Chapter 4

Supply Side Developments

4.1 Agriculture[75]

4.1.1 : Introduction

The agricultural sector in FY06 recovered significantly from the flood induced setback of FY05. Supported by a good crop harvest during the year, the agricultural sector is estimated to have grown by 4.49 percent in FY06 compared to 2.21 in FY05. By composition, the crops sub-sector contributes the highest share to agriculture. In FY06, a substantial recovery took place in the crops sub-sector, which grew at a rate of 4.21 percent in comparison to a mere 0.15 percent in FY05. The strong recovery of the agriculture sector has contributed substantially to the high rate of real GDP growth in FY06.

4.1.2 : Agriculture-sector Contribution to GDP and the Growth Scenario

Table 4.1 reports the shares of agricultural, industrial, and service sector in real GDP in the last five years. The agricultural sector accounted for about 21.77 percent of GDP in comparison to 29.01 percent for industry and 49.22 percent for the service sector in FY06. The declining trend of agriculture's share in GDP has continued in FY06; 21.77 in FY06 as compared to 22.27 in FY05. While the agricultural sector share to GDP declined from 23.98 to 21.77 during FY02 to FY06, the industrial sector share increased from 26.75 to 29.01, and the service sector share has remained relatively unchanged (49.27 percent in FY05 to 49.22 percent in FY06). The declining share of agriculture in GDP is caused by its slower

Table 4.1 : *Sectoral Composition of GDP (FY02-06) in Percent*

Sector	FY02	FY03	FY04	FY05	FY06(p)
Agriculture	23.98	23.47	23.08	22.27	21.77
Agriculture and Forestry	18.58	18.22	17.97	17.27	16.91
Crops and Horticulture	13.75	13.43	13.23	12.51	12.19
Animal Farming	2.96	2.93	2.91	2.95	2.93
Forest and Related Services	1.88	1.86	1.83	1.82	1.79
Fishing	5.40	5.25	5.11	5.00	4.86
Industry	26.75	27.24	27.69	28.31	29.01
Services	49.27	49.30	49.22	49.42	49.22
Total	100.0	100.0	100.0	100.0	100.0

p=provisional estimate

Source : National Accounts Statistics, Bangladesh Bureau of Statistics, Dhaka, June 2006

[75] By Md. Shahiduzzaman, Research Economist and Naima Nazneen Rikta, Assistant Director, PAU.

and at times negative output growth of the sub-sector as evident from Table 4.2, vis-à-vis other sectors and aggregate growth. By contrast, the industrial sector growth rates in all these years were above the real GDP growth rate. Figure 4.1 illustrates the growth pattern of agriculture, industrial and service sector growth with overall GDP growth. As industrial and service sector growth rates showed an increasing and a stable pattern respectively, the fluctuations of GDP growth rate is largely accounted for by the fluctuations of agricultural sector growth.

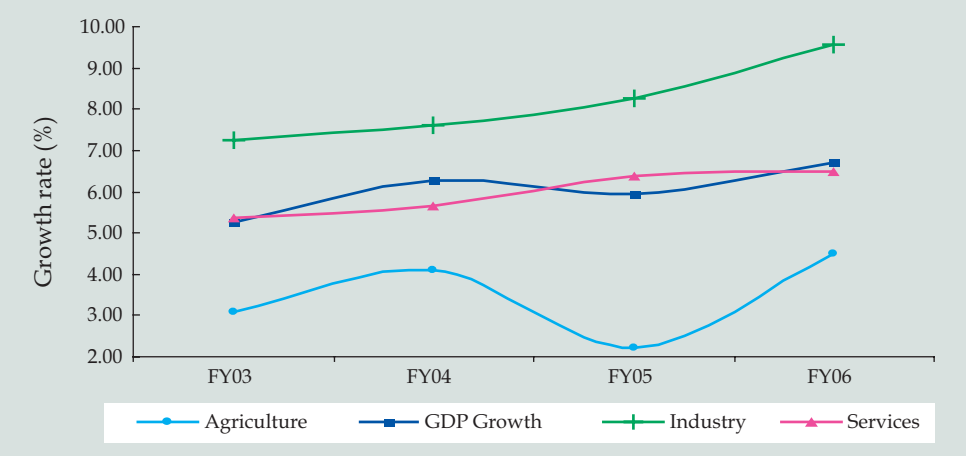
Table 4.2 : *Sectoral and Sub-sectoral Growth Rates (FY02-06) in Percent*

Sector	FY02	FY03	FY04	FY05	FY06(p)
Agriculture	0.01	3.08	4.09	2.21	4.49
Agriculture and Forestry	-0.62	3.29	4.38	1.80	4.67
Crops and Horticulture	-2.39	2.88	4.27	0.15	4.21
Animal Farming	4.70	4.51	4.98	7.23	6.31
Forest and Related Services	4.91	4.43	4.18	5.09	5.18
Fishing	2.22	2.33	3.09	3.65	3.89
Industry	6.53	7.26	7.60	8.28	9.56
Services	5.43	5.38	5.66	6.36	6.47
GDP at constant market price	4.42	5.26	6.27	5.96	6.71

p=provisional estimate
Source : National Accounts Statistics, Bangladesh Bureau of Statistics, Dhaka, June 2006

Of the 21.77 percent of agriculture's share in GDP, the crops (including horticulture) sub-sector alone constituted a major share of 12.19 percent. With good summer crops and positive winter crops, the crops sub-sector is estimated to have grown by 4.21 percent in FY06 in comparison to only 0.15 percent growth in FY05. Figure 4.2 captures the dynamics of sectoral and sub-sectoral growth rates of agriculture in Bangladesh during FY03-06. The bold-blue line demonstrates the overall agriculture sector growth. The growth rate of animal farming sub-sector (red line), which constitutes around 3 percent of GDP, declined from 7.23 percent in FY05 to 6.31 percent in FY06. The growth rate of fishing (4.86 percent of GDP share in FY06) and forest and related services (1.79

Figure 4.1 : *Sectoral Growth of GDP*

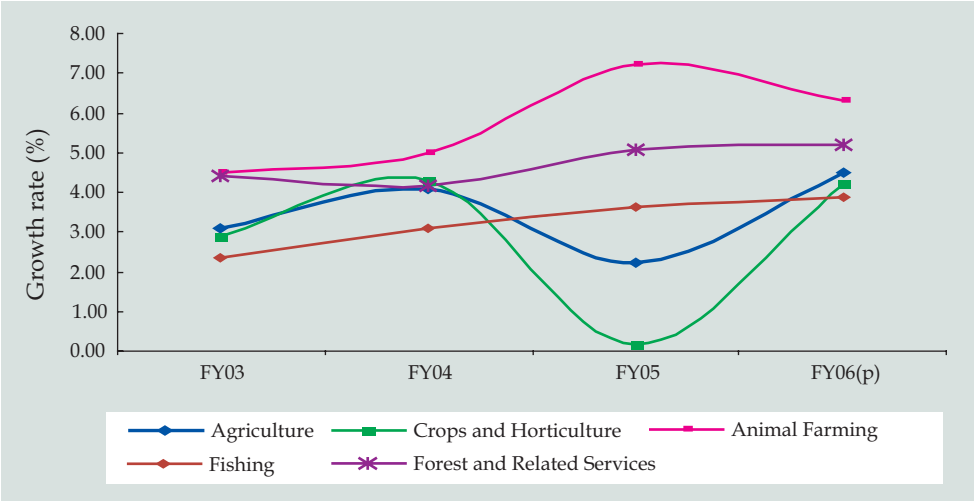


Data Source : Bangladesh Bureau of Statistics, National Accounts Statistics. June 2006

percent of GDP share in FY06) sub-sector are estimated to have increased from 3.65 percent to 3.89 percent, and from 5.09 percent to 5.18 percent between FY05 to FY06. Given this backdrop, recovery of the agricultural sector output in FY06 appears to be backed mainly by the recovery of crops and horticultural sub-sector.

Major crops in Bangladesh include three varieties of rice namely aus, aman and boro, wheat, vegetables, sugarcane, jute, fruits, oilseeds, pulses, spices and tea. Table 4.3 reports the comparative position of the production of some crops. Aus production increased by 16.33 percent, aman by 10.08 percent and wheat by 2.54 percent. While total cereal production is estimated have increased in FY06, riding on the generally favourable climate conditions and due to a sufficient supply of high yielding varieties and other agro-inputs, the boro crop, which is traditionally the largest crop of the year, has been estimated to have declined slightly (about 1 percent). The latter may be attributed to a combination of factor: drought like situation in the northern districts, irrigation affected by load shedding, and higher price of diesel. The production of jute is estimated to increase by 14.47 percent, fruits by 5.50 percent, oilseeds by 4.57 percent and spices by 7.67 percent from the previous financial year. The production of vegetables is estimated to have declined by 2.66 percent because of damage to standing vegetable crops in different parts of the country due to intermittent rains in October, 2005.

Figure 4.2 : *Sub-sectoral Growth of Agriculture*



Data Source : Bangladesh Bureau of Statistics, National Accounts Statistics. June 2006

4.1.3 : Agriculture's Contribution to Export

Export of major agricultural commodities constituted 10.3 percent of total exports in FY06 as compared to 10.7 percent in FY05. These include raw jute, jute goods, frozen food, agricultural products and tea. According to Table 4.4, export of frozen food (459.1 million USD), agricultural products (105.4 million USD), raw jute (148.3 million USD), jute goods (361.0 million USD), and tea (11.89 million USD) were the principal foreign currency earners in FY06. Export of agricultural commodities grew by 17.7 percent in FY06. Export growth of agricultural sector has been supported by the significant growth of raw jute (54.2 percent), jute goods (17.4 percent) and agricultural products (27.8 percent).

Table 4.3 : *Crop wise Agricultural Production during FY04 to FY06*

(in '000' m tons)

Crops	FY04	FY05	FY06
Aus	1832	1500	1745*
		(-18.12)	(16.33)
Aman	11521	9820	10810*
		(14.76)	(10.08)
Boro	12837	13837	13700
		(7.79)	(-0.99)
Wheat	1253	976	1000
		(-22.11)	(2.54)
Jute (thousand bales)	4376	4035	4619*
		(-7.79)	(14.47)
Fruits	1880	2599	2742
		(38.24)	(5.50)
Oilseeds	469	546	571
		(16.42)	(4.57)
Pulses	435	413	413
		(-5.05)	(0)
Spices	626	1030	1109
		(64.51)	(7.67)
Sugarcane	6484	6423	6423
		(-0.94)	(0)
Vegetable	8698	10408	10131
		(19.66)	(-2.66)
Tea	5700	5800	N/A
		(1.75)	

N/A-Not Available
Source : Bangladesh Bureau of Statistics, Economic Trends, BB, May 2006 (data for tea only)
*Note: i) *Final Estimates*
II) Sweet potato is in other vegetables
Figures in parentheses show the percentage change from previous year

Table 4.4 : *Exports of Selected Agricultural commodities, non-agricultural commodities and total export (in million USD)*

Item	FY02	FY03	FY04	FY05	FY06
a) Agricultural commodities	**620.7**	**702.4**	**773.3**	**922.7**	**1085.7**
1. Frozen food	276.1	321.8	390.3	420.7	459.1
2. Agricultural product	22.5	25.5	41.1	82.5	105.4
3. Raw jute	61.1	82.5	79.7	96.2	148.3
4. Jute goods	243.5	257.2	246.5	307.5	361.0
5. Tea	17.4	15.5	15.8	15.8	11.89
b) Non-agricultural Commodities	**5365.4**	**5846.01**	**6829.7**	**7731.8**	**9440.7**
Total Export	**5986.1**	**6548.4**	**7603.0**	**8654.52**	**10526.2**

Source : Export Promotion Bureau as reported in the Metropolitan Chamber of Commerce and Industry, 2005-2006,

4.1.4 : Agro-based Industry

Agro-based industry is a pre-requisite for sustainable improvement of agricultural production. The agriculture sector in Bangladesh is now in the process of transformation from subsistence farming into commercial farming. Meanwhile, Bangladesh has already entered into the European market for export of vegetables and other high value crops. The policy reforms that have taken

place offer greater scope and opportunity for private sector participation and a suitable environment towards promoting agro-business and investment. To establish agro-based industry the following assistance programmed and measures have been taken:

Table 4.5 : *Government assistance programs for the development of agro- based industry*

Name of the project	Allocation in FY06 (million BDT.)	Allocation in FY07 (proposed) (million BDT)
Agro Based Industry Assistance Programme	400	1500
The Equity Entrepreneurship Fund	1000	2000

Source : Bangladesh Economic Review, 2005 & Budget Speech of Finance Minister

In Industrial Policy 2006 the following objectives have been declared for promotion and expansion of agro-based industry-

i) Prioritize the expansion and development of agro-based and agricultural processing industry, and assist in the expansion of poultry, dairy and goat-sheep industry as agricultural industries.

ii) Provide financial, technical, technological and infrastructural facilities in order to facilitate the setting up and development of agro-based industries.

iii) Consider highly developed technology-based seed breeding, production and development, and agricultural goods processing activities as additional agro-based industrial sectors.

In this Policy, 33 sectors have been announced as "thrust sectors" which will enjoy some special incentives and financial facilities such as tax exemption, exemption from dual taxation, tax holiday, and taxation at a reduced rate or accelerated depreciation (if the tax holiday and tax exemption facilities cannot be provided for new firms in the future). Among those 33 thrust sectors, the following industries belong to the agricultural sector:

1. Agro-based and agro-processing industry
2. Jute goods and jute-mixed goods
3. Frozen food
4. Integrated shrimp cultivation
5. Flower cultivation

4.1.5 : Factors affecting agricultural production

I. Natural Calamities

Agriculture production in Bangladesh is largely susceptible to natural calamities like flood or draught. The July-August' 2004 flood inundated 38 percent area of Bangladesh and affected 36 million people across 39 districts. It also severely damaged infrastructure, crop-lands and environment incurring losses of an estimated amount of $ 2.2 billion or 3.9 percent of GDP. The loss comprised of $1.3 billion in asset loss and $0.9 billion in output loss [76]. However, because of

[76] Adopted from Monetary Policy Review, Vol. I, No. I.

quick and large post-flood rehabilitation programs of the government, crop loss did not exacerbate much and showed a sign of recovery quickly. But the infrastructure or asset loss cannot be recovered in one year; the negative impact of the flood still continued in FY06. Furthermore, agriculture production in Bangladesh was affected by small drought and floods in some regions in FY06.

II. Fertilizer and Land Under Irrigation

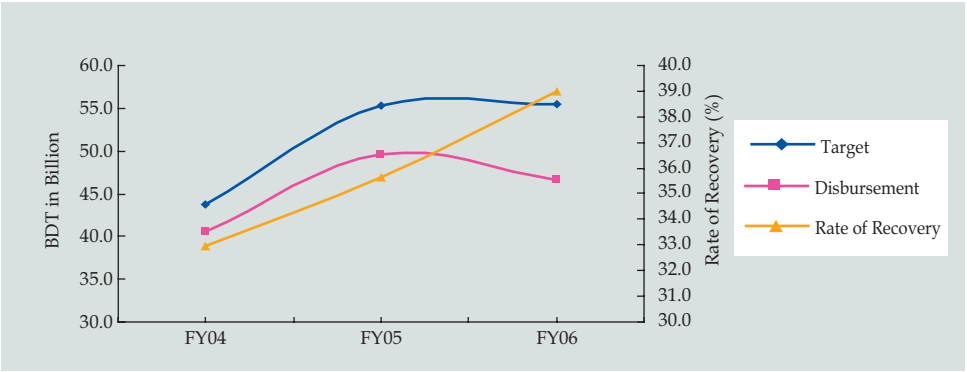
The use of fertilizer is rising continually in the country. But the domestic production has not matched this demand. After experiencing a record growth of 129.3 percent in FY03, production of fertilizer declined by 2.9 percent in FY04, and 4.4 percent in FY05. The production of fertilizer is estimated to have declined further by 7.5 percent in FY06.[77] Given the decline in production of fertilizer and increasing demand, import cost of fertilizer in USD increased by 122 percent in FY05 as compared to 1.9 percent in FY03 and 37.6 percent in FY04. For FY06, import cost of fertilizer increased by 2.7 percent but in quantity terms that would imply a small decrease. The use of land placed under irrigation has also increased gradually in recent years[78].

III. Agricultural credit and Government subsidy

Total disbursement of agricultural credit is provisionally estimated to have been BDT57.9 billion against the target of 55.4 billion in FY06. "Crops" alone drew a majority of 38.5 percent of total disbursement followed by poverty alleviation (24.2 percent), grain storage and marketing (13.0 percent), livestock (4.8 percent) and fisheries (3.9 percent). Total recovery of agriculture credit increased to BDT41.2 billion, which is 30.0 percent higher than preceding year, more than 60 percent of the amount "due for recovery" remains unpaid.

Figure 4.3 shows the target, disbursement and rate of recovery of agricultural credit during FY04-06. The figure shows that the difference between target and disbursement of agricultural credit has widened in recent years. Though the rate of recovery of agricultural credit has consistently improved over the period (FY04-06), more than 60 percent of the amount "due for recovery" remains unpaid.

Figure 4.3 : *Target, Disbursement and Recovery of Agricultural Credit (FY04-06)*



Note: "Rate of Recovery" is the amount recovered as a percentage of "Due for Recovery"
Source : Data from Bangladesh Economic Review, 2005 & Bangladesh Bank

[77] This estimate is made based on the data for July-May of FY06.
[78] A record 5365.0 thousand hectares of land has been placed under irrigation in FY05, which is 16.0 percent high from the FY01 level and 9.6 percent over the FY04 level. FY06 data is yet to be available .

IV. Technology and Product diversification

Movement from low-value food grains to a diversified cropping pattern and adoption of modern and innovative technology is important to attain higher agricultural growth rates. Technical innovation involves change in the method of production. For example, the use of polythene in salt cultivation changed the name of salt to the farmer as they called it "white gold". A daily newspaper reports that "in traditional method per acre production was 350- 400 maunds whether in polythene method production per acre is 500 maunds; quality and market price of this salt is also much higher" (*Prothom Alo, April 2, 2006*).

Product diversification involves inclusion of more varieties of crops along with the traditional ones. In recent years some advances have occurred in the country's agricultural product diversification, especially in the summer crops. To promote the product diversification in agricultural sector the government offers venture capital facility to agricultural firms having five acres of land to encourage production of vegetables, fruits, fresh flower including orchid for export. Moreover government has taken the following measures for product diversification-

i) Encourage contract farming for production of exportable vegetables.
ii) Government land will be allocated in favour of exporters for producing vegetables and fruits.

Along with these necessary measures diversified crop or new varieties may become more profitable for the farmer in terms of production cost and higher market value. There is optimism in the agricultural sector that momentum has been created in agricultural product diversification.

4.1.6 : Conclusion

The agriculture sector in FY'06 has recovered significantly from the setback of FY'05 because of good crop harvest. However, the declining trend of agriculture share to GDP continued in FY'06, estimated at 21.77 percent because of lower relative rate of growth of agriculture than the overall GDP growth rate. Given the stable industrial and service sector growth rates, the variability in GDP growth in Bangladesh is largely accounted for by the fluctuations of agricultural sector output. Major crops in Bangladesh include three varieties of rice namely aus, aman and boro, wheat, vegetables, sugarcane, jute, fruits, oilseeds and pulses. Crop sub-sector alone constituted a major share of 12.19 percent of GDP. Agricultural commodities' share in total export stood at 10.3 percent in FY06 as compared to 10.6 percent in FY05. To expand agro-based industry, the government has taken a number measures through industrial policy 2005, and by allocating funds under various projects. Although the gap between target and disbursement of agricultural credit widened in FY06, disbursement of agricultural credit in FY06 went up by 17.5 percent from the preceding period. While the rate of recovery has shown a consistent improvement during FY04-06, the FY06 rate still falls below 40 percent of total due, which is unsustainable. Strong measures should be taken to improve recovery and to meet the disbursement target. Financial Sector Review (FSR, 2006; Section 3.4) has discussed some of these challenges and the relevant policy alternatives.

Box 4.1[79]

Table 4.6 : *Agriculture Sector Growth Projection for the FY07*

	FY01	FY02	FY03	FY04	FY05	FY06 [p]	FY07*	
							Low	high
Agriculture	3.1	0.0	3.1	4.1	2.2	4.5	2.8	3.4
Agriculture and Forestry	5.5	-0.6	3.3	4.4	1.8	4.7	3.1	3.8
Crops and Horticulture	6.2	-2.4	2.9	4.3	0.1	4.2	2.2	2.7
Animal Farming	2.8	4.7	4.5	5.0	7.2	6.3	6.0	7.4
Forest and Related Services	4.9	4.9	4.4	4.2	5.1	5.2	4.7	5.7
Fishing	-4.5	2.2	2.3	3.1	3.6	3.9	1.6	2.0

*p= provisional estimate, * projection*

This *Review* projects the agricultural sector to grow in a range of 2.8 – 3.4 percent in FY07 (Table 4.6). This projection is based on an analysis of linear trend of growth behavior during FY96-06 for four sub-sectors namely, Crops and Horticulture, Animal Farming, Forest and Related Services, and Fishing. The low and high values of the growth projection are respectively 10 percent lower and higher than the one period adead to forecasted values. All of these sub-sectoral growth rates add up to an overall growth projection for the entire agricultural sector. It should be noted that the growth rates in this projection are based on the GDP sector weights of FY06.

In view of the Government's goal to increase the production of crops by 8 percent in FY07, the growth projection for agriculture in FY07 may seem conservative. However, as the agricultural production of Bangladesh is largely dependent on nature, climatic conditions may result in a slower growth in FY07. At the time of preparing the report, *aman* production was suffering from an unexpected drought. Higher prices of fuel oil and shortage in the supply of electricity are also putting additional strains on the farmers to meet their acreage and yield target. Hence, production of *aman* may face a minor setback in FY07 if the present situation persists.

Considering the growth trend of the sub-sector during FY96-06, the crops sub-sector is expected to grow in a range of 2.2-2.7 percent in FY07. The "animal farming" sub-sector showed a record growth of 7.2 percent in FY05; and a slightly lower growth of 6.3 percent in FY06. Using the trend approach, the sub-sector is forecasted to grow between 6.0-7.4 percent in FY07. Similarly, the "forest and related services" is expected to grow 4.7 to 5.7 percent and the "fishing" sub-sector at in the range of 1.6 -2.0 percent in FY07.

4.2 Investment in Productive Capacity [80]

The growth accounting analysis pioneered by Solow (1956) suggests that economic growth depends on capital accumulation along with increased factor productivity. Particularly, increase either in one or both can accelerate the rate of economic growth of a country. In this connection, it is worth mentioning that

[79] By Md. Shahiduzzaman, Research Economist and Naima Nazneen Rikta, Assistant Director, PAU.
[80] This section has been prepared by PAU, Research Economists, Shamim Ahmed and Md. Ezazul Islam, building on an earlier version of the Monetary Policy Review (October 2005) prepared by Dr. Md. Akhtaruzzaman, Senior Research Economist, PAU.

capital accumulation depends on the rate of investment (both private and public), which in turn, depends on savings mobilization and capital inflows.[81]

To boost overall investment in Bangladesh, the government offers generous opportunities under its liberalised Industrial Policy and export-oriented private sector-led growth strategy. Particularly, all but four sectors are open for private investment in Bangladesh.[82] The Board of Investment (BOI) provides institutional support services to intending investors. The general facilities/incentives include: (i) tax holiday for 5 or 7 years depending on the location of the industrial enterprise; (ii) tax exemption on royalties, technical know-how fees received by any foreign collaborator, firm, company and expert; (iii) exemption of income tax up to 3 years for foreign technicians employed in industries specified in the relevant schedule of the income tax ordinance; (iv) tax exemption on income of the private sector power generation company for 15 years from the date of commercial production; (v) tax exemption on capital gains from the transfer of shares of public limited companies listed with a stock exchange; and (vi) concessionary duty on imported capital machinery.[83]

Gross fixed capital formation (GFCF) or investment at constant market prices has grown remarkably from 5.56 percent per annum in FY01 to 12.05 percent in FY04, but suffered decline to 8.06 percent in FY05 (Table 4.7). Conversely, investment as a percentage of GDP has grown gradually from 23.85 percent to as high as 27.36 percent over the same period. The accelerated growth of investment in FY04 can be attributed mainly to a strong increase in capital outlays in construction activities by both private and public sectors. Besides, a substantial import of plant and machineries by export-oriented industries also contribute to the growth of investment. In the public sector, the construction outlays are realized by public agencies and corporations (under different ministries) mainly in infrastructural development. In fact, of the public sector investment, construction contributed around 66 percent in FY04. The growth of investment was further supported by continued growth in residential and commercial housing and other construction by the private sector. The provisional figure for FY06 also shows positive growth rate of investment albeit lower than FY04 but a bit higher than FY05. This is due to the lower growth of capital outlays in one of the components of investment, i.e., plant and machinery which declined from 33.06 percent in FY04 to 7.27 and 5.33 percent in FY05 and FY06, respectively, following partly a restrained monetary policy and partly a relatively slower implementation of the Annual Development Program (ADP) during these periods.

If investment as a percentage of GDP of the country is compared with that of India, Pakistan, and Sri Lanka, an interesting picture emerges (Figure 4.4). It is seen that investment share of GDP is the highest among the major South Asian economies (e.g., in 2004, investment share of GDP was 23 percent in India, 16.35 percent in Pakistan, and 25 percent in Sri Lanka). It is also noteworthy that the investment share of GDP has grown faster in Bangladesh than in India and Pakistan; only in Sri Lanka this has grown a shade faster.

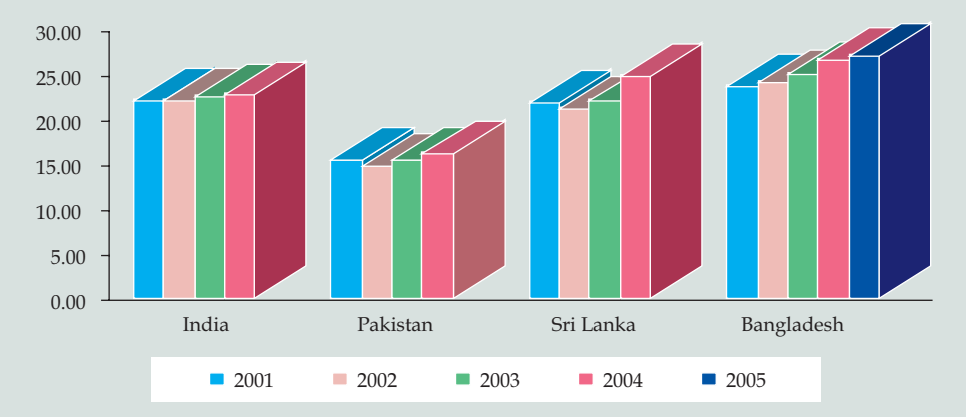
[81] The rate of investment also depends on the overall investment climate where factors such as property rights and security of doing business, access to markets, cost of doing business, etc. matter.
[82] The four sectors are: (i) arms and ammunition and other defence equipment and machinery; (ii) forest plantation and mechanised extraction within the bounds of reserved forests; (iii) production of nuclear energy; and (iv) security printing and mining.
[83] This paragraph has been adapted from the Bangladesh Bank website: www.bangladeshbank.org.bd

Table 4.7 : *Composition and Growth of Gross Fixed Capital Formation at Constant Prices (Base : 1995-96)*

Year	Construction	Plant and Machinery	Transport Equipment	Others	GFCF	GFCF as % of GDP
FY00	356.87	75.47	53.38	1.64	487.37	23.78
FY01	388.93	86.70	36.92	1.93	514.48	23.85
	(8.98)	(14.89)	(-30.84)	(17.21)	(5.56)	
FY02	423.52	89.59	33.09	1.22	547.42	24.30
	(9.88)	(3.33)	(-10.37)	(-36.86)	(6.40)	
FY03	458.79	99.56	41.05	1.29	600.69	25.33
	(8.50)	(11.13)	(24.05)	(5.88)	(9.73)	
FY04	498.36	132.47	40.71	1.51	673.06	26.71
	(8.13)	(33.06)	(-0.82)	(17.55)	(12.05)	
FY05	544.60	142.11	42.20	1.62	730.53	27.36
	(8.63)	(7.27)	(3.66)	(6.91)	(8.06)	
FY06 P	592.60	149.68	46.39	1.91	790.58	27.75
	(8.81)	(5.33)	(9.91)	(17.70)	(8.22)	

Notes: 1. Figures at constant prices are constructed using sectoral implicit deflators: 1995-96 base (e.g., construction material price index, machinery equipment, transport equipment, and other capital goods).
2. Figures in the parenthesis are the respective sectoral growth rates.
Source : Bangladesh Bureau of Statistics (2001, 2005, 2006) and authors' calculation.
3. Figures in the Level one in billion BDT.

Figure 4.4 : *Investment as a share of GDP in South Asia*



Note: Figures for Bangladesh are fiscal year figures, while the rest are on a calendar year basis.
Source : International Monetary Fund (2005) and authors' calculation.

4.2.1 : Private versus Public Sector's Share of Investment in GDP:

As a share of GDP at constant market prices, the public sector investment represented 7.80 percent in FY00 and followed a declining trend that reached 7.07 percent in FY06 whereas the opposite has happened for private sector investment (Table 4.8). The latter's share in GDP at constant market prices increased gradually and reached 20.53 percent in FY06 from 16.01 percent in FY00.

4.2.2 : Private versus Public Sector Share in Total Investment:

Share of private sector investment in total investment at constant market prices rose from 67.25 percent to 74.39 percent during FY00 to FY06 (Table 4.6). In fact, it has been steadily increasing during the period FY00 to FY05 and which the share of public investment in total investment dropping to 26 percent from 33 percent over the period. It would thus appear that the private sector has taken the lead.

Table 4.8 : *Investment as percent of GDP at Current and Constant (base: 1995-96) Prices*

Fiscal Year	Constant Prices			Current Prices		
	Total	Private	Public	Total	Private	Public
FY00	23.81	16.01	7.80	23.02	15.61	7.41
		(67.25)	(32.75)		(67.81)	(32.19)
FY02	24.78	17.97	6.82	23.15	16.78	6.37
		(72.50)	(27.50)		(72.48)	(27.52)
FY04	26.09	19.11	6.98	24.02	17.83	6.19
		(73.23)	(26.77)		(74.22)	(25.78)
FY05	27.26	20.28	6.98	24.53	18.32	6.21
		(74.41)	(25.59)		(74.69)	(25.31)
FY06 P	27.60	20.53	7.07	24.97	18.67	6.30
		(74.39)	(25.61)		(74.77)	(25.23)

Notes: 1. Figures at constant prices are constructed using sectoral implicit deflators: 1995-96 base (e.g., construction material price index, machinery equipment, transport equipment, and other capital goods).
2. Figures in the parenthesis are the respective shares in total investment.
Source : Bangladesh Bureau of Statistics (2001, 2005, 2006).

4.2.3 : Investment in Public Sector by Sources of Funding:

Share of financing in public sector investment by budgetary allocation under ADP declined from 53 percent in FY98 to 41 percent in FY05. On the other hand, the share of investment by state owned enterprises (SOEs) in the public sector investment rose from 34 to 42 percent.

4.2.4 : Sectoral Share of Investment:

A brief review of Table 4.9 reveals that over the FY01-FY06 period, the overall picture on the sectoral share of investment has been rather stable. Though the share had declined marginally over the past three years, investment in the construction sector has retained the prominent place accounting for about 75 percent of total investment in FY06. Investment in plant and machinery has risen from about 17 percent in FY01 to 19 percent in FY06. Finally, in the third important category of transport equipment, the share has fallen from 7 percent to 6 percent over the same period.

Table 4.9 : *Sectoral Share of Investment at Constant (base: 1995-96) Prices*

Fiscal Year	Construction	Plant and Machinery	Transport Equipment	Others
FY01	75.60	16.85	7.18	0.37
FY02	77.52	16.25	6.00	0.22
FY03	76.57	16.44	6.78	0.21
FY04	74.16	19.60	6.02	0.22
FY05	74.55	19.45	5.78	0.22
FY06 P	74.96	18.93	5.87	0.24

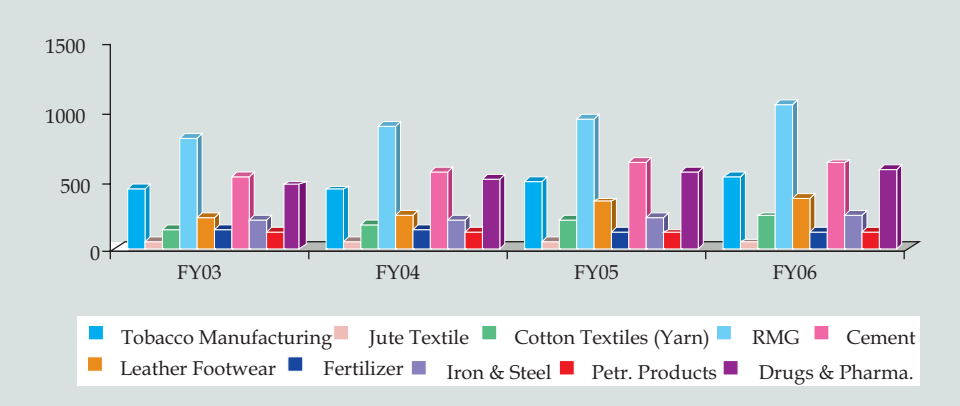
Source : Bangladesh Bureau of Statistics (2001, 2005, 2006) and authors' calculation.

Real investment in residential housing and other construction activities recorded a steady average growth of 8 percent per annum during the period of FY00 to FY05, contributing to the steady growth of GDP and which sustained by increasing rate of urbanization. Besides, substantial gains in Bangladesh's final domestic demand in recent years has led to a marked rise in capital spending in the sector. The other important elements are construction activities in the

industry sector and in infrastructure development sector such as roads and highways, bridges, school and hospital and administrative buildings etc. Recent boom of service sector activities, as evident in its share in GDP (about 50 percent in recent years), has given further spurt to investment in construction since trade and other service oriented activities especially in health, education and recreation industries recorded phenomenal growth in the last couple of years.

Investment in transport equipment is also marked by volatility; negative year-on-year growth has been observed in 4 out past 6 fiscal years. The increasing trend of oil price also contributed to slow investment in this sector. However, in FY03, its growth picked up substantially due to large import of environmental friendly (run by CNG energy) transport vehicles. The overall growth performance of ready-made garments (RMG), cotton textile and jute textiles industry as evidenced in the upward movement of quantum index (Figure 4.5) is an indication of substantial utilization of newly enhanced capacity realized by the steady growth of investment in plant and machinery in the industry sector in FY05.

Figure 4.5 : *Quantum Index of Major Industries (Large & Medium Scale)*



Note: Figures of FY06 are for July-Dec. period.
Source : Bangladesh Bureau of Statistics (2006).

Finally, even though current investment spending in Bangladesh is considerably higher than before, it is not enough to maintain an economic growth of 8 to 9 percent per annum as would be consistent with the goals of poverty reduction targets set by the Millennium Development Goals (MDGs) in Bangladesh. Therefore, the major challenge for Bangladesh is to raise investment to at least 30 percent of GDP.[84] Although this might appear as a reasonable proposition, it could be difficult because there are various implications of additional investment financing from both domestic savings and foreign sources.

4.3 Labour Force and Employment[85]

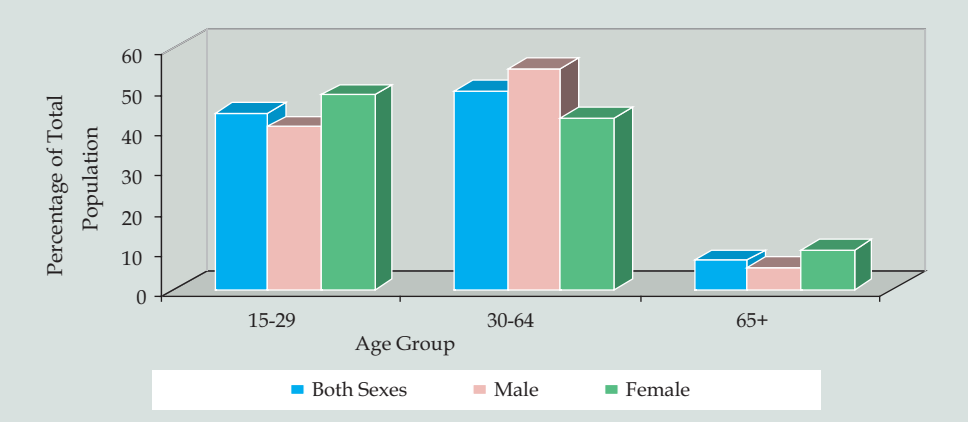
4.3.1 : Demographics

The Labour Force Survey (LFS) 2002-03 placed 49.2 percent of the total working population (aged 15 years and over) in the age group 30-64 years followed by the age group of 15-29 years (43.7 percent), and the rest 7.1 percent of the work force in

[84] Authors' own estimation by the well known capital-output ratio in the Harrod-Domar framework. For an elaboration, see Perkins et al. (2001).
[85] Prepared by Mainul Islam Chowdhury, Research Economist, PAU.

the age group of 65 years and over. In case of male population the concentration was similar and in case of female population the concentration was a bit different where the highest number of workers (48.1 percent) fell in the category of 15-29 years followed by the age group of 30-64 years (42.3 percent) (Figure 4.6). Similar concentration holds both in case of urban and rural work force (Figure 4.7).

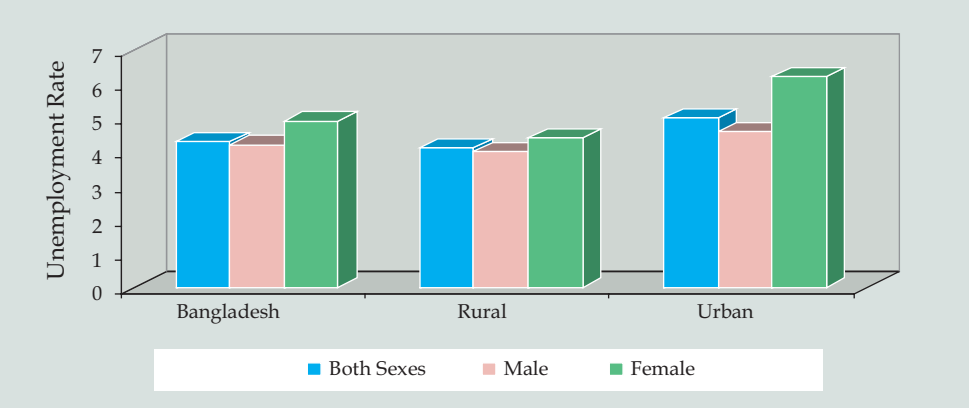
Figure 4.6 : *Working Age Population in Bangladesh by Broad Age Group and Gender*



Source : Report on Labor Force Survey 2002-2003, BBS

According to the latest LFS nationally unemployment rate was 4.3 percent, while in the urban areas it was 5 percent and that in the rural areas was 4.1 percent. Both male and female unemployment rate in urban areas (4.6 and 6.2 percent respectively) were higher than in rural areas (4 and 4.4 percent respectively).

Figure 4.7 : *Rural and Urban Unemployment*



Source : Report on Labor Force Survey 2002-2003, BBS

4.3.2 : Dependency

Demographic dependency ratio (DDR) fell from 81.3 percent in 1999-2000 to 77.7 percent in 2002-2003.[86] Male population that were not in the labour force are mostly students (66 percent) and females mostly engaged in household work (83.3 percent). Labour force participation rate increased from 54.9 percent in 1999-2000 to 57.3 percent in 2002-03. This implies that about 43 percent of the population are

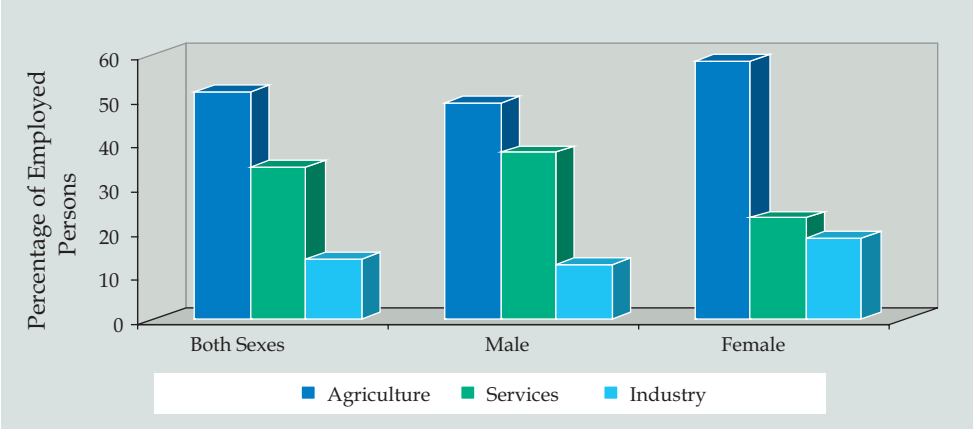
[86] DDR = (Population below 15 years + population 65+) / Population 15-64 years * 100
EDR = (Economically inactive population / economically active population) * 100

not in the labour force, but are economically dependent on the rest, which causes high economic dependency ratio (EDR), though it came down from 82.3 percent in 1999-2000 to 74.5 percent in 2002-2003.

4.3.3 : Sectoral Productivity

Figure 4.8 shows that, during LFS 2002-03 employed population was mostly engaged in agriculture (51.7 percent) followed by services (34.6 percent) and industry (13.7 percent). Given that agriculture, services and industry had 23.5, 49.3 and 27.2 percent share of GDP, respectively, in FY03 labor productivity would appear to be the highest in industry followed by services and agriculture. The ratio of productivity in industry, services and agriculture is 4.38:3.14:1. In other words, these figures suggest industrial workers are more than four times as productive as agricultural workers, while those engaged in the service sector are roughly about 75 percent as productive as industrial workers. In interpreting these ratios, one should keep in mind that due to surplus labour, agricultural workers clearly do not earn their true marginal value product. (Sen 1966)

Figure 4.8 : *Employed Persons by Gender and Broad Economic Categories*



Source : Report on Labor Force Survey 2002-2003, BBS

Table 4.10 : *Employed Persons 15 Years and Over by Major Occupations*

(Percent)

Major Occupation	Bangladesh			Urban			Rural		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	100	100	100	100	100	100	100	100	100
Professional, technical	3.9	3.8	4.1	6.4	6.0	8.0	3.1	3.2	2.8
Admn. managerial	0.2	0.3	0.0	0.6	0.8	0.1	0.1	0.1	0.0
Clerical workers	3.4	3.9	1.9	7.2	8.2	3.8	2.2	2.5	1.2
Sales workers	14.8	18.2	2.9	22.4	28.0	3.8	12.4	15.1	2.6
Service workers	4.5	3.0	9.7	6.7	5.2	11.7	3.7	2.3	9.0
Agriculture, forest & fisheries	51.4	49.3	58.6	26.6	21.8	42.6	59.2	57.9	64.1
Production, transport & others	21.9	21.6	22.8	30.0	30.0	30.0	19.3	19.0	20.3

Source : Report on Labor Force Survey 2002-2003, BBS, pp.43

4.3.4 : Gender Aspects

Labour force participation rate in case of male population increased from 84 to 87.4 percent while in case of female population it increased from 23.9 to 26.1 percent. Among the males, a slightly higher percentage was engaged in the non-agricultural sector (50.2 percent) with 37.9 percent in the service sector and the rest 12.3 percent in the industry sector. Nearly 3/4th of all women were not in the labour force, most of whom were likely engaged in unremunerative household work. Of those gainfully employed, a great majority (nearly 60 percent) were engaged in low productivity agricultural sector. The only silver lining is that a greater proportion of women (18.4 percent vs. 12.3 percent for male) were engaged in high productivity industry sector. However, presumably many of them were in the RMG sector where the wages are believed to be low in relation to productivity.

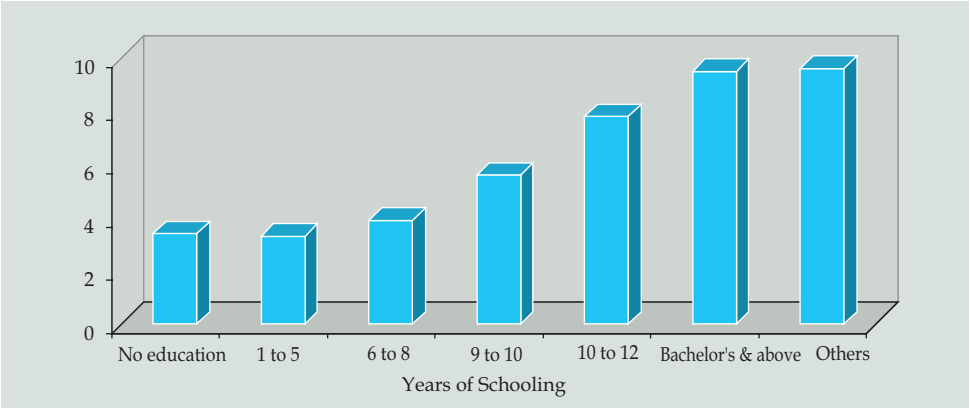
4.3.5 : Educational Attainment

Over 50 percent of the total employed persons had no education at all. Workers engaged in agriculture, forest and fisheries had the lowest level of education with 59.3 percent having no education; followed by service workers (54.3 percent) and production and transport labourers (54.2 percent).

4.3.6 : Job Opportunities

Taking a look at new job opportunities created in different occupations (from 1999-2000 to 2002-03) it is seen that most jobs were created in the clerical services category followed by production, transport labourers and others. In case of administrative and managerial services, growth of employment was negative 20.1 percent and professional and technical group's employment growth was only 3.2 percent. Except for clerical work there seems to be limited opportunities for educated work force as jobs were mainly created in those occupations where no or very little education was required. Therefore it is not very surprising that unemployment rate among educated people was high. While the lowest unemployment rate was observed for population with no education (3.4 percent), the highest (9.5 percent) unemployment rate prevailed among people having a bachelor's or higher level of education. Figure 4.9 reveals that rising unemployment rates were associated with rising level of education in almost all the cases.

Figure 4.9 : *Unemployment Rate by Education Level*



Source :Report on Labor Force Survey 2002-2003, BBS

4.4 Foreign Direct Investment (FDI) [87]

4.4.1 : Introduction

As a developing country, Bangladesh needs foreign direct investment (FDI), which is now one of the important factors in the development process. By definition, FDI is capital provided by a foreign direct investor, either directly or through other related enterprises, where the foreign investor is directly involved in the management of the enterprise. Until the1980s, most developing countries viewed FDI with great weariness. In recent years, however FDI restrictions have been significantly reduced. Most countries offer incentives to attract FDI, such as tax concessions, tax holidays, accelerated depreciation on plants and machinery, export subsidies and import entitlements.

4.4.2 : The basic policy-framework

Current policy framework guiding FDI into Bangladesh features the following elements :

- non–discriminatory treatment between foreign and local investment, and the protection of foreign investment from expropriation by the state, and ensuring the proceeds from sale, and the repatriation of shares and profit;
- there is no limitation pertaining to equity participation, i.e., 100 percent foreign equity is allowed;
- foreign entrepreneurs enjoy the same facilities as the domestic entrepreneurs in respect of tax holiday, payment of royalty, technical know-how fees etc;
- full repatriation of capital invested from foreign sources is allowed. Similarly, profits and dividend accruing to foreign investment can be transferred in full. If foreign investors reinvest their repatriateable dividends and/or retained earnings, those will be treated as new investment. Besides, foreigners employed in Bangladesh are entitled to remit up to 50 percent of their salary and will enjoy facilities for full repatriation of their savings and retirement benefits;
- work permits are issued to foreign experts on the recommendation of investing foreign companies or joint ventures;
- intellectual Property Rights of new products and process are protected;
- investment guarantee and dispute settlements are guided by international arrangements and provisions;
- tax holiday facilities are available for 5 to 7 years depending on the location of the industrial enterprise;
- industrial undertakings, not enjoying tax holiday will enjoy accelerated depreciation allowance;
- tax exemption on royalties, technical know-how fees received by any foreign collaborator, firm, company or expert;

[87] Prepared by Iftekhar Ahmed Robin, Assistant Director, under the guidance of Professor Syed M. Ahsan, Resident Economic Advisor. He is also indebted to Dr. Md. Habibur Rahman and Dr. Sayera Younus, Senior Research Economists for their valuable contribution.

- tax exemption on the interest on foreign loans under certain conditions;
- avoidance of double taxation on the basis of bilateral agreements;
- tax exemption on income of the private sector power generation company for 15 years from the date of commercial production;
- 6- months' multiple entry visa for the prospective new investors;
- concession in the rates of duty for import of capital machineries and spare parts;
- duty drawback facilities on potentially exportable goods;
- 50 percent rebate for taxable income generated from export earnings; and
- income tax exemptions for export earnings from handicraft and cottage industries.

Besides, the Industrial Policy of 1999, the Companies Act 1994 and the Telecommunications Act 2001 pave the way for Foreign Direct Investment into the country. Trade Policy has also been liberalized significantly over the last decade.

4.4.3 : The magnitude of FDI

FDI played a minor role in the economy until 1980, which was a crucial year of policy change. The Government of Bangladesh (GOB) enacted the 'Foreign Investment Promotion and Protection Act, 1980' in an attempt to attract FDI. Except five industries, which are reserved for the public sector: defence equipment and machinery, nuclear energy, forestry in the reserved forest area, security printing & minting, and railways, FDI is allowed in every sector of the economy.

Table 4.11 shows total FDI inflow over the last 11 years, 1995-2005 (including in EPZs). The data reveals that in 1999 there was a sudden fall in FDI, and again in 2001[88]; afterwards it stabilized but remained below the average reached during

Table 4.11 : *The Aggregate and Sector-wise FDI inflow in Bangladesh , 1995-2005 (calendar year)*[89]

(USD in million)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Agriculture & Fishing (Total)	0	0.3	1.4	1.4	2.9	15.2	1.1	1.6	4.1	1.7	2.3
Power, Gas & Petroleum	3.2	47.0	242.1	235.2	83.5	301.0	192.4	57.9	88.1	124.1	208.3
Manufacturing	45.5	89.2	162.4	139.8	191.8	193.5	132.2	142.9	165.2	139.4	219.3
Industry (Total)	48.7	136.2	404.5	375.0	275.3	494.5	324.6	200.8	253.3	263.5	427.6
Trade &Commerce	41.3	92.3	158.9	164.3	27.5	53.2	27.6	63.7	44.0	66.6	130.5
Transport and Telecom.	1.7	1.5	5.9	25.3	0.5	5.4	0.9	48.5	45.9	127.5	281.9
Other Services	0.6	1.3	4.6	10.5	2.9	10.3	0.3	13.7	2.9	1.1	3.0
Services (Total)	43.6	95.1	169.4	200.0	30.9	68.9	28.8	125.9	92.8	195.2	415.4
Total FDI to Bangladesh	**92.3**	**231.6**	**575.3**	**576.5**	**309.1**	**578.6**	**354.5**	**328.3**	**350.2**	**460.4**	**845.3**

Source : Statistics Department, Bangladesh Bank

[88] There was serious political unrest which discouraged foreign investment, and it would appear that it took several years to regain the confidence of foreign investors.

[89] The enterprise survey, conducted by the Statistics Department of Bangladesh Bank, for the period, January- June'2006 has been going on. Therefore, no authentic FDI data is available for 2006 as yet.

the 1997-2000 period. In spite of Bangladesh's comparative advantage in labour-intensive manufacturing, adoption of investment friendly policies and regulations, and establishment of EPZs in different suitable locations and other privileges, FDI flows have failed to accelerate. However, in 2005 substantial improvement has been achieved in FDI inflow.

4.4.4 : FDI inflow: sectoral composition (agriculture, industry and service)

There has been several shifts in the concentration and composition of FDI among sectors. The first major compositional shift was within manufacturing from import-substitutes to export oriented manufacturing. A more recent shift of FDI has been towards services. The presence of these global changes are also evident in Bangladesh economy and have been driven in particular by the opening up of service industries to FDI. With the country's accession to the World Trade Organization (WTO), service sectors like power and energy, banking, insurance and telecommunications are being liberalized and progressively opened up in Bangladesh. Owing to comparative advantage and an accommodative policy regime, a large chunk of FDI has gone into the ready-made garment (RMG) sector for establishing backward linkage industries, telecommunication, power, oil and gas exploration sector. Table 4.12 depicts the pattern of FDI inflow in different sectors and the growth rate during the period, 1995-2005.

Table 4.12 : *Sector-wise FDI inflow and growth, 1995-2005*

Year	fdi_ag (million USD)	fdi_in (million USD)	fdi_sr (million USD)	gr_ag (percentage)	gr_in (percentage)	gr_sr (percentage)
1995	0.0	48.7	43.6	3.1	6.9	3.9
1996	0.3	136.2	95.1	5.9	5.8	4.5
1997	1.4	404.5	169.4	3.2	8.3	5.0
1998	1.4	375.0	200.0	4.7	4.9	5.2
1999	2.9	275.3	30.9	7.4	6.2	5.5
2000	15.2	494.5	68.9	3.2	7.5	5.5
2001	1.1	324.6	28.8	0.1	6.5	5.4
2002	1.6	200.8	125.9	3.2	7.3	5.4
2003	4.1	253.3	92.8	4.1	7.6	5.7
2004	1.7	263.5	195.2	2.2	8.3	6.4
2005	2.3	427.6	415.4	4.5	9.6	6.5

Source : Statistics Department, BB & BBS

Note: 'fdi_ag' means FDI inflow in agriculture sector, 'fdi_in' means FDI inflow in industrial sector and 'fdi_sr' means FDI inflow in service sector.Again 'gr_ag' means output growth in agriculture sector, 'gr_in' means output growth in industrial sector and 'gr_sr' means output growth in service sector.

If we compute correlation and corresponding p-value (probability) between the FDI inflow and the sectoral growth pattern, using the data (Table 4.12), we obtain the following results in Table 4.13 for 11 observations (FY96 to FY06):

From the estimated Pearson correlation coefficients and corresponding p-values (shown in parentheses), it is evident that FDI inflow in industrial sector does not appear to correlate much with industrial growth; however, it relates better with service sector growth. On the other hand, FDI inflow in service sector is fairly well correlated with the growth in that sector as well as in the industrial sector, whereas FDI inflow in agricultural sector does not have any close relationship with the sectoral growth pattern. The above pattern is suggestive of mutual

Table 4.13 : *Pearson Correlation Coefficients, n = 11*
Prob > |r| under H_O: rho=0

	fdi_ag	fdi_in	fdi_sr	gr_ag	gr_in	gr_sr
fdi_ag	1					
fdi_in	0.58574 (0.0583)	1				
fdi_sr	-0.14338 (0.6741)	0.41410 (0.2055)	1			
gr_ag	-0.02198 (0.9489)	-0.10683 (0.7546)	0.08209 (0.8104)	1		
gr_in	0.15920 (0.6401)	0.31572 (0.3443)	0.57728 (0.0629)	-0.26088 (0.4384)	1	
gr_sr	0.23195 (0.4925)	0.57942 (0.0617)	0.57897 (0.0620)	-0.08547 (0.8027)	0.56206 (0.0719)	1

externalities between growth in industrial and service sectors, though curiously FDI in service sector co-varies with growth in both these sectors, while FDI in industry co-varies only with service sector growth. The paucity of data prevents further inference.

4.4.5 : FDI inflow by components

FDI comprises of basically three components: equity capital, reinvested earnings and intra-company loans. Equity capital is the foreign direct investor's purchase of shares of an enterprise in a country other than its own. Reinvested earnings equal the direct investor's share of earnings (in proportion to direct equity participation), not distributed as dividends by affiliates, or earnings not remitted to the direct investor. Such retained profits by affiliates are reinvested. Intra-company loans are intra-company debt transactions, and refer to short or long-term borrowing and lending of funds between direct investors (parent enterprise) and affiliated enterprises. Table 4.14 illustrates the distribution of FDI in Bangladesh by its main components.

Table 4.14 *Component-wise FDI inflow 1995-2005 (calendar year)*

(USD in million)

FDI component	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	
Equity Capital	37.3	69.5	332.1	280.5	137.5	350.2	233.8	133.8	156.1	155.9	425.6	Average Equity
Re-invested earnings	35.5	121.7	163.4	189.9	76.2	77.8	65.0	116.8	170.1	239.8	247.5	
Intra-company loans	19.5	40.4	79.8	106.1	95.4	150.6	55.7	77.7	24.0	64.7	172.2	
Total	**92.3**	**231.6**	**575.3**	**576.5**	**309.1**	**578.6**	**354.5**	**328.3**	**350.2**	**460.4**	**845.3**	
Share of equity capital to total FDI inflow (%)	40.41	30.01	57.73	48.66	44.48	60.53	65.95	40.76	44.57	33.86	50.35	47.03
Weighted share of equity capital to total FDI inflow (%)	0.79	1.48	7.05	5.96	2.95	7.44	4.97	2.84	3.31	3.31	9.04	49.14

Source : Statistics Department, Bangladesh Bank

Table 4.14 reveals that of the basic components of FDI, equity capital contributed about 47 percent of the total FDI inflow on an average over the last 11 years from 1995 to 2005, whereas the weighted average has been 49.14 percent. This indicates that actual inflow of FDI in the form of equity participation by the foreign direct investors is substantially less than the head line figures cited in the media.

4.4.6 : Investment in Export Processing Zones (EPZs)

Bangladesh Government initiated the EPZ (Export Processing Zone) facility during the early eighties with the enactment of the 'Bangladesh Export Processing Zone Authority (BEPZA) Act 1980' on 14th April 1981, which paved the way for establishing special zones for both domestic and foreign investment, managed by the public sector. After 15 years, a separate law ' The Bangladesh Private Export Processing Zones Act 1996' has been enacted, inviting private sector for establishing special zones for investment. Under the BEPZA Act, the government established the country's first EPZ in Chittagong in 1983, a second was set up near Dhaka in Savar in 1993, and four more EPZs started functioning in 2000: at Mongla, Comilla, Ishwardi and Uttara (Nilphamari). Two more EPZs are under implementation stage, one near Dhaka (in Adamjee) and another in Chittagong.

Table 4.15 : *EPZ Investment & Export, FY95-FY06*

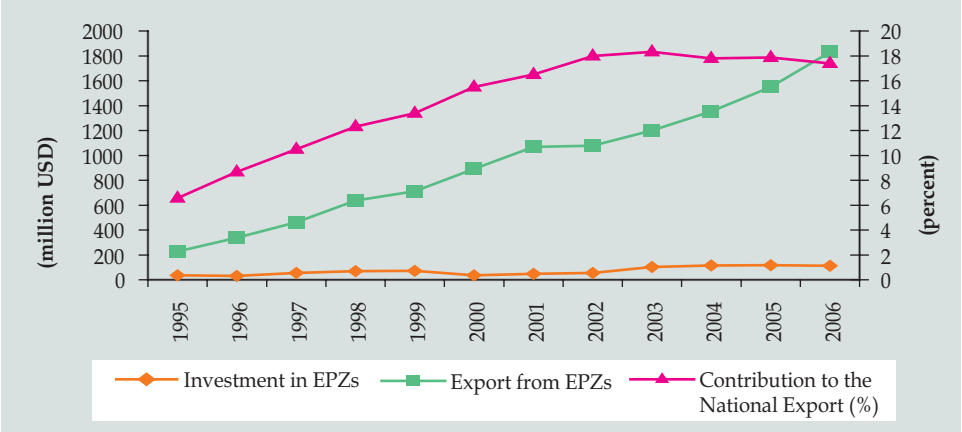
(USD in million)

FY	Investment in EPZs	Exports from EPZs	Contribution to the National Exports (%)
1995	35.93	228.00	6.56
1996	30.58	337.00	8.68
1997	53.90	463.00	10.48
1998	68.83	636.00	12.32
1999	71.61	712.00	13.40
2000	34.98	891.00	15.49
2001	48.40	1068.00	16.51
2002	55.70	1077.00	18.00
2003	102.63	1200.00	18.33
2004	115.05	1354.00	17.80
2005	118.52	1549.00	17.88
2006	112.46	1830.00	17.39

Source : Bangladesh Export Processing Zone Authority (BEPZA)

Table 4.15 depicts that in terms of investment and exports, the country's EPZs have been generally successful; share of exports out of EPZs to national export has continually grown between FY95 and FY03. However, growth in export share appears to have stalled since FY03, though the total export from EPZs has been increasing. If we plot the data in Table 4.15, we get the following Figure 4.10, which depicts a positive relation between the investment (where FDI is the main component) and export from the EPZs.

Figure 4.10 : *EPZs Investment and Export*



The correlation analysis reveals strong positive association between investment and exports from EPZs. This happens because foreign investors are comfortable with the infrastructure and administrative facilities available in EPZs. Besides, they receive special and lucrative incentives like tax holidays, capital and profit repatriation and other facilities, if they operate in EPZs.

Table 4.16 : *Pearson Correlation Coefficients*
Prob > |r| under H_0: rho=0

	inv_epz0	exp_epz0	share_x0	exp_epz1	share_x1
inv_epz0	1				
exp_epz0	0.81601 (0.0012)	1			
share_x0	0.67314 (0.0164)	0.89200 (<.0001)	1		
exp_epz1	0.81380 (0.0023)	0.99019 (<.0001)	0.91896 (<.0001)	1	
share_x1	0.56875 (0.0679)	0.90692 (0.0001)	0.98546 (<.0001)	0.86947 (0.0005)	1

Note : Here '0' means current year and '1' means the recent year. Again 'inv_epz' means investment in EPZs, 'exp_epz' means export from EPZs, and share_x means EPZ contribution to the national export.

From the estimated Pearson correlation coefficients and corresponding p-values (shown in parentheses), it appears that investment in EPZs is well correlated with the current year's exports from EPZs as well as the share of export to the national level, and investment in current year also has a positive impact on the next year's exports.

4.4.7 : FDI related outward remittances

FDI brings much-needed foreign funds for current investment, but it also creates long-term obligations in the form of future repatriation of profit earned by the foreign investor. Another bothersome aspect is the circular flow of capital that finds original investment (including intra-company debt and interest) and domestic capital reinvested as 'FDI', because of discriminatory taxation policy that favours FDI over domestic investment. Table 4.17 shows the possible repatriation of foreign exchange in the form of dividend/profit, capital repatriation, private debt repayment and family maintenance during the period from 1995 to 2005.

Table 4.17 : *FDI related outward remittances, 1995-2005(calendar year)*

(USD in million)

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Dividend/Profit Repatriation	19	18	26	40	83	149	175	195	355	338	418
Inv. liquidation/Cap. repatriation	0.3	-	0.6	0.1	2.9	0.5	0.5	2.6	2.2	10.5	3.3
Private Debt amortization	20	34	84	53	168	227	188	243	229	372	208
Family Maintenance	0.99	0.74	1.41	1.56	1.92	2.43	1.84	2.82	4.19	4.72	2.58
Total Outward flow (a)	40.29	52.74	112.01	94.66	255.82	378.93	365.34	443.42	590.39	725.22	631.88
Gross FDI inflow including private outside loan (b)	**106.3**	**267.6**	**610.3**	**668.5**	**455.1**	**703.6**	**568.5**	**573.3**	**466.2**	**545.4**	**927.3**
Net Inflow/Outflow (b) – (a)	**66.01**	**214.86**	**498.29**	**573.84**	**199.28**	**324.67**	**203.16**	**129.88**	**-124.19**	**-179.82**	**295.42**

Source : Statistics Department , Bangladesh Bank
Note : Here 'gross FDI inflow' differs from 'total FDI inflow' in Table 4.11 due to inclusion of private outside loan with the 'total inflow'

Table 4.17 shows that between 1995 and 2002, the country enjoyed a higher rate of FDI inflow with a lower outflow of profit and loan repayment. But in the year 2003 and 2004, the net balance, i.e., inflow minus outflow is negative implying that foreign investors have taken out more money than they have pumped into Bangladesh through repatriation of profit/dividend, capital and repayment of loans with foreign banks/sources. In fact, there is substantial change in the pattern of FDI inflow in the new millennium, and the foreign investors are looking at sectors like telecom, banks, power and energy, where profit growth is likely to be high. However total inflow of FDI exceeded total outflow in 2005. If we compute the present value (PV) of the 'gross inflow' and also 'net inflow' in Table 4.5.5, discounting at 5 percent (assuming the long term US bond yield of 5 percent), we get 4566.19 million US dollar as the PV of 'gross FDI inflow' over the 1995-2005 (11 years) period. On the other hand, PV of 'net inflow' is 1516.26 million US dollar, just one-third of the gross inflow.

4.4.8 : Conclusion:

The FDI can undoubtedly play an important role in the economic development of Bangladesh in terms of capital formation, output growth, technological progress, exports, and employment. The relatively small share of FDI in GDP, however, indicates that the potentials are from far being realized in the Bangladesh experience thus far. Nevertheless, concerns remain about the possible negative effects of FDI, including the question of market power, technological dependence, capital flight and profit outflow. The limited evidence gathered above, tends to support some of these apprehensions. On a positive note, the service sector growth appears well correlated with FDI flow to this sector. Further, this has a linkage effect to the rest of the economy. It would appear that the policy options may be revisited so as to reduce dependence on foreign bank borrowing, and instead encourage foreign and domestic investors alike to raise more capital from the domestic equity market. If some industry segments, e.g., cellular phone companies find the local market too limited; funds may be raised by floating shares simultaneously in both domestic and regional markets (e.g., Dubai, Hong Kong, Malaysia, Singapore etc.).

4.5 Cost Behavior and Consumer Price Inflation [90]

4.5.1 : Introduction

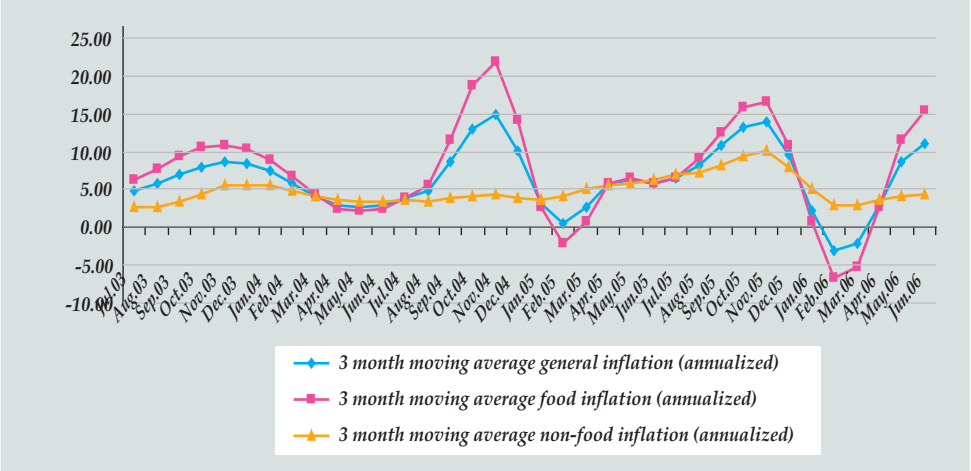
As economic theory suggests, price inflation is correlated with the cost behavior of an economy. Movements in cost, either by restraining or easing the supply side, force inflation to move in the similar direction. There are quite a few remarkable examples of cost-push inflation in history. Incidents of price inflation in USA due to oil-shocks in 1971-74, 1979-80 and 1990 are the most glaring among them.[91] Recent surge of global inflation is also believed to be another instance of inflation which emanates from the oil crisis. Having discussed the demand side forces in the preceeding chapter (section 3.7), this section attempts to examine the extent to which the recent inflationary force in Bangladesh is due to the adverse cost conditions or supply side considerations.

[90] Prepared by Md. Alauddin Majumder, Research Economist, PAU.
[91] Dornbush and Fischer (1994).

4.5.2 : Inflation Trends

Figure 4.11 demonstrates the trends of Bangladesh inflation by depicting month-wise data of general, food and non-food consumer price inflation (annualized 3-month moving average) from July' 03 to June' 06. The purpose of using 3-month base instead of traditional 12-month base in calculating inflation is to capture the dynamics implicit in the recent price data. The 12-month base is, indeed, most useful in understanding longer-term behavior, where much of the seasonality has already been removed.

Figure 4.11 : *Inflation Trends (annualized 3-month moving average)*



Source : Constructed by the author from data available from Economic Trends

It is observed from the figure that inflation maintained a highly erratic movement ranging from 14.82 percent in November' 04 to (-)3.04 percent in February' 06 over the period under consideration. The volatility of the inflation behavior can be largely attributed to movement in the food sector. The food inflation seems to suffer from severe fluctuations within the range between (-)6.75 in February' 06 to 21.88 in November' 04. By contrast, the non-food sector inflation showed a relatively steady pattern reflecting less of a seasonality. The fluctuation in food inflation is in part a manifestation of the typical seasonality in food production and the development in the global commodity market. It would, therefore, be quite rational to recognize the role of the cost/supply side phenomena in explaining Bangladesh inflation.

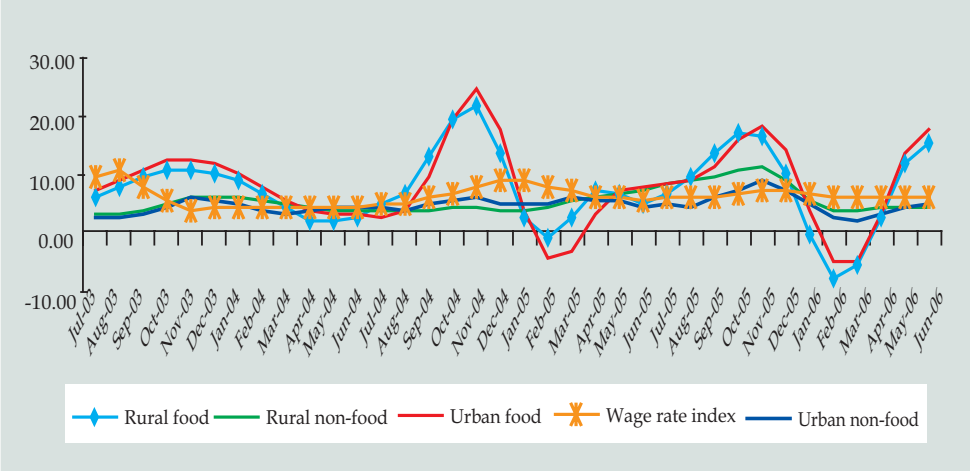
As seen in the Figure 4.11, the inflation rate was over 5 percent in quite a few number of months. This situation seems to have been caused by the incidence of high food inflation. Except for a few instances, food inflation continued to be well above non-food inflation during the whole period. Whereas the non-food inflation hardly exceeded 5 percent, the food inflation was higher than 5 percent most frequently. An analysis of the latest trends reveals that general and food inflation simultaneously started declining after November' 05, reached the lowest level in February' 06 and then registered sharp uptrend to end up with 11.02 and 15.53 percent in the last month of FY06. The non-food inflation, although quite moderate, followed the same direction before reaching 4.3 percent at the end of the period except that it witnessed the lowest level in March rather than February' 06.

The surge in food inflation in the 4th quarter of FY06 appears unrelated to seasonality. The behavior of food prices in the comparable period of both FY05 and 04 indicate little volatility. The actual inflation in the latter dates ranged between 2.67 percent (FY04) and 6.27 percent (FY05). Further exploration of the source of the FY06 (4th quarter) price hike therefore appears urgent.

4.5.3 : Labor Cost

Generally, analysis of the movements of nominal wage rate inflation gives an idea about the labor cost scenario. The time path of the nominal wage inflation portrayed in Figure 4.12 suggests that over the period from July' 03 to June' 06, the wage inflation has been pretty stable at above 5 percent per annum, with some short-term fluctuations. Under the assumption of little or no improvement of workers' productivity growth, the upward tendency of wage inflation is an indication of cost escalation over time. However, whether the accelerated cost has translated into inflation is opaque in the figure. To precisely determine the link between labor cost and inflation, the correlation matrix presented in Box-4.2 has to be analyzed. It is seen from the matrix that wage rate inflation has statistically significant association only with rural food inflation (coefficient=0.22) at the 10 percent level of significance during the period from February, 2000 to June, 2006. It would, therefore, appear that wage cannot be a dominant factor in explaining price behavior in Bangladesh. This is what one would normally expect in a labor surplus environment.

Figure 4.12 : *Labor Cost and Inflation (annualized 3-month moving average)*



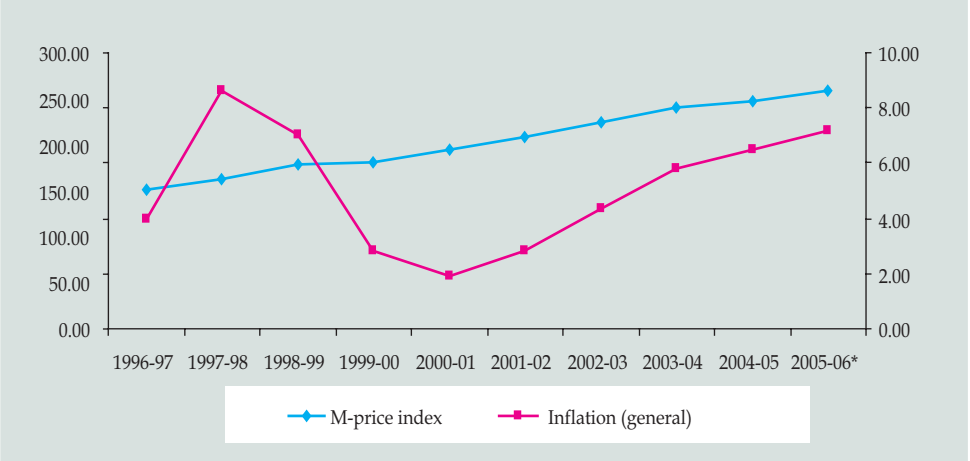
Source : Bangladesh Economic Review 2005 and BB publications.

4.5.4 : Import Cost

Import dependence is a salient feature of the Bangladesh economy. At the margin, most of the essential food items (for example, sugar, rice, wheat, onion and edible oil), and more generally machineries, intermediate goods and raw materials used in production process are imported. Cost of imports, therefore, are expected to have a substantial influence on the domestic inflation directly or

indirectly. According to available statistics, import price index (MPI) of Bangladesh has continuously soared over time which is reflected by an almost straight upward curve in Figure 4.13. The figure also depicts the inflation trend. Comparison among the trends in inflation and import price index provides an inference about the relationship between these indices. It is seen that although

Figure 4.13 : *Import Cost and Inflation (12-month moving average)*



Source : Economic Trends, Bangladesh Bank Annual Report and BBS publication.
** M-price index of the year 2005-06 has been estimated*

during the period from FY97 to FY01 the relationship is somewhat ambiguous, the co-movement from FY01 onward appears robust. To verify this relationship, a separate correlation matrix has been constructed using yearly data for the period from FY01 to FY06. Yearly instead of monthly data has been used due to unavailability of monthly import price index[92]. The correlation analysis, presented in the Box-4.3, reveals that while the relationships between import price index and each categories of non-food inflation (urban and rural) are insignificant, the former is found to have economically as well as statistically significant association with each categories of food inflation (urban and rural). The positive association is suggestive of the hypothesis that the surge in inflation is in part a supply side phenomenon.[93] The reasons for increase in import price are twofold- exchange rate depreciation and increase in international commodity prices.

4.5.5 : Exchange Rate

Exchange rate exerts pressure on inflation mainly via import prices. Historically, exchange rate in Bangladesh has exhibited gradual increase over time. The period average BDT-USD exchange rate was recorded at 61.39 during FY05 in comparison to 40.20 and 50.31 during FY95 and FY00 respectively. The comparable FY06 figure rose to 67.08 as the currency remained under pressure during the first three quarters of the fiscal year. The contribution of the exchange rate depreciation to inflationary pressure has been attested to by the results of the

[92] The Bangladesh Bureau of Statistics, the prime source of economic data, is yet to compile Import Price Index data on monthly basis.
[93] Center for Policy Dialogue (CPD) and Bangladesh Institute of Development Studies (BIDS) have argued that the recent increases in inflation in Bangladesh significantly originated from the increase in global price of oil and other imported commodities (See CPD, 2006 and BIDS, 2006).

said correlation analysis (Box-4.2). According to the analysis, exchange rate is fairly uniformly correlated with all categories of inflation (rural food, rural non-food, urban food and urban non-food) at the 1-percent level of significance, the coefficients being 0.34, 0.29, 0.36 and 0.37 respectively.

4.5.6 : Oil Price

Though inflation in emerging Asia, and to a lesser extent that in advanced industrial countries is mainly demand driven, supply considerations, namely commodity prices, particularly oil, have played a significant role. The annual growth in global demand for oil has slowed since 2004, though non-OECD countries, and especially China, provides the bulk of the additional demand. However sustained demand for oil does not appear to explain much of the price increase witnessed since the beginning of 2004. Despite periodic augmentation of supply by the Organization of the Petroleum Exporting Countries (OPEC), concern over stability of supplies from the Middle East due to geo-political developments and associated speculative activities would appear to provide the principal explanation behind the elevated level of nervousness in the world oil market. Thus while global daily demand for crude oil rose by 3.3, 1.0, and 1.9 percent, respectively in calendar 2004, 2005 and 2006 (projected), the average crude oil price has increased by 12.6, 43.5, and 36.5 percent, respectively, in FY04, 05 and 06 (Table 4.18). The price moderation in the third quarter of '06 is attributed in part to favourable inventory position enjoyed by major consuming countries.

What has been the effect of the sustained high oil price on global inflation? Being a fundamental input of production, oil constitutes a significant portion of production cost in many sectors of the economy. Recent research however shows that the link between oil prices and core consumer price inflation (i.e., excluding energy and food) in major industrial countries has been less pronounced than it had been believed to be the case in the 70s and 80s. While many factors have played a role, greater energy efficiency being one, analysis of the US experience by Hooker (2002) suggests that inflation expectations have been much better contained in the last twenty years than earlier, and as a consequence, consumers do not expect inflation to rise commensurately with oil price since they expect the central bank to remain on guard. Updating the work of Hooker, Trehan (2005) finds the same conclusion to hold as of late 2005. Further, examining the movement in the yield pattern on nominal and inflation indexed US Treasuries, 10 and 5-year terms, vis-à-vis the crude oil price which over the first ten months of 2005 had risen by 50 percent, he finds little evidence of financial markets expecting substantially higher inflation as a result of the run-up in oil prices.

Shifting attention to headline inflation, Leblanc and Chinn (2004) estimate the effects of oil price changes for advanced industrial countries using an augmented Phillips curve framework. Their estimates suggest current oil price increases are likely to have only a modest effect on inflation in the U.S, Japan, and Europe. Oil price increases of as much as 10 percentage points will lead to direct inflationary increases of about 0.1-0.8 percentage points in the US and the EU. These results are quite consistent with the above interpretation of the weaker link between the two.

How does the Bangladesh case differ from the above? In spite of some recent adjustments in the administered price of energy products, much of the increased cost of imported fuel, especially for diesel and kerosene, has not been passed on

to end users. However, the correlation analysis (Box-4.2) provides evidence that increase in the diesel price (proxy for oil price) stimulates inflation via both food and non-food inflation in both urban and rural areas. This is plausibly due to the fact that diesel is used intensively regardless of sector (food or non-food, urban or rural). The correlation coefficients are estimated to be 0.36, 0.30, 0.41 and 0.32 for rural food, rural non-food, urban food and urban non-food sector respectively.

4.5.7 : Supply Shortage

Production in agriculture and fisheries sectors in Bangladesh is still subject to the whims of nature to a notable extent. It has been claimed that one of the main causes of the high food inflation throughout the FY05 was poor harvest of *aus*, *aman* and wheat crops.[94] The yearly production of these three crops went down 18.12, 14.76 and 22.11 percent respectively in FY05 over the FY04 volume.[95] An instance of price hike due to this fall of production is that the price (per kg) of *aman* rice rose to the range of BDT 16 to 19 in FY05 from the range of BDT 14 to 16 in FY04. However, despite the robust growth in food production in FY06 (4.49 percent[96] vis-à-vis 2.21 percent in FY05), the food inflation remained high (7.76 percent) in the same fiscal year. This apparent inconsistency allegedly arose from the monopolistic control of several food items such as sugar, onion, pulses and edible oil by market syndication. Manipulation of such type is a sort of supply side disturbance.

4.5.8 : Conclusion

In view of the above analysis a case can be made that supply side forces such as the import price index, domestic price of diesel and the exchange rate have close association with inflation in the Bangladesh economy. This conclusion offers an important signal to the policy makers. In an effort to subdue inflation they have to keep a sharp eye not only on the demand phenomena, but also on the cost behavior in the relevant period. Insofar as supply side issues are concerned, these call for the primacy of the exchange rate process in controlling domestic inflation in the country.

Table 4.18 : *World Supply-Demand Balance of Oil (million barrels per day)*

Item		2003	2004	2005	2006 (P)	2006 P			
						Q1	Q2	Q3	Q4
Demand									
1.	OECD	48.7	49.5	49.6	50.1	50.1	49.0	50.0	51.0
2.	Non -OECD	31.2	33.0	34.1	35.1	34.6	34.6	34.9	36.3
	of which: China	5.6	6.5	6.9	7.4	7.2	7.4	7. 4	7.7
3.	Total (1+2)	79.9	82.5	83.6	85.2	84.7	83.6	84.9	87.3
Supply									
4.	Non -OPEC	48.9	50.1	50.2	51.0	50.6	50.5	51.1	51.8
5.	OPEC	30.7	32.9	33.9	34.3	33.8	34.1	34.6	34.5
6.	Total (4+5)	79.6	83.1	84.1	85.3	84.4	84.6	85.7	86.3
Stock Changes		0.3	-0.6	-0.5	-0.1	0.3	-1.0	-0.8	1.0

P: Projections. Source : Macroeconomic and Monetary Developments: First Quarter Review 2006 -07, Reserve Bank of India, Chapter IV. US Energy Information Administration, April 2006.

[94] Bangladesh Bank (2005).
[95] Bangladesh Bank (2005).
[96] Provisional estimate (National Accounts Statistics, May 2006, BBS)

Box-4.2

Correlation between Cost Variables and Inflation: Bangladesh Case

The following correlation matrix showing Pearson Correlation Coefficients has been constructed using the monthly data of the period from February, 2000 to June, 2006 in order to have a judgment on the strength of the link between cost variables and inflation in Bangladesh. Considering the coefficients and related p-values it can be inferred that the exchange rate and oil price (proxied by diesel price) are highly associated with inflation of all categories (rural food, rural non-food, urban food and urban non-food) whereas wage rate inflation has significant statistical relationship with only rural food inflation.

Pearson Correlation Coefficients, N=77

	rfi	rnfi	ufi	unfi	dp	wri	er
rfi	1.00						
rnfi	0.10635 (0.3573)	1.00					
ufi	0.91187 (0.0001)	0.14234 (0.2169)	1.00				
unfi	0.16932 (0.1410)	0.73243 (0.0001)	0.21175 (0.0645)	1.00			
dp	0.35593 (0.0015)	0.29966 (0.0081)	0.41059 (0.0002)	0.317 66 (0.0049)	1.00		
wri	0.22239 (0.0519)	0.12586 (0.2754)	0.00636 (0.9562)	0.17033 (0.1386)	0.04495 (0.6979)	1.00	
er	0.34864 (0.0019)	0.29328 (0.0096)	0.36338 (0.0012)	0.36569 (0.0011)	0.94743 (0.0001)	0.14790 (0.1993)	1.00

rfi→rural food inflation
rnfi→rural non-food inflation
ufi→urban food inflation
unfi→urban non-food inflation
dp→diesel price
wri→wage rate inflation
er→exchange rate
Figures in parentheses indicate associated p-values.

Box-4.3

Correlation between Import Price Index and Inflation: Bangladesh Case

The following correlation matrix showing Pearson Correlation Coefficients has been constructed using the yearly data of the period from FY01 to FY06 in order to precisely measure the degree of association between import price index and inflation in Bangladesh. Conclusion may be drawn considering the coefficients and related p-values that import price index seemed to be significantly correlated with only food sector inflation (both rural and urban) at 1-percent level of significance. We have used yearly data because of the lack of monthly data.

Pearson Correlation Coefficients, N=6

	rfi	rnfi	ufi	unfi	ipi
rfi	1.00				
rnfi	0.40070 (0.4311)	1.00			
ufi	0.93434 (0.0063)	0.24777 (0.6359)	1.00		
unf i	0.54161 (0.2670)	0.65572 (0.1574)	0.38654 (0.4491)	1.00	
ipi	0.97214 (0.0012)	0.56394 (0.2438)	0.90394 (0.0134)	0.68573 (0.1326)	1.00

rfi →rural food inflation
rnfi →rural non-food inflation
ufi →urban food inflation
unfi →urban non-food inflation
ipi →import price index
Figures in parentheses indicate associated p-values.

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