Hotspot analysis of divorce cases in the Greater Solo Region

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Abstract. Divorce is a common phenomenon that occurs in society. The divorce rate in various regions in Indonesia has been quite high in the last 10 years. The phenomenon of divorce is interesting when viewed from its spatial distribution. This study aim to analysis the divorce rate and determine the hotspots distribution of divorce in the Greater Solo Region. This research uses quantitative research methods with secondary data as the main data which is analysed descriptively. In the study of geography, it is necessary to support statistical analysis, especially with regard to spatial correlation studies. Determination of divorce hotspots is carried out with the support of spatial analysis utilizing the hotspot (Getis-Ord Gi*) spatial analysis of the Geographic Information System. The results of processing the distribution of divorce hotspots in Greater Solo Region in 2019 show clustering, namely in the city of Surakarta and its surroundings which are urban areas. This study indicates that there is a correlation between the divorce rate and urban area.

Keywords: Hotspot analysis, Divorce, Greater Solo Region

1. Introduction
Divorce is a common phenomenon that occurs in society. The divorce rate in Indonesia is high. Every year it always increases. In the last 10 years the number of divorces in Indonesia has increased. In 2009 there were 233371 cases of divorce. In 2010 there were 285184 cases of divorce. In 2011 there were 276791 cases of divorce. In 2012 there were 346480 cases of divorce. In 2013 there were 324247 cases of divorce. In 2014 there were 344237 cases of divorce. In 2015 there were 347356 cases of divorce. In 2016 there were 346,516 cases of divorce. In 2017 there were 374516 cases of divorce. In 2018 there were 419268 cases of divorce [1].

The number of divorce cases at the Provincial level in Central Java has increased every year. In the last 10 years the number of divorce cases in Central Java has increased. In 2009 there were 50226 cases of divorce. In 2010 there were 54105 cases of divorce. In 2011 there were 58570 cases of divorce. In 2012 there were 73351 cases of divorce. In 2013 there were 70769 cases of divorce. In 2014 there were 72560 cases of divorce. In 2015 there were 71901 cases of divorce. In 2016 there were 71373 cases of divorce. In 2017 there were 69857 cases of divorce. In 2018 there were 70067 cases of divorce [2].

The divorce rate in Central Java is quite high. Divorce cases in Central Java were mostly in Cilacap Regency with a total of 6105 cases of divorce. While divorce cases the lowest in Magelang City with a total of 241 divorce cases. The divorce rate in Greater Solo Region area is also quite high, namely in the Surakarta City there were 875 cases of divorce. Sragen Regency there were 2070 cases of divorce. Karanganyar Regency there were 1624 cases of divorce. Wonogiri Regency there was 1573 cases of divorce. Sukoharjo Regency there was 1266 cases of divorce. Klaten Regency there was 1739 cases of divorce and Bolyolali Regency there was 1671 cases of divorce in 2018 years [2].

The divorce rate in Indonesia is very diverse 2018 years. There are 3 main causes of divorce in Indonesia, namely in disputes and quarrels as much as 41.89% in Indonesia and 33.98% in Central Java. Furthermore, the cause of divorce was leaving one as much as 19.48% in Indonesia and 32.01% in...
Central Java. and third, economic problems as much as 28.90% in Indonesia and 29.67% in Central Java [2].

[3] Said that the main reason for divorce in Surakarta City was the case of disputes and quarrels of 431 couples. Furthermore, the second rank is economic problems with 273 pairs. Apart from the rate and the factors causing the divorce, the phenomenon of divorce is interesting when viewed from its spatial distribution. Therefore, this study aims to determine how the spread of divorce hotspot in the Greater Solo Region and to analyze the divorce rate in the Greater Solo Region. The phenomenon of divorce is interesting when viewed from its spatial distribution.

2. Method

This research uses quantitative research methods with secondary data. It is necessary to support statistical analysis in the study of geography, especially with regard to spatial correlation studies. One thing that can be used to study spatial correlation which is then intended to identify the formation of spatial clusters is Hotspot Analysis. Hotspot Analysis is a spatial cluster detection method that identifies spatially significant concentrations of high values and low values associated with a set of geographic features[4].

This study utilizes Hotspot Analysis (Getis-Ord Gi*) in ArcGIS software to determine the location of the Divorce clustering center in Greater Solo Region in 2019. Descriptive analysis methods were also carried out in this study. It means that this study tried to analyze the causes of divorce that occurred in Greater Solo Region in 2019. Where the data used was taken by the Religious Courts in Greater Solo Region over the decision of the Religious Court divorce.

The research was conducted in the Greater Solo Region. The area includes Surakarta City, Sragen Regency, Karanganyar Regency, Wonogiri Regency, Sukoharjo Regency, Klaten Regency dan Boyolali Regency.

The population of this study is divorce and the address of divorced couples residing in Greater Solo Region in 2019. Divorce population is all divorce cases in Greater Solo Region in 2019 that have been recorded by the Greater Solo Region Religious Court, namely Surakarta City, Sragen Regency, Karanganyar Regency, Wonogiri Regency, Sukoharjo Regency, Klaten Regency dan Boyolali Regency.

The data collection method used was secondary data, namely divorce data recorded at the Religious Court in 2019 which included the number, address and reason for divorce. RBI geospatial data is used to establish administrative maps and divorce rate distribution maps. Spatial data in the form of the Greater Solo Region administration map covering the division of district boundaries was prepared in advance. Administrative map becomes the basis in this study because it shows the location of the research conducted.

The Hotspot Assessment of the divorce distribution is represented by the number of divorces based on secondary data. Data obtained from the Religious Courts in Greater Solo Region containing the number and address of divorce, which is used for plotting coordinate points, is contained in ArcGIS's spatial statistics tools so that it can be continued with analysis of the distribution of hot spots distribution.

The data analysis process is used to find out the answers to this research question. Analysis of the data in this study consisted of several stages of analysis, namely: (1) Hotspot Analysis (Getis-Ord Gi*). This analysis strategy was carried out to determine the spatial analysis described. By using Hotspot Analysis (Getis-Ord Gi*), a divorce can be determined in its distribution patterns. This analysis is used to answer goal 1, which is to find out the divorce distribution hotspot in Greater Solo Region; (2) Divorce Rate Analysis. This divorce analysis will later be used to compare differences between one place and another. The difference in the degree of divorce vulnerability is related to the condition of the area.

3. Result and Discussion

Greater Solo Region is one of the most influential areas in Central Java. These regions consists of
seven regencies / cities namely Surakarta City, Karanganyar Regency, Sragen Regency, Wonogiri Regency, Sukoharjo Regency, Klaten Regency and Boyolali Regency. In its development of each City and Regency has its own social dynamics. Divorce cases found in the Greater Solo Region were classified as high, although not the highest in Central Java. The intensity of divorce cases in a variety of solos is in some high places and in some low places.

The results of the divorce distribution hotspot processing in Greater Solo Region in 2019 show the grouping, which is in the middle of the Greater Solo Region because the area is a hotspot area, both with a 90% to 99% possibility. Divorce hotspot map in Greater Solo Region 2019 provided in figure 1.

Figure 1. Divorce Hotspot in Greater Solo Region in 2019

The results of the divorce distribution hotspot processing in Greater Solo Region in 2019 showed a grouping in the middle of the Greater Solo Region. The area is a hotspot area, both with the possibility of 90% to 99%. That is because the number of divorces is high compared to other regions. The level of the possibility of a hotspot area of 99% found in all of Surakarta City, namely the sub-Districts of Banjarsari, Jebres Districts, Laweyan Districts, Pasar Kliwon Districts, Serengan Districts. Then on the southeast side of Boyolali Regency which is in Ngemplak District, northwestern side of Karanganyar Regency is in Gondangrejo Districts, Kebakramat Districts, Mojogedang Districts, Tasikmadu Districts, Colomadu Districts, Jaten Districts, in the northern part of Sukoharjo Regency, in Polokarto District, Mojolaban Districts, Grogol Districts, Baki Districts, Gatakang Districts, Kartasura Districts, and parts of the southern region of Sragen Regency, namely in Gondangan Districts, Karangmalang Districts, Kedawung Districts, Masaran Districts, Sambirejo Districts, Sragen Districts.

The results of processing divorce distribution figures in Greater Solo Region in 2019 Divorce cases are high. Divorce centered in the center of Greater Solo Region in the Surakarta Region. The divorce rate in the Greater Solo Region 2019 is shown in Figure 2.
Divorce cases that are classified as high are in the southern part of Sragen Regency. Then spread to some parts of the northern part of Karanganyar Regency and to the Surakarta City and the central part of the Sukoharjo Regency then added Boyolali Regency the downtown part. This pattern indicates that high divorce occurred in areas traversed by the main road lane from Sragen Regency to Karanganyar Regency to Surakarta Regency to Sukoharjo Regency to Boyolali Regency.

Divorce factors in the Greater Solo Region in 2019 area vary widely. There are 3 reasons that dominate the occurrence of divorce. A diagram showing the reasons for divorce is shown in Figure 3.
Divorce factors in the Greater Solo Region in 2019 area vary widely. There are 3 reasons that dominate the occurrence of divorce. That, 50% of the divorce factor comes from disputes and quarrel, 24% of the factors for divorce stem from economic problems, 23% of the factors for divorce stem from leaving One problems, and the remaining 3% comes from polygamy, disability, forced marriage, sentenced to prison, drunk, apostate, gambling, drug users, adultery and domestic violence. The results show that the divorce hotspots are in Surakarta City and nearby areas. This suggests that divorce tends to occur more in urban centers. Research [5] also has the same result which shows that divorce is more likely to occur in urban areas. Research [6] researching the location of the divorce point for the city of Pekanbaru using Google Geocoding-Api. This research shows the same results that the location of the divorce is more likely to be in urban areas. Although using different methods, the results are the same, namely divorce tends to occur more frequently in urban areas.

The characteristics of urban areas appear to have a tendency to trigger divorce. According to [7] urban population has a characteristic social relations are individualistic and materialistic, nonagricultural livelihoods, heterogeneous socioeconomic status, weak tolerance, a rational and forwardthinking view of life, high population density, there is a social gap. In addition, urban residents tend to focus on work which makes up for a lack of time with family. In addition, more women in urban areas also work. With this it makes women who live in urban areas feel they have a role in their families and tend to create disputes.

In line with the factors causing the divorce according to [8] [9] [10] [11] [12] said that the main factor causing divorce comes from family disharmony, lack of responsibility, economic, affairs, partners are selfish, couples do not have free time. This is the same as the characteristics of urban communities which result in urban areas more likely to experience a lot of divorce. The research results reveal the factors causing divorce according to urban conditions. This research reveals that divorce hotspots exist in urban areas namely in the city of Surakarta and the surrounding area. In addition, the highest number of divorces is also in urban areas. This is indicates that there is a correlation between the divorce rate and urban area.

4. Conclusion
The results of processing the divorce distribution hotspots in Greater Solo Region 2019 show that there are groupings in the city of Surakarta and its surrounding areas, which are urban areas. The highest divorce rate is found in most urban areas. This is also influenced by the state of life behavior in urban areas that triggers the emergence of problems that lead to divorce.
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