

Mapping of Crime-Prone Areas in The Ulu Area of Palembang City Based on Public Service Availability Factors

Rosada Nur Chusna Yauni¹

¹Universitas PGRI Palembang, South Sumatra, Indonesia

Corresponding author e-mail: chusnayauni@gmail.com

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Abstract: Crimes often occur in various places in Palembang City; the Ulu area is the most dominant area, especially the Seberang Ulu I District. Different places and times make it difficult to determine which areas have the highest level of crime vulnerability. This information is needed by the public and law enforcement. Most of the crimes that arise are caused by economic influences. This study tries to link two variables, namely the crime rate variable and the variable availability of public services. The method used is descriptive-quantitative with spatial analysis. Conclusions in this study: (1) Several areas in Seberang Ulu I District have different levels of vulnerability to crime. Areas that are categorized as prone to crime are areas that have public services, including Tuan Kentang, 7 Ulu, and 15 Ulu. (2) Crimes most often occur at night between 18.00 and 05.59 WIB, with as many as 19 cases, and in the afternoon between 06.00 and 17.59 WIB, with as many as 11 cases.

Keywords: Crime, Mapping, Public Service

A. Introduction

Palembang City is the capital of South Sumatra Province. Palembang City is famous as an industrial and trade city. Palembang's geographical position, which is located on the banks of the Musi River and not far from the Bangka Strait, is very profitable (Palembang, 2003). As the second-largest city after Medan on the island of Sumatra, competition to achieve a decent life is very high. Not a few Palembang residents choose to commit criminal acts to earn money so that their economic life is more prosperous or decent (Alviana et al., 2023).

(Syarifuddin & Pettanasse, 2019) states in his book (Criminology): Crime is a word used to describe a despicable act (wrongs) committed by a person or several people. Based on the definition above, not all despicable acts constitute a crime if related to the juridical definition. This is because, juridically, the concept of crime is only limited to human behavior that can be punished based on criminal law.

Crime, or evil, is an act that can cause problems and unrest in people's lives. According to KBBI, crime is things that are criminal in nature; acts that violate

criminal law; corruption is an action (Setiawan, 2019). Based on BPS data, during the 2015–2017 period, the number of crime incidents or criminal acts in Indonesia tended to fluctuate (BPS, 2020).

The number of criminal acts or crimes in the jurisdiction of the city of Palembang, South Sumatra, experienced a quite drastic decline throughout 2018. The crime rate decreased by 23 percent compared to the previous year (Yulianawati, 2018). In fact, during the COVID-19 pandemic, the crime rate also continued to decline (Rahmadani, 2020). However, after the PSBB in the city of Palembang was lifted, the crime rate increased by 4-5 percent (Putri, 2012). In a national security journal, it was explained that more income means there is a greater opportunity for benefits for criminals, such as theft and robbery. This also means that wealthier areas are more attractive to criminals (Mahsyar, 2011). An increase in income provides more opportunities for criminal acts due to the large amount of stolen goods, which is known as the opportunity effect (Masfiatum, 2019). Theft is one of the crimes that we often encounter in society. Theft as regulated in Article 362 of the Criminal Code: “Anyone who takes an item that wholly or partly belongs to another person with the intention of possessing it unlawfully is threatened with theft, with a maximum imprisonment of five years or a maximum fine of nine hundred rupiah” (Yuridis, 2020).

There are three types of theft regulated in the Criminal Code: theft with aggravation, theft with violence, and motorcycle theft. Areas that are categorized as rich areas are those that have the availability of public services. If a public service is built in an area, the population will automatically continue to increase, and other developments will develop over time. According to Albercht in Lovelock, 1992 (Widodo, 2013), service is a total organizational approach that involves the quality of service received by service users as the main driving force in business operations. Meanwhile, according to Sinambela (Freeman, 2013), service is every activity carried out by the government in every activity that is profitable in a group or unit and offers satisfaction even though the results are not tied to a physical product.

B. Methods

This research is a type of descriptive quantitative research. Descriptive quantitative research is a type of research used to analyze data by describing or illustrating the data that has been collected as it is. The choice of descriptive-quantitative research in this research was based on research that wanted to examine and see the degree of relationship between crime levels and the availability of public services in the Ulu area of Palembang City.

This research takes a case study in Palembang City, Ulu City, South Sumatra. Or more precisely, it is located on the line 2°52' to 3°5' South Latitude and 104°37' to 104°52' East Longitude (BPS, 2020). The selection of Palembang City, part of Ulu

City, as the research location was based on several considerations. Palembang, which tends to be flat or sloping, provides minimal obstacles for city functions to grow (Giyanto, 2015). Apart from that, Palembang's geographical position, which is located on the banks of the Musi River and not far from the Bangka Strait, is very profitable. As the second largest city after Medan on the island of Sumatra, competition to achieve a decent life is very high. For these two reasons, quite a few Palembang residents choose to commit criminal acts to earn money so that their economic life is more prosperous/decent.

Flow diagram

In general, flow diagrams are used to carry out analysis, design, documentation, or management of a process or program in various fields of science. This diagram can provide a step-by-step solution for solving problems in the process or algorithm.

Population and Sample

The population that will be used for this research includes all criminal acts that occurred in the Ulu area of Palembang City, especially in areas under the supervision of the Seberang Ulu I Police. Using two sampling techniques, namely purposive sampling and saturated sampling. Purposive sampling is used by researchers to determine the type of public service that is considered to represent all public services in Seberang Ulu I District. These public services are in the service sector, including markets, automated teller machine, and tourist attractions. Meanwhile, saturated samples are used to sample criminal acts by the police. The sample used is all forms of theft that occurred in the Seberang Ulu I District area.

Teknik dan Prosedur Analisis Data

Carried out during data collection. The data collection methods used were observation, interviews, literature study, and documentation. The data analysis stage was carried out using the overlay and proximity analysis tools. This analysis technique is carried out to see the characteristics of crime-prone areas using Geographic Information System (GIS) tools that spatialize crime level data, market distribution data, tourist attraction distribution data, and automated teller machine distribution data into map form. The GIS tool in question is software, namely ArcGis. Carried out during ongoing data collection. The data collection methods used were observation, interviews, literature study, and documentation. The analysis stages are carried out using the analysis tool overlay and proximity buffering. This analysis technique is carried out to see the characteristics of crime-prone areas using Geographic Information System (GIS) tools that spatialize crime rate data, market distribution data, tourist attraction distribution data, and automated teller machine distribution data into map form. The GIS tool in question is software, namely ArcGis.



Figure 2. Arc Toolbox

C. Results and Discussion

Distribution of Public Service Points



Figure 3. Map of the Distribution of Public Services

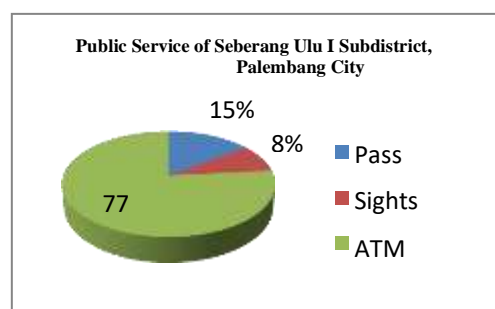


Figure 4. Public Service Diagram Based on Location Observations

Based on the results of location observations, public service distribution points were obtained in Seberang Ulu I District. These public services include markets, tourist

attractions, and automated teller machine . Seberang Ulu I District has 7 market points, 4 tourist attraction points, and 36 automated teller machine points spread.

Crimes occurred in various areas of Seberang Ulu I District. The following figure provides information that the level of vulnerability is classified into 4 levels, namely, safe (yellow), quite vulnerable (dark yellow), vulnerable (brown), and very vulnerable (dark brown).

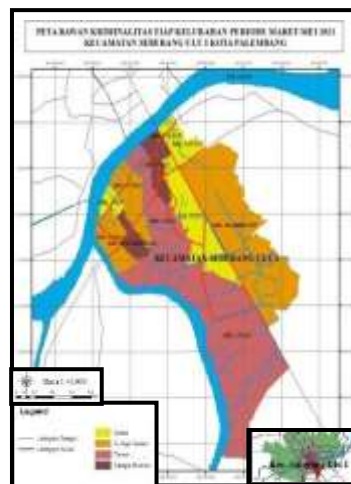


Figure 5. Map of Crime Prone for Each Village

The villages that fall into the category of very vulnerable are Tuan Potato Village and 7 Ulu Village. This village experiences a vulnerability rate of 17–20%, with an average of 5–6 cases spread. Then followed Kelurahan (5 Ulu) and 15 Ulu. The cases that occurred in this village were four, ranging from curat, curas, and curanmor cases.

Based on the results of the spatial analysis, the average crime occurs not far from public services. This means proving a spatial correlation between crime and the availability of public services, especially market public services. The market, as the center of economic activity, has a great influence on the surrounding environment. As explained by Toni in 2014 in the journal *Cakra Wisata*, the market is also an economic element that can realize the benefit and welfare of human life (Aliyah, 2017).

In addition, crime starts with a person's economic influence. This economy is the main driver for someone to commit crime. In agreement with Purwanti in his journal, he explained that a person's economic level has a positive and significant effect on crime (Purwanti & Widyaningsih, 2019). (Mehanna, 2003) examines whether poverty rates positively affect the increase in crime. Someone who lives below the line of magic is more likely to commit illegal acts because they do not get

the attention of normal people who perform legal actions. Here are the results of spatial analysis techniques using buffering.

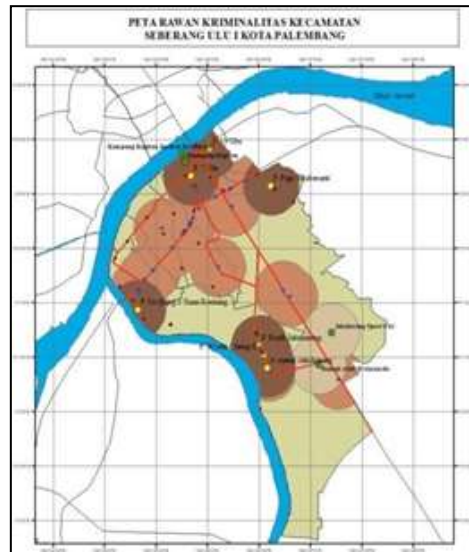


Figure 6. Crime-Prone Map Based on *Buffer Results*

Buffer analysis is used to represent a range of public service points with crime points at a certain distance. In this study, the distance determined was 500 meters from the public service point. In figure 6, crime points located in shaded circles show that crime points occur around public services. With a meaning, every 500 meters from the public service of Seberang Ulu I District, there is a crime.

The rate of crime is greater at night than during the day. Areas prone to crime that occur at night are Kelurahan (7 Ulu) and 15 Ulu. As for the daytime, the area of Tuan Potato Village.

Table 1. Number of Cases by Event Time Variable

Time of Occurrence	Sum
Morning (06.00-17.59 WIB)	11
Night (18.00-05.59 WIB)	19

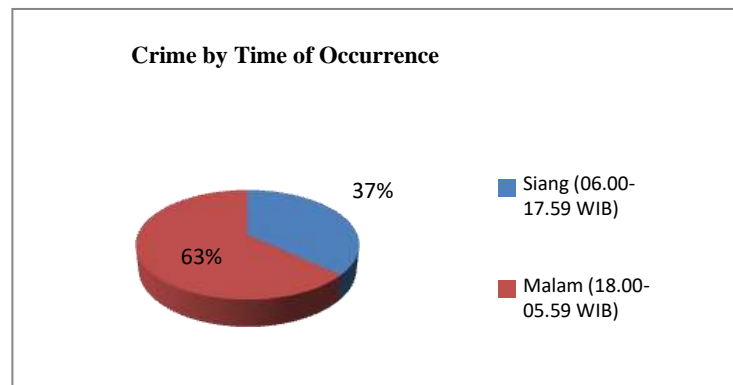


Figure 7. Time-Based Event Count Diagram

Furthermore, a classification was carried out based on the variable type of case, with the following results: For the types of cases that occurred in each village, the most cases occurred in 17 curat cases. Many occur in the sub-district areas of Tuan Potato and 15 Ulu. There were 3 cases of curas, 1 case in Ulu Village, and 2 cases in Tuan Potato Village. As for Curanmor cases, there were 10 cases, and many occurred in the 7 Ulu Village area.

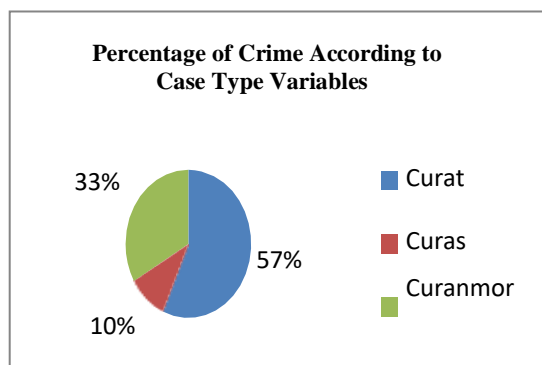


Figure 8. Diagram of the Number of Events by Case Type

D. Conclusions

Based on the objectives, results, and analysis of the research that has been carried out, the following conclusions are obtained:

1. Several areas in Seberang Ulu I District have different levels of vulnerability to crime. Areas that are categorized as crime-prone are areas that have market-based public services, including Tuan Potato, 7 Ulu, and 15 Ulu. Crime most often occurs at night between 18.00 and 05.59 WIB, compared to during the day between 06.00 and 17.59 WIB.
2. The number of crimes in Seberang Ulu I District is not far from the availability of public services. Based on the results of the spatial buffering analysis, every 500 meters from public service points, almost the average crime occurs. This means that there is a spatial correlation between the crime rate and the availability of public services.

E. Acknowledgement

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