 percent respectively in nominal terms.⁶ In the case of India, net foreign-capital inflows and domestic-credit availability are assumed to rise at a rate of 9 percent in real terms, while total exports and net factor income from abroad are assumed to increase by 20 and 15 percent respectively in nominal terms. Export prices of India and Pakistan are assumed to rise by 6 and 9 percent respectively. Note that the growth rates postulated here are based on the assumption that the 'historical' growth rates will hold in future as well. (See Appendices C-1 and C-2.)

⁶ Total exports and net factor income from abroad are assumed to grow in nominal terms since both the variables enter in the GNP identity in nominal terms.

Table 3
Forecast Values and the Annual Growth Rates of Imports
of Pakistan and India

Years	Imports of Pakistan from India	Growth rate	Imports of Pakistan from the rest of world	Growth rate	Imports of India from Pakistan	Growth rate	Imports of India from the rest of world	Growth rate
	(Million Pak. Rs.)	(Per- cent)	(Million Pak. Rs.)	(Per- cent)	(Million Indian Rs.)	(Per- cent)	(Million Indian Rs.)	(Per- cent)
1982	123.310	-	15209.7	-	111.201	-	28717.9	-
1983	173.715	40.88	16658.0	9.52	126.190	13.48	30521.5	6.28
1984	272.758	28.73	18263.4	6.64	142.582	12.99	32479.5	6.42
1985	266.157	19.48	19993.9	9.48	159.716	12.02	34546.2	6.36
1986	309.685	16.35	21913.3	9.60	178.637	11.85	36819.7	6.58
1987	353.967	14.30	24042.6	9.72	199.270	11.55	39308.8	6.76
1988	399.728	12.93	26406.6	9.83	230.504	15.67	43105.6	9.66
1989	452.521	13.21	29082.2	10.13	245.881	6.67	44950.6	4.28
1990	508.615	12.40	32055.7	10.22	272.442	10.80	48168.0	7.16
Mean Values	312.273		22625.044		185.16		37624.2	

5. Policy Simulations

It is interesting to see the extent to which the forecast values (the "control solution"), which portray declining inter-country trade, respond to conscious policy action. It should also be interesting to see how GNP in the two countries is affected by such trade expansion efforts. This is important because in developing countries any efforts for trade expansion must be seen in relation to their growth-promoting (retarding) effect. Hence simulations have been done with respect to both the domestic variables (GNP) and the trade variables. For this purpose, the estimated values of dynamic multipliers for the period from 1982 to 1990 and the mean values for the entire forecast period have been computed. As is customary, the simulation experiments have been done by changing the values of the exogenous variables as well as by changing the values of coefficients of the endogenous variables. The results of this important exercise should be carefully studied to see how the endogenous variables behave over time in response to a specific policy shock.

A. Change in Exogenous Variables

In the first experiment, exports are increased by 10 percent. Dynamic multipliers have been computed to study the effects of this policy shock on the domestic- and foreign-trade (endogenous) variables.⁷ While Table 4 explains this exercise in terms of symbols, Table 5 reports the mean values of the dynamic multipliers. Simulation results show that a change in exports increases the GNPs, total imports and bilateral imports of both India and Pakistan. The induced rise in GNP

⁷ Remember that in a linear model such as we have specified the 'size' of the shock is immaterial; a one-percent shock produces the same values of dynamic multipliers as, say, a 10-percent shock.

Table 4

Effects of Different Policy Shocks on GNP, Total Imports
and Bilateral Import of India and Pakistan

Policy Shocks†	Effects of Policy Shock					
	Pakistan			India		
	GNP	Total Imports	Imports from India	GNP	Total Imports	Imports from Pakistan
A. An increase in Exports	+ve†	+ve†	+ve†	+ve†	+ve†	+ve†
B. An increase in Govt. Revenues	+ve†	+ve†	+ve†	+ve†	+ve†	+ve†
C. An increase in net Foreign Capital Inflows	+ve†	+ve†	+ve*	+ve†	+ve†	+ve†
D. An increase in net Factor Income from Abroad	+ve†	+ve†	+ve†	+ve†	+ve†	+ve†
E. An increase in Domestic Credit Availability	+ve†	+ve†	+ve*	+ve†	+ve†	+ve†
F. Change in the Bi-lateral Import Co-efficients	-ve†	+ve†	+ve†	-ve†	+ve†	+ve†

(Based on Table 5)

Note: † increasing over time,
‡ decreasing over time,
+ve positive multiplier effect,
-ve negative multiplier effect,
* mixed results, both increasing and decreasing over time.

Table 5
Mean Values of Dynamic Multipliers for Pakistan and India

Policy Shocks →	A 10% increase in exports		A 10% increase in government revenues		A 10% increase in net foreign capital inflows		A 10% increase in net factor income from abroad		A 10% increase in domestic credit		A 10% increase in bilateral import Co-efficients	
	Pakistan	India	Pakistan	India	Pakistan	India	Pakistan	India	Pakistan	India	Pakistan	India
<u>Macro Variables</u>												
GNP	0.4682	1.0226	0.5504	1.1681	1.4340	0.0032	0.4683	1.0292	0.0866	0.5326	-3.4378	-0.0080
Investment	0.0783	0.2667	0.0833	0.3046	0.3491	0.0013	0.0708	0.2682	0.0533	0.2868	-0.5200	-0.0021
Money Demand	0.1647	1.4401	0.1937	1.6853	0.5170	0.0046	0.1646	1.4157	0.0302	0.7794	-1.1874	-0.0117
<u>Foreign Trade Variables</u>												
Bilateral Imports	0.0061	0.4157	0.0074	0.4749	0.0201	0.0013	0.0061	0.4181	0.0012	0.2165	0.9502	1.0054
Imports from ROW	0.1096	51.0749	0.1298	58.3335	0.3511	0.1590	0.1097	51.4139	0.0205	26.5991	-0.8094	-0.4000
Total Imports	0.1157	0.0515	0.1371	0.0568	0.3712	0.0002	0.1158	0.0519	0.0216	0.0268	0.1408	0.0006

increases total investment and demand for money as well. Next, 10-percent increases in government revenues, net foreign-capital inflows, net factor income from abroad and domestic credit availability were used to forecast the behaviour of the endogenous variables. The simulation results indicate that each of the shocks produces a significant positive multiplier effect on both the domestic and foreign-trade variables in India and Pakistan. The signs of all the multipliers are as expected.

B. Changes in Bilateral Import Coefficients

In this experiment, the coefficients of Pakistan's imports from India and India's imports from Pakistan are increased by 10 percent. It is clear from tables 4 and 5 that for Pakistan, the GNP decreases while total imports and imports from India increase appreciably as a result of this shock. The result is quite similar in the case of India, where the same shock also produces a falling GNP and a positive multiplier effect on both total imports and the imports from Pakistan.⁶

6. Concluding Remarks

The main results of this paper can now be briefly summarized. It should be obvious that the present situation with respect to bilateral trade between Pakistan and India is quite unsatisfactory, and that if a political decision is taken by the two governments to expand bilateral trade, substantive steps will have to be taken. We have attempted to analyse the existing bilateral trade relationships of the two countries with the help of a link model. It has been shown that if the exogenous variables specified in the model hold, trade between the two countries will no doubt grow in future years but at a declining rate. Hence the need for a conscious policy action to accelerate inter-

⁶ The negative values of the dynamic multipliers for GNP are explained by identities No. 8 (Appendix Tables A-1 and A-2) where MI and MP appear with a negative sign.

country trade in the years to come. Policy simulations show that the forecast values will respond positively to various policy shocks. Here we have the cheerful part of the story: if a set of appropriate domestic- and foreign-trade policies are implemented, there exist real possibilities of expanding bilateral trade and of accelerating the growth rates of the two countries.

APPENDICES

APPENDICES

- APPENDIX A-1 Estimated Model for Pakistan
- APPENDIX A-2 Estimated Model for India
- APPENDIX B-1 Actual Values of Imports of Pakistan and India
- APPENDIX B-2 Annual Growth Rates of Imports of Pakistan and India
- APPENDIX C-1 Assumed Values of the Exogenous Variables for Pakistan
- APPENDIX C-2 Assumed Values of the Exogenous Variables for India

APPENDIX A-1
Estimated Model for Pakistan

No. of Equation	Dependent Variables	Constants	Right-Hand Side Variables	Key Statistics		
				\bar{R}^2	F	DW
1	CPP	1639.70	0.78 YDP (27.00)	0.98	729.02	1.78
2	lnCCP	2.83	0.56 lnZP + 0.103 lnFKP (3.40) (1.45)	0.51	8.27	1.11
3	IP	-1057.43	0.15 YP + 0.04 CREP + 0.125 FKP (2.56) (0.29) (0.45)	0.65	8.03	1.64
4	lnMOP	-0.39	1.04 lnYP - 0.43 lnIP (10.29) (-4.79)	0.89	59.69	1.30
5	PCNP	321.64	0.90 PCNP ₋₁ + 0.00012 MOP ₋₁ - 6.32 SCP (4.14) (0.24) (-1.60)	0.99	405.81	0.86
6	MPI	139.07	0.01 YP - 789.42 (PMP/PCNP) (3.12) (-3.90) -0.01 YP(D) + 675.19 (PMP/PCNP)D (-2.66) (2.55)	0.80	12.77	2.35
7	MPRW	-53.02	0.22 YP - 3405.04 (PMP/PCNP) (6.34) (-1.29)	0.65	13.94	1.66
8			YP = CPP + CCP + IP + FAP + XP - MP			
9			YDP = YP - ZICP			
10			XIP = MPI			
11			MP = MPI + MPRW			

List of Symbols

PAKISTAN

CPP	Private Consumption Expenditure
CGP	Public Consumption Expenditure
IP	Total Investment
MOP	Money Stock
MPI	Imports of Pakistan from India
FKP	Net Foreign-Capital Inflows
CREP	Domestic-Credit Availability
MPRW	Imports of Pakistan from Rest of the World
YDP	Disposable Income
ZP	Total Government Revenues
NP	Population
YP	Gross National Product
IP	Rate of Interest
PGNP	Implicit GNP Deflator
MP	Total Imports
PMP	Import Price Index
FXP	Export Price Index
SCP	Share of Commodity-producing Sector in GDP
ZICP	Income and Corporation Taxes
FAP	Net Factor Income from Abroad

APPENDIX A-2
Estimated Model for India

No. of Equation	Dependent Variables	Constants	Right-Hand Side Variables	Key Statistics		
				R ²	F	DW
1	CPI	69.96	0.57 YDI - 0.37 II (30.79) (-0.78)	0.99	575.99	2.06
2	CGI	-35.82	0.32 ZI + 0.00011 MI + 0.00045 FKI (2.10) (3.39) (2.30)	0.96	102.44	0.91
3	II	-50.29	0.261 YI + 0.15 CREI + 0.00044 FKI (2.40) (1.04) (0.89)	0.97	131.29	2.02
4	ln MOI	-9.57	2.41 lnYI - 0.11 lnII (22.74) (-2.61)	0.98	349.56	2.14
5	lnPGNI	2.96	0.17 ln MOI + 0.27 ln MI + 0.02 lnPCNI ₋₁ (1.68) (3.13) (1.20)	0.98	203.46	1.09
6	MIP	-80.02	8.07 MI - 75.78 (PXP/PMI) (3.26) (-1.62)	0.88	43.88	2.04
7	MIRW	-573.49	49.94 YI (6.65)	0.77	44.28	1.91
8			YI = CPI + CGI + II + FAI + XI - MI			
9			YDI = YI - ZICI			
10			XPI = MIP			
11			MI = MIP + MIRW			

List of Symbols

INDIA

CPI	Private Consumption Expenditure
CGI	Public Consumption Expenditure
II	Total Investment
MOJ	Money Stock
MIP	Imports of India from Pakistan
FKI	Net Foreign-Capital Inflows
CREI	Domestic-Credit Availability
MIRW	Imports of India from Rest of the World
YDI	Disposable Income
NI	Population
ZI	Total Government Revenues
II	Rate of Interest
YI	Gross National Product
PGNI	Implicit GNP Deflator
MI	Total Imports
PMI	Import Price Index
PXI	Export Price Index
ZICI	Income and Corporation Taxes
FAI	Net Factor Income from Abroad

APPENDIX B-1

Actual Values of Imports of Pakistan and India

Years	Imports of	Compound	Imports of India from Pakistan			Currency Conversion Factor
	Pakistan from India (Million Pak. Rupees)	Growth Rate of Pakis- tans's Imports from India(%)	(Million Indian Rupees)	(Million Pak. Rupees)	Rate of com- pound Growth in Pak. Rupees (%)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1967	1.531		23.19	17.25		0.744
1968	1.895		13.82	11.07		0.801
1969	0.1398		0.108	0.092		0.855
1970	1.920		0.10	0.086		0.855
1971	1.889		0.093	0.085		0.913
1967-71		5.39			-73.51	
1972	0.3362		0.13	0.13		0.999
1973	0.2069		0.068	0.087		1.283
1974	0.005		0.0645	0.081		1.253
1975	0.454		80.21	92.64		1.155
1976	21.86		20.03	22.39		1.118
1972-76		183.96			262.27	
1977	195.40		75.46	88.06		1.167
1978	127.50		73.27	89.24		1.218
1979	77.88		66.20	81.89		1.237
1980	8.699		117.50	148.76		1.266
1981	5.941		124.00	138.76		1.119
1977-81		-58.24			12.04	

Sources: (i) IMF. Direction of Trade Statistics, Year Book.
Washington, D.C. (Various Issues)

(ii) World Bank. World Tables. Baltimore, N.J.: The
Johns Hopkins University Press. (Various Issues)

APPENDIX B-2

Annual Growth Rates: Imports of Pakistan and India
from each other and Rest of the World - 1967 to 1981

(Growth Rates in Percentage Terms)

Years	Imports of Pakistan from India	Imports of Pakistan from the rest of the world	Imports of India from Pakistan	Imports of India from the rest of the world
1967	-	-	-	-
1968	23.77	5.20	-35.83	-10.65
1969	-92.62	-16.87	-99.17	-100.78
1970	1273.39	51.93	-6.52	-4.26
1971	-1.61	12.99	-1.16	3.35
1972	-82.20	-18.75	52.94	-5.21
1973	-38.46	29.81	-33.08	21.62
1974	-97.58	15.92	-6.90	-2.77
1975	8980.00	31.68	114270.37	12.04
1976	4714.90	4.70	-75.83	-4.00
1977	793.87	-0.25	293.30	7.23
1978	-34.75	2.59	1.34	6.14
1979	-38.92	7.42	-8.24	1.55
1980	-88.83	-2.82	81.66	2.16
1981	-31.70	9.21	-6.72	1.96

Sources: (i) IMF. Direction of Trade Statistics, Year Book.
Washington, D.C. (Various Issues)

(ii) World Bank. World Tables. Baltimore, N.J.: The
Johns Hopkins University Press. (Various Issues)

APPENDIX C-1

Assumed Values of the Exogenous Variables (1982 to 1990)

PAKISTAN

Variables	1982	1983	1984	1985	1986	1987	1988	1989	1990	Assumed Growth Rate(%)
	(Billion Pak. Rupees)									
Total Exports	44.279	54.392	66.814	82.074	100.820	123.846	152.132	186.878	229.560	22.0
Net Foreign-Capital Inflows	1.380	1.449	1.572	1.598	1.678	1.762	1.850	1.942	2.039	5.0
Domestic-Credit Availability	37.418	40.114	43.004	46.103	49.424	52.985	56.803	60.896	65.283	7.0
Net Factor Income from Abroad	21.962	25.256	29.044	33.401	38.410	44.172	50.798	58.418	67.180	15.0
Total Government Revenues	13.853	15.390	17.099	18.997	21.106	23.449	26.052	28.944	32.157	11.0
Interest Rate (%)	9.96	10.70	11.49	12.34	13.26	14.24	15.30	16.43	17.65	7.0
Income & Corp. Taxes	3.934	4.524	5.203	5.983	6.881	7.913	9.100	10.465	12.035	15.0
Export Price Index (1970 = 100)	330	360	392	428	466	508	554	604	658	9.0
Import Price Index (1970 = 100)	518	570	626	689	758	834	918	1009	1110	10.0
Share of Commodity- producing Sector in GDP. (%)	42.20	42.62	43.04	43.47	43.91	44.35	44.79	45.24	45.69	1.0

APPENDIX C-2

Assumed Values of the Exogenous Variables (1982 to 1990)

INDIA

Variables	1982	1983	1984	1985	1986	1987	1988	1989	1990	Assumed Growth Rate(%)
	(Billion Indian Rupees)									
Total Exports	120	144	173	207	248	298	356	429	515	20.0
Net Foreign-Capital Inflows	3.29	3.60	3.93	4.30	4.70	5.14	5.62	6.15	6.72	9.0
Domestic-Credit Availability	293.84	322.59	354.16	388.82	426.88	468.66	512.37	564.89	620.16	9.0
Net Factor Income from Abroad	2.18	2.51	2.89	3.32	3.62	4.39	5.05	5.61	6.68	15.0
Total Government Revenues	60.71	62.25	63.82	65.43	67.06	68.77	70.21	72.29	74.11	2.5
Interest Rate (%)	9.25	9.93	10.67	11.46	12.30	13.21	14.19	15.24	16.37	7.4
Income & Corp. Taxes	31.0	34.0	37.0	41.0	45.0	50.0	55.0	61.0	67.0	9.0
Export Price Index (1970 = 100)	284.17	300.19	317.12	335.00	353.89	373.85	394.93	417.20	440.73	6.0
Import Price Index (1970 = 100)	586.0	644.0	709.0	780.0	856.0	944.0	1038.0	1142.0	1256.0	10.0
Population (in Billions)	0.705	0.720	0.735	0.751	0.767	0.783	0.800	0.817	0.835	2.0

This work is licensed under a
Creative Commons
Attribution - Noncommercial - NoDerivs 3.0 Licence.

To view a copy of the licence please see:
<http://creativecommons.org/licenses/by-nc-nd/3.0/>