MELAWI REGENCY ECONOMIC PILLAR: BUILDING FROM TRADITION TO INNOVATION

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ABSTRACT

\textbf{Purpose:} The design of the industrialization planning pattern in Melawi Regency aims to build a strong foundation for sustainable economic growth through a series of integrated analyses. This includes analyzing the strengths of the sectors that support the local economy, identifying the industrial sectors with the greatest potential to develop the Melawi Regency economy, and evaluating industrial products that could be developed to maximize their positive impact on the economy. These objectives are designed to produce strategies that not only increase the production and competitive capacity of local industries but also ensure that growth is inclusive and provides broad benefits to the people of Melawi.

\textbf{Method/design/approach:} This study analyzes Melawi Regency's industrial sub-sectors using Location Quotient and Shift Share Analysis to identify specialization and assess performance. It highlights growth areas, sectoral linkages, and comparative advantages for strategic development and policy guidance.

\textbf{Results and conclusion:} This research shows that Melawi Regency has significant potential in the agriculture, forestry, and fisheries sectors, as well as the processing industry. Rubber and palm oil were identified as superior products. Development efforts should focus on increasing added value through product diversification and infrastructure upgrades. Development gaps between regions need to be addressed to improve national welfare and stability. The analysis suggests the integration of development strategies that harness local potential and strengthen key economic sectors for long-term growth.

\textbf{Originality/value:} This research comprehensively analyzes the potential of the industrial sector in Melawi District, focusing on the identification of regional superior products and the development of strategic plans integrated with national policies and local needs. The value of this research includes providing insights for strategic decision-making in local economic development, increasing production capacity and economic diversification, and strengthening cooperation between sectors to support inclusive and environmentally friendly economic growth.

\textbf{Keywords:} District Industrial Sector, Location Quotient, Shift Share Analysis, Regional Economic Strength.

RESUMO

\textbf{Objectivo:} A concepção do padrão de planeamento da industrialização na Regência de Melawi visa construir uma base sólida para o crescimento econômico sustentável através de uma série de análises integradas. Isto inclui analisar os pontos fortes dos sectores que apoiam a economia local, identificar os sectores industriais com maior
potencial para desenvolver a economia da Regência de Melawi e avaliar os produtos industriais que poderiam ser desenvolvidos para maximizar o seu impacto positivo na economia. Estes objectivos são concebidos para produzir estratégias que não só aumentem a produção e a capacidade competitiva das indústrias locais, mas também garantam que o crescimento seja inclusivo e proporcione amplos benefícios ao povo de Melawi.

Método/deseño/abordagem: Este estudo analisa os subsetores industriais de Melawi Regency usando Quociente de Localização e Análise de Compartilhamento de Turnos para identificar a especialização e avaliar o desempenho. Destaca áreas de crescimento, ligações sectoriais e vantagens comparativas para o desenvolvimento estratégico e orientação política.

Resultados e conclusión: Esta investigación muestra que a Regência de Melawi tem um potencial significativo nos sectores da agricultura, silvicultura y pesca, bem como na indústria de transformação. Borracha e óleo de palma foram identificados como produtos superiores. Os esforços de desenvolvimento devem centrar-se no aumento do valor acrescentado através da diversificação dos produtos e da modernização das infra-estruturas. As lacunas de desenvolvimento entre as regiões precisam de ser abordadas para melhorar o bem-estar e a estabilidade nacionais. A análise sugere a integração de estratégias de desenvolvimento que aproveitem o potencial local e fortaleçam os principais sectores económicos para o crescimento a longo prazo.

Originalidad/valor: Esta investigación analisa de forma abrangente o potencial do sector industrial no distrito de Melawi, centrándose na identificación de productos regionais superiores e no desenvolvimento de planes estratégicos integrados con as políticas nacionais e as necesidades locais. O valor desta investigación incluí fornecer informacións para a tomada de decisións estratégicas no desenvolvemento económico local, aumentar a capacidade de producción e a diversificación económica, e reforzar a cooperación entre sectores para apoiar o crecemento económico inclusivo e amigo do ambiente.

Palavras-chave: Sector Industrial Distrital, Quociente de Localização, Análise de Partilha de Turnos, Força Económica Regional.

RESUMEN

Propósito: El diseño del patrón de planificación de la industrialización en Melawi Regency tiene como objetivo construir un base sólida para el crecimiento económico sostenible a través de una serie de análisis integrados. Esto incluye analizar las fortalezas de los sectores que apoyan la economía local, identificar los sectores industriales con mayor potencial para desarrollar la economía de Melawi Regency y evaluar los productos industriales que podrían desarrollarse para maximizar su impacto positivo en la economía. Estos objetivos están diseñados para producir estrategias que no sólo aumenten la producción y la capacidad competitiva de las industrias locales sino que también garanticen que el crecimiento sea inclusivo y proporcione amplios beneficios al pueblo de Melawi.

Método/diseño/enfoque: este estudio analiza los subsectores industriales de Melawi Regency utilizando el análisis de cociente de ubicación y participación de turno para identificar la especialización y evaluar el desempeño. Destaca áreas de crecimiento, vínculos sectoriales y ventajas comparativas para el desarrollo estratégico y la orientación de políticas.

Resultados y conclusión: Esta investigación muestra que Melawi Regency tiene un potencial significativo en los sectores agrícola, forestal y pesquero, así como en la industria procesadora. El caucho y el aceite de palma fueron identificados como productos superiores. Los esfuerzos de desarrollo deberían centrarse en aumentar el valor añadido mediante la diversificación de productos y la mejora de la infraestructura. Es necesario abordar las brechas de desarrollo entre regiones para mejorar el bienestar y la estabilidad nacionales. El análisis sugiere la integración de estrategias de desarrollo que aprovechen el potencial local y fortalezcan sectores económicos clave para el crecimiento a largo plazo.

Originalidad/valor: Esta investigación analiza exhaustivamente el potencial del sector industrial en el distrito de Melawi, enfocándose en la identificación de productos regionales superiores y el desarrollo de planes estratégicos integrados con las políticas nacionales y las necesidades locales. El valor de esta investigación incluye proporcionar conocimientos para la toma de decisiones estratégicas en el desarrollo económico local, aumentar la
capacidad de producción y la diversificación económica, y fortalecer la cooperación entre sectores para apoyar un crecimiento económico inclusivo y respetuoso con el medio ambiente.

**Palabras clave:** Sector Industrial Distrital, Cociente de Ubicación, Análisis de Participación de Cambio, Fortaleza Económica Regional.

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1 INTRODUCTION

Industrial sector development is part of long-term economic efforts directed at achieving a stronger and more balanced economic structure (Hayami & Godo, 2005). The emphasis on economic development is driven by the industrial sector supported by a strong agricultural sector because Indonesia is an agricultural country (Brodjonegoro, 2019). The Industrial Sector plays an important role in stabilizing domestic economic conditions so this sector needs attention, especially the small and medium industry sector, by creating a conducive business climate so that the goals of economic development can be achieved which include increasing national/regional income, expanding employment opportunities, and income equality (OECD, 2004).

To accelerate regional economic development, it is necessary to increase investment in business fields that have a large relationship with other business fields (Zou et al., 2024) Thus, it will be able to encourage other business fields that support the business fields that are used as key or leading, so that it will be able to increase overall regional production through its multiplier impact. Nevertheless, economic development, including the industrial sector, must still pay attention to harmonization with sustainable environmental management (SEC, 1999).

Based on the mandate of Law No. 4 of 2014 to develop the industrial sector in the regions, each region is required to prepare a Regional Industrial Development Plan (RPIK). However, in its preparation, it must consider the Regional Spatial Plan (RTRW) including harmony and balance between socio-economic activities and environmental carrying capacity so that there is certainty of an appropriate location according to spatial planning. RPIK contains the direction of industrial development in an area, including the development of environmentally friendly industrial estates in the region. The industrial area to be developed is expected to become the center of industrial activities so it needs to be equipped with supporting facilities and infrastructure managed by industrial estate companies. The available facilities and infrastructure will increase industrial competitiveness and investment. For the development
process of the regional industrial sector to be successful, strategic collaboration between the government and the private sector is needed.

Studying Melawi Regency is important for several reasons that are closely related to the challenges and potentials faced by the Southeast Asian region in general. Firstly, the agriculture, forestry, and fisheries sectors play an important role in the local and regional economy, providing opportunities for sustainable economic growth through exports and increased productivity. Second, issues such as deforestation, reforestation, and their impact on CO2 emissions, as well as the social and ecological impacts of land use policies, are critical topics that must be carefully managed to ensure a balance between economic growth and environmental sustainability.

Third, given the diversity of industrial structures and the challenges of urbanization, understanding the local dynamics of Melawi Regency can provide insight into how economic diversification and infrastructure development can contribute to economic stability and community welfare. In addition, consideration of the rural population, which is an important aspect of economic and social development, and the challenges faced in the transition of agricultural land, emphasizes the importance of strategic planning and inclusive policies.

The study of Melawi District offers an opportunity to put research and theory into practice, enabling evidence-based policy-making to address the complex issues at hand. These include collaborative conservation strategies, participatory forest management, and integrated approaches to land use that support economic development without compromising the environment or social equity. Melawi District is thus a microcosm of rich lessons for sustainable development in Southeast Asia and beyond.

Throughout 2015 – 2019, the industrial sector was able to contribute an average of 16.20% of Melawi Regency's GDP. This donation is the second largest donation after the agricultural and plantation sectors. This indicates that the industrial sector is still one of the leading sectors in Melawi Regency because of its considerable contribution to the regional economy. Because its role is still quite large for the economy of Melawi Regency, and to develop the industry mandated in Law No. 3 of 2014 concerning Industry, the local government followed up in the form of preparing a District Industrial Development Plan (RPIK). In addition, local governments also need to develop SMIs with digital platforms, development of natural resources-based industries, and development of industrial areas. Based on this background, an analysis of industrial potential in Melawi Regency is needed in the context of preparing the District Industrial Development Plan.
In general, the problems faced by industrial development in West Kalimantan are as follows; 1) Has many limitations on access and supporting infrastructure, types, and capacities owned; 2) The distribution of economic potential has not been well mapped; 3) There is no reference for comprehensive and integrated industrial development efforts, which in nature this is a guide for local governments, the business world and the community; 4) The unavailability of comprehensive references related to the direction of product development (regional superior products), markets and investment in industrial development efforts in Melawi Regency (Prov.Kalbar, 2017)

To accelerate industrial development in the regions, the Government can carry out several things, such as strengthening human resources through strengthening industrial vocation, deepening industrial structure through strengthening industrial chains, labor-intensive industries, and export orientation. However, as with the obstacles faced in general in the process of industrial development outside Java, Melawi Regency also experienced several obstacles, including land regulations that were not conducive and the lack of supporting infrastructure such as ports, energy, housing, and reservoirs. To overcome the problems mentioned above, a comprehensive planning pattern is needed.

The statement on research gaps identified from the background and objectives of this study emphasizes the lack of in-depth analysis of the potential of specific industrial sectors in Melawi District, especially in the identification and development of regional superior products. This statement does not mean to suggest that the government is not doing its job properly towards Melawi Regency. Instead, he underlined that previous studies, which may have included government planning, generally focused on macroeconomic analysis—which is broad and general—without exploring in detail the potential of specific industrial sectors or product development strategies that could have a significant economic impact on Melawi District.

This study aims to fill the gap by providing a more focused analysis on the strength and potential of the industrial sector in Melawi District in supporting the local economy, aiming to: 1. Analyse the strength of sectors that support the economy in Melawi District: This includes understanding what sectors of the economy currently contribute greatly to Melawi Regency's GDP and how these sectors can be optimized for greater economic growth. 2. Analyze the strength of the industrial sector in supporting the economy in Melawi District: This study seeks to identify industrial sectors with high potential for growth and development, as well as what factors can increase their contribution to the local economy. 3. Analyze the potential of industrial sector products that can be developed in Melawi District: The focus here is to identify specific industrial products that have the potential to become regional superior products,
considering local resources, market needs, and possible economic impacts of developing those products.

In short, this study does not directly assess the government's performance towards Melawi District. Instead, it seeks to develop a deeper understanding of the special potentials in Melawi District that have not yet been fully explored or utilized for sustainable and inclusive economic growth. This research offers new perspectives and potential new strategies that can sustainably improve local well-being.

2 THEORETICAL REASONS

The theory that supports this research can be explained through several key literature and theoretical frameworks relevant to the context of industrial sector development and economic growth in Melawi District. These theoretical reasons include an understanding of local economic dynamics, industrial potential, and sustainability of development. The following is some literature and theories that can support the theoretical rationale for this research: (1) Alfred Weber's Industrial Location Theory: This theory explains the importance of location in industrial development based on factors of transportation costs, labor, and access to markets (Drewes & van Aswegen, 2024). In the context of Melawi District, this can help understand why certain industrial sectors are more developed than others based on their geographical location and available resources. (2) Endogenous Growth Theory: This theory emphasizes internal factors, such as technological innovation, the quality of human resources, and infrastructure as the driving force of economic growth (Xiang et al., 2024). In the context of Melawi District, this analysis can identify how far internal resource development can strengthen the industrial sector and support sustainable economic growth. (3) David Ricardo's Theory of Comparative Advantage: This concept explains how regions or countries can benefit from international trade by focusing production on goods and services where they have a comparative advantage (Akram et al., 2024). This is relevant to identify potential industrial products in Melawi Regency that can be developed for export markets. (4) Porter's Five Forces Model: This model is used to analyze industry and market competition (DuCoin & Kuo, 2024), which can assist Melawi District in evaluating the intensity of competition in the industrial sector as well as the potential benefits. This is important in identifying industrial sectors that have the potential to drive the local economy. (5) Sustainable Development Theory: This theory emphasizes the importance of meeting the needs of current generations without compromising the ability of future generations to meet their needs (Wen & Zhang, 2024). This is critical in the context of
Melawi Regency to ensure that industrial development focuses not only on economic growth but also on environmental preservation and social justice.

Through the application of these theories, the research aims to provide an in-depth analysis of the strength and potential of the industrial sector in Melawi District, focusing on sustainable and inclusive development. This includes analyzing economic sectors that contribute greatly to local GDP, identifying industrial sectors with high potential for growth and development, as well as identifying specific industrial products that have the potential to become regional flagship products. This research seeks to develop a deeper understanding of specific potentials in Melawi District that have not yet been fully explored or tapped, offering new strategies that can improve local welfare in a sustainable manner.

Using Industrial Location Theory to understand the influence of geographical variables on industrial location in Melawi District, emphasis is given to the importance of Location Quotient (LQ) analysis. LQ helps identify economic sectors whose specialization is higher compared to broader references, for example on a national scale. In the context of Melawi District, LQ can reveal industrial sectors that have competitive potential and comparative advantage based on geographical location, natural resources, infrastructure, and labor availability. This enables strategic mapping for industry development, directing investment, and designing policies that support the growth of leading sectors. This approach is by the background that highlights the importance of industrial sector development as part of long-term economic efforts to achieve a stronger and more balanced economic structure, as well as harmonization with sustainable environmental management. Article (Nie et al., 2022; Tanjung et al., 2021; Wunarlan et al., 2023) discusses the use and improvement of Location Quotient (LQ) in the evaluation of water consumption. The study shows distortions in conventional LQ models and proposes improved LQ models to make evaluations more realistic and accurate, particularly in water resources management. This article is relevant for understanding the application of LQ in geographic and sectoral contexts, such as industry, and offers insight into how geographic variables affect industry location through a more precise analysis of LQ.

Using the Regional Growth Theory and Shift Share Analysis approaches in the context of Melawi District, we can assess how certain sectors affect regional economic growth. This theory explains that regional economic growth is uneven and influenced by the unique characteristics of each region, including the dominant industrial sector. Shift Share Analysis helps in separating economic growth caused by specific national, sectoral, and regional factors. In the case of Melawi District, this analysis can reveal the extent to which the growth of the industrial sector, compared to other sectors, contributes to the regional GDP. This enables a
better understanding of which sectors are most effective in driving local economic growth and allows for more focused policymaking to support those sectors while paying attention to harmonization with a sustainable environment. Studies (Ahmadov, 2022) highlight the importance of structural changes in economic growth in the Visegrad and South Caucasus countries, pointing out that the manufacturing sector plays an important role in increasing productivity and economic growth. Research (Ahmadov, 2022) in Nelson Mandela Bay, South Africa, uses shift-share analysis to uncover the dynamics of job growth and industry competitiveness, identifying factors influencing regional economic growth. Meanwhile, analysis (Ahmadov, 2022) Sri Lanka is finding the country's competitive advantage compared to other tourist destinations, suggesting strategies to improve market specialization and destination management.

In the context of Melawi District, Economic Development Theory underlines the importance of strategies that focus on increasing added value, economic diversification, and infrastructure development to spur sustainable economic growth. This strategy includes the development of the industrial sector with an emphasis on small and medium industries, the creation of a conducive business climate, and the expansion of employment opportunities. Investment in sectors with large linkages to other businesses is needed to increase regional production and create a multiplier impact. This is in line with the need to develop a Regional Industrial Development Plan that is in line with the Regional Spatial Plan, ensure harmony between economic and environmental activities, and develop environmentally sound industrial estates with facilities and infrastructure that support industrial competitiveness. Strategic collaboration between the government and the private sector is key to achieving this goal, harnessing local potential and strengthening key economic sectors for sustainable development. The article (Ahmadov, 2022) used shift-share analysis methods to assess the economic impact of tourism in Petra between 2007 and 2017, including job changes. The study suggests that growth in most tourism-related industries as well as public administration and education, may be due to an increase in population in the region. The decline in tourism over the years resulted in a slowdown in growth in other sectors, although there was moderate growth due to natural economic expansion.

3 RESEARCH METHODS

In this research, quantitative data was processed to determine the potential of leading industrial subsectors in Melawi Regency. The analytical tools used include:
3.1 ANALISIS LOCATION QUOTIENT (LQ)

This analysis is used to determine the level of specialization of economic sectors in a region or what sectors are the base sector or leading sector. This technique presents a relative comparison between the capabilities of a sector in the area under investigation with the capabilities of the same sector in the area of reference. Location Quotient (LQ) analysis is a statistical method for identifying the economic specialization of a region compared to a larger area (such as a nation) (Maspaitella & Parinussa, 2021). LQ measures how concentrated a particular industry is in a region relative to the concentration of that industry in the reference area. An LQ value greater than 1 indicates specialization or economic strength in the sector, while a value below 1 indicates that the sector is less developed compared to the reference area. LQ is considered a statistical method because it uses quantitative data to calculate the proportion of employment in a particular sector relative to total employment in local and reference areas. This allows an objective and measurable comparative analysis of the economic specialization of the area. This method relies on statistical principles to provide insight into the distribution and concentration of industries, which aids in evidence-based economic decision-making and planning.

\[
LQ = \frac{X_r}{RV_r} \times \frac{X_n}{RV_n}
\]

(1)

where:

\(X_r\): Production value of sector or sub-sector i in the district/city area
\(RV_r\): Total GRDP of the district/city

3.2 ANALYSIS SHIFT SHARE

The difference between Shift Share and LQ lies in, (1) Shift Share explains economic changes by dividing into national share, industry share, and regional share. Data from the industrial sector of the region is compared with data from the industrial sector on a national scale and in the same span. (2) While LQ only looks at the economic potential of the base but does not explain the performance in a time-vulnerable manner. Data related to economic or labor activities.
\[ LQ = \frac{X_r/X_n}{RV_r/RV_n} \]  \tag{2} 

where:

- \( X_n \): Production value of sector or sub-sector i in the provincial area
- \( RV_n \): Total GRDP of the province

This method is used to determine regional economic performance, structural shifts, relative positions of economic sectors, and identification of regional leading sectors about the economy of the reference region (wider regions such as provinces) within a certain period.

The basic concept of shift-share analysis relates to budget policy. This analysis can also accommodate the interests of local governments when faced with limited data constraints and inadequate resources. Shift share analysis is analyzing the performance of growth or changes in various indicators of economic activity. So the data seen is preliminary data and year-end data only.

In the economy changes are determined by 3 important components (Bendavid-Val, 1983): (1) National economic growth, (2) Industry mix, and (3) Regional share.

The advantages of shift-share analysis include: (1) Analysis that is relatively simple, but provides a fairly accurate picture of economic growth and structural changes. (2) With relatively easy analysis so that beginners can easily learn it

Behind the existence of advantages also have weaknesses. The disadvantages of shift-share analysis include: (1) Can only be used for ex-port analysis, (2) Benchmark problems about homothetic change, (3) certain period data in the middle of the observation period are not revealed. (4) In this analysis which only uses the beginning and end periods so that if it is used for guessing, further analysis is needed (5) It cannot be used to see the relationship between sectors (6) There is no linkage between regions.

The Shift Share component consists of (1) KPN (National Growth Component), namely changes in production or employment opportunities of a region caused by changes in production, national economic policies, and other policies that can affect economic sectors in a region, such as exchange rate policies, inflation control. (2) KPP (Proportional Growth Component) is a change in production or employment of a region caused by the composition of industrial sectors in the region, sector differences in final product demand, and differences in market structure and diversity. (3) KPPW (Regional Share Growth Component) is a change
in production or employment opportunities of a region caused by the comparative advantage of the region, institutional support, socio-economic infrastructure, and local policies in the region.

Formula Shift Share:

\[ \text{PE} = \text{KPN} + \text{KPP} + \text{KPPW} \]  \hspace{1cm} (3)
\[ \text{PB} = \text{KPP} + \text{KPPW} \]
\[ \text{PN} = \text{ri} \left( \frac{N_{t'}}{N_t} - 1 \right) \]
\[ \text{PP} = \text{ri} \left( \frac{n_{t'}}{n_t} - \frac{N_{t'}}{N_t} \right) \]
\[ \text{PPW} = \text{ri} \left( \frac{r_{i'}}{r_i} - \frac{n_{t'}}{n_t} \right) \]

Information:

PE: Economic Growth
PB: Local economic growth
KPN: Component of Provincial Growth
KPPs: Components of Proportional Growth
KPPW: Components of Regional Share Growth
RI: GRDP sector i districts in the early years
ri': GDP sector i districts in the final year
Nt: Provincial GDP in the early years
Nt': provincial GDP in the final year
nt: GDP sector i province in the early years
nt': GDP of sector i province in the final year
If PB is 0 then the sector is progressive
If PB < 0 then the sector retreats

3.3 REGIONAL TYPOLOGY ANALYSIS OR KLASSEN TYPOLOGY

This analysis bases the grouping of a sector by looking at the growth and contribution of a particular sector to the total GDP of a region. The Klassen typology divides regions based on two main indicators, namely regional economic growth and per capita income of the sector (Katti et al., 2019). Through this analysis, four characteristics of different economic growth patterns and structures are obtained, namely: fast-forward and fast-growing sectors (high growth and high income) or developing sectors, advanced but depressed sectors (high income but low growth) or prime sectors, fast-growing sectors (high growth but income) or potential sectors, and relatively lagging sectors (low growth and low income) or underdeveloped sectors,
which: $Y_{\text{SECTOR}}$: Ith sector value, $Y_{\text{PRDB}}$: average GDP, $r_{\text{SECTOR}}$: Ith sector growth rate, $r_{\text{GRDP}}$: GDP growth rate

### 3.4 EMPIRICAL RESEARCH RESULTS

The development of Melawi Regency that has been carried out so far has not shown progress, considering that as a new district, the results of the expansion of regional development are still in the early stages of development. There are still many problems and challenges that have not been fully solved, so efforts need to be continued to overcome them in the next 20 years of development.

Spatial arrangement according to designation is a fundamental problem today. Future countermeasures are (a) enforcement of spatial use discipline by the government, community, and the business world; (b) improve synchronization with the spatial planning of West Kalimantan Province; (e) it is still necessary to improve the competence of the performance of spatial and land control officers; (e) the large chance of deviation in the function of space so that effective supervision is needed.

Urban and rural development needs to be sharpened, among others, through (a) building cities as an economic network with sub-districts and villages to encourage economic growth; (b) development of district capitals and fast-growing sub-districts as a buffer for economic activity and urbanization; (c) increase the productivity of rural areas with a network system and economic structure steadily; (d) improve the arrangement of cities that are livable, harmonious, beautiful, orderly and oriented towards the preservation of good environmental quality; (e) improve the management and financing of urban and rural infrastructure development and other social facilities.

Reducing development gaps between regions is not only to improve people's welfare but also to maintain national stability and unity. Therefore, the main goal to be achieved is to reduce inequalities between regions with equitable development, especially to reduce gaps in the quality of life and welfare of the community.

The unrealization of the principle of integrated, integrated, and harmonious development to minimize regional inequality disparities between regions, economic disparities, community income disparities, space utilization, and land management.
3.5 ECONOMIC STRUCTURE

The economic structure of Melawi Regency is 73.42% supported by the sector; 1) Agriculture, Forestry, and Fisheries; 2) Wholesale and Retail Trade, and Car and Motorcycle Repair; 3) Construction; 4) Informatics and Communication; 5) Government Administration, Defense, and Social Security; 6) Processing Industry. The size of the Processing Industry Company is divided into 4 groups, namely: 1) Large Industry (the number of workers of 100 people or more); 2) Medium Industry (workforce of 20-99 people); 3) Small Industry (labor force of 5-19 people); 4) Home Industry (the number of workers of 1-4 people). Included in the processing industry are the food, beverage, chemical, pharmaceutical, consumer goods packaging, and biotechnology industries. In the processing industry, the main factors are ingredients, not parts; formulas, not bills of materials; and bulk materials rather than individual materials.

3.6 EMPLOYMENT

Wage provision is a reward/remuneration from the company to its workforce for achievements and services contributed to production activities. According to Article 1 paragraph 30 of Law No. 13 of 2003 concerning Manpower, wages are workers/laborers' rights received and expressed in the form of money in return from employers or employers to workers/laborers determined and paid according to a work agreement, agreement, or legislation, including benefits for workers/laborers and their families for a job and/or service that has been or will be performed.

The contribution of the population working in the industrial sector in 2015-2019 shows the percentage of the population working in the industrial sector in Melawi Regency over four years, based on data from BPS Melawi Regency. In 2015, out of a total workforce of 102,000 people, 2.0% of them worked in the industrial sector. This figure increased to 3.5% from 110,000 people in 2017, then rose again to 4.5% from 108,000 people in 2018. However, in 2019, there was a decrease of 4.0% from 109,000 people. This shows there are fluctuations and a general trend of growth in the participation of the industrial sector in the regional economy until 2018, which then experienced a small decline in 2019.

The data shows the distribution of villages in Melawi Regency where the majority of the population works in the agricultural sector, divided according to specific agricultural sub-sectors. Most villages, such as Sokan, Tanah Pinoh, Sayan, and North Pinoh, have residents....
working exclusively in the rubber sector. Tanah Pinoh Barat, Ella Hilir, and Menukung also have some residents working in the rice and coffee sectors but are still dominant in rubber. Belimbing and Belimbing Hulu stand out with the existence of villages whose residents work in the palm oil and rubber sectors. In total, there are 165 villages counted, with the rubber sector dominating as many as 150 villages oil palm 9 villages, and the rice and coffee sectors represented by 6 and 1 villages respectively.

In Melawi Regency in 2018, the average total labor wage including bonuses, overtime, gifts, and accident allowances averaged Rp 3,672,253 per month. The average wage of the largest production workers is in the type of Chemical Industry and Goods from Chemicals (KBLI 20) with an average monthly wage of Rp 6,566,000. The Rubber Industry and Rubber Goods (KBLI 22) is in second place with an average monthly wage of Rp 4,174,000. Labor wages in the Food Industry (KBLI 10) are in third position with an average wage of Rp 3,552,000. The average wage of the smallest workers in the Beverage Industry is Rp 2,217,000.

3.7 LQ (LOCATION QUOTIENT)

Analysis location quotient (LQ) is an analysis used to determine the extent of specialization of economic sectors in an area that utilizes the base sector or leading sector. The graph shown depicts the average Sectoral Location Quotient (LQ) for 2016-2020 across different sectors. LQ is a measure that shows how concentrated an industry is in a particular region compared to national concentrations. A value above 1 indicates that a sector is more concentrated in the region than the national average, which can indicate the region's specialization within that sector. The data shows the health and social services sector appears to have the highest concentration in the region, followed by government administration, defense, and compulsory social security. Meanwhile, sectors such as manufacturing and corporate services have lower LQs, signaling a lack of relative concentration in the region compared to the national average.

3.8 SHIFT SHARE

The study uses a shift-share approach to analyze business field dynamics based on the 2010 series. Nij describes "Local Share," which measures the contribution of local to sector growth. Mij is a "Proportional Share," reflecting a comparable share based on overall industry growth. Cij, "Competitive Share," measures the sector's competitive advantage in the local area.
Dij, "Differential Share," is the difference between the actual growth of the sector and what is expected based on national trends. For example, the agriculture, forestry, and fisheries sectors showed significant growth in local contributions and competitive advantages. Meanwhile, the mining and quarrying sector has negative growth in terms of competitive advantage, pointing to challenges within the sector.

The survey shows differential share from various business categories based on the 2010 series through the shift-share approach. This share differential value reflects the difference between local sector growth and expected growth based on national trends. Sectors with a high positive share differential indicate a significant competitive advantage in the area, while negative values indicate that the sector is underdeveloped compared to the national average. Surveys help in analyzing sectors that are the main drivers of the local economy and that may require development strategies to improve their performance.

3.9 TIPOLOGY KLASEN

The Klassen Typology analysis tool is used to find out an overview of the pattern and structure of economic growth of each region. The Klassen typology divides regions based on two main indicators: economic growth on the vertical axis and sector contribution on the horizontal axis.

Klassen's Typology Analysis categorizes economic sectors in Melawi Regency based on their growth and contribution. Quadrant I, primary and construction sectors, are known as sectors experiencing expansion, signaling strong and dominant growth. In Quadrant II, sectors such as water and waste management have the potential to expand, although they are not currently fully developed. Lagging sectors, such as agriculture, forestry, and fisheries, were in Quadrant III, performing below average. Finally, sectors with negative or stagnant growth, such as electricity and gas, are placed in Quadrant IV. This analysis helps in planning regional economic development strategies focusing on specific sectors. The position of the Processed Industry in Melawi Regency is on average positive growth and negative sector contribution when compared to West Kalimantan Province.
4 ANALYSIS AND DISCUSSION

4.1 ANALYSIS OF LARGE INDUSTRIAL POTENTIAL

From the results of the potential analysis, 2 (two) products can be relied on in industrial development in Kabupabaten Melawi, namely Rubber and Palm Oil Products.

4.1.1 Rubber

The largest plantation production in Melawi Regency is rubber and oil palm plantations. The area of rubber plants that are still producing in 2020 is 20,747 ha, all of which are developed with the pattern of community plantations with a production of 49,016 tons of rubber. Oil palm plants still partially produce derived from the PIR pattern. This number is growing every year. In addition to the two main commodities above, Melawi Regency also has the production of other plantation crops such as deep coconut, pepper, coffee, palm, and areca nut.

The survey results explain the Indication of the Rubber Industry Development Program in Melawi Regency for the period 2027-2042 shows several phases of development. In the period 2027-2032, the main focus will be on the compound/crumb rubber industry and the latex concentrate manufacturing industry. This program also aims to make the concentrated latex industry a staple household need and develop other rubber goods industries as well as the rubber wood industry for boards or furniture (Kennedy et al., 2017). In the next periods, 2032-2037 and 2037-2042, the plan was not only maintained but also expanded by adding compound processing industries into household goods as well as automotive components, signaling initiatives for product diversification, and possibly increased added value in the rubber sector.

Support for extensification and intensification in the context of the rubber industry has been carried out in China for the sustainable growth of this industry (Viswanathan, 2008). Extensification refers to the expansion of rubber planting areas into new areas to increase production, while intensification focuses on increasing productivity through more efficient farming methods and the use of technology. Both strategies are needed to meet growing domestic and global demand. Government support through policies and investments in research and development can help address challenges such as suboptimal climate conditions and limited land, ensure a stable supply of raw materials for rubber-based industries, and maintain competitiveness in the global market.
4.1.2 Palm Oil

In addition, the largest plantation production in Melawi Regency is oil palm. The area of oil palm plants that are still producing in 2020 is 28,564 ha, all of which are developed with the pattern of community plantations with a production of 15,167 tons of oil palm. Oil palm plants still partially produce derived from the PIR pattern. This number is growing every year. The flow chart presented explains the various derivative products and the final uses of Crude Palm Oil (Crude Palm Oil - CPO) and Palm Kernel Oil (PKO). CPO is processed into Olein and Stearin, which are further used to produce various products ranging from cooking oil and biodiesel to soap and margarine. PFAD (Palm Fatty Acid Distillate) is another derivative that leads to the production of biofuels and glycerin, of which glycerin is a key ingredient in cosmetics and pharmaceuticals. Vitamin E and fatty acids derived from CPO are used in supplements and soaps, while PKO is processed into lauric acid, myristic acid, capric acid, and caprylic acid which are used in the soap, cosmetic, supplement, and food industries.

The results of the study show data on the development of oil palm areas and production by independent or independent smallholders in Melawi District for 2020. This data covers various sub-districts, focusing on the area of young fruiting plants (TBM), yielding plants (TM), and old plants/trash (TT/TR), as well as the total area. Palm oil production is measured in tons for fresh fruit bunches (FFB), palm oil (CPO), and palm kernel (PK). The survey also presents the average production per hectare per year and the number of households involved in this industry. Belimbing sub-district stands out with significant acreage and production, followed by Sayan and Belimbing Hulu, while other sub-districts have a smaller scale.

The results of field research present data on the area of large oil palm companies in Melawi Regency in 2020. The data shows a breakdown of the area of young fruiting plants (TBM), yielding plants (TM), and old/trash plants (TT/TR) for the core and plasma parts of each company. PT. Rafi Kamajaya Abadi has the largest area for both core and plasma, followed by PT. Bintang Permata Khatulistiwa and PT. Agrolestari Kencana Makmur. The total area of core and plasma areas of all companies reaches 36,630 hectares, with PT. Rafi Kamajaya Abadi accounted for most of the total. This information is important to understand the scale of the palm oil industry's operations in Melawi and its contribution to the local economy.

The study provides an overview of palm oil production by major companies in Melawi District in 2020. Data shows the amount of fresh fruit bunch (FFB), palm oil (CPO), and palm kernel (PK) production from both the nucleus and plasma sectors. PT. Rafi Kamajaya Abadi is the company with the largest total production, producing a significant combination of CPO and
PK. The company's overall total production reached impressive figures, demonstrating the scale and production capacity of the palm oil industry in the area. Data like this is important to analyze the performance of the palm oil sector and its contribution to the local economy (Wunarlan et al., 2023).

The plan is to develop the palm oil industry in Melawi District from 2027 to 2042, which is divided into three phases. The first phase (2027-2032) focuses on developing basic oleofood products such as CPO and its derivatives (Rusli et al., 2022). In the second phase (2032-2037), emphasis is placed on specialty ole food products, as well as oleochemical development and renewable energy applications such as biodiesel and biovar (Kadarusman & Herabadi, 2018). The third phase (2037-2042) is planned to advance the use of oleochemical products and develop chemurgy with innovative products such as nitrocellulose and bio-polymers. This strategy reflects the long-term vision for product diversification and innovation in the palm oil industry (Adebowale, 2012).

4.2 ANALYSIS OF THE POTENTIAL OF SMALL AND MEDIUM INDUSTRIES

4.2.1 Coconut Oil

Coconut is a tropical plant that has long been known to the people of Indonesia. This can be seen from the spread of coconut plants in almost all regions of the archipelago. Coconut is a strategic commodity that has a social, cultural, and economic role in the lives of Indonesian people (Foale, 2005). The benefits of coconut plants not only lie in the flesh of the fruit which can be processed into coconut milk, copra, and coconut oil, but all parts of the coconut plant have great benefits. The main reason that makes coconut a commercial commodity is that all parts of coconut can be utilized for various purposes (Chan & Elevitch, 2006).

The coconut industry tree shows how every part of a coconut can be utilized. Coconut water can be processed into coconut vinegar and coconut nectar. Coconut meat is used for various food products such as virgin coconut oil, cosmetics, and coconut milk. From coconut shells can be made coconut oil and copra, which can then be processed into cooking oil. Coconut shells can be used as activated charcoal and craft materials. Coconut husk is processed into coir, which is used in the manufacture of mattresses and furniture. Meanwhile, coconut stems are used as construction materials and handicraft items. All parts of the coconut tree have economic value and are used in various industries (Mishra & Basu, 2020).
4.2.2 Palm Sugar/Aren

Palm trees have high economic potential because almost all parts of them can provide financial benefits (Jonoobi et al., 2019). The fruit can be made kolang-kaling which is favored by the people of Indonesia in general. The leaves can be used as handicraft materials and can also be used as roofing, while the roots can be used as medicinal materials. From the stem can be obtained fiber and stick which have economic value. In addition, young stems can be taken sagonya, while in old age can be used as furniture material. But of all palm products, palm sap derived from male flower arms as an ingredient for palm sugar production has the greatest economic value.

In the industrial tree, here are some derivative products from sugar palm that have the potential to be developed (Ilyas et al., 2019). The palm industry tree describes various products that can be produced from the palm plant. Palm root is used in the wine and adhesive industry. Its trunks or trucks are used to make sago and building or household materials. The leaves are used in the tobacco industry and bottlemaking. Palm flowers produce sap that can be processed into palm sugar, very important in the food and beverage industry. The fruit, kolang-kaling, is also used in the food industry. The palm crop is an outstanding example of integral crop utilization in various industrial sectors.

4.2.3 Coffee

Coffee is a refreshing ingredient that is usually served in the form of drinks made from roasted coffee plant beans. Coffee plants are divided into 2 species, namely arabica and robusta (Melese & Kolech, 2021). Coffee potential in Melawi Regency reaches 37 hectares where the community coffee plantations are. Currently, the total production is 1 ton and the number of farmers working is 65 households.

The study presents provisional data for 2021 on the area, production, and several smallholder coffee farmers in Melawi Regency. The data shows that there is very little production from the existing area, with a total production of only 1 ton from 37 hectares of land, indicating low average production per hectare per year. The number of farmers involved in coffee cultivation in the area is 65 heads of families (KK). This very low production may indicate that the coffee plants in the region have not developed properly or may be experiencing problems such as disease or plant aging.
The coffee industry tree shows how various products can be produced from the coffee plant (Mendoza Martinez et al., 2019). From coffee beans that have not been roasted or green coffee, products such as ground coffee, instant coffee, and decaf coffee can be produced. In addition, coffee skins can be used as mulch, and the flesh of the fruit can be fermented to make alcohol. The decaffeination process produces caffeine which can then be used in the beverage and food industries. Coffee plants also provide other byproducts such as pulp that can be used for wood or fan-making materials. This shows that almost all parts of the coffee plant can be utilized, minimizing waste and improving sustainability.

### 4.2.4 Pepper

Pepper, which bears the Latin name Piper nigrum is a plant rich in chemical content (Banerjee et al., 2021), such as pepper oil, fatty oil, also starch. Pepper is slightly bitter, spicy, warm, and antipyretic. This plant has begun to be discovered and known since decades ago. In general, people only know white pepper and black pepper which are often used as kitchen spices. This plant is one of the world trade commodities and more than 80% of Indonesia's pepper output is exported to foreign countries. In addition, pepper has the title The King of Spice (King of Spices) where the need for pepper in the world in 2000 reached 280,000 tons. Pepper is one of the plants that multiply by seed, but many farmers prefer to do cuttings to develop it (Ahn et al., 2018). They cut the trunk approximately by a length of 0.25–0.5 meters.

The survey provides a recapitulation of the area, production, and number of pepper farmers in Melawi Regency based on provisional data in 2021. The total area of pepper crops is 17 hectares, with total production reaching 8 tons, which indicates an average production of about 714 kilograms per hectare per year. The number of farmers engaged in the cultivation of pepper in this area is 61 heads of families. This data shows that there is variation in production among sub-districts, with some sub-districts such as South Pinoh and Tanah Pinoh having higher production than others, while some others such as Sayan and Belimbing did not produce pepper production that year. The pepper industry tree describes the various products that can be produced from pepper. Green, white, and black pepper can be processed into whole form or mashed into powder. In addition, pepper essential oil obtained by distillation is used in the pharmaceutical and cosmetic industries. These products demonstrate the diversity of pepper applications in various fields, from culinary uses to health and beauty benefits (Karmawati et al., 2020).
To visualize the economic structure of Melawi Regency as an infographic, it will be displayed: 1) Pie Chart showing the contribution of key sectors to the economy of Melawi Regency. 2) A Bar Chart that illustrates the size of processing industry companies based on the number of workers.

**Figure 1**

*Contribution of Key Sectors to the Economy of Melawi Regency*

![Pie Chart showing the contribution of key sectors to the economy of Melawi Regency.](https://kalbar.bps.go.id/)

Furthermore, the bar chart shows the division of the size of the processing industry company based on the number of workers.
Figure 2

Processing Industry Companies in Melawi Regency Based on the Number of Workers

The bar chart above shows the size of processing industry companies in Melawi Regency based on the number of workers. From large industries to home industries, this chart gives an idea of the average number of workers in each category. With these two visualizations, we can describe the economic structure of Melawi Regency more clearly and informatively.

5 CONCLUSION

From the results of empirical research and discussions conducted, this study offers a significant contribution to the development of Melawi District and provides benefits to the local government. First, focusing on the potential of large industries such as rubber and palm oil, the study identified reliable products for industrial development in Melawi District. This provides a clear direction for the government to allocate resources and investments that can increase production and add value to these two sectors. In addition, by exploring the potential of small and medium-sized industries such as coconut oil, palm sugar, coffee, and pepper, the study highlights economic diversification and opportunities to develop small businesses that can improve people's welfare.

Second, through Location Quotient (LQ) analysis and shift-share approach, this study provides insight into the economic specialization of Melawi District and its sectoral competency compared to the national level. It assists the government in identifying sectors with a
comparable advantage that can be scaled up to spur regional economic growth. Furthermore, using the Klasen Typology, the study categorizes economic sectors based on their growth and contribution, allowing governments to plan regional economic development strategies that are more focused on specific sectors.

The Melawi Regency Government can use the results of this research to formulate more targeted policies in developing the industrial sector, reducing development gaps between regions, and improving community welfare. This includes improving supporting infrastructure, providing training facilities to improve the competence of the local workforce, and developing policies that encourage investment and innovation in potential industrial sectors.

In addition, the research provides a basis for governments to undertake strategic collaboration between the public and private sectors, harness local potential, and strengthen key economic sectors as part of sustainable development efforts. Thus, this study not only contributes to the economic development of Melawi District but also offers a development model that can be adapted by other regions with similar characteristics.

5.1 RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The study reveals several limitations, including reliability in secondary data that may not accurately reflect current conditions and a limited geographic focus on Melawi District, which excludes the potential for broader regional dynamics. The lack of longitudinal studies also limits the understanding of socioeconomic changes over time. What's more, the study has yet to fully explore the environmental impact of industrial expansion. Limited resources and time also affect the depth of the analysis. For future research, it is recommended to conduct more in-depth socio-economic evaluations, environmental feasibility studies, exploration of technological innovations, product diversification strategies, and community capacity building, emphasizing the importance of a multidisciplinary approach in overcoming challenges and taking advantage of existing opportunities.

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Melawi Regency Economic Pillar: Building from Tradition to Innovation


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