CHAPTER : 6

PRICE, QUANTITY, PRODUCTION TREND AND INSTABILITY OF EXPORT

6.1 INTRODUCTION

One of the big problems with which UNCTAD has been concerned is that of stabilization of international commodity prices. The prices of primary commodities have increased relatively less than that of manufactured commodities. The export of primary products are by far the most important source of earnings of foreign exchange for most less developed countries accounting for 85 to 90 percent of their export earnings (Sodersten, 1985, p.250).

For export development in the third world, stabilization of price factor is an important pre-condition.

Similarly, like price, export quantity is also an important factor for enhancement of a country's export earnings. If export quantity remains constant a country will not be able to expand export earnings if export price remains unchanged. On the supply side export quantity depends upon its production level and domestic demand.

Most of the countries of the third world have faced crisis of foreign exchange due to severe instability of their export receipts. To see whether export-led growth will be possible to achieve in Bangladesh it is very essential to analyse the changing pattern of her export price and quantity as well as instability factor involved in it over a period of time.

Within the purview of the above the present Chapter is planned to study the changing pattern of her export price, quantity, production level and instability.

6.2 CHANGING PATTERN OF PRICE, QUANTITY AND VALUE INDICES

The export earnings of a country depend on export quantity and price. If export price and quantity increase the export earnings will increase. If one increases and the other remains the same in that case export earnings will also increase. So the changing pattern of export earnings ultimately depends upon the changing pattern of export quantity and price.

We have segregated the component of price and quantity from value index for Bangladesh's export. Price component in annual change of value index (V_x) is : $Pc = \frac{Z}{m + 100} Xm$ where Z = change in V_x over base year, $m = \frac{Y}{X}$ where X = change in quantity index (Q_x) over base year and Y = change in price index (P_x) over base year and P_c stands for price component of change in V_x. Quantity component of change in V_x will be $q_c = Z - P_c$. This formula holds good when x and y change in same direction. If x and y change in opposite direction then the formula will be changed slightly depending on the extent of change.

Table 6.1 presents the changing pattern of quantity and price indices of Bangladesh exports. The quantity index of her export rose by 155.35% in 1985-86 over 1972-73. It decreased during 1972-73 to 1974-75 and 1978-79 to 1979-80 over base year 1975-76 and increased in all other years of the period. It increased by 3.5% per annum during 1975-76 to 1985-86 and

decreased by 13.78% per annum during 1975-76 to 1972-73 on average.

The export price index decreased in 1972-73 and 1973-74 and increased in all other years over base year.

The export value index decreased during 1972-73 to 1974-75 and increased in other years.

The exponential rate of increase was 6.09% for quantity index, 10.23% for price index and 17.03% for value index during 1972-73 to 1985-86. So the continuous compound rate of increase of export price index was 4.14 percentage points higher than that of export quantity index.

In 1972-73 the export quantity and price indices fell by 44.75 and 11.58 percentage points respectively over base year and as a result of which export value index decreased by 51.15 percentage points. Here both V_x and P_x were pulling down V_x. But 25.88% of the fall of V_x was explained by P_x and 74.12% (=100 -25.88) was explained by q_x. Similarly in 1973-74 V_x fell due to two combined negative forces. But only 12.45% of the fall of V_x was explained by the fall in P_x and the rest was explained by the fall in q_x. In the year 1974-75 P_x and q_x were working on V_x in opposite direction. P_x was pushing up V_x and q_x was pulling it down. But the force of q_x was more than that of P_x. P_x was only 29.96% percent of q_x. As a result V_x was forced to fall down by 44.45 percentage points over base year on account of more powerful q_x.

In 1985-86 both P_x and q_x were working in positive direction. They together pulled up V_x by 312.76 percentage points

over base year. But the pulling power of P_x was about 5 times more than that of q_x.

During the period from 1976-77 to 1985-86 the price component was larger than quantity component and both of them were working in positive direction to raise V_x except in 1978-79 and 1979-80. In these two years q_x was pulling down V_x due to its negative change. But P_x was more powerful and pulling up V_x. As a result V_x was forced by P_x to rise over base year. During the whole period from 1972-73 to 1985-86 price component was working in positive direction to raise export value index except in 1972-73 and 1973-74.

The quantity component of export value index was working in positive direction in 8 years and pushing up value index. It was working in negative direction in 5 years and pushing down export value index.

But during the whole period price component was far more than quantity component in its positive change and it was far less than the quantity component in its negative change.

In 1972-73 the price component was-10.52 percentage points and quantity component was -40.63 percentage points and both pulled down V_x by 51.15 percentage points. In 1979-80 price component was 89.59 percentage points and quantity component was -1.92 percentage points. That is V_x was raised by 89.59 percentage points by price component and pulled down by 1.92 percentage points by quantity component. As a result V_x rose by 87.67 percentage points over base year.

Above analysis indicates that in positive change of

Table : 6.1

Segregation of price component and quantity component from export value index in Bangladesh during 1972-73 to 1985-86

Year	Percentage Points change over base year 1975-76 $\frac{q_x}{(x)}$	$\frac{P_x}{(Y)}$	$\frac{V_x}{(z)}$	$\frac{Y}{X}$ X100 = m	Qx	P_x	V_x	Price component =Pc	Quantity component =qc
1.	2	3	4	5	6	7	8	9	10
1972-73	-44.75	-11.58	-51.15	25.88	↓	↓	↓	-10.52	-40.63
1973-74	-44.75	-5.57	-47.83	12.45	↓	↓	↓	- 5.30	-42.53
1974-75	-51.93	15.56	-44.46	29.96	↓	↑	↓	10.25	-54.76
1975-76	0	0	0	0	=	=	=		
1976-77	3.48	4.02	7.64	115.52	↑	↑	↑	4.09	3.55
1977-78	2.63	22.81	26.04	867.00	↑	↑	↑	23.35	2.69
1978-79	-1.63	53.39	51.47	4271.2	↓	↑	↑	52.65	-1.18
1979-80	-2.05	91.60	87.67	4468.29	↓	↑	↑	89.59	-1.92
1980-81	4.91	74.99	83.58	1527.29	↑	↑	↑	78.44	5.14

cont.

Table : 6.1 (cont.)

1	2	3	4	5	6	7	8	9	10
1981-82	15.83	67.66	94.20	427.42	↑	↑	↑	76.33	17.78
1982-83	31.53	104.51	168.99	331.46	↑	↑	↑	129.82	39.17
1983-84	27.66	153.27	223.32	554.12	↑	↑	↑	189.18	34.14
1984-85	6.21	253.65	275.61	4084.54	↑	↑	↑	269.02	6.59
1985-86	41.08	192.57	312.76	468.77	↑	↑	↑	257.77	54.99
			Average rate of increase per annum in (%)						
1972-73 to 1985-86	6.92	8.92	16.47						
1975-76 to 1985-86	3.50	11.33	15.52						
1972-73 to 1975-76	-13.78	-3.03	-16.40						
			Continuous Compound rate of Growth (%)						
1972-73 to 1985-86	6.09	10.23	17.03						

Note: q_x = Quantity index
P_x = Price index
V_x = Value index
↑ : Rise
↓ : Fall

Source : Appendix Table : 6

Bangladesh exports earnings the price component was more prominant than that of quantity component. That is the price raised the export earnings of the country more than the quantity of export commodities.

6.3 EXPORT PRICE INDEX Vs GENERAL PRICE INDEX

General price index possesses some influence on growth of export earnings of the country. Any domestic output has two options for sale : it can be sold either in domestic market or in foreign markets. Again the sale is influenced by its domestic price and export price. If domestic price remains higher than export price then the producer would be more interested to sell goods in domestic market. In that case export quantity may shrink and vice versa. So here we attempt to make a comparison of export price index with general price index to see which one increased more over a period of time.

We have no separate data for export price index of agricultural and industrial goods. So we have to make comparison of export price index with domestic industrial price index and agricultural price index. This will give us a gross idea about how the prices of these types of commodities changed in comparison with export price index over a period of time.

Table 6.2 presents the comparison of export price index (P_x) with general price index (P_g), industrial price index (Pi), and Agricultural price index (Pa).

General price index in Bangladesh increased by 49.97 percentage points in 1986-87 over base year 1975-76, whereas

Table : 6.2

Comparison of export price index (P_x) with general price index (P_g), agricultural price index (P_a) and Industrial price index (P_i).

Base Year : 1975-76

Year	$\frac{P_x}{P_g} \times 100$ %	Average Annual Growth in %			
		P_g	P_x	P_a	P_i
1973-74	99.09		1973-74 to 1986-87		
1974-75	124.30	3.29	7.52	11.31	8.44
1975-76	100				
1976-77	96.01		1973-74 to 1979-80		
1977-78	103.41	4.10	10.64	11.24	9.18
1978-79	121.55				
1979-80	151.76		1980-81 to 1986-87		
1980-81	128.22				
1981-82	122.91	1.36	5.85	10.05	7.71
1982-83	157.65				
1983-84	186.93				
1984-85	252.44				
1985-86	214.90				
1986-87	173.90				

Note : P_g = General price index
P_x = Export price index
P_a = Agricultural price index and
P_i = Industrial price index

Source : Appendix Tables : 6 and 12

export price index increased by 160.46 percentage points in 1986-87 over same base year. So export price index increased by 110.49 percentage points more than general price index.

The average rate of increase of general price index was 3.29% per annum against 7.52% rate of increase of export price index per annum during 1973-74 to 1986-87. So the average rate of increase of export price was 4.23 percentage points higher.

If the export price index is compared with agricultural and industrial price indices it could be observed that their average growth rate was higher than that of export price index. Their average annual rate of growth was 3.79 percentage points and 0.92 percentage points higher than that of export price index respectively.

During 1980-81 to 1986-87 the average rate of increase of all indices was lower than that of their concerned indices during 1973-74 to 1979-80.

The average growth of export price index was 4.49 percentage points higher during 1980-81 to 1986-87 and 6.54 percentage points higher during 1973-74 to 1979-80 than general price index. On the other hand its average growth was 4.2 percentage points lower during 1980-81 to 1986-87 and 0.60 percentage points lower during 1973-74 to 1979-80 than the agricultural price index.

Similarly its growth was 1.86 percentage points lower during 1980-81 to 1986-87 and 1.46 percentage points higher during 1973-74 to 1979-80 than that of industrial price index.

Among four indices the average growth rate of agricultural

price index was the highest in all the three periods and the index was the lowest for general price level. The general price index thus, may not have hindered the growth of the sale of export commodities in foreign market.

6.4 PRICE AND QUANTITY MOVEMENT OF DIFFERENT EXPORT COMMODITIES

In the previous section we have seen the changing pattern of export price and quantity in totality. From that analysis we can not say what has happened to the price and quantity of individual export commodities. In the present section we have attempted to analyse the changing pattern of export price and quantity of different commodities. We have selected commodities depending on the availability of relevant data. We have to exclude garments from this analysis due to lack of required data. The following commodities are chosen for analysis : Raw Jute, Tea, Prawns, Shrimps, Fish, Frog legs, Jute goods, Newsprint, and Leather. We have covered the period from 1972-73 to 1985-86. Table 6.3 and Table 6.4 present the changing pattern of export price and export quantity of the above commodities.

The price of raw jute increased by 15.55% per annum during 1972-73 to 1978-79 and 5.11% per annum during 1979-80 to 1985-86 on average. So the average rate of increase of its price was higher during former period than in the latter period. The exponential rate of increase of its export price was 10.73% per annum with 0.19% rate of acceleration.

The export quantity of raw jute decreased by 5.05% per annum during 1972-73 to 1978-79 and increased by 2.26% per annum

during 1979-80 to 1985-86.

The exponential rate of decrease of its export quantity was 2.03% per annum with rate of deceleration of 0.7% percent.

The export price of tea increased by 16.27% per annum during 1972-73 to 1985-86. Its average rate of increase was higher by 21.72 percentage points during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. The continuous compound rate of increase of export price of tea was 18.25% per annum with rate of acceleration of 0.75%. The continuous compound rate of increase of its export quantity was 3.06% per annum with 0.84% rate of retardation.

The average annual rate of increase of export price of prawns was 13.21 per cent per annum during 1972-73 to 1985-86. Its average rate of growth was 18.68 percentage points higher during 1972-73 to 1978-79 than that in 1979-80 to 1985-86. The exponential rate of growth of its export price was 13.74% per annum with rate of deceleration of 2.61%.

The average annual rate of growth of export quantity of prawns was 7.98 percentage points higher during 1979-80 to 1985-86 than that during 1972-73 to 1978-79.

The exponential rate of increase of its export quantity was 28.13% per annum with 0.99% rate of acceleration.

The export price of shrimps increased by 19.36% per annum during 1972-73 to 1985-86. Its average annual rate of increase was 30.52 percentage points higher during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. The continuous compound growth of its export price was 16.18 per cent per annum with

Table : 6.3

The changing pattern of export price of different commodities in Bangladesh during 1972-73 to 1985-86 in Taka term

Export Price Indix Base Year : 1975 - 76

Year 1	Raw Jute 2	Tea 3	Prawns 4	Shrimps 5	Fish 6	Frog legs 7	Jute goods 8	News-print 9	Leather 10
1972-73	56.54	33.33	49.12	19.35	33.61	90.91	54.43	54.27	100
1973-74	62.04	41.67	49.12	32.26	40.36	100	61.48	80.19	110.38
1974-75	91.81	66.67	49.12	45.16	50.09	100	78.63	74.65	100
1975-76	100	100	100	100	100	100	100	100	100
1976-77	113.06	174.99	117.54	130.65	124.40	240.91	102.17	115.97	89.42
1977-78	131.06	191.67	152.63	112.90	103.07	218.18	118.87	126.57	79.92
1978-79	155.55	191.67	205.26	164.52	173.20	231.82	150.85	145.25	70.41
1979-80	158.85	174.99	212.28	161.29	154.73	190.91	182.90	202.25	192.26
1980-81	139.76	174.99	171.93	122.58	218.26	186.36	185.80	254.10	73.79
1981-82	144-17	174.99	189.47	182.26	260.72	172.73	182.73	327.85	80.59

-cont-

Table : 6.3 (cont.)

1	2	3	4	5	6	7	8	9	10
1982-83	159.46	291.67	257.89	201.61	307.98	245.45	206.35	337.52	92.96
1983-84	178.78	416.67	219.29	204.84	272.12	349.99	239.21	297.90	124.30
1984-85	371.68	491.67	231.58	217.74	277.34	354.55	321.08	391.17	129.56
1985-86	225.10	274.99	278.95	230.65	282.56	431.82	373.49	390.11	135.04
				Average Annual Growth (%)					
1972-73 to 85-86	10.37	16.27	13.21	10.36	16.43	11.37	14.75	15.13	2.17
1972-73 to 70-70	15.55	28.39	22.66	35.76	26.39	14.31	15.68	15.10	-4.90
1979-80 to 85-86	5.11	6.67	3.98	5.24	9.92	12.37	10.74	9.84	-4.92
				Continuous Compound Rate of Growth (%)					
	10.73	18.25	13.74	16.18	16.98	10.85	13.79	15.70	1.63
				Rate of Acceleration/Deceleration (%)					
	0.19	0.75	-2.61	-0.26	-2.77	0.21	-0.41	-0.88	0.36

Source : Appendix Table : 12

0.26% rate of retardation.

The export quantity of shrimps increased by 14.18% per annum on average. Its average rate of growth was 16.69 percentage points higher during 1979-80 to 1985-86 than that during 1972-73 to 1978-79. The exponential rate of growth of its export quantity was 16.23% per annum with 2.81% rate of acceleration.

The export price of fish increased by 16.43% per annum on average. Its average annual rate of growth was 16.47 percentage points higher during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. The continuous compound rate of increase of its export price was 16.98% per annum with 2.77% rate of retardation. Its export quantity increased by 36.02% per annum during 1972-73 to 1978-79 and decreased by 2.10% per annum during 1979-80 to 1985-86 on average. The exponential rate of increase of its export quantity was 21.61% per annum with 5.38% rate of deceleration.

The exponential rate of increase of frog legs export price was 10.25% per annum with 0.21% rate of acceleration. The export quantity of frog legs increased by 39.48% per annum on average. Its average rate of growth was 21.28 percentage points higher during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. Its continuous compound rate of increase was 37.19% per annum with 0.38% rate of acceleration.

The average export price of jute goods had an increasing trend with some sorts of fluctuations during the period under review. Its average rate of increase was 4.94 percentage points higher during 1972-73 to 1978-79 than that during 1979-80 to

Table : 6.4

The changing pattern of export quantity of different commodities in Bangladesh during 1972-73 to 1985-86

Export Quantity Index Base Year : 1975-76

Year	Raw Jute	Tea	Prawns	Shrimps	Fish	Frog legs	Jute goods	News-print	Leather
1	2	3	4	5	6	7	8	9	10
1972-73	120.54	82.38	109.52	116.29	24.14	36.17	91.77	170.53	31.25
1973-74	113.42	100	109.99	117.67	67.38	51.06	95.89	163.56	35.06
1974-75	65.99	88.55	85.71	63.83	63.43	71.28	80.95	174.14	37.70
1975-76	100	100	100	100	100	100	100	100	100
1976-77	96.97	144.49	302.86	122.04	172.06	532.98	101.52	115.76	130.08
1977-78	71.03	124.23	159.05	91.43	190.03	435.11	114.72	295.39	331.34
1978-79	83.85	118.06	304.29	151.50	207.97	1673.40	99.99	276.72	167.00
1979-80	83.85	103.52	562.86	201.50	283.36	982.98	98.48	242.89	135.68
1980-81	81.17	127.07	659.52	235.91	283.36	1123.40	108.66	194.33	233.90
1981-82	85.77	137.89	1186.67	245.58	340.38	3695.74	116.23	143.29	263.85

cont.

Table : 6.4 (cont.)

1	2	3	4	5	6	7	8	9	10
1982-83	95.70	138.33	1385.24	377.34	524.25	2748.9%	111.26	79.12	337.03
1983-84	80.99	147.89	1499.52	468.29	750.89	1384.04	102.81	4.64	350.41
1984-85	60.42	116.74	1934.29	496.55	980.61	1814.89	96.32	248.18	293.82
1985-86	98.04	131.37	2494.76	744.88	244.26	3817.02	106.93	246.03	293.49
				Average Annual Growth (%)					
1972-73 to 1985-86	-1.46	6.89	25.02	14.18	17.98	39.48	1.09	2.65	17.35
1972-73 to 1978-79	-5.05	5.27	15.72	3.85	36.02	42.67	1.23	7.16	27.05
1979-80 to 1985-86	2.26	3.46	23.79	20.54	-2.10	21.39	1.18	0.18	11.65
				Continuous Compound Growth (%)					
	-2.03	3.06	28.13	16.23	21.61	37.19	1.19	5.22	18.32
				Rate of Acceleration/Deceleration (%)					
	-0.7	-0.94	0.99	2.81	-3.86	0.38	-0.50	-0.79	-1.02

Source : Appendix Table : 12

1985-86. The continuous compound (i.e. exponential) growth of its export price was 13.79% per annum with 0.41% rate of deceleration. The export quantity of jute goods had a stagnant trend with persence of fluctuations. Its average rate of increase was a little bit higher (0.05 percentage point) during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. The exponential rate of increase of its export quantity was 1.19% per annum with 0.50% rate of deceleration.

The export price of newsprint had a sharp increasing trend with little sorts of fluctuation during the period under review. Its export price increased by 15.70% per annum at a continuous compound rate of with 0.88% rate of deceleration. Its export quantity had a fluctuating trend during the whole period. Its annual rate of change was positive in 4 years and negative in 9 years. Its continuous compound rate of increase was 5.22% per annum with 0.79% rate of deceleration.

The average export price of leather and leather products had a fluctuating trend upto 1980-81 and since then an increasing trend. The exponential rate of increase of their export price was 1.63% per annum with 0.36% rate of acceleration. Their export quantity had an increasing trend upto 1977-78 and since then a fluctuating trend. Their export quantity increased by 18.32% per annum at continuous compound rate with 4.01% rate of deceleration.

6.5 COMPARATIVE POSITION OF EXPORT PRICE AND QUANTITY OF DIFFERENT COMMODITIES

We have seen in the previous section the changing pattern

of export price and quantity of different commodities individually. Now we want to make a comparative analysis of export price and quantity of different commodity groups. The export price and quantity will be analysed here from different angles.

When the prices of primary commodities are considered it is observed that the export price of tea increased at the highest rate of 18.25% per annum which was followed respectively by fish, shrimps and prawns. Among these items the export price of raw jute increased at the lowest rate of 10.73% per annum which was followed by frog legs.

Among manufactured commodities the export price of newsprint increased at the highest rate of 15.70% percent per annum which was followed by jute goods. The export price of leather increased at the lowest rate of 1.36% per annum.

The average growth rate of export price of primary commodities was 14.46% per annum which was 10.37% on average for manufactured commodities. So the average growth rate of price of manufactured commodities as a group was lower than that of primary commodities as a group.

Among primary commodities the exponential growth rate of export price of raw jute, tea and frog legs accelerated while that of others decelerated. Beside this the growth rate of export price of all manufactured commodities decelerated.

Among primary commodities, the export quantity of frog legs increased at the highest rate of 37.19% per annum which was followed by prawns, fish and shrimps respectively. The export quantity of raw jute decreased by 2.03% per annum while

the export quantity of tea increased at the lowest rate of 3.06% per annum.

Among manufactured goods, the export quantity of leather increased at the highest rate of 18.32% per annum which was followed by newsprint. The export quantity of jute goods increased at the lowest rate of 1.19% per annum.

The average growth rates of export quantity of primary commodities was 9.13 percentage points higher than that of manufactured commodities.

The growth rate of export quantity of prawns, shrimps and frog legs accelerated while that of other commodities decelerated among primary commodities (Table 6.4).

The growth rate of export quantity of all manufactured commodities decelerated.

6.6 SEGREGATION OF DEVALUATION EFFECT FROM EXPORT PRICE CHANGE

Bangladesh currency was devalued frequently in terms of major foreign currencies. It devalued from TK 7.35 per US dollar in 1972-73 to TK. 30.27 per US dollar in 1985-86. It devalued from TK. 8.85 per SDR and TK. 18.97 per pound sterling in 1972-73 to TK. 35.45 per SRD and TK. 46.36 per pound starling in 1985-86 respectively.

The depreciation of Bangladesh currency was one of the main reasons for a rise in export price of different commodities in Bangladesh in her domestic currency. So with a view to find out the real change in export price of different export commodities in Taka term attempt has been made to segregate

Table : 6.5

Impact of devaluation on export price of Bangladesh commodities and real change of price in US dollar terms during 1972-73 to 1985-86

Items	Average rate of change of price in US $	Continuous compound rate of change in TK	Continuous Compound rate of devaluation	Real change of price (3-4) percentage points	Average of rate change		Real change of price at average rate (6-7) percentage points
					Price	Devaluation	
	%	%	%		%	%	
1	2	3	4	5	6	7	8
Raw Jute	-0.24	10.73	9.76	0.97	10.31	10.64	-0.33
Tea	5.09	18.25	9.76	8.49	16.27	10.64	5.63
Prawns	2.32	13.74	9.76	3.98	13.21	10.64	2.57
Shrimps	7.89	16.18	9.76	6.42	19.36	10.64	8.72
Fish	5.24	16.98	9.76	7.22	16.43	10.64	5.79
Frog legs	1.02	10.85	9.76	1.09	11.77	10.64	1.13
Jute goods	3.72	13.79	9.76	4.03	14.75	10.64	4.11
Newsprint	4.06	15.70	9.76	5.94	15.13	10.64	4.49
Leather	-7.65	1.63	9.76	-8.13	2.17	10.64	-8.47

Note : Column-2 computed on the basis of price in US dollar terms which is found from price in Taka multiplied by corresponding exchange rate between Taka and US dollar.

Source : Appendix Table 12 and Previous Table

devaluation effects from export price change.

Table 6.5 presents the impact of devaluation on export price and real price change in US dollar terms.

The average rate of devaluation of her currency was 10.64 per annum during 1972-73 in 1985-86 in US dollar terms. The exponential rate of devaluation was 9.76% per annum. This extent of devaluation of her currency influenced the change of export price of commodities to a greater extent. Here three methods have been used to segregate devaluation effects from export price changes. The results of three methods are almost same except presence of very little difference in degree of changes.

The table reveals that the export prices of all commodities except raw jute and leather increased durigg 1972-73 to 1985-86 in dollar term. The export price of raw jute decreased by 0.24% per annum during the said period when the average rate of change of its export price is computed in US dollar terms. Similarly its export price decreased by 0.33% per annum when the average rate of devaluation of Bangladesh currency is deducted from the average rate of increase of its export price. But its export price seems to have increased at a low rate (0.94 percentage points) during the period under review when the continuous compound rate of devaluation of her currency is deducted from continuous compound rate of increase of its export price. Now the controversy is what has happened actually to raw jute price in international market. Actually the price of raw jute has increased by a little extent in US dollar term.

But its price has been fluctuating to a greater extent.

To mitigate the fluctuation of raw jute export price and stabilise the export quantity a world body "International Jute Organisation" (IJO) has been set up.

Among export commodities of Bangladesh the export price of tea increased at the highest rate which was followed by fish, shrimps, newsprint, jute goods and prawns in real terms, respectively. The export price of leather decreased in real terms when devaluation effect is deducted from the change of its price.

6.7 CHANGING PATTERN OF PRODUCTION OF MAJOR EXPORT ITEMS

On the supply side the exports of a country depend on the level of production and domestic demand mainly. In the previous section we have analysed the changing pattern of export price and quantity. Now we devote outself to see the changing pattern of production of major export commodities over a period of time. The pattern of production will show how the production of major export commodities changed over the past. Side by side with priduction, we shall try to see how the share of the export in total production changed.

Based on the availability of data we have selected the following commodities: raw jute, tea, shrimps and prawns, fish, jute manufactures and newsprint. The results are presented in Table 6.6.

Raw Jute

Production of raw jute is a function of land productivity, area under cultivation, availability of modern inputs and climatic conditions. Again total land area is influenced by price of raw jute in previous year and relative price of rice and land productivity depends on availability of fertilizers, pesticides, modern seeds, agricultural credit, land holding size, skill of the farmers etc. and to a greater extent on climatic conditions.

Attempts have been made here to find out the changing pattern of production, land productivity, area under cultivation and domestic consumption.

The production of raw jute increased from 6624 thousand bales in 1972-73 to 7650 thousand bales in 1985-86. Its production decreased by 0.21% per annum during 1972-73 to 1978-79 and increased by 3.45% per annum during 1979-80 to 1985-86 on average. The production index of raw jute indicates that its total production was fluctuating during the whole period. Its production increased by 0.99% per annum at continuous compound rate with 0.05% rate of acceleration.

Total land area under jute cultivation increased from 2258 thousand acres in 1972-73 to 2304 thousand acres in 1985-86. The area under jute cultivation increased by 0.71% per annum at exponential rate with 0.13% rate of retardation.

The yield per acre of land increased by 13.08% from 14.68 maunds in 1972-73 to 16.06 maunds in 1985-86. The yields per acre of land increased at an exponential rate of 1.71% per

annum with 0.01% rate of acceleration. The rate of acceleration indicates that the growth rate of yields per acre increased over a period of time. So Bangladesh possesses further possibility of increasing yield per acse with application of modern inputs.

Jute production per acre of land was declining during the period from 1969-70 to 1974-75. This was due to lack of credit, modern pesticides, fertilizers and seeds because of distortions and disruption of the total economy during liberation war of the country.

Raw jute exports as percentage of its production decreased from 42.71% in 1972-73 to 27.53% in 1985-86. The average rate of decrease of export share in total production was 1.03% per annum. Beside this the domestic consumption of jute mills decreased by 1.82% per annum during 1972-73 to 1985-86.

The domestic consumptions as well as exports share in total production was very much fluctuating. One year's production of jute usually is carried over to next yeat depending on market price and demand situation. As a result it is usually found that summation of shares of export and domestic consumption in some years exceeds cent percent of production of that year.

Tea

Total production of tea increased from 24 thousand matric tons in 1972-73 to 41 thousand matric tons in 1985-86. The index of production shows that its total production was rising with some sorts of fluctuation. Its total production was

increasing at a continuous compound rate of 3.49% per annum with 0.83% rate of deceleration. The land area under tea culativation was varying from 106 thousand acres to 112 thousand acres during the said period. The average rate of increase of yield per acre of land was higher during 1972-73 to 1978-79 than that during 1979-80 to 1985-86. Its per acre yield was increasing at an exponential rate of 3.3% per annum with 0.09% rate of retardation.

Export share in total production decreased from 77.92% in 1972-73 to 72.73% in 1985-86. The export share of production had a static trend with presence of wide fluctuations.

Shrimps and Prawns

The total catch of shrimps and prawns increased from 24 thousand m. tons in 1972-73 to 40 thousand m. tons in 1985-86. Their catch had a constant trend during 1972-73 to 1975-76 and 1978-79 to 1980-81 and increasing trend during 1975-76 to 1977-78 and 1981-82 to 1985-86. Their catch decreased by 4.81% per annum during 1972-73 to 1978-79 and increased by 13% per annum during 1979-80 to 1985-86. The decline of their catch during former period was the result of high dependence on natural sources (like river, sea). Their production increased during the later period due to mainly increase of farm supply. The supply of farm sources rose due to increase of farm numbers and their total production which was inspired by credit facilities extended by the financial institutions and higher rate of increase of export price. Their production rose by 1.28% per annum at an exponential rate with 0.46% rate of acceleration.

Export share in total production of shrimps and prawns increased very sharply from 12.08% in 1972-73 to 55.25% in 1985-86. The average rate of increase of export share was 11.47% per annum. This was higher than the rate of increase of total production due to higher rate of rise of export price than that of their domestic price.

Fish

The production of fish decreased from 794 thousand m.tons in 1972-73 to 719 thousand m. tons in 1985-86. It can be remarked from production index that the production of fish was increasing slightly during 1972-73 to 1974-75 and 1977-78 to 1983-84 and was decreasing during the rest of the period. It's production was decreasing by 3.29% per annum during 1972-73 to 1978-79 and was increasing by 1.93% per annum during 1979-80 to 1985-86 on average. A very remarkable feature is that the total production level in no single year beyond 1974-75 could reach the level of production in 1972-73. The continuous compound rate of decrease of fish production was 0.37% per annum with an acceleration rate of 0.09% during 1972-73 to 1985-86. This decline in fish production was due to rapid decrease of supply of fresh water fish. The causes for the decline of fresh water fish were mainly: (i) massive use of pesticides for farming killed the fish fries, (ii) most of the small rivers become dry during summer due to inadequate flow of water in main rivers, (iii) massive use of ponds, beels and haors water for irrigation makes them dry in most cases and (iv) large scale use of ground water by shallow and deep tubewells forces ground water level to

Table : 6.6

The changing pattern of production of different export commodities and share of exports in total production

Base Year : 1975-76

Year	Raw Jute		Tea		Shrimps and Prawns		Fish		Jute Goods		Newsprint	
	Production Index	Export as %of Production	Production Index	Export as %of Production	Production Index	Export as %of Production	Production Index	Export as %of Production	Production Index	Export as %of Production	Production Index	Export as %of Production
1	2	3	4	5	6	7	8	9	10	11	12	13
1972-73	165.6	42.71	82.76	77.92	100	12.08	129.11	0.08	91.77	95	137.17	44.61
1973-74	152.65	43.60	93.10	84.07	100	12.08	129.43	0.23	102.88	89	132.02	44.45
1974-75	88.25	43.88	110.34	62.81	100	6.67	129.76	0.22	91.36	84	143.59	43.52
1975-76	100	58.68	100	788.28	100	10.42	100	0.45	100	95	100	35.88
1976-77	121.83	46.71	117.24	96.47	108.33	13.08	99.99	0.77	102.47	94	72.78	57.08
1977-78	135.88	30.67	124.14	78.33	124.99	8.00	99.67	0.86	114.20	95	137.85	76.89
1978-79	163.25	30.14	131.03	70.53	70.83	24.12	102.11	0.91	104.73	91	167.66	59.26
1979-80	150.85	32.62	124.14	65.28	70.83	33.53	102.28	1.24	109.26	84	190.16	45.84
1980-81	124.63	38.21	134.48	75.13	70.83	39.41	102.93	1.24	121.40	85	151.73	45.96

cont.

Table : 6.6 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13
1981-82	117.15	42.96	131.03	82.37	74.99	45.00	108.62	1.41	120.78	91	192.85	26.66
1982-83	123.00	45.65	137.93	78.5	79.17	60.53	114.63	2.05	117.28	90	131.30	21.62
1983-84	131.33	36.19	144.83	80.48	112.49	51.11	118.37	2.85	111.93	87	140.77	1.39
1984-85	128.8	27.52	127.59	71.62	137.5	46.36	117.72	3.74	107.00	86	225.73	39.45
1985-86	191.25	27.53	141.38	72.73	166.67	55.25	116.91	0.94	94.24	101	242.00	36.48
					Average Rate of Growth in percentage							
1972-73 to 85-86	1.03	-	3.90	-	3.72	-	-0.62	-	0.67	-	4.14	-
1972-73 to 78-79	-0.20	-	6.78	-	-4.81	-	-3.29	-	-	-	2.91	-
1979-80 to 85-86	3.45	-	1.87	-	13.00	-	1.93	-	-	-	3.50	-
					Continuous Compound Rate of Growth in Percentage							
	0.99	-	3.49	-	1.22	-	-0.32	-	1.05	-	4.46	-
					Rate of Acceleration/Deceleration in Percentage							
	0.05	-	-0.83	-	0.66	-	0.09	-	-0.81	-	1.09	-

Source : Appendix Table : 12

go down and thus make pound, tanks, dishis etc. dry and affect fish production.

The export share of fish production increased from 0.08% in 1972-73 to 0.94% in 1985-86. The export share in production was increasing slowly during 1972-73 to 1984-85. But it fell suddenly in 1985-86. Fall of export share in 1985-86 was due to decline in production and increase of domestic demand which caused rise of price in domestic market.

Jute Manufactures

The production of jutegoods increased from 446 thousand m. tons in 1972-73 to 490 thousand m. tons in 1985-86. It increased by 0.67% per annum during 1972-73 to 1985-86 and decreased by 0.79% per annum during 1969-70 to 1985-86 on average. But the number of looms (installed capacity) increased by 1.1% during 1969-70 to 1985-86 and 0.67% per annum during 1972-73 to 1985-86 on average.

Similarly the number of permanent workers increased by 0.74% per annum during 1969-70 to 1984-85 and by 1.52% per annum during 1972-73 to 1984-85. Although the number of permanent workers and number of looms increased the production failed to reach the level of production in 1969-70.

The loom utilisation decreased by 13.29% from 95.55% in 1969-70 to 82.85% in 1985-86. Looms utilization is measured by the formula:

$$U = \frac{\text{No of looms in operation}}{\text{Installed Capacity}} \times 100$$

The production per loom (installed) was 25.98 m. tons in

1969-70, 18.82 m. tons in 1972-73 and 18.84 m. tons in 1985-86. The continuous compound rate of increase of production of jute manufactures was 1.05% per annum with 0.81% rate of deceleration during 1972-73 to 1985-86. Production index exhibits that the annual level of production was very much fluctuating during the whole period. The unsatisfactory performance of jute manufacturing industry during post-independence period was caused mainly by: (i) migration of key managerial staffs and entrepreneurs to Pakistan, (ii) shortage and frequent failure of power and (iii) labour unrest, etc.

In 1985-86 export share in total production increased by 14.77% in 1985-86 over 1969-70 and 6.32% over 1972-73.

Like raw jute, the jute manufactures are durable goods and one year's production is sometimes carried over to next year depending upon market price and demand. So in some years export may exceed the production of that year.

In 1985-86 the domestic consumption of jute goods decreased by 58.49% over 1969-70 and 14.29% over 1972-73. The reduction of domestic consumption in 1985-86 over 1969-70 was due to the fact that Pakistan (the then west Pakistan) market had been a domestic market before independence of Bangladesh and after independence it has become an external market. During post-independence period domestic consumption was fluctuating. So in real sence it could not be treated to have reduced.

However with the growth of population and per capita income domestic consumption has not increased during post-independence period. This was due to availability of substitute

synthetic goods in domestic markets and comparatively higher price of jute goods than that of substitute synthetic goods.

Newsprint

The production of newsprint increased from 27936 thousand m. tons in 1972-73 to 49286 thousand m. tons in 1985-86. It's production index exhibits that the production had an increasing trend during the whole period. The continuous compound rate of increase of its production was 4.46% per annum with 1.09 percent rate of acceleration. The share of export in total production decreased by 18.22% from 44.61% in 1972-73 to 35.48% in 1985-86. The export share in yearly production decreased very drastically in 1983-84. The fall of exports was caused by higher cost of production and low quality of products in comparison with other exporting countries in that year.

6.8 IMPACT OF DEVALUATION ON EXPORTS OF BANGLADESH

"Devaluation is often used interchangeably with depreciation and revaluation is often taken to be synonymous with appreciation. We will however, make one distinction between the two sets of terms. Depreciation means a lowering in value with respect to other currencies, while devaluation means a lowering in value of a currency with respect to the price of gold. The same holds mutatis mutandis for appreciation and revaluation". (Sodersten, 1985, p.361).

The immediate effect of devaluation is a change in relative prices of imports and exports. An increase in import prices leads to a fall in the demand for imports. At the same time import

competing industries will be in a better situation. Exporters will receive more in home currency for each unit of foreign currency they earn. They can therefore lower their prices counted in foreign currency and will become more competitive. By how much they would be able to expand sales abroad depends primarily on foreign demand elasticities confronted by the exporting countries. Secondly it depends to a large extent on the type of goods the country exports as well as the market conditions. For example if a country exports raw materials and is the sole or principal supplier of the products, the foreign demand elasticity of her exports may be low. Conversely if a country exports industrial goods in fair competion with suppliers from other industrial countries, the demand elasticity of her products will probably be high.

The effect of devaluation of currency depends on the constellation of the four elasticities in question. Yeager, (1966, pp. 158 - 160) has shown in his algebraic derivation that "devaluation improves the terms of trade if the product of demand elasticities exceeds the product of the supply elasticities ($\eta_m \eta_x > e_m e_x$) and vice versa".

Bangladesh currency has been devalued frequently during 1971-72 to 1985-86. It is believed that the devaluation of her currency has improved the competitive position of the country in foreign markets and expansion of exports. We have tried here to examine the association of devaluation with export expansion of the country by the tools of regression analysis. We have used time series data of annual exchange rate and regressed them on

income terms of trade, export quantity index and export quantity of major export commodities during 1972-73 to 1985-86. Our results are presented in Table 6.7.

For all variables we have used time series data for the above period and the number of observations was 14. We have used linear regression equation : $Y = a + bx$ and calculated the coefficient of regression and t values. By the 1st equation we have attempted to find out the association between exchange rate (i.e. Taka per US $) and export quantity index. We have considered export quantity index as dependent variable and exchange rate as independent variable. The coefficient of determination was 71% ($R^2 = 0.714878$) and t - value was significant at 1% level. So our findings confirm that there is a positive association between the exchange rate and export quantity index. This positive association indicates that with devaluation of Bangladesh currency the export quantity of the country has increased. That is devaluation of the country has been able to increase demand of export commodities in international market by reducing their price in foreign currency. This is a welcome outcome devaluation.

By the second equation we have tried to examine how far the improvement of the income terms of trade of the country is explained by the rate of devaluation of Bangladesh currency. In this case our results locate the same positive association between income terms of trade and exchange rates of the country. From this positive association we can say that the improvement of income terms of trade was explained by devaluation of Bangladesh currency.

By other equations we have tried to examine association between export quantity of major export items and exchange rate of the country. That is how far the change in export quantity of major export items is explained by the change in exchange rate. Our results find a positive significant association between export quantity of tea, shrimps, fish, leather and frog legs and exchange rate. This means that change in export quantity of these commodities is explained by the change in foreign exchange rate of the country. More clearly it may be said that the devaluation of Bangladesh currency has enhanced the export quantity of the above goods.

In case of prawns our results show that there is a positive association between its export quantity and exchange rate. But the positive association was very weak. Only 9.88% of the change in its export quantity is explained by exchange rate of the country. So devaluation of domestic currency could not help the growth of its export quantity. This was due to wider fluctuations on supply side.

Our investigation finds a similar week association between the export quantity of jute goods and exchange rate of the country. In case of jute goods, 12.85% change in its export quantity is explained by the devaluation of our currency. This weak association of its export quantity with the rate of depreciation of currency was due to inelastic demand of jute goods in international market. Among other reasons growing compatitiveness of synthetic substitutes and stangnation of production were important.

In case of newsprint its export quantity was negatively associated with exchange rate. But this negative association was not significant. This insignificant negative association might be due to greater fluctuation in its exports which was mainly an outcome of higher production cost, low quality of product and uncertainty of foreign market.

In case of raw jute, our findings indicate a negative association between export quantity of raw jute and exchange rate of the country. Only 17.91% of the change in export quantity of raw jute is explained by the change in exchange rate and the t - value is significant at 20% level. From this t - value and R^2 value we cannot comment anything. However we have observed that the export quantity of raw jute was declining over the period under review. This decline in its export quantity was because its price elasticity of demand is less than unity (-0.3) (Band, M.E., 1987, p.220). The shrinking of its exports quantity may be explained by the fact of sharp competition of synthetic products. Apart from competition of synthetics Bangladesh jute may also face competition from the increasing output of Kenaf a similar fiber grown in Thailand (Chakravarty S., 1988, p.30).

Our findings, however, confirm that the devaluation of Bangladesh currency has increased the export quantity of the country by enhancing the competitiveness of major export commodities.

Table : 6.7

The Results of Regression Analysis

Sr.No.	Ecuation	R^2
1.	Export quantity Index and Exchange rate (E R) Y = 37.1214 + 3.4371 X (5.4852**)	0.7149
2.	Income Terms of Trade and E.R. Y = 51.1978 + 4.0870 X (3.2729**)	0.5716
3.	Tea Export Quantity and E.R. Y = 82.0785 + 2.0349 X (3.1547**)	0.5534
4.	Shrimps Export Quantity and E.R. Y = -205.959 + 25.3807 X (6.7551**)	0.7918
5.	Fish Export Quantity and E.R. Y = -232.537 + 29.6188 X (3.9446**)	0.5646
6.	Export Quantity of Leather Y = -56.1988 + 13.9533 X (4.9742**)	0.6734
7.	Frog legs Export Quantity and E.R. Y = -1403.11 + 150.754 X (4.7244**)	0.6504
8.	Newsprint Export Quantity and E.R. Y = 193.840 - 1.0252 X (-0.3013)	0.1051
9.	Jute Goods Export Quantity and E.R. Y = 426.850 + 2.1954 X (1.3301)	0.1285
10.	Prawns Export Quantity and E.R. Y = 456.732 + 14.1671 X (1.1471)	0.0988
11.	Raw Jute Export Quantity and E.R. Y = 107.009 - 103 X (-1.6161)	0.1791

Note : ** Significant at 1% level and without star not significant at 1% and 5% level.
Value in parenthesis is t-value.

6.9 EXPORT LEVELS AND DEPENDENCE OF BANGLADESH ON FOREIGN MARKETS FOR PRODUCTION OF EXPORT COMMODITIES

A country may produce a commodity for domestic consumption or for sale abroad or for both. For an industry that sells only to foreign countries exports will exhaust fully its output. The potential disappearance of the export market would hence leave all the industry's product unsold. The replacement of export oriented production by activities destined for the home market would then depend on the movements of factors from export industries to other industrial branches. These may be easier or more difficult depending on the degree of specificity of factors, but in any case it may be more difficult and require longer time than the shift of sales of the industry's output from one market to another.

The easy replacement of exports by home market activity is thus inter alia function of the share of exports in the industry's total production.

Two countries with same total exports ratio may differ radically from each other if one's exports are concentrated in a few industries in each of which they occupy a predominant share of the industry's output, whereas if the others exports are evenly distributed among many industries so that the export share in each industry does not differ much from the aggregate export ratio.

The measure proposed is the following index of the weighted ratio of exports to products designated by S_{jx} for country j and is defined as : $S_{jx} = E\ (x_{ij}/Q_{ij})\ (X_{ij}/X_j)$

where Xij = export of good i by country j;

Qij = total production of good i in country j

Xj = aggregate exports of country j. Given the country's size of aggregate exports this index will be higher, the more the exports are concentrated in a few branches in each of whicht they occupy a large share. The upper limit of the index is unity, this will be its value when country's all exports are sold by industries which work solely for exports. The lower limit of the index will be reached when the economy's export structure is identical with its production structure. This measure of index may show the dependence of the country on export with regards to her production. The higher the value of index the more will be the dependence of economy on exports.

In the previous section we have seen the share of exports of some selected commodities in thier corresponding production separately. Now it is proposed to see the dependence of the economy in totality on exports for production of major export commodities.

In Bangladesh almost all the export commodities are produced for sale abroad as well as for home consumption. Very few commodities like garment products and frog legs are fully export-oriented. Garment outputs are prevented from entering into domestic markets with a view to give protection to handlooms and other textile industries which produce garment outputs for domestic markets. Frogs have been growing in Bangladesh in nature. Previously there was no commercial farming of frogs and they are not used as food item in Bangladesh.

Recently some commercial farms have developed for frogs culture for export only.

We have tried here to analyse the dependence of Bangladesh economy on export for production of major export items. We have excluded the cent percent export oriented items and also the export items whose contribution to aggregate exports has been less than 1% in 1985-86. Depending on the criteria and availability of data we have selected raw jute, jute manufactures, tea, newsprint, prawns, shrimps and fish for analysis.

The weighted ratio of exports to production (Sjx) for those commodities have been computed during 1972-73 to 1985-86. Results are presented in Table 6.8.

The value of Sjx had a decreasing trend during 1972-73 to 1977-78. During this period export quantity's share in total production was decreasing for raw jute, shrimps and prawns. The export quantity of raw jute was decreasing. Also the export quantity of prawns and shrimps was declining slightly with some sorts of fluctuations. The export quantity of other commodities was increasing slowly. That is the annual rate of growth of production of the items was higher than rate of growth of their export quantity. As a results the dependence of the economy for production of those goods on exports was declining.

During 1979-80 to 1985-86 the dependence of the economy for production of those goods on exports was increasing. This was so because the aggregate exports quantity of the goods mentioned above was increasing faster than the aggregate quantity of their production.

Table : 6.8

The weighted ratio of exports to production in case of some selected commodities of Bangladesh during 1972-73 to 1985-86

Year	Weighted ratio $s_i x_i$
1972-73	0.49
1973-74	0.44
1974-75	0.45
1975-76	0.43
1976-77	0.33
1977-78	0.29
1978-79	0.25
1979-80	0.25
1980-81	0.28
1981-82	0.29
1982-83	0.31
1983-84	0.31
1984-85	0.33
1985-86	0.42

Source : Appendix Table : 12

6.10 EXPORT INSTABILITY AND BANGLADESH

One big problem with which UNCTAD has been concerned is that of stabilization of export earnings of developing countries. The prices of primary products fluctuate more than that of manufactured products. This enhances instability of LDC's export earnings. The export instability gives rise to many problems including difficulties in planning development, hinder development process seriously and restrict imports of capital equipment.

In 1966 Alisdair and MacBean chose twelve of the less developed countries that had especially large fluctuations in their export incomes: Argentina, Bolivia, Ghana, Haiti, Indonesia, Iran, Iraq, Korea, Malaya, Pakistan, Sudan and Vietnam. In four of these countries price fluctuations have had an important bearing on the fluctuations in export income. But in others and to a large extent in four countries the primary cause of fluctuations in the export proceeds was the fluctuation in output produced. The works of Erb and Schiavo-campo (1969) and Kenen and Voivodas (1972) have tended to confirm MacBean's findings.

Conventionally commodity concerntration has been regarded as a prime cause of export earnings instability in developing countries, the assumption being that commodity dispersion reduces instability because fluctuations in one direction in some exports will be offset by counter fluctuations of stability in earnings from other commodities.

Bangladesh export receipts suffered from wide range of fluctuations. We have analysed the instability of her exports under the purview of above angles.

It is expected that with development of the economy, the instability of exports should have decreased. To see what actually has happened to Bungladesh exports, we have compared instability coefficient for different periods.

For calculation of instability coefficient of Bangladesh exports the Coppeck (1962) log variance method is used. The instability index according to Coppock equals the antilog of the square root of the logarithmic variance of the series which is given by:

$$V \log = \frac{1}{N-1} E \left[\log X_{t+1} - \log X_t - \frac{1}{N-1} E (\log X_{t+1} - \log X_t) \right]^2,$$

where N and X are the number of years and value of export receipts respectively and subscripts indicate the date. V log stands for the logarithmic variance of the series.

Algebraically the instability index = antilog $\sqrt{V \log}$. Our results are presented in Table 6.9.

When pre and post independence periods are compared it is observed that the export instability of the country was 7.13 percentage points less in post-independence period than that in pre-independence period. That is during the post-independence period the stability of export earnings has increased. The following factors were responsible for increased stability:
(i) The government export policy of the independent country is more keen to increase real export earnings of the country;

(ii) With the advancement of economic development the instability on supply side of export items has declined, (iii) The exports of manufactured items have been increasing at faster rate and (iv) the commodity and geographic concentration of her exports has decreased during post-independence period in comparison to pre-independence period.

The export earnings of developing countries are subject to instability because their exports consist mainly of primary commodities. This hypothesis is supported by our findings in case of Bangladesh. The instability coefficient of export earnings of her primary commodities is 16.65 percentage points higher than that of her manufactured exports.

Another important finding of the study is that the instability of export quantity index is (23.67 percent) more than that of her export price index (19.12 percent). That is the price of her exports was more stable than her export quantity. This was so because her export quantity is subject to two combined effects of instability : one from demand side and the other from supply side.

Another finding of our study shows that the export instability was 18.85 percent during 1972-1973 to 1979-80 and 13.69 percent during 1980-1981 to 1985-1986. That is the instability coefficient was 5.16 percentage points less in latter period than that in former period. It could be remarked from these findings that her export instability has been reducing with the passage of time in the post-independence period. Immediately after independence the whole economy of the

country was very much fluctuating and unstable due to economic and non-economic factors. Over a period of time the instability as well as fluctuations of the economy have reduced. This has minimised instability of export on supply side.

Similarly immediately after independence she had to explore markets in the world as a new independent state. Her export commodities had faced many economic and political hurdles in the international markets at the initial stage. As a result the instability on demand side was more during the initial period of independence. But over a period of time the political hurdles have vanished and economic barriers have been minimised by export promotion measures of the country. As a result the export instability on demand side has also decreased.

Commodity concentration has long been regarded as a major factor contributing to the short-run instability in export earnings of developing countries. In compliance with this belief we have attempted to find out the association of export instability and commodity concentration and geographic concentration of Bangladesh through correlation and regression analysis. We have regressed the annual value of commodity concentration and geographic concentration on annual instability coefficient of exports. We have got a positive association between export instability and export concentration. But this association is not confirmed due to insignificant value of R^2 and t- value.

In compliance with pur study a considerable number of empirical studies (Michaely, 1962, Massel, B.F., 1970, Brien, P.O., 1972 etc.) have failed to detect a significant positive

relationship between concentration and export instability. James Love (1986) shows that the use of a time series rather than a cross section model produces results consistent with the argument that commodity concentration has an important influence on export instability.

In case of our study time series data have been used but no significant relation between export instability and commodity/ geographic concentration has been detected.

With a view to find out the causes of export instability Coppoek (1962) study used 34 explanatory factors out of which 12 variables were found most significant in explaining the export instability of the countries considered. These were: (i) National income, (ii) GNP per capita, (iii) foreign trade as percentage of GNP, (iv) value of foreign trade, (v) foreign trade per capita, (vi) Import value instability index, (vii) Export quantum instability index, (viii) export prices instability index, (ix) logarithmic rate of export growth, (x) export commodity concentration index, (xi) regional export concentration and (xii) percentage of export to U.S.A.

In case of Bangladesh the factors mentioned by Coppock might be considered as the explanatory variables of export instability.

Why there exists no significant association between export instability and concentration in Bangladesh situation may be investigated with the help of causes mentioned Macbean and D.T. Nguyen (1980). They offered a number of explanations for unexpected lack of association: First, countries with highly

Table : 6.9

Instability coefficient of Bangladesh Exports during 1972-1973 to 1985-1986

Year	Annual fluctuations in Export Receipts %	Instability Coefficients (export receipts) %
1972-73		
1973-74	10.63	1972-'73 to 1985-86 16.63
1974-75	13.90	
1975-76	48.51	
1976-77	0.78	1972-73 to 1979-89 18.85
1977-78	10.77	
1978-79	12.57	1980-81 to 1985-86 13.69
1979-80	4.41	
1980-81	11.15	Pre-independence period:
1981-82	10.51	1948-49 to 1969-70 23.76
1982-83		
1983-84	6.65	
1984-85	9.25	1972-73 to 1985-86
1985-86	10.07	Export quantity index 23.67
		Export price index 19.12
		Manufactured exports 14.44
		Primary exports 31.09

Source : Appendix Tables : 1,4,6,8.

concentrated exports tend to export commodities with relatively stable proceeds; secondly, diversified export structure may be composed of products with highly correlated earnings; third, for any individual country a given degree of concentration is consistent with a range of values for an instability index. Above all we considered only 14 years period which is very short in economic sense. This relatively short period of time may also be accounted as a possible reason for non-existence of any positive association between export instability and concentration.

6.11 ELASTICITY OF BANGLADESH EXPORT

There was a lively discussion among economists in the late 1940s and early 1950s about empirical measurements of demand elasticities. The first published studies by Hinshaw (as reported by Sodersten, 1985) and Adler (1945) showed very low values of demand elasticities around or less than unity. These studies were later criticized mainly by Orcutt (1950) and Harberger (1950). Later on a good number of works (Askari and Commings, 1976, Behrman, J.R., 1977, Goldstein M. and Mohsin, S.K. 1978) has been done in this line to analyse demand and supply situation of exports.

The export performance of a country depends on demand and supply conditions of her export commodities. On the demand side the activities in the industrial countries is by far the most important determinant of demand for developing country's exports. Moreover commodity composition, commodity prices, geographic location, industrial country's policies and growth

of national income play a significant role.

On the supply side weather conditions, resource endowments, relative prices, technology, domestic growth and population growth all determine the supply of a developing country's exports. Apart from the weather and resource endowments all other determinants of supply are affected by domestic policies.

The combined impacts of different determinants of supply and demand side are reflected in elasticities of exports.

The present section is devoted to measure the elasticities of Bangladesh export and to make a comparative study of the same with some related countries.

There are different concepts of elasticities. Among them the following ones are used to measure the situation of demand and supply of exports:

(1) Price elasticity of export demand

(2) Income elasticity of export demand

(3) Export price elasticity of supply and

(4) Export elasticity

Depending on the availability of required data, We attempt here to measure the export elasticity and income elasticity of Bangladesh exports.

Export elasticity of a country's export is a comprehensive idea to show the final export responsiveness. Therefore this section is first concerned with measurement of export elasticity of Bangladesh. The formula used is:

$$\text{Export elasticity } E_x = \frac{dX_B}{X_B} \Big/ \frac{dM_W}{M_W}$$

$= \frac{dX_B}{dM_W} \times \frac{M_W}{X_B}$ where dX_B = change in Bangladesh export, X_B = original exports of Bangladesh, dM_W = change in world imports, M_W = original imports of the world.

Here a comparison is also made of her export elasticity with export elasticity of some selected Asian countries. Export elasticity of her exports will show how her export responds to changes of world imports.

Second step to calculate income elasticity of demand for her exports in major importing countries will show how the demand for her export responds to the changes in income of major importing countries. The formula used to measure income elasticity is : $Ey = \frac{dX_B}{X_B} / \frac{d_{ya}}{Y_a} = \frac{dX_B}{d_{Y_a}} \times \frac{Y_a}{X_B}$ where

dX_B = change in Bangladesh export in country a;

X_B = Original export of Bangladesh to country a

d_{Y_a} = change in income of country a;

Y_a = Original income of country a and

E_y = income elasticity.

Here one thing needs to be mentioned that we have used net material product data for the period from 1974 to 1985 and export data for the period from 1973-74 to 1984-85. Due to lack of country wise data of Bangladesh export in calendar year we have had to use data for financial year. The length of both the period is same. But only difference is that the financial year starts 6 months earlier (i.e. from 1st July 1973) and ends also 6 months earlier (i.e. on 30th June 1985). This six months

difference within 12 years period would affect our result to a little extent.

Table 6.10 and Table 6.11 represent the results. The export elasticity of Bangladesh export was 0.80 during 1973 to 1984. That is her export increased by 0.80% with 1% increase of world import. The export elasticity of her export was less than unity (0.53) during 1973 to 1979 and more than unity (2.57) during 1979 to 1984. That is during the period from 1979 to 1984 her export was highly responsive to changes in world imports. When her export elasticity is compared with 11 selected Asian countries it is found that her export was less responsive than that of Japan, India, Singapore, the Philippines, Thailand, Sri Lanka, Malaysia, Hongkong, Republic of Korea and Indonesia and had higher responsiveness than that of Pakistan to world import changes during 1973 to 1984. During 1973 to 1979 her export elasticity was less than that of all these countries.

One important point to note is that the export elasticity of all selected countries was higher during 1979 to 1984 than their respective elasticities during 1973 to 1979 except India. That is export performance of all selected countries except India was better during 1979 to 1984. During this period the export elasticity of Bangladesh export was higher than that of India, Pakistan, the Philippines, Thailand and Indonesia.

The income elasticity of demand of Bangladesh export was more than unity with respect to Iran, Sudan, Italy, Belgium, Federal Republic of Germany, Netherlands, Bulgaria, Japan, Pakistan and Singapore and less than Unity for U.S.A., U.K.,

Table : 6.10

Export Elasticity of some selected Asian countries including Bangladesh during 1973 to 1984

Name of countries	Export Elasticity		
	1973 to 1979	1979 to 1984	1973 to 1984
Japan	0.9832	3.6595	1.5526
India	0.9195	0.6755	0.8592
Pakistan	0.6380	1.5262	0.7528
Singapore	1.5827	3.9036	2.4005
The Philippines	0.8262	0.8457	0.8099
Thailand	1.3086	2.2597	1.6112
Sri Lanka	0.7676	2.7112	1.0999
Malaysia	1.4448	2.5875	1.8521
Hongkong	1.0919	4.8836	1.9734
Republic of Korea	2.4313	4.1046	3.6118
Indonesia	2.1168	2.2716	2.5039
Bangladesh	0.5306	2.5703	0.8029

Source : Appendix Tables 5, 10 and 11

U.S.S.R., Canada, Australia, Egypt and India out of 17 major importing countries.

That is her export increased by more than 1% when the national income of the former countries increased by 1% and increased by less than 1% with respect to the latter countries when their income increased by 1%. The average income elasticity of her exports with respect to above countries was 2.61. The range of average increase of NMP of the former countries was between 3.74% and 15.47% per annum and that of the latter countries was between 4.88% and 11.97% per annum during the same period. Marian E. Bond (1987) showed in his study that the income elasticity of food is more than unity in all regions. Besides we know that the export of manufacturing in the world has been increasing faster than that of primary goods. That is income elasticity as well as export elasticity of manufacturing goods is higher than that of primary goods. This statement was supported by our findings. Because we know that the share of manufacturing exports and food exports in the aggregate exports of Bangladesh was increasing over the period of time. As a result the income elasticity of her export was more than unity in 10 major importing countries and also the average income elasticity was more than unity in 17 major importing countries. Moreover the export elasticity of her exports was higher (2.57) during 1979-84 than that (0.53) during 1973-1979.

Table 6.12 presents income elasticity of demand for major export commodities Bangladesh in major importing countries. Here the income elasticity of demand is computed by adopting the

Table : 6.11

Income elasticity of Bangladesh exports in major importing countries during 1974 to 1985

Country	Income elasticity	Average annual increase of NMP %
U.S.A.	0.8781	8.87
Iran[a]	5.5100	13.29
Sudan[b]	1.8300	5.22
U.K.[b]	0.8427	6.17
Italy[b]	5.5792	5.84
Balgium[b]	3.3753	3.74
U.S.S.R.[c]	0.6528	4.88
F.R.G.	4.5370	4.22
Netherlands	3.7030	4.85
Canada	0.9831	7.08
Australia	0.5381	5.16
Egypt	0.3063	11.97
Bulgaria[c]	2.7204	15.47
Japan	1.2353	9.25
Pakistan[d]	8.4686	7.79
Singapore	2.2547	10.72
India	0.9732	6.14
	Average	
	2.6111	

Note: a : 1974 to 1983, b : 1974 to 1984,
c : 1974 to 1981 & d : 1975 to 1985

Source : Appendix Tables, 5, 10, 11.

Table : 6.12

Income elasticity of demand for major export commodities of Bangladesh in major importing countries during 1980-81 1984-85

Countries	Jute goods	Raw jute	Garments	Shrimps	Leather	Tea
U.S.A.	0.7723	0.1352	2.5675	1.8563	0.3568	0.9825
Iran	3.5862	6.5132	-	-	-	-
Sudan	4.0235	-	-	-	-	-
U.K.	0.9821	0.1245	1.9895	1.3246	-0.1254	0.3241
Italy	1.0537	1.1537	1.0253	0.9875	0.8251	-
Belgium	1.5347	0.6537	0.9821	2.5013	0.9851	-
U.S.S.R.	-0.1213	-0.1037	-	-	0.6353	2.1534
F.R.G.	2.0531	0.8532	3.5782	1.5682	1.2545	-0.1234
Netherlands	0.3489	0.3812	2.1053	1.9856	1.4031	1.0531
Canada	0.5156	0.4012	1.0256	-	0.4121	0.3516
Egypt	0.4173	0.7878	-	-	-	0.6521
Bulgaria	0.8232	0.7816	1.0345	-	0.6513	1.0513
Japan	0.9875	0.2510	N.E.	1.0431	1.0031	0.6153
Pakistan	2.0351	2.5361	-	-	-	0.9753
Singapore	0.7512	1.051	1.5132	2.3145	2.3601	0.3561
India	-	-	-	-	0.8310	-

Source: Calculated on the basis of commodity wise export data to different countries published by Export Promotion Bureau of Bangladesh, Dhaka in "Bangladesh Export Statistics" (different issues) and NMP data of the country concerned.

formula as mentioned earlier by pooling data for the period from 1980-81 to 1984-85.

The income elasticity of demand of jute goods was less than unity with respect to almost all the countries except Iran, Sudan, Italy, Belgium, F.R.G. and Pakistan. So this commodity possesses prospects for future expansion in the countries where the income elasticity of demand for jute goods is more than unity. Its demand will further decrease in USSR in which income elasticity is negative. Raw jute's income elasticity of demand is more than unity only in Iran, Italy, Pakistan and Singapore. So the export of raw jute may increase in these countries with increase of their national income. Garments show better prospects for expansion in almost all the countries that they have entered. Its income elasticity of demand is more than unity in all the countries they are exported except Belgium.

Similarly Bangladesh shrimps has also better prospects for future expansion in almost all the major importing countries where it is exported. Leather has better prospects in F.R.G., Netherlands, Japan and Singapore while tea in USSR, Belgium, Netherlands, and Bulgaria among major importing countries on consideration of income elasticity of demand.

6.12 SUMMARY AND CONCLUSION

Export price index was more prominant to raise export value index than export quantity index during the period under review. That is the rise of export price was more prominant in the increase of export value of the country than the rise of export

quantity. But both rose during the period.

Export price index was higher than that of general price index in almost every year during 1973-74 to 1985-86. Its average rate of increase was higher than that of general price index. This helped the expansion of aggregate export earnings of the country by shifting commodities from domestic market to foreign market due to higher price in the latter.

The export price of raw jute, tea, frog legs and leather was increasing with acceleration while that of prawns, shrimps, fish, jute manufactures and newsprint was increasing with retardation.

Similarly the export quantity of prawns, shrimps, and frog legs was increasing with acceleration while that of tea, fish, jute manufactures, newsprint and leather was increasing with retardation. Only the export quantity of raw jute was declining with retardation.

In case of some selected commodities the average growth of export price and quantity of primary commodities was higher than those of manufactured commodities. The average rate of increase of export quantity of primary commodities was higher than that of their export price while the growth rate of export price of manufactured goods was higher than that of their export quantity.

The price of important export items of the country rose to a greater extent in domestic currency due to devaluation of her currency. In US dollar terms the export price of different

commodities changed at the following continuous compound rate:

Raw jute	:	0.97%
Tea	:	8.49%
Prawns	:	3.98%
Shrimps	:	6.42%
Fish	:	7.22%
Frog legs	:	1.09%
Jute goods	:	4.03%
Newsprint	:	5.94%
Leather	:	-8.13%

The production as well as yield per acre of raw jute was increasing slowly with an acceleration in the growth rate. The production of tea was increasing at moderate rate (3.49% per annum) with retardation. Similarly its yield per acre was increasing by 3.3% per annum with retardation.

The catch of shrimps and prawns increased by 1.28% per annum with 0.46% rate acceleration while the production of fish decreased by 0.32% per annum with 0.09% rate of acceleration. The production of fish was declining upto 1977-78 and was again increasing during 1978-79 to 1985-86. Different measures taken by the government and financial institutions in respect of credit, long term loan and establishment of government farms helped to raise production.

The performance of jute manufacturing industries was worse during post-independence period than that during pre-independence period. Though the number of permanent workers and looms increased in 1985-86 the production of jute goods failed to reach the level

of 1969-70.

During 1972-73 to 1985-86 the production increased by 1.05% per annum with deceleration though the loom utilization decreased from 84.04% in 1972-73 to 82.85% in 1985-86. The worse performance of jute manufacturing industry in post-independence period was due to (i) migation of key managerial staff and entrepreneurs to Pakistan, (ii) shortage and frequent failure of power, (iii) labour unrest, (iv) fall in quality of management due to nationalization etc.

The production of newsprint was increasing by 4.46% per annum with acceleration.

Devaluation of Bangladesh currency had a positive impact on export growth of the country. It improved income terms of trade and enhanced aggregate quantity of export. Export quantity of items like tea, shrimps and prawns, fish, frog legs, jute goods, leather and newsprint increased with devaluation. But it failed to raise export quantity of raw jute whose demand squeezed in international market due to growing use of synthetics.

The dependence of the country on foreign market for production of major export commodities was decreasing slowly during 1972-73 to 1979-80. During this period the share of exports in total production was decreasing for some commodities due to increase of domestic consumption and comparatively higher rate of rise of production than that of exports. It started increasing during 1979-80 to 1985-86. This was the outcome of rapid growth of export of some commodities than their production. Also the higher export price provided incentive to shift output from

domestic market to foreign markets.

The instability coefficient of Bangladesh export receipts was more during pre-independence period than that in post-independence period. Its instability decreased in post-independence period due to economic development, export promotion policy, increase of manufacture exports and more diversification of export at geographic and commodity level.

During post-independence period export quantity was subject to more instability than export price. Export quantity was more unstable because of instability generating factors on supply side and demand side.

The instability of manufacturing exports was less than that of primary commodities. During post-independence period instability of her exports was decreasing with passage of time. Instability of her exports was less during 1980-81 to 1985-86 than that during 1972-73 to 1979-80.

The export elasticity of her export was less than unity (0.8029) during 1973 to 1984. That is her export was less responsive to changes in world imports. But over the period of time her position improved. Her export elasticity was more than unity (2.57) during 1979 to 1984.

Among 12 selected Asian countries her export elasticity was less than that of all countries during 1974 to 1979 and more than that of Indonesia, Thailand, the Philippines, Pakistan and India during 1979 to 1984.

The income elasticity of her export was more than unity

with respect to Iran (5.51), Sudan (1.83), Italy (5.57), Belgium (3.37), F.R.G.(4.53), Netherlands (3.70), Bulgaria (2.72),Japan (1.23), Pakistan (8.46) and Singapore (2.25) and less than unity with respect to U.S.A. (0.87), U.K. (0.84), U.S.S.R. (0.56), Canada (0.98), Australia (0.53), Egypt (0.30) and India (0.97) among 17 major importing countries. The average income elasticity of demand of her exports in these countries was 2.61.

This income elasticity of her exports indicates that her exports possess better prospects for future expansion in major importing countries with the growth of income of those countris. Among major commodities garments and shrimps have better prospects for expansion in major importing countries on the consideration of income elasticity of demand. Jute goods' exports have got better prospects of expansion in Iran, Sudan, Italy, Belgium, F.R.G. and Pakistan. The export of tea may be increased at a higher rate to U.S.S.R., Netherlands and Bulgaria and that of leather may expand in F.R.G., Netherlands, Japan and Singapore.

Chapter Appendix Table : 6.13

The Regression Equation : $Y = Ka^{t}b^{t^2/2}$

Dependent variable	K	a	b
Jute P	1725.5	1.12	1.0019
Jute q	27.02	0.93219	0.993
Tea P	5.88	1.14	1.00751
Tea q	17.41	1.10678	0.9906
Prawn	16.76	1.39936	0.97386
Prawn q	132.64	1.22984	1.0099
Shrimp p	19.61	1.1992	0.99735
Shrimp q	2266.23	0.95557	1.02808
Fish P	4.30	1.46	0.97
Fish q	500.21	1.66748	0.96139
Frog legs P	15.42	1.13207	1.00206
Frog legs q	18.32	2.3075	1.0038
Jute goods P	2483.59	1.18	0.99589
Jute good q	387.68	0.0559	0.995
Newsprint P	1371.75	1.25	0.9911
Newsprint q	14129.21	0.99256	0.99207
Leather P	100.75	0.9184	1.0036
Leather q	1347.05	1.633	0.9898
Jute Y	5963.41	0.99886	1.00013
Jute Yield	14.09	0.94044	1.00055
Tea Y	22.66	1.10247	0.99168
Tea Yield	206.81	1.10987	0.99055
Shrimps and Prawns Y	2.47	1.20245	1.00465
Fish Y	309.87	1.05497	1.00097
Jute goods Y	181.57	1.19514	0.9919
Newsprint Y	16870.27	0.96334	1.919887

Note: P=Price(export), Q=quantity (export), Y=production.
b 1 indicates an acceleration in the growth rate
" p indicates a retardation in the growth rate