

Analysis of Leading Sector Potential as an Effort to Alleviate Underdeveloped Areas in North Lombok Regency

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ABSTRACT

North Lombok Regency has been designated as an underdeveloped area due to a complex set of multidimensional issues, including low human resource quality, high poverty rates, limited infrastructure, vulnerability to natural disasters, and weak regional financial capacity. This study aims to identify leading economic sectors and analyze their role in supporting the local economy of North Lombok Regency as a strategy to accelerate development in underdeveloped areas. The study employs a descriptive quantitative approach using secondary data from Statistics Indonesia (BPS) for the period 2018–2023. Analytical methods include Location Quotient (LQ), Dynamic Location Quotient (DLQ), Shift Share, Klassen Typology, and Multiplier Effect. The findings reveal three leading sectors in North Lombok Regency: other services, electricity and gas supply, and water supply and waste management. The "other services" sector contributes the highest economic multiplier effect and has substantial labor absorption, while the other two sectors play a crucial role as basic infrastructure supporting regional economic activities.

INTRODUCTION

The Sustainable Development Goals (SDGs) are a global development agenda consisting of 17 goals and targets set to be achieved by 2030. Among these goals, Goal 10 titled Reducing Inequalities is one of the strategic priorities in implementing the 2030 Agenda for Sustainable Development initiated by the United Nations. One area that clearly illustrates this inequality is officially stated in Presidential Regulation No. 63 of 2020 concerning the Determination of Development in Underdeveloped Regions. According to this regulation, 62 regions are designated as underdeveloped. These areas are spread across several provinces, including North Sumatra, West Sumatra, South Sumatra, Lampung, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), Central Sulawesi, Maluku, North Maluku, and Papua (JDIH BPK, 2020)

Based on the established indicators and criteria, North Lombok Regency has been classified as an underdeveloped region. According to Balilatfo (2019), published by the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, the causes of underdevelopment are grouped into five categories: human resources, community economy, infrastructure, regional characteristics, and regional financial capacity.

STRANAS-PPDT Tahun 2015-2019 that the causes of underdevelopment in North Lombok Regency are influenced by several interrelated factors. **First**, the quality of human resources is low, as indicated by the average years of schooling which is only 5.54 years. This figure is still far below the expected 12.69 years. **Second**, the poverty rate is high at 32.06 percent, with per capita expenditure amounting to 8.637 million rupiah. This indicates that the economic condition of the community is still low.

Percentage of Poor Population in North Lombok Regency shows that the poverty rate in North Lombok has consistently been higher than the average in West Nusa Tenggara Province from 2015 to 2023. Although the poverty rate has declined from 34.13 percent in 2015 to 23.96 percent in 2023, this figure is still above the provincial average, which ranges between 12.91 percent and 17.10 percent. This indicates that significant challenges remain in eradicating poverty in the region (Badan Pusat Statistik, 2024).

The third factor is limited infrastructure, as reflected in the fact that 6.06 percent of villages still have dirt roads, the doctor-to-population ratio is only 0.08 per 1,000 residents, and there are limited basic education facilities (1.24 per 1,000 people). **The fourth** factor is that the region is disaster-prone. About 48.48 percent of villages are vulnerable to earthquakes, 21.21 percent to landslides, 3.03 percent to floods, and 60.61 percent of the area is designated as protected forest. These factors make development in the region more complex. **The fifth** factor is the limited financial capacity of the region, which is only 343.246 billion rupiah. According to Adrian & Nugroho (2024), North Lombok is still highly dependent on transfers from the central government and is categorized as underdeveloped due to its very low local revenue.

North Lombok Regency has the second lowest economic growth compared to other districts or cities in West Nusa Tenggara Province, with a downward trend in growth (Badan Pusat Statistik, 2024). In general, the economic performance of North

Lombok experienced significant pressure during the COVID-19 period. In 2017, economic growth was recorded at -7.64 percent. Although there was a relative recovery in the following years, the growth rate remained low at 5.1 percent (Badan Pusat Statistik, 2024b).

This study presents systematic and holistic information on leading sectors by considering the specific characteristics of North Lombok Regency. It integrates quantitative analysis with local wisdom perspectives, including post-disaster economic recovery strategies and mapping of economic potential that takes into account the unique geographical conditions of this island region and its abundant fisheries resources. Furthermore, the complex problems faced by North Lombok as an underdeveloped area require an analysis that not only identifies leading sectors but also understands their growth potential and comprehensive impact on the regional economy (Tutupoho, 2019). Therefore, this research is intended to fill the gap in literature and contribute new insights into strategies for developing underdeveloped regions based on leading economic sectors.

LITERATURE REVIEW

Growth Pole Theory

François Perroux (1995) introduced the concept of the growth pole or *pôle de croissance*, stating that economic growth does not occur randomly across all locations, but is instead concentrated in specific growth centers with varying intensities. This growth then spreads through various distribution channels (Alwi et al., 2022). A region is categorized as a growth center when it experiences significant economic expansion that can stimulate development in surrounding areas. The criteria include the ability to generate a multiplier effect, internal linkages among economic activities, geographic concentration, and the stimulation of growth in its hinterland (Wahyudi, 2022). This concept has the potential to promote equitable welfare distribution between the growth center and its peripheral areas (Ardi Wicaksana Putra et al., 2020). Development in the growth center triggers economic activities through a spread effect, which encourages progress in neighboring regions (Qibti & Hendarto, 2020).

According to Pasaribu et al. (2014), Pasaribu et al. (2014), there are three impact concepts: the spread effect (a positive dissemination effect), the backwash effect (a negative suction effect), and the net spillover effect (an initially detrimental effect that later becomes beneficial).

Location Theory

In regional economics, the three key elements of regional development are location, location, and location (Arsyad, 1999). Location theory examines the spatial arrangement of economic activities or the geographical distribution of limited resources and its impact on the placement of various economic and social enterprises. In spatial studies, location is defined as the analysis of reciprocal relationships between activities in one place and those in other locations (Tarigan, 2005). Sjafrizal (2008) emphasized that location theory plays a crucial role because a strategic location minimizes transportation costs, thus creating production and marketing efficiency. Location theory is generally categorized into three major models: (a) Bid-Rent Theories by Von Thünen (1854), which are based on the

financial capacity to pay for land; (b) Least Cost Theories by Alfred Weber (1929), which focus on choosing locations based on minimizing production costs; (c) Market Area Theories by August Lösch (1954), which determine location based on the potential for the largest market control. This theory is often applied in the planning of industrial zones, grounded in the assumption that economic actors behave rationally in order to maximize profits by minimizing costs as much as possible (T.H. Tambunan, 2003).

Economic Base Theory

The economic base theory explains that the primary determinant of regional economic development is closely related to external market demand for goods and services (T.H. Tambunan, 2003). The concept of economic base theory posits that the pace of economic development in a region depends largely on the extent to which export activities from that region increase. Economic activities are divided into two sectors: the basic (or base) sector and the non-basic sector. According to Sjafrizal (2012), the basic sector serves as the main foundation of a regional economy due to its strong competitive advantage, while the non-basic sector has more limited capacity and functions primarily as a support or service industry to the base sector. The base sector produces goods and services not only for internal consumption but also for export to other regions, whereas the non-base sector focuses on meeting domestic needs without export orientation (Arsyad, 1999). Only base activities are capable of driving regional economic growth, as they bring income into the region from external sources (Tarigan, 2005). One limitation of this model is its heavy reliance on external demand, which can lead to high dependency on national and international markets (Arsyad, 1999).

METHODOLOGY

This study employs a descriptive quantitative approach to present the actual condition of the research object based on numerical data. The research was conducted in North Lombok Regency using secondary data sourced from Statistics Indonesia (BPS) for the period 2018–2023. The data were analyzed using several analytical tools as outlined below.

Location Quotient (LQ) Analysis

The Location Quotient (LQ) is a comparative tool used to assess the contribution of a particular sector or industry within a region relative to its contribution at the national level. According to Hanafi (2021), the analysis uses value-added (income level) as the primary indicator and is calculated using the following formula:

$$LQ_{ji} = \frac{VA_{ji}/VA_i}{PDRBJ/PDRBI}$$

Notation:

LQ_{ji} = Location Quotient of sector *i* in region *J*

VA_{ji} = Value-added of sector *i* in region *J*

VA_i = Value-added of sector *i* at the national/regional level

PDRBJ = Gross Regional Domestic Product of region *J*

PDRBI = Gross Regional Domestic Product at the comparison level (e.g., province)

Dynamic Location Quotient (DLQ) Analysis

DLQ is used to measure the dynamic growth potential of sectors over time. The DLQ index compares the growth rates of a sector in the study area with the growth rate of the same sector in the reference area (West Nusa Tenggara Province) over a specific period. The formula is as follows (Oktavia et al., 2015):

$$DLQ_{ij} = \left[\frac{(1 + g_{ij}) / (1 + g_j)}{(1 + G_i) / (1 + G_j)} \right]^t$$

Notation:

DLQ : Dynamic Location Quotient index

g_{ij} : average growth rate of sector i in North Lombok Regency

G_i : average growth rate of sector i in West Nusa Tenggara Province

g_j : average total GRDP growth rate in North Lombok

G_j : average total GRDP growth rate in the province

t : period of analysis

After conducting LQ and DLQ analyses separately, the next step is to combine both to gain a more comprehensive picture of leading sectors. The combination results in four categories:

- LQ > 1 & DLQ > 1 = Leading Sector
- LQ > 1 & DLQ < 1 = Non-Leading Repositioning
- LQ < 1 & DLQ > 1 = Leading Repositioning
- LQ < 1 & DLQ < 1 = Non-Leading Sector

Shift Share (SS) Analysis

The shift-share approach is used to analyze structural changes in a region's economy compared to a higher-level reference area by comparing sectoral growth at the regency and provincial levels. This analysis includes three main components: national growth effect, industry mix effect, and regional competitive effect (Basuki, 2017). The formula is as follows:

$$G_{ij} = N_{ij} + P_{ij} + D_{ij} \tag{1}$$

a. Shift Share Regional Potential Analysis (PR)

This component measures the extent to which economic growth at the provincial level influences regional economic development. The calculation uses the following equation:

$$N_{in,t} = E_{ir,t-1} X \left(\frac{E_{n,t}}{E_{n,t-1}} - 1 \right) \tag{2}$$

Notation:

$N_{in,t}$ = National growth effect *National growth effect*

$E_{ir,t-1}$ = GRDP of the regional sector in the base year

$E_{n,t}$ = Total provincial GRDP in the final year

$E_{n,t-1}$ = Total provincial GRDP in the base year

b. Shift Share Proportional Shift (PS)

This component provides insight into the relative performance of a particular sector in a region compared to the same sector at the provincial level. It helps identify whether a sector is growing faster or slower locally than it is provincially. The formula is:

$$PS_{irt} = E_{ir,t-1} X \left(\frac{E_{in,t}}{E_{in,t-1}} - \frac{E_{n,t}}{E_{n,t-1}} \right) \tag{3}$$

Notation:

PS_{irt} = Proportional Shift

$E_{ir,t-1}$ = GRDP of sector i in the region in the base year

$E_{in,t}$ = GRDP of sector i in the province in the final year

$E_{in,t-1}$ = GRDP of sector i in the province in the base year

$E_{n,t}$ = Total provincial GRDP in the final year

$E_{n,t-1}$ = Total provincial GRDP in the base year

c. Shift Share Differential Shift

This component assesses the regional competitiveness of a specific sector by comparing its growth in the region to the growth of the same sector at the provincial level. It reveals whether a sector is performing better or worse in the region than in the province overall. The formula is:

$$PS_{irt} = E_{ir,t-1} X \left(\frac{E_{in,t}}{E_{in,t-1}} - \frac{E_{n,t}}{E_{n,t-1}} \right) \tag{3}$$

Notation:

$DS_{ir,t}$ = Local share (differential shift / regional competitive effect)

$E_{ir,t-1}$ = GRDP of sector region, base year PDRB Sektor regional awal

$E_{in,t}$ = GRDP of sector i in the province, final year

$E_{in,t-1}$ = GRDP of sector i in the province, base year

$E_{ir,t}$ = GRDP of sector i in the region, final year

$E_{ir,t-1}$ = GRDP of sector i in the region, base year

Klassen Typology Analysis

Klassen typology analysis is used to categorize economic sectors into four quadrants: leading, developing, potential, and lagging sectors (Aulia Kia & Ichsan, 2023). This classification is based on a combination of Location Quotient (LQ) and Shift Share analysis, as presented in Table 1.

Table 1. Sector Classification Based on LQ and Shift Share

Kriteria	$PB \geq 0$	$PB \leq 0$
$LQ > 1$	Tipe I - Leading Sector	Tipe III - Potential Sector
$LQ < 1$	Tipe II - Developing Sector	Tipe IV - Lagging Sector

Source: Aulia Kia & Ichsan (2023)

According to Martina Ariani et al. (2021), the scatter plot results of Klassen Typology reveal the following:

- a) Quadrant I includes base sectors ($LQ > 1$) that are competitive ($DS > 0$), serving as the primary drivers of the regional economy.
- b) Quadrant II comprises non-base sectors ($LQ < 1$) that are rapidly growing ($DS > 0$), indicating strong potential to become future leading sectors if properly developed.
- c) Quadrant III consists of base sectors ($LQ > 1$) that are less competitive ($DS < 0$), which require strategic attention to maintain their role in supporting the regional economy.

d) Quadrant IV contains non-base sectors ($LQ < 1$) with negative competitiveness ($DS < 0$). These sectors exhibit slower growth and therefore require reevaluation to identify underlying problems and opportunities for improvement.

Multiplier Effect

According to Nisa (2023), the multiplier effect value indicates the extent to which regional economic growth is generated from the development of basic sectors. This development implies an increase in total income and employment opportunities. The growth of these base sectors can produce a multiplier effect on the regional economy, meaning the higher the multiplier value, the more significant the sector's contribution to the overall economy (Reni Muhertenti et al., 2022). (Reni Muhertenti et al., 2022). The formula used to calculate the multiplier effect is as follows (Meilena & Wahed, 2023):

$$k = \frac{1}{(1 - b)}$$

Notation:

k = Multiplier Effect

b = Marginal Propensity to Consume (MPC)

RESEARCH RESULT

Analysis Results

Location Quotient (LQ) Analysis

Table 2. Location Quotient (LQ) Calculation Results for North Lombok Regency

Economic Sector	2019	2020	2021	2022	2023	Average	Description
Agriculture, Forestry, and Fishing	1.48	1.60	1.61	1.64	1.59	1.58	basis
Mining and Quarrying	0.30	0.23	0.24	0.20	0.23	0.24	non basis
Manufacturing	0.31	0.33	0.33	0.34	0.33	0.33	non basis
Electricity and Gas	1.42	1.49	1.50	1.57	1.52	1.50	basis
Water Supply; Sewerage, Waste Management, and Remediation Activities	1.49	1.55	1.57	1.77	1.74	1.62	basis
Construction	0.96	0.99	0.97	1.03	1.02	0.99	non basis
Wholesale and Retail Trade	0.97	1.03	1.03	1.05	1.02	1.02	basis
Transportation and Storage	0.79	0.87	0.87	0.85	0.81	0.84	non basis
Accommodation and Food Service Activities	2.97	2.28	2.28	2.54	2.51	2.51	basis
Information and Communication	0.89	0.89	0.89	0.92	0.90	0.90	non basis
Financial and Insurance Activities	0.73	0.69	0.67	0.76	0.79	0.73	non basis
Real Estate Activities	1.29	1.30	1.30	1.33	1.29	1.30	basis
Business Activities	1.27	1.29	1.30	1.34	1.30	1.30	basis
Public Administration and Defence	1.11	1.17	1.18	1.22	1.19	1.17	basis
Education	1.19	1.27	1.28	1.32	1.27	1.26	basis
Human Health and Social Work Activities	0.86	0.91	0.88	0.91	0.87	0.89	non basis
Other Services Activities	0.96	1.03	1.03	1.08	1.03	1.03	basis

Source: Processed Data, 2025

The LQ results of North Lombok Regency from 2019 to 2023 (Table 2) show that there are 10 base sectors (LQ > 1). These include agriculture (1.58), electricity and gas supply (1.50), water supply and waste management (1.62), wholesale and retail trade (1.02), and accommodation and food services with the highest LQ value (2.51). Other base sectors are real estate, business services, public administration, education services, and other services.

Dynamic Location Quotient (DLQ) Analysis

Table 3. Table 3. DLQ Calculation for North Lombok Regency

Economic Sector	DLQ	Description
Agriculture, Forestry, and Fishing	11.83	Prospective
Mining and Quarrying	0.02	Not prospective
Manufacturing	6.02	Prospective
Electricity and Gas	0.04	Not prospective
Water Supply; Sewerage, Waste Management, and Remediation Activities	2.83	Prospective
Construction	1.34	Prospective
Wholesale and Retail Trade	1.05	Prospective
Transportation and Storage	-1,940.99	Not prospective
Accommodation and Food Service Activities	4.59	Prospective
Information and Communication	0.11	Not prospective
Financial and Insurance Activities	1.02	Prospective
Real Estate Activities	0.76	Not prospective
Business Activities	0.63	Not prospective
Public Administration and Defence	2.83	Prospective
Education	0.68	Not prospective
Human Health and Social Work Activities	0.36	Not prospective
Other Services Activities	0.74	Not prospective

Source: Processed Data, 2025

The Dynamic Location Quotient (DLQ) analysis identifies eight prospective sectors in North Lombok Regency with DLQ values greater than 1. These include agriculture (11.83), manufacturing (6.02), accommodation and food services (4.59), water supply and waste management (2.83), public administration (2.83), construction (1.34), wholesale and retail trade (1.05), and financial services (1.02).

To identify current and future leading sectors, LQ and DLQ analyses were combined. The results highlight which sectors are consistently strong, declining, or emerging. The combined findings are presented in the table below:

Table 4. Combined LQ and DLQ Results for North Lombok Regency (2019–2023)

Economic Sector	LQ	DLQ	Description
Agriculture, Forestry, and Fishing	1.58	11.83	Basis
Mining and Quarrying	0.24	0.02	Non Basis
Manufacturing	0.33	6.02	Reposisi Basis
Electricity and Gas	1.50	0.04	Reposisi Non Basis

Water Supply; Sewerage, Waste Management, and Remediation Activities	1.62	2.83	Basis
Construction	0.99	1.34	Reposisi Basis
Wholesale and Retail Trade	1.02	1.05	Basis
Transportation and Storage	0.84	1,940.99	Non Basis
Accommodation and Food Service Activities	2.51	4.59	Basis
Information and Communication	0.90	0.11	Non Basis
Financial and Insurance Activities	0.73	1.02	Reposisi Basis
Real Estate Activities	1.30	0.76	Reposisi Non Basis
Business Activities	1.30	0.63	Reposisi Non Basis
Public Administration and Defence	1.17	2.83	Basis
Education	1.26	0.68	Reposisi Non Basis
Human Health and Social Work Activities	0.89	0.36	Non Basis
Other Services Activities	1.03	0.74	Reposisi Non Basis

Source: Processed Data, 2025

The combined LQ and DLQ analysis identifies five sectors as currently strong and likely to remain leading sectors: agriculture, water supply and waste management, trade, accommodation, and public administration. Four sectors remain non-base, five sectors have declined from base to non-base, and three sectors show potential to transition into base sectors, namely manufacturing, construction, and financial services.

Shift Share (SS) Analysis

a. Regional Potential (PR) Analysis

Table 5. National Growth Effect Component

Economic Sector	Initial GRDP of KLU	Economic Growth of NTB	National Share
Agriculture, Forestry, and Fishing	1.184,96	0,11	126,66
Mining and Quarrying	144,73	0,11	15,47
Manufacturing	51,83	0,11	5,54
Electricity and Gas	4,62	0,11	0,49
Water Supply; Sewerage, Waste Management, and Remediation Activities	4,03	0,11	0,43
Construction	368,71	0,11	39,41
Wholesale and Retail Trade	488,02	0,11	52,16
Transportation and Storage	193,69	0,11	20,70
Accommodation and Food Service Activities	173,20	0,11	18,51
Information and Communication	78,30	0,11	8,37
Financial and Insurance Activities	90,21	0,11	9,64
Real Estate Activities	140,48	0,11	15,02
Business Activities	8,15	0,11	0,87
Public Administration and Defence	199,34	0,11	21,31
Education	201,39	0,11	21,53

Human Health and Social Work Activities	66,58	0,11	7,12
Other Services Activities	78,90	0,11	8,43
Jumlah Total			371,66

Source: Processed Data, 2025

The National Growth Effect in North Lombok Regency reached IDR 371.66 billion, derived from the 0.11% economic growth rate of West Nusa Tenggara Province. The sectors with the highest national growth effect were Agriculture (IDR 126.66 billion), Trade (IDR 52.16 billion), and Construction (IDR 39.41 billion). These findings indicate that sectors with a strong economic base contribute more significantly to regional growth as a result of provincial-level economic expansion.

b. Proportional Shift (PS) Analysis

Table 6. Proportional Shift Component

Economic Sector	Initial GRDP of KLU	Sectoral GRDP Growth of NTB	Total Sectoral Growth of NTB	Industrial Mix Share (IMS)	Description
Agriculture, Forestry, and Fishing	1.184,9	1,05	1,11	-66,88	Relatively slow
Mining and Quarrying	144,73	1,40	1,11	42,50	Relatively fast
Manufacturing	51,83	1,04	1,11	-3,38	Relatively slow
Electricity and Gas	4,62	1,35	1,11	1,12	Relatively fast
Water Supply; Sewerage, Waste Management, and Remediation Activities	4,03	1,10	1,11	-0,02	Relatively slow
Construction	368,71	1,02	1,11	-33,56	Relatively slow
Wholesale and Retail Trade	488,02	1,08	1,11	-10,76	Relatively slow
Transportation and Storage	193,69	0,89	1,11	-42,74	Relatively slow
Accommodation and Food Service Activities	173,20	0,99	1,11	-20,55	Relatively slow
Information and Communication	78,30	1,28	1,11	13,23	Relatively fast
Financial and Insurance Activities	90,21	1,15	1,11	3,94	Relatively fast
Real Estate Activities f	140,48	1,11	1,11	1,05	Relatively fast
Business Activities f	8,15	1,13	1,11	0,17	Relatively fast
Public Administration and Defence	199,34	1,08	1,11	-5,96	Relatively slow

Education f	201,39	1,11	1,11	0,85	Relatively fast
Human Health and Social Work Activities	66,58	1,14	1,11	2,47	Relatively fast
Other Services Activities	78,90	1,12	1,11	1,23	Relatively fast
Jumlah Total				-117,29	

Source: Processed Data, 2025

Based on the proportional shift analysis, nine sectors in North Lombok experienced faster growth than the provincial average in West Nusa Tenggara (indicated by a positive Industry Mix Share or IMS). These sectors include Mining, Electricity and Gas Supply, Information and Communication, Financial Services, Real Estate, Business Services, Education Services, Health Services, and Other Services. Meanwhile, eight other sectors showed negative IMS values, indicating that North Lombok's economic structure is still largely composed of sectors that are less supportive of growth compared to the overall provincial economic pattern.

c. Differential Shift (DS) Analysis

Table 7. Differential Shift Component

Economic Sector	Initial GRDP of KLU	Sectoral GRDP Growth of KLU	Sectoral GRDP Growth of NTB	Differential Shift	Description
Agriculture, Forestry, and Fishing f	1.184,96	1,04	1,05	-15,63	Not competitive
Mining and Quarrying	144,73	0,99	1,40	-59,17	Not competitive
Manufacturing	51,83	1,02	1,04	-1,15	Not competitive
Electricity and Gas	4,62	1,33	1,35	-0,09	Not competitive
Water Supply; Sewerage, Waste Management, and Remediation Activities	4,03	1,19	1,10	0,34	Competitive
Construction	368,71	1,00	1,02	-7,37	Not competitive
Wholesale and Retail Trade	488,02	1,05	1,08	-17,41	Not competitive
Transportation and Storage	193,69	0,83	0,89	-10,75	Not competitive
Accommodation and Food Service Activities	173,20	0,77	0,99	-37,97	Not competitive
Information and Communication	78,30	1,18	1,28	-7,74	Not competitive
Financial and Insurance Activities	90,21	1,14	1,15	-1,21	Not competitive

Real Estate Activities	140,48	1,02	1,11	-12,97	Not competitive
Business Activities	8,15	1,07	1,13	-0,51	Not competitive
Public Administration and Defence	199,34	1,06	1,08	-2,63	Not competitive
Education	201,39	1,09	1,11	-3,60	Not competitive
Human Health and Social Work Activities	66,58	1,07	1,14	-4,69	Not competitive
Other Services Activities	78,90	1,11	1,12	-0,77	Not competitive
Jumlah Total				-183,29	

Source: Processed Data, 2025

Based on the Differential Shift analysis, most sectors in North Lombok Regency exhibited negative DS values, indicating slower growth compared to the same sectors at the provincial level in West Nusa Tenggara. Out of 17 sectors, only the Water Supply and Waste Management sector recorded a positive DS value (0.34), suggesting a competitive advantage. Even key sectors such as Agriculture, Accommodation and Food Services, and Information and Communication showed negative DS values, reflecting a lack of competitiveness in terms of productivity and efficiency compared to the reference region.

Klassen Typology

Table 8. Klassen Typology Analysis

Economic Sector	Location Quotient	Shift Share	Klassen Typology
	Rata-rata	PB	Kuadran
Agriculture, Forestry, and Fishing	1.58	-82.51	Quadrant III (Potential)
Mining and Quarrying	0.24	-16.67	Quadrant IV (Lagging)
Manufacturing	0.33	-4.53	Quadrant IV (Lagging)
Electricity and Gas	1.50	1.03	Quadrant I (Leading)
Water Supply; Sewerage, Waste Management, and Remediation	1.62	0.32	Quadrant I (Leading)
Construction	0.99	-40.93	Quadrant IV (Lagging)
Wholesale and Retail Trade	1.02	-28.16	Quadrant III (Potential)
Transportation and Storage	0.84	-53.48	Quadrant IV (Lagging)
Accommodation and Food Service Activities	2.51	-58.51	Quadrant II (Developing)
Information and Communication	0.90	5.49	Quadrant II (Developing)
Financial and Insurance Activities	0.73	2.73	Quadrant II (Developing)
Real Estate Activities	1.30	-11.92	Quadrant III (Potential)
Business Activities	1.30	-0.34	Quadrant III (Potential)
Public Administration and Defence	1.17	-8.59	Quadrant III (Potential)
Education	1.26	-2.75	Quadrant III (Potential)

Human Health and Social Work Activities	0.89	-2.22	Quadrant IV (Lagging)
Other Services Activities	1.03	0.46	Quadrant I (Leading)

Source: Processed Data, 2025

The Klassen typology in North Lombok Regency classifies 17 economic sectors into four quadrants based on the results of Location Quotient (LQ) and Shift Share analysis. Quadrant I (Leading) consists of 3 sectors, Quadrant II (Developing) includes 2 sectors, Quadrant III (Potential) comprises 7 sectors, and Quadrant IV (Lagging) contains 5 sectors.

Multiplier Effect

Table 9. Multiplier Effect Analysis

Economic Sector	Multiplier Effect
Agriculture, Forestry, and Fishing	1.55
Mining and Quarrying	1.04
Manufacturing	1.02
Electricity and Gas	1.00
Water Supply; Sewerage, Waste Management, and Remediation Activities	1.00
Construction	1.11
Wholesale and Retail Trade	1.17
Transportation and Storage	1.05
Accommodation and Food Service Activities	1.04
Information and Communication	1.03
Financial and Insurance Activities	1.03
Real Estate Activities	1.04
Business Activities	1.00
Public Administration and Defence	1.06
Education	1.07
Human Health and Social Work Activities	1.02
Other Services Activities	1.02

Source: Processed Data, 2025

The multiplier effect values of economic sectors in North Lombok Regency range from 1.00 to 1.55, with the agriculture sector recording the highest value at 1.55. However, several leading sectors exhibited relatively low multiplier effects. The electricity and gas supply and water supply and waste management sectors, both with a multiplier of 1.00, generated only direct impacts without any multiplier effect. Meanwhile, the other services sector recorded a modest multiplier of 1.02, indicating a minimal indirect contribution. These findings suggest that although certain sectors demonstrate strong competitive advantage, their overall contribution to broader economic stimulation through multiplier effects remains limited.

DISCUSSION

Analysis of Leading Sectors

The analysis of leading sectors aims to identify sectors that have dominant potential in supporting regional economic development (Sumarsono et al., 2017). Based on the results of analyses using the LQ, DLQ, Shift Share, and Klassen Typology methods, the sectors classified as leading in North Lombok Regency include electricity and gas supply, water supply, waste management, and recycling, and other services.

a. Electricity and Gas Supply

The electricity and gas supply sector in North Lombok Regency has demonstrated notable performance, with an average annual growth rate of 8.44% during the 2019–2023 period, despite its relatively small absolute contribution to GRDP, averaging around IDR 5.35 billion (Badan Pusat Statistik, 2024). This sector has an LQ value of 1.50, indicating its classification as a base sector with a higher concentration compared to the West Nusa Tenggara provincial average. Based on the Klassen Typology analysis, this sector falls into Quadrant I, categorized as an advanced and rapidly growing sector. These findings are supported by research from Wahidin et al. (2024), which identified electricity and gas supply as one of thirteen leading sectors in North Lombok, with an average LQ of 2.23 from 2016 to 2022.

The 2018 major earthquake accelerated the recovery of energy infrastructure, driven by Presidential Instruction (Inpres) No. 5 of 2018 concerning the Acceleration of Post-Disaster Rehabilitation and Reconstruction in West Nusa Tenggara Province. In response, Kementerian ESDM (2024) constructed 275 solar-powered street lighting units (PJU-TS) in various affected locations (Kementerian ESDM, 2019). PLN reinforced the infrastructure by operating two 20 kV submarine cable lines, stretching 18.8 km to the Three Gili Islands, increasing electricity capacity from 16 MW to 36 MW (Hidayat, 2020). Renewable energy development included the 5 MW Sambelia Solar Power Plant (PLTS) (Kementerian ESDM, 2020), the Pandanduri Micro Hydro Power Plant (PLTMH) with a capacity of 2×290 kW (Saputra, 2025), and solar PV systems in Gili with a total capacity of 820 kWp, reducing operational costs from IDR 2,528/kWh (diesel) to IDR 1,726/kWh (solar) (Asnawi, 2023).

Theoretically, the electricity sector plays a crucial role in economic development in line with Growth Pole Theory (Perroux), where electricity as a basic input influences productivity across various sectors (Ardi Wicaksana Putra et al., 2020). According to Gai et al. (2024), access to reliable energy is a fundamental prerequisite for sustainable economic growth. Investment in the energy sector has a high multiplier effect, with an estimated multiplier of 1.97, meaning that every IDR 1 trillion in energy spending generates nearly IDR 2 trillion in additional output (Khoirunurrofik & Anas, 2023). In the context of North Lombok, investment in the electricity and gas sector has the potential to multiply economic value added through job creation, reduced energy costs, and support for strategic sectors such as tourism and manufacturing.

b. Water Supply; Sewerage, Waste Management, and Remediation Activities

The water supply and waste management sector in North Lombok Regency shows a unique performance profile, with an average GRDP of around IDR 4.32 billion and the second-highest growth rate after the electricity sector, averaging 5.10% annually (Badan Pusat Statistik, 2024). (This sector recorded a Location Quotient (LQ) of 1.62, indicating a high concentration relative to the provincial average, and a Dynamic Location Quotient (DLQ) of 2.83, reflecting highly dynamic growth. According to the Klassen Typology, the sector falls into Quadrant I, confirming its status as a progressive leading sector. These findings are reinforced by the study of Wahidin et al. (2024), which showed that the water supply, waste management, and recycling sector in North Lombok had an SLQ value of 1.78 and a growth rate of 2.97%, both higher than the regional economic growth average.

The coverage of clean water services in North Lombok Regency has reached 68.4%, nearly meeting the national MDG target of 68.87% Kementerian PUPR (2017). The regional water utility company (PDAM KLU) operates five service offices, including a new branch in Gangga, opened in December 2024 (Redaksi Daily Lombok, 2024). The regency possesses abundant raw water potential, with 46 springs and 127 groundwater points (bore wells) producing a total discharge of 2.09 m³/second, supported by a PDAM system utilizing seven raw water sources Kementerian PUPR (2017). The Ministry of Public Works financed the construction of SPAM Gili Air, worth IDR 30.69 billion, to serve 1,000 household connections (Kementerian Pekerjaan Umum, 2020). Additionally, around six small-scale bottled drinking water (AMDK) companies operate in the area, employing 285 local workers (Sondakh et al., 2019).

In the waste management sector, North Lombok operates 16 Reduce-Reuse-Recycle (TPS-3R) waste processing facilities that were reactivated by the Environmental Agency (Cahaya, 2025), along with 12 waste banks (KLHK, 2022). On Gili Trawangan, an Integrated Waste Processing Facility (TPST) equipped with a shredder machine has increased processing capacity from 2–3 tons to 15 tons per day, enabling the conversion of plastic waste into paving blocks and bricks (Mahardika, 2025). Circular economy initiatives are also being developed in partnership with WWF to promote composting activities in tourism villages. Theoretically, this sector supports Glasson's (1990) economic base theory and Alfred Weber's industrial location theory, in which base activities serving external markets stimulate local economic growth by increasing income flows and demand for local goods and services (Sondakh et al., 2019).

c. Other Services Activities

The other services sector in North Lombok Regency includes a wide range of activities such as personal services, household services, international institutions, tourism services, consulting, repair services, and other individual-based services. This sector recorded an average GRDP of approximately IDR 79.61 billion with an annual growth rate of 3.70% (Badan Pusat Statistik, 2024). It has a Location Quotient (LQ) of 1.03, indicating its status as a base sector, and a Dynamic Location Quotient (DLQ) of 0.74, which reflects stable growth. Based on the Klassen Typology analysis, it is placed in Quadrant I with a growth rate of 0.46%, confirming its characteristics as an advanced and fast-growing sector. According to Suriadi et al. (2022), this

sector—including tourism-related services—plays a crucial role in the local economy of North Lombok.

The growing significance of the service sector is evident from the increasing number of tourist visits to Gili Indah, rising from 656,448 visitors in 2023 to 783,110 in 2024, making it a key source of regional tourism revenue (Putra S. & Cahaya, 2024). Data from the Ministry of Tourism and Creative Economy Pusdatin Kemenparekraf (2024) indicates that approximately 430,437 workers are engaged in the tourism sector in West Nusa Tenggara Province. The North Lombok Tourism Office has implemented community-based tourism village programs, including the launch of the Tourism Village Campaign in Sigar Penjalin Village in 2025 (Media Jurnal Indonesia, 2025). Continuous innovation efforts include the planned replacement of traditional cidomo (horse-drawn carts) with electric vehicles (e-mobility) to improve environmental cleanliness and productivity. Empowerment programs supported by UNDP, such as digital marketing and business management training, have helped improve homestay occupancy rates (Rosidi, 2025).

The development of tourism-based socio-economic activities in North Lombok aligns with Perroux's Growth Pole Theory, in which tourism destinations function as growth centers that stimulate job creation and increased demand for goods and services. Input-output studies indicate that the service sector—especially tourism—has a high multiplier effect. A study in East Java by Aji Suseno & Anas (2017) found that the multiplier of other service sectors was higher than most other sectors. Similar findings have been observed in other remote destinations, such as in Karimunjawa, where marine tourism significantly increased local fishermen's income (Saragi, 2023), and in Raja Ampat, where conservation-based tourism development has boosted the local economy without harming the ecosystem, particularly when managed through participatory approaches Bosawer et al. (2023).

Multiplier Effect of Leading Sectors

Based on the multiplier effect (ME) analysis, the other services sector ranks highest in terms of economic multiplier potential, with an ME value of 1.02 and the highest quarterly GRDP contribution of IDR 79.6 billion. This sector is capable of generating substantial employment—approximately 430,437 workers—and stimulating local economic activity through increased demand for supporting sectors such as culinary services, homestays, local transportation, and handicrafts. In contrast, the electricity and gas supply sector and the water supply, waste management, and recycling sector both have ME values of 1.00, indicating minimal multiplier effects on other sectors. Within the framework of input-output theory, an ME value close to one suggests that each unit increase in final demand only produces an equivalent increase in output, without triggering additional production activities in other sectors (Muljarjadi, 2017).

The low ME values observed in the electricity and water sectors are not due to poor performance, but rather to structural characteristics that result in high leakage—or the outflow of funds from the local economy—due to weak backward linkages and limited forward linkages. As explained in Leontief's multiplier theory, a sector's multiplier effect depends on the extent to which additional spending recirculates within the local economy (Aji Suseno & Anas, 2017). A previous study

by Fortunika et al. (2017) in Banjarnegara found that the agriculture sector had a high income and employment multiplier due to its labor-intensive nature and strong inter-sectoral linkages. To enhance the multiplier effects of sectors such as electricity and water, policies should focus on strengthening inter-sectoral connections, including import substitution through the use of local content, the development of local downstream industries, and integration with regional supply chains. These strategies can increase fund circulation within the local economy and accelerate the structural transformation of regional development.

CONCLUSIONS AND RECOMMENDATIONS

North Lombok Regency, as an underdeveloped region, has three leading economic sectors with the potential to drive development: the electricity and gas supply sector, the water supply and waste management sector, and the other services sector. These sectors play a crucial role in providing basic services and supporting community economic activities. Among them, the other services sector holds a distinct advantage due to its greater capacity to directly engage the local population through tourism-based and creative economy activities, making it more adaptive and inclusive. The contribution of these leading sectors is evident in their ability to support local economic activities, create employment opportunities, and provide essential infrastructure. The other services sector directly stimulates community economic growth, while electricity, gas, water, and waste management serve as the foundation enabling the operation of other sectors. However, to maximize their benefits, efforts must be made to strengthen inter-sectoral linkages and optimize the use of local resources to ensure that economic flows remain within the region.

ADVANCED RESEARCH

North Lombok Regency, as a structurally underdeveloped region, demonstrates a strategic development trajectory through the optimization of three leading sectors—electricity and gas supply, water supply and waste management, and other services—whose synergistic roles underpin both foundational infrastructure and inclusive economic expansion. Among these, the other services sector exhibits a comparative advantage due to its adaptive capacity to integrate tourism-based and creative economy activities, thereby directly engaging local communities and accelerating endogenous growth. While the utility-based sectors function as essential enablers sustaining broader economic operations, the effectiveness of regional development is contingent upon strengthening inter-sectoral linkages and enhancing local resource utilization to prevent economic leakage and ensure the retention of value within the regional economy.

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