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Assessment of Economic Changes through Short run and Long run Regional Econometric Analysis: A case Study on Bagerhat District in Bangladesh.

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1. Background

A region's economy is composed of a number of industries with varying economic potential, and changes in these industries can either directly or indirectly effect the expansion of the economy as a whole. (Herath,2013). The economic potential and prospects of a country's surrounding regions, as well as its structure and distinctive regional element, all have a significant impact on the country's economy. In terms of economic development and progress, spatial inequality is a key component in Bangladesh's various regions. (Rahman, 2005). It is commonly acknowledged that the economy is becoming more important as the foundation for global competitiveness. (Dinc,2002). Nowadays, it is more crucial than ever to identify industries that are relatively more essential. (Herath,2013).

The overall size of the Bagerhat district is 3959.11 square kilometers. In the north, it is bordered by Gopalganj District and Narail District, in the south by the Bay of Bengal, in the east by Gopalganj, Pirojpur, and Barguna District, and in the west by Khulna District. Panguchi, Daratana, Madhumati River, Pasur River, Haringhata, Mongla River, Baleshwar, Bangra, and Goshairkhali are the district's principal rivers. Geographically, the Port of Mongla, one of Bangladesh's two major seaports and a port of Khulna, is situated in the Bagerhat District. Due to their massive shrimp output and significant quantity of foreign cash through the city of Khulna, Rampal and Fakirhat, two upazilas of Bagerhat, are well known throughout Bangladesh.

About 75% of Bangladesh's shrimp output comes from the southwest, which is recognized as the country's primary zone for shrimp farming (Huq et al., 2004). The export of frozen shrimp goods brings in a sizable sum of foreign exchange for our nation every year. More than 90% of the shrimp exported from Bangladesh are caught in natural waterways, with the bulk (about 60%) coming from the zones of Khulna and Bagerhat, 35% from Comilla and Noakhali, and 5% from Cox's Bazar (Anonymous, 1993). The Bagerhat district is well known for fishing, wholesale, agriculture and many other economic activities. The geographical location help

Bagerhat to be advanced in these activities. The coastal area around it make this district as a potential area for fishing and the massive shrimp production is the representation of this. The shrimps are also well known for exportable to other countries. The Mongla Seaport has also a great influence to the economic sectors of Bagerhat district. As it helps in the export and import among Bangladesh and other countries. But the natural calamities often hit the coastal region so this district is also vulnerable to floods and other climate changing effects. Which reflects in the different economic sectors.

The short run analysis is done with the analysis of economic base multiplier calculation of overall economic sectors and with the help of the locational quotient. Economic base multiplier helps in identifying the basic and non-basic activities and locational quotient reflects the acceptance widely. The key advantage of these processes is that no initial data gathering is required because the data are obtained from secondary data sources. (Shi,2008). The Long run analysis is done by calculating the other component which are national share, industrial mix, regional shift. In this study 1995-1996 was included as the base year and 1999-2000 was used as the terminal year. Using these data the short run and long run analysis is done to observe the overall economic profile of Bagerhat district. This will help to identify the sectors which are fast growing, potential and capable to contribute more to economy.

2. Literature Review

Shift-share analysis is a widely utilized method for examining regional economies. It examines national patterns, industrial sectoral trends, and local variables to understand economic change. The shift-share analysis is a well-liked technique among scientists, planners, and geographers. Shift-share analysis often uses the probabilistic shift-share approach and the conventional accounting-based method. However, probabilistic shiftshare analysis has a significant benefit over conventional accounting-based methods since it enables the researcher to formulate quantitative hypotheses regarding employment change. (Knudsen, 2000).

Employment statistics are the most often utilized data for assessing the economic growth of a country or area, and shift-share analysis makes it simple to collect these numbers. This analysis makes use of three elements: Effects of national growth, industrial mix, and competitive share. The potential for regional growth or decline has been quantified by the national growth impact.

The potential for regional growth relative to national growth is determined by the industrial mix. The third component, the competitive share impact (also known as "differential shift"), compares the growth rates of other industries to those of the region. (Turk and Dogru 2017).

Dunn (1960) initially developed the shift-share analysis as a statistical technique to explain changes in economic development at the national, sectoral, and regional levels. This methodology was mostly used to a comparison of regional and national economic growth in terms of employment. The shift-share approach typically calculated the change using employment or Gross value-added data. This approach shows a continuous picture of the contribution of the variables that affect local growth, their impact on national growth, and a particular combination of industries that grow faster or slower than the national average. (Goschin ,2014).

The shift-share study is a practical and useful method for examining a nation's economic growth trajectory. It is a descriptive tool made to show regional change in comparison to regional benchmarks. Although the negative shift does not always mean that the economy will continue to deteriorate, it may serve as a policy alert. The input-output model for industrial structure, the employment analysis for evaluating efficiency, and the analytical hierarchy process are some examples of other regional analysis models that shift-share works well with. (Jackson and Heynes, 2009)

3. Methodology of the study:

The overall size of the Bagerhat district is 3959.11 square kilometers. In the north, it is bordered by Gopalganj District and Narail District, in the south by the Bay of Bengal, in the east by Gopalganj, Pirojpur, and Barguna District, and in the west by Khulna District. Panguchi, Daratana, Madhumati River, Pasur River, Haringhata, Mongla River, Baleswar, Bangra, and Goshairkhali are the district's principal waterways. The municipality of Bagerhat Sadar was founded in 1958. 31 mahallas make up its 9 wards. It has a population of 51504 and a 7.53 sq km area.

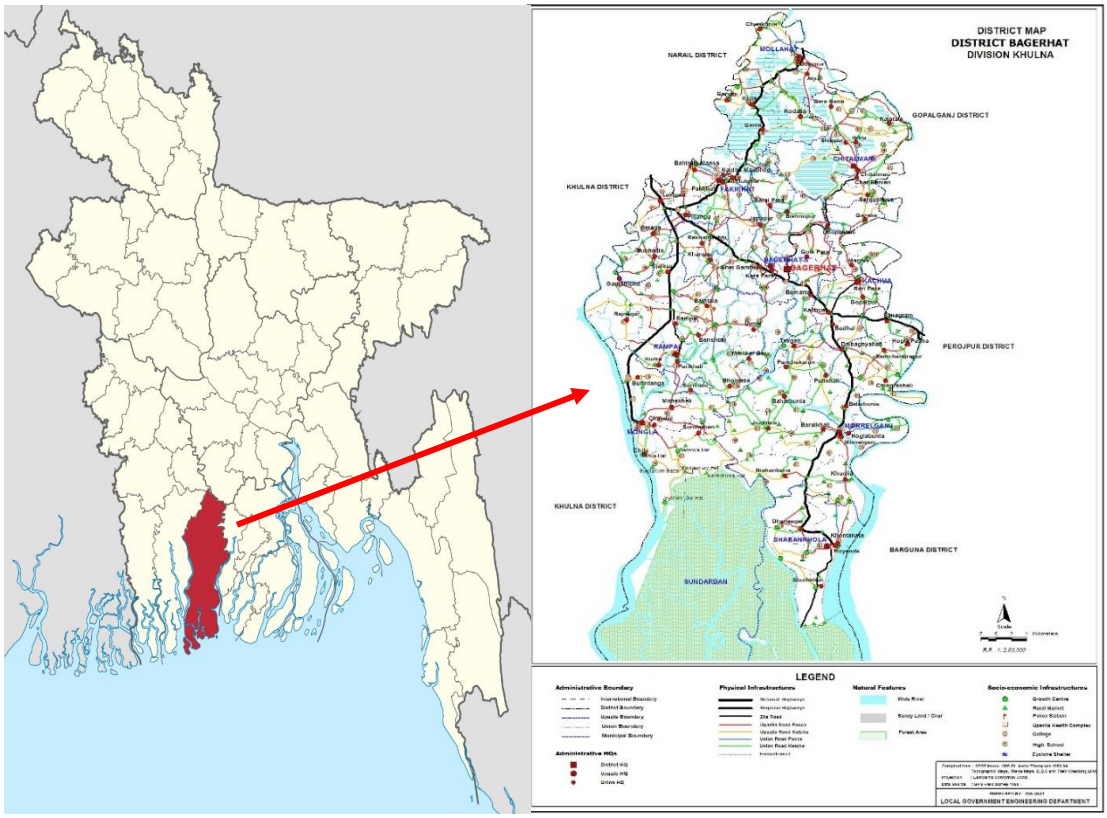


Figure 1: Map of the study area *(Source: LGED)*

An exploratory research methodology based on case studies and primarily on secondary databases from various sources is the main methodological strategy used in this work. The Bangladesh Bureau of Statistics provides information on the national and regional GDP at constant prices (BBS). The beginning year is supposed to be 1995–1996 and the terminal year is chosen to be 1999–2000 for the examination of the regional economic structure. Due to the fact that BBS last released district-level GDP statistics for Bangladesh in the annual year 1999-2000, we were forced to depend on a small database and were unable to use recent data for this study.

This study examines changes in regional economic structure using shift share analysis as its theoretical framework and economic foundation. Both short-run and long-run changes in the area economy are studied in order to investigate the regional growth features of the Bagerhat district. In this study, "Shift share analysis" is used to gauge how competitive the region is in comparison to other regions. Bangladesh Bureau of Statistics collects a database on global and local GDP at constant prices (BBS). For the purposes of shift share analysis, the years (1995–

1996) are used as the origin year and (1999–2000) as the terminal year for shift share analysis. Using the "Location Quotient" approach, basic and non-basic activities in our research region are identified. Trend line analysis is used to examine the change in basic and overall regional economic activity trends over time (considering both basic and non-basic economic activity). A linear regression model is used for the analysis.

Short-Run Regional Growth Calculation

The short-run regional growth of the study area was calculated using Location Quotients (LQ), a method with high academic standing for observing regional growth in the short term. The following ratio is used to calculate the Location Quotients (LQ) for each industry in the research region:

$$\text{LQ} = \frac{\text{Percentage of Regional employment in an industry}}{\text{Percentage of National employment in an industry}}$$

(Source: Glasson, 1978)

The formula for calculation of basic employment is the following,

$$\text{Basic employment in industry i} = \frac{(\text{LQ}-1)}{\text{LQ}} * E_i$$

(Source: McCann, n.d.)

Here, Ei = Regional employment in the industry i

Then, an economic base multiplier is being calculated from the following formula,

$$\text{Economic Base Multiplier}, \kappa = \frac{\text{Total regional employment } (E_t)}{\text{Total basic employment } (E_b)}$$

(Source: Glasson, 1978)

Long-Run Regional Growth Calculation

The regional employment growth that would have occurred had it increased at the national rate during the research period is represented by the national share component. The formula for figuring the National Share is as follows,

$$NS_j = E_{j_0}\left(\frac{E_t - E_0}{E_0}\right)$$

(Source: Glasson, 1978)

The proportionately shift component calculates the amount of net regional shift that may be attributed to the regional industrial sector's structure.

$$PS_j = \sum\left(\frac{E_{i_t} - E_{i_0}}{E_{i_0}} - \frac{E_t - E_0}{E_0}\right) * E_{ij_0}$$

(Source: Glasson, 1978)

The differential shift component calculates the amount of net regional shift as a result of some industrial sectors expanding more faster or slowly locally compared to nationally due to locational factors.

$$DS_j = \sum\left(\frac{E_{ij_t} - E_{ij_0}}{E_{ij_0}} - \frac{E_{i_t} - E_{i_0}}{E_{i_0}}\right) * E_{ij_0}$$

(Source: Glasson, 1978)

Where, $E_j = Total\ employment\ in\ region\ 'j'$
$E = Total\ national\ employment$
$0, t = initial\ and\ terminal\ time\ periods$
$i = Industry\ subscript$

4. Calculation Proceedings

Short Run Change: The short run change in Bagerhat district the GDP of Bagerhat District is taken into account.

Gross Domestic Product by Industry at constant market prices for Bagerhat district and overall Bangladesh.

Bagerhat	Regional					National				
Sector	1995-96	1996-97	1997-98	1998-99	1999-2000	1995-96	1996-97	1997-98	1998-99	1999-2000
Agri & Forestry	4377	4676	4388	4839	5260	324382	342458	348080	359368	384251
Fishing	3151	3486	3801	4202	4520	85500	91997	100257	110240	120019
Mining and quarrying	271	284	295	304	311	16691	17286	18281	18522	20277
Manufacturing	763	820	881	893	944	246351	258795	280908	289882	303579
Electricity, gas, water	198	202	203	217	241	24009	27473	24965	26463	28258
Construction	1395	1515	1659	1807	1960	109993	119500	130833	142503	154590
Wholesale and retail trade	2205	2415	2472	2799	3044	206076	217374	230382	245377	263282
Hotel and restaurant	89	93	99	106	113	9782	10269	10936	11664	12473
Transport, communication	1446	1501	1564	1658	1736	144831	152798	161490	171019	181422
Financial Intermediations	15	16	17	18	19	25171	26465	27860	29365	30980
Real Estate, Renting, Business activities	1871	1935	2005	2077	2153	151036	156385	162328	168528	174990
Public administration and defense	362	382	405	428	453	40165	42375	44874	47431	50262
Education	535	564	617	666	729	33042	34618	37422	40304	43424
Health and social Works	440	457	479	500	524	36388	37807	39542	41361	43346
Community, social and personal services	1910	1963	2019	1083	2142	142943	146929	151117	155575	160332
Regional Total GDP	19028	20309	20904	21597	24149					
National Total GDP						1596360	1682529	1769275	1857602	1971485

(Source: Author's Calculation, 2022)

LQ (Location quotient)

The value of Location quotient helps in determining the Basic and Non-Basic activities. The

LQ value greater than one represents the industrial sector as basic and less than one represent it as non-basic.

Sector	1995-96	Type of activity	1996-97	Type of activity	1997-98	Type of activity	1998-99	Type of activity	1999-2000	Type of activity
Agri & Forestry	1.13	Basic	1.131205	Basic	1.066973	Basic	1.158178	Basic	1.117545	Basic
Fishing	3.09	Basic	3.139263	Basic	3.208848	Basic	3.278507	Basic	3.074558	Basic
Mining and quarrying	1.36	Basic	1.361124	Basic	1.365803	Basic	1.411708	Basic	1.252135	Basic
Manufacturing	0.26	Non Basic	0.262502	Non Basic	0.265447	Non Basic	0.264966	Non Basic	0.25386	Non Basic
Electricity, gas, water	0.69	Non Basic	0.609143	Non Basic	0.688225	Non Basic	0.70531	Non Basic	0.696258	Non Basic
Construction	1.06	Basic	1.050313	Basic	1.073236	Basic	1.09067	Basic	1.035068	Basic
Wholesale and retail trade	0.90	Non Basic	0.920415	Non Basic	0.908167	Non Basic	0.981134	Non Basic	0.943882	Non Basic
Hotel and restaurant	0.76	Non Basic	0.750289	Non Basic	0.766201	Non Basic	0.781659	Non Basic	0.739608	Non Basic
Transport, communication	0.84	Non Basic	0.813836	Non Basic	0.819704	Non Basic	0.833872	Non Basic	0.781185	Non Basic
Financial Intermediations	0.05	Non Basic	0.050087	Non Basic	0.051646	Non Basic	0.052723	Non Basic	0.050069	Non Basic
Real Estate, Renting, Business activities	1.04	Basic	1.025085	Basic	1.045411	Basic	1.060043	Basic	1.004443	Basic
Public administration and defense	0.76	Non Basic	0.74684	Non Basic	0.763882	Non Basic	0.776141	Non Basic	0.735788	Non Basic
Education	1.36	Basic	1.349743	Basic	1.395482	Basic	1.421299	Basic	1.370541	Basic
Health and social Works	1.01	Basic	1.001424	Basic	1.025281	Basic	1.039772	Basic	0.986908	Non Basic
Community, social and personal services	1.12	Basic	1.106845	Basic	1.130808	Basic	0.598753	Non Basic	1.090671	Basic

(Source: Author's Calculation, 2022)

Multiplier

Sector	1995-96	Regional GDP	Basic GDP	1996-97	Regional GDP	Basic	1997-98	Regional GDP	Basic	1998-99	Regional GDP	Basic	1999-2000	Regional GDP	Basic
Agri & Forestry	1.13	4377	1088.38	1.13	4676	1155.87	1.066	4388	569.31	1.15	4839	1426.31	1.117	5260	1171.54
Fishing	3.09	3151	8723.32	3.139	3486	9833.02	3.208	3801	11012.29	3.27	4202	12494.60	3.074	4520	12426.87
Mining and quarrying	1.36	271	170.19	1.361	284	177.91	1.365	295	186.92	1.41	304	213.82	1.252	311	141.04
Manufacturing	0.26	763		0.262	820		0.265	881		0.26	893		0.253	944	
Electricity, gas, water	0.69	198		0.609	202		0.688	203		0.70	217		0.696	241	
Construction	1.06	1395	173.22	1.050	1515	148.80	1.073	1659	234.70	1.09	1807	314.06	1.035	1960	135.14
Wholesale and retail trade	0.90	2205		0.920	2415		0.908	2472		0.98	2799		0.943	3044	
Hotel and restaurant	0.76	89		0.750	93		0.766	99		0.78	106		0.739	113	
Transport, communication	0.84	1446		0.813	1501		0.819	1564		0.83	1658		0.781	1736	
Financial Intermediations	0.05	15		0.050	16		0.051	17		0.05	18		0.050	19	
Real Estate, Renting, Business activities	1.04	1871	144.19	1.025	1935	95.89	1.045	2005	178.14	1.06	2077	242.36	1.004	2153	19.09
Public administration and defense	0.76	362		0.746	382		0.763	405		0.77	428		0.735	453	
Education	1.36	535	332.89	1.349	564	343.40	1.395	617	418.87	1.42	666	478.00	1.370	729	467.22
Health and social Works	1.01	440	12.62	1.001	457	1.30	1.025	479	23.92	1.03	500	39.01	0.986	524	
Community, social and personal services	1.12	1910	437.29	1.106	1963	399.23	1.130	2019	497.65	0.59	1083		1.090	2142	372.29
Regional Total Basic	11082.14			12155.41			13121.81			15208.16			14733.19		
Total Regional GDP (Basic	19028			20309			20904			21597			24149		

& Non Basic)					
Multiplier	1.72	1.67	1.59	1.42	1.64

Prediction of Total Regional GDP in 2009-2010

Total Regional GDP after 10 years in 2009-2010 can be found by using regression analysis:

y = 1153x + 17738

Total Regional GDP in 2009-2010 is = 1153*5+ 17738= 23503

Prediction of Total Regional GDP in 2029-30

y = 1153x + 17738

Total Regional GDP in 2029-30= 1153*15+ 17738= 35033

Prediction of Total Regional Basic GDP in 2009-2010

y = 1035.5x + 10154

Total Regional Basic GDP in 2009-2010= 1035.5*5 + 10154 = 15331.5

Long Run Change

National Share

Sectors	Regional GDP (1995-1996)	National Growth Rate	National Growth Share	Region's National share
Mining and Quarrying	271	23.51%	63.70	4469.10
Manufacturing	763	23.51%	179.35	
Electricity, Water and Gas, and Supply	198	23.51%	46.54	
Fishing	3151	23.51%	740.66	
Construction	1395	23.51%	327.90	
Wholesale and Retail price	2205	23.51%	518.30	
Transport, Storage and Communication	1446	23.51%	339.89	
Real estate renting and business	1871	23.51%	439.79	
Community social , personal services	1910	23.51%	448.96	
Health	440	23.51%	103.42	
Hotel and restaurant	89	23.51%	20.92	
Education	535	23.51%	125.75	
Public Administration and Defense	362	23.51%	85.09	
Agriculture	4377	23.51%	1028.84	

Industrial Mix

Sectors	Regional GDP (1995-1996)	National GDP (1995-1996)	National GDP (1999-2000)	Industries National Growth Rate	National Growth Rate	Industry Mix	Region's Industry Mix
Mining and Quarrying	271	16691	20277	21.48%	23.51%	-5.48	321.24
Manufacturing	763	246351	303579	23.23%	23.51%	-2.10	
Electricity, Water and Gas, and Supply	198	24009	28258	17.70%	23.51%	-11.50	
Fishing	3151	85500	120019	40.37%	23.51%	531.50	
Construction	1395	109993	154590	40.55%	23.51%	237.71	
Wholesale and Retail price	2205	206076	263282	27.76%	23.51%	93.80	
Transport, Storage and Communication	1446	144831	181422	25.26%	23.51%	25.44	
Real estate renting and business	1871	151036	174990	15.86%	23.51%	-143.05	
Community social , personal services	1910	142943	160332	12.16%	23.51%	-216.60	
Health	440	36388	43346	19.12%	23.51%	-19.29	
Hotel and restaurant	89	9782	12473	27.51%	23.51%	3.56	
Education	535	33042	43424	31.42%	23.51%	42.35	
Public Administration and Defense	362	40165	50262	25.14%	23.51%	5.91	
Agriculture	4377	324382	384251	18.46%	23.51%	-221.00	

Regional Shift

Regional Shift

Sectors	Regional GDP (1995-1996)	Regional GDP (1999-2000)	Regions Industry Growth Rate	Industrial National Growth Rate	Regional Shift
Mining and Quarrying	271	311	14.76%	21.48%	-18.22
Manufacturing	763	944	23.72%	23.23%	3.75
Electricity, Water and Gas, and Supply	198	241	21.72%	17.70%	7.96
Fishing	3151	4520	43.45%	40.37%	96.84
Construction	1395	1960	40.50%	40.55%	-0.61
Wholesale and Retail price	2205	3044	38.05%	27.76%	226.90
Transport, Storage and Communication	1446	1736	20.06%	25.26%	-75.33
Real estate renting and business	1871	2153	15.07%	15.86%	-14.74
Community social , personal services	1910	2142	12.15%	12.16%	-0.35
Health	440	524	19.09%	19.12%	-0.14
Hotel and restaurant	89	113	26.97%	27.51%	-0.48
Education	535	729	36.26%	31.42%	25.90
Public Administration and Defense	362	453	25.14%	25.14%	0.00
Agriculture	4377	5260	20.17%	18.46%	75.17
Regional Shift					**326.65**

The regional growth can be calculated by conducting the summation of the three components.

So, Regional Growth = NS+IM+RS

= 5117.00

5. Analysis of Short run change

5.1 Contribution of Basic Activities in Regional GDP

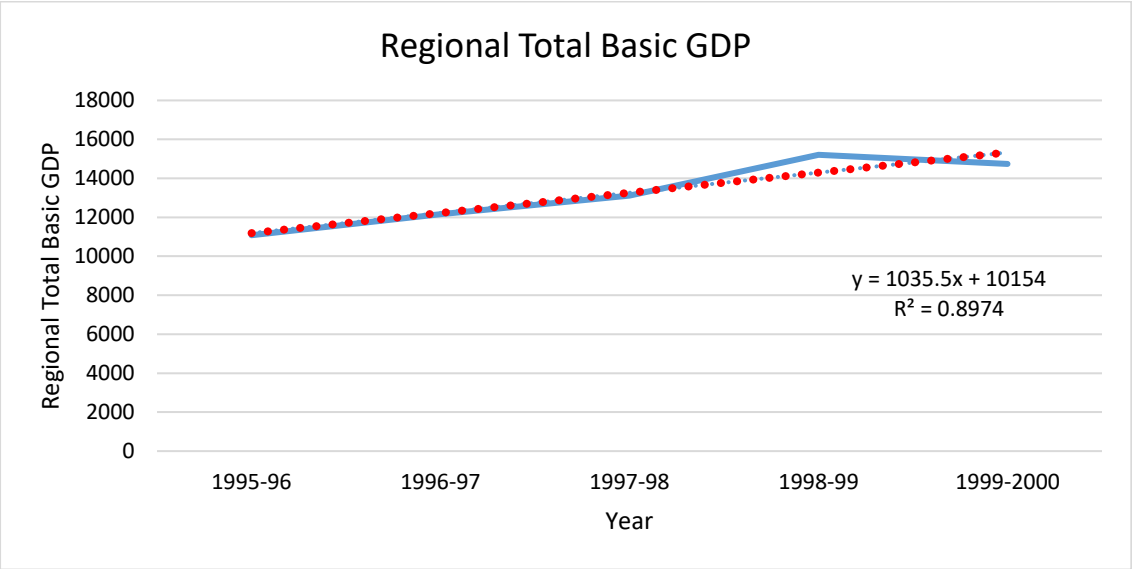


Figure 2: Regional Total Basic GDP *(Source: Author's Calculation, 2022)*

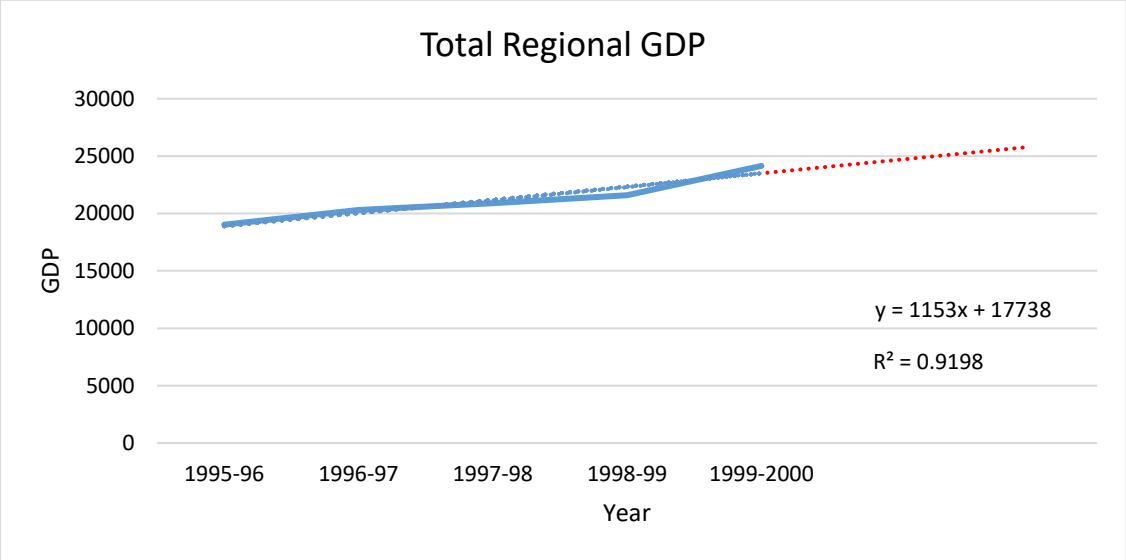


Figure 3:Total Regional GDP *(Source: Author's Calculation, 2022)*

Total regional GDP and total regional basic GDP are the subjects of the aforementioned regression study. From the analysis it is seen that total regional Basic GDP increases by 1035 million per year. And total regional GDP is increased by 1153 million per year. And from the trend line we can observed that it is increasing day by day. This illustrates how dependent the regional economy is on the basic sector, which accounts for about 63% of the region's annual GDP. Because the basic activity is increasingly prevalent, it may be said that the region's economy is growing.

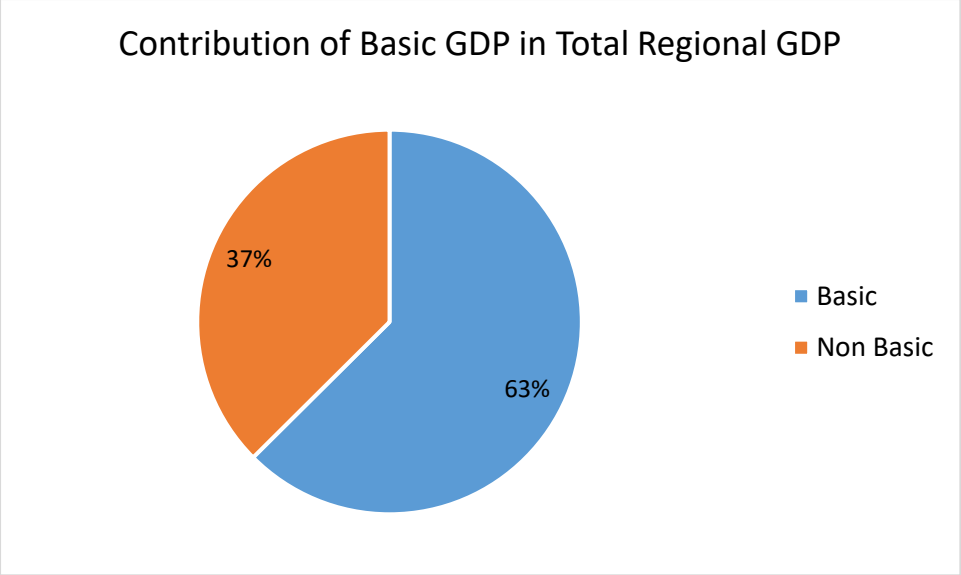


Figure 4: Contribution of Basic GDP in Total Regional GDP (Source: Author's Calculation, 2022)

5.2 Interpreting Economic Base Multiplier

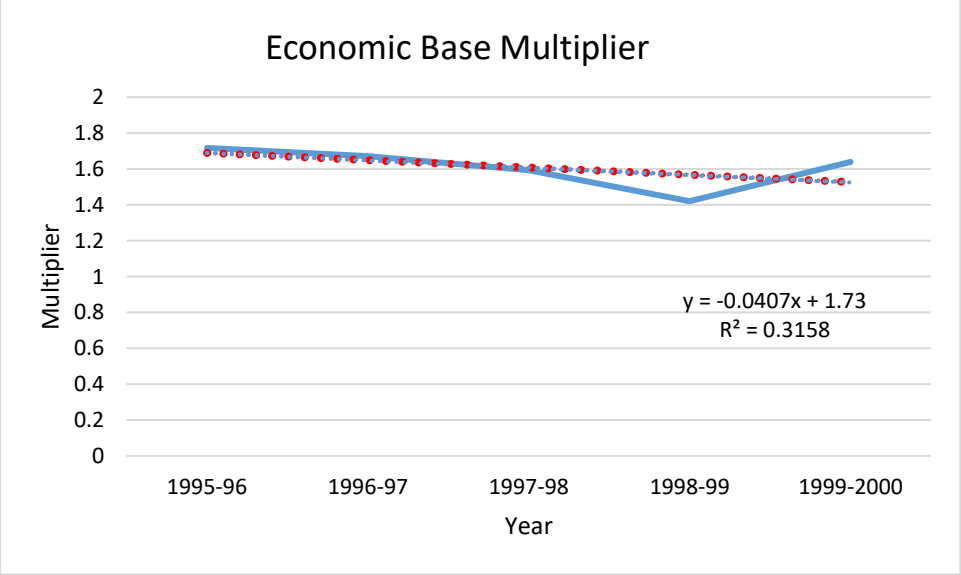


Figure 5: Economic Base Multiplier (Source: Author's Calculation, 2022)

The above trend line is representing the economic base multiplier which shows that the trend line is directed to downward. The downward tendency means the increase in basic activity. In between 1998-1999 to 1999-2000 the trend line is showing characteristics of an upward line. Which means in this particular time the basic activity decreases. There is a major reason of this decreasing. In 1998 a major environmental disaster occurred. And as Bagerhat is a district of

the coastal region the area must be affected by flood back to then. This affected the reduction in the basic activity.

6. Analyzing Long run change

Components	Magnitude	Sign
Region's National share	4469.10	+
Region's Industry Mix	321.24	+
Regional Shift	326.65	+

The shift share components

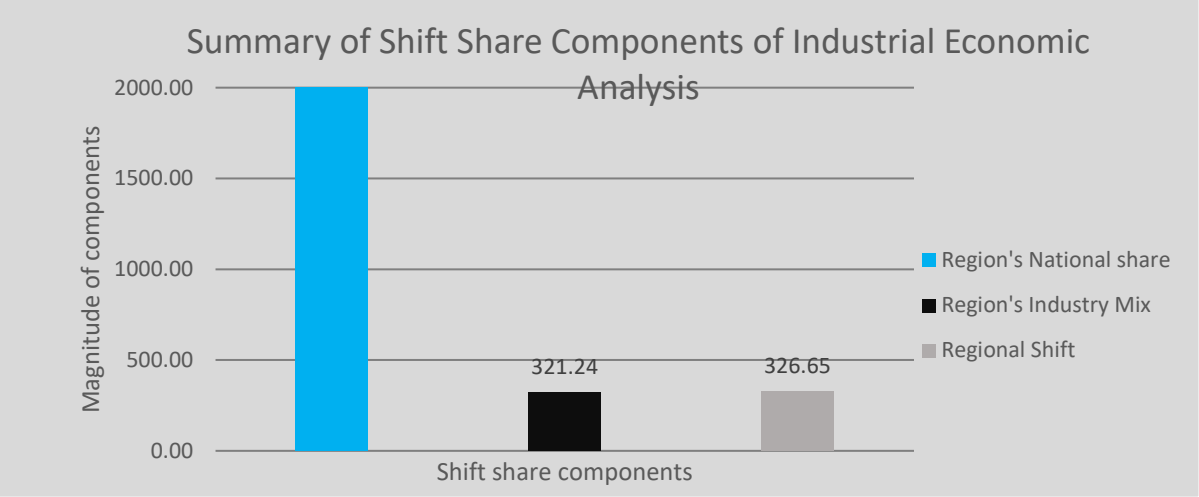


Figure 6 : Summary of Shift Share Components of Industrial Economic Analysis *(Source: Author's Calculation, 2022)*

The region has much potentiality to grow with the regionally fast-growing industries. There are also leading industries because the regional shift sign is plus.

6.1 Scrutinizing the industrial Sectors

Industrial Sectors	NS	IM	RS	Interpretation
Mining and Quarrying	+	-	-	Have the potentiality to grow but can not contribute nationally or regionally.
Manufacturing	+	-	+	Have the potentiality to grow, leading but can not contribute nationally.
Electricity, Water and Gas, and Supply	+	-	+	Have the potentiality to grow, leading but can not contribute nationally.
Fishing	+	+	+	Has the potentiality to grow, leading and contribute nationally
Construction	+	+	-	Has the potentiality to grow, lagging but contribute nationally
Wholesale and Retail price	+	+	+	Has the potentiality to grow, leading and contribute nationally
Transport, Storage and Communication	+	+	-	Has the potentiality to grow, lagging but contribute nationally
Real estate renting and business	+	-	-	Have the potentiality to grow but can not contribute nationally or regionally.
Community social , personal services	+	-	-	Have the potentiality to grow but can not contribute nationally or regionally.
Health	+	-	-	Have the potentiality to grow but can not contribute nationally or regionally.
Hotel and restaurant	+	+	-	Has the potentiality to grow, lagging but contribute nationally
Education	+	+	+	Has the potentiality to grow, leading and contribute nationally
Public Administration and Defense	+	+	+	Has the potentiality to grow, leading and contribute nationally
Agriculture	+	-	+	Have the potentiality to grow, leading but cannot contribute nationally.

The above table represents the shift share components for specific industries. The positive NS means the industrial sector has growth potential. The positive IM means the industrial sector is nationally fast growing. The negative sign in IM indicates the industry cannot contribute much in national growth. This indicates how much of the local growth in that particular industry can be attributed to the performance of that industry at the national level. And the positive RS means the industry is leading industry and negative represent lagging industry. It indicates how much the industry can attributed to regional level.

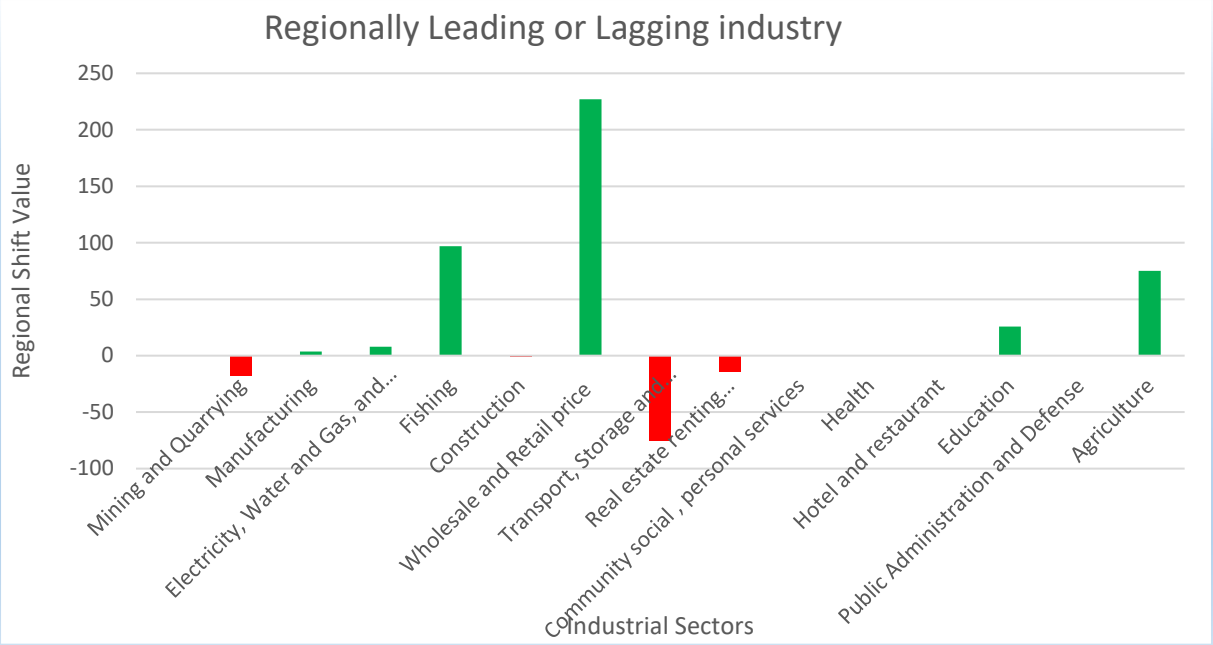


Figure 7: Regionally Leading or Lagging industry *(Source: Author's Calculation, 2022)*

The above bar chart is about the representation of the regionally leading and lagging industrial sectors. From the bar chart we can see that manufacturing; electricity, water and Gas; fishing; wholesale and retail price; education; and agriculture are the sectors which are leading. That means these industrial sectors contribute a good enough to the regional level. On the other hand, construction; transportation, storage; real estate; health; restaurant and hotel; public administrations and etc. are the lagging industries. Actually, the Bagerhat is a well-known coastal area which is renowned for fishing and wholesale. Agriculture is also a prominent sector of this area which has a great potential to contribute in regional GDP. Because of shrimp and other fish production the fishing sector contribute a major amount in regional GDP.

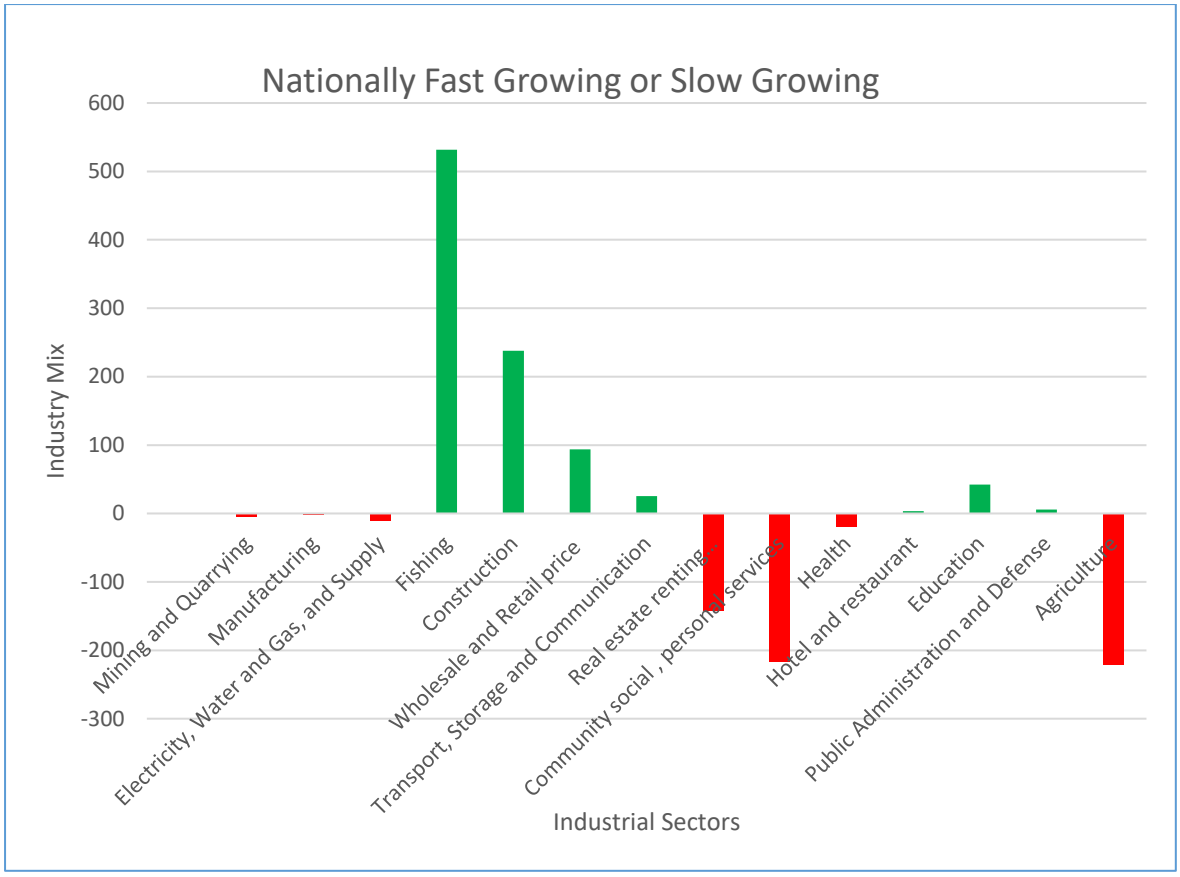


Figure 8: Nationally Fast Growing or Slow Growing *(Source: Author's Calculation, 2022)*

The above bar chart represent the nationally fast growing and slow growing industries with the help of IM values. It is seen that Agriculture; community social, personal services; health; hotel and restaurant; manufacturing; mining and quarrying; electricity, water and gas are nationally slow growing as the IM values are negative for these industrial sectors. These sectors are contributing less nationally. The other sectors which are fishing; construction; wholesale; transport; education are the nationally fast growing sectors as the contribute more. The fishing industry is contributing most among all the sectors because of the locational advantage. As it is known that the coastal areas are so famous for fish production and the wholesale so these sectors are contributing more nationally. Although agriculture was a leading industry but because of climate change and other impacts it contribute less nationally.

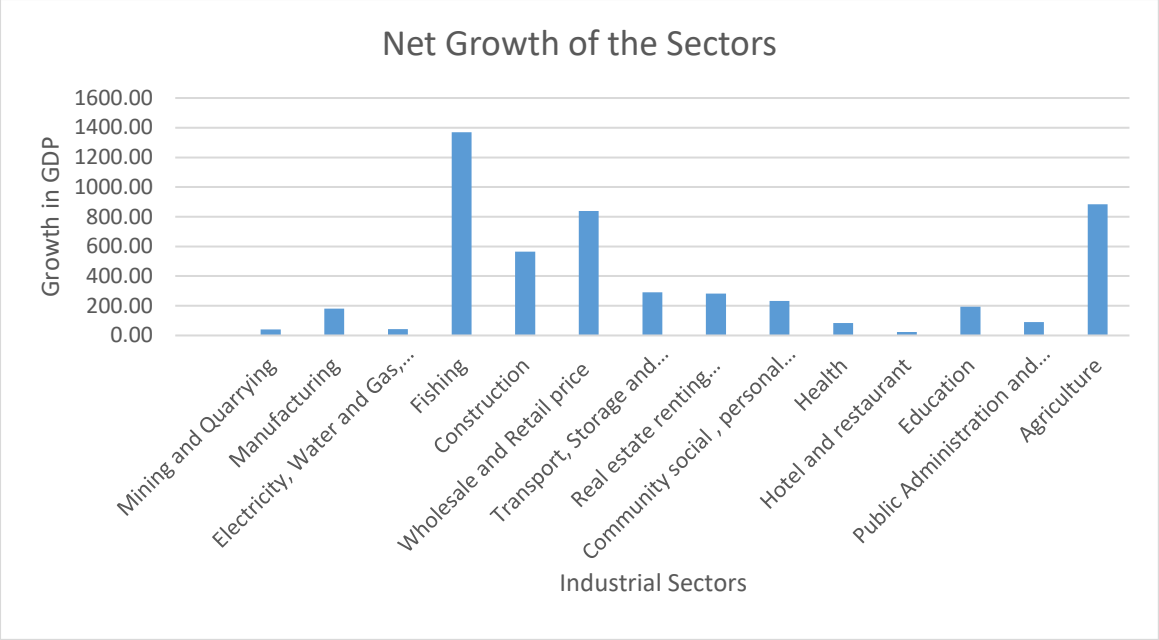


Figure 9: Net Growth of the Sectors *(Source: Author's Calculation, 2022)*

The net growth is shown in the bar chart after the calculation is done by summation of the three components which are NS, IM and RS. The values are represented within this bar chart and it is seen that all the sectors has a positive growth rate. That means every sector is contributing for the regional growth. Fishing and agriculture is the major contributing sectors which is seen in the net growth rate.

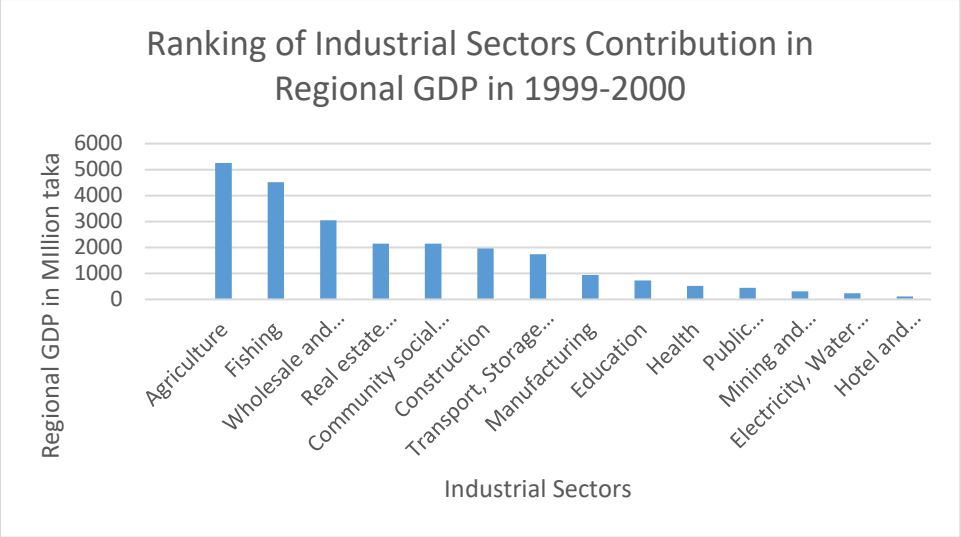


Figure 10: Ranking of Industrial Sectors Contribution in Regional GDP in 1999-2000 (Source: Author's Calculation, 2022)

According to the specific GDP of the sector and the generated regional GDP agriculture and fishing sector is contributing the most. And hotel; electricity water; mining contributing lowest. As the shrimp is one of the most prominent produce which is also a high demanded product to other countries so have a great export potential. The fishing sector contributes more in the economy.

Figure 11: Ranking of Industrial Sectors Contribution in National GDP in 1999-2000 (Source: Author's Calculation, 2022)

The above bar chart shows the ranking of Industrial sectors contribution in National GDP. Where it is seen that agriculture, manufacturing , wholesale contributing the most, Hotel and restaurant, mining contributing lowest among them.

Scrutinizing the change with time :

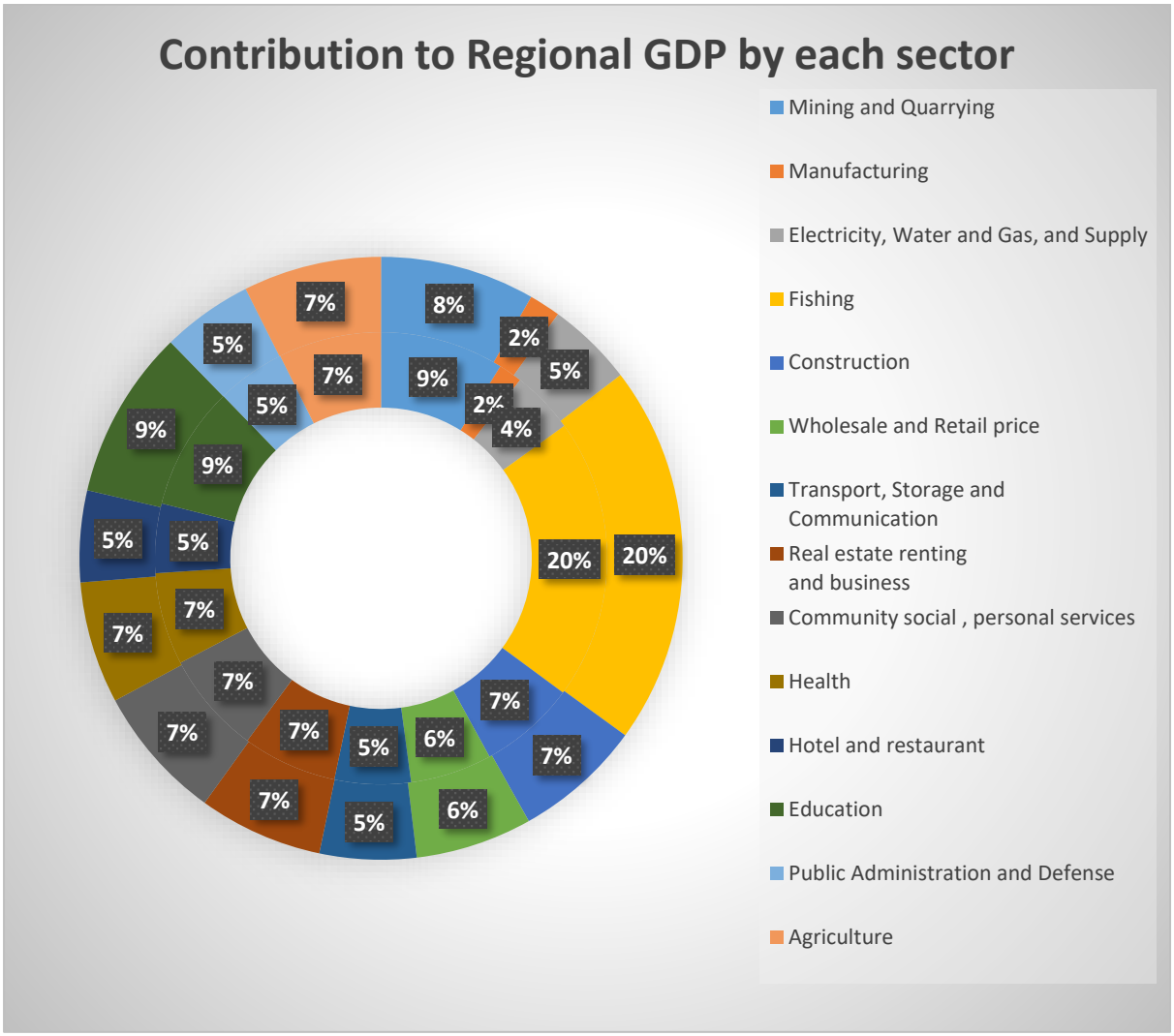
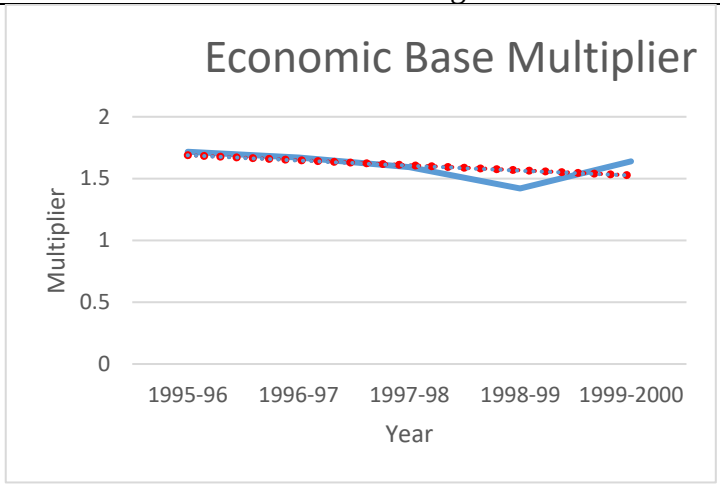


Figure 12: Contribution to Regional GDP by each sector *(Source: Author's Calculation, 2022)*

The above pie chart shows the sectoral share of national GDP at base year and terminal year. But here no significance change can be identified as every sectoral share is almost same for the terminal year and the base year. Only difference is seen in Electricity, water, gas and supply sector as the increased by 1% over the 5 year period. The fishing is more dominant when it is about contribution to the economy. Because of the locational advantage of being situated beside of the shore side and enough potential water bodies for fish production. The shrimp is well known to all over the world and Bangladesh export a huge number of shrimp which is the reflection of the more contribution.

Short run change to long run change

Long run change	Short Run Change
National Share = 4469.10 Industrial Mix=321.24 Regional Shift = 326.65	

(Source: Author's Calculation, 2022)

7. Conclusion

The shift-share study is a helpful and practical tool for analyzing a country's trajectory of economic growth. This descriptive tool compares regional change to regional benchmarks to highlight regional change. The negative shift may act as a policy warning, even if it does not always imply that the economy will continue to suffer. Actually, the Bagerhat is a well-known seaside region that is well-known for wholesale and fishing. Another significant industry in this region that has a big potential to boost regional GDP is agriculture. The fishing industry makes a significant contribution to the regional GDP since it produces shrimp and other types of fish. According to the data, the regional Basic GDP grows by 1035 million annually. Additionally, the area GDP grows by 1153 million annually. About 63% of the region's yearly GDP is derived from the basic sector, which dominates the local economy. It may be claimed that the region's economy is expanding since the fundamental activity is becoming more widespread. The net growth analysis it is seen that every industry makes a contribution to regional development. So proper utilization of every sector and by taking advantages of the location the Bagerhat has a huge potential to be a more developed regional economically which can contribute more to the overall economy.

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