

Research Article

Analysis of the Potential Comparative Advantage of the Plantation Sector in Pidie Jaya Regency Using the LQ Method

Miswardi*, M Rasyidin and M. Saleh

Department of Development Economics, Faculty of Economics, Almuslim University, Aceh, Indonesia, 24261

*Corresponding Author: miswarwarmis155@gmail.com | Phone: +6282259265645

ABSTRACT

Regional economic growth is greatly influenced by leading sectors. In Pidie Jaya Regency, the plantation sector shows significant potential as a foundation of the local economy due to agro-climatic conditions that favor crops such as oil palm, cocoa, and areca nut. Analyzing the sector's comparative advantage is crucial for formulating sustainable and data-driven development strategies. This study employs a quantitative approach using the Location Quotient (LQ) method to assess the comparative advantage of the plantation sector. Secondary data on the GRDP (Gross Regional Domestic Product) of the sector from 2016 to 2024 were analyzed using the LQ formula, comparing regional output with national figures, while also examining growth trends and fluctuations over the period. The results show that the LQ value for the plantation sector in Pidie Jaya remained below 1 throughout the study period, although it exhibited an upward trend. External factors such as the COVID-19 pandemic affected the sector's performance; however, the growth trend indicates further development potential. Additionally, regional GRDP demonstrated stable growth, reflecting the resilience of the local economy.

Keywords: Plantation sector; Location quotient; Regional economy

1. INTRODUCTION

Economic growth, in general, is a process that leads to an increase in Gross Domestic Product (GDP) or Gross National Product (GNP), both in nominal and real terms, over time. This process serves as an important indicator for assessing the development progress of a country (Hartati, 2020). Economic growth reflects the success in increasing the production capacity of goods and services produced by a country within a specific period (Sari et al., 2020). At the national level, economic growth serves as a key parameter influencing fiscal policy, monetary policy, and the direction of long-term development. Moreover, at the regional and local levels, economic growth also plays a vital role in assessing how well an area can manage its potential to improve the welfare of its people (Hanifah & Buchori, 2023).

One of the sectors with significant potential to drive local economic growth in Pidie Jaya Regency is the plantation sector. This regency benefits from favorable agro-climatic conditions for cultivating plantation crops such as oil palm, cocoa, and areca nut, which have become the primary sources of livelihood for much of the local population. To determine the extent of this sector's contribution to the regional economy, a Location Quotient (LQ) analysis is used. This method quantitatively identifies basic and non-basic sectors, providing a data-driven foundation for formulating more targeted and strategic development policies for leading sectors.

The development process is a strategic agenda undertaken by all countries around the world, including Indonesia (Simamora & Sarjono, 2022). In the local context, Pidie Jaya Regency, as part of Aceh Province, actively engages in development efforts aimed at improving the quality of life of its people and promoting regional economic growth. Development in Pidie Jaya spans various sectors, including infrastructure, education, healthcare, and the advancement of productive sectors such as agriculture and plantations. To effectively implement development initiatives, an in-depth analysis of key sectors that significantly contribute to regional economic growth is essential (Rachmadsyah, 2024). This is important to ensure that development policies are focused on strategic sectors with high added value and strong regional competitiveness.

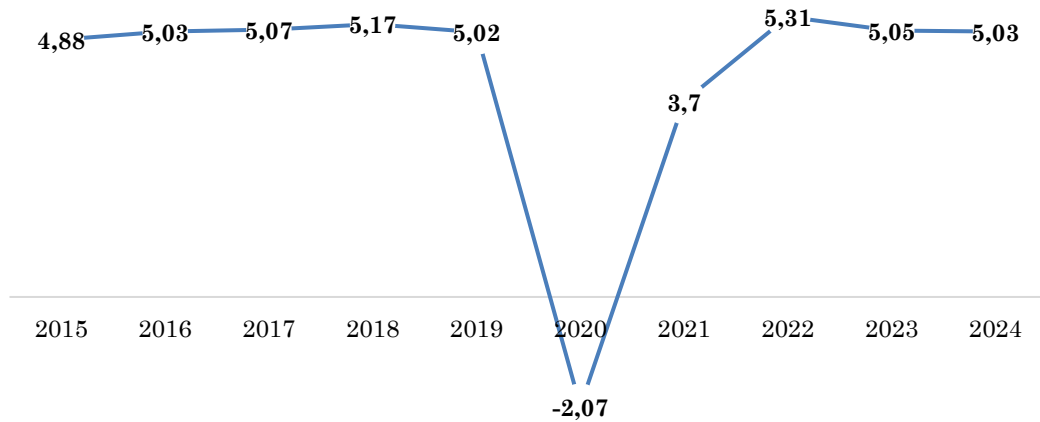


Figure 1. Indonesia's Economic Growth Chart

Source: Statistics Indonesia (Badan Pusat Statistik), 2025

Based on the data from Indonesia's economic growth chart for the fourth quarter of 2024, there is a notable fluctuation in growth between 2015 and 2024. Overall, Indonesia's economic growth during this period ranged between 4.88 percent and 5.31 percent, with a significant decline in 2020 due to the impact of the COVID-19 pandemic, dropping to -2.07 percent. However, following this crisis, Indonesia's economy began to recover positively, reaching a growth rate of 3.7 percent in 2021 and continuing to increase, stabilizing at around 5 percent over the past three years.

This growth should not only be viewed from a national perspective but also analyzed in terms of its distribution across different economic sectors. The distribution of economic growth highlights how sectors such as agriculture, industry, and services contribute to the Gross Domestic Product (GDP). The agricultural sector, including plantations, remains one of the key pillars of the economy in regions like Aceh, particularly in Pidie Jaya Regency, where the majority of the population relies on this sector for their livelihood. Therefore, understanding the distribution of economic growth is crucial to identifying sectors that play a strategic role in regional development and in formulating more inclusive and sustainable development policies (Benazir, 2025). Aceh Province is one of the regions in Indonesia with high economic potential derived from various sectors (Prabasari & Purnomo, 2024). This advantage is not only based on the oil and gas and fisheries sectors but also on plantations, agriculture, and tourism, which are spread across its regencies. Pidie Jaya Regency, as part of Aceh Province, has an economy predominantly driven by the primary sector, particularly the plantation sector. Its favorable natural conditions and vast availability of land serve as key supporting factors for the development of this sector. Additionally, the presence of a sufficient labor force and a strong local culture of farming further strengthen the plantation sector's role as one of the main pillars of the regional economy (Safitri & Dianita, 2021).

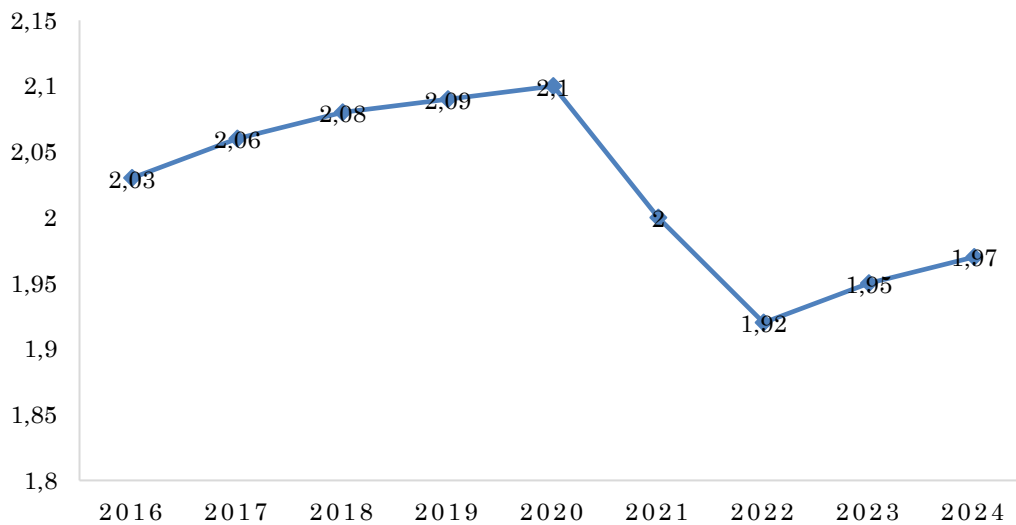


Figure 2. Percentage Distribution of Pidie Jaya's Gross Regional Domestic Product (GRDP) from 2016 to 2024

Source: Statistics Indonesia (Badan Pusat Statistik), 2025

Based on the chart of the Percentage Distribution of Pidie Jaya Regency's Gross Regional Domestic Product (GRDP) from 2016 to 2024, noticeable fluctuations reflect the dynamic contribution of the region's economy to the total GRDP. In 2016, the GRDP stood at 2.03 percent and gradually increased, peaking in 2020 at 2.11 percent. This rise indicates improvements in economic activity and the contributions of productive sectors in Pidie Jaya. However, in 2021, there was a sharp decline to 2.00 percent, followed by a further drop in 2022 to 1.92 percent. This decrease was most likely a result of the prolonged effects of the COVID-19 pandemic, which weakened regional economic performance. Nevertheless, a recovery trend became apparent in 2023 and 2024, with the percentage rising to 1.95 percent and 1.97 percent, respectively. This suggests that Pidie Jaya Regency is beginning to show signs of economic recovery, although it has not yet fully returned to pre-pandemic levels

The percentage distribution of economic growth in the plantation sector in Pidie Jaya from 2016 to 2024 shows a generally significant upward trend, reflecting the sector's strong potential in driving regional economic growth. In 2016, the plantation sector grew by 9.86 percent but declined to 5.63 percent in 2017. After that, growth gradually increased, reaching 8.08 percent in 2018 and rising steadily to 18.31 percent in 2019. However, in 2020, there was a sharp drop to 4.87 percent, likely due to the initial impacts of the COVID-19 pandemic on agricultural activities and the distribution of plantation products. Interestingly, from 2021 to 2024, the sector experienced a significant surge in growth, reaching 24.79 percent in 2021, 25.54 percent in 2022, 30.9 percent in 2023, and peaking at 31.9 percent in 2024. This remarkable growth indicates that the plantation sector in Pidie Jaya has high economic resilience and strong potential to continue being developed as a leading sector in supporting sustainable regional development.

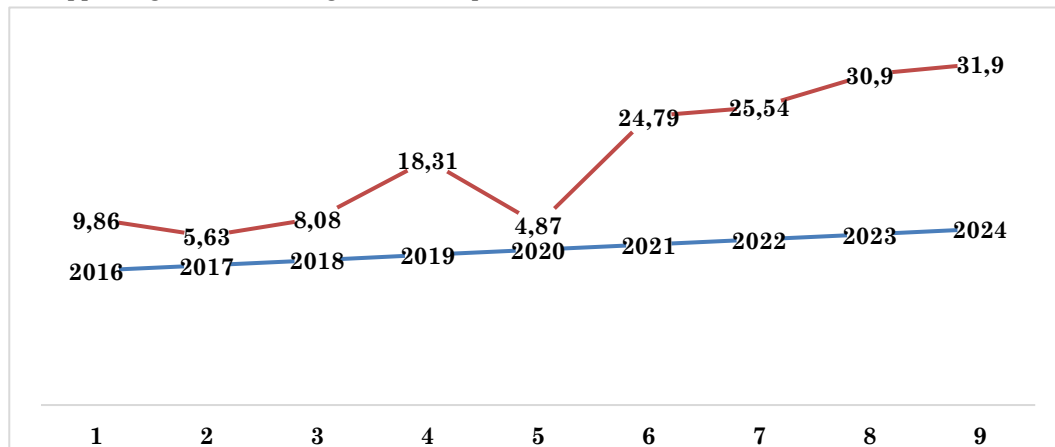


Figure 3. Percentage Growth Chart of the Plantation Sector

Source: Statistics Indonesia (Badan Pusat Statistik), 2025

Based on Figure 3, the economic growth of the plantation sector in Pidie Jaya Regency demonstrates a highly dynamic pattern and reflects the sector's resilience in facing various economic challenges. Theoretically, the fluctuating growth of the plantation sector during the period from 2016 to 2020 can be explained by the theory of economic cycles and external impacts. The sharp decline to 4.87 percent in 2020 reflects the economic shock caused by the COVID-19 pandemic, which affected supply chains, labor availability, and market access. However, the remarkable surge in growth beginning in 2021 and reaching 31.9 percent in 2024 shows that the plantation sector possesses the characteristics of a basic sector. This means it can recover quickly and even surpass pre crisis conditions, which is in line with the theory of basic economics stating that basic sectors have strong competitiveness and a significant multiplier effect on the regional economy.

This phenomenon is worth further investigation, as the consistently high growth of the plantation sector over the past three years indicates the potential for structural economic transformation in the region. It suggests that this sector could become the main driver of economic development in Pidie Jaya Regency. Therefore, the use of Location Quotient analysis is highly relevant to confirm the plantation sector's position as a leading sector and to formulate sustainable regional economic development strategies based on comparative advantage.

2. RESEARCH METHOD

This study employs a quantitative approach with a focus on analyzing the competitive advantage of the plantation sector in Pidie Jaya Regency using the Location Quotient (LQ) method. The data used consists of secondary data from the Gross Regional Domestic Product (GRDP) of the plantation sector and the total GRDP of Pidie Jaya Regency, as well as national-level data for the period from 2016 to 2024. These data are analyzed to measure the comparative advantage of the regional plantation sector compared to the national level and to identify the contribution of this sector within the structure of the regional economy.

The Location Quotient (LQ) method is chosen because it provides a clear picture of how dominant a sector is within the regional economy compared to the national economy. The formula used for LQ is as follows:

$$LQ_i = \frac{\frac{E_{i,d}}{E_d}}{\frac{E_{i,n}}{E_n}}$$

Where:

LQ_i = Location Quotient for sector i in the region

$E_{i,d}$ = Output or employment in sector i at the regional level

E_d = Total output or employment across all sectors in the region

$E_{i,n}$ = Output or employment in sector i at the national level

E_n = Total output or employment across all sectors at the national level

An LQ value greater than 1 indicates that the plantation sector is a leading or base sector in the economy of Pidie Jaya Regency. Conversely, a value less than 1 suggests that the sector is less dominant compared to the national level.

In addition to the LQ calculation, this study also conducts a descriptive analysis of the growth data of the plantation sector over the study period. This analysis aims to understand the trends and fluctuations that occurred, as well as to examine external factors such as the COVID-19 pandemic that influenced the performance of the sector. The results of this analysis will be used to provide strategic recommendations for the development of the plantation sector in the region.

3. RESULTS AND DISCUSSION

This study analyzes the contribution of the plantation sector to the economy of Pidie Jaya Regency using the Location Quotient (LQ) approach based on data from 2016 to 2024. The analysis is carried out by comparing the output value of the plantation sector at the regional level with that at the national level, as well as examining the growth trends of the sector and the total production of leading commodities.

3.1 The Development of GRDP in Pidie Jaya Regency (2016-2024)

Gross Regional Domestic Product (GRDP) is a key indicator that reflects the economic performance of a region over a specific period. In the context of Pidie Jaya Regency, the development of GRDP from 2016 to 2024 indicates relatively stable local economic growth. Using the unit of billion rupiahs, this data provides a real picture of the region's economic output without taking inflation into account.

Table 1. Development of Pidie Jaya Regency's GRDP Contribution to National GDP (2016–2024)

Total GRDP of Pidie Jaya Regency (in Billion Rupiahs)								
2016	2017	2018	2019	2020	2021	2022	2023	2024
2.2	2.3	2.4	2.6	2.58	2.64	2.73	2.85	2.97

Source: Processed Data (2025)

During the period from 2016 to 2024, the Gross Regional Domestic Product (GRDP) of Pidie Jaya Regency generally showed an upward trend. The GRDP increased from IDR 2.2 trillion in 2016 to IDR 2.97 trillion in 2024. Although there was a slight decline in 2020 due to the impact of the COVID-19 pandemic, the overall economy of Pidie Jaya demonstrated consistent recovery and sustainable growth. This indicates that economic activity remained positive, supported by the potential of the region's leading sectors.

In addition to nominal growth, the year-on-year increase in Pidie Jaya's GRDP also reflects improvements in the local economic structure. The steady rise from 2016 to 2024, with only a minor disruption in 2020, illustrates the region's economic resilience to external shocks such as a global pandemic. The relatively swift post-2020 recovery also suggests that Pidie Jaya Regency has been able to adapt and implement responsive development strategies, particularly in the agriculture, trade, and service sectors. This indicates that economic growth is not only temporary but is beginning to move toward long-term sustainability.

Furthermore, while Pidie Jaya's GRDP contribution to the national GDP remains quantitatively small, it carries significant qualitative importance in the context of regional development. Every increase in GRDP represents economic movement within the community, such as rising production of goods and services, local investment, and consumer purchasing power. Therefore, this growth trend serves as an important foundation for the local government in formulating future economic policies. A focus on leading sectors such as integrated agriculture, small and medium industries (SMEs), and local tourism can further promote more inclusive GRDP growth and have a direct impact on community welfare.

3.2 Economic Growth of the Plantation Sector

The economic growth of the plantation sector in Pidie Jaya Regency has shown significant development over the period from 2016 to 2024. This sector is one of the main drivers of the regional economy, with its GRDP value nearly doubling within that timeframe. Although it experienced a decline in 2020 due to the impact of the COVID-19 pandemic, the plantation sector managed to recover and demonstrated a growth trend through to 2024.

Table 2. GRDP of the Plantation Sector in Pidie Jaya Regency
(in Billion Rupiah)

GRDP of the Plantation Sector									
2016	2017	2018	2019	2020	2021	2022	2023	2024	
220	235	250	300	270	320	360	410	450	

Source: Processed Data (2025)

The data indicate that the plantation sector in Pidie Jaya holds significant potential and serves as a strategic driver of regional economic development. The steady growth in output reflects the sector's resilience in the face of challenges and highlights its vital contribution to the local economy. Therefore, continued support for the development of the plantation sector is essential to promote community welfare and regional prosperity.

At the national level, the plantation sector also demonstrates stable and sustainable growth from 2016 to 2024. Despite a slight decline in 2020, the sector rebounded in subsequent years, with increasing output values. This trend underscores the importance of the plantation sector as one of the major contributors to the national Gross Domestic Product (GDP).

Table 3. National GDP of the Plantation Sector
(in Billion Rupiah)

National GDP of the Plantation Sector									
2016	2017	2018	2019	2020	2021	2022	2023	2024	
530	560	590	620	610	650	735.907	770	800	

Source: Processed Data (2025)

The national plantation sector has demonstrated resilience and significant growth throughout the observation period. The consistent increase in output value serves as an indicator that this sector still holds considerable potential for further development. This positive trend also reflects that the plantation sector remains a vital pillar in the structure of Indonesia's economy.

3.3 Results of National Gross Domestic Product (GDP) Calculation

The National Gross Domestic Product (GDP) is a key indicator that reflects the overall condition and development of a country's economy. Based on the available data from 2016 to 2024, there is a clear upward trend in the national GDP, indicating the economic growth of Indonesia. Although a decline occurred in 2020 due to the impact of the COVID-19 pandemic, the national GDP managed to recover and continued to grow in the subsequent years.

Table 4. Total National GDP (in Trillion Rupiah)

Total National GDP									
2016	2017	2018	2019	2020	2021	2022	2023	2024	
12.401	13.587	14.838	15.833	15.434	16.97	19.588	21.95	23.5	

Source: Processed Data (2025)

The national GDP data indicate strong and relatively stable economic growth over the long term, with the GDP value increasing from IDR 12,401 trillion in 2016 to IDR 23.5 trillion in 2024. The decline in 2020 was a direct consequence of the pandemic; however, the rapid recovery in the following years reflects the resilience of the national economy and the effectiveness of the implemented economic recovery policies.

3.4 Location Quotient (LQ) Calculation Results

The Location Quotient (LQ) is an analytical tool used to measure the comparative advantage of a particular economic sector in a region compared to the same sector at the national level (Negara & Putri, 2020). An LQ value greater than 1 indicates that the sector has a higher concentration in the region and can be considered a leading or base sector. The table below presents the LQ values of the plantation sector in Pidie Jaya Regency from 2016 to 2024, based on the Gross Regional

Domestic Product (GRDP) data for the plantation sector and total GRDP at both regional and national levels.

Table 5. Location Quotient (LQ) Values of the Plantation Sector in Pidie Jaya Regency (2016–2024)

Year	Plantation GRDP of Pidie Jaya (Rp M)	Total GRDP of Pidie Jaya (Rp M)	National Plantation GDP (Rp M)	Total National GDP (Rp M)	LQ
2016	23.5	1.158.000	1.800.000	14.000.000	0
2017	26.2	1.275.000	1.900.000	15.000.000	0
2018	29.8	1.431.000	2.000.000	16.000.000	0
2019	37.2	1.778.000	2.200.000	17.000.000	0
2020	36	1.710.000	2.100.000	16.500.000	0
2021	45.1	1.900.000	2.200.000	17.500.000	0
2022	49.8	2.050.000	2.300.000	18.500.000	0
2023	54.5	2.180.000	2.400.000	19.500.000	0
2024	59.5	2.300.000	2.500.000	20.000.000	0

Source: Processed Data (2025)

Based on the calculation results, the Location Quotient (LQ) value of the plantation sector in Pidie Jaya Regency from 2016 to 2024 tends to show an increasing trend, although the LQ value remains below 1. This indicates that the plantation sector in Pidie Jaya still contributes relatively little compared to the national plantation sector as a whole, and cannot yet be considered a leading sector with a high comparative advantage.

However, the increasing trend in the LQ value year by year shows a growing potential in the plantation sector in Pidie Jaya. Development efforts and investment in this sector should be further focused so that the LQ value can exceed 1 in the future, indicating that the plantation sector has become a key and leading sector in the regional economy. Therefore, these results can serve as a basis for formulating regional development policies that are more focused on strengthening the plantation sector.

Research findings indicate that the plantation sector in Pidie Jaya Regency experienced positive growth from 2016 to 2024, both in terms of the GRDP value of the plantation sector and its contribution to the total regional GRDP. Although the LQ value of the plantation sector is still below 1, the increasing LQ trend shows that this sector has promising development potential. This indicates that the plantation sector has not yet become the main leading sector in Pidie Jaya, but its role in the regional economy continues to increase. This growth is supported by increased production of plantation crops such as oil palm and pepper, which contribute significantly to the output of the plantation sector.

Furthermore, a comparison between the growth of the plantation sector at the regional and national levels indicates that Pidie Jaya needs to implement various strategies to strengthen this sector in order to compete and achieve a comparative advantage. Increasing productivity, investing in agricultural technology, and developing markets for plantation products are key factors that need to be addressed. With appropriate policy support, the plantation sector can become a main driver of the regional economy and improve the welfare of the local community. Therefore, the LQ calculation results provide important insights for local governments in designing development programs based on local potential.

Based on previous studies, the plantation sector in various regions shows a similar pattern in the context of growth and its role in local economic development. A study conducted by Salqaura (2020) shows that the plantation sector makes a significant contribution to the GRDP in several regencies in Sumatra, especially in areas with leading commodities such as

oil palm, rubber, and coffee. Although the initial LQ value was low, with proper policy interventions such as improved infrastructure, farmer training, and market access, the sector was able to develop into a basic sector that supports sustainable regional economic growth.

In line with that, a study by Anwar (2023) also found that the increasing trend in LQ value, although still below 1, is a promising early indicator in local potential-based development. They emphasized the importance of the role of local governments in directing investment and agricultural policy to enhance the competitiveness of local commodities. In the context of Pidie Jaya, the positive trend in the LQ value of the plantation sector from 2016 to 2024 can be seen as a signal that this sector is in a transition phase toward becoming a leading sector. By learning from these previous studies, Pidie Jaya has a great opportunity to make the plantation sector a base sector, especially if accompanied by strategies to strengthen farmer institutions and post-harvest processing (Zulfikar & Rozaili, 2023).

Thus, the LQ calculation results in the plantation sector in Pidie Jaya Regency should not be overlooked. This data not only reflects the current condition but also provides a strong foundation for designing medium- and long-term strategic policies. The success of other regions in enhancing the role of the plantation sector through targeted development strategies proves that Pidie Jaya can also follow a similar path. Therefore, an evidence-based approach and inter-regional comparisons will be very helpful in developing more adaptive and locally potential-based sectoral development programs.

4. CONCLUSION

The plantation sector in Pidie Jaya Regency has shown positive growth during the period from 2016 to 2024, as reflected by the increasing GRDP value of the plantation sector and its contribution to the regional economy. Although the Location Quotient (LQ) value remains below 1, the upward trend indicates the potential for this sector to develop as one of the pillars of the local economy. Therefore, strengthening efforts through productivity improvement and supportive policies are needed so that the plantation sector can become a more significant source of economic growth in the future.

REFERENCES

- Anwar, F. M. (2023). Apakah Sektor Agrikultur Masih Merupakan Ujung Tombak Kesejahteraan Masyarakat Di Provinsi Lampung? *Syntax Literate ; Jurnal Ilmiah Indonesia*, 6(6), 5867–5883.
- Benazir, B. (2025). Menggagas Kesejahteraan Ekonomi Perempuan Berpendapatan Rendah Melalui Koperasi Mitra Dhuafa. *Hei Ema : Jurnal Riset Hukum, Ekonomi Islam, Ekonomi, Manajemen Dan Akuntansi*, 4(1), 1–17. <https://doi.org/10.61393/Heiema.V4i1.281>
- Hanifah, N., & Buchori, I. (2023). Peran Sektor Ekonomi Dan Kependudukan Dalam Pembangunan Wilayah Kabupaten Cilacap. *Region : Jurnal Pembangunan Wilayah Dan Perencanaan Partisipatif*, 18(1), 225. <https://doi.org/10.20961/Region.V18i1.60013>
- Hartati, N. (2020). Pengaruh Inflasi Dan Tingkat Pengangguran Terhadap Pertumbuhan Ekonomi Di Indonesia Periode 2010 – 2016. *Jurnal Ekonomi Syariah Pelita Bangsa*, 5(01), 92–119. <https://doi.org/10.37366/Jespb.V5i01.86>
- Negara, A. K. K., & Putri, A. K. (2020). Analisis Sektor Unggulan Kecamatan Toboali Dengan Metode Shift Share Dan Location Quotient. *Equity: Jurnal Ekonomi*, 8(1), 24–36. <https://doi.org/10.33019/Equity.V8i1.11>
- Prabasari, R. I., & Purnomo, D. (2024). Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi Provinsi Jawa Tengah Tahun 2019-2022. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, 18(6), 4291. <https://doi.org/10.35931/Aq.V18i6.4165>
- Rachmadsyah, A. S. (2024). Analisis Sektor Unggulan Dan Infrastruktur Dalam Pengembangan Wilayah Kota Sabang. *Bappenas Working Papers*, 7(2), 169–187. <https://doi.org/10.47266/Bwp.V7i2.335>
- Safitri, T. O., & Dianita, E. R. (2021). Aren: Antara Kearifan Lokal Dan Persaingan Global (Studi Ekofeminisme Terhadap Perempuan Di Alam Desa Campoan, Kecamatan Mlandingan, Kabupaten Situbondo). *Ngarsa: Journal Of Dedication Based On Local Wisdom*, 1(2), 143–154. <https://doi.org/10.35719/Ngarsa.V1i2.126>
- Salqaura, S. S. (2020). Analisis Korelasi Sektor Pertanian Dengan Kemiskinan Di Provinsi Sumatera Utara. *Jurnal Agristan*, 2(1). <https://doi.org/10.37058/Ja.V2i1.2343>
- Sari, Y., Nasrun, A., & Putri, A. K. (2020). Analisis Pengaruh Indeks Pembangunan Manusia Dan Kemiskinan Terhadap Pertumbuhan Ekonomi Kabupaten/Kota Di Provinsi Kepulauan Bangka Belitung Tahun 2010-2017. *Equity: Jurnal Ekonomi*, 8(1), 1–13. <https://doi.org/10.33019/Equity.V8i1.9>
- Simamora, J., & Andrie Gusti Ari Sarjono. (2022). Urgensi Regulasi Penataan Ruang Dalam Rangka Perwujudan Pembangunan Berkelanjutan. *Nommensen Journal Of Legal Opinion*, 59–73. <https://doi.org/10.51622/Njlo.V3i1.611>
- Zulfikar, Z., & Rozaili, R. (2023). Efektivitas Program Pengembangan Pemberdayaan Masyarakat Pada Dinas Sosial Kabupaten Pidie Jaya. *Jurnal Sosial Humaniora Sigli*, 6(1), 246–256. <https://doi.org/10.47647/Jsh.V6i1.1556>