



## Assessment Of Economic Extension of The Southern Region, Bangladesh: A Comparative Analysis Through Short Run and Long Run Approach

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### Abstract

Bangladesh has become an important center for industrial and commercial growth. The economy of Bangladesh is supported in part by industrialization. A nation's overall economic and regional growth depends on economic development and regional integration. Bangladesh's southern region has considerably improved the country's economy. However, Bangladesh shares this issue with many other developing nations: unchecked economic expansion. The country's undeveloped and disintegrating regions result from a lack of planned development planning and future estimation of employment sectors. The regional analysis approach through the short run and long run helps in minimizing regional inequities by promoting economic activities that provide jobs and prosperity. The research aims for structural development and factor integration toward planned development in the economic sector. Districts like Khulna, Satkhira, Bagerhat, and Narail in the southern regions generate a huge possibility in economic growth after the improvement in the transportation network and PADMA Bridge. The shift-share analysis attains more depth to the research attaining the changes in industrialization and economic growth all over the country.

**Keywords:** Economy, Southern Region, Short Run and Long Run Approach, Southern District, Bangladesh



### Decent work and economic growth

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## **Introduction**

The industrial era of Bangladesh is seemingly emerging with modernization. In terms of the nation's Gross Domestic Product (GDP), though the agricultural sector contributes 12.46%, the industrial sector makes up 32.80%, and the service sector about 50.63%, the industrial sector's contribution and its opportunities are rising with a rate around 8.80% higher than agriculture. (Manik, 2023). Bangladesh's transformation towards a middle-income nation, the Southern region has more socioeconomic significance to Vision 2021, making it an intriguing area for analysis and assessment (Hasan et al., 2018). Despite having abundant natural resources, the Khulna region lacks destination marketing functions, associated services, and man-made features with a deficit of restricted economic opportunities, and inadequate urban services, making it insufficient to draw enough investors (Ahmed & Islam, 2013) (Sowgat et al., 2017). Khulna is plagued by a shortage of funding, complicated regulatory frameworks, gender-based discrimination, inadequate training facilities, and environmental support (Rahman, 2013). Through the investigation of the dynamics of economic development and transformation in this region, which includes the districts of Bagerhat, Narail, Khulna, and Satkhira, the economic framework can be planned to make it flourish. The short-run approach is concerned with the immediate effects of policy changes, economic shocks, and external variables on the economy of the Southern Region. It identifies short-term changes and variances in important economic indices such as GDP growth, unemployment rates, investment patterns, and sectoral performance. On the other hand, the long-run perspective considers the long-term implications of structural transformations and policy interventions. It investigates the long-term effects of economic reforms, infrastructural development, human capital investment, and technology breakthroughs on the economic landscape of the Southern Region. The development of both regional and national level policies depends on our ability to comprehend the causes of any changes in the regional economies' structure (Das et al., 2018). The research aims to attain economic growth in the southern region and a comparison of regional growth of the industrial-based districts of the Southern Region and attain a policy framework for the improvement of the regional economy. A comparative analysis will help understand the Southern Region's economic change and provide an economic view to the policy makers for future growth.

## **Literature Review**

The shift-share analysis is a popular tool for assessing regional economies. To comprehend economic change, it analyses national patterns, industrial sector trends, and local factors. The probabilistic shift-share methodology and the traditional accounting-based method are frequently used in shift-share analysis. However, probabilistic shift-share analysis outperforms traditional accounting-based methodologies in that it allows the researcher to develop quantitative hypotheses about employment change (Knudsen, 2000). The economic evaluation process helps delineate the region-based economic strategy for national development.

The shift-share analysis makes it easier to get these data because employment statistics and GDP are the most often used information for evaluating the economic growth of a nation or region. Three components are used in this analysis: effects of national expansion, industry diversity, and market share. The influence of national growth has been used to

quantify the likelihood of regional increase or decrease. The industrial mix determines the possibility of regional growth about national growth. The competitive share impact (sometimes referred to as "differential shift"), which makes up the third factor, contrasts the growth rates of the region and other industries (Turk & Dogru, 2017). It is a growth decomposition method used to enhance the understanding of change in a system by comparing the change in a region of interest with change in a relevant reference region, and despite its shortcomings, it can be used to advantage in highlighting regional industries that warrant further attention, and its flexibility and intuitive interpretation also make it useful in other analytical contexts (Jackson & Haynes, 2020).

The productivity and output model and the international trade model are two new extensions of shift-share analysis that provide better insights about the regional economy, but careful consideration and compensation are required where relatively large regions or sectors are central to the shift-share assessment, and a possible solution to the general limitation of these and other shift-share-type models concerning the interaction between reference area and the region is presented (Dinç & Haynes, 2005).

The selected districts as the regions in the southern region are being selected based on the transportation linkage of the newest transboundary connection from Dhaka-Narail-Khulna-Satkhira-Bagerhat. As for the potential international freight transit, Mawa-Narail-Jessore-Khulna, and Mawa-Narail-Khulna-Mawa almost 1178259 TEUs (Twenty Foot Equivalent Units), and 89000tons of the 117,000 tons are exported (JICA, 2015). The scenario is consistently improving after the development of the Padma and Kalna Bridge providing a small-time transboundary linkage through ports. Short-run and long-run approaches provide the factors and regional growth formation throughout decades.

## Methodology

Regions are dynamic, and their prosperity varies by their capacity to create goods and services that are in demand. Recently, economic transition or economic growth has been seen in the southern region of Bangladesh. The short-run analysis relates to economic base theory. Additionally, to identify the basic and non-basic activities, the location quotient method has been applied to ease the analysis as it is industrial-based and preferable. Theories of the long run take into account variables including population, salaries, prices, resources, technology, and the distribution of income that are kept constant in short-term analyses (Glasson, 1978)

### a. Short Run Method

Location Quotients (LQ) are one of the suitable methods to calculate short-run regional growth.

$$LQ = \frac{\text{Percentage of Regional employment in an industry}}{\text{Percentage of National employment in an industry}} \dots\dots\dots (1)$$

(Source: Glasson, 1978)

LQ>1	Basic Industry	The industry is producing more than local demand (I.e., exporting)
LQ=1		Local production fills the local demands
LQ<1	Non-Basic Industry	The industry is producing less than the local demand

According to the LQ value, the basic and non-basic industry is identified. The basic activity is calculated from the following equation:

Basic Employment in Industry,

$$i = \frac{(LQ-1)}{LQ} * E_i \dots \dots \dots (2)$$

(Source: McCann, n.d.)

Here, E<sub>i</sub> = Regional employment in the industry i

The economic base multiplier is calculated from the following formula:

$$\text{Economic Base Multiplier, } k = \frac{\text{Total Regional Employment}(E_t)}{\text{Toal Basic Employment}(E_b)} \dots \dots \dots (3)$$

**b. Long Run Method**

**National Share and Regional Shift Component**

The National Share Component shows how much growth occurred in the local industry in that region. It provides an overall picture of the industries in the southern region.

$$\text{National Share Component, } NS_j = E_{j0} \left( \frac{E_t - E_0}{E_0} \right) \dots \dots \dots (4)$$

$$\text{Industrial Mix Component, } IM_j = \sum \left( \frac{E_{it} - E_{i0}}{E_{i0}} - \frac{E_t - E_0}{E_0} \right) * E_{ij0} \dots \dots (5)$$

$$\text{Regional Share Component, } RS_j = \sum \left( \frac{E_{ijt} - E_{ij0}}{E_{ij0}} - \frac{E_{it} - E_{i0}}{E_{i0}} \right) * E_{ij0} \dots \dots \dots (6)$$

(Source: Glasson, 1978)

Here,

E<sub>j</sub>=Total Employment in Region "j."

E = Total National Employment

0 = Initial periods

t= Terminal periods

i= Specific Industry

The sum of the 3 components helps to delineate the change of a region and its growth characteristics.

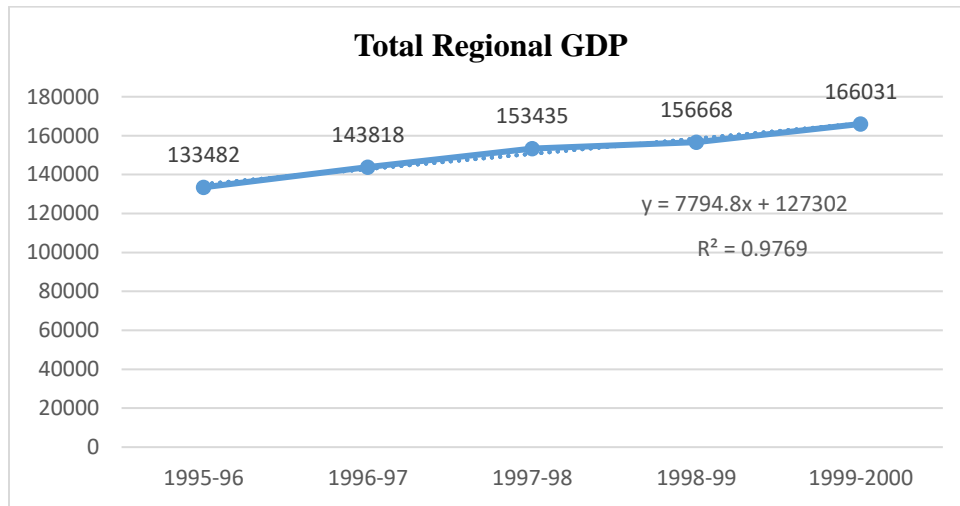
**Data Analysis and Discussion**

Southern Region is one of Bangladesh's most influential zones in terms of economy. The high influence and revenue are generated from the basic industries of the Southern region. A comparative analysis among districts like Khulna, Satkhira, Bagerhat, and Narail are analyzed based on their economic performance and functional influence over the region.

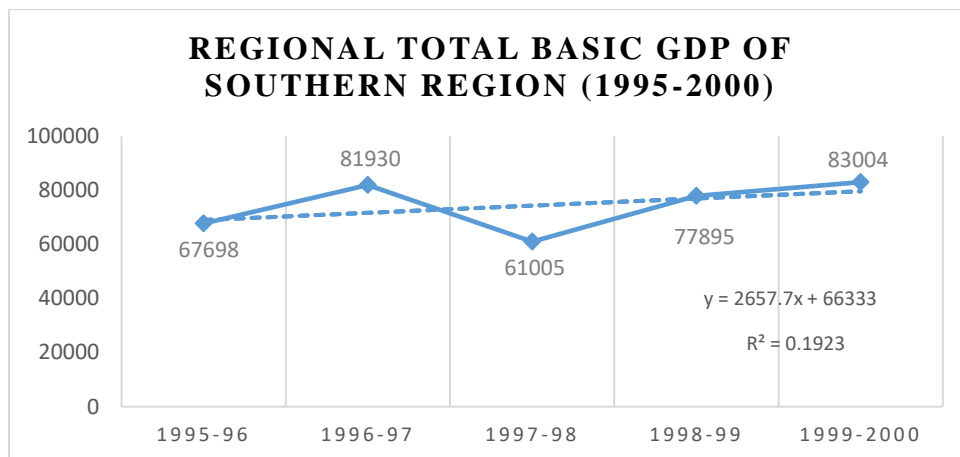
**a. Analysis of Short-Run Change**

**Influence of Basic Regional GDP**

The GDP contribution is quite high in the case of economic performance. Major Basic industries like Agriculture, Fishing, and Transportation hold the major portion of Contribution. According to the trend line, the upward tendency of the line indicates the basic industry increase throughout the years.



**Figure 1: Total Regional GDP of Southern region (Source: Author, 2023)**



**Figure 2: Regional Total Basic GDP of Southern Region (1995-2000) (Source: Author, 2023)**

From the regression equation of total regional basic GDP and total regional GDP is observed that the basic GDP increased by 2657.7 million (BDT) per year whereas the regional GDP increased by 7794.8 million (BDT) per year. The analysis shows that the contribution of GDP is 47% of the total regional GDP per year on average. So, though the region is developing in terms of total regional GDP, the region is not developing economically over a year as the contributions of Basic GDP are comparatively less than the non-basic one.

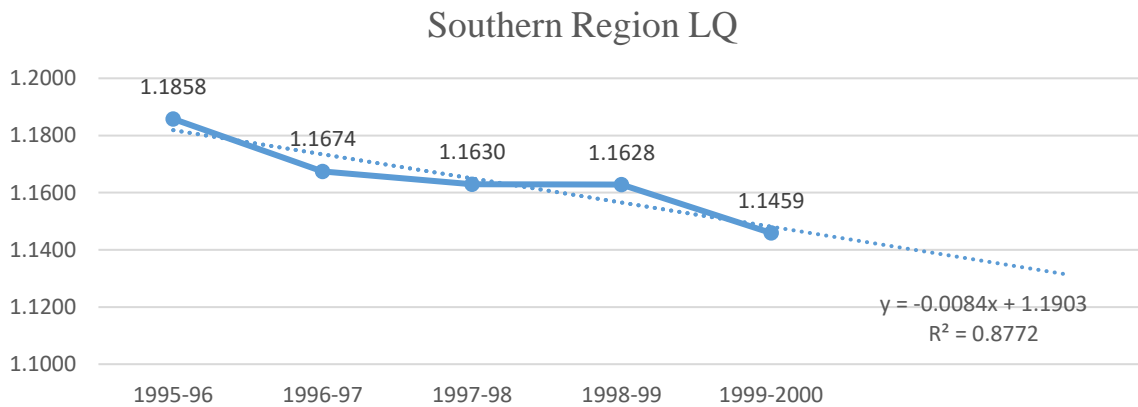
### Short-run Indicators and Contribution of Regional Basic GDP

	1995-96	1996-97	1997-98	1998-99	1999-2000
<b>Total Regional GDP</b>	133482	143818	153435	156668	166031
<b>Total Basic Regional GDP</b>	67698	81930	61005	77895	83004
<b>Average LQ</b>	1.19	1.17	1.16	1.16	1.15
<b>Multiplier</b>	1.97	1.76	2.52	2.01	2.00

**Table 1: Short Run Analysis of Southern Region (Source: Author, 2023)**

Contribution (Percentage) = Change in Basic GDP per year/Change in total regional GDP per year  
 Contribution of Basic GDP (%) = 3061.2/6509.8  
**=47.02%**

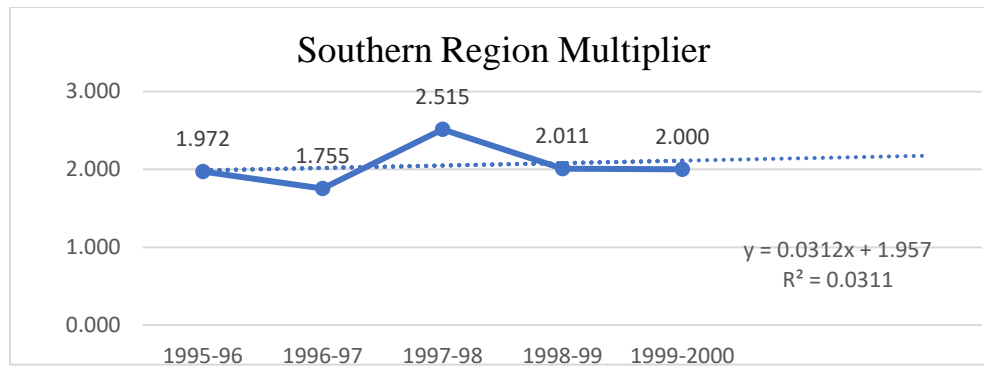
### LQ (Location Quotients) Condition



**Figure 3: Southern Region LQ (Source: Author, 2023)**

The constant downward growth is a threat to the southern region. The fall is caused by devastating natural hazards and flood-case scenarios. (Nahar et al., 2020). Another reason is the lower connectivity with the capital which causes damage to other related industries. Padma bridge and reconstruction of NH112 are taken to improve the condition. LQ denotes the industrial specialization and export industries of that region. As the bridge or road construction of NH112 improves, there is a good possibility to increase exports.

## Economic Multiplier



**Figure 4: Economic Base Multiplier of the Southern Region (Source: Author, 2023)**

The growth tendency of the multipliers is one of the most influential characteristics that shows how the basic industries' influence is increasing over the regions. The trend line of the economic base multiplier' expresses that the curve is downward, which indicates an increase in basic activity. But in 1998, the curve was upward, which is exceptional in this case study. As a catalyst, the flood is responsible for the upward curve. Meanwhile, non-basic activity increases as the curve curves upward. The "flood of the century" in Bangladesh occurred in 1998 and affected more than two-thirds of the nation, resulting in 2.04 million metric tons of rice crop losses (10.45 percent of the intended production for 1998/99) (Del Ninno et al., 2003). In FY1996-97, Khulna faced **4 cyclone** events at 15-17sept, 1996; 16-19may, 1997; 25-27sept, 1997, and 10-15may, 1998 causing the sudden peak of 1997-98. The vast flood in 1998 caused emerging growth in 1999 and 2000 ADRC. These impacted heavy salinity issues in the agricultural sector. Rice, wheat, and vegetables are the principal crops affected by salt in Khulna. Rice is the region's most significant crop, and it is estimated that the loss in rice output due to salt was roughly 1.5 million tons in 1996-97.

### b. Long Run Change Analysis

The long-run change analysis includes the National Share, Industrial Shift, and Regional Shift as economic indicators for different industries. This provides the view of opportunity for different industries in the regions. According to the analysis of the shift-share component,

National Share (NS)	(+) 31366.63
Industrial Mix (IM)	(+) 1276.70
Regional Shift (RS)	(-) 94.34

**Table 2: Shift-Share Component Value of the Southern Region (Source: Author, 2023)**

It is estimated that the region has the potential to grow nationally and there is a contribution to the national economy. Though the regional shift value remains low that refers to the slow growth of an industry nationally that can be enhanced through a planned framework for the regional growth of the industries. In terms of GDP contribution, this region holds a good place and holds the 3<sup>rd</sup> largest GDP share according to Business Standard.

The shift-share components' values provide a detailed scenario of the sector from national and regional perspectives.

		NS	I'M	RS	
1	Agricultural and forestry	+	-	+	Has the potential to grow nationally, nationally slowly growing, and is the leading industry in the region.
2	Fishing	+	+	+	Has the potential to grow nationally, nationally fast-growing, and the leading industry in the region
3	Mining and Quarrying	+	-	-	Has the potential to grow nationally, nationally slowly growing, and is the lagging industry in the region.
4	Manufacturing	+	-	+	Same as 1
5	Electricity, Water and Gas Supply	+	-	+	Same as 1
6	Construction	+	+	-	Has the potential to grow nationally, nationally fast-growing, and the lagging industry in the region
7	Wholesale and Retail price	+	+	+	Same as 2
8	Hotel and Restaurant	+	+	+	Same as 2
9	Transport, storage, and communication	+	+	-	Same as 6
10	Financial Inter Mediations	+	-	-	Same as 3
11	Real Estate, Renting, and Business Activities	+	-	-	Same as 3
12	Public Administration and Defense	+	+	+	Same as 2
13	Education	+	+	+	Same as 2
14	Health and Social Work	+	-	+	Same as 1

**Table 3: Shift-Share Component Value of different Sectors of the Southern Regions (Source: Author, 2023)**

As for the different sectors, Fishing, Wholesale and retail, Hotel and Restaurant, Public administration and education are in the best condition and have the potential to grow nationally, fast-growing, and the leading industry in the region. Their contribution to the region section helps with outer income from the region after completing the regional demand. This influences the overall regional movement toward industrialization. As, from the national shear value, almost every sector has potential growth.



## Net Growth Rate of Sectors in the Southern Region

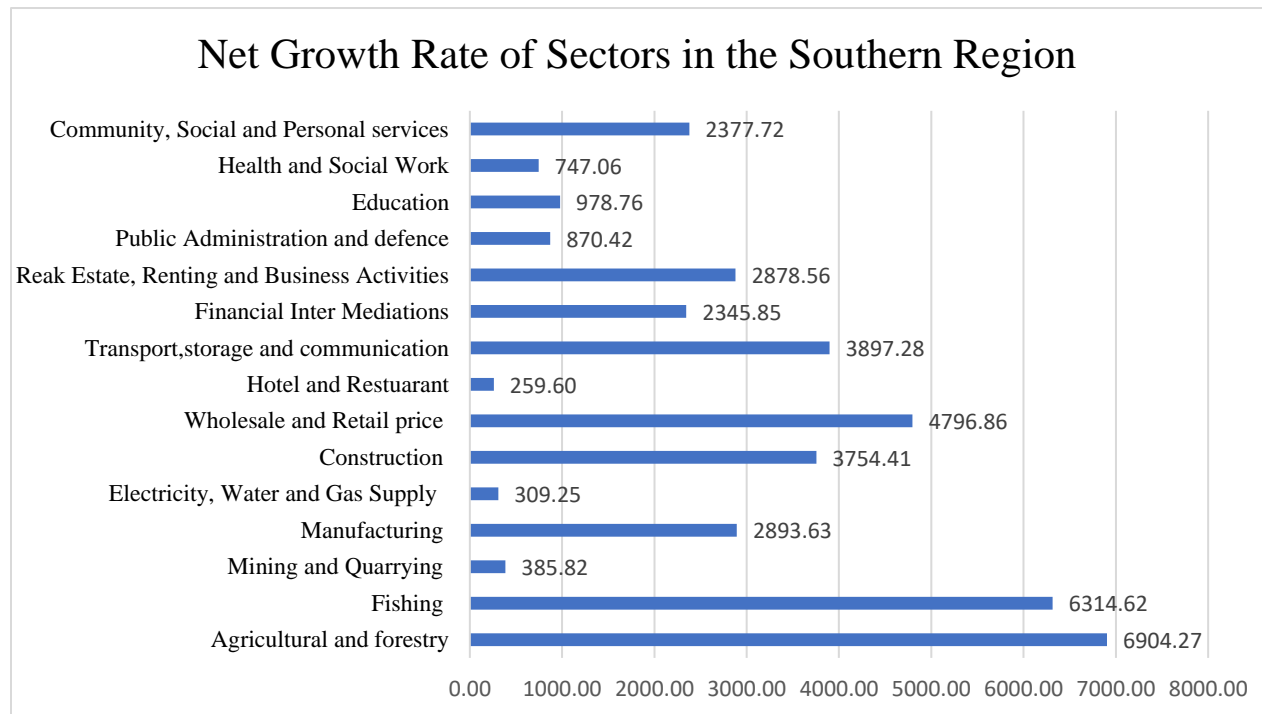


Figure 5: Net Growth Rate of Sectors in the Southern Region (Source: Author, 2023)

The net growth rate refers to the summation of shift-share component values. Where, industries agriculture and forestry, Retail, Construction, and Transportation show large prospects to grow in the long run. The transportation growth is visible through the Padma Multipurpose Bridge, which will play a significant role in Asian Highway-1 and Nh112 connected through the southern region, helping to improve the nation's standing on the continent and Asia's economic growth (Ali et al., 2022). As for the agriculture and fishing sector, the Khulna region has held the mass export business of fisheries and rice production through the years.

### Condition of Leading and Lagging Industries of the Southern Region

The shift-share analysis also provides a detailed idea about the leading and lagging industries. The analysis provides a new look in the analysis. Agriculture and forestry have a high growth rate because of their national growth potential but in that region, it is slowing down with modernization and industrial influence. But the Fishing sector remains the leading industry as it holds a significant as it holds about 13% of the national share in total in 1999-00. The most common groupings of plentiful freshwater fish species included catfish, carps, tilapia, snakehead, baim, shining-major, punti, and koi, whilst English and a few shrimp species dominated the marine and brackish fish kingdom (Hossain & Ali, 2015). But transportation, Finance, Mining, and, real estate are lagging in terms of industrial contribution. A planned framework can bring a new change to the lagging industries.

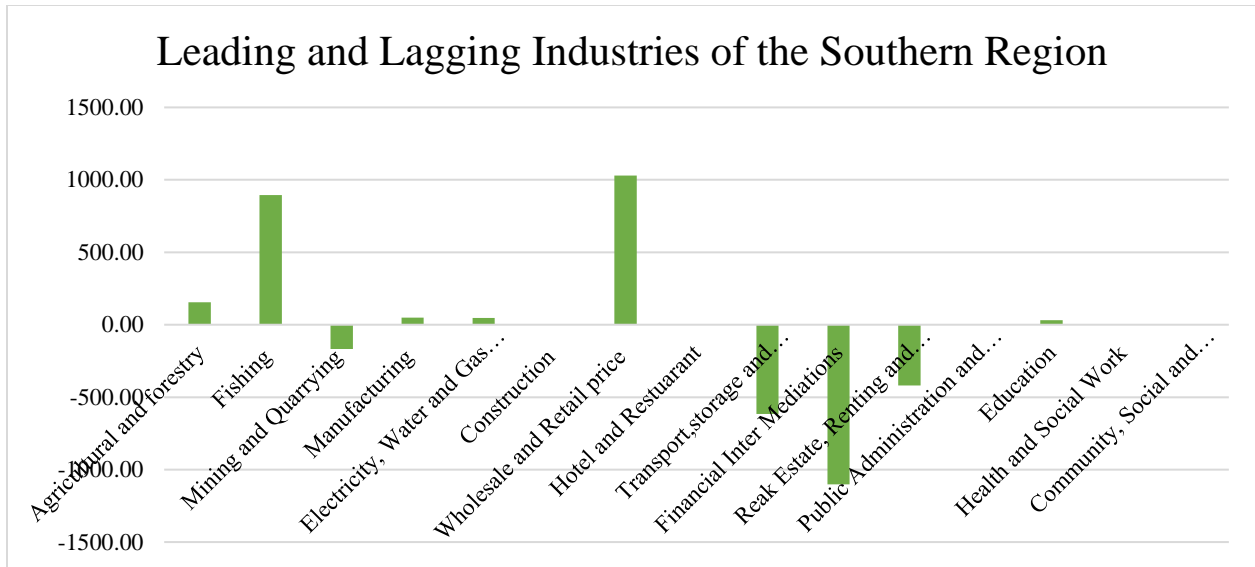


Figure 6: Leading and Lagging Industries of the Southern Region (Source: Author, 2023)

### Industrial Mix analysis of the southern region

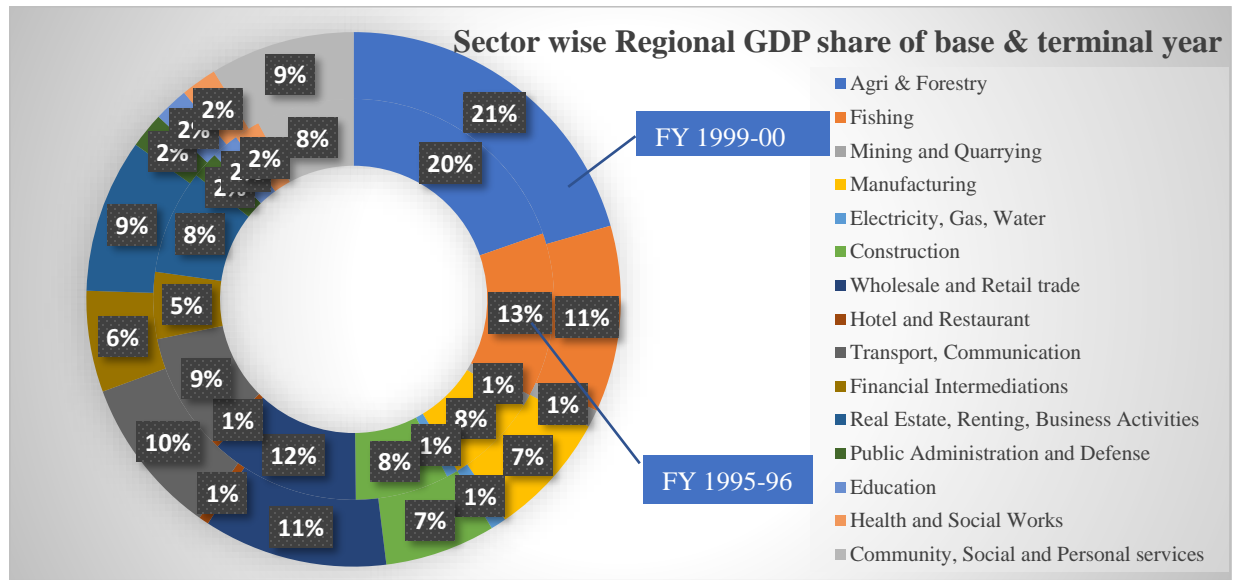
The industrial mix shift analysis refers to fast and slow-growing industries or slight and heavy contributions to the national economy.

Fast Growing Industry	Slow Growing Industry
Fishing	Agricultural and forestry
Construction	Mining and Quarrying
Wholesale, and Retail price	Manufacturing
Hotel and Restaurant,	Electricity, Water and Gas Supply
Transport, storage, and communication	Financial Inter Mediations
Public Administration Defense	Real Estate, Renting, and Business Activities
Education	Health and Social Work

Table 4: Nationally Fast and Slow Growing Industry of Southern Region (Source: Author, 2023)

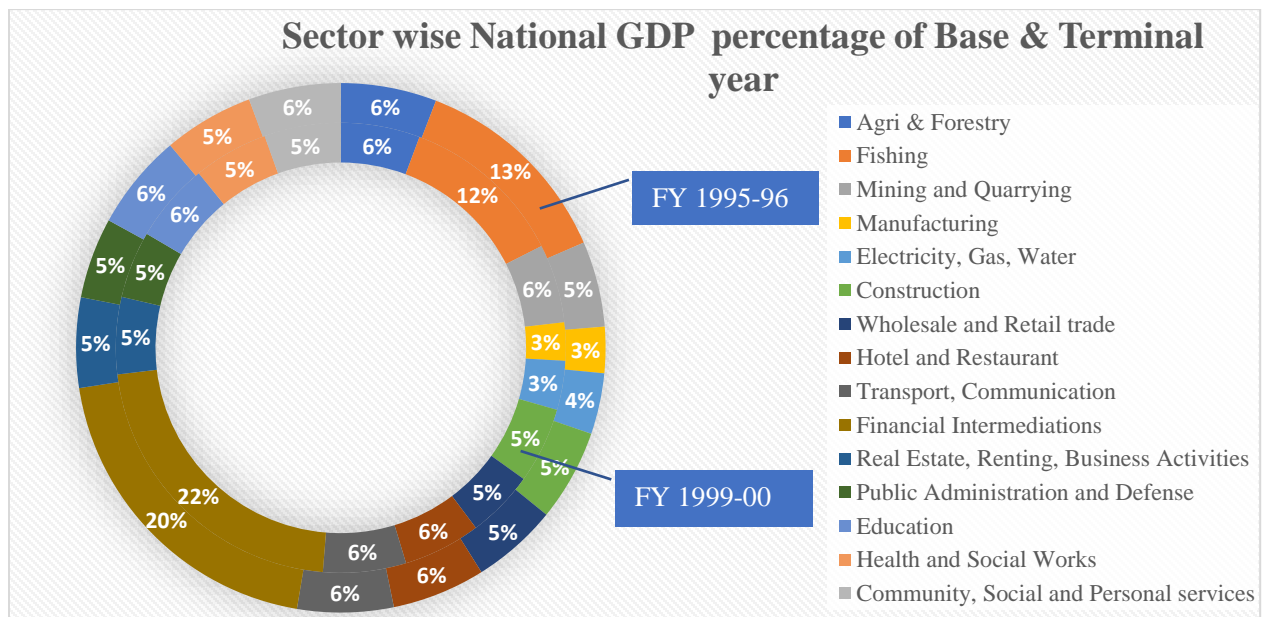
The fast-growing industries have higher GDP contributions to the national economy. Interventions in transportation have an impact on both the city's land use patterns and its residents' transportation choices. For instance, the development and enhancement of transportation infrastructure (such as new roads, rail lines, and road widening) increase public access to transportation amenities, which in turn affects the value of nearby residential properties ultimately the construction, hotel, and housing sector (Rahman et al., 2021). That means the fast-growing industries have an impact on other sectors for their growth. The industrial growth of an industry improves other industries.

**c. Sector-Based Contribution Analysis in the Southern Region**



**Figure 7: Sector-wise Regional GDP share of base & terminal year of the Southern Region (Source: Author, 2023)**

The graph analyzes the sector-wise regional GDP share over the past five years. Very few industries change their share, and if they do, it is by one or two percent. The most dominant industry sector is Agriculture and forestry, where a one percent increase over five years. There were two predeceases in the fishing sector, a one percent sector, and a one percent reduction in sales and retail trade over the five years.



**Figure 8: Sector-wise National GDP percentage of Base & Terminal year of Southern Region (Source: Author, 2023)**

Sector-by-sector, the national GDP contribution for the years 1995–1996 to 1999–2000 has been compared. Over the past five years, the changes have been noticeable in some industries. Over five years, there was a 1% decline in the mining and quarrying industry, a 1% decline in the fishing industry, and a 2% rise in financial intermediations.

#### d. Regional District Comparison

Khulna, Satkhira, Bagerhat, and Narail are termed as the southern region for the analysis as they hold massive industrial growth through Transportation sector development. The forecast through time series analysis will bring comparative and regional growth among 4 districts in the southern regions.

LQ for basic industries of different districts of the southern regions helps to identify the major industries in the southern region.

	Sector	1995-96	1996-97	1997-98	1998-99	1999-2000
Khulna	Fishing	2.02	2.12	2.11	2.12	2.10
	Hotel and Restaurant	1.19	1.17	1.20	1.18	1.19
	Transport, Communication	1.23	1.20	1.23	1.19	1.19
	Financial Intermediations	6.01	5.78	5.80	5.56	5.34
	Real Estate, Renting, Business Activities	1.00	0.98	1.00	0.97	0.97
Satkhira	Agri & Forestry	1.30	1.23	1.25	1.28	1.29
	Fishing	2.17	2.23	2.36	2.33	2.27
	Mining and Quarrying	1.26	1.20	1.22	1.19	1.12
	Education	1.03	0.97	1.02	1.00	0.98
	Health and Social Works	1.05	0.99	1.05	1.03	1.02
	Community, Social, and Personal services	1.17	1.60	1.17	1.15	1.15
Bagerhat	Agri & Forestry	1.13	1.13	1.07	1.11	1.12
	Fishing	3.09	3.14	3.21	3.13	3.07
	Mining and Quarrying	1.36	1.36	1.36	1.35	1.25
	Construction	1.06	1.05	1.07	1.04	1.04
	Real Estate, Renting, Business Activities	1.04	1.03	1.05	1.01	1.00
	Education	1.36	1.35	1.40	1.36	1.37
	Health and Social Works	1.01	1.00	1.03	0.99	0.99
	Community, Social, and Personal services	1.12	1.11	1.13	1.10	1.09
Narail	Agri & Forestry	2.09	2.07	2.04	2.07	2.06
	Construction	1.05	1.05	1.03	1.08	1.08
	Education	1.13	1.14	1.12	1.18	1.19
	Health and Social Works	1.07	1.07	1.04	1.09	1.09
	Community, Social, and Personal services	1.16	1.17	1.14	1.19	1.20

**Table 5: Decreased LQ of the sectors of different Districts of the Southern Region (Source: Author, 2023)**

The table identifies the basic industries for different southern region districts from the period of 1995-2000. The drastic change in the LQ shows whether the industry is contributing as a basic or non-basic industry. As for Khulna fishing and finance hold the highest value in terms of GDP contribution and exporting. But the real state sector is decreasing within the period. The 1998 devastating flood has a huge impact on the infrastructure of the coastal section of Khulna. The housing and Real estate sector is vastly damaged by the earthquake which causes massive death. A similar scenario occurs for Bagerhat. But there is also an impact on the health care and social work sector. Satkhira is having a downward movement in the education sector. But, Narail having a higher topography faced little impact from the flood.

**e. Prediction of Regional GDP**

Prediction of total Regional GDP after 15 and 30 years through Regression Equation, Projected base multiplier, and average base multiplier.

The analysis is determined through the model fit value method to determine the best methods for the analysis. The model fit equation that is followed,  $Mode = \frac{(Model\ Value - Actual\ Value)^2}{Actual\ Value^2}$

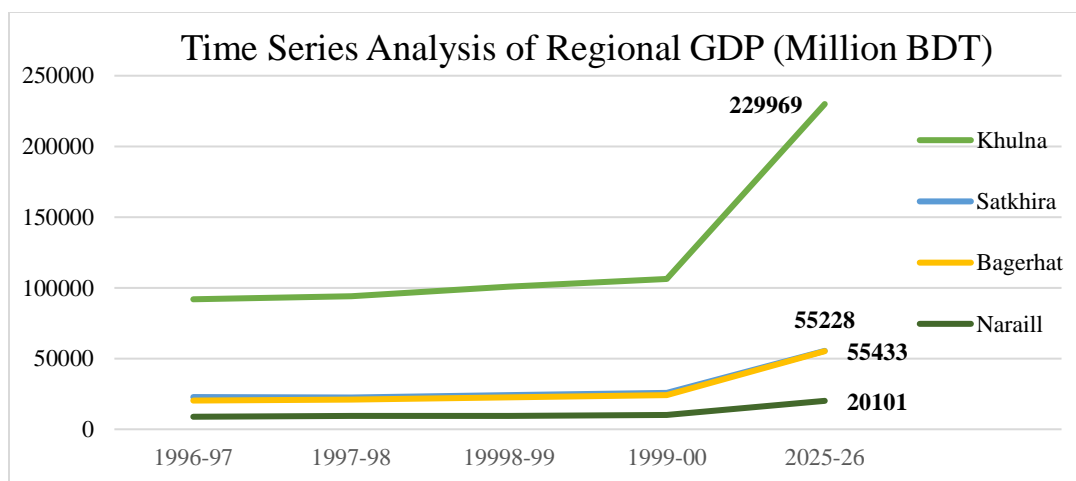
		Million BDT	Model Fit Value
Actual Value	FY 1999-00	166031	
Projection Methods	Regression Equation	166156	.000001
	Projected base multiplier	157767	.0025
	Average base multiplier	158140	.0023

**Table 6: Projected Regional GDP and Model Fit Value of Different Projection Methods (Source: Author, 2023)**

As **the regression equation** method is close to the total regional GDP, it's the best method.

**f. Time-Series Analysis of the Distracts**

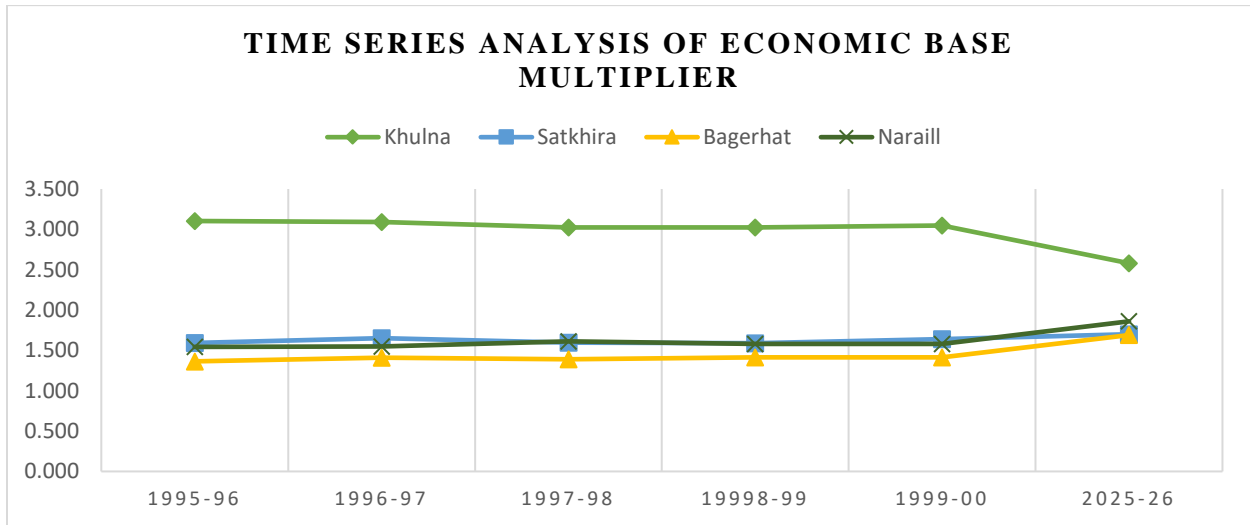
The time series analysis provides in-depth knowledge about the prospects of different districts. Through linear regression, the comparative analysis attains a new view of all the districts.



**Figure 9: Time Series Analysis of Regional GDP of Different Districts of Southern Region (Source: Author, 2023)**

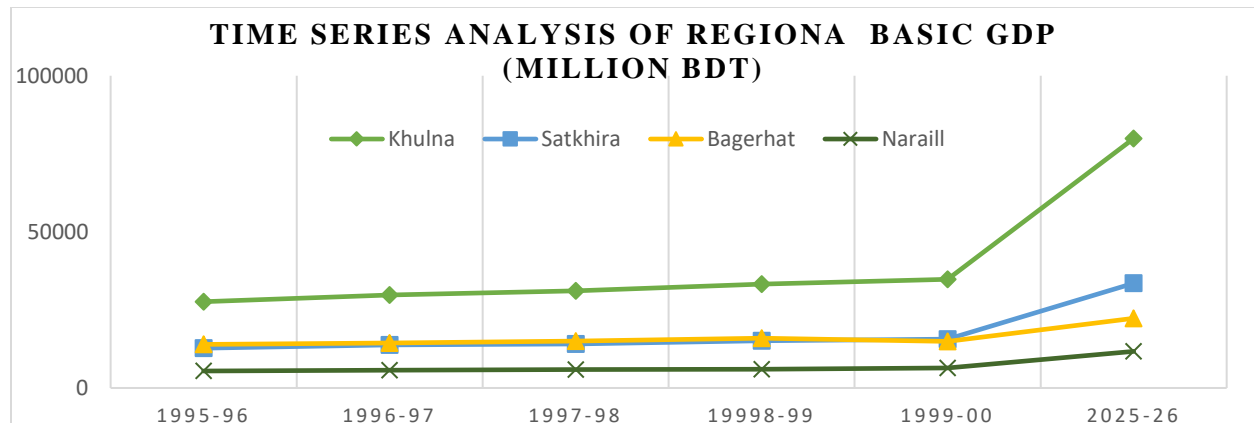
In terms of total regional GDP, the future forecast shows Khulna covers almost 64% of the total regional GDP. It has the highest slope in regional GDP growth. Satkhira and Bagerhat have quite similar ranges of growth and Narail takes the least position in the southern region.

Regional growth highly depends on the Basic GDP of the industry. Base multipliers are the indicators for the growth of regional GDP. As for Khulna District, it growing possibilities in a huge revolution in Basic industry growth. The present transportation scenario is moving towards economic change. As Bagerhat and Narail, they are slightly moving towards non-basic industries which can be influenced through proper framework planning for the industries.



**Figure 10: Time Series Analysis of Economic Multiplier of Different Districts of Southern Region (Source: Author, 2023)**

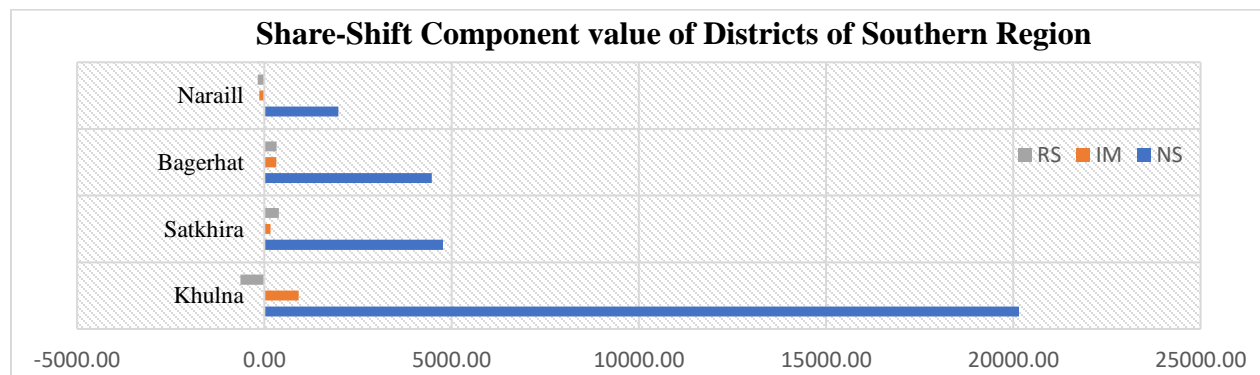
As also shown from the time series analysis for Regional Basic GDP, Khulna, Bagerhat and Narail are progressing with a huge change in Regional Basic GDP. Satkhira is seemingly decreasing with a massive fall in the multiplier meaning the lack of basic industries in the country. Satkhira is the most vulnerable area in terms of flood. During Natural Hazards and floods roads and highways sustained the majority of infrastructure damage (38%), followed by public meeting places (28%), and educational institutions (24%). The local community also cited damage to other facilities, such as embankments (8%) and administrative buildings 2% (Nahar et al., 2020). That is a prime concern for the economic progress of the area.



**Figure 10: Time Series Analysis of Basic GDP of Different Districts of Southern Region (Source: Author, 2023)**

**g. Shift Component Comparison of the Districts**

The shift component for the district helps policymakers for a better view of what kinds of planning are required for different places. The analysis shows Khulna has the national growth possibility but regionally lagging.



**Figure 11: Share-Shift Component value of Districts of Southern Region (Source: Author, 2023)**

As for Satkhira, it has a possibility of Narail growing but the values of the other remain low. Narail district is having issues with slow growth and lagging. Bagerhat is quite in a good position because of its GDP share in Agriculture, Fishing, and Manufacturing.

### 4.1 Contribution of Districts to Regional GDP

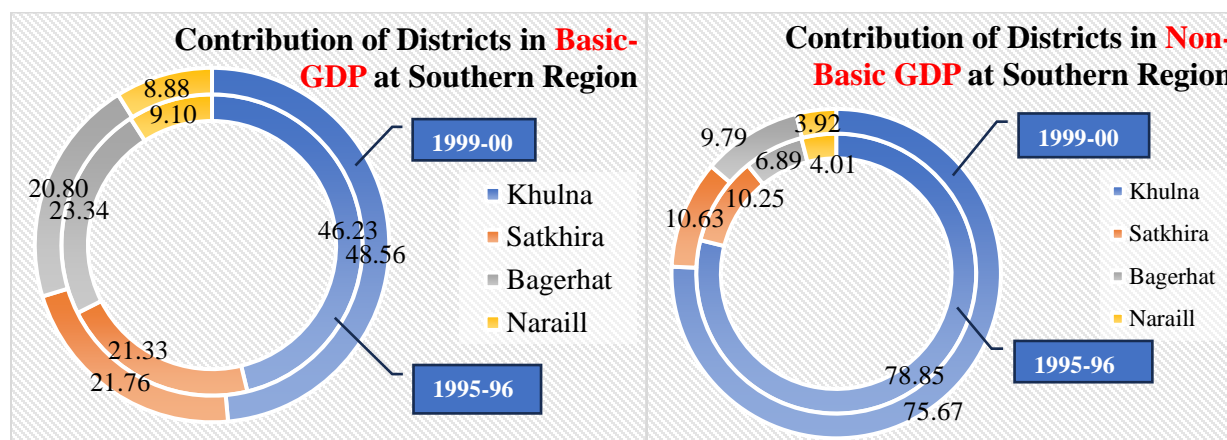


Figure 12: Contribution of Districts in Basic and Non-Basic GDP of Southern Region (Source: Author, 2023)

#### h. Ranking of Sectors in the Southern Region Supporting Sector-Based Model

The analysis is based on National and Regional Contribution Base year FY 1995-96 and Terminal Year 1999-00.

	National Contribution (1995-96)	Regional contribution (1995-96)	National Contribution (1999-00)	Regional Contribution (1999-00)
Agri & Forestry	4	1	5	1
Fishing	2	2	2	2
Mining and Quarrying	6	13	12	13
Manufacturing	15	7	15	8
Electricity, Gas, Water	14	14	14	14
Construction	10	8	8	7
Wholesale and Retail trade	12	3	11	3
Hotel and Restaurant	7	15	6	15
Transport, Communication	3	4	3	4
Financial Intermediations	1	9	1	9
Real Estate, Renting, Business Activities	8	5	10	5
Public Administration and Defense	13	11	13	11
Education	5	12	4	10
Health and Social Works	11	10	9	12
Community, Social, and Personal services	9	6	7	6

Table 7: Ranking of National and Regional Contribution at Base and Terminal Year at Southern Region (Source: Author, 2023)

The table explains the sector-wise ranking of a specific year, 1995–96. Generally, it expresses the impacts of sectors in that particular region and how they influence the national GDP ranking. Moreover, it also gives some idea of the contribution of GDP, and the leading industry is also noticeable. Regional growth may result from either endogenous or exogenous determinants that



are from inside the region or outside the region, or more usually from some combination of both. As with short-run analysis, the theories can be subdivided into those which are highly aggregate and those which are more disaggregate. The aggregate models include spatially abstract models, such as the spatially abstract model (SAM), and the spatially abstract model (SAAM), such as the spatially abstract model (SAEM), and the spatially abstract model. (Glasson, 1978)

Sector theory was derived from the empirical observation of Clark and Fisher. (Glasson, 1978). The condition of the Southern region during the observed year can be described, trying to relate with the sector theory. First two or three years, due to an increase in non-basic industries, the income elasticity of demand was increased as well as labor productivity. As the income rises, the demand for commodities supplied by the secondary (manufacturing) and tertiary (service) sectors rises faster than the demand for primary (agriculture) products. Thus, these sectors grew faster. For the last two years, due to the flood of 1998, the labor productivity and income elasticity of demand have decreased. As a result, the demand for primary products increased and the demand for secondary and tertiary products decreased. Hence, the growth of basic industries occurred in the last two observed years. Agriculture and forestry are dominant sectors in the southern region but not in the national contribution. In that case, financial intermediation leads to the national GDP contribution. The fishing sector leads with the second-highest rank for both national and regional contributions. Thus, the leading sector has been transformed each year because of a lack of resources or natural disasters. Eventually, sectors like Construction, Wholesale and Retail Trade, Education, Health and Social Works, and Community, Social, and Personal services are growing in National and Regional Contribution. That indicates the growth of the secondary and tertiary or service sectors. Regionally, Agricultural sectors gradually decreasing which describes the movement from economic dependency over the primary sector.

#### **i. Short-run and Long-Run Comparison Towards Sector Model**

The short-run analysis describes the growth of a region in a short period. Based on the multiplier regression analysis from figure-32, it is rising which means the growth of basic industries is decreasing. As seen from Table 23 of the long-run analysis, regional shift describes less competitiveness in the region which refers to the decline of basic industries.

<b>Sectors</b>	<b>National Growth Share</b>	<b>Industrial Mix Shift</b>	<b>Regional Shift</b>
Agricultural and forestry	6447.59	-1383.55	153.95
Fishing	3538.92	2541.27	894.81
Mining and Quarrying	329.92	-28.28	-166.64
Manufacturing	2359.75	-26.96	49.22
Electricity, Water and Gas Supply	295.61	-72.98	47.37
Construction	2097.50	1521.57	-1.07
Wholesale and Retail price	3491.92	633.17	1028.91
Hotel and Restaurant	190.11	32.45	0.45
Transport, storage, and communication	3015.36	226.59	-615.96
Financial Inter Mediations	1920.79	-34.38	-1102.41

Real Estate, Renting, and Business Activities	2918.55	-948.76	-418.79
Public Administration and Defense	675.59	47.15	0.26
Education	655.62	221.02	30.36
Health and Social Work	683.81	-127.37	5.56
Community, Social, and Personal services	2745.60	-1324.24	-0.36
<b>Total</b>	<b>31366.63</b>	<b>1276.70</b>	<b>-94.34</b>

**Table 8: Shift-Share Component of Different Sectors of Southern Region (Source: Author, 2023)**

The sector model describes the movement of different sectors from primary to secondary and tertiary. Based on the shift-share values of sectors like wholesale, transport, education, and administration are regionally leading and nationally fast-growing along with fisheries. Whereas agriculture and forestry are regionally lagging. The LQ (location quotients) values from the Appendix describe the tendency for the agricultural sector to decline from Basic to Non-Basic. Whereas secondary and service sectors like transportation and finance are gradually moving towards being the leading industries supporting the analysis of the long run for these sectors. The region has a high potential of being a lagging economic hub. Projects like the PADMA bridge, and the NH112 highway will enhance the sectoral growth within a short period.

**Conclusion**

The southern region plays a significant role in the major developing market economy of Bangladesh. The research analyzes the economic changes in the southern region of Bangladesh. The analysis has followed the short-run and long-run methods. The study is focused on some sectors such as agriculture and forestry, Fishing, Mining and Quarrying, Manufacturing, Electricity, Water and Gas Supply, Construction, Wholesale and Retail price, Hotel and Restaurant, Transport, storage and communication, Financial Inter Mediations, Real Estate, Renting and Business Activities, Public Administration and Defense, Education, Health and Social Work and Community, Social and Personal services. The study finds that the economic change is very acute due to the sensitivity of the southern region to climate change. The mining and quarrying sector was basic in 1995–96, and this sector became non-basic in 1999–2000. The flood of 1998 may be a reason for the fall of this industry. The analysis shows that the contribution of basic GDP is 47% of total regional GDP per year on average, and 53% comes from non-basic sectors.

In addition, Khulna is comparably more developed than the other three districts and, according to a long-run study, is a highly influential industrial zone in the Southern area. For the Khulna district, the NS and IM values are positive. For Khulna, only the RS value is negative. The lagging industry is expanding slowly because the value is negative. However, it can be disregarded in favor of a better strategy for the Khulna district. Satkhira, however, has a positive RS value. In Satkhira District, the industry is expanding more quickly. However, Satkhira does not have a significant impact on the GDP of the country. Compared to the other two districts, it is moving quickly. Long-term changes in the NS value indicate that the area has room to expand. The IM and RS values explain why the industries can only contribute locally. The study combines short- and long-term changes to uncover the full picture of the Southern region's economic shift which will be helpful for a drastic change in the national economy through management and Planning.

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