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Measuring the economic potential of Tana Luwu: Klassen's Location Qoutient Approach and Typology

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ABSTRACT

The Tana Luwu area, which includes four districts in South Sulawesi, has a diversity of economic potential that has not been fully mapped optimally. An understanding of the leading sectors is essential to support sustainable regional economic development. Therefore, this study aims to analyze the structure and potential of the economic base sector in the Tana Luwu area using the Location Quotient (LQ) approach and Klassen Typology. The results of the study using the LQ method show the diversity of leading sectors. Luwu and North Luwu Regency place the agriculture, forestry, and fisheries sectors as the main basic sectors among other economic sectors. Palopo City places the Financial Services sector as the main basic sector among other economic sectors. East Luwu Regency places the Mining and Quarrying sector as the main basic sector, and is the only basic sector in economic activities. Klassen's Typology Analysis places several economic sectors in Tana Luwu in the developed and rapidly growing category, while other sectors are still in the developed category but are depressed, developed and left behind. These findings provide the basis for the formulation of more focused economic development policies based on the potential for local excellence.

1. Introduction

1.1 Background

Tana Luwu which consists of Luwu, North Luwu, East Luwu, and Palopo City in South Sulawesi Province is an area that has various economic potentials such as agriculture, mining, fisheries, services, and so on. However, this enormous potential does not mean that the distribution and sectoral contribution to the economic growth of each region is distributed according to the potential. In the context of regional development planning, it is important to know the basic or leading sector that have high growth potential and contribute to regional GDP. Therefore, research on regional economic structures like this is strategic and relevant.

As part of efforts to accelerate regional development and reduce inequality, it is worth considering the region's economic base. One such method that can be used in such an exercise is the Location Quotient (LQ), which is a measure used in the identification of the basic sector as a sector of comparative advantage and which makes a major contribution to the local economy compared to provincial or national norms. This basic sector is the main driver of economic activity

and has the potential to produce a considerable multiplier effect in the local economy.

The Location Quotient (LQ) method makes it possible to identify anchor industries [1] which is very important as it is a driver of regional economic development and has the potential to absorb labor and increase value. In addition, to determine the dynamics of comparative economic growth in different regions, it is possible to take advantage of the Klassen Typology model. Klassen's typology categorizes regions into four groups based on economic growth rate and contribution to GDP by sector: developed and fast-growing regions, depressed but developed regions, fast-developing regions, and disadvantaged regions [2] With the Klassen typology, it is possible to analyze the position of each region with respect to the sustainable and equitable development of the region.

The integration of the LQ approach and the Klassen Typology is essential to assess the overall economic potential of Tana Luwu. Studies that synthesize these two approaches specifically for the Tana Luwu case as a geographical and historical context are still significantly limited. In fact, a cross-regional perspective is very relevant in the design of integrated policies that not only target specific cities or districts separately but also relate to relationships and possible synergies between regions. In the context of regional autonomy, where local governments have a lot of flexibility to plan and implement development programs, these findings can be a starting point in developing sectoral strategies based on capabilities at the regional level. It is crucial for local governments to identify which sectors should be prioritized and to study where their regions compare to other regions in economic development.

Previous research has shown that the use of LQ and Klassen Typologies has succeeded in determining comparative advantages in a region as a fundamental basis for making regional economic policies [3]. However, there is still little research that treats the economic structure of Tana Luwu as a separate entity, even though the area has significant historical and cultural ties. An integrated strategy with respect to the entire Tana Luwu area can provide more holistic policy advice in various areas.

The importance of this research is also highlighted in the framework of regional autonomy, where regional economic policies are largely decided by local government authorities. With a holistic analysis of the basic sector and the contribution of the economic sector to the growth typology, policymakers can frame more effective and sustainable economic growth policies, thereby promoting a balance in development progress in various regions.

1.2 Problem Statement

In the context outlined above, it is necessary to conclude that a full understanding of the economic structure of the region, together with the identification of the leading sectors, is at the core of facilitating effective and sustainable development planning. Thus, research is needed that not only describes the sectoral conditions of each region in Tana Luwu but also has the ability to map the relative location of the region within the framework of regional development. Therefore, this study aims to address the following key issues:

1. What are the economic base sectors of Location Quotient in the Tana Luwu area?
2. How does the regional economic sector of Tana Luwu compare to the typology formulated by

the Klassen Typology?
3. What types of economic development policy recommendations can be offered, taking into account sectoral opportunities and inter-regional connections?

1.3 Purpose and Scope

In accordance with the description of the problems mentioned above, this study aims to achieve the objectives in terms of exploration of sectoral economic potential and regional development studies in the Tana Luwu area. The objectives that must be fulfilled in this study are as follows:
1. Using the Location Quotient (LQ) method to identify sectors that are the pillars of the economy in the Tana Luwu area with the intention of ensuring that prominent sectors have comparative advantages and can spearhead regional economic development.
2. Compare the relative location of each area in Tana Luwu with the Klassen Typology, so that the sectoral contribution and growth rate to GDP can be realized, along with areas categorized based on their economic development categories.
3. Draw policy implications for economic development from the findings of the basic sector and identify typologies with the aim of helping the formulation of a more targeted, inclusive, and community-centered type of development, in addition to strengthening inter-regional relations in Tana Luwu.

2. Literature Review

2.1 Related Work

Economic Development

The term development means positive changes obtained as a result of various activities and related outcomes [4]. This activity is carried out as part of the optimization of available resources in several regions [5]. The influence of development can be assessed based on monitoring signs of regional income and individual welfare. Economic sector development is a comprehensive package of strategic and regulatory actions to improve the quality of people's lives, encourage employment, achieve decent income distribution, increase economic linkages between regions, and facilitate the relocation of economic activities from the primary sector to the secondary and tertiary sectors [6].

Economic growth priorities aim to encourage sustainable economic growth in personal income with an even level of distribution. [3] stated that regional economic development requires cooperation between local governments and local communities in order to encourage economic activities at the regional level based on the effective use of existing resources, the formation of strategic public-private collaboration, and the formation of regional economic development dynamics. Basically, regional development is a component of national development; therefore, effective collaboration between local governments and communities is essential for the utilization, creation, development, and optimization of existing resources [7]. The achievement of optimal economic growth has a significant effect on determining the sustainability of economic development in line with improving people's welfare [8]. Gross Domestic Product (GDP) is the main indicator to measure the success of regional development. In addition, there are also

supporting indicators, such as the rate of economic growth, per capita income, and the dynamics of economic structure [2].

Economic Growth

An economy can be declared to grow economically if it succeeds in developing its economic activities. To measure economic performance, accurate instruments are needed, and one such instrument is a measure of economic growth in terms of Gross Domestic Product (GDP) at the national level or Gross Regional Domestic Product (GDP) at the regional level, as the total number of goods and services produced in an economy over a period of one year and priced by the market.

[9] Economic growth is a state that determines the sustainable expansion of economic activities, resulting in an increase in production and supply of goods and services to the community in the long term. It is a theory that explains the continuous improvement in the economic condition of a country in a favorable way in a given period. In essence, economic growth embodies the power of economic activities which translates into the growth of the production of goods and services in society, which ultimately contributes to an increase in the level of collective well-being [10]. This phenomenon expresses the expansion of economic productive capacity that is beneficial to social welfare.

Location Quotient (LQ) Analysis

Walter Isard, a regional-level economist, originally formulated the Location Quotient (LQ) with his book "Methods of Regional Analysis: An Introduction to Regional Science" in 1960. By establishing this LQ method, Isard provides a tool to analyze the functional economic structure of a region by comparing the ratio of one particular economic sector within a given region with the same ratio in a region with a larger geographical area.

The location quotient (LQ) analysis method is a measurement tool that shows the level of specialization of various economic sectors in an area using the basic sector or dominant sector [9]. Measurement of regional sectoral concentrations of economic activity is possible using this method. LQ is very useful in determining the level of specialization of the economic sector in a region [11]. This method is used to compare the sector's contribution to the regional economy with the sector's contribution at the national or provincial level.

'Basic' or 'mainstream' industries are those that make a strong contribution to local development without overexploiting local resources. The efficiency and simplicity characteristics of the LQ approach make it a common tool for conducting primary economic assessments. This advantage facilitates the ease of using longitudinal comparative analysis that is able to trace shifts in sector specialization over a certain period [12]. Therefore, LQ came out as a significant instrument in regional growth and economic planning.

Klassen Typology Analysis

The Klassen Typology Analysis Method is an instrument that provides a general perception of the patterns and characteristics of economic growth in various regions [5]. This technique should identify the relative position of regional economies with respect to the state of the economic sector at a broader (national) level as a benchmark or point of comparison [13].

The use of Klassen's Typological Analysis results in a categorization of four types of sectors with different characteristics, corresponding [2]: Quadrant I: Developed Sector It is one of the sectors that shows a high level of development and is developing very quickly. Quadrant II: Stagnant Sectors include sectors that have made progress but are under pressure or are experiencing constraints in their expansion. Quadrant III: Potential Sectors (Developing Sectors) Consists of sectors that can develop or are in the process of development. Quadrant IV: Underdeveloped Sectors Consists of sectors that are relatively underdeveloped in the development process. This quadrant classification helps local governments and stakeholders identify economic sector development priorities based on the location and nature of each sector in the regional economy.

2.2 Research Gaps

There are several studies on regional economic capacity assessment based on the Location Quotient (LQ) method and Klassen Typology for various regions in Indonesia. Most studies, such as [11] for Malang City, use only one methodology without integrating the two methods combined. Meanwhile, although there have been many studies that combine these two approaches, such as the [14] study in Medan, the scope of the research is only left in locations with relatively well-developed data availability and infrastructure.

As a result, not much has been done in investigating locations with special features, including Tana Luwu. In addition, the existing literature tends to ignore certain local contexts of historically and culturally significant areas such as Tana Luwu, which have unique economic potential that has not yet been adequately explored. Such surveillance is one of the origins of the gap that exists in the literature, especially regarding the understanding of the dynamics of key economic sectors in the setting of the middle-to-lower economic context. Therefore, this study seeks to bridge this gap by analyzing the economic potential of Tana Luwu through an integrated Location Quotient and Klassen Typology approach, resulting in a more comprehensive understanding and a foundation for more contextual and more sustainable development planning.

3. Methodology

3.1 Data Collection

This research was conducted in the Tana Luwu area (Luwu Regency, Palopo City, North Luwu Regency, East Luwu Regency) in the 2020-2023 period. The data used in this study are Gross Regional Domestic Product (GDP) based on constant prices from each region in Tana Luwu, as well as Gross Regional Domestic Product (GDP) data based on constant prices in South Sulawesi province. The data used is sourced from the Central Statistics Agency (BPS).

3.2 Technical Analysis

Qoutiont (LQ) Location analysis method.

To calculate LQ, the following formula is used (Tarigan, 2015):

$$LQ_{ij} = \frac{X_{ij}/RV_j}{X_i/RV} \text{ or } LQ_{ij} = \frac{X_{ij}/X_i}{RV_j/RV}$$

Description:

LQij = Index / *Index of Sector I Location Revenue* in district/city j
Xij = GDP sector i in districts/cities in Tana Luwu
Xi = GDP sector i in South Sulawesi Province
RVj = Total GDP of districts/cities in Tana Luwu
RV = Total GDP of South Sulawesi Province

Based on the results of the Location Quotient (LQ) calculation, the concentration of an activity in an area can be determined by the following criteria:

a. LQ value = 1. This means that the growth rate of sector i in the regional study area in Tana Luwu is the same as the growth rate of the same sector in the economy of the South Sulawesi region
b. LQ value greater than 1. This means that the growth rate of sector i in the regional research area in Tana Luwu is greater than the growth rate of the same sector in the economy of the South Sulawesi region. Thus, sector i is the leading sector of the field of study j as well as the economic basis for further development by the field of study j; and
c. LQ value less than 1. This means that the growth rate of sector i in the research area in Tana Luwu is smaller than the growth rate of the same sector in the economy of the South Sulawesi region. Thus, sector i is not the leading sector of study area j and is not an economic base so that it can be immediately further developed by the field of study j.

Analysis of Klassen's Typology.

To Knowing the results of the analysis of the Klassen typology, the following criteria are used [2]:

Kuadran I **Maju dan Tumbuh Pesat** (***Developed Sector***) yl > y ; rl > r	**Kuadran II** **Maju tapi Tertekan** (***Stagnant Sector***) yl < y ; rl > r
Kuadran III **Berkembang** (***Developing Sector***) yl > y ; rl < r	**Kuadran IV** **Terbelakang** (***Underdeveloped Sector***) yl < y ; rl < r

Information:

r1: Average Contribution of Sector I of Regencies/Cities
r: Average Provincial Contribution of Sector I
y1: Average Growth Rate of Sector I of Districts/Cities
y: Average Growth Rate of Sector I Provinces

3.3 Validation

To provide the reliability and validity of the results of the research on the assessment of Tana Luwu's economic potential using the Location Quotient (LQ) method and the Klassen Typology, various validation methods were used that were methodological and empirical in nature. First of all, the data used for the analysis is collected from official sources, namely the Central Statistics Agency (BPS) and local government agencies, so that the accuracy and reliability of the analyzed information are guaranteed.

Methodological strength is enhanced by triangulation, or integration of the LQ method that defines the basic sectors of the economy with the Klassen Typology that classifies regions in terms of growth and contribution. The integration of the two methods provides more inclusive results, providing insight not only into sectoral potential but also into the contextual determinants of regional economic growth. In addition, for the purpose of testing the reliability of the results, a multi-year longitudinal data analysis was conducted for the stability investigation of the identified key sectors. Where possible, the findings of the analysis are also empirically verified by conducting interviews with relevant stakeholders, Bappeda and the Industry Office, or by conducting targeted field observations in the highest-ranked sectors. With these steps, this research must be able to produce results that are reliable, valid, and relevant to the factual situation in the discipline.

4. Results and Discussion

The results of the analysis of the economic structure of the Tana Luwu region were carried out through the Location Quotient (LQ) approach and Klassen Typology as an effort to identify the basic sectors and levels of regional development in more depth as presented in the following table:

Table 1. Average Calculation of LQ Tana Luwu (2020-2023)

Group	Economic Sector	Luwu	Information	Palopo	Information	Luwu North	Information	East Luwu	Information
A	Agriculture, Forestry and Fisheries	2.38	Leading sector	0.787	Non-featured	2.29	Leading sector	0.98	Non-featured
B	Mining and Quarrying	0.46	Non-featured	0.025	Non-featured	0.35	Non-featured	10.05	Leading sector
C	Processing Industry	0.33	Non-featured	0.182	Non-featured	0.33	Non-featured	0.25	Non-featured
D	Electricity and Gas Procurement	1.21	Leading sector	1.034	Non-featured	1.35	Leading sector	0.65	Non-featured
E	Water Procurement	0.14	Non-featured	2.272	Leading sector	0.04	Non-featured	0.08	Non-featured
F	Building	0.69	Non-featured	1.153	Leading sector	0.95	Non-featured	0.76	Non-featured
G	Wholesale and Retail Trade, and Car and Motorcycle Repair	0.8	Non-featured	1.671	Leading sector	0.76	Non-featured	0.28	Non-featured
H	Transportation and Warehousing	0.25	Non-featured	1.711	Leading sector	0.62	Non-featured	0.21	Non-featured
I	Accommodation and Food Provision	0.57	Non-featured	0.828	Non-featured	0.76	Non-featured	0.12	Non-featured
J	Information and Communication	0.45	Non-featured	0.845	Non-featured	0.61	Non-featured	0.27	Non-featured
K	Financial Services	0.43	Non-featured	2.22	Leading sector	0.43	Non-featured	0.28	Non-featured

Group	Economic Sector	Luwu	Information	Palopo	Information	Luwu North	Information	East Luwu	Information
L	Real Estate	1.75	Leading sector	1.333	Leading sector	0.82	Non-featured	0.58	Non-featured
M, N	Corporate Services	0.06	Non-featured	0.211	Non-featured	0.04	Non-featured	0.11	Non-featured
O	Mandatory Government, Defense, and Social Security Administration	1.03	Leading sector	1.556	Leading sector	1.12	Leading sector	0.53	Non-featured
P	Educational Services	0.66	Non-featured	0.791	Non-featured	1.08	Leading sector	0.38	Non-featured
Q	Healthcare	1.4	Leading sector	1.256	Leading sector	0.45	Non-featured	0.71	Non-featured
R, S, T, U	Other Services	0.22	Non-featured	1.073	Leading sector	0.02	Non-featured	0.08	Non-featured

Source: processed data, 2025

This study seeks to analyze the leading sectors in four regions of Greater Luwu, which include Luwu Regency, Palopo City, North Luwu Regency, and East Luwu Regency, by applying the Location Quotient (LQ) method. This method allows the identification of sectors with comparative advantage, or only basic sectors, that have LQ values above 1.

The results of the Location Quotient (LQ) calculation of Luwu Regency show that the area has several dominant basic industries, including the Agriculture, Forestry, and Fisheries sectors (LQ = 2.38), Electricity and Gas Purchase (LQ = 1.21), Real Estate (LQ = 1.75), Government Administration (LQ = 1.03), and Health Services (LQ = 1.4). This shows that Luwu Regency is highly dependent on the basic sector, especially agriculture, and is supported by high strength in the government and basic services sectors.

Palopo City, on the other hand, as an urban area in the Greater Luwu region, has different economic characteristics. Urban areas have a very heterogeneous and dominant sector in the tertiary sector, consisting of: Water Procurement (LQ = 2,272), Wholesale and Retail Trade (LQ = 1,671), Transportation and Warehousing (LQ = 1,711), Construction (LQ = 1,153), Financial Services (LQ = 2.22), Government Administration (LQ = 1,556), Health Services (LQ = 1,256), Real Estate (LQ = 1,333), and Other Services (LQ = 1,073). This trend shows that Palopo City is an economic center and services at the regional level that provide services to the surrounding area.

North Luwu Regency, the leading sectors are Agriculture, Forestry, and Fisheries (LQ = 2.29), Electricity and Gas Procurement (LQ = 1.35), Government Administration (LQ = 1.12), and Education Services (LQ = 1.08). The area has significant strength in the agricultural industry and is complemented by the availability of public service sectors such as education and government agencies. This shows that North Luwu remains an agrarian area, which is characterized by a relatively significant government role in the local economic structure.

East Luwu Regency shows a very different profile compared to other areas. The Mining and Quarrying sector is the only basic industry with a very high LQ value of 10.05. This shows that East Luwu's economic base is highly dependent on the extractive sector, especially mining. The high dependence on this sector illustrates the exposure to fluctuations in global commodity prices and the need for future economic diversification.

Table 2. Classification of the Economic Sector of Tana Luwu Based on Klassen Typology Analysis (2021-2023)

Analysis	Luwu Regency	Palopo City	North Luwu Regency	East Luwu Regency
Klassen Typology	**Quadrant I:** A. Agriculture, Forestry, and Fisheries L. Real Estate O. Government, Defense and Administration of Compulsory Social Security Q. Health Services and Social Activities	**Quadrant I:** F. Construction K. Financial Services L. Real Estate Q. Health Services and Social Activities R, S, T, U. Other services	**Quadrant I:** A. Agriculture, Forestry, and Fisheries P. Educational Services	**Quadrant I:** -
	Quadrant II: D. Electricity and Gas Procurement	**Quadrant II:** D. Electricity and Gas Procurement E. Water Procurement G. Wholesale and Retail Trade, and Car and Motorcycle Repair H. Transportation and Warehousing O. Government, Defense and Administration of Compulsory Social Security	**Quadrant II:** D. Electricity and Gas Procurement O. Government, Defense and Administration of Compulsory Social Security	**Quadrant II:** B. Mining and Quarrying
	Quadrant III: B. Mining and Quarrying E. Water Procurement F. Construction G. Wholesale and Retail Trade, and Car and Motorcycle Repair I. Provision of Accommodation and Food and Drink J. Information and Communication K. Financial Services P. Educational Services	**Quadrant III:** B. Mining and Quarrying C. Processing Industry	**Quadrant III:** E. Water Procurement F. Construction J. Information and Communication L. Real Estate	**Quadrant III:** E. Water Procurement F. Construction G. Wholesale and Retail Trade, and Car and Motorcycle Repair K. Financial Services L. Real Estate O. Government, Defense and Administration of Compulsory Social Security P. Educational Services
	Quadrant IV: C. Processing Industry H. Transportation and Warehousing M, N. Corporate Services R, S, T, U. Other services	**Quadrant IV:** I. Provision of Accommodation and Food and Drink J. Information and Communication M, N. Corporate Services P. Educational Services	**Quadrant IV:** B. Mining and Quarrying C. Processing Industry G. Wholesale and Retail Trade, and Car and Motorcycle Repair H. Transportation and Warehousing I. Provision of Accommodation and Food and Drink K. Financial Services M, N. Corporate Services	**Quadrant IV:** A. Agriculture, Forestry, and Fisheries C. Processing Industry D. Electricity and Gas Procurement H. Transportation and Warehousing I. Provision of Accommodation and Food and Drink J. Information and Communication M, N. Corporate Services

Analysis	Luwu Regency	Palopo City	North Luwu Regency	East Luwu Regency
			Q. Health Services and Social Activities R, S, T, U. Other services	Q. Health Services and Social Activities R, S, T, U. Other services

Source: processed data, 2025

Klassen Typology Analysis is the process of classifying economic industries within a given region into groups based on two main indicators: the rate of economic growth and the sector's contribution to the Gross Regional Domestic Product (GDP). The results of this classification are useful in identifying sectors that need to be developed, that need to be controlled, and that require special attention from local government authorities. Here, the analysis was carried out in four areas in Tana Luwu, namely: Luwu Regency, Palopo City, North Luwu Regency, and East Luwu Regency.

Luwu Regency Luwu Regency realizes competitive strength in industries that are members of Quadrant I, namely: Agriculture, Forestry, and Fisheries industries; Real Estate; Government Administration; and Health Services and Social Activities. These four industries not only account for a large proportion of regional GDP, but also grow at a higher pace than other industries, showing great potential for strong economic growth to sustain. Quadrant II still has important industries such as Electricity and Gas Procurement, which, despite making a large contribution, is growing relatively slowly. This shows the need for policy support and innovation so that the sector is not left behind dynamically. Several service sectors such as Construction, Finance, and Education are in Quadrant III. These sectors have high growth but their share is still low. Therefore, an intensification strategy is needed to increase its contribution to the regional economy. At the same time, industries in Quadrant IV, such as the Processing and Transportation sectors, need additional attention due to their relatively modest contribution and growth rate.

Palopo City as the center of the city in the Tana Luwu area is characterized by high dynamics in the service sector. The service sector, such as Construction, Financial Services, Real Estate, Healthcare, and Other Services, leads Quadrant I. This means that Palopo City's economic base has moved towards the modern tertiary sector at a high speed. Nonetheless, significant infrastructure sectors such as Electricity and Gas Procurement, Water Procurement, Trade, Transportation, and Government Administration are positioned under Quadrant II. This position suggests that these sectors are stable in the sense that their contributions are consistent, but are starting to show signs of growth stagnation. Activities such as Mining and Processing have high economic growth but their combined contribution is relatively low (Quadrant III), implying that more policy structures and investment initiatives are needed. On the other hand are Information and Communication, Accommodation, Education, and Corporate Services, which are lagging behind (Quadrant IV) and must receive greater focus in future development strategies.

North Luwu Regency In North Luwu Regency, the Agriculture, Forestry, and Fisheries and Education sectors are included in Quadrant I, meaning that this sector is not only growing very rapidly but is also a major contributor to GDP. This shows that North Luwu has a developed

primary sector and human resource development investment. However, basic sectors such as Electricity and Gas Procurement and Government Administration are in Quadrant II. Despite having a high contribution, the sectors concerned show low growth, thus calling for improvements in modernization and service efficiency. Sectors that have high potential but currently contribute very little, such as Construction, Water Supply, and Information Communication, are plotted in Quadrant III. In contrast, most other sectors fall in Quadrant IV, including Mining, Processing Industries, and most service sectors, reflecting the high problems in the balanced distribution of economic growth between sectors.

East Luwu Regency is different from others because it does not have an economic sector that is included in Quadrant I. This lack means that no sector has a high contribution while experiencing strong growth at the same time. The only sector included in Quadrant II is the Mining and Quarrying sector, which means it is dependent, although the growth rate is relatively flat. The majority of industries are in Quadrant III, and they include Construction, Education, and Government Administration. This shows a rapid growth pattern, but the industry has not made a major contribution to the local economy. This situation is exacerbated by the prevalence of Quadrant IV industries such as agriculture, processing, transportation, and other service sector industries, which is a sign of the weakness of the general economic structure in this region. Therefore, East Luwu's development strategy in the future must be based on economic diversification and empowerment of potential industries to overcome structural stagnation.

5. Discussion

The findings obtained provide a detailed explanation of the sectoral economic pattern that varies greatly between districts/cities. The interpretation of these findings is not only related to the local context, but also to a broader understanding of the dynamics of regional development in the period of regional autonomy. In general, the results of the LQ analysis show that Luwu Regency and North Luwu Regency continue to rely on the agriculture, forestry, and fisheries sectors as the dominant sectors. This situation illustrates the dominance of the primary sector in the economic structure of the region. On the other hand, Palopo City is developing into a hub for service-based economic and trade activities, with tertiary sectors such as financial services, transportation, and large-scale trade dominating.

The city of Palopo shows a more complicated process of economic transformation with the growth of the base leading to the non-primary sector. East Luwu Regency shows a very focused economic structure in the field of mining and quarrying, where it has a very high LQ value but with very small contributions from other sectors. This sector orientation gap shows that the structural transformation of the economy in the Luwu Raya area occurs asymmetrically. Palopo City has gone beyond the transition phase from extractive-based to a service-based economy, while other districts such as East Luwu are still in the first stage of transformation or even showing structural dependence on the extractive sector. This has direct implications for the direction of development policies in each region, which need to be adapted to specific sectoral circumstances and different local development needs. The main lesson from the findings is that policies need to be implemented based on a development approach from local potential. Policies should be

contextual, flexible, and non-standard across regions.

In areas where competitive advantages in agro-industry exist, such as in Luwu and North Luwu Regency, economic development policies need to focus on added value through agro-industry development, the implementation of sustainable agricultural innovations, and the strengthening of supply chain integration. At the same time, Palopo City, which has proven to be superior in the trade and service sector, needs the development of urban economic infrastructure, the development of MSMEs, and the acceleration of the digitalization of economic services to increase competitiveness.

East Luwu Regency, on the other hand, needs to urgently develop an economic diversification plan to reduce its excessive dependence on the mining sector, through the establishment of downstream industries and environmentally and socially responsible governance. In addition, this analysis also notes potential inequality in development between regions. The city of Palopo has a much more pluralistic, dynamic, and mature economic system compared to the surrounding districts, which reflects the urban economic system. This divergence, if not managed properly, can widen the gap in the welfare and accessibility of public services in the Tanah Luwu area. Therefore, regional development policies must consider the principles of spatial justice and strengthening connectivity between regions in order to ensure regional economic integration.

The results of the sectoral analysis by Klassen Typology in 2021-2023 also support the structural gap in development in the Greater Luwu area. Luwu and North Luwu districts are still dominated by high dependence on primary sectors such as agriculture and forestry, which despite being grouped in Quadrant I (developed and high-growth sectors), remain vulnerable to commodity price variability, global warming, and the absence of innovation and technology. Sectoral excellence is at risk of drying up if it is not accompanied by adequate downstream and economic diversification. On the other hand, Palopo City shows the progress of economic transformation with a number of tertiary sectors such as construction, financial services, real estate, and health services included in Quadrant I. This shows the city's role as a service center and a driving force for regional economic activities. However, some strategic areas such as trade and transportation included in Quadrant II signal a slowdown in growth that is worth careful consideration, especially in the areas of distribution efficiency, logistics consolidation, and indigenous trade system innovation. The case is particularly evident in East Luwu Regency, where there are no sectors in Quadrant I. The mining and quarrying industries that are the backbone of the economy in the region are in Quadrant II, which means a slowdown in growth despite its large contribution to GDP. The heavy dependence on the extractive sector makes the East Luwu economy vulnerable to world price shocks and the pressure of transition to a low-carbon economy. Most of the other sectors are in Quadrants III and IV, reflecting the weak new growth foundations and limited economic diversification in the region.

These findings overall support more implementation of integrative, adaptive, and local character-based regional planning. The difference between areas that have undergone structural transformation (such as Palopo City) and areas that still depend on the primary or extraction sector (such as East Luwu) must be answered through an asymmetric development approach. This must be accompanied by strengthening regional cooperation, building connectivity networks, and active community involvement to provide a sustainable and equitable development process.

6. Conclusion

This study shows that the regional economic structure and dynamics of the Luwu Raya community experience uneven development between cities/districts. Location Quotient (LQ) analysis revealed that Luwu and North Luwu Regencies are still highly dependent on the primary sector, namely agriculture, forestry, and fisheries, while Palopo City has diversified towards a service-based and trade-based economy. Meanwhile, East Luwu Regency, on the other hand, is highly dependent on the mining sector, showing a concentrated economic structure and is vulnerable to external shocks.

Based on the Klassen Typology method, it has been found that the City of Palopo has only always had industries in Quadrant I (advanced and high-growing), which indicates a relatively more advanced economic change. At the same time, East Luwu Regency does not have a single sector located in Quadrant I, indicating a structural slowdown in economic growth and weak sectoral diversification. This growth gap underscores the need to implement development strategies by local potentials that are responsive to the economic character of each region. Increasing agricultural added value through downstream and innovation should be on the agenda of rural areas such as Luwu and North Luwu, while Palopo needs to advance service and trade infrastructure. East Luwu needs economic diversification and better extractive economic governance to make it more sustainable. Finally, the inter-regional inequalities revealed by this study underscore the need for integrative, asymmetrical, and cooperation-oriented development policies across regions. Cross-regional synergy is needed so that the development of Luwu Raya is pursued in a fair, sustainable, and equitable manner, utilizing local capacity and avoiding the gap between economic disparities and community welfare.

7. Recommendations

Based on the results of the analysis of the regional economic structure through the Location Quotient (LQ) approach and Klassen Typology, policy recommendations that are contextual and adaptive to the sectoral conditions of each region in Tana Luwu are outlined. This recommendation aims to trigger sustainable, inclusive, and local potential-based regional development by each region. The Luwu Regency sector, agriculture, forestry, and fisheries, which are the leading sectors of the industry, need to be considered more seriously to develop added value while being more competitive.

Policies promote down streaming, productivity, and production efficiency. Local governments should also encourage the development of agro-industries that are integrated with local agricultural industries, strengthen the ability of farmers and agribusiness stakeholders to receive appropriate technology training, and build efficient supply chain systems. In addition, the integration of basic infrastructure such as irrigation systems, roads to production areas, and farmers' markets is an important need to promote productivity and income stability among agricultural communities.

North Luwu Regency, which is also still dominated by the primary sector, can develop the role of the education sector, especially vocational education, as one of the regional economic engines. Development strategies should be focused on transforming agriculture with new

technologies and building human capacity in accordance with the needs of the world of work in the agricultural and service sectors. Improving the capacity of the workforce and increasing access to quality education will drive economic transformation towards a balanced structural pattern that is resistant to external shocks.

East Luwu Regency is faced with a very daunting challenge due to its over-reliance on the mining sector. To prevent structural risks and expand the economic base in the region, there must be a gradual but integrated economic diversification. Local governments must design a processing industry sector based on local resources, strengthen the agribusiness sector, and harness the potential of sustainable natural tourism. In addition, the regulation of extractive industries needs to be intensified through sustainability-focused initiatives, such as the implementation of environmental laws, the use of measurable CSR expenditures, and the involvement of local communities in development planning.

The city of Palopo, with evidence of its transformation towards a trade and service-oriented economy, has great potential to become a regional growth hub in Tana Luwu. City governments must strengthen the urban economic system through the promotion of MSMEs, digitization of public services and trade systems, and the construction of efficient transportation and logistics facilities. Palopo City's status as a distribution hub for goods and services can be improved through inter-regional integration, making it an inter-district economic service center that promotes connectivity and balanced development at the regional level. Overall, this policy proposal emphasizes the need for development that is not homogeneous, but tailored to the uniqueness of each region's potential, economic structure, and institutional capabilities.

The region-based development model is a mainstay in strategy making, but with aspects of regional collaboration as a step to reduce inequality and improve the overall competitiveness of Tana Luwu. The policy consequences of this evaluation require a development strategy that is responsive to local economic conditions and with the ability to meet the challenges of structural inequality and growth asymmetry between regions. The achievement of regional development under these circumstances will depend heavily on the ability of provincial and local authorities to translate sectoral potential into concrete, inclusive, and sustainable policy directions. Here, the establishment of regional forums such as the Luwu Raya Economic Forum can be a space for collaboration in formulating a common development agenda, mitigating gaps between regions, and encouraging the provision of equitable welfare throughout the Tana Luwu region.

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