Analysis of Contribution of the Coastal Industries to the National Economy

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Abul Barkat, Ph.D[1]
Shafique uz Zaman,Ph.D[2]

[1] Professor, Department of Economics, University of Dhaka
[2] Professor, Department of Economics, University of Dhaka

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Acronyms

GDP	Gross District Product
CCINE	Contribution of the Coastal Industries to the National Economy
CDMP	Comprehensive Disaster Management Program
MoFDM	Ministry of Food and Disaster Management
CZ	Coastal Zone
Non-CZ	Non-Coastal Zone
ADIGDP	Average District Industrial Gross District Product
BBS	Bangladesh Bureau of Statistics
AEZ	Agro-Ecological Zone

Executive Summary

Background

1. The analysis of Contribution of the Coastal Industries to the National Economy (CCINE) is one of the components of the study to identify and appraise economic risk to the coastal region (e.g. fishing/tourism industry) to tsunami/storm surge event. The present component represents the first endeavor of the CDMP of the Ministry of Food and Disaster Management (MoFDM) of the Government of the People's Republic of Bangladesh to summarize the industrial contribution of the coastal industries to the economy as a whole.

2. Along with other estimates and analyses, CCINE study presents region wide estimates of the three basic aggregates of the macroeconomic variables. These are: (1) Gross District Product (GDP); (2) Growth Rate of GDP; and (3) Sectoral Share of the Agriculture, Industry and Service sectors. The region wide estimates are done based on the estimates at the district level.

3. CCINE represents zonal estimation of the Bangladesh economy during the fiscal years of 1995-96 to 1999-2000 as data were not available at the district level for the onward fiscal years.

Major Findings

4. Average estimate of the Gross District Product revealed that absolute volume of the non-coastal was approximately close to the coastal. CCINE estimates for the periods 1995-96 to 1999-2000. Coastal and non-coastal Gross District Product was rising over the years. Comparing 1995-96 with 1999-2000, it was estimated that Gross District Product was 1.23 times higher for both regions. In this respect, this could be termed as the "*Parallel Shift*". So, coastal region is of high importance in value addition to GDP. Comparison of intra-coastal districts reveals that Chittagong is placed in a far better off position in terms of value addition to GDP as compared to other districts.

5. Coastal per capita GDP at the district level shows that there is a wide income gap. Chittagong appears to be the top in the list of coastal districts where Feni the lowest. In 1999-2000, per capita GDP of the Chittagong was 2.3 times higher than Feni.

6. Agricultural sector of the coastal region dominated over the non-coastal region in terms of GDP at constant prices. In 1999-00, it was 1.15 times higher than non-coast. In 1999-2000, agricultural value addition to GDP of the Chittagong district was 6.5 times higher than that of Jhalokati.

7. Growth rate of agricultural value addition to GDP shows that flood in 1998 struck the coastal zone more harshly than that of the non-coastal zone. Growth rate of the coastal region came down from 5.94 % (1996-97 FY) to 2.10%(1997-98) where in the non-coastal region it was 6.55 in 1996-97 and 4.06 in 1997-98. So, coastal region had a sharp decline in the agricultural output growth. However, the speed of revival from that destruction was faster for the coastal region. The sectoral share of agriculture shows the similar pattern for the coast and non-coast.

8. In 1997-98, the coastal region showed a negative growth rate in the crop and horticulture sector where non-coastal region always registered positive growth rate. The coastal region was badly hit by the infamous flood in 1998. Chittagong contributed maximum amount of crop and horticulture whereas Chandpur had the lowest amount of value addition in this sector. Fishery as a sub-sector of agriculture played a very important role for the coastal region to dominate over the agriculture as a whole. Coastal region generates greater output in fisheries than the non-coastal region by a big margin.

9. Chittagong district generated the highest volume of output in the service sector while Narail had the lowest amount of output. Thus the value of the output produced by Chittagong is around 19 times greater than that produced by Narail. Growth rate of service sector in the coastal region had been higher than the growth rate attained by the non-coastal region only in the year 1998-99.

10. comparison of industrial growth rate between the coastal and non-coastal zone indicates that there is an increasing trend over the years except 1998-99. Non-

coastal industrial GDP growth rate was always higher than coastal except 1998-99.

11.   Mining and quarrying sub-section was unaffected in 1998. The value addition of the mining and quarrying to GDP by the coastal region was always higher than that of the non-coastal region. The sectoral share was only around 3.4 percent to the overall industry.

12.   The value addition of manufacturing sector to GDP by the non-coastal region was higher than the coastal zone. But the contribution to GDP by the coastal region was higher if Dhaka city was ignored from the study sample. The average growth rate differences of the manufacturing sector between the coastal and non-coastal region indicate that it was always less than 1 percent.

Conclusion

13.   Compilation of district level GDP, growth rate, sectoral share of the agriculture, industry and service sector needs to be a regular undertaking. Its institutionalization is a timely need of the people. The CCINE study experience suggests a few strategies that are essential to cover up the gaps and to be able to bring the equality in the coastal and non-coastal region.

14.   First, enhanced intra and inter ministerial cooperation is very essential. A disaggregated breakdown of sectors, sub-sectors are desirable for better estimates and policy formulation.

15.   Finally, the responsibility of effective use at the policy level of CCINE study findings lies primarily with the MoFDM. The role of researchers is limited in preparing the CCINE-related statistical tables from the secondary sources.

Chapter 1
Features of Coastal Zone

1.1 Introduction

Coastal region occupies a very important position in the socio-economic life of any country in the world. For some countries coastal regions are the key to economic development. In many countries the coastal areas are the most densely populated areas. If the country's external sector or the tourism is the mainstay of the economy, then the coastal region should be considered as the nerve center of the livelihood of the people. So, countries without having any seacoast would be regarded as disadvantageous. Because, in this globalized world, trade is the best means of attaining higher economic growth. Intra-regional, or border trade may not be impeded due to the absence of seaport. However, inter-regional and inter-continental trade can only be expanded through sea-route. And if any country lacks the access to the seaport, it is deprived of this natural advantage. It is often said that in South Asia, absence of the access to seaport, is one of the main causes of backwardness of Nepal, Bhutan and Afghanistan. Whether this argument is true or not, that is debatable. But the fact remains that, access to seaport has been a natural advantage for economic development, and its important has greatly increased during the last decades.

So, Bangladesh is extremely fortunate that she has access to the open ocean, which is the most valuable natural asset. This is of paramount importance to a country like Bangladesh, which is, and will remain dependant on trading for attaining higher standard of living. Besides, the benefits of the sea and the coastal belt may also be derived from marine and continental shelf resources, but also resources produced by the coastal climate and environment. The coast of Bangladesh is 710 km long. The coastal region, which is demarcated on the basis of physical feature and closeness to coast, consists of 19 out of 64 districts of the country. They together cover 31.99 percent of the country's total area. This deltaic region is characterized by a vast network of rivers, a large number of islands between channels, a submarine canyon (swatch of no ground), a tunnel shaped part of the Bay of Bengal(Banglapedia vol. 13).The coastal region has enormous potentials for

socio-economic development. The world's largest sea beach is located in Cox's Bazaar. This sea beach offers for the tourists' attractive place for sea, sand and sun.

The Sundarban, the world's single largest mangrove forest with around 570,000 hectors land, spectacular wildlife and biodiversity is located here. Part of this forest has been declared a World Heritage Site. Besides, Kuakata is another fascinating place for watching sunset and sunrise.

Both of the seaports are located in this region, whose importance is growing day by day. Some industries such as, salt processing, ship breaking, ship building, shrimp cultivation and processing are exclusively located in this coastal region.

Besides, the coastal region is rich in natural resources offering many tangible and intangible benefits to the nation. Much of the potentials of these resources remained unexploited. But there are challenges too. The unplanned and excessive exploitation of natural resources have been a continuous threat to the environment as well as future prospect of the economy. Besides, coastal erosion by tidal waves and of the riverbank, increasing salinity through ingress of seawater, deteriorating the quality of land and water.

But far more devastating than floods are the severe tropical storms, known as cyclone. Some of these cyclones are several thousand kilometers in diameter with a wind speed of up to 250 km. per hour. The cyclone SIDR that hit the coastal region last November was the latest disaster of this kind. The destruction caused by SIDR runs into nearly 10,000 of human death, tens of thousands deaths of livestock and damage to crops, trees, homes and installations costing billions of Taka.

There have been many attempts to protect the lives and resources from disaster and exploit the existing and untapped resources for the well being of the people of region and the nation. Some have attained limited success some ended with failure.

In this study, an attempt will be made to examine the existing resource potential and their contribution to the natural economy and analyze the extent of damage caused by the latest

disaster and suggest appropriate measure to reduce the loss as well as protect the livelihood of the people of the coastal region.

1.2 A Few Statistical Notes on Coastal Region

The coastal region comprises a territory of 472001 sq km, which is about 32 percent of the total area of Bangladesh. The total length of the coast is 710 km. Out of 19 district and 147 upazilas, 12 districts and 48 Upazilas are directly exposed to seacoast. These exposed districts and upazilas together make 23935 sq.km or 50.7 percent of the coastal area (Table2). The other 7 districts and 99 upazilas are interior of the coast but contain the same physical and environmental feature. But they are also prone to tidal surge and other form of natural calamities with varying intensities.

The coastal region contains an area of 32 percent with a population of about 35.1 million or 28 percent of the country's total population (BBS 2001, 2003). The region's density of population is 743 people per sq. km as against 839 people nationally. Per capita agricultural land accounts for 0.06 hector and the average share for the country is 0.07 percent; about one third of the labor force earns their livings by selling their labor in agricultural sector. Besides, significant number of people or 14% of the total labor force eke out their living by fishing which is almost double than that of the national level (table 1). In 2002, 52% of the population lived below absolute poverty line and 24% were accounted for as hard-core poor. At the national level the shares were 49% and 23% respectively.

Table 1: Some General Statistical Information about Coastal Region

Subject	Unit	Coastal Region	Bangladesh
Area	Sq. km.	47201	147570
Upazilla	No.	147	507
Union	No.	1351	4484
Municipality	No.	70	223
Village	No.	17618	87928
Density of Population	No.	743	839
Active Labor Force (15 years+)	Thousand	17418	53514
Agricultural labors	% Of Rural Household	33	36
Fishermen	Hector	14	8
Per Capita Agricultural Land	Crore Tk.	0.06	0.07
Total Income	Tk.	67880	237074
Per Capita Income	% of Total Household	18198	18269
Poverty Level (Absolute Poverty)	% of Total Household	52	49
Hardcore Poor	% of Total Population	24	23
Literacy Rate (Year 7+)	% of Total Household	51	45
Electricity Connection	% of Total Household	31	31

Source: 2001 (BBS 2003), 1999/2000 (BBS 2002), 1996 (BBS 1999), 1998 (BBS 2002).

Table 2:Districts and Upazilas of the Coastal Region

District	Area in sq. km.			Upazillas	
	Total	Exposd Coast	Interior Coast	Exposed Coast	Interior Coast
Bagerhaat	3959	2679	1280	Shoronkhola, Mongla, Morolganj	Bagerhat Sadar, Chitalmari, Fakirhat, Kachua, Mollarhat, Ranyal
Barguna	1831	1663	168	Amtali, Barguna Sadar, Pathorghata, Bamna	Betag
Barisal	2785	-	2785	-	Agailjhara,Babuganj, Bakerganj, Gournadi, Hijla, Mehediganj, Muladi, Ujirpur, Banaripara, Barisal Sadar
Bhola	3403	3403	-	Bhola Sadar, Borhanuddin, Charfashion, Doulatkhan, Monpura, Tajimuddin, Lalmohon	-
Chandpur	1704	-	1704	-	Chandpur Sadar, Faridganj, Haimchar, Hajiganj, Kachua, Matlab, Sharasti
Chittagong	5283	2413	2870	Anwara, Bashkhali, Chittagong port, Doublemuring,Mireshwarai, Pahartoli, Pachlaish, Sandip, Shitakundu, Patenga, Halishahar, Kotwali, Bayejid Bostami	Boalkhali,Chandnaigh, Lohagora, Rangunia, Chandgao, Fatikchari, Hathajari, Potia, Raujan, Shatkania, Baklia, Karnafuli, Kulshi
Cox's Bazaar	2492	2492	-	Chakorai, Cox's Bazaar Sadar, Kutubdia, Ukhia, Maheshkhali, Ramu, Teknaf	-
Feni	928	235	693	Shonagaji	Chagolnaia, Feni Sadar, Parshuram, Dagonbhuya
Gopalganj	1490	-	1490	-	Gopalganj Sadar, Kashiani, Kotalipara, Muksudpur,Tongipara
Jessore	2567	-	2567	-	Bagharmara, Chowgacha, Jhikargacha, Monirampur, Avawanagar, Keshobpur, Jessore Sadar, Sharaha
Jhalkathi	749	-	749	-	Jhalkathi Sadar, Kuthalia, Nolchiti, Rajapur
Khulna	4394	2767	1627	Koira, Dakop	Batiaghata, Doulatpur, Dumuria, Dighalia,

					Khalishpur, Khan Jahan Ali, Khulna Sadar, Paikgacha, Fultala, Rupsha, Sonadanga, Terkhide
Laxmipur	1456	571	885	Ramqati	Laxmipur Sadar, Raypur, Ramganj
Narail	990	-	990	-	Lohagora, Norail Sadar, Kalia, Narigati
Noakhali	3601	2885	716	Companiganj, Hatia, Noakhali Sadar	Chatkhil, Senbagh, Begomganj
Patuakhali	3221	2103	1116	Dashmina, Ragabari, Golachipa, Kolapara	Baufall, Mirjaganj, Potuakhali Sadar
Pirojpur	1308	353	955	Mathbaria	Bhandaria, Kaukhali, Nazirpur, Pirojpur Sadar, Nesarabad, (Sharupkathi)
Saatkhira	3858	2371	1487	Ashashuni, Shamnagar	Debhata, Kolaroa, Kaliganj, Satkhira Sadar, Tala
Sariatpur	1182	-	1182	-	Bhedarganj, Damudya, Goshairhat, Naria, Palong, Jaira
TOTAL	**47201**	**23935**	**23266**		

Source: PDOI, CZMP 2003. (Later 4 new upazilla have been declared. These are Uttar Matlab (Chandpur), Zianagar (Pirojpur), Dumki (Potuakhali) and Pekua (Cox's Bazaar).

1.3 Geography and Physical Features

Bangladesh contains most of the vast delta of the Ganges and Brahmaputra river system. Around 65000 sq km within Bangladesh can be classed as deltaic (Rashid, 2005). The area of this delta region is almost equal to the total area of Belgium and the Netherlands.

Most of Bangladesh is nearly flat terrain with only tenth of the land hilly or mountains. But in spite of the flat area, Bangladesh is very small compared to her large size population. Climate, physical feature and particularly, the soil condition vary from region to region and area to area.

Coastal region is characterized by a number of distinct features, which differ from the rest of the country's physical feature and eco system. The basic characteristics of the coastal areas are as follows:

- Unlimited number of rivers and tributaries which flow across the territory of the Coastal region;

- Abundant flow of water throughout the year;
- Existence of a large number of islands in the river and sea;
- Tides constitute more regular patterns of change and exercising strong influence on the Coast area and the activities of the people and their livelihood;
- Frequent tropical cyclones and storms are the major source of destruction;
- The areas exposed to the coast are the most vulnerable to these calamities and
- Tidal surge often submerge large land area bringing saline water on the valuable land and thereby affect the cultivation – which is the principal source of existence of the people.

1.4 Climate Condition of Coastal Zone

Bangladesh is sub tropical monsoon region and its climate is characterized by high temperature, heavily rainfall, often-excessive humidity and fairly make seasonal variations.

The most distinguishing feature of its climate is the reversal of the wind circulation between summer and winter, which is not only the characteristic of the wind circulation of Bangladesh but of South Asia as a whole. There has been six seasons in Bangladesh. But from the climatic point of view three distinct seasons can be recognized and seasonal variations are mostly pronounced in these three periods. These are:

a. the cool dry season from November through February;

b. the pre monsoon hot season from March through May;

c. and the hot and humid monsoon season from June to October.

The important element of the climate is rainfall. On the basis of the Climate conditions and the extensity of differences at different places, Bangladesh has been divided into seven distinct climate zones. These are:

 a. South-eastern zone

b. North eastern zone

c. Northern part of northern zone

d. North-western zone

 e. Western zone

f. South Western zone, and

g. South central zone.

The South Western zone the Chittagong sub region and strip of land extending from south-west of Sunderban to the south of Comilla. This zone comprises most of the districts and of coastal region, while Gopalgong, Sariatpur, and part of Khulna fall in the south central zone. Jessore, Satkhira and Narail fall to southwestern zone. In the south western zone there has been a small change in the temperature, which rarely goes over a mean of 32 degree celsius and a below mean of 13 degree Celsius. This zone experiences heavy rainfall, unusually over 2540mm. In the South Western zone the rainfall varies between 1500mm and 1800mm and the mean summer maximum temperature is over 35 degree celsius. In the south central zone rainfall is above 1900mm.

As was said earlier, Bangladesh is a small country compared to her territory and ninety percent of her territory is a flat territory. Average temperature in January varies from 17 degree celsius in the Northwestern and Northeastern part to 20 degree celsius to 21 degree celsius in the coastal areas. In late December and early January, the maximum temperature in the extreme Northwestern and Eastern part of the country reaches the lowest between 4 degree celsius to 7 degree celsius. During summers in April (the pre monsoon hot season) the average temperature varies from 27 degree celsius to 30 degree Celsius. The lowest average humidity was recorded 57 percent in Dinajpur in the month of March and the average relative humidity for the whole year ranges from 78.1 percent at Cox's bazar to 70.5 percent in Pabna. Although variation in temperature among the regions is not very prominent but rainfall within the country varies from 3000mm or more in some places of the east to less than 1500mm per year in Rajshahi. In the western part of the coastal region, the average rainfall is recorded at 1700mm while in Cox's Bazar area the rainfall is recorded at 3200mm per year. These differences have also caused in variations of hydrology and soil conditions which influence the work and production pattern for specific area and livelihood of the people.

1.5 Salinity

It is estimated that 2.4 million hectors of coastal land affected soil salinity. The saline soils are found almost in every districts of the coastal region. But the main concentration was discovered in Khulna, Barisal, Putuakhali, Noakhali and Chittagong districts of the coastal and offshore lands.

The salinity of the coastal areas is mainly derived from traditional flooding with saline water during high spring tide. The coastal area is often affected by cyclonic storms often accompanied by seawater inundation. The inundation impregnates the soil with salts. The principal rivers flowing through the coastal belt are the Ganges: it's tributaries like Gorai – Modhumoti Baleshwar are vital for keeping the salinity to tolerable limits in different parts of the coastal region. However the whole region of the south west including Jessore and Khulna, Bagerhat and Satkhira has been experiencing increasing salinity resulted from withdrawal of water from Ganges and it's tributaries by Farakka Barrage.

The coastal soils are slightly moderately saline but salinity during dry seasons increases. In the inlands areas in particular, salinity occurs from capillary rise of ground water and from periodic inundation with salt water during cyclonic storms (Badruddoza , et.al. 1983).

Heavy monsoon rainfall may control the salinity in some areas, but crops on the coastal fringe can be affected by saline incursions during exceptionally high tidal or by low monsoon rainfalls (Ibid).

Inland salinity was also increased due to man-made causes. The aquaculture, the shrimp cultivations in particular, has become an important economic activity. Salt water is willingly allowed in the ghers (ponds) of the polder areas to raise shrimps. In 1950s and 1960s polders were built to protect agricultural land from inundations of saline water. But the priority has been reversed and salt water brought into agricultural land for shrimp cultivation. The shrimp has become third largest export income of the country. However unplanned and rapid expansion of shrimp farming in the coast areas has generated many

environmental, social and economic problems. The most important of these problems are; destructions of mangroves and planktonic resources during the collection of shrimp fry, fertile agricultural land and environment.

1.6 Physiography, Rivers and Soils

The coastal region is characterized by a vast network of rivers and territories, which comprise 24000km in length and covering an area of 9380sq.km (Banglapedia: vol.3). Actually most of the large rivers and their numerous tributaries flow through Bangladesh. All of them converge and fall into the Bay of Bengal. These rivers and tributaries bring together more than 2.4 billion tons sediments annually and thereby creating new land and Chars. These new land formed by the rivers after inundations are the characteristic feature of the active rivers of the coastal region. These newly accreted flat lands, whose formation and disappearance is due to river instability, play an important role in the livelihood of million people. Loss of these Chars by diluvial action or by river erosion reduces the land space and cultivable areas often result in migration to other areas.

Along with them, the newly created Chars and diaras, large number of islands is located in the Gigantic Padma- Megna estuary, which stretches from the Barisal mainland to the Chittagong coast. The estuary contained numerous flat islands, many of which appears and disappears depending on tidal surge and action of the rivers. However, many large islands such as Bhola, Sunderbans, Rangamati, Hatia and Sandwip have existed from time immemorial.But coastal erosion due to tidal process become a continuous threat to the islands and coastal lands.

Tidal characteristics along the Bangladesh coastline and adjacent area appear to be affected by the refraction of the incoming tidal wave from the Bay of Bengal. The tidal current and ebb current exceeding 3m/sec occur causing erosion in Sandip, Hatia, Shahbazpur, Bhola, and in many other islands and coasts. Many small islands disappeared and the Sandip island is reduced in size during the last century. However about 52000 hector of new accreted land was added to Noakhali coastline during the

period of 1957 to 1985. These changes are primarily due to the accretion in the old-lower Megna river belt.

The dynamic nature of Meghna estuarine delta is the result of intersection between the two strong opposing agents of delta- building activities- fluvial and marine processes. The land erosion of Sandip and adjacent areas are basically the result of strong tidal current while the similar erosion of Bhola and adjoining areas are the result of river current.

The morphological changes resulted from the erosion and accretion of land is also a distinctive characteristic of the coastal region.

Most of the rivers flowing into the coastal areas deposit still and thereby create new land and island. However many of these newly accreted land exist temporally. The homeless people settling there with a hope of building permanent life. But their dreams evaporated as the next flood or tidal surge submerged and some time washed away by erosion. However the new accreted land brings fortune for many who get the opportunity to cultivate there. The deposit of silt makes these new lands fertile enabling the cultivator to grow more crops.

Coastal and river erosion in this reverine region not only reduce the available space for coastal people whose livelihoods depends on cultivation, the fishing, fish processing, but threatens their very existence. Often the people are forced to shift household, structure to an interior place. But they can't go far away as their livelihood depends on earning from the island and coast of the sea.

1.7 Agro- ecological zone of the coastal region

Climate is the dominant factor determining the suitability of a crop for any given area. Although 90 percent of the land of Bangladesh is flat terrain and most of the major crops are produced in every geographic region, yet a moderate change in climate and geographic variations can alter the production norm for a specific area and influence

production pattern. Soil conditions, rainfall, humidity, access to irrigation are important for agriculture-the mainstay of the economy in Bangladesh. There have been significant variations of these variables-which influence significantly the crop production.

Table 3: Coastal Agro-Ecological Zone of Bangladesh.

Area	District
AEZ10, Active Ganges River Floodplain	Barisal, Laxmipur
AEZ11, Upper Ganges river Floodplain	Jessore, North Khulna, Narail, North Satkhira
AEZ12, Lower Ganges River Floodplain	North-East Bagerhaat, North Barisal, Gopalganj, North Khulna, Narail,Patuakhali, Pirojpur, Sariatpur, Satkhira
AEZ13, Ganges Tidal-Surge Floodplain	Bagerhat, Barguna, Barisal, Jhalkathi, Khulna, Potuakhali, Piroj pur, Satkhira
AEZ14, Gopalganj and Khulna Marshland	Bagerhat, Gopalganj, Jessore, Khulna, Narail
AEZ16, Middle Meghna River Floodplain	Chandpur
AEZ17, Lower Meghna River Floodplain	Chandpur, Laxmipur, Noakhali
AEZ18, New Meghna estuary floodplain	Barisal, Barguna, Bhola, Chittagong, Feni, Laxmipur, Noakhali, Patuakhali
AEZ19, Old meghna estuary floodplain	Barisal, Chandpur, Feni, Gopalganj, Laxmipur, Noakhali
AEZ23, Chittagong Coastal Plainland	Chittagong, Cox's Bazaar, Feni

Source: Food and Agriculture Organization, 1988.

Since fresh floods are common in some areas, and crop regions are frequently classified on the basis of average floods and rainfalls. Except the Chittagong and Cox's Bazaar, the other districts have mostly flat terrain. The principal distinction between the soils of coastal region and the rest of the country is that the lands of the former contain salinity and enormous numbers of marshlands. Significant differences exist in the amount of rainfall between the coastal region and the other parts and also between Southeast and Southwest of the coastal region. The crop regions are demarcated arbitrarily and the actual boundaries may fluctuate from year to year following the change of rainfall and flood.

On the basis of existing physical features, land levels and ecology, Bangladesh has been divided into 31 agro-ecological zones (AEZ) out of which, 10 different zones have been identified in the coastal region (table-3). These 10 coastal zones contain 4.72 million hector lands. Of this, 1.95 million hectare or 41% of the coastal land are arable land. Each of these zones contains specific soil condition. Most of these zones contain alluvial soils. But these alluvial soils are classified according to the major rivers by which they were deposited. For example, in AEZ 10, the characteristics of soils are salty mixed with entel

(heavy clay) moderate alkaline, and medium fertility. AEZ 14 contains heavy clay with acidity overlying pit and medium fertility. The AEZ 23 has gray loamy alluvial deposit and loamy clay and in the mangrove the soil has acid sulphate with moderate fertility. A part of AEZ 17 and AEZ 23, i.e., Chittagong and Noakhali cover Brahmaputra alluvium. This alluvium is said to be richest in terms of plant nutrients. Besides, in these alluvial tracts and alluvial coastal saline is recognized which covers the whole of Khulna and Barishal and parts of Noakhali and Chittagong districts. Because of these distinguishing characteristics of soil and topography, not only type and extent of production differ from one zone to another within the coastal region, but it also determines the economic activities.

Chapter 2
Macroeconomic perspective of Coastal Zone

2.1 Introduction and Methodology

In order to get a comprehensive idea about the contribution of the coastal region to the overall economy, we have to look at the major macroeconomic variables like Gross District Product, and Per Capita Gross District Product. Besides we have compiled the sectoral scenario of agriculture, industry and service sector. The report also attempts to portray the contribution of sub-sectors. We have used the publication of BBS for the data. The particular publication which has been used rigorously for this study is the ***Provisional Estimates of Regional District Product*** published in 2001 by Bangladesh Bureau of Statistics. This publication is unique as it provides the district level GDP, growth rate and sectoral share from 1995-96 to 1999-2000. Availability of district data has given us the opportunity to calculate the magnitude of various macroeconomic variables for the coastal and non-coastal region.

The data on Gross District Product is available both at the current prices and constant prices. The constant price GDP was measured based on 1995-96 price level. Since real variables give the accurate picture of the economic well being of any entity, we have used the value at the constant prices. First we have disaggregated the data for the coastal and non-coastal districts. Then the value of any variable for the coastal or non-coastal region has been derived by taking average of the district data points for each year. The study also attempts to present the disaggregated scenario of the coastal region. We could not extend our analysis after 2000 because of unavailability of district level data.Tables and graphs are generated using Microsoft Excel and SPSS softwares.

2.2 Gross District Product

The Gross District Product implies the value of the goods and services produced within the geographic boundary of the district. Table 4 shows that in 1995-96, the average value of the GDP of 19 coastal districts was 25083 million taka and the same for the non-coastal districts had been 26229 million taka. The value of the GDP of both regions

registered an upward growth in the next five years. But the non-coastal region always performed better in terms of GDP, all these five years (Figure 1).

Table 4: Relative Performance of two regions in Gross Districts product

Region	Value of the District GDP (in million Taka)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	25083.21	26461.94	27655.42	29277.31	31075.78
Non-Coastal	26229.55	27633.88	29158.64	30476.24	32306.08

Figure 1: Relative Performance of two regions in Gross Districts product (in million Taka)
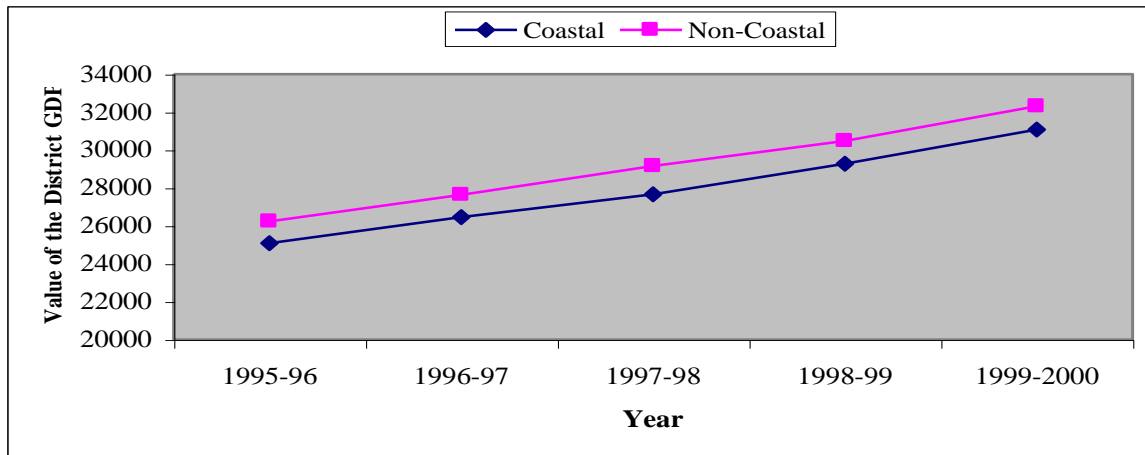
The analysis remains incomplete without understanding the disaggregate scenario. Table 5 provides us with the district wise GDP in the coastal region from 1995-96 to 1999-2000. The average value of Gross District Product of the region happens to be around 25000 million taka. But the average falls when we drop Chittagong from the list (Figure 3). The value of the GDP of Chittagong is the highest among the coastal region (Figure 2). There are other districts that are not up to the mark. Except Chittagong, Khulna performs better among other coastal districts. Jhalokati is the poorest in the region in terms of the value of Gross District Product. The value of the GDP of Chittagong is about 19 times higher than that of Jhalokati.

Table 5: Relative Performance of Coastal Districts in Gross Districts product

District	District GDP at Constant Prices (in million Taka)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
Barisal	26475	28798	29127	31051	32626
Barguna	11187	11550	12509	13081	15847
Cox's Bazar	24154	25878	26950	28896	30081
Feni	12134	12647	13084	13846	14695
Lakshmipur	17989	18369	17880	19963	21686
Noakhali	25935	27611	29073	30979	32706
Gopalganj	11980	12600	13240	13592	14510
Shariatpur	10078	10775	11239	11519	12451
Bagerhat	19744	21125	21710	23473	25048
Jessore	33316	35292	37316	38681	40781
Khulna	40884	43524	45093	47988	50672
Narail	8697	9184	9607	9883	10428
Satkhira	21105	22666	23381	25077	26637
Chandpur	21759	22323	25613	25719	27203
Pirojpur	12298	12671	13185	13815	14724
Patuakhali	19609	20277	20610	22446	24129
Bhola	20235	21891	21380	23199	24743
Jhalokati	7584	7756	7686	8289	8909
Chittagong	131418	137840	146770	154772	162564

Figure 2: Relative Performance of Coastal Districts in Gross Districts Product (in Million Taka)
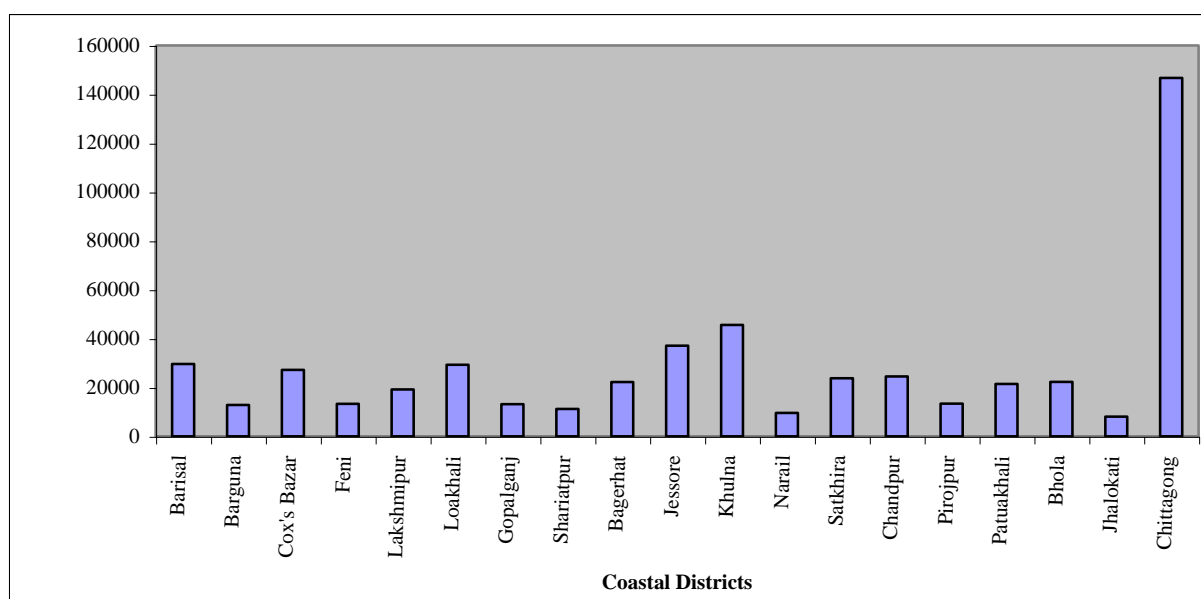
The following figure 3 is also intuitively appealing as we can see that the average Gross District GDP of the coastal districts decreases significantly when Chittagong is excluded from the list. This proves the prevalence of inequality in district GDP among the coastal districts.

Figure 3: Average GDP with and without Chittagong (in million Taka)
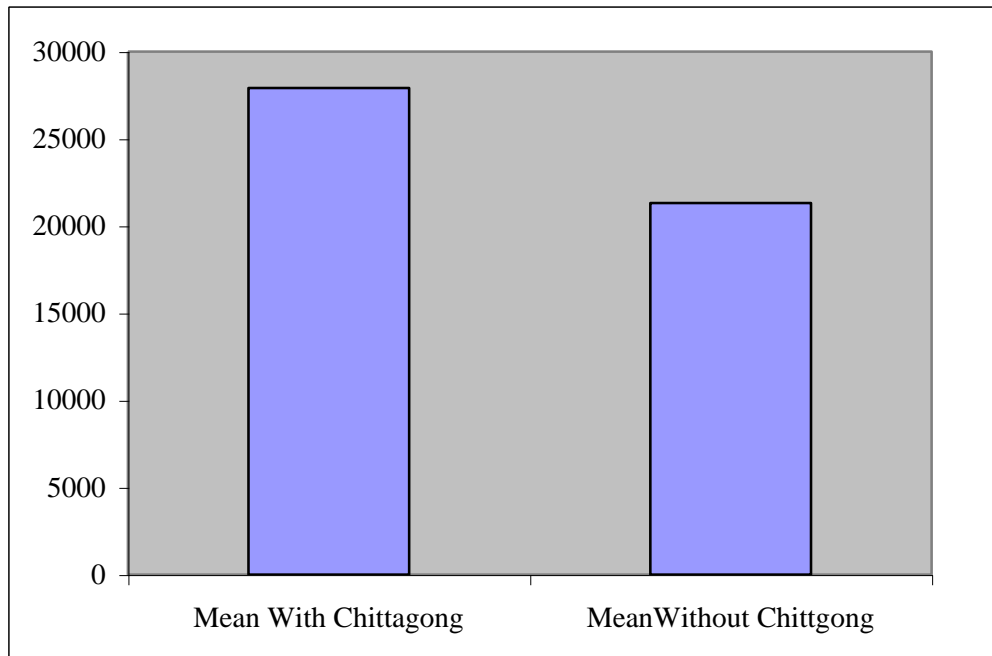
To complete the analysis of main macroeconomic variable that represents the economic well being of the region to a large extent, we represent the scatter plot of Gross District Product in the following figure 4. In the figure the value of the Gross District Product is the five year average of corresponding districts. We have excluded two extreme values as regarding them to be outliers. For the coastal region we have excluded Chittgong and for the non-coastal region we have not included Dhaka into account. By excluding one extreme value for each region we have tried to ensure symmetry. The following graph is a useful tool to locate the coastal districts, which are above national average and those under the national average. Of the remaining 18 coastal districts 7 districts are under national average and 5 districts are located above the national average GDP. The remaining 5 districts are around the national average. However the inclusion of Dhaka and Chittagong would have pushed the national average upwards and as a result we would have found more districts under the national average benchmark. Thus we can

conclude that most of the coastal districts are under performers in terms of generating goods and services with respect to other non-coastal districts.

Figure 4: Scatter Plot of the Districts GDP and relative position of the Coastal Districts around the national Average GDP (in million Taka)
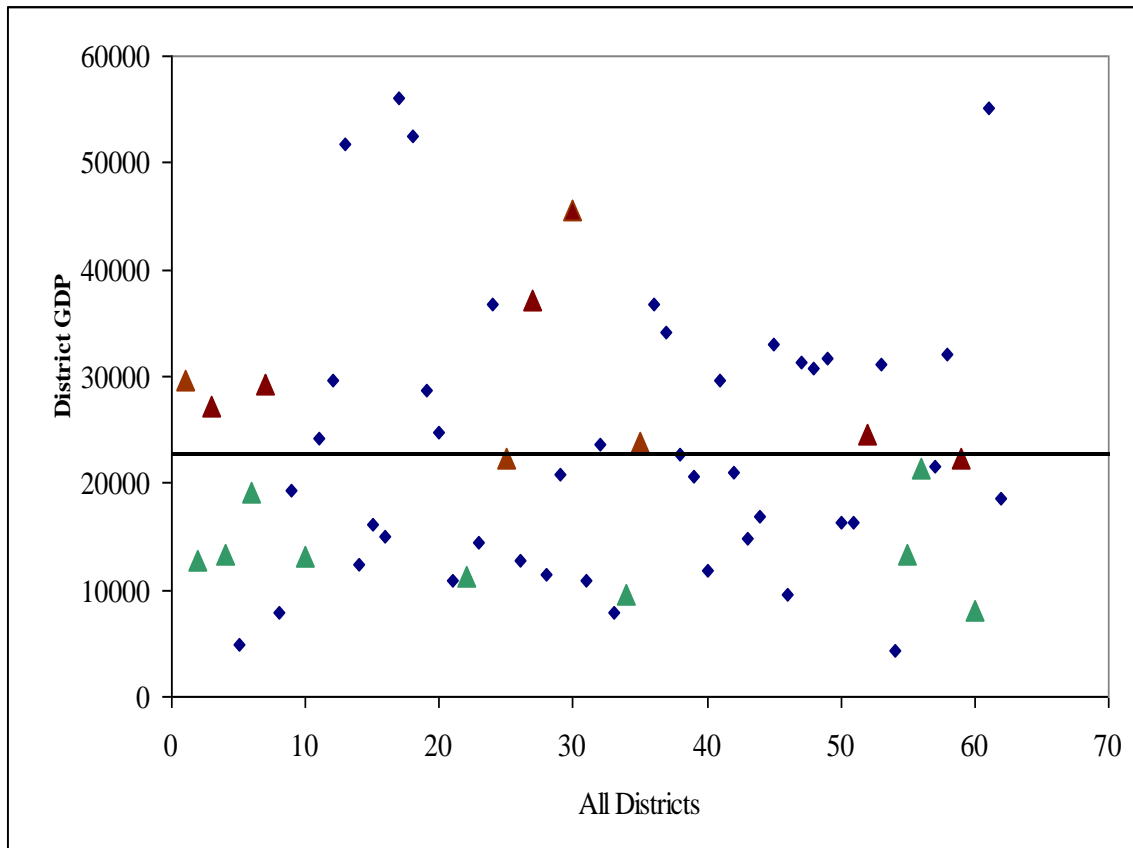
2.3 Per Capita GDP

The value of the GDP is often deceptive, as it does not give any idea about the distribution of economic output. That is why per capita GDP is considered to be a better indicator as it shows how the pie is distributed among the population. As we can see that the value of the per capita GDP of the coastal region had been higher during the year 1995-96 and 1996-97. But the value of the per capita GDP of the non-coastal region remained higher for the subsequent years. In the year 1999-2000, the value of the per

capita GDP or the non-coastal GDP is 14429 taka, whereas for the coastal region the value is 14320 taka- slightly lower than the non-coastal region. We can identify that the value of the coastal per capita GDP has been converging towards the value of the non-coastal GDP (Figure 5).

Table 6: Relative Performance of two regions in Per Capita GDP

	Per Capita GDP(in million Taka)				
Region	**1995-96**	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	12278.68	12706.89	12964.11	13561.84	14320.01
Non-Coastal	12419.64	12644.17	13331.82	13783.86	14429.03

Figure 5: Relative Performance of two regions in Per Capita GDP (in million Taka)
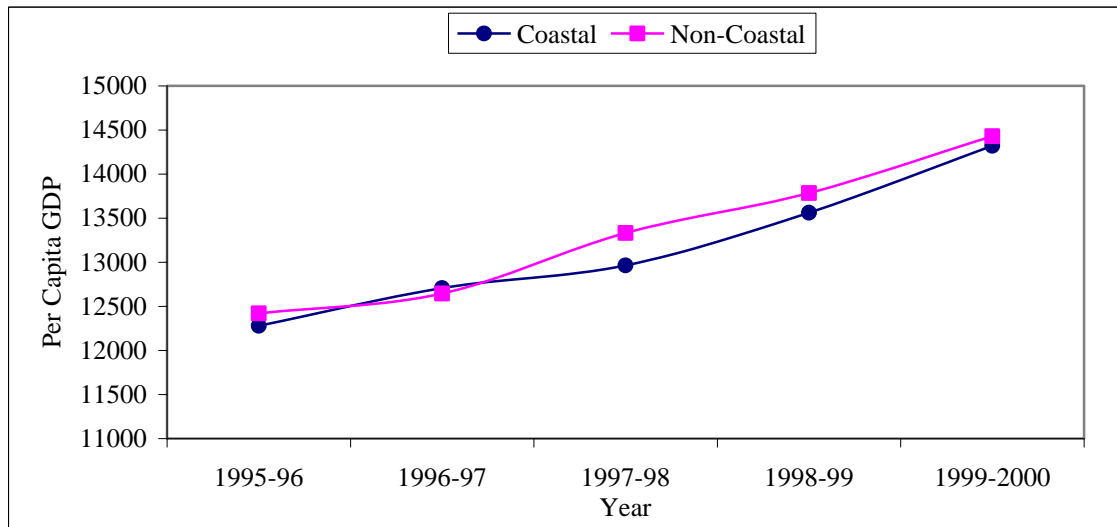
The next table provides the decompose scenario of the coastal region in the event of per capita GDP. Here once again Chittagong appears to be the top in the list of coastal districts. Feni appears to be the district with lowest per capita GDP. The value of per capita GDP of Chittagong in the year 1999-2000 had been 24544 taka whereas the value of the per capita GDP of Feni is only 10911 taka.

Table 7: Relative Performance of Coastal Districts in Per Capita GDP (in million Taka)

Districts	1995-96	1996-97	1997-98	1998-99	1999-2000
Barisal	10594	11359	11330	11927	12371
Barguna	12636	12837	13685	14132	16901
Cox's Bazar	14634	15375	15706	16630	17090
Feni	9581	9806	9965	10414	10911

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Lakshmipur	11920	11960	11443	12617	13529
Noakhali	10162	10623	10987	11562	12050
Gopalganj	10055	10441	10837	10986	11577
Shariatpur	9590	10013	10204	10327	11020
Bagerhat	12119	12767	12924	13799	14536
Jessore	13828	14410	14995	15349	15974
Satkhira	11681	12368	12582	13327	13974
Narail	12031	12591	13059	13266	13818
Khulna	17910	18350	18304	19236	20051
Bhola	11991	12766	12274	13152	13847
Jhalokati	10040	10123	9895	10538	11180
Patuakhali	13697	13984	14036	15096	16020
Pirojpur	10295	10470	10756	11130	11709
Chandpur	9320	9398	10604	10515	10978
Chittagong	21211	21790	22732	23672	24544

Figure 6 shows the value of the per capita GDP of the coastal districts. The value of the per capita GDP is calculated by averaging the value of per capita GDP of corresponding districts for five years.

Figure 6: Relative Performance of Coastal Districts in Per Capita GDP (in million Taka)
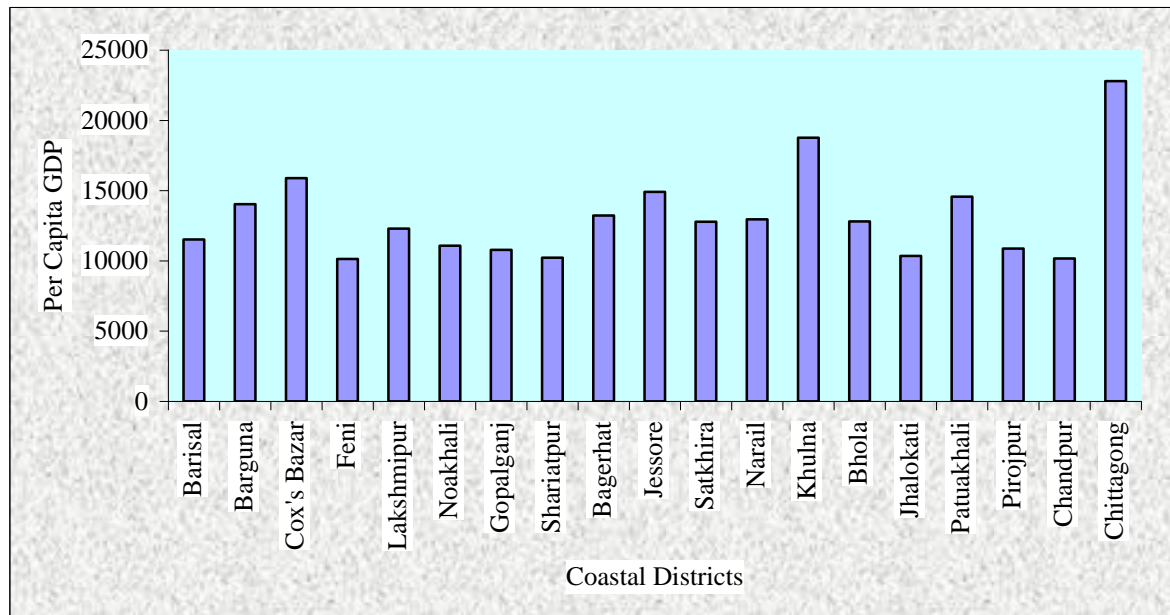
2.4 Agriculture

Now we would explore the sectoral performance of agriculture. We would look at three indicators namely value added by the agriculture sector, growth rate, and the share of the agriculture sector in the District GDP. For the sake of the study we would not only show the performance of the coastal region over the years but also compare them with the figures of the non-coastal region. Later on we would represent the disaggregated picture of the coastal region.

Table 8 shows the value of the agricultural output of the coastal region to be 6951 million taka for the year 1995-96. The corresponding value of the non-coastal region had been 6138 million taka. The value of the agricultural output kept on increasing every year and in the year 1999-2000 the value of the agricultural contribution to District output became 8681 million taka and in the non-coastal region agriculture contributes around 7510 million taka in the district GDP.

Table 8 : Relative Performance of two regions in Agricultural Output

Region	Agricultural GDP at Constant Prices (in million Taka)				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	6950.84	6820.83	7538.63	8083.21	8681.16
Non Coastal	6137.73	6494.96	6736.20	6979.53	7510.89

Figure 7: Relative Performance of two regions in Agricultural Output (in million Taka)
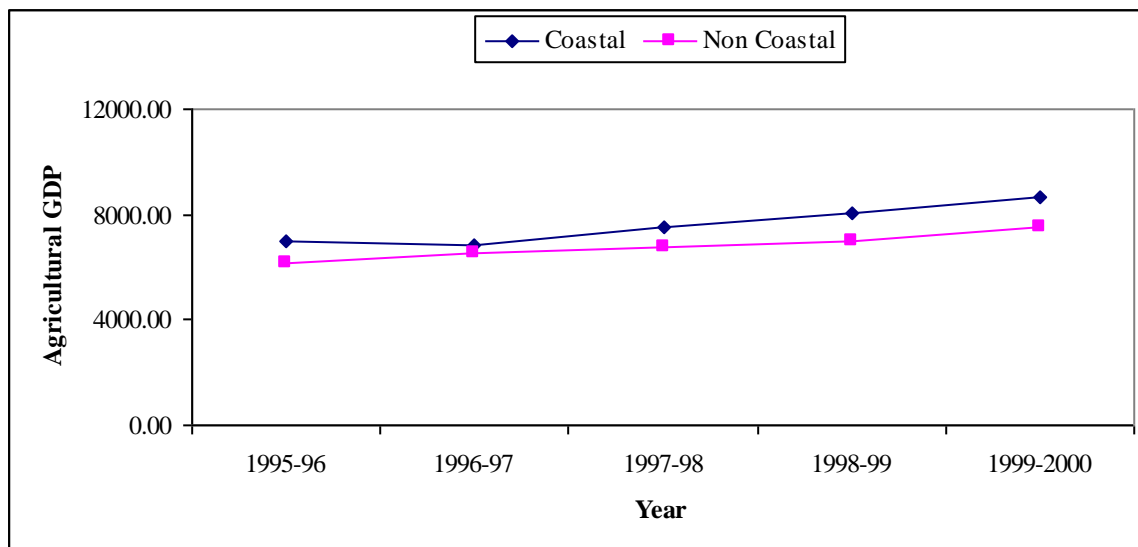
The next task is to decompose the coastal region to get a clearer view. Not all the districts perform equally in terms of generating agricultural GDP. Jhalokati is the district with the lowest amount of agricultural GDP whereas Chittagong is the district to register highest value in the agricultural output. The value of the agricultural output of Chittagong is 17917 million taka for the year 1999-2000. In the same year Jhalokati generated only 2781 million taka in this sector.

Table 9: Relative Performance of Coastal Districts in Agricultural Output (in million Taka)

Districts	1995-96	1996-97	1997-98	1998-99	1999-2000
Barisal	7379	8511	8071	8753	9254
Barguna	5091	5181	5702	5905	7038
Cox's Bazar	8733	9528	9940	10905	11321
Feni	3478	3675	3742	4046	4341
Lakshmipur	7643	7620	6954	8119	9033
Noakhali	8883	9545	10017	10815	11472
Gopalganj	3927	4175	4436	4406	4822
Shariatpur	3548	3874	4007	3955	4422
Bagerhat	7527	8162	8189	9041	9781
Jessore	10162	10.83	11319	11463	12070
Khulna	8138	9035	8841	9951	10712
Narail	3822	4047	4221	4220	4463
Satkhira	7742	8460	8521	9290	9977
Bhola	8565	9421	8701	9618	10369
Jhalokati	2505	2473	2263	2515	2781
Patuakhali	8833	9030	8958	9908	10836
Pirojpur	4212	4269	4394	4572	4963
Chandpur	7303	7308	9228	8768	9370
Chittagong	14575	15271	15730	17331	17917

In the following figure we can also show that the value of the Agricultural output of the coastal districts. The value is the five year average of the agricultural GDP of each district. This figure also shows that on an average Chittagong appears to be the highest performer.

Figure 8: Relative Performance of Coastal Districts in Agricultural Output (in million Taka)
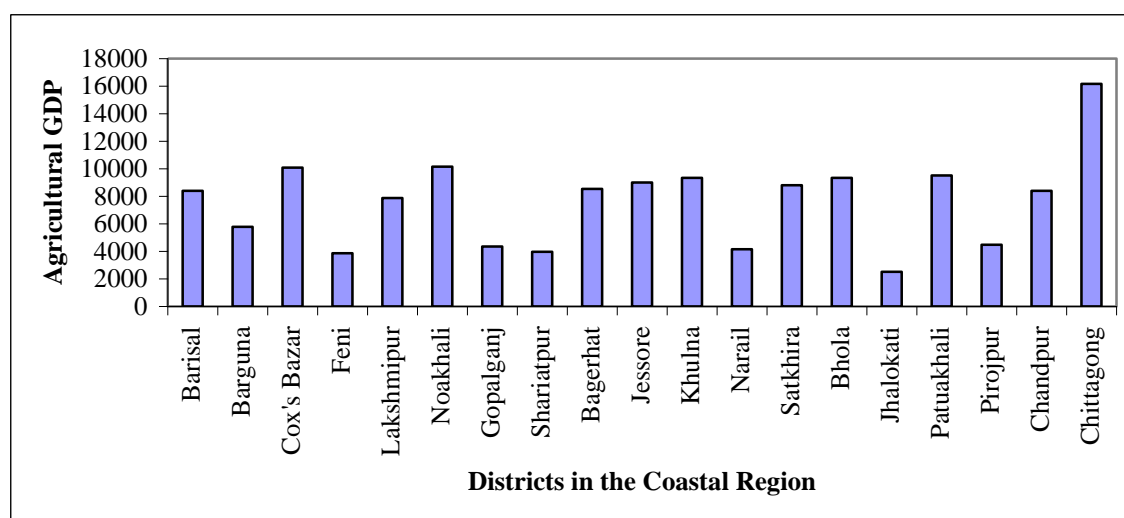
It is also important to compare the growth rate of the agricultural output of the coastal region with that of the non-coastal region. The following table shows that except for the year 1996-97 and 1997-98 coastal region fared better in terms of generating agricultural output. It is worthwhile to mention the year 1997-98 in which the coastal economy registered only 2.10 percent growth rate in the agricultural sector. This decline is most likely due to the floods in 1998.

Table 10: Relative Performance of two regions in the Growth rate of Agricultural Output

	Growth Rate of Agriculture			
Region	1996-97	1997-98	1998-99	1999-2000
Coastal	5.94	2.10	6.71	7.55
Non-Coastal	6.55	4.06	3.24	7.22

The following figure portrays the dynamics of growth rate of agricultural output of coastal region and non-coastal region.

Figure 9 : Relative Performance of two regions in the Growth rate of Agricultural Output
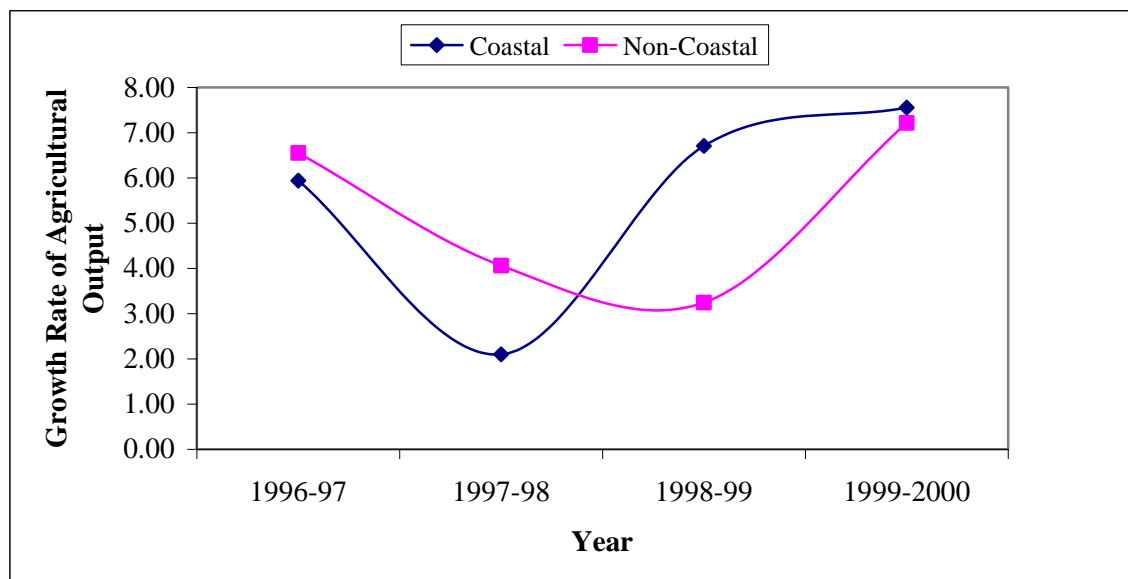
The following table gives us idea about the sectoral contribution of agricultural output in the making of District GDP. It shows that agricultural output comprises around 35 percent of the District GDP for the coastal economy. Whereas for the non-coastal region agriculture is only around 30 percent of District GDP. Figure 10 represents the fact graphically.

Table 11: Relative Performance of two regions in the Sectoral Share of Agricultural Output

Region	Sectoral Share of Agriculture in District GDP				
	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	35.57	35.78	35.15	35.28	36.20
Non-Coastal	31.94	32.14	31.78	31.16	31.63

Figure 10: Relative Performance of two regions in the Sectoral Share of Agricultural Output
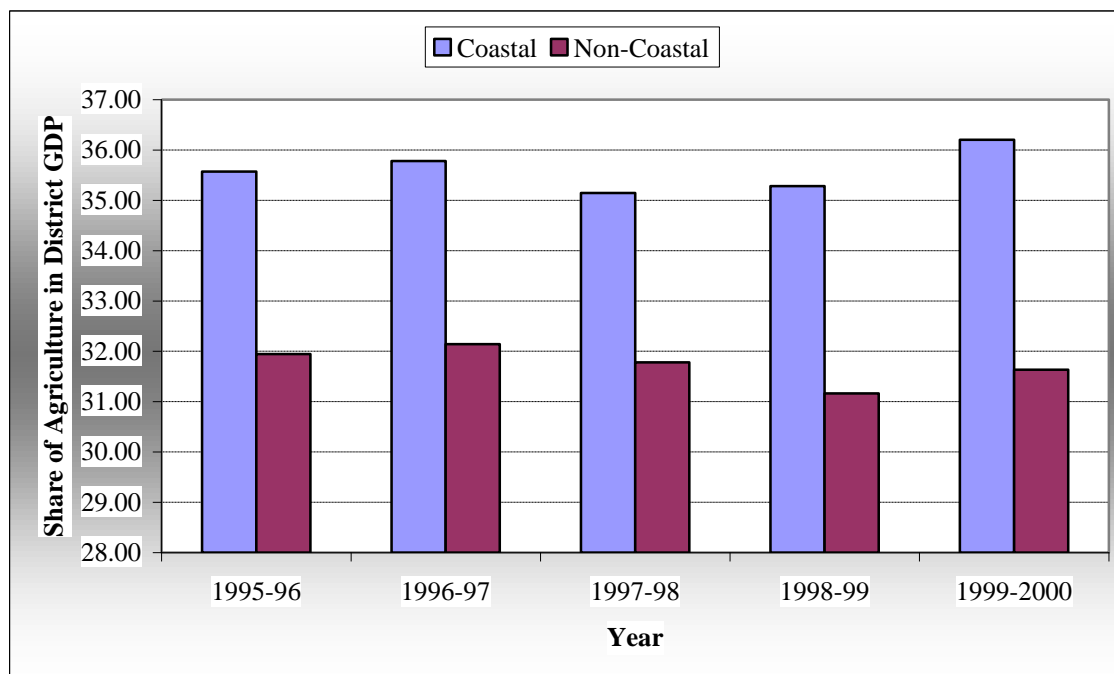
2.5 Agricultural Sub-sectors and their contribution to GDP

In the current section we would explore the role of the agricultural sub-sectors in generating Gross District Product, their dynamics over the years and comparison between coastal and non-coastal region. Agriculture consists of four sub-sectors. They are

- ➢ Crop and Horticulture
- ➢ Animal Farming

- ➢ Forestry
- ➢ Fishing

2.5.1 Crop and Horticulture

Coastal region is not ahead of the Non-coastal region in generating higher value addition in the crop and horticulture sector. In 1995-96 the value of the crop and horticulture had been 3357 million taka in the coastal region. The corresponding value in the non-coastal region was 3790 million taka. In the year 1999-2000, the non-coastal region generated

values worth 4594 million taka but the coastal sector could generate only 3790 million taka.

Table 12: Relative Performance of two regions in Crop and Horticulture

Region	Value Addition of Crop & Horticulture Constant Prices (in million Taka)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	3357.47	3376.45	2848.31	2975.70	3790.91
Non-Coastal	3790.33	3938.04	4100.84	4057.55	4594.38

Figure 11 shows that there exists a gap between the amount of value addition by coastal and non-coastal region. The corresponding line for the coastal region is always below the line of non-coastal region.

Figure 11: Relative Performance of two regions in Crop and Horticulture (in million Taka)
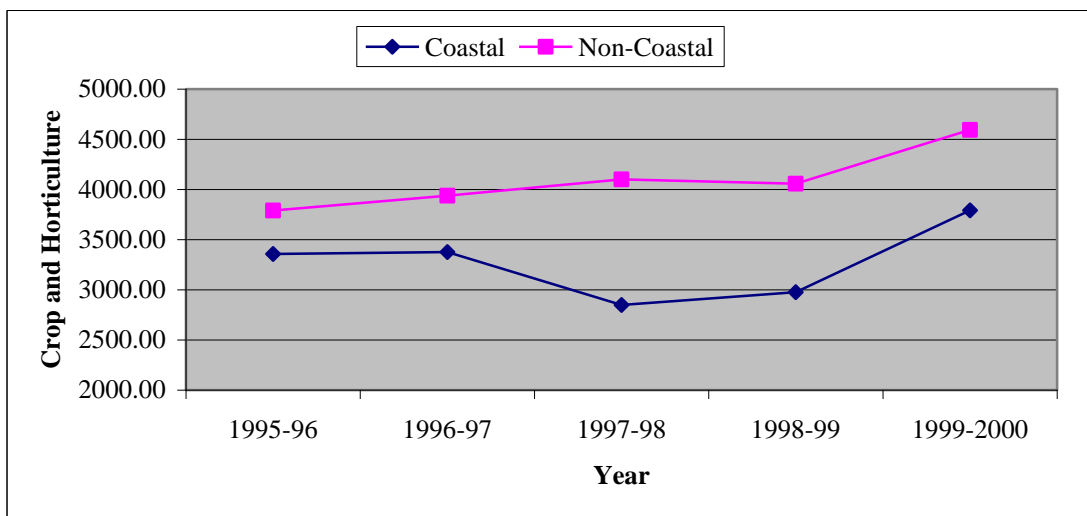
If we decompose the performance of the coastal region we can find that there is a large dispersion in the amount of value addition generated by the various coastal districts. Chittagong is the district where the maximum amount of crop and horticulture are generated. Whereas Chandpur is the district with lowest amount of value addition in this sector.

Table 13 : Relative Performance of Coastal Districts in Crop and Horticulture

District	District wise Crop and Horticulture at Constant Prices (in million Taka)				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Barisal	3888	3955	3583	3735	4059
Barguna	2599	2612	2387	2602	3054
Cox's Bazar	3179	3336	3484	3626	3638
Feni	1822	1935	1863	2014	2199
Lakshmipur	2959	3133	3028	3370	3610
Noakhali	4972	5293	5112	5670	6070
Gopalganj	2390	2538	2665	2539	2842
Shariatpur	2233	2477	2513	2375	2744
Bagerhat	3207	3468	3136	3538	3910
Jessore	6672	7081	7376	7285	7667
Khulna	3189	3403	3126	3.505	3882
Narail	2947	3105	3165	3138	3334
Satkhira	3782	4041	3816	4197	4617
Bhola	3782	3854	3565	3676	4012
Jhalokati	1322	1346	1293	1365	1486
Patuakhali	4604	4652	4266	4781	5400
Pirojpur	2086	2129	1969	2058	2257
Chandpur	162	169	176	185	194
Chittagong	7997	8161	8444	9200	9307

Figure 12 shows the relative performance graph of the coastal district. The value addition of the crop and horticulture sector on the vertical axis is the five year average for each district.

Figure 12 Relative Performance of Coastal Districts in Crop and Horticulture (in million Taka)
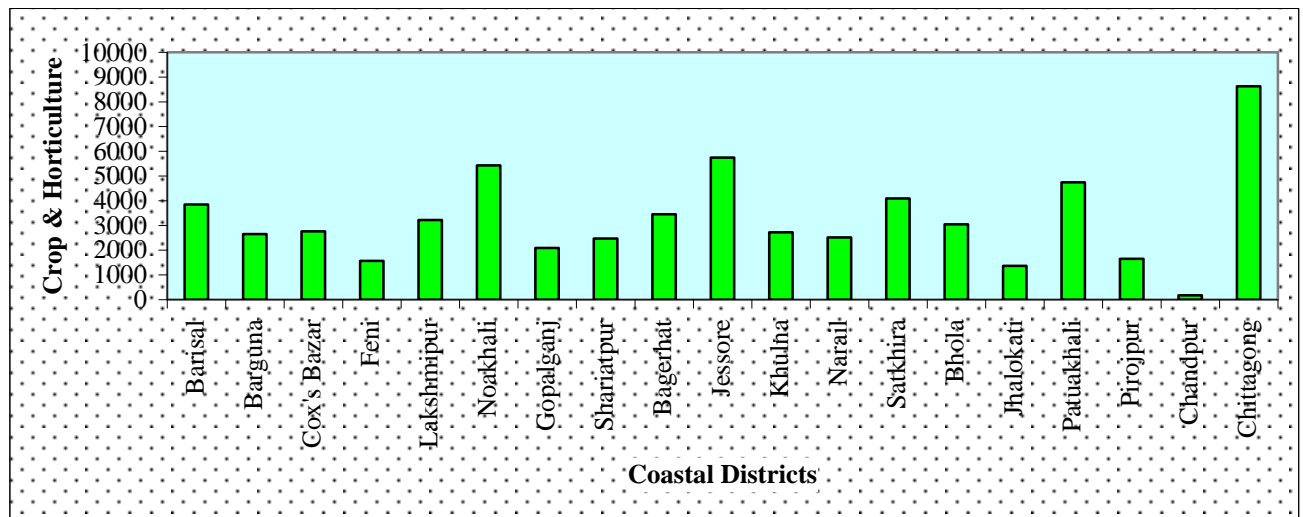
A glance at the growth rate registered by the coastal and non-coastal region over the years from 1995-96 to 1999-2000 depicts that the non-coastal region always registered positive growth rate. But the coastal region fell short of the non-coastal region in the year 1996-97 and 1997-98. In 1997-98, the coastal region showed a negative growth rate in the crop and horticulture sector.

Table 14: Relative Performance of two regions in the Growth Rate of Crop and Horticulture

Region	Growth Rate of Crop & Horticulture			
	1996-97	1997-98	1998-99	1999-2000
Coastal	4.68	-2.85	5.77	8.45
Non-Coastal	7.05	2.90	1.61	8.32

Figure 13 shows the dynamics of growth rate of crop and horticulture sector from the year 1995-96 to 1999-2000. The coastal region was badly hit by the infamous flood in 1998 and accordingly experiences a negative growth rate in the crop sector in the same year.

Figure 13: Relative Performance of two regions in the Growth Rate of Crop and Horticulture
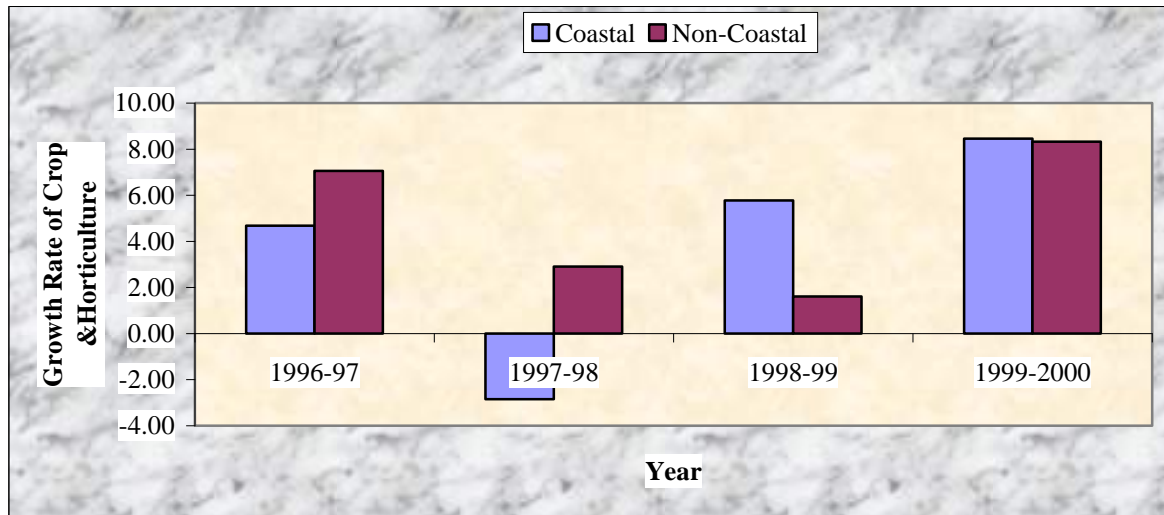
A close scrutiny of the growth rate of crop and horticulture sub-sector in the year 1997-98 reveals that only 7 districts registered positive growth rate in that year. The rest of the districts experienced negative growth rate. Bagerhat suffered the worst toll as reflected in the lowest growth rate at -9.57 percent. Among the positive list districts, Gopalgong registered the highest growth rate at 5.02 percent.

Table 15 : Growth Rate of Crop Sector in 1997-98

District	Growth Rate in 1997-98
Bagerhat	-9.57
Barisal	-9.41
Barguna	-8.63
Patuakhali	-8.3
Khulna	-8.12
Bhola	-7.5
Pirojpur	-7.49
Satkhira	-5.57
Jhalokati	-3.97
Feni	-3.72
Noakhali	-3.42
Lakshmipur	-3.36
Shariatpur	1.42
Narail	1.92
Chittagong	3.46
Jessore	4.17
Cox's Bazar	4.44
Chandpur	4.51
Gopalganj	5.02

Figure 14: Growth Rate of Crop Sector in 1997-98
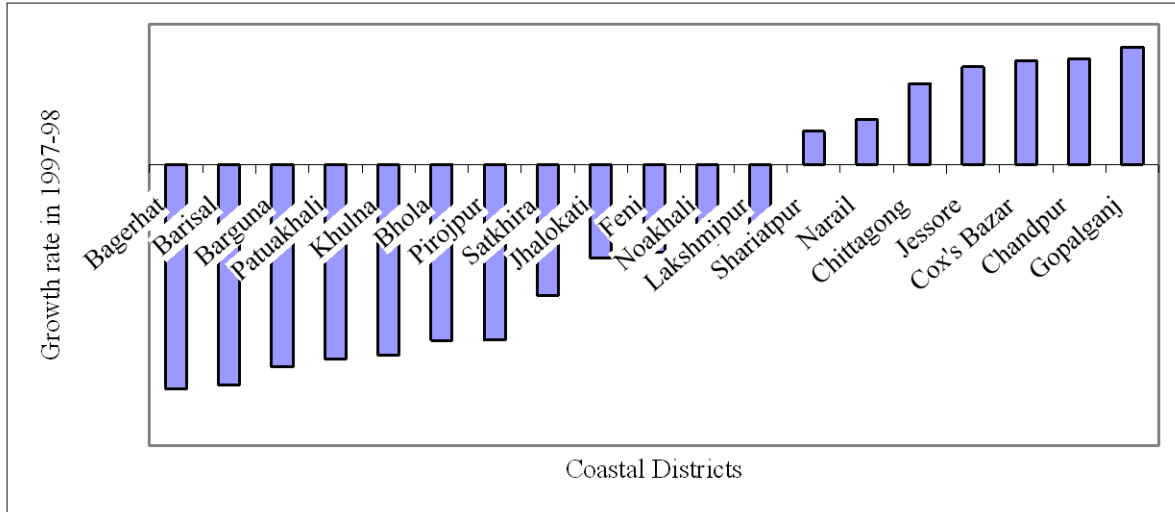
In the following figure we can see the share of crop and horticulture sector in the Gross District Product. In the coastal region the share is around 17 percent whereas in the non-coastal region crop and horticulture contributes around 20 percent of the Gross District Product.

Figure 15 : Relative Performance of two regions in the Share of Crop and Horticulture in District GDP
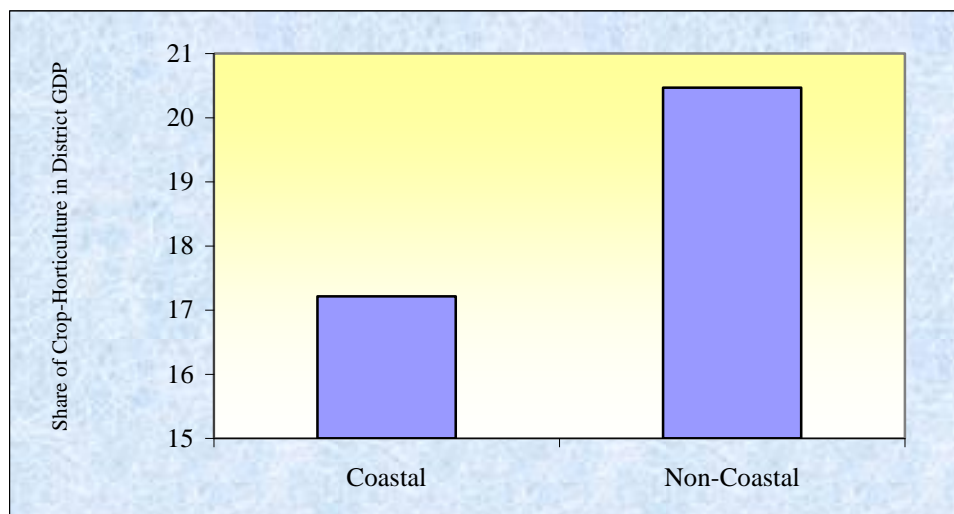
2.5.2 Animal Farming

Animal Farming or the value addition by the Livestock and poultry sector is not still prominent in our country. Therefore we can find that the value addition by the sub sector is below the thousand million taka. As far the relative performances of the coastal and non-coastal regions are concerned it is evident that the coastal regions fall short of the non-coastal region in generating greater output in this sector. In the year 1995-96, the value added by the coastal region on an average had been around 768 million taka and in the year 1999-2000 the value became 872 million taka. On the other hand, the non-coastal region generated around 872 million taka worth of output in the year 1995-96 and in the year 1999-2000 it registered 960 million taka in this sector.

Table 16: Relative Performance of two regions in animal Farming

	Value Addition by Animal Farming at Constant Prices(in million Taka)				
Region	**1995-96**	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	768.74	791.47	815.37	840.26	872.37
Non-Coastal	872.33	892.98	914.58	937.09	960.69

Figure 16 : Relative Performance of two regions in animal Farming (in million Taka)
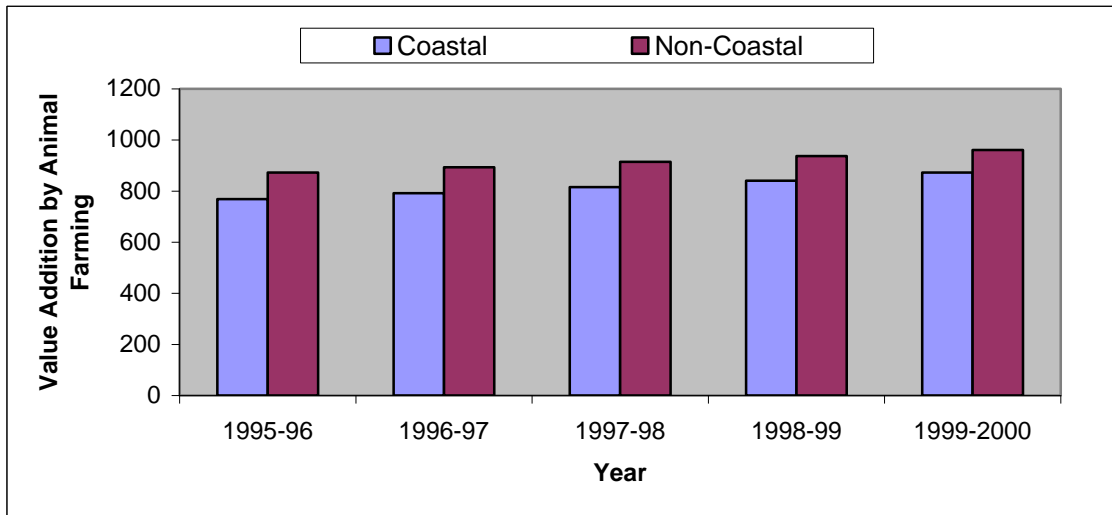
In terms of growth rate of animal farming, the coastal region registered consistently a higher growth rate than the non-coastal region. But the lead is not statistically significant.

Figure 17: Relative Performance of two regions in the Growth Rate of Animal Farming

	1996-97	1997-98	1998-99	1999-2000
Coastal	2.968947368	3.025263158	3.084210526	3.143157895
Non-Coastal	2.362790698	2.405581395	2.449302326	2.494418605
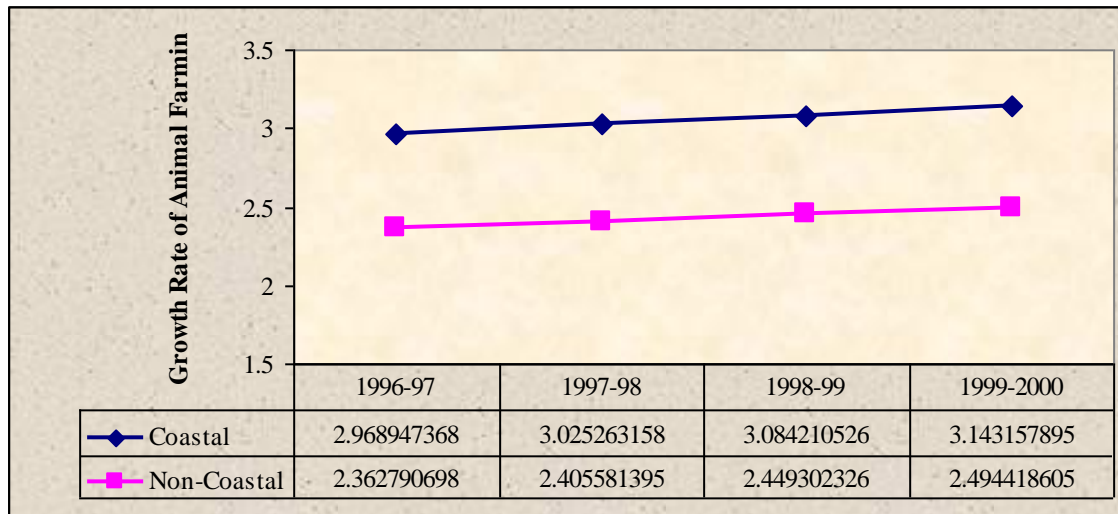
The share of the animal farming in the overall District GDP is showing a declining trend in both the regions. The share of animal farming in the coastal region is lower than that in the non-coastal region all the way.

Figure 18: Relative Performance of two regions in the Share of Animal Farming in District GDP

	1995-96	1996-97	1997-98	1998-99	1999-2000
◆ Coastal	4.00	3.93	3.90	3.80	3.73
■ Non-Coastal	4.32	4.37	4.27	4.17	4.02

(Y-axis: Share of Animal Farming in District GDP, scale 3.40 to 4.60)
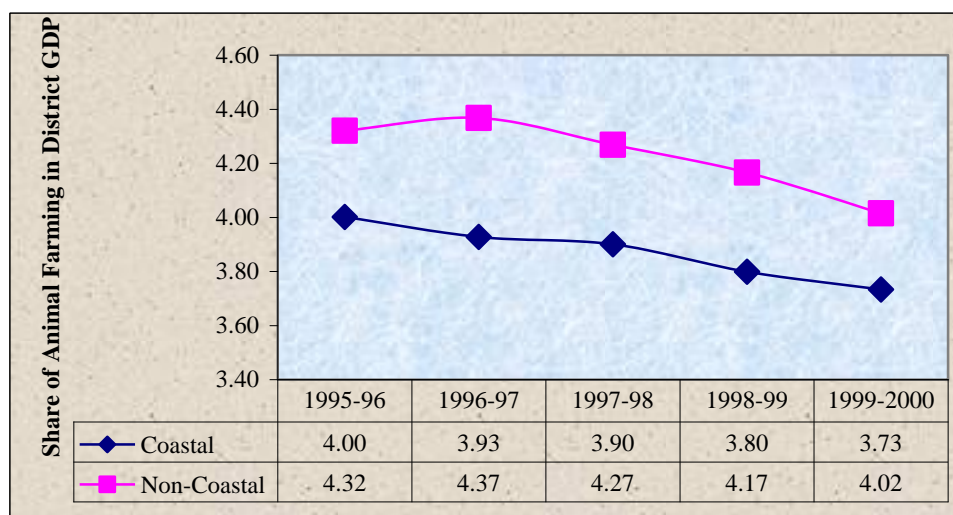
2.5.3 Forestry

Like the animal farming sub sector the forestry is also a less prominent sector in both the region. In fact the forestry sub sector generates the lowest amount of value addition among the agricultural sub sector. Coastal region is behind the non-coastal region in the race of generating output in the forestry sector. In the year 1995-96, the coastal region produced 431 million taka worth in this sector which rose to 522 million taka in 1999-2000. The non-coastal region produce 502 million taka worth output in forestry sub sector in the year 1995-96 which went up to 602 million taka in 1999-2000.

Table 17: Relative Performance of two regions in the Forestry

Region	Value Addition by Forest and Related (in million Taka)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	431.53	448.84	469.26	493.37	522.00
Non-Coastal	502.42	522.60	534.40	566.56	602.76

Figure 19 portrays the scenario graphically where we can see that the line corresponding to the coastal region runs down the line corresponding to the non-coastal region all the way.

Figure 19 : Relative Performance of two regions in the Forestry (in million Taka)
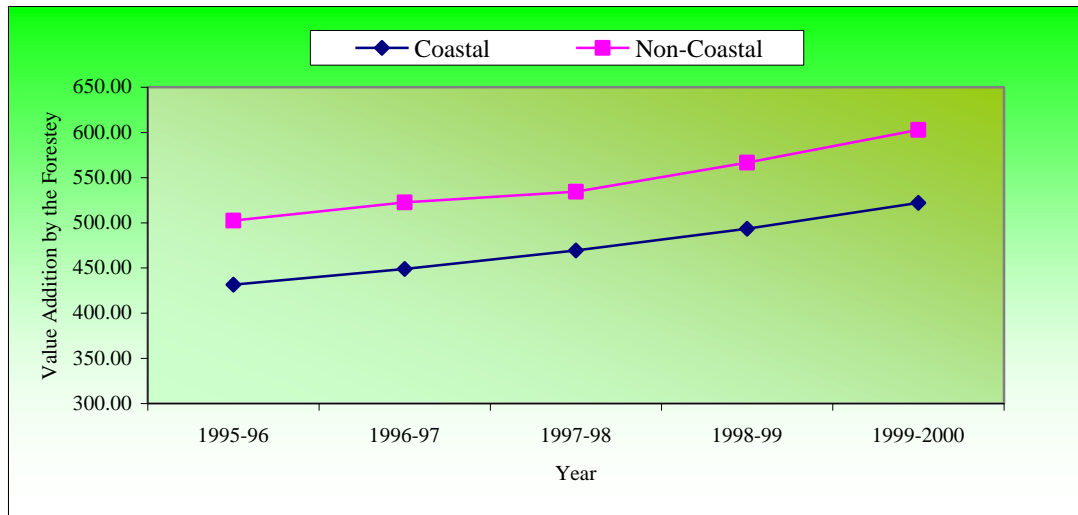
In the following table we investigate the growth rate achieved by the forestry sector and we can find that both the region registered similar growth rate in the sector.

Table 18 : Relative Performance of two regions in the Growth Rate of Forestry

Region	Growth Rate of Forestry			
	1996-97	1997-98	1998-99	1999-2000
Coastal	4.03	4.51	5.16	4.94
Non-Coastal	4.03	4.51	5.16	4.94

Another variable is the contribution of the forestry in the making of Gross District Product. It is evident that both the region has a share less than 3 percent. In the non-coastal region the share of forestry in the overall District GDP is higher than that in the coastal region. Another finding is that the share of forestry remained fairly constant during all these years but for the coastal region the share shows a declining trend since 1998-99.

Figure 20: Relative Performance of two regions in the Share of Forestry in District GDP

	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	2.39	2.37	2.39	2.37	2.20
Non-Coastal	2.74	2.70	2.70	2.70	2.67
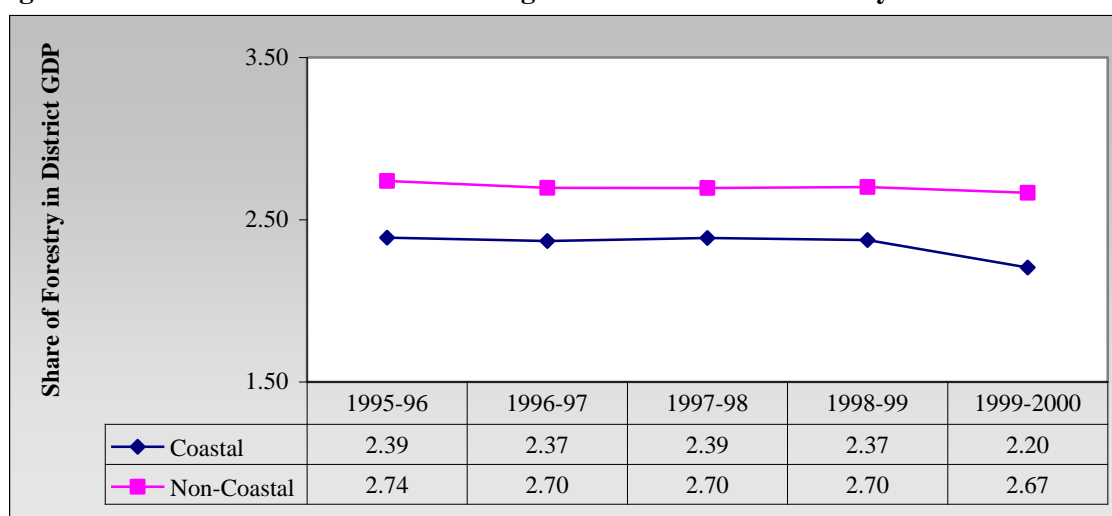
2.5.4 Fishery

Fishery is a very important sub sector and for the coastal region it is even more important. Coastal region generates greater output in fisheries than the non-coastal region by a big margin. For example, in the year 1995-96, the fishery sector generated 2177 million taka worth of output while in the non-coastal region the figure was only 951 million taka. So the output in the fishery sector had been more than double of that produced by the non-coastal region. In the year 1999-2000, the coastal region had 3192 million taka from fishery sector while the non-coastal region had only 1238 million taka from the same sector. So the output from fishery in the coastal region is still 2.5 times higher than that of the non-coastal region.

Table 19 :   Relative Performance of two regions in the Fishery

	Value Addition of Fishery at Constant Prices (in million Taka)				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	2177.24	2447.22	2451.82	2625.71	3192.94
Non-Coastal	951.49	996.87	1092.80	1191.89	1238.45

The following figure shows that the output line of coastal region is consistently higher than that of the non-coastal region.

Figure 21: Relative Performance of two regions in the Fishery (in million Taka)
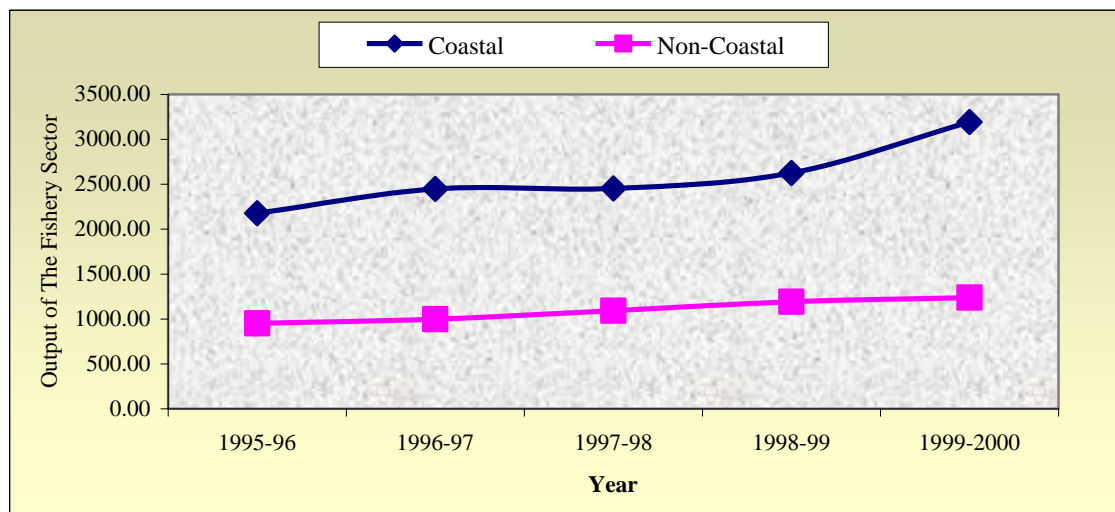
If we concentrate into the disaggregated scenario we find that not all the districts enjoy higher output in the fishery sector. Khulna, Chittagong and Cox's Bazar are the dominant districts in this sector, while districts like Feni, Narail, and Jhalokati are far behind.Cox's Bazar is the district which generates the highest amount of output from fishery sector. While Narail is the district where the value addition by fishery sector is the lowest among all the districts.

Table 20 : Relative Performance of Coastal Districts in the Fishery

District	District wise Performance in the Fishery Sector (in million Taka)				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Barguna	1516	1561	2271	2218	2669
Cox's Bazar	4633	5240	5472	6260	6627
Feni	923	981	1092	1.212	1290
Lakshmipur	3792	3561	2963	3746	4376
Loakhali	2368	2651	3239	3407	3589
Gopalganj	668	741	842	903	979
Shariatpur	533	589	657	710	773
Bagerhat	3151	3486	3801	4202	4520
Jessore	1.27	1462	1584	1737	1879
Khulna	3778	4425	4467	5154	5492
Narail	264	312	406	409	431
Satkhira	2358	2769	3002	3330	3536
Bhola	3591	4329	3.849	4.601	4959
Jhalokati	625	550	372	529	649
Patuakhali	2669	2766	3020	3389	3628
Pirojpur	1123	1102	1349	1396	1544

| Chandpur | 2823 | 2688 | 4653 | 4166 | 4436 |
| Chittagong | 4374 | 4837 | 4939 | 5701 | 6096 |

The following figure is constructed taking five year average of output of fishery sector in the coastal districts. In terms of this indicator, the output of Cox's Bazar stands out to be the highest among the coastal districts.

Figure 22: Relative Performance of Coastal Districts in the Fishery (in million Taka)
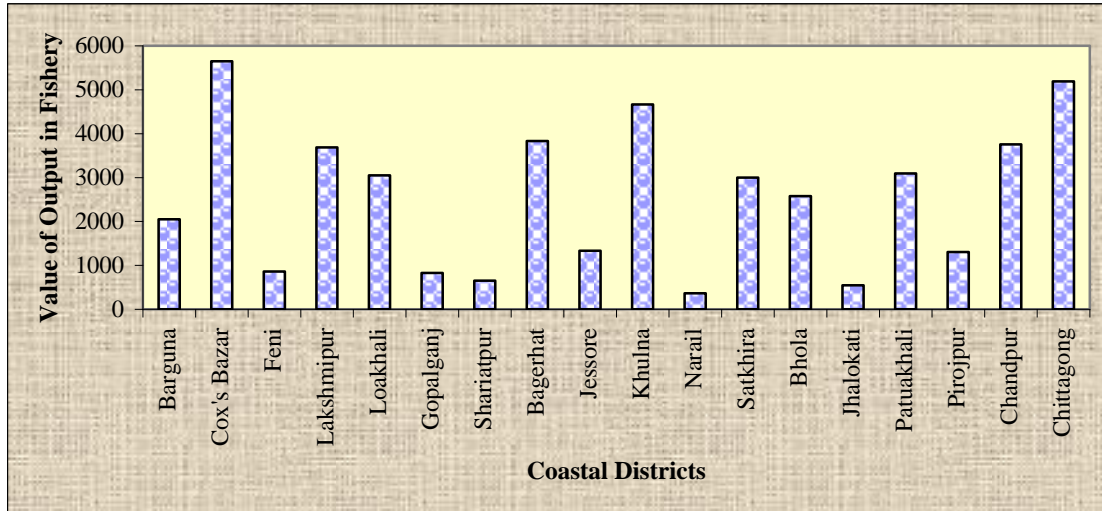
Growth rate of fishery sector is another indicator to judge the performance in the fishery sector. The following figure shows that in terms of this parameter the non-coastal region performs better than the coastal region. The puzzling feature might be due to the fact that the output of the non-coastal region is lower than the output in the coastal region. That's why it is easier for the non-coastal districts to register higher growth rate at this stage.

Figure 23 : Relative Performance of two regions in the Growth Rate of Fishery

	1996-97	1997-98	1998-99	1999-2000
Coastal	8.02	11.77	11.09	8.43
Non-Coastal	18.15	14.12	14.77	10.60
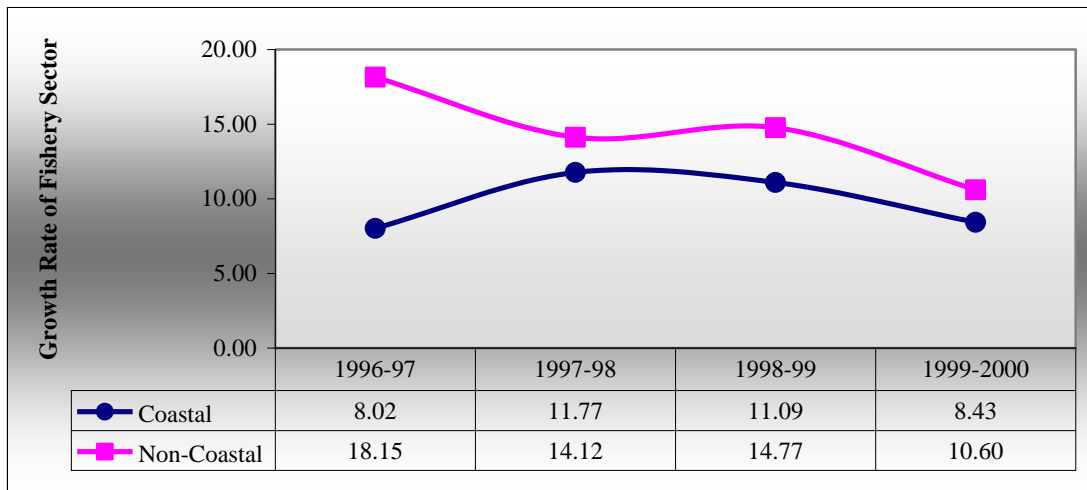
Values of fishery sub sector in the overall Gross District Product show that fishery sub sector contributes less than 5 percent in the non-coastal region whereas fishery sub sector contributes around 10 percent of the District GDP in the coastal region.

Figure 24: Relative Performance of two regions in the Share of Fishery in the District GDP

	1995-96	1996-97	1997-98	1998-99	1999-2000
Coastal	10.94	11.16	11.82	12.23	12.42
Non-Coastal	4.12	4.25	4.41	4.61	4.74
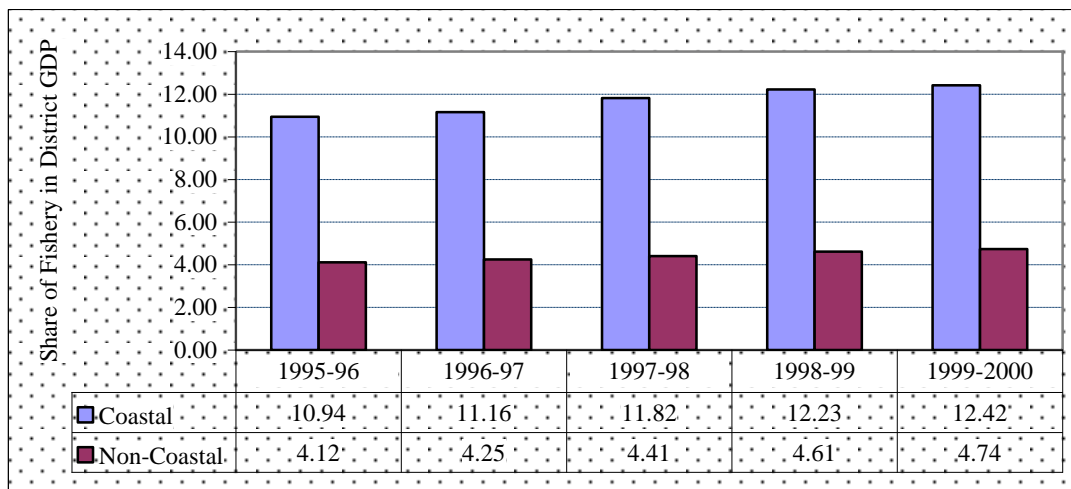
2.6 Service Sector

In the overall context service sector plays a lead role in generating GDP. The sector comprises various sub sectors. This section is devoted to the analysis of the relative performance of coastal and non-coastal region in the service sector.

The value of the output produced in the service sector by the coastal region is not greater than that generated by the non-coastal region (Table-21). In 1995-96, the service sector output was worth 11920 million taka in the coastal region. The average value of output generated in the service sector by the non-coastal region had been 12496 million taka. The non-coastal region continued to keep the difference in the following years to come. In 1999-2000, the non-coastal region generated 15131 million taka output in the service sector while the coastal region generated 14458 million taka output in the sector.

Table 21: Relative Performance of two regions in the Service Sector

	Value Addition of Service Sector (in million Taka)				
Region	**1995-96**	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	11920.05	12440.32	13012.11	13695.05	14458.42
Non-Coastal	12496.60	13068.80	13736.47	14455.30	15131.85

The following figure shows the phenomena graphically where the line corresponding to the coastal region falls short of the line corresponding to the non-coastal region all the way during 1995-96 to 1999-2000.

Figure 25: Relative Performance of two regions in the Service Sector (in million Taka)
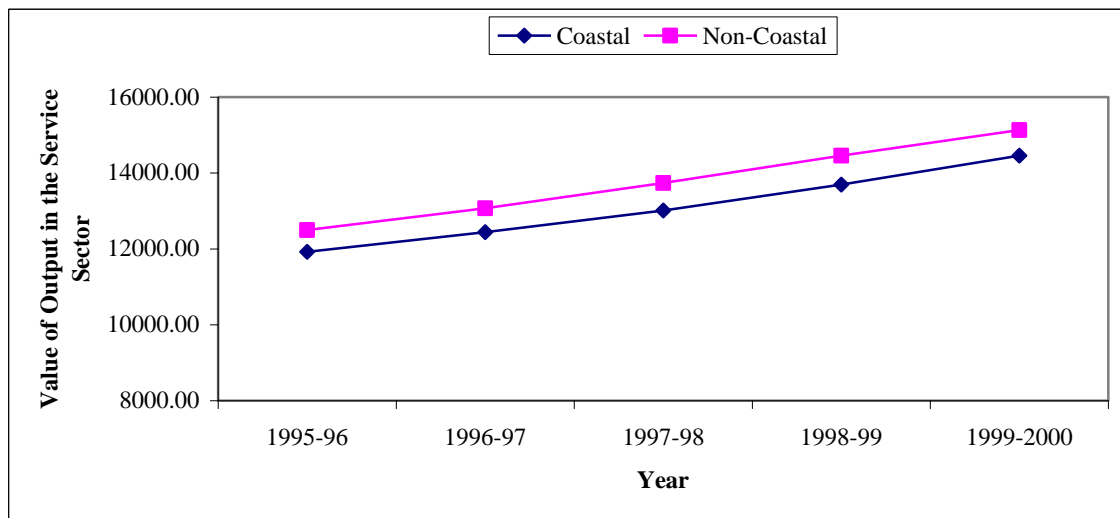
Then we extend our analysis to the district level for the coastal region in order to assess the relative performance of individual coastal districts. The following table suggests that Chittagong is the district to generate the highest amount of output in the service sector. While Narail is the district which produces lowest amount of output in this sector. For example, the value of the output in the service sector by Chittagong had been 81295 million taka in 1999-2000. During the same year Narail manages to produce only 4287 million taka worth output in this sector. Thus the value of the output produced by Chittagong is around 19 times greater than that produced by Narail. This gives us the picture of extreme skewed distribution of service sector output.

Table 22: Relative Performance of the Coastal Districts in the Service Sector (in million Taka)

Districts	1995-96	1996-97	1997-98	1998-99	1999-2000
Barisal	13887	14611	15040	15918	16609
Barguna	4406	4553	4850	5108	6352
Cox's Bazar	9541	10094	10502	11213	11732
Feni	5768	6035	6299	6636	6974
Lakshmipur	7690	7903	7977	8632	9196
Noakhali	12143	12726	13324	14091	14768
Gopalganj	5901	6078	6288	6548	6864
Shariatpur	4594	4784	4968	5183	5471
Bagerhat	8873	9326	9676	10336	10913
Jessore	14563	15226	16023	16776	17656
Khulna	22976	24060	25080	26324	27644
Narail	3582	3734	3891	4082	4287
Satkhira	9010	9484	9836	10460	11002
Bhola	8499	8991	9091	9738	10288
Jhalokati	3804	3917	3994	4245	4490
Patuakhali	7964	8230	8486	9131	9666
Pirojpur	5997	6158	6399	6707	7054
Chandpur	10378	10641	11544	11899	12449
Chittagong	66905	69815	73962	77179	81295

The following figure is constructed by taking five year average of the value addition by service sector against corresponding districts. The figure shows that the height of the bar corresponding to Chittagong is the tallest while the bar corresponding to Narail is the shortest.

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Figure 26: Relative Performance of the Coastal Districts in the Service Sector (in million Taka)
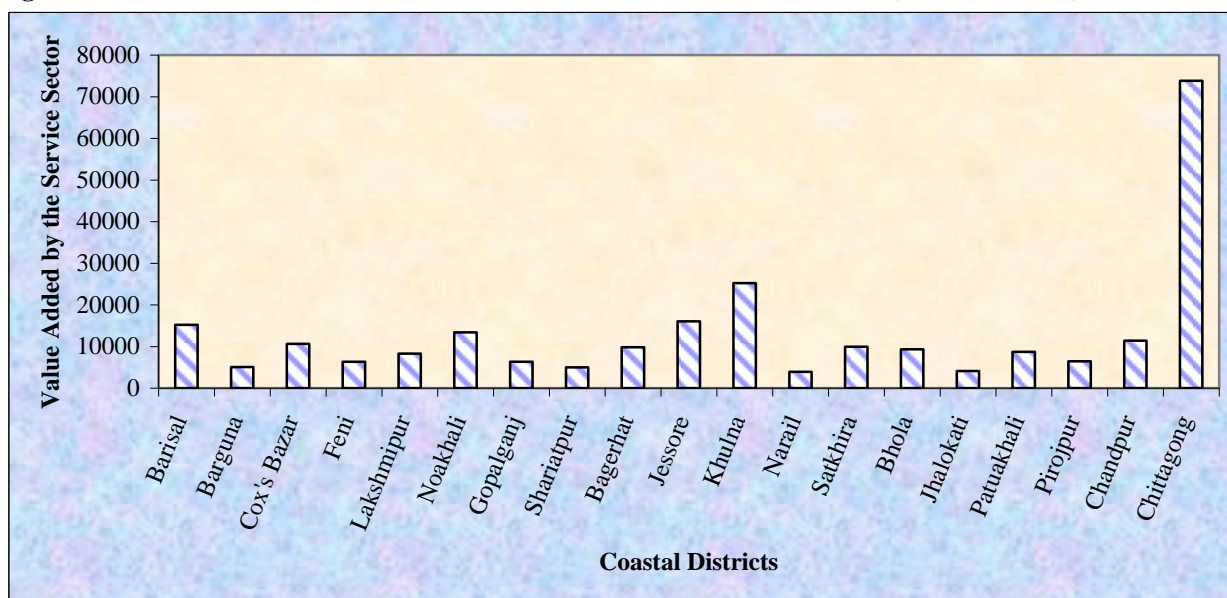
Another important variable to understand the performance of service sector in two regions is the growth rate. The following table shows that growth rate of service sector in the coastal region had been higher than the growth rate attained by the non-coastal region only in the year 1998-99. Otherwise the growth rate of service sector is always higher in the non-coastal region.

Table 23: Relative Performance of two regions in the Growth Rate of Service Sector

Region	Growth Rate of Service Sector			
	1996-97	1997-98	1998-99	1999-2000
Coastal	4.17	4.03	5.62	5.25
Non-Coastal	4.45	4.59	5.35	5.39

The relationships between the growth rates of two regions are portrayed in the following figure.

Figure 27: Relative Performance of two regions in the Growth Rate of Service Sector
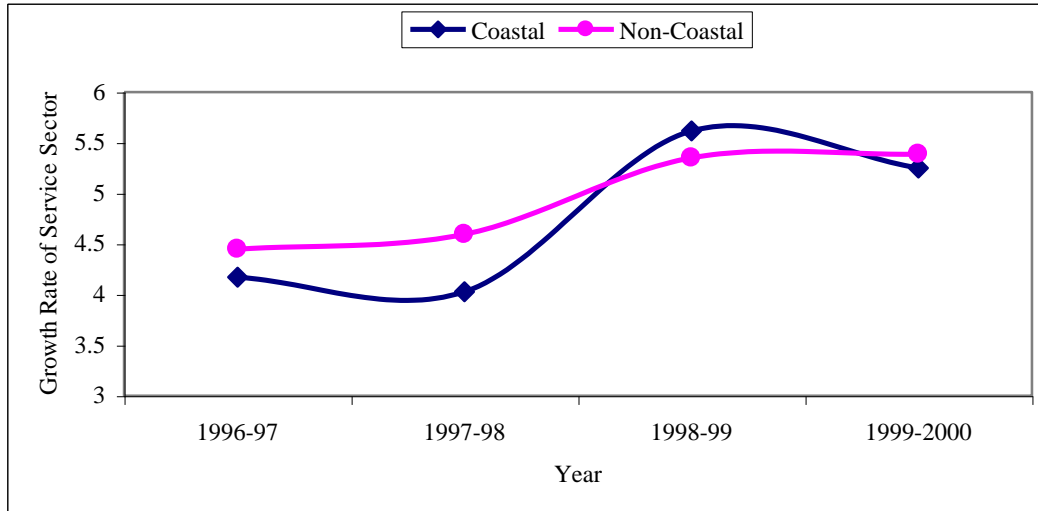
How much service sector contributes to the overall district GDP is another interesting variable to be analyzed. However the following table shows that the share of service sector in both the region is around 47 percent in each year. This corresponds the national figure of sectoral share of service in Gross Domestic Product.

Table 24: Relative Performance of two regions in the share of Service Sector in District GDP

Region	Share of Service Sector in District GDP				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-2000**
Coastal	47.64	47.22	47.29	47.15	45.98
Non-coastal	47.87	47.42	47.23	47.48	47.08

2.7 Industrial Sub-sectors and their Contribution to GDP

2.7.1 Introduction and Methodology

Gross Domestic Product (GDP) at constant prices refers to the volume level of GDP. Constant price estimates of GDP are obtained by expressing values in terms of a base period. In theory, the price and quantity components of a value are identified and the price in the base period is substituted for that in the current period. For this purpose, two main methods are adopted in practice. The first referred to as "quantity revaluation" is based on a methodology consistent with the above theory (i.e., by multiplying the current period quantity by the base period price). The second commonly referred to as "price deflation" involves dividing price indexes into the observed values to obtain the volume estimates. The price indexes used are built up from the prices of the major items contributing to each value. This estimate actually helps understanding the growth in real terms for the successive periods.

Economic growth is the increase in value of the goods and services produced by an economy. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Growth is usually calculated in real terms, i.e. inflation-adjusted terms, in order to net out the effect of inflation on the price of the goods and services produced. In economics, "economic growth" or "economic growth theory" typically refers to growth of potential output, i.e., production at "full employment," which is caused by growth in aggregate demand or observed output. As an area of study, economic growth is generally distinguished from development economics. The former is primarily the study of how rich countries can advance their economies. The latter is the study of how poor countries can catch up with rich ones.As economic growth is measured as the annual percent change of gross domestic product (GDP), it has all the advantages and drawbacks of that measure.

2.7.2 Industry: Overall

Industry is one of the most important sectors that contributes to the value addition of GDP. In developing countries, industrial sector is lagging behind the other sectors. In Bangladesh, there is an upward trend in the real GDP of the industry, industrial growth rate and so does the sectoral share of industry (table-25). But the rate of progress in the industry sector is not so satisfactory. Average of District Industrial GDP Growth Rate fall sharply in 1998-99 fiscal year due to the devastating flood. Despite the sharp decline of growth rate in the industrial sector, average sectoral share of industry raised a little bit (table-25). This may be due to the fact that the other sectors were struck more severely than that of the industrial sector in Bangladesh. Figure-28 shows that the average of district industrial GDP at constant prices has a clear positive association with time. This means that as the time goes on, the real district industrial GDP on an average rises. But figure-29 depicts that there is an ups and downs in the average district industrial GDP (ADIGDP) Growth rate. The natural shock in 1998 could be considered as the causal factor for the slower industrial growth rate in the fiscal year 1998-99.

Table25: Trend of Average Industrial District GDP, Growth Rate and Sectoral Share

Variables	Fiscal Year				
	1995-96	1996-97	1997-98	1998-99	1999-00
Average of District Industrial GDP (in million Taka at constant price)	6142	6499	7044	7396	7855
(Std. Deviation)	**(13418)**	**(14032)**	**(15270)**	**(15948)**	**(16674)**
Average of District Industrial GDP Growth Rate	-	6.8	8.0	5.7	7.3
Average Sectoral Share of Industry	19.2	18.7	19.9	20.1	20.1

Figure-28. Average District Industrial GDP at constant prices (in million Taka)
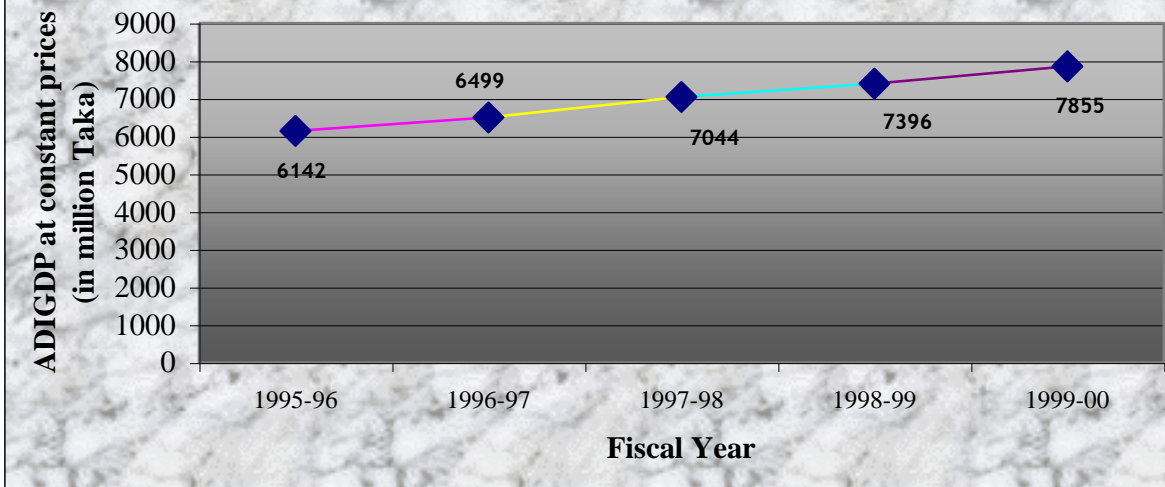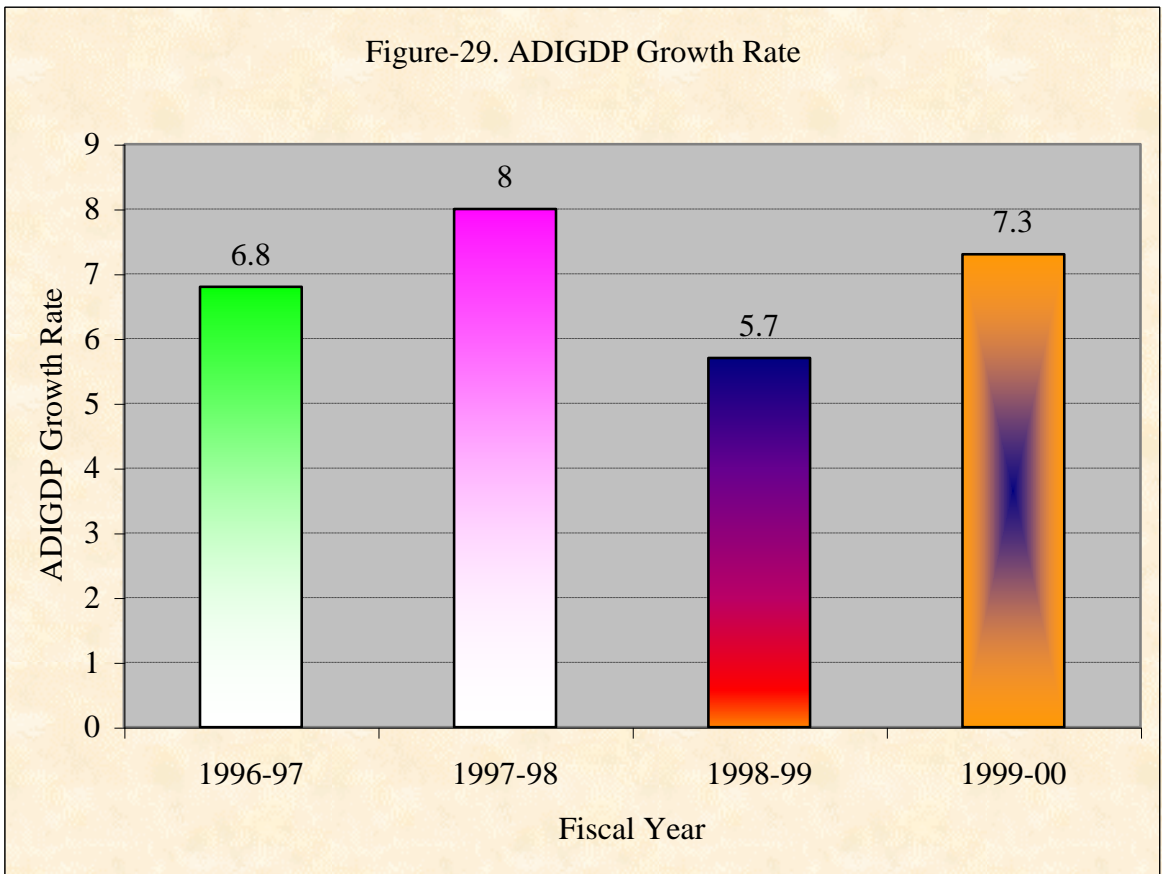

Figure-29. ADIGDP Growth Rate

A close scrutiny of the figures of district industrial GDP over the years, reveals that Bandarban has the lowest contribution to the GDP (table-26). In the fiscal year 1999-2000, it is observed that Dhaka (the district that contributes to the largest volume of industrial GDP) contributes 200 times more as compared to Bandarban. Over the four fiscal year from 1996-97 to 1999-00, the growth rate of industrial GDP of Bandarban is also stagnant and somewhat it declines and so does for the Dhaka district which earns the maximum district industrial GDP. For having further information, go through table-26. Output recession occurred in Lakshmipur in 1996-97 and in B.Baria in 1998-99. Industrial GDP growth rate at the district level was the lowest in B.Baria in 1999-00. Maximum growth rates are seen for Sylhet district. Table-27 gives this information in terms of minimum district industrial GDP growth rate. For sectoral share contribution, Rangamati has the lowest contribution except in the fiscal year 1996-97. On the contrary, Gazipur has the highest sectoral contribution over the sample fiscal years (see table-28). So the industrial concentration compared with other sectors is the highest in the Gazipur district.

Table-26: Trend of minimum and maximum district industrial GDP and their growth rates

Variables	Fiscal Year				
	1995-96	1996-97	1997-98	1998-99	1999-00
Minimum District Industrial GDP (in million taka)	473	507	544	577	618
Name of the District	**Bandarban**	**Bandarban**	**Bandarban**	**Bandarban**	**Bandar ban**
Growth Rate of Minimum District Industrial GDP	-	7.18	7.29	6.07	7.10
Maximum District Industrial GDP (in million taka)	99624	104166	113337	118102	123295
Name of the District	**Dhaka**	**Dhaka**	**Dhaka**	**Dhaka**	**Dhaka**
Growth Rate of Maximum District Industrial GDP	-	4.6	8.8	4.2	4.4

Table-27: Trend of minimum and maximum district industrial GDP growth rates

Variables	Fiscal Year			
	1996-97	1997-98	1998-99	1999-00
Minimum District Industrial GDP Growth Rate	-7.94	3.93	-3.08	3.92
Name of the District	**Lakshmipur**	**Feni**	**B. Baria**	**B. Baria**
Maximum District Industrial GDP Growth Rate	9.57	12.74	7.64	19.83
Name of the District	**Sylhet**	**Sylhet**	**Sylhet**	**Sylhet**

Table 28: Minimum and maximum sectoral share of industry

Variables	Fiscal Year				
	1995-96	**1996-97**	**1997-98**	**1998-99**	**1999-00**
Minimum Sectoral Share of Industrial GDP (%)	10.62	-21.97	11.66	11.59	11.71
Name of the District	**Rangamati**	**Sylhet**	**Rangamati**	**Rangamati**	**Rangamati**
Maximum Sectoral Share of Industrial GDP (%)	47.46	47.45	47.92	48.47	48.21
Name of the District	**Gazipur**	**Gazipur**	**Gazipur**	**Gazipur**	**Gazipur**

Nineteen districts comprise the Coastal industrial GDP whereas forty-five districts for the non-coastal industrial GDP. There is no statistical significant difference in their mean (see table-29). Table-29 shows that mean industrial GDP of the coastal region always stands below the non-coastal region and the gap between these two regions is steadily increasing (table-29). So non-coastal zone is ahead of coastal zone in the case of industrial GDP contribution (see figure-30).

Table-29 Mean and Mean Difference of District Industrial GDP by Region and over time (in million Taka)

Year	Mean Industrial GDP by Region		Mean Difference
	Coastal	**Non-Coastal**	
1995-96	5202	6538	1335
1996-97	5515	6914	1399
1997-98	5970	7496	1525
1998-99	6326	7848	1521
1999-00	6747	8321	1573

Figure-30:Comparison of Industrial GDP(in million Tk.) by Region

Non-Coastal	6538	6914	7496	7848	8321
Coastal	5202	5515	5970	6326	6747
Fiscal Year	1995-96	1996-97	1997-98	1998-99	1999-00
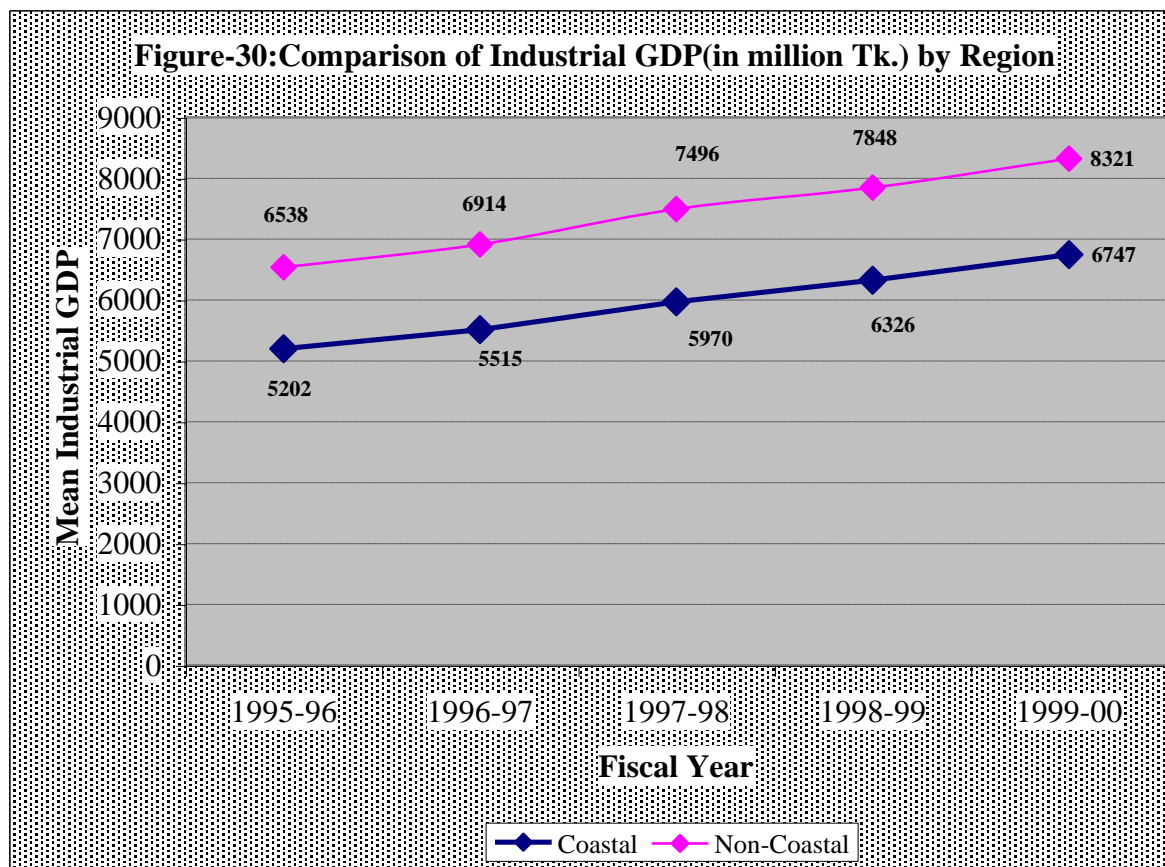
Growth rate comparison between the coastal and non-coastal zone suggests that growth rate of the industry is increasing over the years on an average. However, there is an exception in the fiscal year 1998-99. This could be due to the flood effects on Bangladesh economy. This could be referred to as the "Natural Shock" on the supply side. The slower growth rate for that fiscal year might be the break up of both the backward and forward linkages of industry. Table-30 also indicates that a statistically significant difference in growth rate exists between the coastal and non-coastal zones. But 1996-97 onward, no such significant differences exist between the regions although there is an absolute difference.

Table-30: Mean and Mean Difference of Industrial Growth Rate by Region and over time

Year	Mean Industrial growth rate by region		Mean Difference
	Coastal	**Non-Coastal**	
1996-97	5.9	7.1	1.2*
1997-98	7.6	8.1	0.5
1998-99	5.9	5.6	0.3
1999-00	7.2	7.4	0.2

* Implies that the difference is significant at 10 percent level.

Figure-31: Industrial Growth Rate Comparison
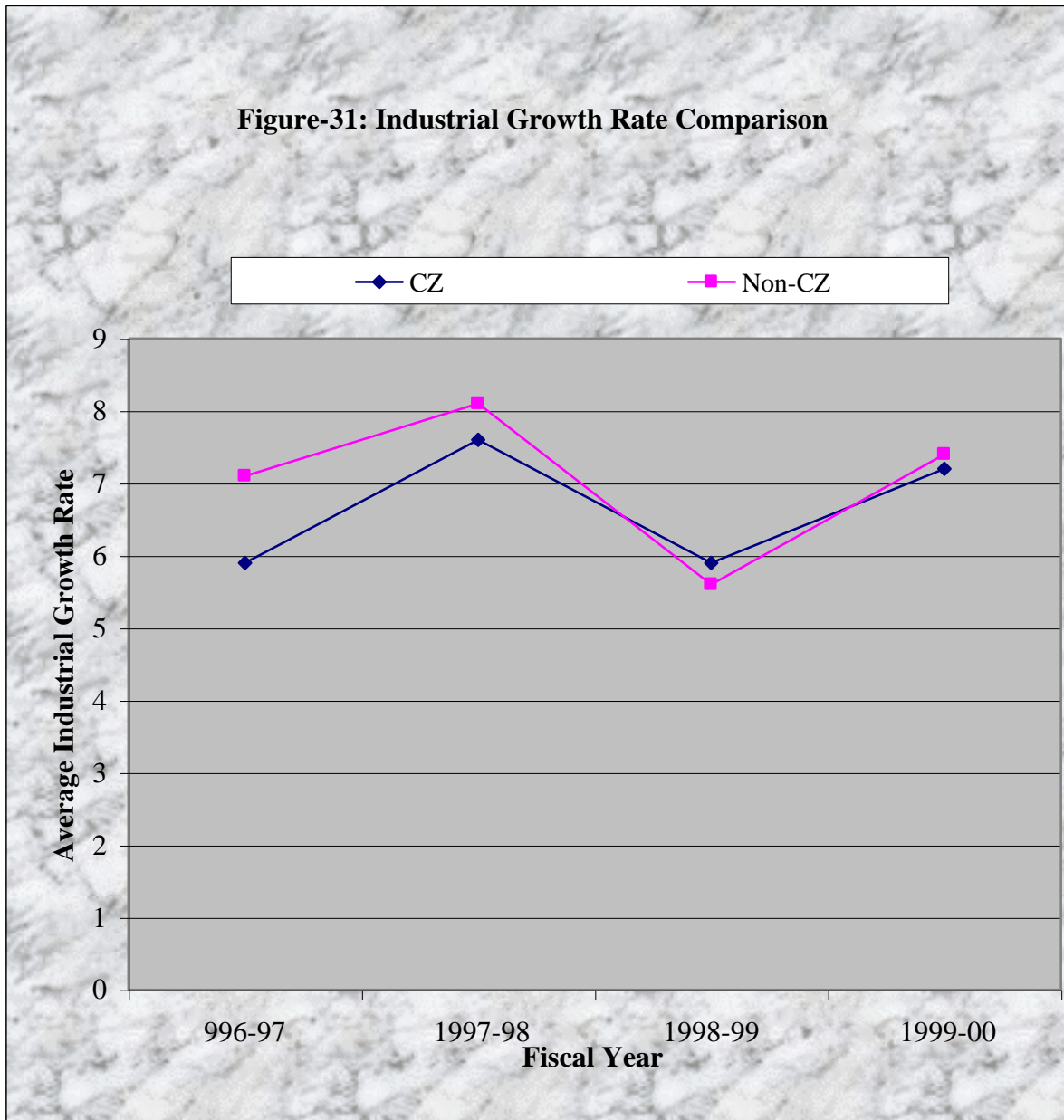
From table-31 and figure-32, the simple average of the four fiscal year's growth rates show that all the coastal districts (except Cox's Bazar, Feni and Lakshmipur) have the growth rate above 6 percent. Shariatpur and Chandpur achieved the highest 4-year average industrial growth rate at 7.5 percent each.

Table-31: 4-year Average Industrial Growth Rate of Coastal Districts.

Coastal District	4-Year Average Growth Rate
Barisal	7.05
Barguna	7.12
Cox's Bazar	4.63
Feni	3.89
Lakshmipur	3.91
Noakhali	7.37
Gopalganj	7.38
Shariatpur	**7.52**
Bagerhat	7.10
Jessore	6.98
Khulna	6.28
Narail	7.27
Satkhira	7.03
Bhola	7.17
Jhalokati	7.27
Patuakhali	7.10
Pirojpur	7.29
Chandpur	**7.51**
Chittagong	6.62

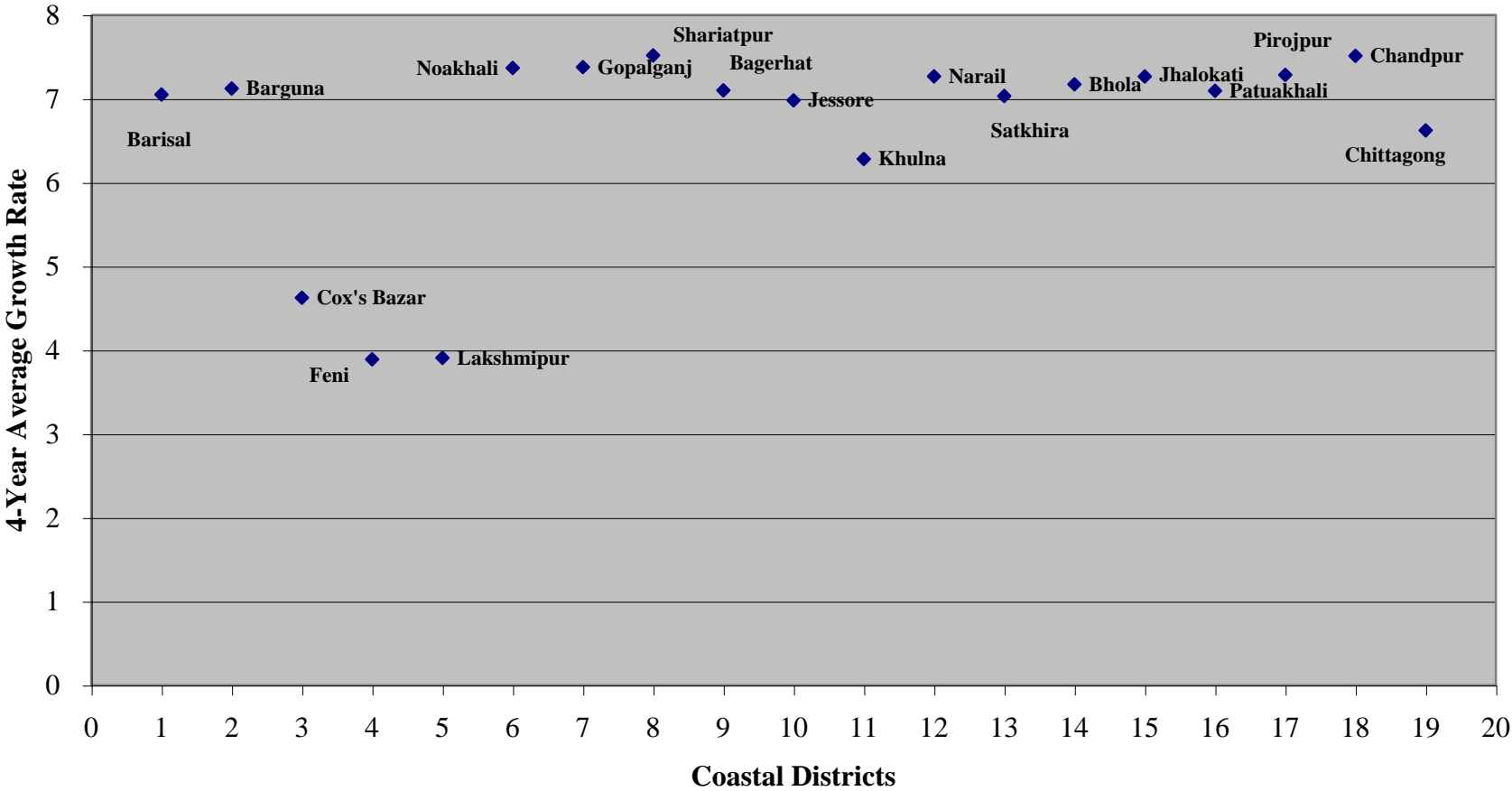**Figure-32: 4-Year Average Growth Rate**

Table-32 figures out that the gaps that exist between the coastal and non-coastal industrial share are statistically significant over the years. The average share of industry by the non-coastal districts is always higher than that of coastal districts. It is also clear from Table 32 that over the last three fiscal years, the average share of coastal and non-coastal districts almost remained stagnant. However, mean difference indicates that the average difference between coastal and non-coastal share is increasing very slowly. The share of non-coastal districts is comparatively higher than that of the coastal districts (Figure-33).

Table-32: Mean and Mean Difference of Sectoral Share of Industry by Region and over time

Year	Mean Sectoral Share of Industry by Region		Mean Difference
	Coastal	**Non-Coastal**	
1995-96	16.8	20.2	3.4*
1996-97	17.0	19.5	2.5*
1997-98	17.6	21.0	3.4*
1998-99	17.6	21.1	3.5*
1999-00	17.4	21.3	3.9*

- **Implies that the difference is significant at 10 percent level.**

Figure-33: Average Share of Industry
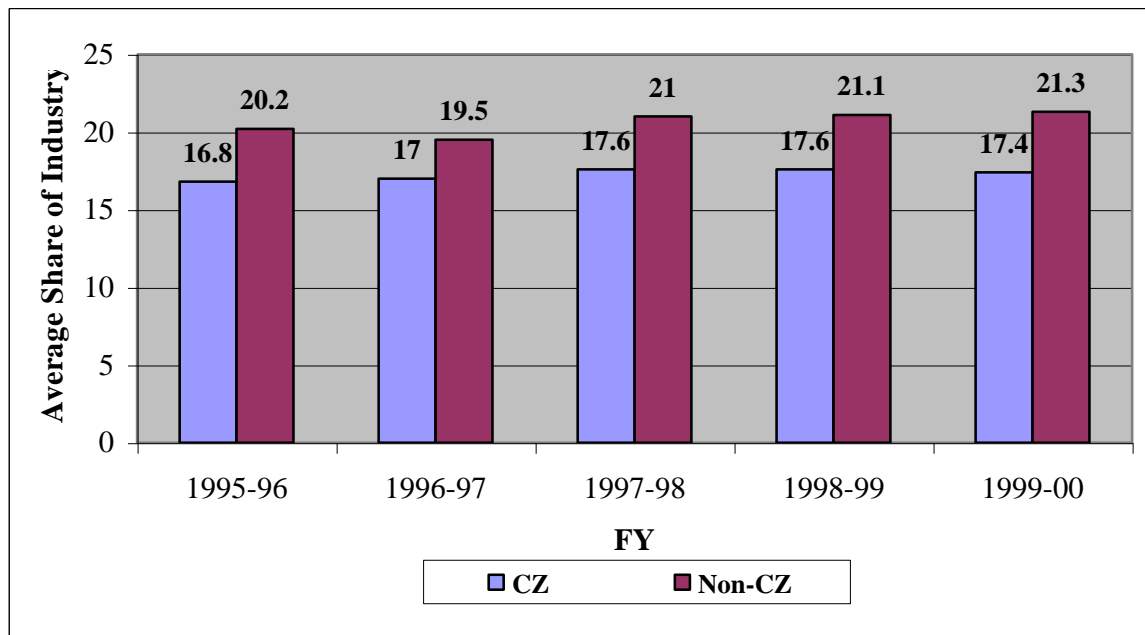
2.7.3 Mining and Quarrying

There is an upward trend in the real GDP of the Mining and Quarrying industry (table-33). But it is worth mentioning that this industry was not affected due to the natural shock in the fiscal year 1998-99. Both coastal and non-coastal districts, on an average, have an upward trend. However, the gap between these two regions is increasing. The findings suggests that the coastal districts are contributing more to the real GDP than that of the non-coastal districts. Within the five fiscal year, the gap was actually doubled. In this specific type of industry, the concentration ratio of the coastal region is higher. Table-34 shows the share of mining and quarrying GDP to the Industrial GDP. Percentage share of mining and quarrying is almost same for every fiscal year.

Table-33: Trend of Mean and Mean Difference of the Mining and Quarrying Industry by Region and over time (in million Taka)

Year	Average Mining and Quarrying GDP by Region		Mean Difference
	Coastal	**Non-Coastal**	
1995-96	249	197	52
1996-97	252	208	44
1997-98	256	228	28
1998-99	312	215	97
1999-00	337	238	99

Based on 1995-96 constant prices

Table-34: Share of Mining and Quarrying to Industrial GDP (at constant prices)

Fiscal Year	Sum of Industrial GDP (in million Tk)	Sum of Mining and Quarrying GDP (in million Tk)	% Share of Mining and Quarrying
1995-96	393062	13438	3.4
1996-97	415945	13969	3.4
1997-98	450786	14923	3.3
1998-99	473365	15406	3.3
1999-00	502672	16909	3.4

Figure-34: Mining and Quarrying GDP (in million Taka)
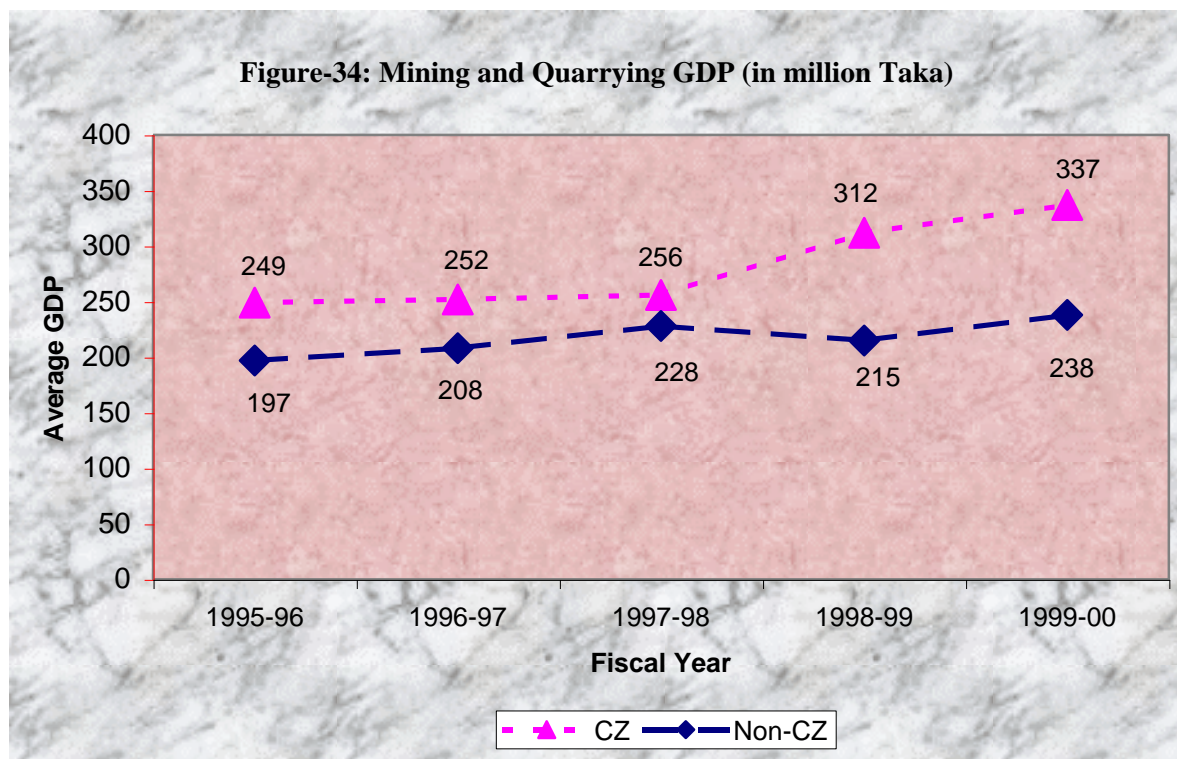
Although contribution to the Industrial GDP is higher for the Coastal Zonal districts (including both exposed and interior) than the non-coastal districts, the growth rate of Mining and Quarrying industry of the non-coastal districts is always higher (table-35). However, the growth rate of both regions is declining over the range of years. But the rate of declining is higher for the non-coastal districts and the gap is sharply declining (table-35 and graph 35).

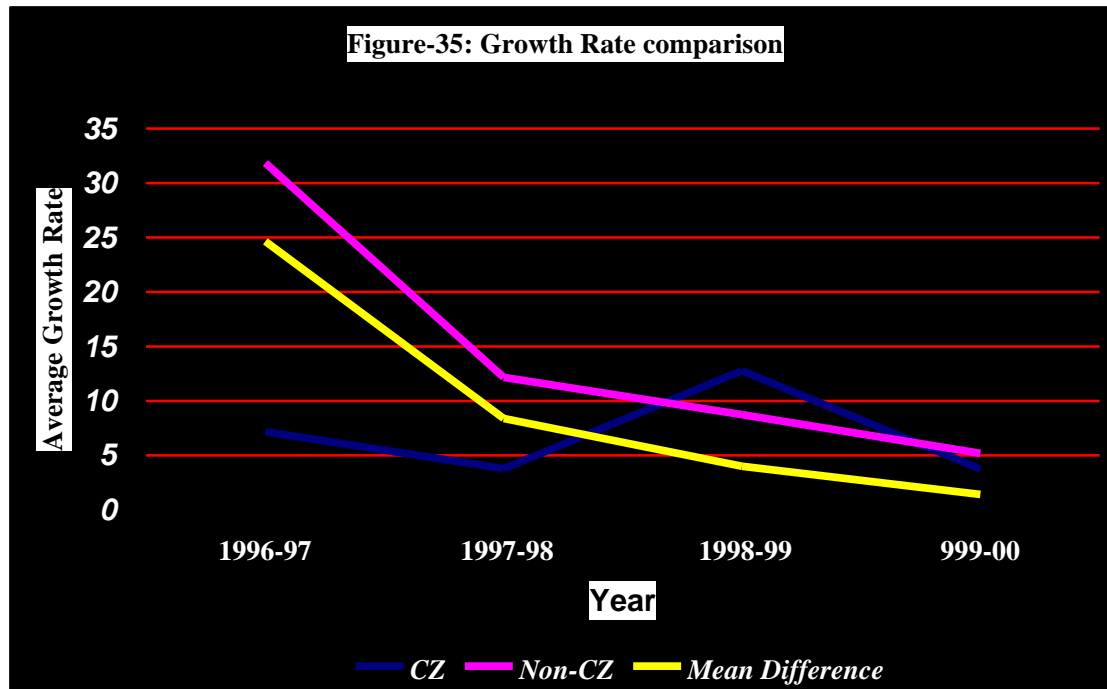**Table-35: Mean and Mean Difference of Mining and Quarrying Industrial Growth Rate by Region and over time**

Year	Mean of Mining and Quarrying Industrial growth rate by region		Mean Difference
	Coastal	**Non-Coastal**	
1996-97	7.18	31.84	24.65
1997-98	3.78	12.17	8.39
1998-99	12.76	8.75	4.01
1999-00	3.75	5.19	1.43

Figure-35: Growth Rate comparison

2.7.4 Manufacturing Industry

Findings of manufacturing industries show that value addition of manufacturing industries to the GDP by the non-coastal districts was increasing before the fiscal year 1998-99 and then it started declining. The contribution to the GDP of the coastal region had also the rising trend up to the fiscal year 1998-99 and then slightly declined. Growth rate of manufacturing was severely struck during the fiscal year 1998-99 and then it started to recover. Table-36 indicates that non-coastal manufacturing GDP was always higher than that of the coastal GDP. But the reverse is true if we ignore Dhaka city from our sample and the gap is also seen as rising over time up to the fiscal year 1998-1999 (table-38 and figure-36). In the case of sectoral share of manufacturing industry, table-39 shows that the sectoral share of the non-coastal with and without Dhaka had always been higher than that of the average share of coastal districts.

Table-36: Trend of Mean and Mean Difference of the Manufacturing Industry by Region and over time (in million Taka)

Year	Average Manufacturing GDP by Region		Mean Difference
	Coastal	Non-Coastal	
1995-96	2834	3976	1142
1996-97	3241	4256	1015
1997-98	3427	4721	1293
1998-99	3536	4089	553
1999-00	3158	4778	1620

Based on 1995-96 constant prices

Table-37: Mean and Mean Difference of Industrial Growth Rate by Region and over time

Year	Mean manufacturing growth rate by region		Mean Difference
	Coastal	Non-Coastal	
1996-97	6.9	6.4	0.49*
1997-98	7.5	7.6	0.13
1998-99	1.6	2.0	0.31*
1999-00	5.4	5.2	0.18

* Implies that the difference is significant at 10 percent level.

Table-38: Trend of Mean and Mean Difference of the Manufacturing Industrial GDP by Region and over time (Except Dhaka city) (in million Taka)

Year	Average Manufacturing GDP by Region		Mean Difference
	Coastal	Non-Coastal	
1995-96	2834	2143	691
1996-97	3241	2343	898
1997-98	3427	2635	792
1998-99	3536	1904	1632
1999-00	3158	2504	653

Based on 1995-96 constant prices

Figure-36: Manufacturing GDP in Million Taka

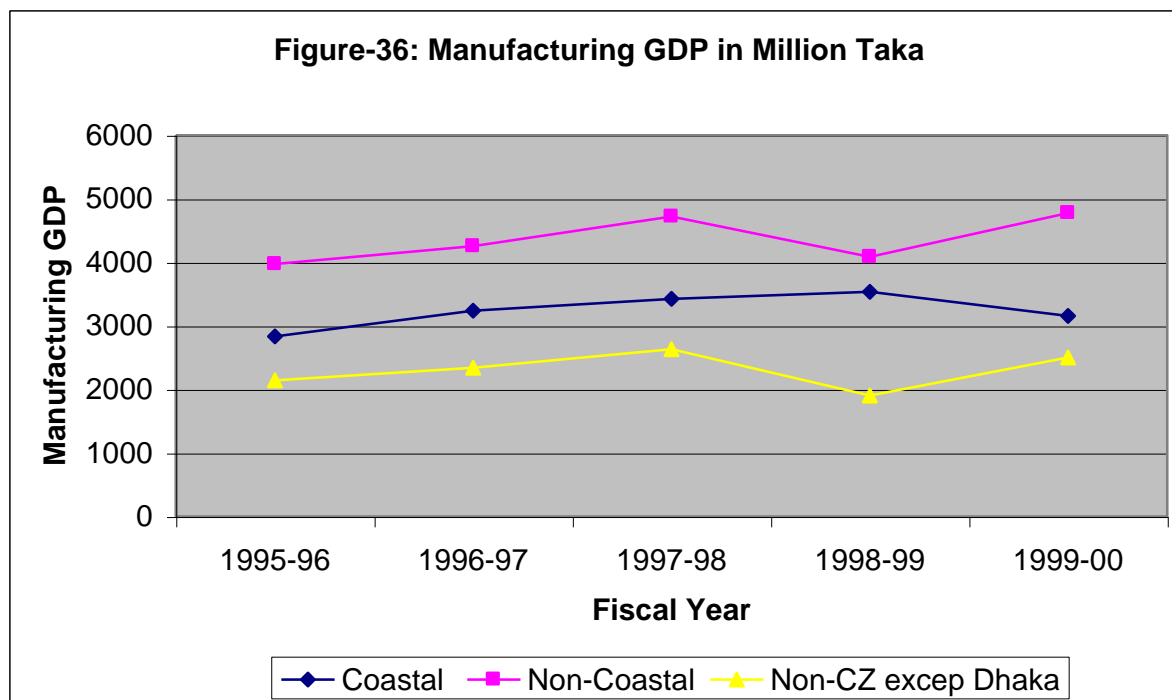**Table-39: Mean of Sectoral Share of Manufacturing Industry by Region and over time**

Year	Mean Sectoral Share of Industry by Region		
	Coastal	Non-Coastal	Non-Coastal (Except Dhaka)
1995-96	7.0	9.5	8.9
1996-97	7.1	9.5	8.9
1997-98	7.3	9.7	9.1
1998-99	7.1	9.6	9.0
1999-00	6.6	9.5	9.0

2.8 Conclusion

Coastal area has been one of the favorite topics for many researchers, which has given birth to the numerous research papers, monographs and reports. The present study is different with respect to all those as it explores in to the analysis of the coastal industries to the national economy. Besides giving a brief description of the coastal geography and other physical feature it goes into the detail analysis of the major macroeconomic variables like GDP, per capita GDP and provides in depth sectoral overview. The exploration has brought out few findings with the support of data. The average value of the Gross District Product of the coastal region has always been lower than that of the non-coastal region and except the year 1996-97 the value of the per capita GDP of the

coastal region had always been lower than that of the non-coastal region. Analysis of the sectoral performance of agriculture shows that the value addition of this sector by the coastal region had been consistently higher than the non-coastal region. Non-coastal region achieve greater output in the crop, animal farming and forestry sub sector. Coastal region outweighs the non-coastal region in the fishery sector with a huge margin. Coastal region lags behind non-coastal region both in the service sector and in the industrial sector. These findings are particularly useful not only to get a comprehensive idea about the coastal region but also for designing effective policies of the coastal region.

Chapter 3
Key Findings of the Study

Bangladesh is fortunate than the landlocked countries like Nepal, Bhutan and Afghanistan as she possesses a magnanimous coastal belt. It is widely accepted that owning coastal zone has been a natural advantage for economic development, and its importance has greatly increased during the last decades. The coast of Bangladesh is 710 km long. The coastal region, which is demarcated on the basis of physical feature and closeness to coast, consists of 19 of 64 districts of the country. They together cover 32 percent of the country's total area. Out of 19 district and 147 upazilas, 12 districts and 48 Upazilas are directly exposed to seacoast. These exposed districts and upazilas together make 23935 sq.km or 50.7 percent of the coastal area. It is estimated that 2.4 million hectors of coastal land is affected by salinity.The coastal region contains a population of about 35.1 million or 28 percent of the country's total population (BBS 2001, 2003).14% of the total labor force earn their living by fishing which is almost double than that of the national level. In 2002, 52% of the population lived below absolute poverty and 24% were accounted for as ultra poor in the coastal region.

The uniqueness of the study is that it reveals some unexplored macroeconomic features of the coastal region. The variables which are investigated are Gross District Product, Per Capita GDP and the value addition by of agriculture, service and industry sectors and their respective growth rate and sectoral shares. Comparison between coastal and non-coastal region has been presented in an articulated manner. It also provides disaggregated scenario of the coastal districts which helps us to understand their relative performance.

In 1995-96, the average value of the GDP coastal region was 25083 million taka and the same for the non-coastal districts had been 26229 million taka. The value of the GDP of both regions registered an upward growth in the next five years. But the non-coastal region always performed better in terms of GDP, all these five years. The value of the GDP of Chittagong is the highest whereas Jhalokati is the poorest among the coastal region in terms of the value of Gross District Product.

Except the year 1996-97 the value of the per capita GDP of the coastal region had always been lower than that of the non-coastal region. The gap widened during the years 1997-98 and 1998-99 when the coastal region was struck by the devastating flood events. The distribution of per capita GDP in the coastal region is not evenly distributed as the value of per capita GDP of Chittagong appears to be the highest and Feni is the lowest in the region. The five year average value of the per capita GDP of Chittagong is 22790 taka and that of Feni is only 10135 taka.

Though the value of Gross District Product for the coastal region remained lower than the that in the non-coastal region, the value addition of the agriculture sector by the coastal region had been consistently higher than the non-coastal region. Jhalokati is the district with the lowest amount of agricultural GDP whereas Chittagong is the district to register highest value in the agricultural output. Comparison of the growth rate of the agricultural sector shows that except for the year 1996-97 and 1997-98 coastal region fared better in terms of generating agricultural output. It is worthwhile to mention the year 1997-98 in which the coastal economy registered only 2.10 percent growth rate in the agricultural sector. This decline is most likely due to the floods in 1998. The study also finds that agricultural output comprises around 35 percent of the District GDP for the coastal economy. Whereas for the non-coastal region agriculture is only around 30 percent of District GDP. Coastal region is not ahead of the non-coastal region in generating higher value addition in the crop and horticulture sector. The gap widened during the year 1997-98. A close scrutiny of the growth rate of crop and horticulture sub-sector in the year 1997-98 reveals that only 7 districts registered positive growth rate in that year. The rest of the districts experienced negative growth rate. As far the relative performances of the coastal and non-coastal regions are concerned it is evident that the coastal regions fall short of the non-coastal region in generating greater output in the animal farming sector. Like the animal farming sub sector the forestry is also a less prominent sector in both the region. Coastal region is behind the non-coastal region in the race of generating output in the forestry sector. Coastal region generates greater output in fisheries than the non-coastal region by a big margin. The output from fishery in the coastal region is on an average 2.5 times higher than that of the non-coastal region.

In the overall context service sector plays a lead role in generating GDP. The value of the output produced in the service sector by the coastal region is not greater than that generated by the non-coastal region. The five year average of the output generated in the service sector in the coastal region is 13105 million taka. The corresponding value for the non-coastal region is 13777 million taka. Thus the value of the output produced in service sector by Chittagong is around 19 times greater than that produced by Narail. Service sector of both regions grew at a rate below 5 percent. The average growth rate of the service sector in the coastal region is 4.77 percent and that in the non-coastal region is 4.95 percent. In both the region the service sector comprise around 45 percent of the value of Gross District Product.

The overall scenario of the industrial section reveals that the average of district industrial GDP and sectoral share of industry in district GDP had always been an upward trend in real terms for the country. However, the average growth rate of the overall industry sector declined in the fiscal year 1998-99 and it rose in 1999-2000. Dhaka contributed the highest industrial value addition to GDP where Bandarban had the lowest value addition. Dhaka had 200 times more contribution compared to Bandarban.

Industrial growth rate comparison between the coastal and non-coastal zone indicates that there is an increasing trend over the years except 1998-99. Non-coastal industrial growth rate was always higher than coastal except 1998-99. This finding suggests that non-coastal industrial sector was struck more severely than that of the coast due to the flood in 1998. Shariatpur and Chandpur had their 4-year average growth rates above 7.5.

There are statistically significant gaps in the means values of the sectoral share of industry between the coast and non-coast. Mean differences of the industrial share indicate that differences in the mean values between coastal and non-coastal share were increasing very slowly over the sample years.

There was an upward trend in the real GDP of mining and quarrying for both coastal and non-coastal region. This industrial sub-section was unaffected in 1998. the value addition of the mining and quarrying to GDP by the coastal region was always higher than that of the non-coastal region. But the reverse scenario is true for the growth rate of this sector. Over the years, the percentage shares of mining and quarrying were almost unchanged. It was only around 3.4 percent to the overall industry.

In the case of manufacturing sector, the value addition to GDP by the non-coastal region was higher than that of the coastal zone. However, the contribution to GDP by the coastal region was higher if Dhaka city was ignored from the study sample. The average growth rate differences of the manufacturing sector between the coastal and non-coastal region indicate that it was always less than 1 percent.

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