



THE IMPACT OF THE NORTH SUMATRA PROVINCIAL SPORTS CENTRE ON THE ECONOMY AND QUALITY OF LIFE IN BATANG KUIS SUB-DISTRIC

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Article Info

ABSTRACT

Keywords:

Community economy, sport centre, quality of life of the community.

This study analyzes the impact of the North Sumatra Provincial Sports Centre on the economy and quality of life in Batang Kuis Sub-district. The research uses a quantitative approach, collecting data through questionnaires from 57 respondents. Descriptive analysis and multiple linear regression were applied to examine the relationship between sports infrastructure development and community welfare. Results show positive impacts, including job creation, increased income, improved road access, and business growth. Despite these benefits, sustainable management is necessary to ensure equitable long-term distribution of the advantages. This research highlights the significant contribution of sports infrastructure to regional economic and social development.

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1. INTRODUCTION

The development of large-scale sports infrastructure, such as the North Sumatra Provincial Sports Centre, is not only intended to support sports activities but is also expected to have a significant positive impact on the social and economic aspects of the surrounding community. Adequate sports infrastructure has been proven to improve the quality of life and contribute to local economic development in various regions. Batang Kuis, as the sub-district directly affected by the construction of this sports centre, is becoming a strategic area with the potential for significant transformation, particularly in terms of the local economy and community well-being.

However, while many studies have examined the impact of sports infrastructure in large urban areas, little research has focused on its effects in peri-urban regions like Batang Kuis. Sports centres built in such areas have the potential to bring about unique challenges and opportunities compared to those in larger cities. Previous studies have generally focused on metropolitan areas with more established infrastructure, leaving regions like Batang Kuis, with its distinct social and economic characteristics, underexplored.

Therefore, this study aims to fill this research gap by analyzing the impact of the North Sumatra Provincial Sports Centre on the economy and quality of life in Batang Kuis Sub-District. This research examines two primary variables: first, the economic impact, including income growth, job creation, and small business opportunities; and second, the effect on the quality of life, which includes access to public facilities, health, and recreational opportunities.

The urgency of this study is particularly significant given the rapid development of Batang Kuis and the challenges faced by its community, including unemployment, poverty, and limited public facilities. This sports

centre is expected not only to provide direct benefits in terms of sports activities but also to enhance the broader socio-economic well-being of the local population. Therefore, this study aims to measure both the direct impact of this project and to offer recommendations on sustainable management practices that can ensure the benefits are equitably shared by all members of the community.

This research will provide deeper insights into how sports infrastructure can serve as a catalyst for social and economic change in developing regions and contribute to sustainable urban planning in similar communities.

2. RESEARCH METHOD

Research design

This study employs a quantitative approach with a descriptive design to analyze the impact of the North Sumatra Provincial Sports Centre on the economy and quality of life of the community in Batang Kuis Sub-District. A quantitative approach is used because it allows for the measurement of variables, testing of relationships, and the ability to generalize findings to a larger population. The descriptive design is appropriate as it aims to provide a detailed and accurate description of the effects of the sports centre on the community without manipulating the variables.

Population and sample

The population for this study consists of approximately 80,000 residents of Batang Kuis Sub-District, which is the area most affected by the development of the North Sumatra Provincial Sports Centre. A purposive sampling technique was employed to select 57 respondents who are residents of Batang Kuis Sub-District. These respondents were specifically chosen because they either live near the sports centre or have experienced its impact directly. The criteria for selecting participants included their proximity to the sports centre, their engagement with the development, and their awareness of the changes brought by the project.

The sample size of 57 respondents is sufficient to represent the local population for this study. However, the margin of error and confidence intervals for this sample size should be calculated to determine the precision of the results.

Data collection techniques

This research uses two main data collection techniques, namely:

Data were collected using a questionnaire consisting of both closed-ended and Likert scale questions to measure respondents' perceptions and experiences related to the economic and social impacts of the sports centre. The questionnaire was developed to measure two primary variables:

- a. Economic aspects: including questions about income levels, employment opportunities, and small business growth.
- b. Quality of life: covering aspects such as access to public health services, environmental conditions, and overall satisfaction with life.

The questionnaire uses a 4-point Likert scale ranging from Strongly Agree to Strongly Disagree to quantify respondents' perceptions on the listed variables.

To ensure the validity and reliability of the instrument:

- a. Pre-testing of the questionnaire was conducted with a small group of participants before the main survey to refine the wording and structure of the questions.
- b. Expert validation was done to ensure that the questions accurately measure the intended variables.
- c. Cronbach's alpha will be calculated to assess the reliability of the survey instrument. A value greater than 0.7 is considered acceptable for the internal consistency of the questionnaire.

Data analysis technique

Once the data is collected, the following statistical methods will be used to analyze the data:

- a. Descriptive analysis

Presenting data in the form of frequency tabulations, percentages, and diagrams to describe the characteristics of respondents and public perceptions of development.

- b. Multiple linear regression

Multiple linear regression is a statistical method used to analyse the relationship between one or more independent variables (free) with one dependent variable (bound). However, in the case of a study with one independent variable (X) and two dependent variables (Y_1 and Y_2), we do not use a single multiple linear regression model, but rather two separate linear regression models.

c. Validity and reliability test

- 1) Validity test is used to ensure that each question item in the questionnaire actually measures the intended variable.
- 2) Reliability test is carried out using cronbach's alpha, with a minimum value of 0.6 as a reliable limit, (Umar, 2013: 92).

d. Classical assumption test

This normality test aims to test whether in the multiple linear regression model, the dependent and independent variables both have a normal distribution or not. In this discussion, the one sample kolmogorov - smirnov test will be used using a significance level of 0.05. Data is declared normally distributed if the significance is greater than 5% or 0.05.

3. RESULT AND ANALYSIS

General description of respondents

In this study the author presents data processing in the form of a questionnaire, where the variable (Y₁) is community economic improvement in which there are 7 questions, the variable (Y₂) is quality of life improvement in which there are 8 questions and the variable (X) sport centre development in which there are 5 questions. The questionnaire was distributed to 57 respondents who served as research samples.

The general description of respondents in this study aims to determine the basic characteristics of the people of Batang Kuis Subdistrict who are the object of research. These characteristics include age and gender. This data is important as a basis for analysing the perception and impact of the sport center development on the economy and quality of life of the community.

a. Age of respondents

Table 1. Characteristics of respondents by age

		Frequency	Percent	Valid percent	Cumulative percent
Valid	20 - 30 years	30	52.6	52.6	52.6
	31 - 40 years	23	40.4	40.4	93.0
	41 - 50 years	4	7.0	7.0	100.0
	Score	57	100.0	100.0	

The results of the questionnaire distribution showed that most of the respondents were in the productive age range. Of the 57 respondents, 30 people (52.6%) were between 20 and 30 years old. Meanwhile, 23 people (40.4%) were 31-40 years old and 4 people (7%) were 41-50 years old. This shows that most of the respondents are economically and socially active, making it relevant to assess the impact of development in terms of economy and quality of life.

b. Of the total respondents, 32 people (56.1%) were male and 25 people (43.9%) were female.

Table 2. Characteristics of respondents by gender

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	32	56.1	56.1	56.1
	Female	25	43.9	43.9	100.0
	Score	57	100.0	100.0	

This composition reflects the involvement of both genders in social and economic activities around the sport centre development site. It also provides a diverse perspective in assessing the impact of development on community welfare.

Percentage of muslims on quality of life and community wellbeing in Deli Serdang and Batang Kuis sub-district.

The percentage of muslims regarding the quality of life and community welfare in Deli Serdang Regency and Batang Kuis District in 2024-2025, needs to be explained from two sides: (1) the availability of quantitative data, and (2) the analytical approach based on the socio-economic and religious reality of the community. As official statistical data for 2024-2025 from BPS on the quality of life by religion at the kecamatan level has not been published in much detail, the following is an extended explanation based on conceptual approaches, previous studies, and logical estimations based on available data.

a. Composition of the muslim population in Deli Serdang and Batang Kuis.

Based on BPS Deli Serdang data (2023), the proportion of the Muslim population in Deli Serdang Regency is around 87-89% of the total population. Meanwhile, Batang Kuis Sub-district, which is part of Deli Serdang, also has a very high dominance of the muslim population, estimated at around 90-92%. With this muslim-majority background, the quality of life and general welfare of the community in this region is also strongly influenced by the condition of muslims.

b. Quality of life and welfare of muslims in 2024-2025 (Conceptual and estimative approach)

1) Definition of quality of life and welfare

Quality of life includes aspects of education, health, employment, environment, and life satisfaction. Well-being refers to income levels, social security, decent housing, access to public facilities, and household economic stability.

2) The estimated percentage of muslims with good quality of life and welfare (2024-2025), based on regional development reports, social programmes, as well as the existence of strategic projects such as the construction of the North Sumatra Sport Centre, is estimated:

Table 3. North sumatra sport centre

Indicators	Deli Serdang Regency	Batang Kuis Sub-district
Muslim with good quality of life	±65 - 70%	±72 - 75%
Muslim with a moderate/ good level of welfare	±60 - 65%	±68 - 70%

Impact of sport centre development on the community economy

Descriptive statistical measurement of this variable needs to be done to see the general data description such as the average value (mean), highest (max), lowest (min), and standard deviation of each variable, namely the impact of sport centre development (X), economic aspects (Y₁) and quality of life (Y₂). Regarding the results of the descriptive statistical test, the research can be seen in table 3 as follows :

Table 4. Descriptive statistical test results

	N	Minimum	Maximum	Mean	Std. Deviation
Development of the sport center	57	7	20	16.49	2.922
Economic aspects	57	7	28	23.09	4.059
Quality of life	57	12	32	25.74	4.422
Valid N (listwise)	57				

Based on the results of descriptive analysis of 57 respondents who participated in the research on the impact of sport centre development in Batang Kuis Sub-district, significant information was obtained regarding the three main variables, namely sport centre development, economic aspects, and quality of life.

a. Sport centre development

The average score of community perceptions of the sport centre development is 16.49 from a minimum score range of 7 to a maximum of 20, with a standard deviation of 2.922. This average value indicates that people tend to give a positive assessment of the sport centre development. The relatively small standard deviation indicates that most respondents' answers are not too far from the average value, so this data has a low level of dispersion and good homogeneity.

b. Economic aspects

For the economic aspect variable, a mean value of 23.09 was obtained, with a minimum value range of 7 and a maximum of 28. The standard deviation of 4.059 indicates that there is moderate variation in people's perceptions of the perceived economic impacts of the sport centre development. The high mean value indicates that this development is perceived to be able to contribute to increased economic activity in the community, such as increased business opportunities, employment opportunities, and potential increases in income.

c. Quality of life

The quality of life variable has the highest mean value of 25.74, with a minimum value of 12 and a maximum of 32, and a standard deviation of 4,422. This shows that the development of the sport centre not only has an impact on physical and economic aspects, but also has a significant influence on improving the quality of life of the community in general. This perception can include aspects of environmental comfort, access to

public facilities, increased community participation in sports activities, and the realisation of more representative public spaces.

Table 5. Multiple linear regression test results

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	Std. error	Beta			Tolerance	VIF
1	(Constant)	4.310	1.796		2.400	.020		
	Sport centre Development	1.139	.107	.820	10.617	.000	1.000	1.000

Interpretation of results:

Sport centre development has a significant positive impact on the economic aspect, with a constant value of 4,310 (Sig. 0.020 < 0.05) indicating a basic economic influence even without development. The regression coefficient of 1.139 (Sig. 0.000 < 0.05) shows that each unit increase in sport centre construction raises the economic aspect by 1.139 units. The beta value of 0.820 highlights the strong contribution of this variable to economic changes. Additionally, the tolerance and VIF values of 1.000 confirm there is no multicollinearity issue, ensuring the model's validity.

The development of the North Sumatra Province sport centre has significantly improved the economic aspects of the Batang Kuis District community. The presence of the sport centre has stimulated local economic activity, created jobs, and enhanced community welfare. Descriptive statistics based on 57 respondents (N = 57) reveal that the variables of sport centre development, economic aspects, and quality of life are representative of community perceptions.

The sport centre development variable shows a mean of 16.49, indicating positive community assessments, with a low standard deviation of 2.922, suggesting consensus among respondents. The economic aspects variable, with a mean of 23.09 and a standard deviation of 4.059, shows that most people perceive significant economic benefits, such as income and employment growth, though a small proportion did not experience these effects. The quality of life variable has a high mean of 25.74, indicating improved life quality due to the sport centre, though the higher standard deviation (4.422) suggests varying perceptions based on location and socio-economic conditions.

These results emphasize the sport centre's impact beyond its physical infrastructure, contributing to both economic and social development. However, the higher standard deviation values suggest unequal benefits, highlighting the need for more inclusive development in future projects.

Further support from multiple linear regression analysis shows a regression coefficient of B = 1.139 (Sig. = 0.000) and a beta value of 0.820, confirming that sport centre development has a strong and positive influence on the local economy. This aligns with the trickle-down effect theory, where large infrastructure projects stimulate the surrounding economy, offering new opportunities beyond agriculture and the informal sector. During construction, local labor was employed, raising household incomes, and new businesses were launched. Some residents suggested involving more local MSME and offering affordable business spaces to ensure broader economic access and reduce concerns over high rental prices and external competition.

Impact on community quality of life

Table 6. Multiple linear regression test results

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	Collinearity statistics	
		B	Std. error	Beta			Tolerance	VIF
1	(Constant)	3.483	1.546		2.253	.028		
	Sport centre Development	1.349	.092	.892	14.618	.000	1.000	1.000

Interpretation of results:

The North Sumatra Province sport centre development has positively impacted the economy of Batang Kuis District by boosting local activities, creating jobs, and improving community welfare. Descriptive statistics from 57 respondents show that the development, economic aspects, and quality of life variables reflect the community's perceptions. The sport centre development received a positive assessment with a mean of 16.49, while the economic aspects scored 23.09, indicating significant benefits like increased income and employment. Quality of life improved, with a mean of 25.74, though perceptions varied based on location and socio-economic status.

The sport centre's development not only improved physical infrastructure but also contributed to economic and social growth. Regression analysis confirms a strong, positive effect on the economy, with a coefficient of $B = 1.139$ and a beta of 0.820 . The project has provided new opportunities, particularly in services and trade, and employed local labor during construction. However, some residents suggest involving more local MSME and providing affordable business spaces to ensure equal economic access.

Positive and negative impacts of the development of the sport centre of North Sumatra Province in Batang Kuis Sub-district

- a. Positive impact of sport centre development in Batang Kuis Sub-district
 - 1) Improving the quality of life of the community
The construction of the sport centre provides a new public space for the community to exercise, recreate, and hold social activities. This has an impact on improving physical and mental health and strengthening social interaction.
 - 2) New economic opportunities
The presence of the sport centre creates economic opportunities, both formal and informal. The community can open culinary businesses, parking, sports equipment rental, and other supporting services that help increase household income. The increase in the economy of traders from before the existence of the sports centre to the construction of the sports centre is around 76.6% using descriptive analysis.
 - 3) Labour absorption
In the process of building and operating the sport centre, new jobs were created in the construction, security, cleaning, and general services sectors. This helps to reduce local unemployment.
 - 4) Acceleration of infrastructure and accessibility
Road access, lighting and transport around the development area are likely to improve due to the attention of the local and provincial governments. These infrastructure improvements have a knock-on effect on community convenience and mobility.
 - 5) Improved regional image
Batang Kuis is becoming better known regionally and nationally as a strategic sports and recreation area. This has the potential to increase investment and other regional developments in the future.
- b. Negative impacts of sport centre development in Batang Kuis Sub-district
 - 1) Possibility of land conversion
The development of the sport centre could potentially lead to the conversion of agricultural land or green space into built-up areas. This could reduce local agricultural production and affect environmental sustainability.
 - 2) Increase in land and residential prices
As the strategic value of the area increases, land prices and the cost of living around the sport centre area may increase. This could negatively impact local communities with low incomes who find it difficult to adapt economically.
 - 3) Traffic congestion and density
If the management of vehicle flow is not well anticipated, especially during major events, the sport centre can cause congestion, noise, and disturbance of comfort for local residents as well as frequent occurrences of accident-prone, murder-prone and brawl-prone areas.
 - 4) Environmental impact
Massive physical development can lead to increased waste volume, reduced water catchment areas, and potential pollution if not balanced with a good environmental management system

4. CONCLUSION

The development of the North Sumatra Provincial Sports Centre has significantly improved the economy and quality of life in Batang Kuis Sub-district. Descriptive analysis shows that most respondents report economic benefits, with a high satisfaction score of 23.09 out of 28. Multiple linear regression confirms a strong positive relationship between the sports centre and economic growth, with a regression coefficient of 1.139 and a beta value of 0.820. Additionally, the sports centre has enhanced quality of life, with a score of 25.74 out of 32, indicating improvements in public facilities, environmental cleanliness, health, and social interactions. Regression analysis also shows a positive impact on quality of life, with a regression coefficient of 1.349 and a beta value of

0.892. However, challenges such as the conversion of agricultural land, rising land prices, traffic congestion, and the dominance of external businesses have emerged. These issues may increase social inequality, disrupt local economies, and strain community life. To address these challenges, an inclusive management strategy involving local communities is necessary to ensure the benefits are shared equitably. This strategy should focus on improving access to facilities, controlling living costs, and minimizing environmental damage. In conclusion, while the sports centre has contributed positively to the community, careful management and long-term planning are essential to sustaining these benefits. Future research should explore the long-term effects and compare similar projects in other regions to understand the broader impacts of large-scale infrastructure on local development.

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