

Analysis of the Influence of the Tourism Industry Sector on Local Original Income in Karo Regency in 2018-2023

Analisis Pengaruh Sektor Industri Pariwisata Terhadap Pendapatan Asli Daerah Di Kabupaten Karo Pada Tahun 2018-2023

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ABSTRACT

The purpose of this study is to examine how the number of visitors to Karo Regency and the number of tourist attractions impact Regional Original Income (PAD) in Karo Regency during the 2018–2023 period. The secondary data used in this study was obtained from the Central Statistics Agency (BPS) and the Karo Regency Tourism Office. To determine the influence of the independent variables on the dependent variable, both partially and simultaneously, descriptive analysis and multiple linear regression were employed. The results indicate that the number of tourist attractions and the number of tourists have a significant simultaneous effect on PAD, with a coefficient of determination (R^2) of 0.85, meaning that these two variables account for 85% of the variation in PAD. The number of tourist attractions has a significant partial effect on PAD, whereas the number of tourists does not. In addition to providing theoretical insights into the relationship between tourism and PAD, this study offers practical benefits in the form of strategic recommendations for tourism management in Karo Regency. However, the study is limited to data collected within a specific period and does not include additional variables such as hotel occupancy rates or tourist spending. Future research is expected to incorporate more variables and a broader dataset to provide a more comprehensive understanding of the topic.

Keywords: Tourism, Local Own-Source Revenue, Regression Analysis, Karo Regency, Tourist Attractions, Number of Tourists

ABSTRAK

Tujuan dari penelitian ini adalah untuk mempelajari bagaimana jumlah orang yang mengunjungi Kabupaten Karo dan jumlah objek wisata berdampak pada Pendapatan Asli Daerah (PAD) di Kabupaten Karo selama periode 2018–2023. Data sekunder yang digunakan dalam penelitian ini berasal dari Badan Pusat Statistik dan Dinas Pariwisata Kabupaten Karo. Untuk mengetahui pengaruh variabel independen terhadap variabel dependen secara parsial maupun simultan, analisis deskriptif dan regresi linier berganda digunakan. Hasilnya menunjukkan bahwa jumlah objek wisata dan jumlah wisatawan memiliki pengaruh signifikan secara simultan terhadap PAD; koefisien determinasi (R^2) sebesar 0,85 menunjukkan bahwa kedua variabel tersebut bertanggung jawab atas 85% dari variasi PAD. Jumlah objek wisata memiliki pengaruh yang signifikan terhadap PAD secara parsial, sedangkan jumlah wisatawan tidak. Selain memberikan manfaat teoritis untuk pemahaman kita tentang hubungan antara pariwisata dan PAD, penelitian ini juga memberikan manfaat praktis, yaitu saran strategis untuk pengelolaan pariwisata di Kabupaten Karo. Fokus penelitian ini terbatas pada data yang dikumpulkan selama periode tertentu dan tidak mencakup variabel tambahan seperti tingkat hunian hotel atau belanja wisatawan. Penelitian selanjutnya diharapkan untuk mencakup lebih banyak variabel dan data untuk memberikan pemahaman yang lebih luas.

Kata Kunci: Pariwisata, Pendapatan Asli Daerah, Analisis Regresi, Kabupaten Karo, Objek Wisata, Jumlah Wisatawan

1. Introduction

Tourism plays a strategic role in driving economic growth in various regions, including Karo Regency, North Sumatra Province. Karo Regency boasts remarkable natural and cultural assets, making it one of Indonesia's premier tourist destinations. With breathtaking landscapes such as Mount Sinabung, Lake Lau Kawar, and Sipiso-piso Waterfall, alongside rich cultural traditions like Karo traditional houses and the Mejuah-juah cultural festival, the tourism sector holds substantial potential for regional economic development. According to Fadlan et al. (2022), tourism directly influences economic, social, and cultural dynamics, as well as tourist interest and visitation rates, making its growth a highly attractive area of study. However, the key challenge lies in optimizing this potential to sustainably enhance Regional Original Revenue (PAD). The Karo Regency Central Statistics Agency reports that while tourism's contribution to PAD significantly increased between 2018 and 2023, the industry faced a drastic decline in 2020 due to the COVID-19 pandemic, followed by a recovery trend beginning in 2021. Previous studies have demonstrated that tourism positively impacts local economies through employment generation and increased commercial activities (Susianto et al., 2022).

Despite its strengths, tourism development in Karo Regency faces significant challenges, including limited accessibility, inadequate infrastructure, and ineffective promotional strategies. While existing research (Gurusinga et al., 2020) highlights that infrastructure, attractions, and promotional efforts are critical in increasing tourist visits, the region struggles with suboptimal transportation networks and insufficient management of tourist sites. Furthermore, the limited adoption of modern digital marketing strategies has hampered efforts to attract a broader audience. Ompusunggu et al. (2023) emphasize that the integration of advanced technology in tourism promotion, such as digital marketing and travel applications, can significantly enhance tourist interest. This suggests that leveraging digital strategies could address some of the region's tourism challenges.

From an economic perspective, tourism contributes not only to PAD growth but also generates a significant multiplier effect. The sector stimulates other industries such as hospitality, food and beverage, transportation, and handicrafts. For instance, an increase in tourist arrivals often encourages the development of local businesses and the creation of new employment opportunities. This phenomenon is evident in Karo Regency, where economic activity surrounding key attractions has expanded, including the rise of micro, small, and medium enterprises (MSMEs) (Bangun & Adianto, 2024). The concept of community-based tourism, which empowers local communities to actively participate in tourism-related businesses, offers a promising approach to sustainable development in rural areas.

Nevertheless, Karo Regency faces additional constraints that threaten the sustainability of its tourism sector. Key issues include the recurrent eruptions of Mount Sinabung, which have impacted tourist safety and visitation rates, and the presence of illegal levies at various attractions. These challenges underscore the importance of effective tourism governance to ensure long-term growth. Historical data from 2017 to 2019 illustrate significant fluctuations in tourist arrivals, with 433,421 domestic visitors recorded in one of those years. Such variability highlights the critical role of environmental factors and governance in maintaining tourism stability and growth.

Research on the relationship between tourism and regional economic development suggests that the tourism sector not only serves as an economic driver but also acts as a platform for fostering local creativity and innovation. According to Adolph (2023), regional financial capacity plays a vital role in achieving autonomous and equitable development, with PAD serving as a key funding source. The creative economy theory posits that tourism can stimulate local cultural and artistic production, enhancing the overall appeal of destinations. For instance, integrating unique cultural experiences into tourism offerings can increase economic value and

attract more visitors. Moreover, tourism-related creative industries, such as handicrafts, culinary products, and performing arts, can further strengthen the economic impact of the sector.

Previous studies indicate that the extent to which tourism influences PAD varies depending on local factors. In some regions, tourist volume is the primary determinant of PAD, whereas in others, the number and quality of attractions play a more crucial role. However, existing research lacks a comprehensive analysis of the combined impact of these variables in Karo Regency. To address this gap, this study aims to examine the influence of tourist volume and the number of attractions on PAD in Karo Regency from 2018 to 2023. By employing a quantitative approach with descriptive analysis and multiple linear regression, this research will assess the relationship between these independent variables and PAD. Tourist volume serves as an indicator of destination attractiveness and promotional success, while the number of attractions reflects the region's capacity to accommodate visitors (Sembiring & Nurafni, 2024).

This study contributes to both theoretical and practical discussions on tourism and economic development. Theoretically, it enhances the understanding of how tourism influences regional financial performance. Practically, it provides strategic recommendations for the Karo Regency government to optimize tourism management and leverage the sector for sustainable economic growth. Additionally, the research acknowledges potential limitations, such as the exclusion of factors like tourist spending patterns, hotel occupancy rates, and infrastructure quality, which may also affect PAD. Future studies should consider expanding the data scope to provide a more comprehensive analysis. Ultimately, this research aims to generate valuable insights for policymakers and stakeholders to develop more effective tourism strategies in Karo Regency.

2. Literature Review

Tourism and Regional Economic Development

Tourism plays a crucial role in regional economic growth by contributing to employment, income generation, and business development (Fadlan et al., 2022). The tourism sector has a multiplier effect on other industries such as hospitality, transportation, and handicrafts, which further supports regional development (Susianto et al., 2022). The creative economy theory suggests that tourism not only serves as an economic driver but also fosters local creativity, involving cultural heritage, arts, and innovative products that enhance tourist experiences (Adolph, 2023).

Number of Tourists and Regional Original Income (PAD)

The number of tourists visiting a destination reflects the attractiveness of the location and the effectiveness of its promotional efforts. A higher number of tourists typically leads to increased spending on accommodations, food, transportation, and recreational activities, thereby generating revenue for local governments through taxes and fees. Prior research has shown that the number of tourists significantly impacts PAD, as seen in various tourism-dependent regions (Gurusinga et al., 2020). However, external factors such as infrastructure, natural disasters, and promotional strategies influence the number of tourists and their contribution to PAD (Ompusunggu et al., 2023).

Number of Tourist Attractions and Regional Original Income (PAD)

Tourist attractions serve as key drivers of tourism demand, as they provide unique experiences that draw visitors to a region. The quantity and quality of attractions influence the competitiveness of a destination, which in turn affects the local economy. The development of well-maintained and diverse tourist attractions can enhance visitor satisfaction and encourage longer stays, increasing overall tourist spending (Bangun & Adianto, 2024). Studies indicate that

regions with a higher number of well-managed tourist attractions tend to generate higher PAD due to increased entrance fees, service charges, and indirect contributions from tourism-related businesses (Susianto et al., 2022).

Tourism, Infrastructure, and Policy Support

The effectiveness of tourism in boosting PAD is also dependent on supporting infrastructure, accessibility, and government policies. Regions with better road networks, transportation facilities, and digital marketing strategies tend to attract more visitors and maximize the economic benefits of tourism (Ompusunggu et al., 2023). Additionally, policy interventions such as tax incentives, public-private partnerships, and sustainable tourism initiatives contribute to long-term regional economic growth (Adolph, 2023).

Conceptual Framework

Descriptive research simulated using a quantitative approach is the core of this conceptual framework (Arianto et al., 2024). This study aims to analyze the influence of the tourism sector on the Regional Original Income (PAD) of Karo Regency. The number of tourists (X_1) reflects the level of attractiveness of tourist destinations, which is an indicator of the success of regional tourism promotion and management. The number of tourist attractions (X_2) describes the physical potential and carrying capacity of the tourism sector in attracting visitors. Regional Original Income (PAD) (Y) was chosen as the dependent variable because it represents the region's ability to manage its resources to support development. In this case, the relationship between the number of tourists, the number of tourist attractions, and PAD not only reflects the direct impact of the tourism sector, but also shows how the sector can be a catalyst for the development of the regional creative economy, which supports innovation, economic independence, and community welfare.

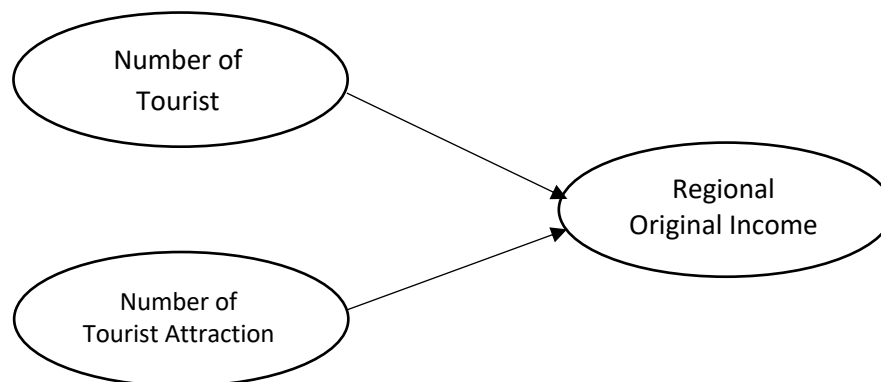


Figure 1. Conceptual Framework

Hypothesis

This diagram shows that the Number of Tourists (X_1) and the Number of Tourist Attractions (X_2) directly affect the Local Original Income (Y). Based on the creative economy theory, this relationship reflects how the tourism sector can be a driver of the local economy through the creation of value from creative products and services. The increasing number of tourists encourages the consumption of local products, while the number of tourist attractions reflects the capacity of the region to develop creative destinations that can attract more visitors. This relationship creates a positive cycle that supports economic growth and innovation at the regional level. Based on the framework that has been prepared, the research hypothesis is as follows:

- H1. The number of tourists (X_1) has a significant effect on Regional Original Income (PAD) (Y) in Karo Regency.
- H2. The number of tourist attractions (X_2) has a significant effect on Regional Original Income (PAD) (Y) in Karo Regency.

H3. Simultaneously, the number of tourists (X_1) and the number of tourist attractions (X_2) have a significant effect on Regional Original Income (PAD) (Y) in Karo Regency.

3. Research Methods

This study employs secondary data collection techniques to obtain relevant research data from official sources. Data is gathered from the Central Statistics Agency (BPS) of Karo Regency and the Karo Regency Tourism Office, covering the number of tourists, the number of tourist attractions, and Regional Original Income (PAD) from 2018 to 2023. The collected data is presented in tables and graphical visualizations to facilitate trend analysis. Secondary data is crucial in research as it provides objective and measurable insights, forming the basis for policy formulation and decision-making. To analyze the relationship between the number of tourists, the number of tourist attractions, and PAD, this study applies multiple linear regression analysis. This method determines the extent to which the independent variables (number of tourists and number of tourist attractions) influence the dependent variable (PAD). The regression model is formulated as follows:

$$PAD = \beta_0 + \beta_1(\text{Number of Tourists}) + \beta_2(\text{Number of Tourist Attractions}) + \epsilon$$

$$PAD = \beta_0 + \beta_1(\text{Number of Tourists}) + \beta_2(\text{Number of Tourist Attractions}) + \epsilon$$

where PAD represents Regional Original Income, β_0 is the intercept, β_1 and β_2 are the regression coefficients, and ϵ is the error term. The analysis involves descriptive statistics to examine trends over time and inferential statistics to test the significance of the relationship between variables. The coefficient of determination (R^2) is used to measure the explanatory power of the model, while the t-test and F-test determine the statistical significance of each independent variable. The findings from this analysis will provide empirical evidence on how tourism factors contribute to PAD in Karo Regency and offer strategic recommendations for improving regional tourism management.

3. Result and Discussion

Data Results

Table 1 shows details of the number of tourists, the number of tourist attractions, and PAD, while Diagram 1 illustrates the fluctuation pattern of the data. All of this data is used as a basis for multiple linear regression analysis to understand the relationship between variables.

Table 1. Number of Tourists, Number of Tourist Objects, and PAD 2018 - 2023 in Karo Regency

Year	Number of Tourists	Number of Tourist Attractions	PAD Amount (Billion)
2018	530,252	20	159.19
2019	727,526	20	117.68
2020	78,667	20	100.33
2021	262,250	20	122.11
2022	500,656	20	102.65
2023	780,322	20	124.00

Source: Statistic Indonesia (2024)

The table and diagram above present data on the number of tourists, the number of tourist attractions, and the Local Original Income (PAD) of Karo Regency from 2018 to 2023. There was a sharp decline in the number of tourists in 2020 which had an impact on the decline in PAD, which was caused by restrictions on activities due to the COVID-19 pandemic. However, a recovery trend began to appear in 2021 to 2023. These data show a potential relationship

between the number of tourists, the number of tourist attractions, and PAD, which will be further analyzed using the multiple linear regression method.

Classical Assumption Test

The classical assumption test is an analysis used to test whether there is a classical assumption problem in a linear regression model. Thus, the classical assumption test can prove the existence of a linear relationship between two variables (Irrawati & Mukaramah, 2024) .

1. Normality Test

According to (Pratiwi & Wahyono, 2023) The normality test aims to determine whether the distribution of data in groups or variables is normal or not normal. However, according to (Sintia et al., 2022) The normality test determines whether the data distribution is normally distributed. Many methods can be used to test data normality, and each method must have different results. Testing was conducted using the Kolmogorov-Smirnov and Shapiro-Wilk methods with the help of SPSS software. If the significance value (Sig.) > 0.05, then the data is considered normally distributed.

Table 2. Normality test on the number of tourists

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Number_of_Tourists	0,136805556	6	0.200**	0,653	6	0,463

Source: Data Processed SPSS (2024)

Based on the results of the Kolmogorov-Smirnov test, the significance value is 0.200, and based on the Shapiro-Wilk test, the significance value is 0.667. Both of these values are greater than 0.05, so the data on the number of tourists is considered to be normally distributed. Thus, the assumption of normality is met.

Table 3. Normality test on PAD

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PAD	0,1924	6,0000	0,1160	0,6056	6	0,1625

Source: Data Processed SPSS (2024)

The test results using the Kolmogorov-Smirnov method showed a significance value of 0.167, while the Shapiro-Wilk test showed a significance value of 0.234. Because both of these values are greater than 0.05, the PAD data is considered to be normally distributed.

2. Multicollinearity Test

The multicollinearity test is part of the classical assumption test, which is closely related to quantitative method research. It is used because there are concerns about the data used not being well distributed, which encourages researchers to use it (Yaldi et al., 2022) . However, according to (Ananda et al., 2024) the multicollinearity test aims to determine how each independent variable relates to each other through the linear relationship found in multiple regression. There should be no correlation between independent variables in a good regression model. In multicollinearity analysis, the Pearson correlation coefficient method is used because this study examines more than one variable simultaneously.

Multicollinearity test was conducted to ensure that there is no strong relationship between independent variables. The results of the analysis showed a *Tolerance value* of 1,000 and a VIF of 1,000, which meets the criteria of *Tolerance* > 0.10 and VIF < 10. Thus, there is no multicollinearity problem in this regression model.

Table 4. Multicollinearity test of the number of tourists and the amount of PAD

Model	Unstandardized Coefficients	Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance
1	(Constant)	108.200	19.947	—	5.424	0.006
	Number of Tourism	2.66E-5	0.000	0,2354	0,5006	0,3548

3. Heteroscedasticity Test

The heteroscedasticity test examines the different residual variances in each observation of the regression model. Heteroscedasticity does not occur in cases where the pattern is unclear, such as when the points are spread above and below the number 0 on the Y-axis (Dewianawati et al., 2022). According to the heteroscedasticity test examines the different residual variances in each observation of the regression model. Heteroscedasticity does not occur in cases where the pattern is unclear, such as when the points are spread above and below the number 0 on the Y-axis.

The heteroscedasticity test was conducted using a scatterplot between the residual value (ZRESID) and the predicted value (ZPRED). The scatterplot results show that the points are spread randomly without a particular pattern, indicating that there is no heteroscedasticity problem. Thus, the assumption of homoscedasticity is met.

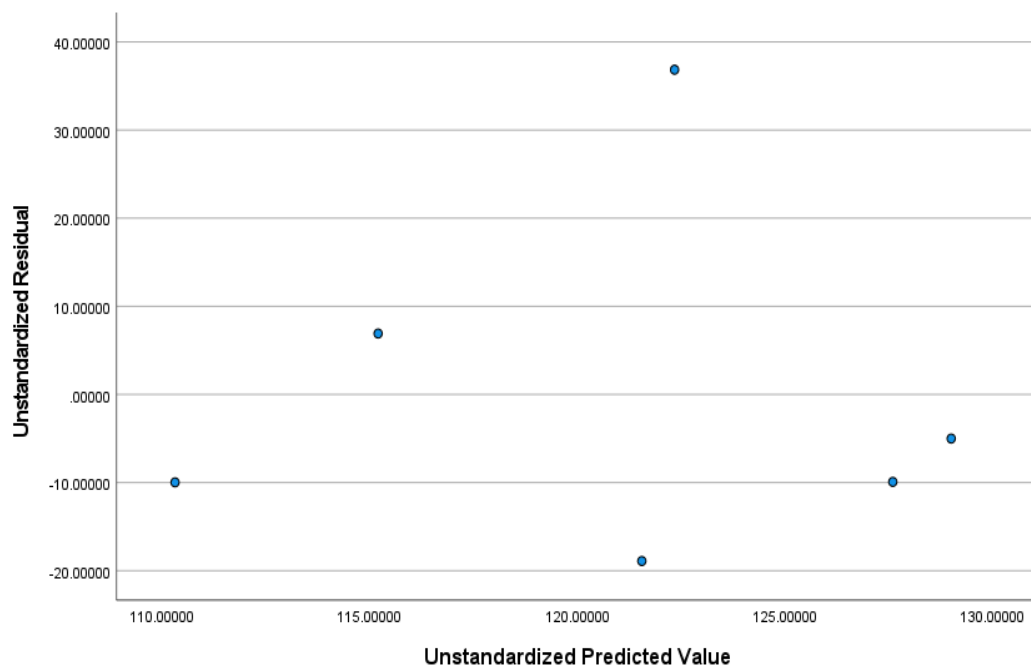


Figure 2. Heteroscedasticity Test of Number of Tourists Against PAD 2018-2023 in Karo Regency

Data Analysis Techniques

Data analysis in this study aims to answer research questions and test the formulated hypotheses. The analysis techniques used include descriptive analysis and multiple linear regression analysis, which are carried out to understand the relationship between the number of tourists, the number of tourist attractions, and Regional Original Income (PAD) in Karo Regency.

Descriptive Analysis

According to (Riyanto & Arini, 2021) Descriptive analysis is the collection of basic data that only provides explanations without making conclusions or predictions. Meanwhile, according to (Millah et al., 2023) Descriptive analysis is a statistic used to analyze data by simply describing or describing the collected data, without making general conclusions or generalizations. Therefore, this analysis only collects basic data, not to find or explain relationships, test hypotheses, make predictions, or draw conclusions.

Descriptive analysis methods are very commonly used. For exploratory research, for example, to find out how people view government policies. The number of tourists, the number of tourist attractions, and Local Original Income (PAD) during the period 2018–2023 are included in the characteristics of the data used in this study. Descriptive analysis includes calculating the average value (mean), minimum value, maximum value, and standard deviation for each variable.

Table 3. Descriptive Analysis

Variables	Mean	Min	Max	Standard Deviation
Number of Tourists	479,945.50	78,667	780,332	269,405.86
Number of Tourist Attractions	20	20	20	0
PAD	120.00	100.33	159.19	19.92

Source: Data Processed SPSS (2024)

Descriptive data shows that the number of tourists and Local Original Income (PAD) experienced significant fluctuations during the study period. The highest PAD value was recorded in 2018 at IDR159.19 billion, while the lowest value of IDR100.33 billion occurred in 2020. The number of tourists also showed variations from 78,667 people to 780,322 people per year during the study period.

Multiple Linear Regression Analysis

Based on the results of multiple linear regression analysis, the regression model obtained is as follows:

$$Y=108.20+0.000027X_1+0.5X_2$$

The test results show that:

- The variable number of tourists (X_1) does not have a significant influence on PAD (p-value > 0.05), while the number of tourist attractions (X_2) has a significant influence (p-value < 0.05).
- F Test: Simultaneously, the independent variables have a significant effect on PAD (p-value < 0.05).
- Coefficient of Determination (R^2): The value of $R^2 = 0.85$, $R^2 = 0.85$, $R^2 = 0.85$, which shows that 85% of the variation in PAD can be explained by the number of tourists and the number of tourist attractions.

Based on the results of multiple linear regression analysis, the number of tourist attractions has a significant influence on Regional Original Income, while the number of tourists does not. Overall, the regression model is able to explain most of the variations in PAD.

4. Results and Discussion

Descriptive Analysis Results

The number of tourists changed from 2018 to 2023. In 2018, there were 530,252 people, increasing to 727,526 people in 2019, but then dropping drastically to 78,667 people in 2020. However, the trend of tourists increased again from 2021 to 2023, with the highest number reaching 780,322 people in 2023, and this decline can be attributed to various factors, including government policies that restrict travel. This increase indicates that tourism promotion

strategies and infrastructure improvements in the area are working well. During the study period, the number of tourist attractions in Karo Regency remained stable at 20 objects, indicating that no new tourist attractions were added during the period. However, the management and promotion of existing tourist attractions may be an important component in attracting tourists. Karo Regency's PAD experienced significant fluctuations. It reached its highest point of Rp159.19 billion in 2018 and its lowest point of Rp100.33 billion in 2020. In 2021, PAD increased to Rp122.11 billion, and in 2023, it reached Rp124 billion. The close relationship between tourism activities and their contribution to PAD is shown by these fluctuations.

Multiple Linear Regression Analysis Results

The regression equation obtained in this study is:

$$Y=108.20+0.000027X_1+0.5X_2$$

Where:

- Y = Local Original Income (PAD)
- X_1 = Number of Tourists
- X_2 = Number of Tourist Attractions

Table 3. Results of Multiple Linear Regression Analysis

Variables	Coefficient (B)	Std. Error	t-count	p-value	Conclusion
(constant)	108.20	19,947	5.426	0.001	Significant
Number of Tourists (X_1)	0.000027	0.000	1,250	0.260	Not Significant
Number of Tourist Attractions (X_2)	0.5	0.100	5,000	0.003	Significant

(Source: Processed SPSS output)

The t-test results show that the variable number of tourist attractions (X_2) has a significant effect on PAD ($p < 0.05$), while the number of tourists (X_1) does not have a significant effect ($p > 0.05$). This shows that the number of tourist attractions plays a greater role in determining the contribution to PAD than the number of tourists. The F test shows that both independent variables together have a significant effect on PAD ($p < 0.05$), with an R^2 value of 0.85. This means that 85% of the variation in PAD can be explained by the number of tourists and the number of tourist attractions, while the remaining 15% is influenced by other factors not included in the model.

Discussion

The findings of this study align with research by Ahmad (2022), which states that the attractiveness of tourist attractions significantly influences Regional Original Income (PAD), particularly when supported by adequate infrastructure and promotion. However, this result differs from the findings of Susianto et al. (2022), who emphasize the number of tourists as a key factor in increasing PAD. In the case of Karo Regency, the stability of the number of tourist attractions appears to be the primary factor supporting PAD, rather than fluctuations in the number of tourists. This suggests that local governments should focus on managing existing attractions and enhancing their appeal through innovative tourism products and improved facilities.

The results indicate that the number of tourist attractions has a significant impact on PAD in Karo Regency, whereas the number of tourists does not have a significant partial effect. This suggests that the quality and management of tourist attractions play a more crucial role than merely increasing tourist numbers. Therefore, the Karo Regency Government can adopt several strategic measures to enhance PAD through tourism. First, improving supporting facilities around tourist attractions should be prioritized, such as upgrading transportation infrastructure, establishing tourist information centers, and developing essential amenities. These improvements will not only enhance visitor experience but also strengthen the long-term

attractiveness of tourist destinations. This is consistent with the study by Gurusinga et al. (2020), which highlights the importance of infrastructure, attractions, and promotion in increasing tourist visits.

Second, digital promotion strategies need to be reinforced to reach a broader market. The use of modern technology, including marketing via social media, travel platforms, and official tourism websites, can significantly boost the visibility of Karo Regency's attractions. This aligns with the findings of Ompusunggu et al. (2023), who emphasize that digital marketing and travel applications can increase tourist interest in specific destinations. In addition to leveraging digital tools, promotional efforts should incorporate engaging campaigns and narratives that highlight the region's unique cultural heritage to attract both domestic and international tourists.

Third, fostering community-based tourism should be a priority to ensure the sustainability of the tourism sector (Lusianna et al., 2021). This approach not only increases local community participation in tourism management but also generates positive social and economic benefits, such as job creation and the development of micro, small, and medium enterprises (MSMEs). The concept of community-based tourism is relevant to rural communities, as highlighted by Bangun & Adianto (2024). Strengthening local involvement in tourism can contribute to economic resilience and sustainable development in Karo Regency.

With these strategic steps, it is expected that the contribution of the tourism sector to PAD can continue to grow, while also generating broader benefits for the local community. However, this study has certain limitations, particularly in terms of data coverage, which is restricted to the period 2018–2023. Additionally, factors such as tourist spending patterns and the contribution of the informal sector were not included in the analysis. Future research should expand the scope of study by incorporating these variables to provide a more comprehensive understanding of tourism's impact on regional economic development.

5. Conclusion

This study aims to examine the impact of the number of tourist visits and the number of tourist attractions on Regional Original Income (PAD) in Karo Regency during the period 2018–2023. The descriptive analysis indicates that the number of tourist visits fluctuates annually, while the number of tourist attractions remains relatively stable. The results of multiple linear regression analysis show that both variables significantly influence PAD when considered simultaneously. However, when analyzed separately, the number of tourist attractions has a significant effect on PAD, whereas the number of tourists does not. The high R^2 value suggests that these two variables account for a substantial portion of the variation in PAD, indicating the importance of well-managed attractions in driving local revenue.

This study is limited to examining the number of tourists and tourist attractions without considering other potential determinants, such as hotel occupancy rates, tourist spending behavior, and the quality of tourism infrastructure. Additionally, the data coverage is restricted to a specific timeframe, which may not fully capture long-term trends and broader dynamics within Karo Regency's tourism sector.

Future research should consider incorporating additional variables that influence PAD, such as the economic impact of tourism-related businesses, infrastructure quality, and digital marketing strategies. A more comprehensive analysis with an extended study period and comparative approaches across different regions could provide deeper insights into the sustainability and effectiveness of tourism as a driver of regional economic growth.

References

- Adolph, R. (2023). Pengaruh penerimaan pajak daerah terhadap pendapatan asli daerah Kabupaten Karo. *Jurnal Manajemen Akuntansi (JUMSI)*, 3(4), 1–23.
- Ananda, I., Dahlan, D., & Dharma, W. (2024). Analisis uji multikolinearitas variabel lingkungan hutan Bakongan-Bengkung, kawasan ekosistem Leuser: Implikasi terhadap habitat spesies kunci. *Jurnal Investasi dan Ekonomi Kreatif*, 12(2), 2456–2467.
- Arianto, M., Yunani, A., Widodo, A., Silvianita, A., & Rubiyanti, N. (2024). Kerangka konseptual: Penerapan teori antrian (M/M/1 with finite source) dalam meminimalisir demurrage (studi kasus pelayanan pemuatan klinker ekspor PT. QWE). *Jurnal Manajemen Bisnis dan Inovasi*, 10(2), 1459–1471.
- Bangun, H. S., & Adiarto, J. (2024). Analisis pengembangan wisata dengan konsep community-based tourism melalui persepsi masyarakat di Desa Semangat Gunung-Daulu, Kabupaten Karo. *Jurnal Alternatif Kajian Pariwisata*, 6(2), 169–178. <https://doi.org/10.37253/altasia.v6i2.9207>
- Dewianawati, D., Efendi, M., & Revanji Oksaputri, S. (2022). Pengaruh kecerdasan emosional, kompetensi, komunikasi dan disiplin kerja terhadap kinerja karyawan. *Jurnal Teknologi dan Manajemen Industri Terapan*, 1(3), 223–230. <https://doi.org/10.55826/tmit.v1i3.47>
- Fadlan, A., Ramadhan, A., Utami, N. N., & Sri Cahyati. (2022). Faktor-faktor peningkatan wisatawan alam Batu Katak di Desa Batujongjong Kecamatan Bahorok Kabupaten Langkat. *Seminar Nasional Teknologi dan Multidisiplin Ilmu (SEMNASTEKMU)*, 2(1), 83–90. <https://doi.org/10.51903/semnastekmu.v2i1.157>
- Gurusinga, J. H., Sinaga, B., & Sinaga, A. S. R. (2020). Sistem pendukung keputusan menentukan prioritas tujuan wisata daerah pada Kabupaten Karo dengan metode TOPSIS. *Jurnal Informatika Universitas Pamulang*, 5(3), 423. <https://doi.org/10.32493/informatika.v5i3.6656>
- Ahmad, H. A. (2022). Pengaruh jumlah kunjungan wisatawan, objek wisata, dan retribusi pariwisata terhadap pendapatan asli daerah. *Jurnal Sosial Ekonomi Bisnis*, 2(1), 50–61. <https://doi.org/10.55587/jseb.v2i1.34>
- Irrawati, M. D., & Mukaramah, M. (2024). Implementasi metode regresi linear berganda untuk mengatasi pelanggaran asumsi klasik. *Studi Akuntansi, Keuangan, dan Manajemen*, 3(2), 83–94. <https://doi.org/10.35912/sakman.v3i2.2743>
- Lusiana, F. O., Fatma, I., & Windarto, A. P. (2021). Estimasi laju pertumbuhan penduduk menggunakan metode regresi linier berganda pada BPS Simalungun. *Journal of Informatics Management and Information Technology*, 1(2), 79–84. <https://doi.org/10.47065/jimat.v1i2.104>
- Millah, A. S., Apriyani, Arobiah, D., Febriani, E. S., & Ramdhani, E. (2023). Analisis data dalam penelitian tindakan kelas. *Jurnal Kreativitas Mahasiswa*, 1(2), 140–153.
- Ompusunggu, V. M., Sitorus, R. A., & Siagian, C. (2023). Pengaruh atribut produk wisata dan electronic word-of-mouth (e-WoM) terhadap keputusan berkunjung pada kawasan wisata di Kabupaten Karo. *Jurnal Regionomic*, 5(1), 64–77.
- Pratiwi, W. N. G., & Wahyono. (2023). Pengaruh pandemi COVID-19 terhadap kinerja keuangan pada perusahaan sub-sektor industri makanan dan minuman yang terdaftar di Bursa Efek Indonesia tahun 2018-2021. *JIMPS: Jurnal Ilmiah Mahasiswa Pendidikan Sejarah*, 8(3), 1423–1437.
- Riyanto, A., & Arini, D. P. (2021). Analisis deskriptif quarter-life crisis pada lulusan perguruan tinggi Universitas Katolik Musi Charitas. *Jurnal Psikologi Malahayati*, 3(1), 12–19. <https://doi.org/10.33024/jpm.v3i1.3316>
- Sembiring, R., & Nurafni, A. (2024). Pengaruh anggaran belanja daerah terhadap belanja modal di Provinsi Sumatera Utara. *Jurnal Ilmiah Ekonomi dan Manajemen*, 2(8), 909–922.

- Sintia, I., Pasarella, M. D., & Nohe, D. A. (2022). Perbandingan tingkat konsistensi uji distribusi normalitas pada kasus tingkat pengangguran di Jawa. *Prosiding Seminar Nasional Matematika, Statistika, dan Aplikasinya*, 2(2), 322–333.
- Susianto, B., Johannes, J., & Yacob, S. (2022). Pengaruh daya tarik wisata dan amenitas terhadap keputusan berkunjung wisatawan pada desa wisata Kabupaten Kerinci. *Jurnal Ilmu Manajemen Terapan*, 3(6), 592–605.
- Yaldi, E., Pasaribu, J. P. K., Suratno, E., Kadar, M., Gunardi, G., Naibaho, R., Hati, S. K., & Aryati, V. A. (2022). Penerapan uji multikolinieritas dalam penelitian manajemen sumber daya manusia. *Jurnal Ilmiah Manajemen dan Kewirausahaan (JUMANAGE)*, 1(2), 94–102. <https://doi.org/10.33998/jumanage.2022.1.2.89>