Understanding the Economic Dynamics of The North-Eastern Tea-Producing Region of Bangladesh: An Amalgam of Short-Run and Long-Run Approaches

Group: 02 (1807002, 1807020)

Course Title: Regional Planning Studio

Course Code: URP 4114

Justification

- It is essential **to understand its contribution of the North-Eastern tea-producing region's** (Sylhet, Habiganj, and Moulvibazar) **to the country's overall economic growth** as Bangladesh is striving to transition into a developing nation by 2023 (The World Bank, 2022)

- **It is necessary to minimize** the relevant contemporary **research gap** that's exists

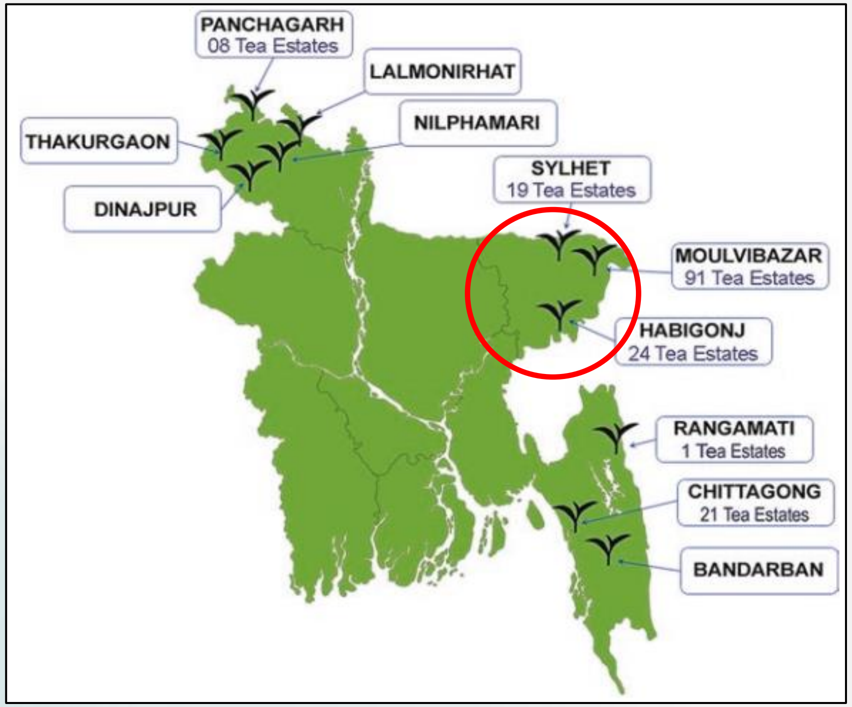


Figure: Study Region
Source: (Shameem, 2019)

Objectives

- To **study the economic dynamics** of the North-Eastern tea-producing region of Bangladesh through an **amalgam of short-run and long-run approach**

- To illustrate the findings

Simplified Methodology

Topic Selection → Data Collection → Data Analysis (Short-run + Long-run) → Result

Data Analysis: Short-run Change

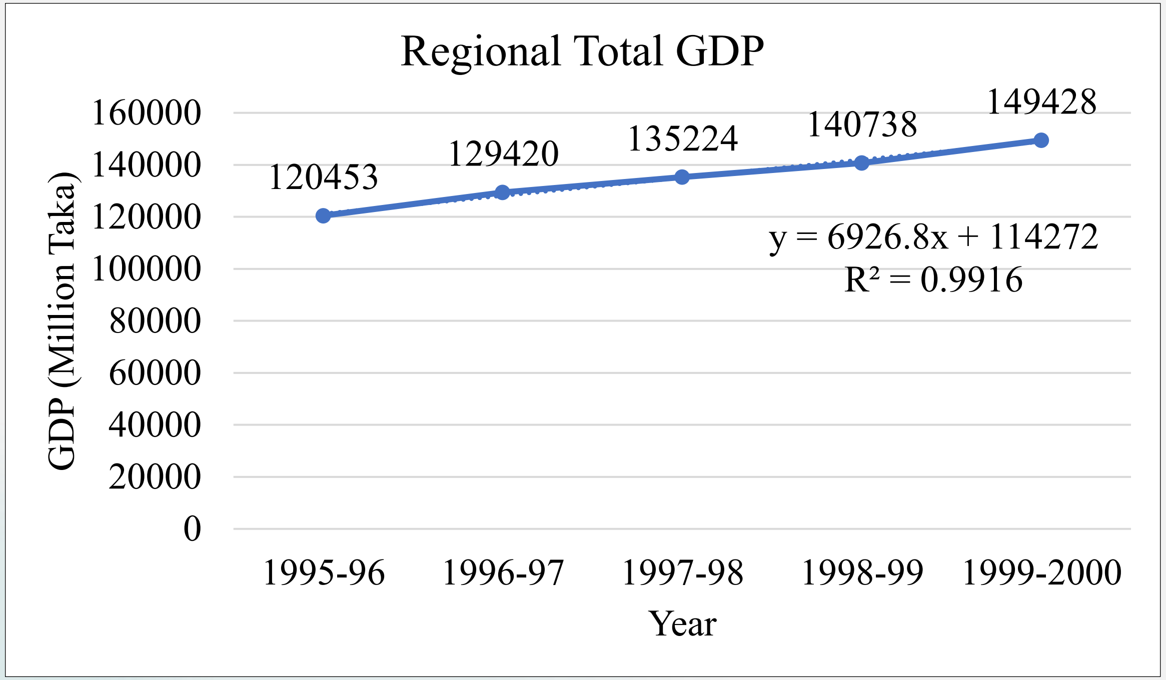


Figure: Trendline of Regional Total GDP
Sources: (Authors Preparation, 2023)

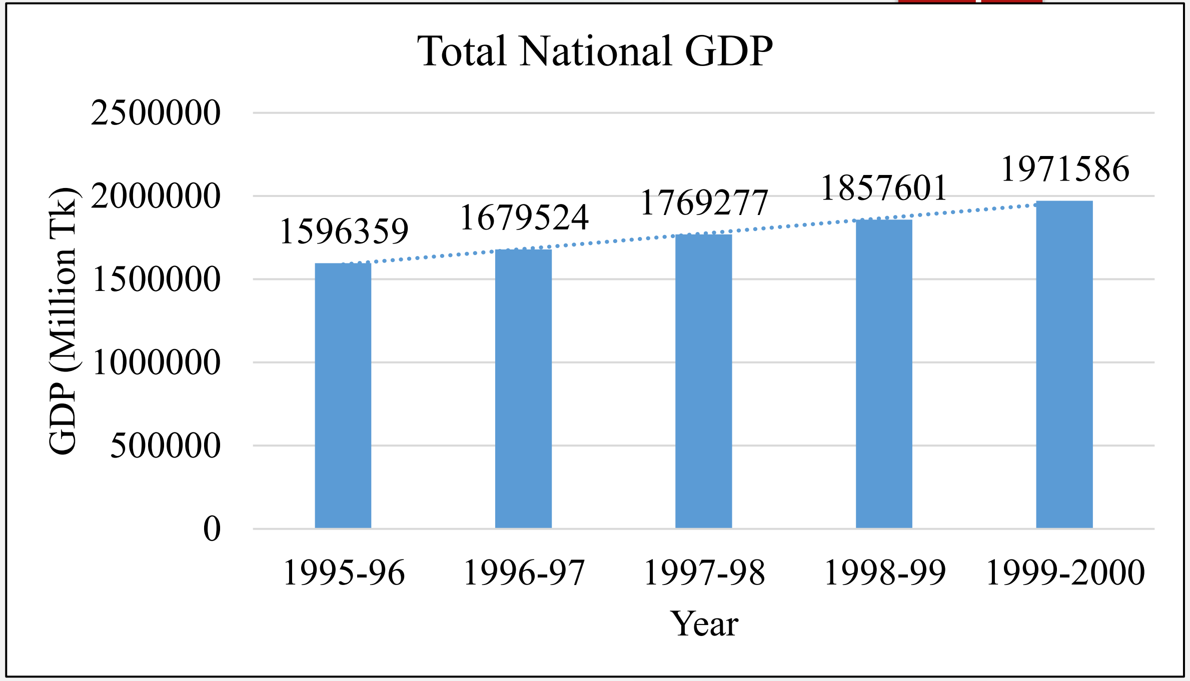


Figure: Trendline of Total National GDP
Sources: (Authors Preparation, 2023)

- **The trend is upward from 1995 to 2000** year with a yearly change of **regional total GDP** (Million Taka) of 6926.8
- For National GDP the trend is also **upwards**
- This could be due to increased economic activities, infrastructure development, growth in agriculture and manufacturing sectors, rising investments etc.

Data Analysis: Short-run Change

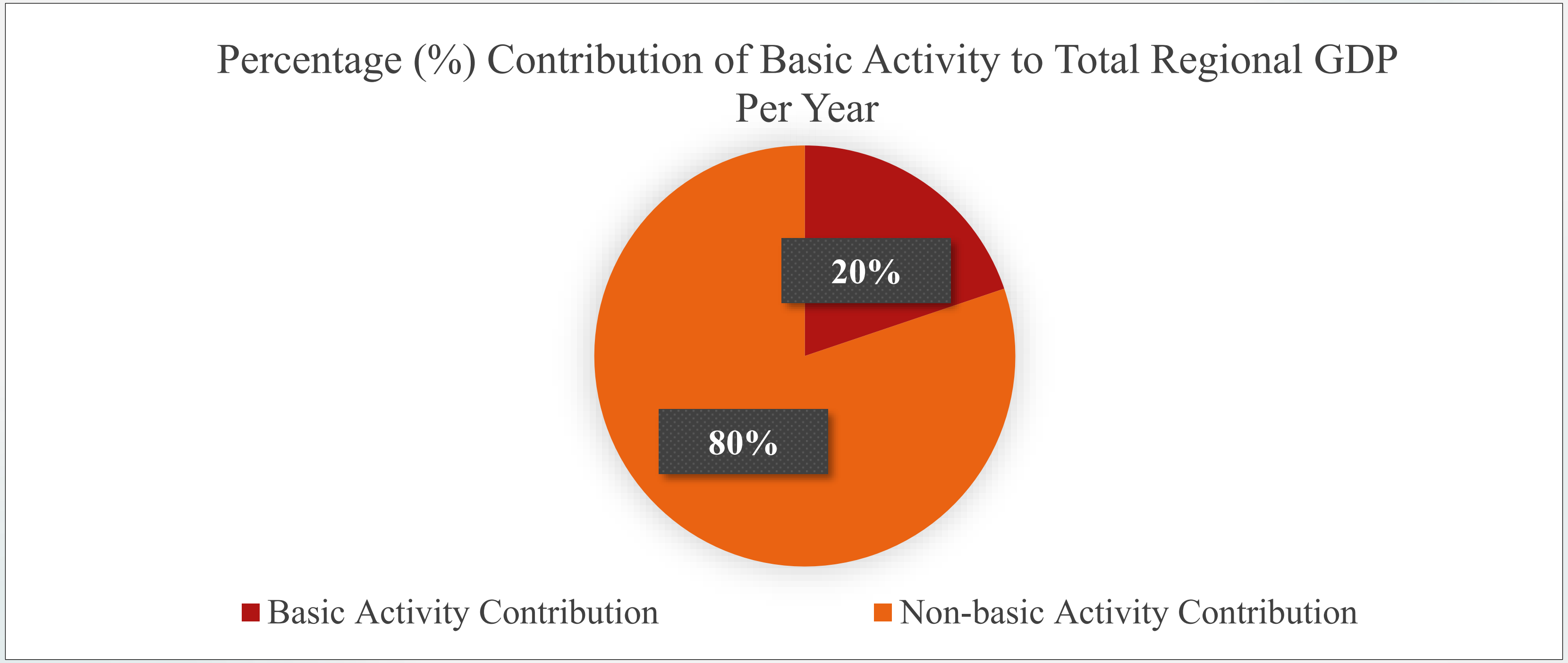


Figure: Percentage (%) Contribution of Basic Activity to Total Regional GDP Per Year
Sources: (Authors Preparation, 2023)

- The contribution of **basic activities** to regional GDP is **approximately 20%** of the total regional GDP
- The region is thus developing economically
- The contribution of **non-basic activity** to GDP is **80%** of the total regional GDP contribution

Data Analysis: Short-run Change

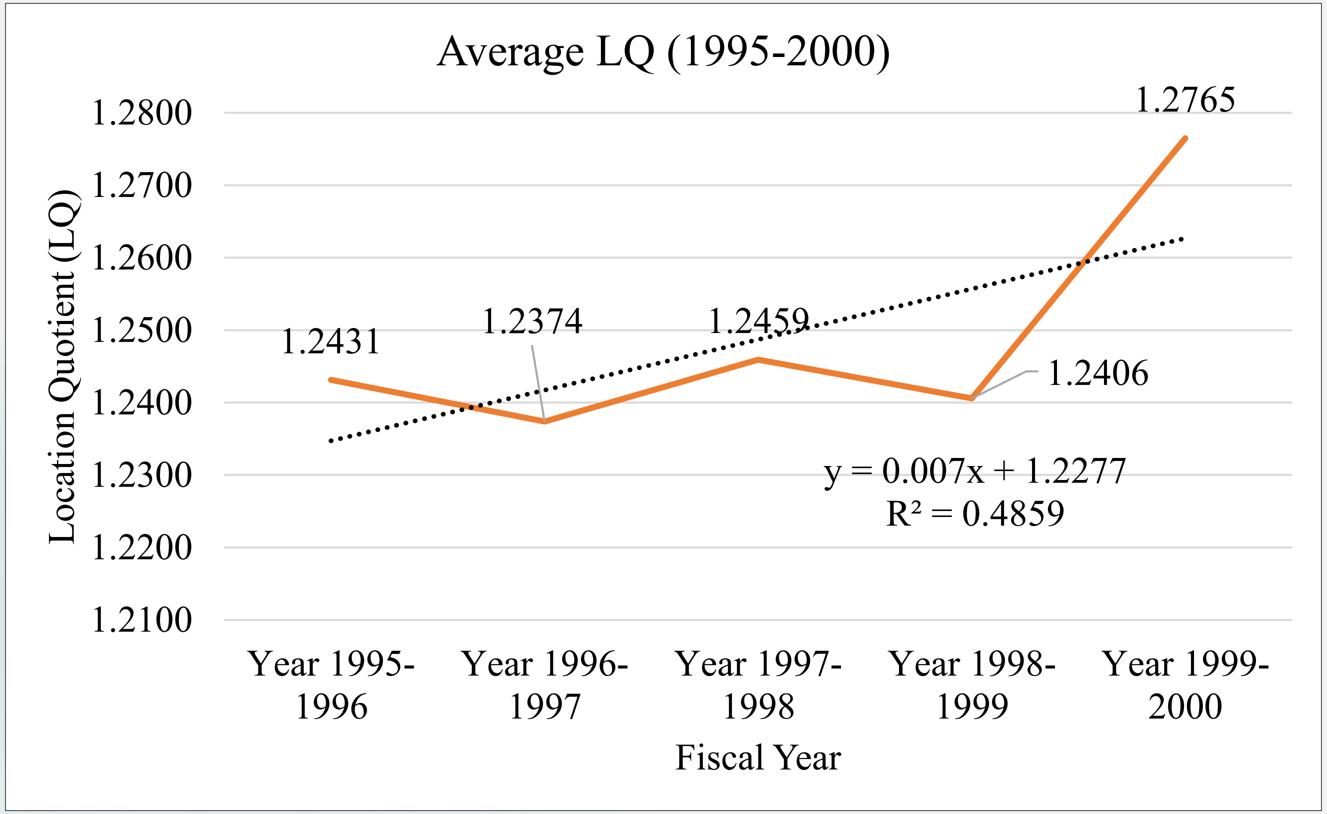


Figure: Average LQ Graph
Source: (Authors Preparation, 2023)

- Represents the average **LQ trend which is upwards**
- Indicating an overall **increase in basic activities within the region** from 1995-2000
- Slight fall in the graph can be noticed in 1996
- Downward trend in1998 may probably be due to the flood of which inundated a huge portion of northern Bangladesh including Sylhet (Centre for policy dialogue, 2004).

Data Analysis: Short-run Change

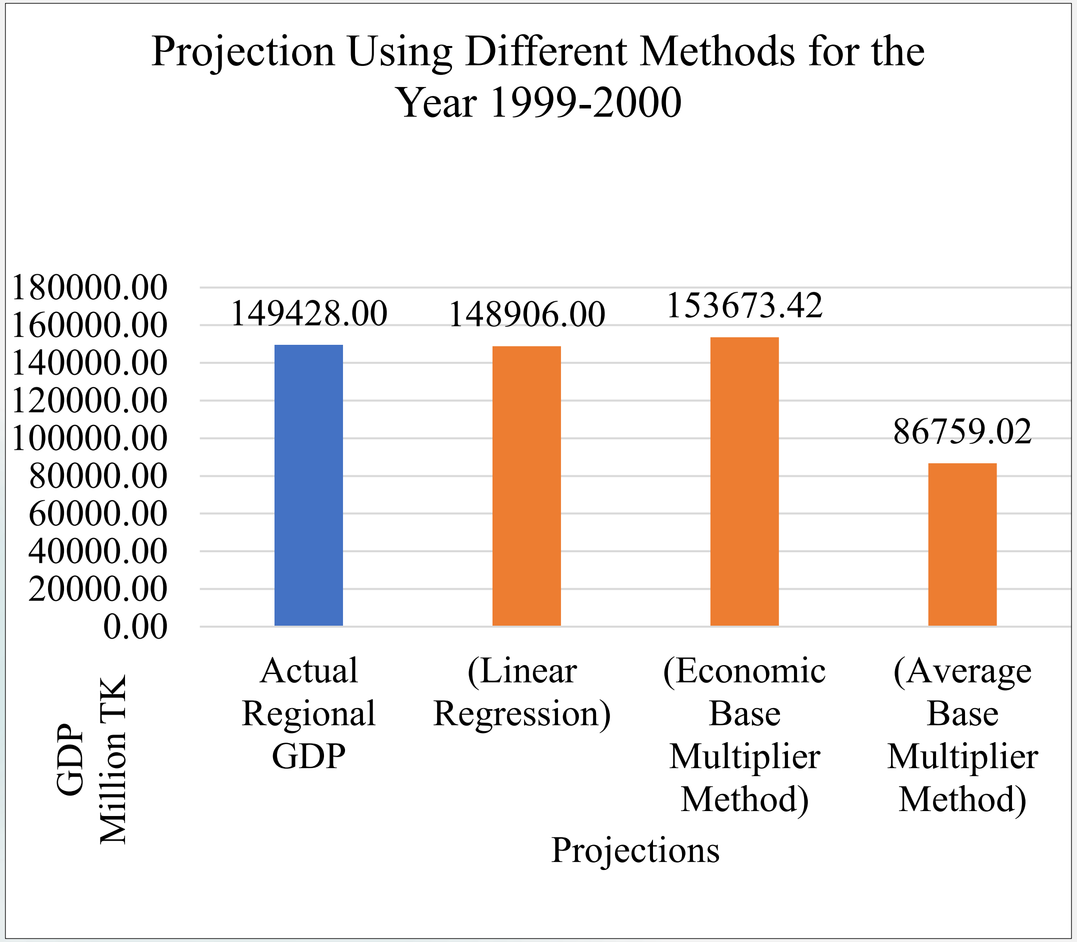


Figure: Prediction Using Different Methods
Source: (Authors Preparation, 2023)

Table: Forecasting of Regional GDP

Year	**Forecasting Methods**	**Forecasted GDP (Million Taka)**	**R^2**
1999-00	Linear Regression	148906.00	**0.9916**
1999-00	Economic Base Multiplier	153673.42	0.3613
1999-00	Average Base Multiplier	86759.02	0.9529
2024-25	**Linear Regression**	**= 6926.8*30 + 114272 = 322076 (Million TK)**	

Source: (Authors Preparation, 2023)

- **Linear Regression method gives the most accurate projection as its R^2 value is the highest**. Thus, it is selected for projection for the **year 2024-25**
- R^2 (ranging from 0-1) value explains the proportion of the variation in the dependent variable (the outcome being predicted in **this case GDP**) that can be explained by the independent variables i.e., the predictor variables.

Data Analysis

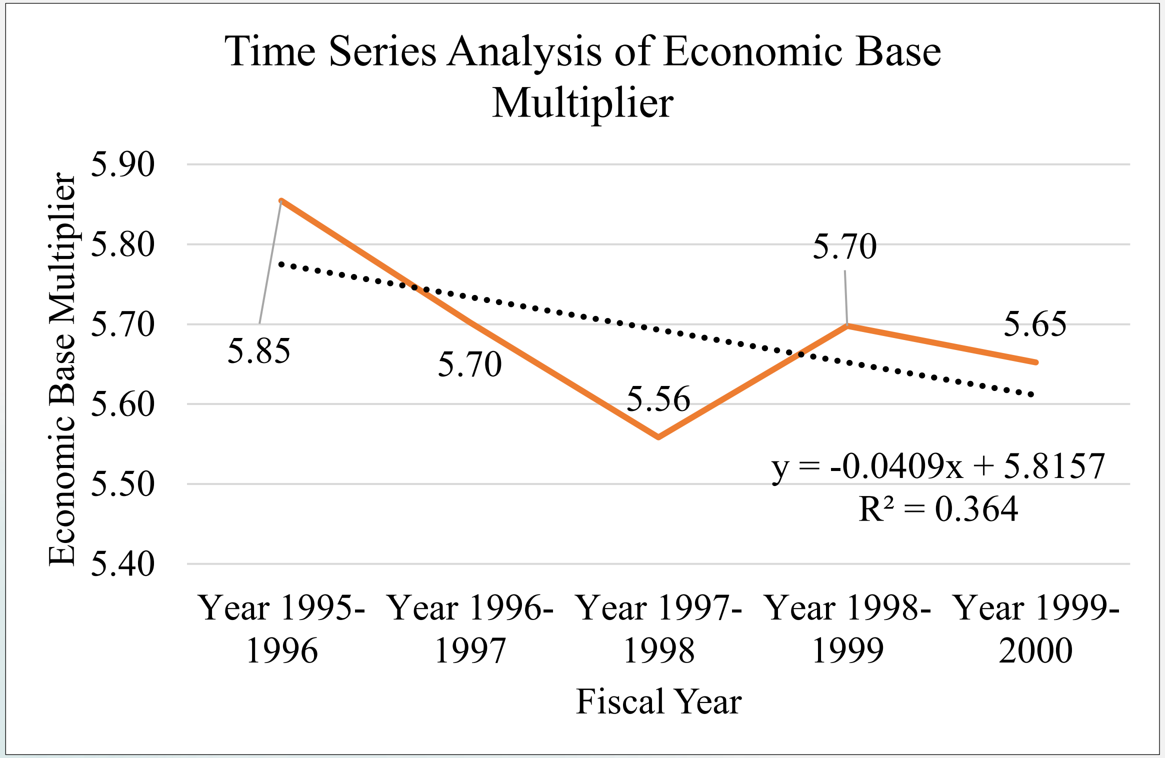


Figure: Economic Base Multiplier Curve

Source: (Authors Preparation, 2023)

- Increasing multipliers indicate a shift towards non-basic activities, while **decreasing multipliers trend suggest a rise in basic activities**
- For the year 1998-99, **the multiplier slightly increased**, indicating **growth in non-basic industries**
- The primary reason for such change in trend could probably by caused by the **flood of 1998**
- The **North Bengal region** and certain areas of Sylhet have **experienced more severe damages** to trees, houses, infrastructure, agriculture, businesses, and the loss of domestic animals, poultry, and fisheries (Centre for Policy Dialogue, 2004).
- The estimated damage caused by the flood amounted to 4.8% of the total national GDP for the fiscal year 1998-99 (Dasgupta et al., 2011).

Data Analysis: Long-run Change

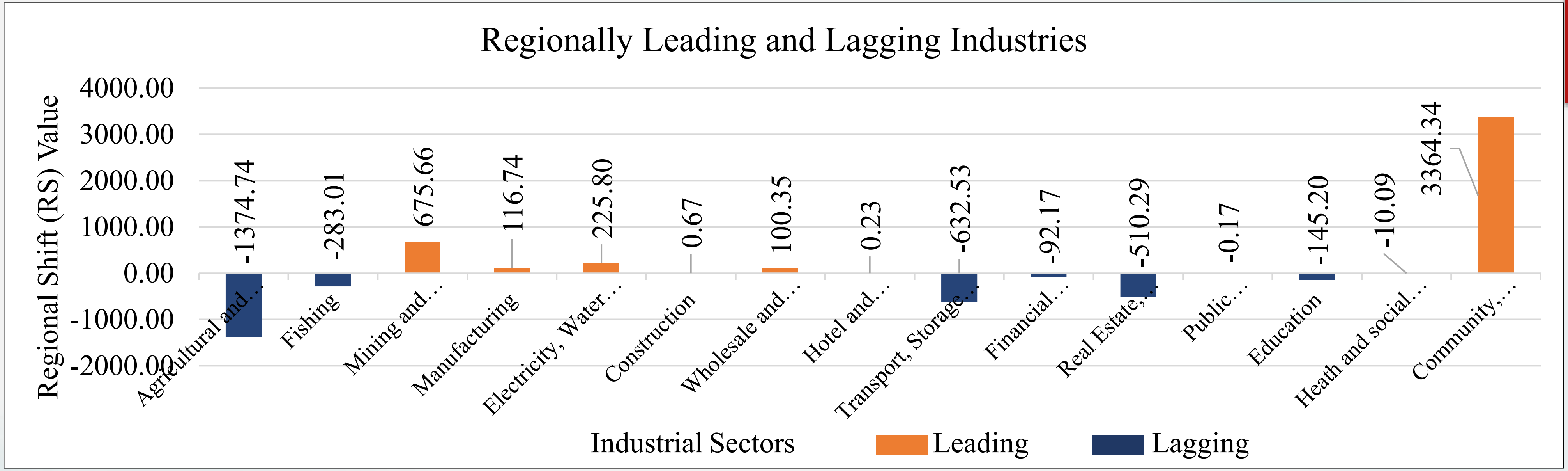
Table: Shift-share Components

Components	Sign	Magnitude
Region's National Growth Share (NS)	Positive	28312.69
Region's Industry Mix (IM)	Negative	773.75
Regional Shift (RS)	Positive	1435.57

Source: (Authors Preparation, 2023)

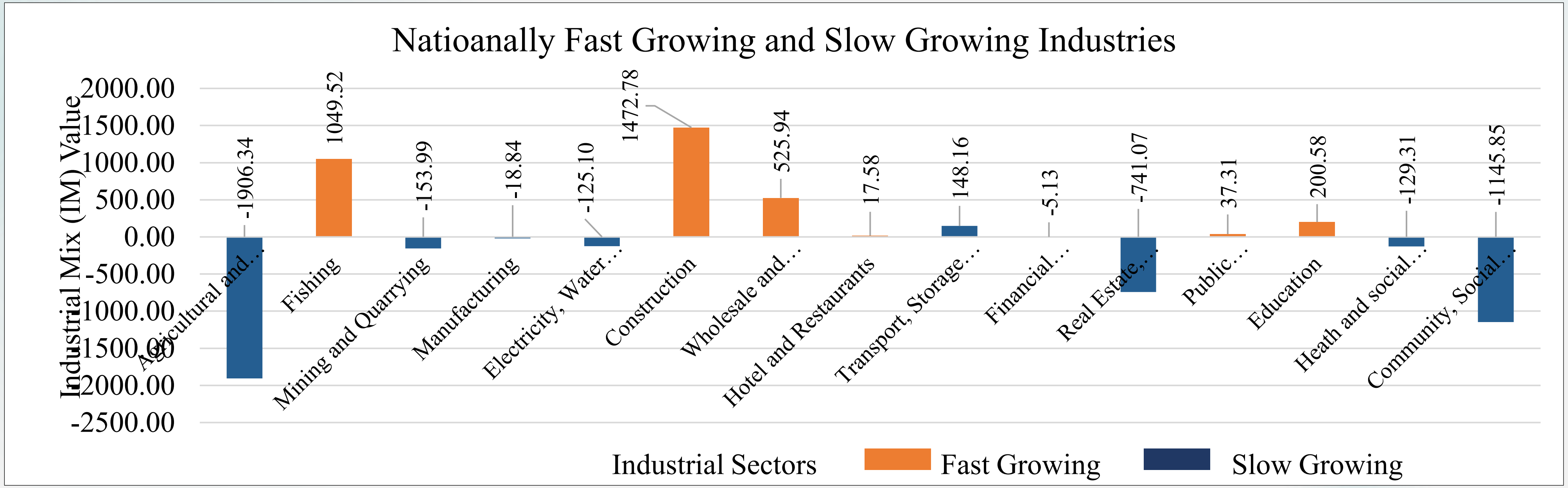
- **Positive Region's National Growth Share (NS)** component indicates that the **region's industries have the potential for growth at the national level**
- **Positive Regional Shift (RS)** component suggests that the **region's industries are performing well (regionally leading)**
- **Negative Region's Industry Mix (IM**) component implies that the industrial structure of the region **deviates from the national average**
- There is a **potential for the region's national growth (NS)**, while the **negative Industry Mix (IM) and positive Regional Shift (RS)** components indicate that the **industries are contributing regionally but face challenges in competing nationally**.

Figure: Identification of Regionally Leading and Lagging Industries



Source: (Authors Preparation, 2023)

Figure: Identification of Nationally Fast and Slow Growing Industries



Source: (Authors Preparation, 2023)

Table Identification of Regionally Leading and Lagging Industries and Nationally Fast Growing and Slow Growing Industries and Ranking in Descending Order

Descending order

Regionally Leading Industry (RS)	Regioanlly Lagging Industries (RS)	Nationally Fast Growing Industry (IM)	Nationally Slow Growing Industry (IM)
1. Community, Social and Personal Services 2. Mining and Quarrying 3. Electricity, Water and Gas Supply 4. Manufacturing 5. Wholesale and Retail Trade 6. Construction 7. Hotel and Restaurants	1. Agricultural and Forestry 2. Transport, Storage and Communication 3. Real Estate, Renting and Business Activities 4. Fishing 5. Education 6. Financial Intermediations 7. Health and Social Service 8. Public Administration and Defense	1. Construction 2. Fishing 3. Wholesale and Retail Trade 4. Education 5. Transport and Storage and Communication 6. Public Administration and Defense 7. Hotel and Restaurants	1. Agricultural and Forestry 2. Community, Social and Personal Services 3. Real Estate, Renting and Business Activities 4. Mining and Quarrying 5. Heath and social service 6. Electricity, Water and Gas Supply 7. Manufacturing 8. Financial Intermediations

Source: (Authors Preparation, 2023)

Table: Basic Industries in the Region in 1999-2000

Basic Industries in 1999-2000
➢ Agriculture and Forestry
➢ Mining and Quarrying
➢ Electricity, Water and Gas Supply
➢ Construction
➢ Health and Social Service
➢ Community, Social and Personal Services

Source: (Authors Preparation, 2023)

- **Positive RS values** indicate that a sector is **regionally leading**, meaning it outperforms the average regional performance. On the other hand,
- **Negative RS values** indicate that a sector is **regionally lagging**, implying it underperforms compared to the regional average
- **Positive IM values** signify industries **growing faster at the national level**, while **negative values** indicate **slower growth**.

Reasons

Regionally Lagging Industries:

- **Agricultural and Forestry: Slightly declining values, impacted by natural disasters like the 1998 flood (Centre for Policy Dialogue, 2004)**
- **Fishing: Affected by declining labor force in the primary sector (Islam, Islam, & Das, 2018)**
- Transport, Storage, and Communication: Facing challenges in growth and development
- Financial Intermediations: Growing at a slower rate compared to the national average

Regionally Leading Industries:

- Community, Social, and Personal Services: Significant contribution to the region's economic growth
- **Mining and Quarrying: Shows strong regional economic impact (Dhaka Tribune, 2018)**
- Electricity, Water, and Gas Supply: Positively influencing the region's economy
- Manufacturing: Demonstrates substantial contribution to the region's economic growth

Nationally Fast-Growing Industries:

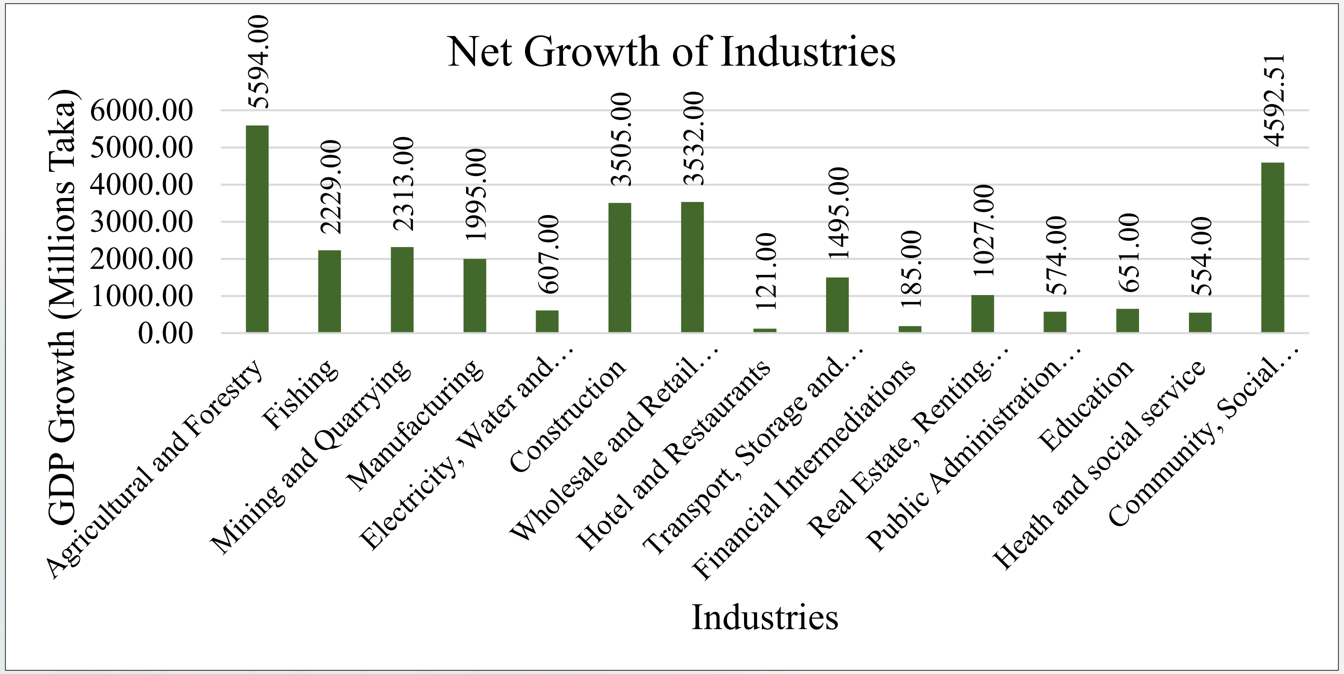
- **Construction: Rapid urbanization and development of built-up areas leading to growth (from 1987-2017 there is 242.79% expansion in built-up area (Samad, Raihan, & Masum, 2022)**
- **Fishing: Abundance of haors contributing to the sector's expansion (Ismat & Suvra, 2021)**
- Wholesale and Retail Trade: Booming tourism and increased trade activities contributing to growth
- Education: Showing significant national growth

Nationally Slow-Growing Industries:

- Agricultural and Forestry: Slower growth due to various challenges
- Community, Social, and Personal Services: Facing constraints in growth and development
- Real Estate, Renting, and Business Activities: Experiencing slower expansion
- Mining and Quarrying: Lagging in growth, possibly due to challenges in the sector

Data Analysis

Figure: Net Growth of Industries

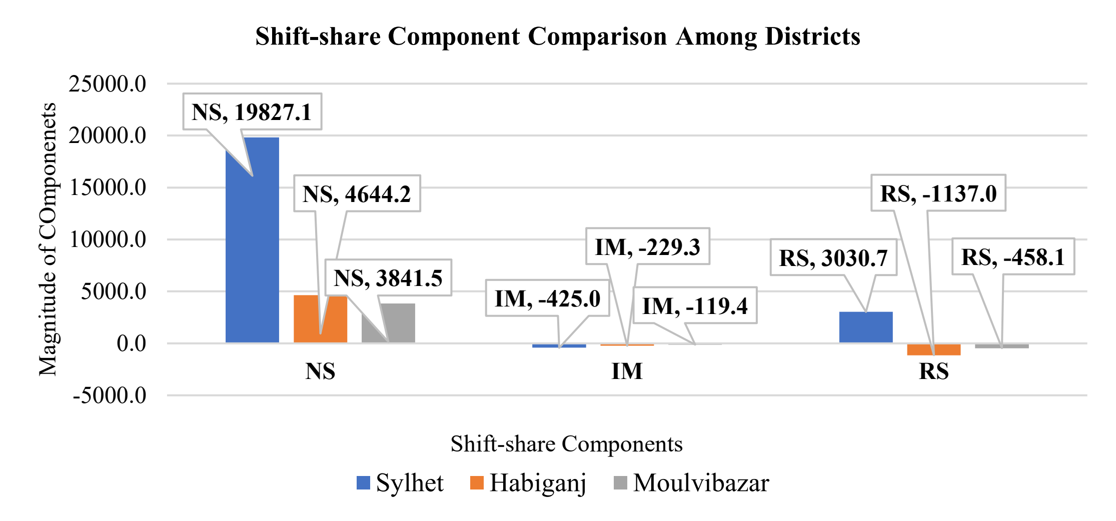


Source: (Authors Preparation, 2023)

- **Agriculture and Forestry has highest net growth**
- The region's economy is heavily dependent on agriculture and forestry, with 64% of holdings engaged in agriculture in Sylhet, 58.0% in Moulvibazar, and 57.61% in Habiganj (BBS, 2011a; BBS, 2011b; BBS, 2011c)
- **Tea production**, has seen growth due to increasing demand and favorable export opportunities (Ahmad & Hossain, 2013)
- Abundant **water bodies and haor areas** have provided opportunities for **fishing** activities, leading to growth in the fishing industry, which caters to local and national demand for fish and related products (Ismat & Suvra, 2021).
- **Stone quarrying** activities, especially in areas like **Jaflong**, have thrived, driven by the demand for stones in construction and infrastructure projects (Ahmed, Alam, Akter, & Kadir, 2020).
- Economic development and urbanization have spurred construction activities, including infrastructure projects and real estate development, contributing to the sector's growth **(from 1987-2017 there is 242.79% expansion in built-up area)** (Samad, Raihan, & Masum, 2022).

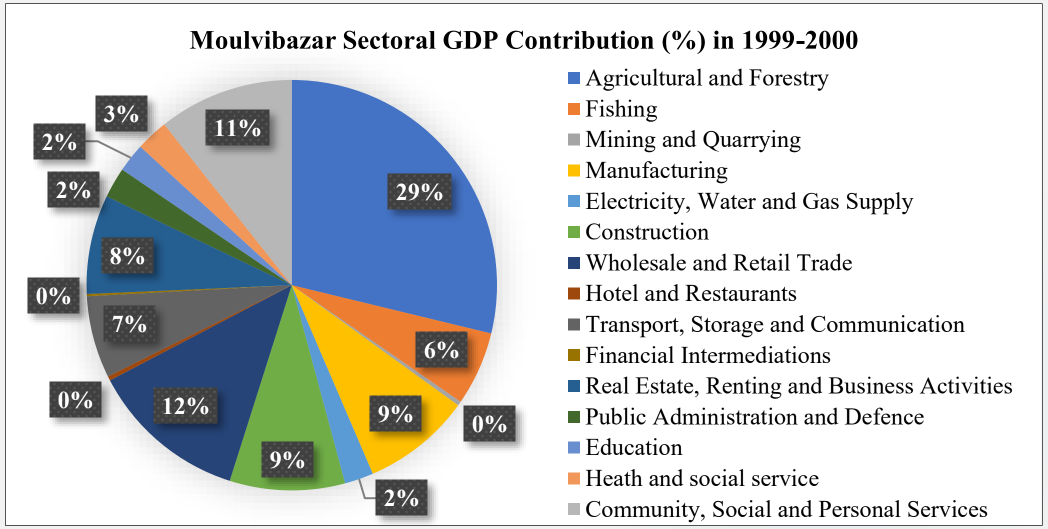
Data Analysis: Scrutinizing the Districts in the Region

Figure: Shift-share Component Comparison Among Districts in the Region



Source: (Authors Preparation, 2023)

Figure: Sectoral Contribution of Moulvibazar District to Total District GDP in 1999-2000



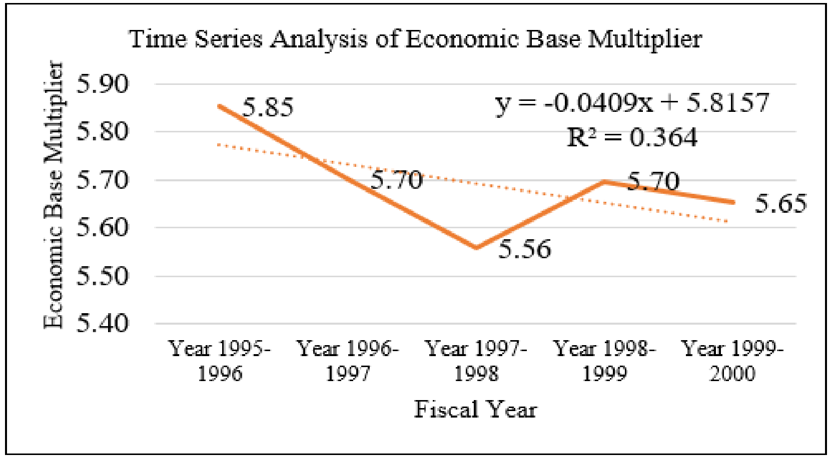
Source: (Authors Preparation, 2023)

- **Sylhet** has the **highest national share (NS) component value** all of them indicating **potential to grow nationally**
- **Moulvibazar has highest IM value.** Moulvibazar is contributing nationally a lot and it has a greater number of **nationally fast-growing industries**
- Moulvibazar has the highest number of tea estates i.e., **91 tea estates which is the highest in Bangladesh** (Shameem, 2019). Tea is a major exporting cash crop of Bangladesh accounting for 0.81% of the national GDP (Ahmad & Hossain, 2013)
- **RS component Sylhet has highest** value indicating that it is the **regionally leading industries**

- Agriculture and Forestry sector is contributing 29% to the district GDP
- Mining contributes and Manufacturing contributes 11% and 9% respectively to the district GDP

Data Analysis: Short-run to Long-run Change

Table Comparison of Short-run and Long-run Changes

<table>
<tr><th>Short-run Change</th><th>Long-run Change</th></tr>
<tr><td>
</td><td>National Share (NS) =28312.69
Industry Mix (IM) = -773.75
Regional Shift (RS) =1435.57</td></tr>
</table>

Source: (Authors Preparaton, 2023)

- Multiplier curve has **negative slope** indicating increase in **basic activity**
- According to the **Stage and Sector Theory**, increase in basic activities means **increase in tertiary activity** (region transitioning from Argo to service-related industries) indicating foreword growth of the region economy (Dawkins, 2003).
- Regions basic and non-basic activity contribution to GDP is 20% and 80% respectively.
- There is a **potential for the region's national growth** (NS), while the **negative Industry Mix (IM)** and **positive Regional Shift (RS)** components indicate that the **industries are contributing regionally but face challenges in competing nationally**.

Conclusion

- Average **LQ trend** exhibits an overall **upward movement**, reflecting an **increase in basic activities** in the region from 1995-2000

- The **Economic Base Multiplier trend is downwards indicating increase in basic activity** (1995-2000)

- There is a **potential for the region's national growth (NS)**, while the **negative Industry Mix (IM) and positive Regional Shift (RS)** components indicate that the **industries are contributing regionally but face challenges in competing nationally**.

- Among the three districts forming the region, **Sylhet shows the highest potential for national growth (NS) and leads regionally**. On the other hand, **Moulvibazar excels in nationally fast-growing industries (IM), particularly in tea production, and contributes significantly at the national level**.

Thank You

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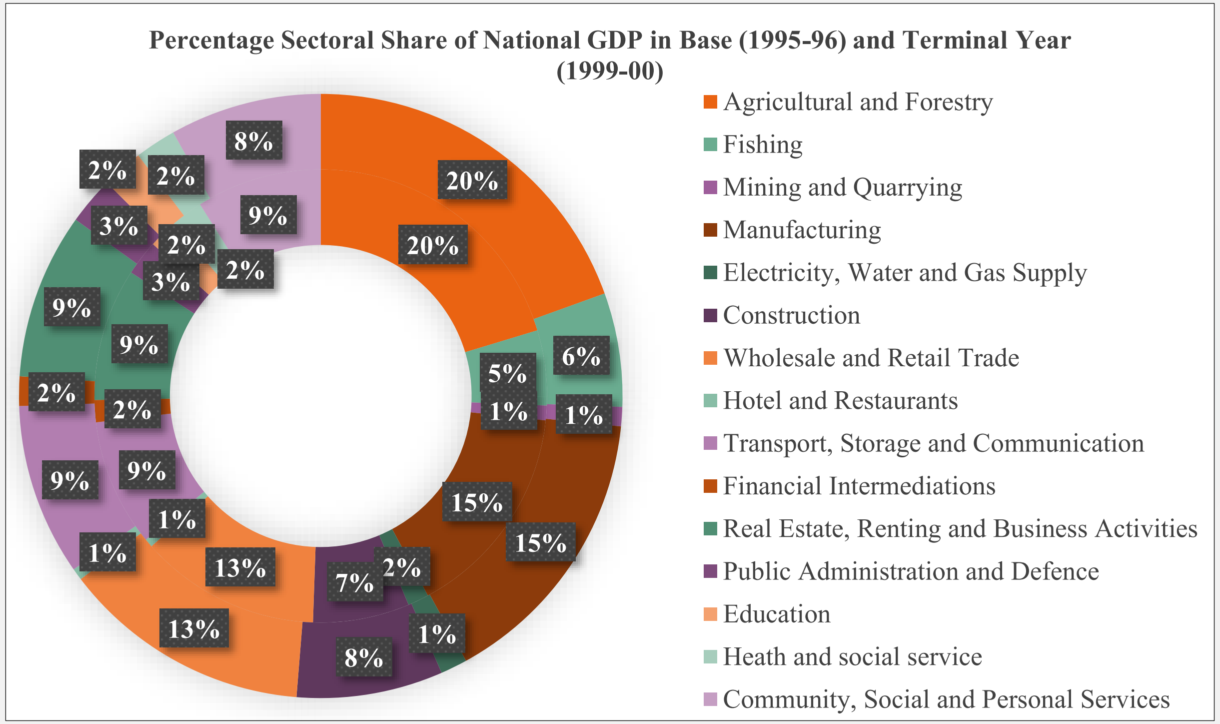
Appendix

Table: Sector Wise Shift-share Components

Sl.	Sectors	NS Sign	IM Sign	RS Sign	Interpretation
1	Agricultural and Forestry	+	-	-	Has potentiality to grow, nationally slow-growing industry, regionally lagging industry
2	Fishing	+	+	-	Has potentiality to grow, nationally fast-growing industry, regionally lagging industry
3	Mining and Quarrying	+	-	+	Has potentiality to grow, nationally slow-growing industry, regionally leading industry
4	Manufacturing	+	-	+	Same as 3
5	Electricity, Water and Gas Supply	+	-	+	Same as 3
6	Construction	+	+	+	Has potentiality to grow, nationally fast-growing industry, regionally leading industry
7	Wholesale and Retail Trade	+	+	+	Same as 6
8	Hotel and Restaurants	+	+	+	Same as 6
9	Transport, Storage and Communication	+	+	-	Same as 2
10	Financial Intermediations	+	-	-	Same as 1
11	Real Estate, Renting and Business Activities	+	-	-	Same as 1
12	Public Administration and Defense	+	+	-	Same as 2
13	Education	+	+	-	Same as 2
14	Heath and social service	+	-	-	Same as 1
15	Community, Social and Personal Services	+	-	+	Same as 3

Source: (Authors Preparation, 2023)

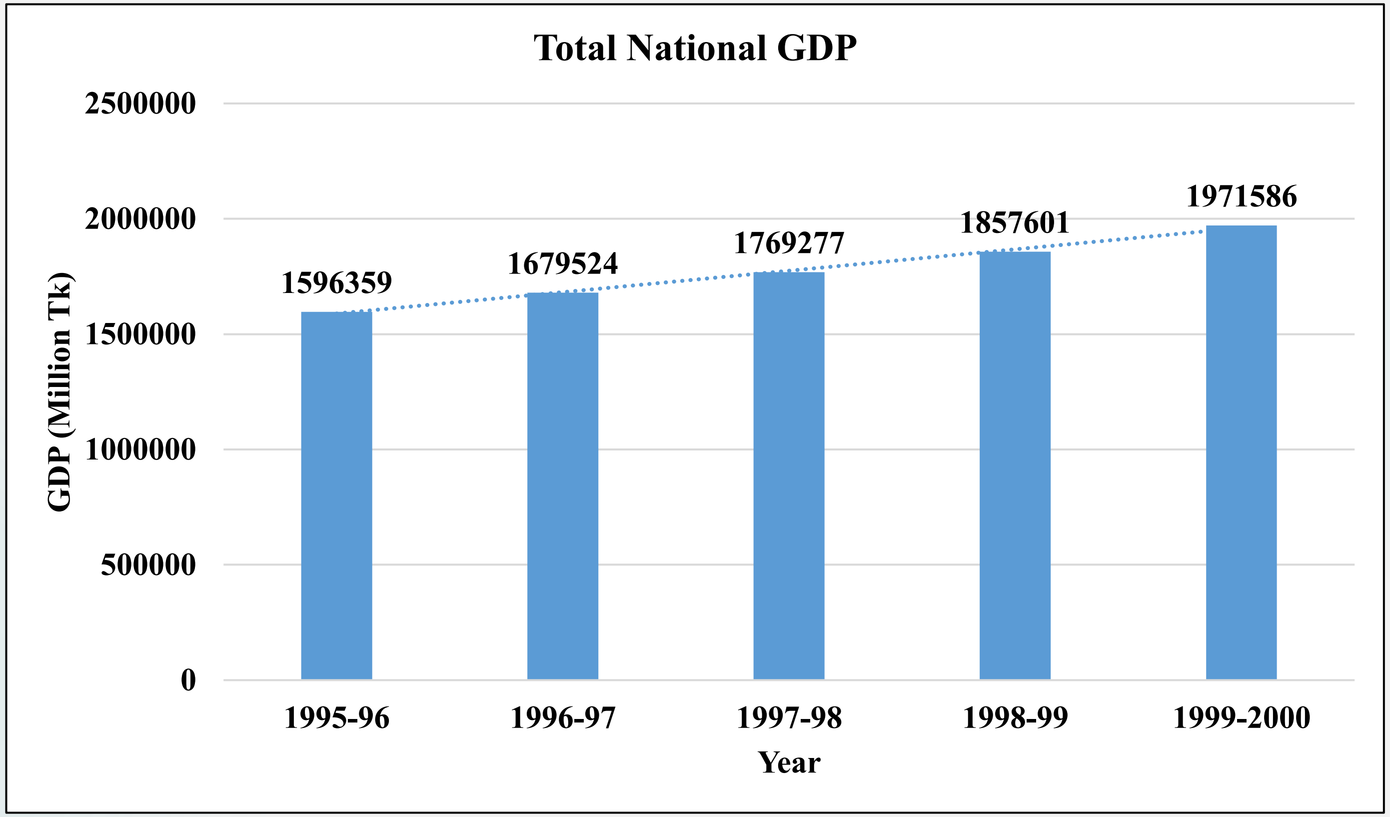
Figure: Percentage Sectoral Share of National GDP



Source: (Authors Preparation, 2023)

Appendix

Figure: National GDP



Source: (Authors Preparation, 2023)

Appendix

Table: Calculation of LQ for Each Industry and Identification of Basic and Non-basic Activities

Industrial Origin Sector	Year 1995- 1996		Year 1996-1997		Year 1997-1998		Year 1998-1999		Year 1999-2000	
Sectors	LQ	Activity	LQ	Activity	LQ	Activity	LQ	Activity	LQ	Activity
Agricultural and Forestry	1.543	Basic	1.506	Basic	1.530	Basic	1.525	Basic	1.489	Basic
Fishing	0.964	Non-Basic	0.900	Non-Basic	0.911	Non-Basic	0.912	Non-Basic	0.929	Non-Basic
Mining and Quarrying	6.051	Basic	5.989	Basic	6.059	Basic	5.893	Basic	6.464	Basic
Manufacturing	0.434	Non-Basic	0.433	Non-Basic	0.435	Non-Basic	0.434	Non-Basic	0.437	Non-Basic
Electricity, Water and Gas Supply	1.189	Basic	1.210	Basic	1.214	Basic	1.231	Basic	1.289	Basic
Construction	1.041	Basic	1.020	Basic	1.028	Basic	1.037	Basic	1.037	Basic
Wholesale and Retail Trade	0.795	Non-Basic	0.784	Non-Basic	0.786	Non-Basic	0.801	Non-Basic	0.797	Non-Basic
Hotel and Restaurants	0.595	Non-Basic	0.583	Non-Basic	0.587	Non-Basic	0.592	Non-Basic	0.592	Non-Basic
Transport, Storage and Communication	0.771	Non-Basic	0.737	Non-Basic	0.724	Non-Basic	0.742	Non-Basic	0.721	Non-Basic
Financial Intermediations	0.632	Non-Basic	0.606	Non-Basic	0.604	Non-Basic	0.605	Non-Basic	0.590	Non-Basic
Real Estate, Renting and Business Activities	0.851	Non-Basic	0.824	Non-Basic	0.820	Non-Basic	0.818	Non-Basic	0.808	Non-Basic
Public Administration and Defense	0.754	Non-Basic	0.738	Non-Basic	0.744	Non-Basic	0.750	Non-Basic	0.750	Non-Basic
Education	1.016	Basic	0.991	Non-Basic	0.988	Non-Basic	0.991	Non-Basic	0.968	Non-Basic
Heath and social service	1.074	Basic	1.051	Basic	1.061	Basic	1.069	Basic	1.067	Basic
Community, Social and Personal Services	0.936	Non-Basic	1.189	Basic	1.199	Basic	1.210	Basic	1.209	Basic

Source: (Authors Preparation, 2023)

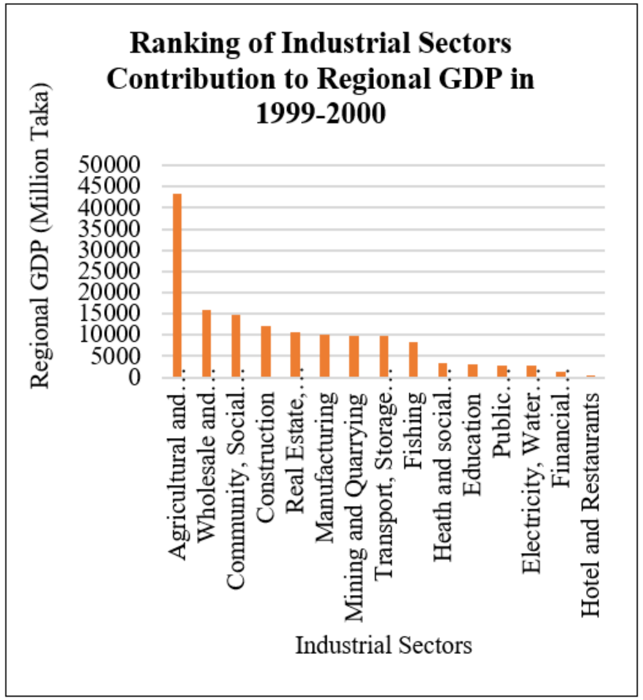
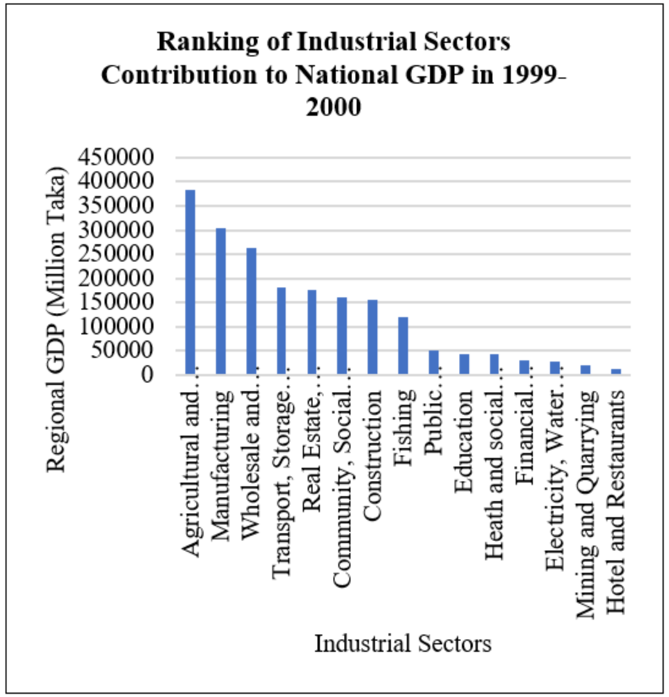


Figure : Ranking of Industrial Sectors Contribution to Regional GDP in 1999-2000



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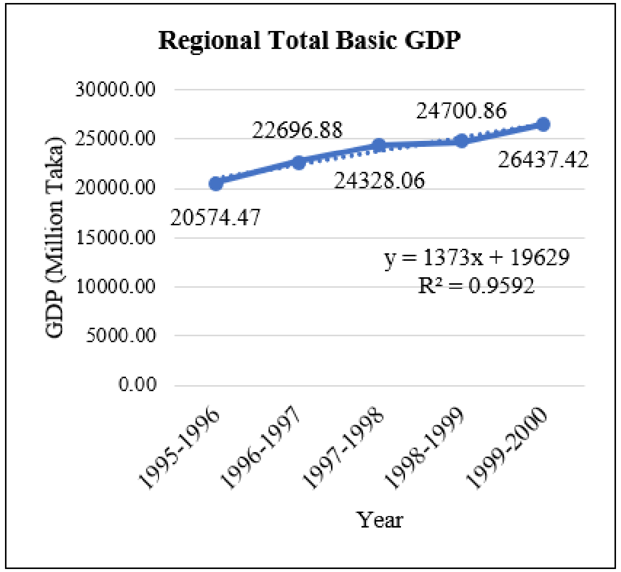

Figure : Regional Total Basic GDP

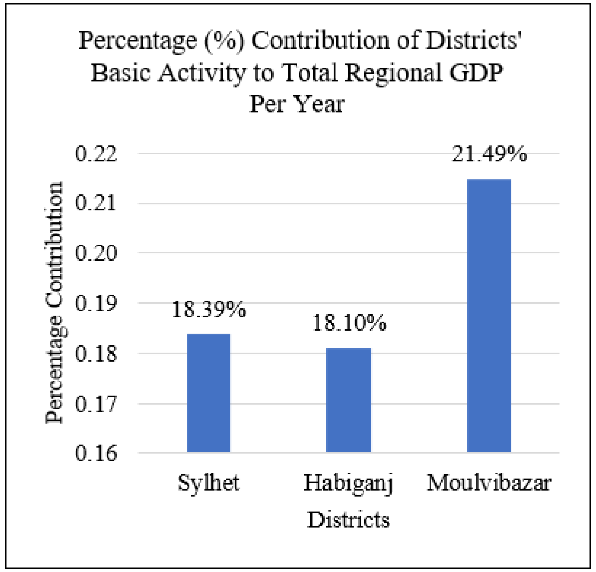

Figure Percentage (%) Contribution Basic to Regional GDP per year

Sources: (Authors Preparation, 2023)

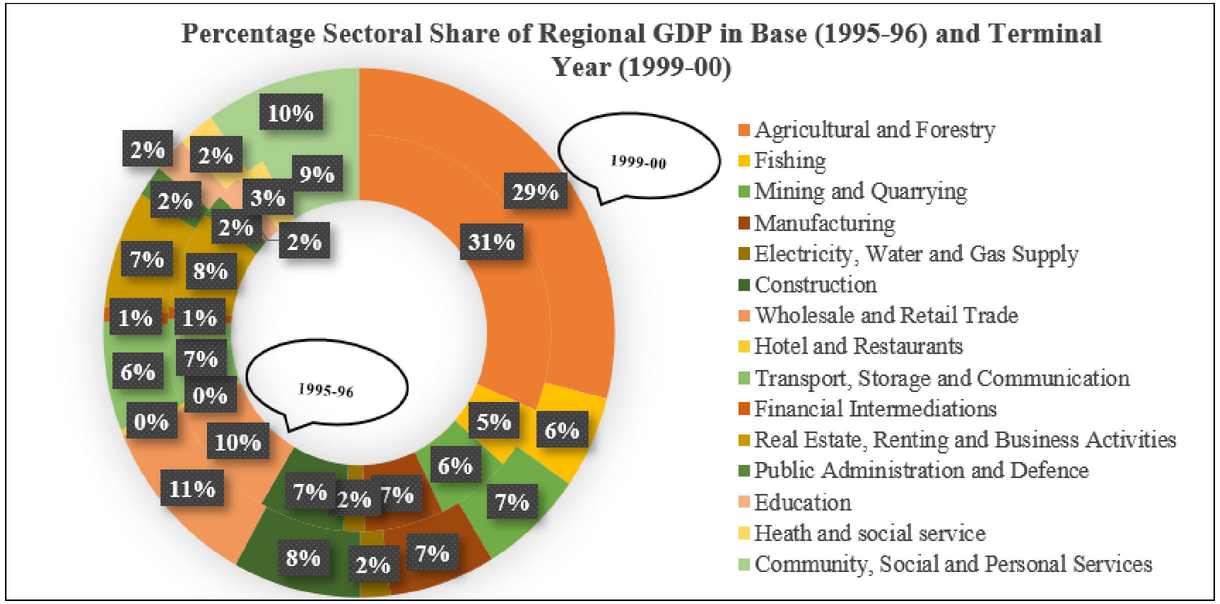

Figure Percentage Sectoral Share of Regional GDP

Source: (Authors Preparation, 2023)