Women's Safety and the Right to the City:

Analysis of Rape against Women in Sweden through A Spatial Analytical Lens

Tianyu Shi

Abstract

Drawing on a spatial analytical framework this research study the development of rape against women in Sweden. It aims to explore the spatio-temporal pattern of rape against women in Sweden at the regional and municipal levels. Based on these spatio-temporal traits, this research examines if socio-economic and demographic factors hypothesized by existing studies can be used to explain the prevalence of rape against women in Sweden at the local level studies in a general way. It also analyzes how news media represents and constructs gender relations behind rape against women in a discursive way. Beyond that, methodologically, the study provides a new way to look at rape against women through a spatial analytical lens, combining spatial-temporal visualization and discourse construction, and it points out possible obstacles in the work of preventing rapes against women in Sweden. The results show that total rape against women has increased at the national and regional level during the year 2015-2019, but high or low rates of rape against women concentrated in the small municipalities. The prevalent spatio-temporal traits of rape against women in Regional Stockholm and Region Syd can be related to high female population, economic level, and education level while no obvious links between the prevalence of rape and these socioeconomic variables in the other five police regions. For high rates of rape crime concentrating in small municipalities, local cultural and historical background, such as religions and military history may be related. However, the data collection methodology conducted by Swedish criminal prevention agencies, such social practices may affect the spatial distribution of rape patterns. Besides that, Swedish national and regional news media have their sociopolitical role in shaping the spatial production of rape against women and the broader gender relations by combining portray of rape crime with other social issues, which contributes to the prevalence of rape against women in Sweden.

Keywords: rape against women, right to the city, spatio-temporal distribution, discourse analysis

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1 Introduction

1.1 Research focus

Globally, women and girls are frequently subjected to violence and abuse, from physical and verbal harassment to sexual assault and rape in the public and private spheres (World Health Organization [WHO], 2021). Sexual violence is defined as "any sexual act, attempt to obtain a sexual act, or other act directed against a person's sexuality during coercion, by any person regardless of their relationship to the victim, in any setting (Krug et al., 2002, p. 149). Rape is classified as a form of sexual violence because it is a profoundly negative and traumatic life event that has widespread psychological and sociological consequences for the victim, regardless of gender. (WHO, 2013). Even though rape crime has sparked public outrage and financial aid interest, it remains a serious issue today because it articulates the problem of restricting women's freedom and is part of a struggle for access to the city.

Sweden often has high rankings among many countries regarding gender equality in the world, but significant challenges in gendered violence against women remain (see e.g. World Economic Forum, 2019; European Institute for Gender Equality, 2019). The ongoing debate in Swedish newspaper and among politicians concerning killings of five women in Sweden has offered sufficiently attention of women's safety and their right to the city and calls for policy change in the country for gender equality (The Local, 2021). The positions of women in Sweden have improved under the pressure of social debates in recent decades, for example concerning the implementation of three major revisions of the sexual crime legislation from 2015 to 2017, and the participation and campaigns of the public on media since 2010 (The Swedish National Council for Crime Prevention (Brottsförebyggande rådets) [Brå], 2019:5). However, according to Brå (2019:5), the number of police-recorded rapes against girls and women in Sweden has increased yearly since 2015, reaching record high levels in 2019 with over 8000 cases. At the same time, the ongoing debate and the legislative changes have shown that news media takes on a central role in the legislative and political process (Nilsson, 2019; Karlsson et al., 2020). Media representations of women and of rape against women in Sweden serve as sociopolitical goals, which is

connected with, and manifested through, perception, interpretation and categorization (Nilsson, 2019; Sager and Mulinari, 2018). It is obvious that, in Sweden, women's safety remains violated and women are more restricted than men in their use of the city through not only the physical occurrence of rapes, but also symbolic representation of rape against them in the discursive field (Karlsson et al., 2021; Sandberg and Coe, 2020). In Swedish news reports, Swedish discourses of gender equality have been engaged in the contextualization of rape against women to avoid talking about rape by using the notions "legislation", "immigration" and "city planning" (Nilsson, 2019). Additionally, the methods used to collect data on the victimization of rape in Sweden are different and difficult to be compared with other places (Brå, 2020:13). Hence, studying rape against women in Sweden contextually provide an opportunity to address violation of women's rights and gender inequalities behind it and way to present women's precarious position in the society.

This study departs from a broader spatial analytical research framework in relation to gender. An important focus for this research has been how rape against women is developed by underlying power relations and productive forces, namely socio-economic factors and social discourses across time and space. Considering rape against women as a social and cultural product in the social space, this study investigates the development of rapes against women in Sweden in the years 2015 and 2019 by combining spatial mapping and discourse analysis. Based on police-reported data from the Swedish crime prevention database, it first examines spatio-temporal pattern of rape against women by regional and municipal level mapping and trait analysis, associated with various socio-economic and demographic factors. Then the study explores media representations of rape against women in general, analyzing how Swedish news media, as a social agent, has perceived and represented these crime cases by conducting a discourse analysis. Although there are different forms of rape, for example, man to man, woman to woman, this study focus on male-female rape.

1.2 Research aim

Bringing in the context of Sweden, the following research is aimed to contribute to providing a better understanding of the development of rapes in Sweden over time. It aims to explore the spatio-temporal pattern of rape against women in Sweden at the

regional and municipal level and to examine if socio-economic and demographic factors hypothesized by existing studies to explain prevalence of rape against women in Sweden at the local level studies in a general way. It also analyzes how news media represents and constructs gender relations behind rape against women in a discursive way. Beyond that, methodologically, the study provides a new way to look at rape against women through a spatial analytical lens, combining spatio-temporal visualization and discourse construction, and it points out possible obstacles in the work of preventing rape against women in Sweden.

1.3 Research question

In light of the above, I have initially formulated two main research questions, including sub-questions:

1. By conducting GIS methods, what are the significant spatio-temporal patterns of rape against women in Sweden based on reported crime data at regional and municipal levels for 2015 and 2019?
   1a) What general spatial and temporal patterns or variations of rape against women can be seen over Sweden?
   1b) What demographic and socio-economic factors examined by existing studies can be used to explain the patterns shown in this study?

2. Considering the role of news media discourse, by giving examples, how are rape crimes portrayed by the news media in explaining the occurrence of the crime?
   2a) In the aggregated news reporting, what information and interpretation about rape against women are presented?
   2b) How is extracted information about incidence related to the traits of rape against women obtained from the quantitative GIS analysis?

1.4 Research outline

The study is organized as follows: Chapter 2 provides a description of general statistics on rape against women in Sweden and a legislative definition of rape crime in Sweden. It also contains a literature review mainly focusing on rape against women and identifying the research gap. Chapter 3 presents the data and methods used in this study.

Chapter 4 examines the findings from spatio-temporal pattern mapping and critical discourse analysis. GIS methods are used to conduct quantitative research and text analysis to demonstrate the role of media discourse in the portrayal of rapes against women in society. Chapter 5 discusses the results from the last section in relation to gendered social space in Sweden, as well as reflects on the methodologies and limitations of this research. The last chapter links back to the research questions and concludes this study.

2 Literature Review and Thesis framework

This chapter shows statistical and legislative information on rape against women in Sweden in the background. In the background section, it first presents an overview of rapes against women and women's situation in Sweden and then defines rape and describes the recent gender-based legislation and regulations in Sweden. In order to answer the research questions, this section provides a summary of the research framework, consisting of a theoretical framework and a methodological framework. The theoretical framework clarifies the appropriated theory that explains why research questions under study matter. Previous empirical research on rape against women provides the guidance for framing the methodology of this study.

2.1 Background

2.1.1 Statistics on rapes against women

Since 2005, the overall number of police-reported rapes according to statistics on reported crime has increased, with an apparent increase from 2007 to 2008, followed by a relatively stable level (Figure 2.1). The period from the years 2015 to 2019 has seen a more dramatic increase. It is significantly more common for women to be victimized of rape than men and for men to be a perpetrator than women (Brå, 2019:5). Regarding the situational aspect of crimes, most rapes reported to the police involve offences against women that were committed indoors, primarily happening in private residences. In 2019, over 20,000 sexual crimes were reported to the police, in which 8,686 of these were classified as rape, including the new crime of negligent rape, and almost 90% of rapes were targeted at girls and women (Brå, 2021).
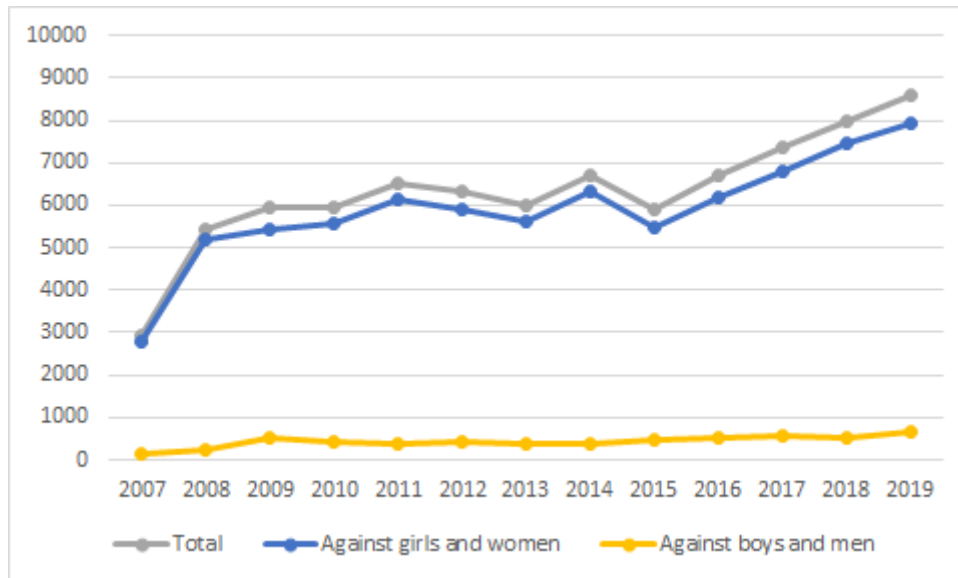
Figure 2.1 The trend of number of rapes in Sweden (2007-2019) (Data source: Brå)

Different from police-reported cases, self-reported exposure to sexual offence is registered by the Swedish Crime Survey (SCS) (Brå 2019:5). According to the survey evaluation report (Brå 2019:5), it is noted that self-reported exposure to sexual offence among women has primarily increased, although the proportion of men reporting exposure to sexual offence also rose towards the end of 2017. It also points out that the majority, over 9 out of 10, of the perpetrators in the sexual offence incidents reported in the SCS are men, and this proportion has not changed from 2005 to 2017 (Brå 2019:5). In contrast to police-reported crime, the locations of crimes in the survey have tended to take place in public places, such as at work, in schools and public entertainment places, while a smaller proportion has taken place in private residences (Brå 2019:5).

2.1.2 Legislative definition of rape

Rape examined in this study is defined in accordance with Chapter 6, Sexual Crimes of the Swedish Criminal Code, which the definition is expanded on 1 July 2013. Section 1 of the code defines rape as the following: "A person who perform sexual intercourse, or some other sexual act that in view of the seriousness of the violation is comparable to sexual intercourse, with a person who is not participating voluntarily is guilty of *rape* (Government Offices of Sweden, 2015)." As for penalties for rape, the perpetrator will be sentenced to imprisonment for at least two and at most six years.

The legislative definition of rape has been continuously broadened, and more acts than before are judged to be rape over during the last decade. Since 1 July 2018, Sweden has made changes to the legal rules concerning rape based on consent. This has resulted in a change that the perpetrator can be convicted of rape even without the occurrence of violence, threats, or a particularly vulnerable situation, thus partly leads to the increase of reported rapes (Brå, 2020:6). Although the new law has achieved intended changes as constituting an essential societal signal, there are questions about the law's implementation process. As a result, such a problem may jeopardize the principle of legal certainty. Thus, it calls for more rulings that can provide guidance at a higher level, as well as details that can clarify the constitution of consent and distinguish between reckless intent and gross negligence (Brå, 2020:6).

2.2 Theoretical framework

2.2.1 Rape against women and social space

To understand space, this study applies Henri Lefebvre's ([1975] 1991) spatial triad principles in relation to gender from a feminist perspective (see Figure 2.2). As a result, this study sees space as a dialectic relationship between material and social constructions (Harvey, 1990; Lefebvre, 1991; Massey, 1994; Soja, 1996). Three dimensions and their interrelationships construct space over time: spatial practice, representational space, and representation of space (Lefebvre, 1991, p.41-52). Spatial practices are the ongoing formal norms that are situated in everyday life (Lefebvre, 1991; Soja, 1996; Vacchelli, 2014). The concept of representational space refers to what space represents for "whom" as it relates to the imaginary, the symbolic, and the aesthetic (Lefebvre, 1991, p.69). How people experience space is often different from the reality when space was designed, and the meanings will be personal and differ from each person (Lefebvre, 1991, p.73; van Dijk, 1988). It is a lived space that fuses representations, ideologies and knowledge as signs and symbols appear in a material form influenced by different discursive agents, such as news media, to serve as certain sociopolitical goals (van Dijk, 1993, p.252). This space can also affect how individuals perceive the given space (van Dijk, 1993). Another concept which is representations of space, also termed as conceived space, could be represented in the form of urban planning, architectural design, and maps (Lefebvre, 1991, p.73).

Women's safety and their rights to the city are experienced through a spatial, material, and discursive dimension (Beebeejaun, 2017; Massey, 1994; Mitchell, 2003). Massey (1994, p.186) regards space from a gender perspective, and the gendered space reflects and has influenced how gender is constructed and perceived in society and everyday life. Therefore, gender relations are built in and through when space forms gender (Bondi and Davidson, 2005). Different bodies experience space differently because access to space is socio-culturally determined by these differences (Ranade, 2007). Concerning gender, women's everyday life experiences in the city are different from those of men, and their experiences are more constricted than men's (Vaiou, 1992, p.238). Legal rights or protections are difficult to experience innately as if there were a direct correlation between the occurrence of crime against women and their everyday life (Mitchell, 2003). The concept of the space itself has relied upon the exclusion of different groups over time (Beebeejaun, 2017; Mitchell, 2003). For women, inclusion is often and necessarily gained through "concerted social struggle, demand the right to be seen, to be heard and to directly influence state and society" (Mitchell, 2003, p132). The valuing of social order is maintained through everyday interactions and access to differential spaces of the city (Staeheli et al., 2012). In this sense, "the right to the city" suggests the importance of looking at what is happening at the body level and ongoing struggles over women and their rights to shape the qualities of daily urban life (Mitchell, 2003).

This study sees the prevalence of rape against women in society as the demonstration that women's struggles of space appropriation happening in urban space. These struggles over space disseminate the embodied hierarchies, social orders and practices, and the exclusions in order to maintain certain groups' dominant position (Beebeejaun, 2017). Everyday lived spaces significantly contribute to producing belonging, rights, and spatial practices, and to creating gender relations (de Certeau, 1984; Beebeejaun, 2017). Highly gendered urban space sheds light on the fact that women's safety in the social space is undermined through unequal tensions between binary categorizations of gender (Beebeejaun, 2017; Brenner, 2014; Lefebrve, 1991). Shifting patterns of gender relations can be reflected in the success of numerous political contestations and social movements to claim greater integration of women's everyday life (Beebeejaun, 2017). Despite these contributions, women continue to endure an unequal, even dangerous position in societal changes: on the one hand, the

persistence of widespread violence against women (e.g., Dymén and Ceccato, 2012; Ceccato, 2014); on the other hand, representation of women in the discursive regimes (e.g., Alfredsson et al., 2016; Karlsson et al., 2020 van Dijk, 1988). To manifest and interpret the sense of space is as dynamic and as the key for unpacking power relations and material/symbolic production forces, social practice and products of knowledge, as well as social structures and institutions behind the prevalence of rape against women, it is fundamental to understand how space is appropriated and gendered and thus to unpack it through a spatial analytical perspective.


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            Gender equality in society on the marco level
                      (Spatial practice)

              Women's safety and their right to the city
                        (Everyday life)

                       rape against women
                        (Social product)

Mapping spatio-temporal patterns of rape       Representation of rape against women in
           against women                              news media discourse
      (Representation of space)                      (Representational space)
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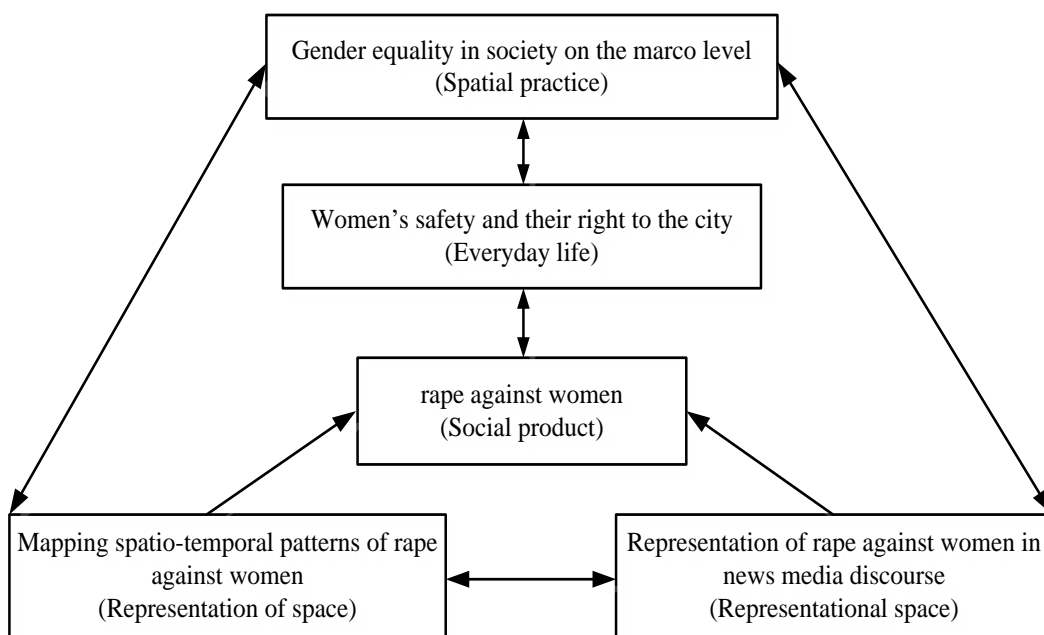
Figure 2.2 The theoretical framework of this study

In this study, the consideration of scales and dimensions in analyzing rape against women appropriates a spatial analytical framework and the work of Lefebvre (1991). The hybrid characteristics of space and the so-called *explosion of urbanization* refer to social space as a space that comprises from city to countryside, from public space to private space, and thus integrates the personal sphere (Brenner, 2013; Vacchelli, 2014). The space of private spheres may be distinguished but not separable from social space. It may be cut off by physical barriers and walls, as well as symbolic signs of private property, but it remains fundamentally part of that space (Lefebvre, 1974, p87). In this sense, urban space or the city space examined in this study is not solely urban areas or the opposite of countryside, but instead considers the social space

as a whole. Besides, it is commonly acknowledged that the prevalent traits of rapes against women may differ from place to place and change over time, and they are sometimes even beyond geographical boundaries and perceived space division (Lefebvre, 1991). Therefore, the analysis of rape against women in Sweden in this research shifts between regional and national scales and develops over time.

2.2.2 Discourse, rape, and space

Lefebvre (1991, p.19) formulated, "it is space that produces reproduction of socio-spatial dialectics by introducing into it its multiple contradictions." In this light, space, as a dialectical component of the inseparable sociopolitical relations of production, is where these relations are reproduced in "a socially concretized and created spatiality" (Gür, 2002; Lefebvre, 1991). In other words, social space is referred to not only as material production, but also a great diversity of knowledge, for example, science, representations, and ideas. Concerning the relations between language and space, it is believed that parts of space, like parts of discourse, are articulated in terms of reciprocal inclusions and exclusions (Gür, 2002). A social space may viably be conceived of as a language or discourse, dependent upon a social practice. Social space encompasses metal-ideological and material-physical dimensions of space, but also moves through social imaginations, with the form of signs and symbols of ideologies. In particular, processes and social forces play a fundamental role in constituting the city and urban space (Gür, 2002). Some ideologies do not present themselves for what they are but rather pass themselves off as established knowledge (Lefebvre, 1991, p.90).

"To deal with a given space, it is necessary not only to code, decode all its meanings and changes in the descriptive or geographical sense, but also to explore how the objects are represented, and the lens through which they are viewed, and the scale used (Lefebvre, 1991, p.73)". Therefore, understanding one language will be of great utility in any attempt to understand "space" (Lefebvre, 1911). The analysis of a given space is not only about mapping and interpretation, but also about how it has been represented by formal or informal discourse and language. This suggests the engagement with experiences of everyday life and representation of these experiences in looking at rape against women in the news media discourse.

2.3 Empirical analysis of rape against women in Sweden

2.3.1 Rape against women through a spatial lens

Prior studies have examined crimes against women through a geographical approach to crime for the past hundred years. It is employed to determine what and how social factors and variations in crime rates are associated with the crimes in the 1940s (Cohen, 1941, p.29-37). A geographical history of crime also suggests both broader and more specific social phenomena should be considered, including urban policies, as well as the definition and registration of criminal offences by the police. Different rates in different countries are affected differently by the evolution in the relationship between state and society at diverse levels (Denys, 2016).

The number of studies based on geographical perspectives has been increased, i.e., indoors or outdoors (Ceccato, 2014; Ceccato et al., 2019; Khoshnood et al., 2021). Ceccato (2014) looked at the role of the environment on the occurrence of rape over time and space and explored the nature of rape in Stockholm. Many factors that impact the probability of rape and other sexual crimes, especially in transit environments, have been discovered, including proximity to poor neighborhoods, enclosed spaces, and darkness in various transportation settings (Loukaitou-Sideris, 2015). Understanding and mapping outdoor rapes can provide information on individual crime inclinations, thus for a better understanding of the interaction between rape and other environmental factors and how they can be applied to crime prevention (Ceccato, 2014; Haining, 2003; Khoshnood et al., 2021). However, statistics showed that outdoor rapes do not embrace apparent features. According to the Swedish National Council for Crime Prevention, the number of outdoor rapes against women has decreased to a stable number of under 1,000 cases annually while sharply decreased between 2018 to 2019 (Brå 2019:5). Moreover, instead of showing a criminal lifestyle, the place of rape embodies the subjectivity of offenders, which makes offenders go to select where they can find victims and whom they can commit rape. Besides, some scholars suggest the selection of rape places and targets are primarily random, especially in suburb areas, and the characteristics of suspected perpetrators are not homogenous (Ceccato, 2014).

Relatively few applies spatial analysis to visualize the patterns of nationwide and regional rape against women. Despite the fact that some research centers on

identifying rape perpetrators and environments of rape and hypothesizing situations conditions and relevant socioeconomic factors, they only shed light on the larger cities such as Stockholm and Malmö (Ceccato, 2014; Ceccato et al., 2019; Khoshnood et al., 2021). No empirical analysis of visualizing the development of rape in Sweden at the national level through the maps has been found. Besides, some previous studies fail to associate rape against women within a broader socio-economic context (Ceccato, 2014).

2.3.2 Associations between rape and socioeconomic factors

Previous studies have connected rape against women with several socioeconomic and demographic factors. To interpret the spatial patterns of rape against women over time, it is essential to examine conditions that generate or influence the prevalent traits in the spatial and temporal patterns of rape against women.

First, demographic conditions are a group of factors, which can correlate prevalent traits of rape against women. From the offender's perspective, the focus of the research often is the characteristics of the offenders, such as age group, education level, immigrant background, and income level (e.g., Brå, 2019:5; Khoshnood et al., 2019; Khoshnood et al., 2021; Stiernströmer et al., 2019). Previous studies in Sweden showed that immigrants account for a more significant proportion of convicted or suspected perpetrators in the criminal statistics (Adamson, 2020; Khoshnood et al., 2021; Stierströmer et al., 2019). However, the proportion of rape with regard to immigrants has declined for both the years 2002-2006 and 2013-2017 (Admason, 2020). It is likely that educational programs aimed at informing first-generation immigrants about Swedish laws and values would raise people's awareness of their sexual rights (Khoshnood et al., 2021).

Some other research is interested in the individual level analysis, such as the motives to commit rape (Hall and Hirschaman, 1991; Prentky and Knight, 1991), the relationship between rates of sexual offenses and sex offenders and their criminal records (Reale et al., 2020). The latter study has recently shown no link between adolescent sexual offenders and adult criminal record factors. Those research focused on the characteristics of offender groups have been factors that contribute to an individual committing sexual offences and theories that can explain the development of rape against women from socioeconomic and demographic aspects (Thakker and Ward, 2015). Despite that, associating individual cases with social and demographic

conditions embodies certain stereotypes, which may differentiate or categorize the characteristics between the offenders (Nilsson, 2019). Also, there is a shared knowledge embedded in these studies that there is an evident heterogeneity among crime perpetrators (Lussier and Davies, 2015). Although one criminal case performs at a specific place and time, which can be relevant for rape, it is considered that there is no deterministic link between individual activities and rape patterns (Schwartz and Pitts, 1995: 19; Khoshnood et al., 2019). Besides, these studies have been based on the perpetrator's characteristics without putting them in the geographical contexts (Khoshnood et al., 2019).

Moreover, recent studies suggest that certain circumstances from the spatial dimension could affect women's safety and rape against women over time (e.g., Ceccato, 2014; Ceccato et al., 2019; Khoshnood et al., 2021; Schwartz and Pitts, 1995). In contrast to demographic factors, geographical location and environmental context are more concerned with the external circumstances of the rape places, especially the physical environment that structures, facilitates, and allows the crime to occur (Wortely and Smallbone, 2006). Some studies use crime patterns and urban environment theories to explain the characteristics of sexual crimes in the Swedish context (Ceccato, 2012; Ceccato, 2014; Ceccato et al., 2019). The findings of the study reveal that these communities with high rates of recorded rape incidents are characterized by socio-demographic and geographic variables, as well as the prevalence of situational rape conditions. For example, dissemination areas that have a high proportion of female residents, as well as the mixed land use in the city centers, bus stops, alcohol selling premises, and parks, experience more rapes incidents (Brå 2019:5; Ceccato, 2014; Ceccato et al., 2019). Ceccato (2014) examines the empirical link between rape risk factors and alcohol consumption has been examined at the individual level in the context of Stockholm, the capital city of Sweden. Alcohol selling premises are shown no obvious relevance for rape occurrence regardless of their locations (Ceccato, 2014) whereas the presence of the stately owned alcohol selling premises in an area increases the risk of a rape incident (Ceccato et al. 2014). Such sub-area-level research empowered female residents in the city by recognizing the types of areas that are most vulnerable to rape, as well as sparking a discussion about measures that could be implemented at both the secondary and tertiary levels to deter potential occurrences

(Ceccato, 2014). However, these geographical and environmental factors across the physical and cognitive structure of urban space in these studies have shown more connections between the non-uniform distribution of outdoor rape without considering indoor rape.

2.3.3 The role of news media in representing rape against women

An analysis report from Brå (2019:5) has shown that the role of news media in exploring explanations for indicators of the trend in rape against women. Reports about crimes against women in the news media have sparked public participation and social movements for the decade (Br, 2019:5), thanks to the substantial advancement in information and communication technology. The emerging debate on social media and reports on news media has created new possibilities to enable women's rights in Sweden, which makes an unsafe living environment of women and the gender disparity embedded in society visible and changes in the opportunity structure for sexual crimes (Brå, 2019:5). However, new forms of dating behavior have emerged and evidently increased rapes that perpetrators and victims had previously been in contact with via the Internet, primarily via some form of dating apps (Brå, 2019:5). In this sense, how news media presents rape is essential for the public to understand and react as well as for political response including available support systems, legislation, and regulations (Alfredsson et al., 2016; Karlsson et al., 2020; Nayak et al., 2003; van Dijk, 1988).

In Sweden, recent research has looked at media representations of rape against women and other sexual crimes, such as intimate partner violence against women, in response to an ongoing debate in Swedish newspapers and among Swedish politicians on women's safety and their right to the city (Karlsson et al., 2020). Despite the fact that the importance of discursive representation in news reporting for the creation of public understanding about a social phenomenon (Meyers, 1996; van Dijk, 1988; van Dijk, 1993), relatively little academic research has been conducted on the representation of rape against women in Swedish news media.

Researchers are more interested in the analysis of media discursive portray of women victims in the sexual crimes, the situational information about rape crimes, and feminist protests which question gendered power relations by claiming space and the

right to the city (Karlsson et al., 2020; Nilsson, 2019; Sandberg and Coe, 2020). Karlsson et al. (2020) analyze how intimate partner violence against women was discursively represented in Swedish news media with regard to the causes of the violence and the various description perceived by nationality, ethnicity, religion, and cultural background. Nilsson (2019) elaborates on the meanings of narratives of rape in Swedish newspapers during the periods 1990-2015 and suggests societal functions and effects of these meanings in terms of different genres. Research has identified the coverage of abuse, crimes, and women in news reporting as problematic. For example, the new reports tend to invisibilize male perpetrators in the news, reporting individual offenders with an emphasis on their positive characteristics or unusual experiences. They also tend to report individual offenders with a focus on their positive characters or unusual experiences (Australia's National Research Organisation for Women's Safety (ANROWS), 2016). Through situating experiences for women within the broader social context and constructing mutual responsibility for crimes, patterns of victim-blaming have also been observed (Karlsson et al., 2021; Nilsson, 2019). Such tendencies towards constructing crimes against women as an individual or relational problem instead of a structural one, and representing involved violence as accidents, coexists with research pointing crimes against women to socio-demographic groups (Nybergh et al., 2013).

2.4 Methodological framework

2.4.1 Spatial crime mapping and GIS methods

New developments such as GIS applications have supported crime mapping and analysis through advanced geospatial analytical methods, specifically, geographical visualization and spatial techniques have globally applied to scientific research on rape against women (e.g. Ceccato, 2014; Ceccato et al., 2019; Chauhan & Baraik, 2016).

Various spatial techniques are also widely used to visualize and analyze sexual crimes against women to reveal possible spatial patterns of incidents for users. GIS methods have several advantages in processing the mapping approaches mentioned above, for their ability to store, manage and analyze spatial data (Boschmann and

Cubbon, 2014). This study finds that hot spot analysis is the most relevant, especially choropleth mapping and Getis-Ord Gi* spatial statistics method.

Notably, choropleth mapping is commonly used to represent aggregated data summarized by administrative or grid areas (Cameron and Leitner, 2005; Walker and Maddan, 2020). They are often useful to obtain a general picture of the overall spatial distribution of crime, but also to depict the relative density or number of crime in different areas (Cameron and Leitner, 2005). The basic criteria for using a choropleth map proposed by Crampton (2003) highlight that the data is required to be statistically related, and be able to unrestrictedly cover any area in space. In terms of the number of datasets, it is advisable to have between 3-7 "data classes", or the separation between shades or symbols around the value categories from lowest to highest (Crampton, 2003). Based on choropleth maps, descriptive information can be used to characterize the patterns. Such information is used for both theoretical and practical purposes, linking to socio-economic variables, theorizing causes of rapes, and developing hypotheses and approaches (Walker and Maddan, 2020).

The concern of creating choropleth maps lies in how they will be shaded since shading, crosshatching or other methods have impacts on the interpretability and clarity of the map (Walker and Maddan, 2020). Two common classification schemes used in this study, quantile and standard deviation help for creating class groups with similar values while they have their disadvantage (Cameron and Leitner, 2005). Quantile approach arranges fairly evenly distributed data values and highlights a proportion of the observations equally from low to high, while standard deviation enables that outliers and hot spot clusters can be easily isolated and classified with positively skewed distributions (Cameron and Letiner, 2005; Walker and Maddan, 2020). However, Cameron and Letiner (2005, p. 37) point out that the quantile approach can exaggerate differences between classification categories because it is possible to group widely ranging adjacent values into one class or relatively equivalent values in different classes. The downside of standard deviation classification is that the map only shows how far each class category is from the mean, not the actual values of each class (Cameron and Leitner, 2005, p. 38).

Besides the existing disadvantages of classification scheme options, even though choropleth maps can "speak to the eyes" and visualize spatial distributions effectively, the limitations of the application of them remain (Cameron and Leitner, 2005; Crampton, 2010). Firstly, other than presenting inconsistent characteristics within any given variable, choropleth maps tend to focus on the relative size of an area. It may lead to the dominance of larger areas in the map (Cameron and Leitner, 2005, p. 39). In this sense, it could be difficult to examine spatial distributions of rape crime and to find significant relationships between socioeconomic and demographic variables based on visual examination of the maps (Mitchell, 2001) Second, incidences of actual crime are usually not evenly distributed within given statistical or administrative boundaries, in accordance with the fact that most characteristics change gradually without boundaries (Brenner, 2014). In this sense, choropleth maps which promote the image of abrupt changes in the characteristics, may fail to map the actual distribution of crime incidents (Cameron and Leitner, 2005).

In the Swedish context, geographical factors, such as, female population density, educational level and income level have been examined their correlations to high rates of rape against women in the areas of Stockholm and south Sweden (Ceccato, 2014; Khoshnood et al., 2021). Among these factors, areas with relatively larger female populations contribute to the increase of outdoor rape (Ceccato et al., 2019). To deal with socioeconomic variables data, Getis-Ord Gi* spatial statistics method has been implemented for crime analysis (Mitchell, 2001; Herrmann, 2013, p. 91-95). In using this method, clusters or densities of variables are effectively generated through isolating geographical areas of high or low concentrations (Herrmann, 2013, p. 91-95). Hot spot analysis provides a better understanding of the complex correlations between crime and place, but this method may fail to incorporate temporal trends in the process of analysis (Herrmann, 2013, p. 91-95).

2.4.2 Discourse analysis through a critical lens

In reference to Foucault (1972), discourse is produced in the relations of power. A discourse can be seen as a way of viewing the urban space and formulating tactics and strategies of power, socially constructed and shaped to make up representations (Lefebvre, 1991; Gür, 2002). The portrayal of rape against women and victimization of

women on news media on one hand reveals that women's safety is being violated and women are restricted in their use of urban space; on the other hand, its interpretation can construct the social perception of rape against women and thus construct gender relations across the social space (Sandberg and Coe, 2020; van Dijk, 1993). Critical discourse analysis thus departs from the epistemological assumption that the way an event is construed depends on underlying assumptions and worldviews (van Dijk, 1993). It also explains why discourses on the same phenomenon can vary between persons or groups, enable or constrain different ways of understanding it. In this sense, discourse analysis, particularly critical discourse analysis (van Dijk, 1993) elucidates how the use of language constitutes and is given by sociopolitical meanings.

Critical discourse analysis is being used to look at how news media as social agent represents rape against women in Sweden by coding the new reports (van Dijk, 1991). The aim of the critical discourse analysis is to study the style, rhetoric or meaning of texts which contribute to "the concealment of social power" (van Dijk, 1993). Concerning rape against women, previous studies have observed that sexual crimes against women can be understood as either an individual or a structural problem and recognized how news media categorizes the cause of the crime have an impact on the public (Heise, 1998; Karlsson, et al. 2020; Nilsson, 2019; van Dijk, 1991). When constructed from an individual perspective, the focus is often on the characteristics of perpetrators and victims rather than normative patterns (Enander, 2010; Nilsson, 2019), whereas a more structural discourse on crimes against women shed light on gendered power relations in society and on societal tolerance toward crimes against women.

The critical discourse analysis of news media material can provide a better understanding of spatial pattern of rape against women in Sweden from a sociopolitcal perspective. However, the nature of abductive methods used in this study to code explanatory illustration from news media is regarded as in terms of an indication rather than a certainty. This could lead to slightly different content and prevalence of categorizations in a larger sample and hence a different research outcome (Karlsson et al., 2020). It should also be noted that background information about the perpetrator and possible relationships between the victim and the perpetrator were unavailable in most articles, which leads to a lack of subcategories for one theme.

Overall, some studies have attempted to examine the associations between spatial patterns of rape against women and socioeconomic and demographic conditions in the Swedish context (Ceccato, 2014; Ceccato et al., 2019). Several previous studies have focused on the spatio-temporal pattern of rape against women, however, very few of them examine solely the spatio-temporal pattern of the rape at national and regional levels and barely associate it with societal impacts of news media discourses. Rather, most of the research connects rape against women with one or several socio-economic factors at the local level or at the individual level. In addition, a recent study has also focused on prevention with respect to only offender characteristics, associated with the potential difference between sexual offenders with regard to indoor and outdoor rape.

From a methodological point of view, in this study, rape against women in Sweden is analyzed through the spatial distribution of rape cases across the whole country and coherent connection with demographic and socio-economic factors reviewed above. It is expected that in Sweden, rapes have developed over time and have regional differences. It also examined the role of news media discourse in relation to the spatial patterns of rape against women over time. Visualizing and characterizing the spatio-temporal distribution of rapes can consequently provide informative and practical support for institutional intervention in decision-making to prevent the occurrence of rapes in urban space. At the same time, analyzing how news media portrays rapes in the social space today can provide a cultural understanding of the development of rapes in Sweden, as the media has great power within the Swedish political system, as the media holds power over how the social actors in Swedish society perceive rapes (Davidsson, 2012). Next chapter elaborates on the study area, data source and applied methods.

3 Methods

This study applies a combined approach, incorporating both qualitative and quantitative, in order to justify the research questions. A quantitative, primarily deductive analysis deals with the first research question about the development of rapes against women in Sweden and its prevalent traits by using simple statistical and GIS techniques. It also provides a selective, abductive, and qualitative content analysis by using NVivo version 12.0 software to justify the second question, which explores how rape against women is portrayed in the Swedish news media. Lastly, this chapter identifies the pitfalls and benefits of the applied methods.

3.1 The Study Area

The study area is the whole country of Sweden based on the level of the police region (Polisregion) and municipality (Kommun). According to The Swedish National Council for Crime Prevention (Brå) database and Police regions, from the beginning of 2015, the statistics on reported crimes, including rape against women, is based on the new seven police regions and 290 municipalities rather than the old county police authorities. These extensive regions are: Region Nord, Region Mitt, Region Stockholm, Region Öst, Region Väst, Region Syd and Region Bergslagen (Figure 3.1).
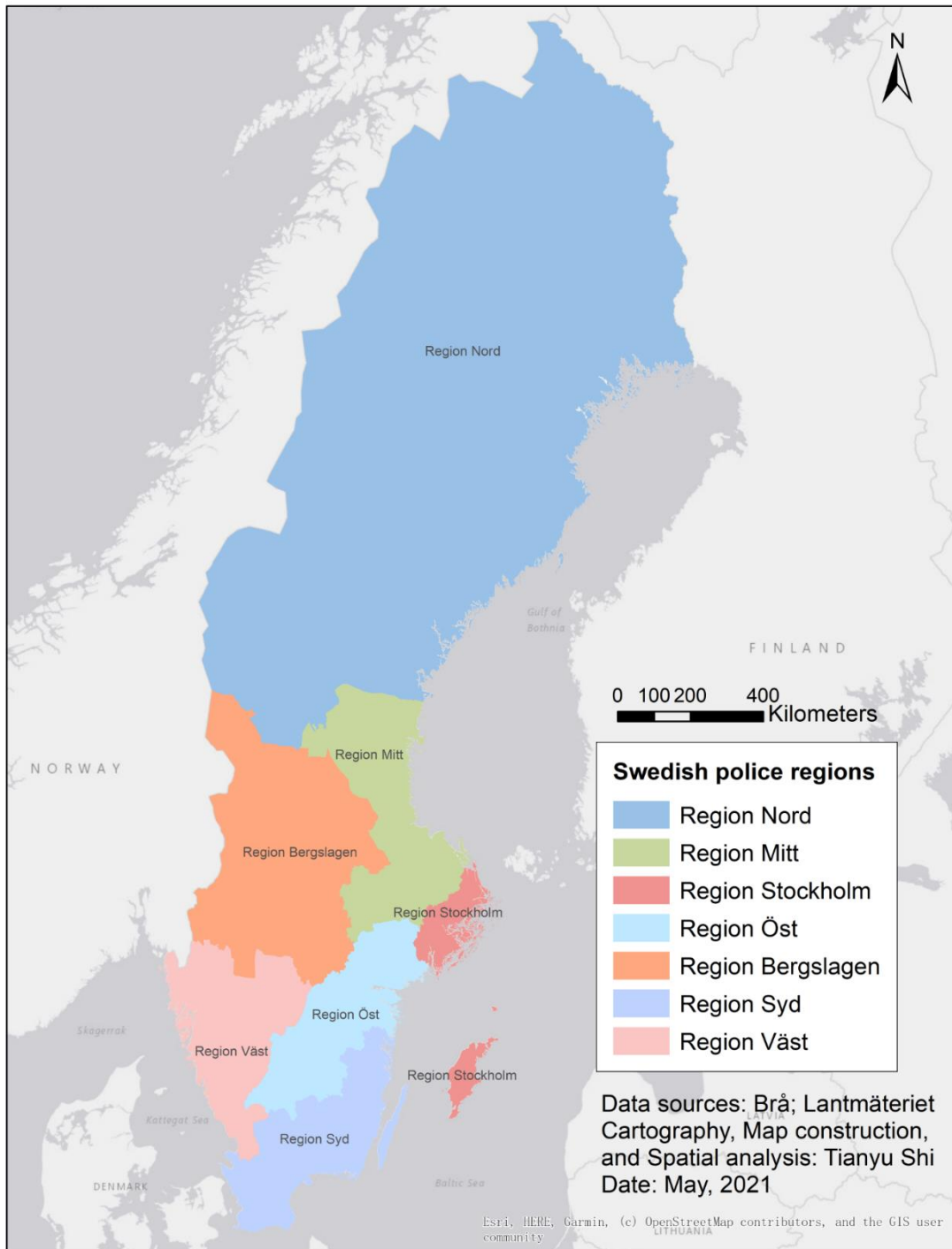
Figure 3.1 Study area - the geographical division of police regions

3.2 Quantitative Analysis

3.2.1 Data Sources

This research looked at the spatio-temporal trends of rape against women in Sweden using data from a variety of sources. First, this study gathered data based on reported rape against women in the Statistics Database of reported crimes (*Statistikdatabasen över anmälda brott*) via the website of *The Swedish National Council for Crime Prevention* (*Brå*). This data set included statistics on rape against women, such as the number of rape crimes committed per 100,000 inhabitants in seven Swedish regions and 290 municipalities between 2015 and 2019. The statistics of rape against women included rapes against girls and women at all ages, outdoor and indoor rape, completed rape (*fullbordad våldtäkt*) and attempted rape (*försök våldtäkt*) by region and municipality. However, due to lots of missing data in the database from Brå, the data of the number of rape were used in a general way.

Also given are the key variables with regard to the municipal level, including socioeconomic and demographic figures in each municipality, from the website *Statistics Sweden* (*SCB*). The socio-economic variables in this study included the proportion of the female population, median income differences between man and woman, and the percentage of people eligible for upper secondary school and university. Additionally, geodata of Swedish administrative units was downloaded from *Lantmäteriet* and administrative codes were obtained from SCB. All the datasets were mapped by coordinates using GIS methods.

3.2.2 Methods

The methods chosen for the study were the simple statistical and crime mapping techniques by using GIS methods. Police region map was created based on the municipality unit map downloaded from Statistics Sweden. The data of recorded rapes against women and socioeconomic and demographic variables were downloaded in the format of MS Excel. Excel files containing relevant data were converted to geodatabase tables and associated with geographic unit maps through the common field. This study used the codes of municipalities as the key to join tables. After that, criminal data and

socio-economic and demographic data were added to layers and displayed in ArcGIS software for future mapping.

Choropleth mapping, spatial cluster analysis, and simple correlation have been used to visualize and examine the indicator of spatial and temporal patterns and their association. Choropleth mapping was performed to represent the rape rate in the year 2015 and 2019 respectively in two levels: on the police-regional level and the municipal level. The classification techniques correspondingly used quantile and standard deviation based on the general statistical distribution of the data. Since the data values of rape rate for Swedish police regions were fairly evenly distributed, the quantile classification method was relatively useful in this case. All layouts were produced by the author in ArcMap version 10.5.1. The Getis-Ord Gi* spatial statistics method in the Spatial Statistics Tool in ArcMap was also implemented for the spatio-temporal mapping analysis. This method was used for all the socioeconomic and demographic variables. Each variable analysis created an output, which contained feature classes with standardized G scores, and represented distributions of hot spots and cold spots in the map. By comparing areas with high rape rates and areas with socioeconomic factors, an analysis of the relationship between rapes against women and socio-economic-demographic factors can be done from the observation.

3.3 Qualitative Analysis

3.3.1 Data Sources

Newspaper articles in print on rape against women for the whole year of 2019 in Sweden have been collected. These articles were chosen based on the type of crime and in relation to geographical scales. A media monitoring and retrieval service, Retriever Research (Mediearkivet), was used to identify articles of relevance from ten national and regional Sweden (Table 3.1): Aftonbladet (AF), Expressen (EX), Göteborgs-posten (GP), Skånska Dagbladet (SD), a selection of daily and non-daily Swedish newspapers: Dagens Nyheter (DN), Svenska Dagbladet (SvD) and regional Swedish newspapers: Skånska Dagbladet (SkD), Jönköpings-Posten (JP), Smålandsposten (SP), Nerikes Allehanda (NA) and Norrbottens-Kuriren (NK).

Table 3.1 Selection, name and category of Swedish newspapers (Location of head office)

National morning newspaper	
Dagens Nyheter (Stockholm)	Göteborgs-Posten (Gothenburg)
Svenska Dagbladet (Stockholm)	

National evening newspaper	
Aftonbladet (Stockholm)	Expressen (Stockholm)

Local and regional newspaper	
Skånska Dagbladet (Scania)	
Jönköpings-Posten (Jönköping)	
Nerikes Allehanda (Örebro)	

3.3.2 Methods

For qualitative component of the study, a range of selected terms were used (rape [våldtäkt*]) NEAR (girl [flicka*] OR girlfriend [flickvän*] OR wife [fru*] OR wife [hustru*] OR woman [kvinn*] OR relationship [relation*] OR partner [partner*] OR couple relationship [parrelation*] OR relationship [förhållande*] OR family [familj*] OR family-related [släktskap*] OR Stranger [Obekanta*]. All the articles were selected according to their relevance to key terms.

The identified articles assessed during the study period, stratified by the inclusion criteria, were selected for in-depth content analysis. The inclusion criteria were: (a) date: The articles were published during the year 2019; (b) type: based on or describing rape cases were in included; (c) gender: crimes were against women or girls; (d) location: those posts needed to be happened in Sweden or needed to have a connection to Sweden. The motivation to select the year 2019 as the examined date is that the existing research by Nilsson (2019) already explored the narratives of rape in Swedish newspapers from 1990 to 2015. Based on that, this study analyzes Swedish news reports on rape against women in the year 2019 and discusses how the changing portrayal from news media influences the development of rape against women and a broader gender relations construction in Sweden.

Content analysis by coding in a qualitative way was inspired by critical discourse analysis (van Dijk, 1991; van Dijk, 1993). Content analysis is commonly used

in research on media representations since it provides a systematic approach to critically analyzing and interpreting text-based data (van Dijk, 1991). In this study, articles from January to December 2019 will be coded according to an extensive coding frame specifically developed for the second research question. This coding example (Table 3.2) primarily manifested the structure under subcategories, categories, and themes, which is inspired by the abstraction process outlined by Elo and Kyngäs (2008). The approach to analysis was through a critical discourse lens in which only sections but details of the papers that were applicable to the research question were coded to examine media reports in their social and cultural contexts. The coding system was manually created using the NVivo version 12 software.

Table 3.2 Examples of Coding Conducted When Exploring Cultural Perspectives on Individual Explanatory Models regarding Media Representation of Rape against Women in Sweden, 2019

Text	Code	Subcategory	Category	Theme
"... the husband wanted to check whether his wife had been unfaithful to him."	Mistrust playing a role	Mistrust or jealousy in the relationship	Relational causes	Individual situation
"[Social media platform] has become a completely new one arena for perpetrators to get in touch with children"	Social media platform targeting victim	Social media platform providing the chance	Societal failure	Collective responsibility
"When it regarding the rape, he denies the crime but confirms that he has touched the girl."	Denying the crime but acting something else		Stating act as noncriminal or without intent	Proposing alternative theories

In order to sustain anonymity, the content in the text column in the table above was reduced, masked, and translated. Besides, the codes were subjected to the perpetrator when no subject was indicated. Otherwise, it was stated to relate to the victim or potentially involved social agency. Several similar codes could be combined and developed into subcategories that constitute categories, and the themes show which types of explanatory subjects are present in the news reports.

4 Result

The result of this study will be divided into two different sections. The first section focuses on characterizing the spatial patterns of rape against women in Sweden over time, as stated in the research question. In the first section, the spatial pattern of rape against women in Sweden among regions and municipalities over time is explored, and the representation of rape against women from Swedish news media is coded to explore how the narratives of news media structure rape against women and how it can be related to the spatio-temporal traits of rape against women.

4.1 Quantitative results

The choropleth maps present the number of rape against women per 100,000 inhabitants in 2015 and 2019 in Sweden. The visualizations of choropleth mapping are represented using maps of police regions and municipalities (Figure 4.1). Evident spatial clusters of each independent variable are obtained through Getis-Ord Gi* method (see Appendix).

4.1.1 Spatial patterns of total rapes against women

The maps of rape rates for Sweden on regional police level based on quantile classifications are shown in Figure 4.1 (see also Appendix). In 2015, most rapes were reported in the police region Stockholm and Nord. Respectively, 64 and 61 incidences of crime were reported per 100,000 inhabitants in these two regions. In comparison, the corresponding figures in Region Mitt and Region Öst were reported with similarly 59 incidences of rape crime, and in Region Bergslagen and Region Väst, 56 and 50 rapes were reported, respectively. The lowest number of reported rape against women was in Region Syd, where 47 rapes were reported to police per 100,000 inhabitants.
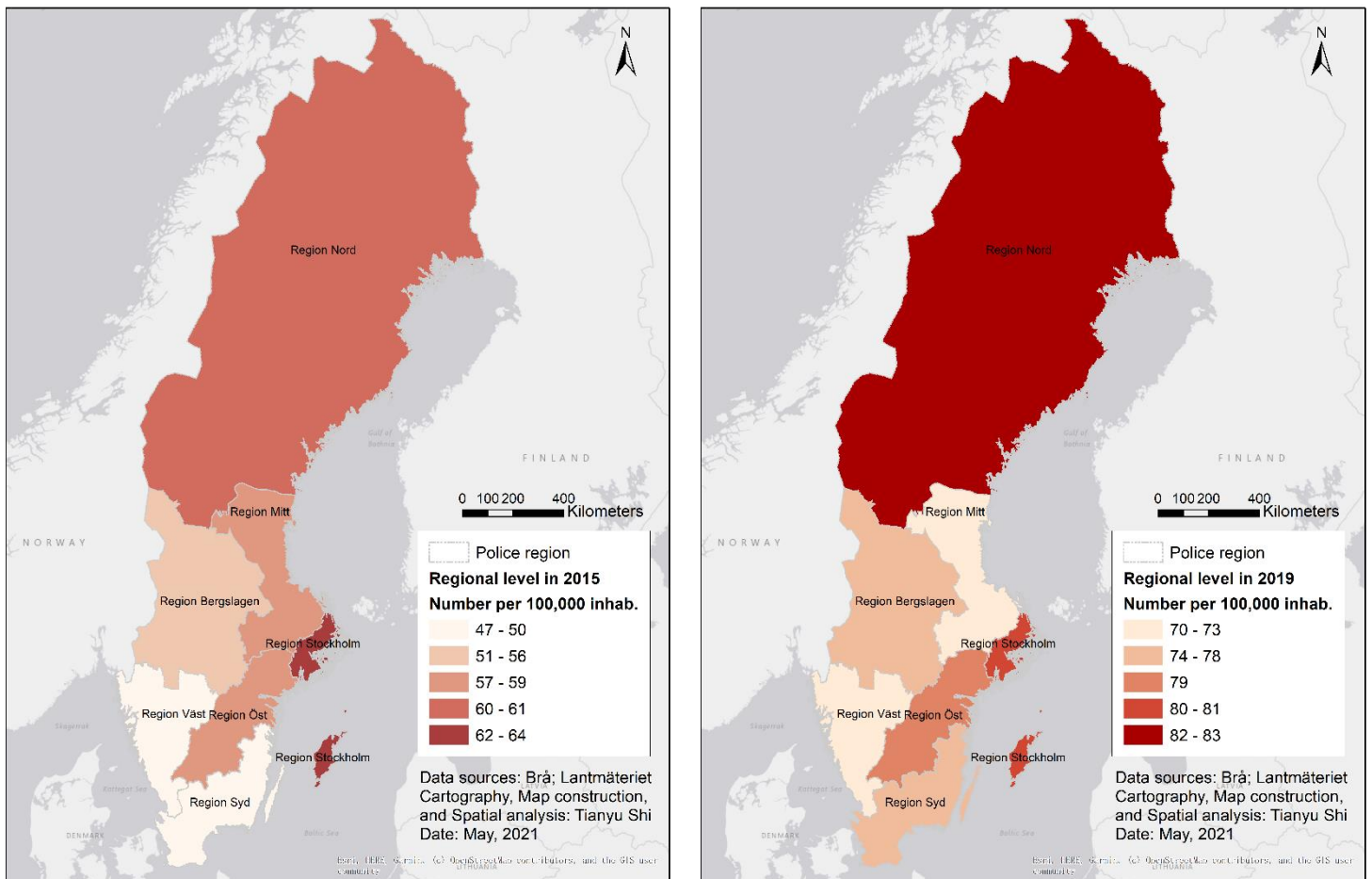
Figure 4.1 Rapes against women per 100,000 inhabitants, per region (2015 and 2019)

Comparatively, in 2019, the highest crime rate was marked in Region Nord with 83 incidences of rape, followed by the second highest incidences reported in the Stockholm region. High crime rates emerged in Region Öst, Region Syd, and Region Bergslagen with 79, 78, 77 reported rape crime, respectively, while lower crime rates of reported rape were in Region Mitt and Region Väst.
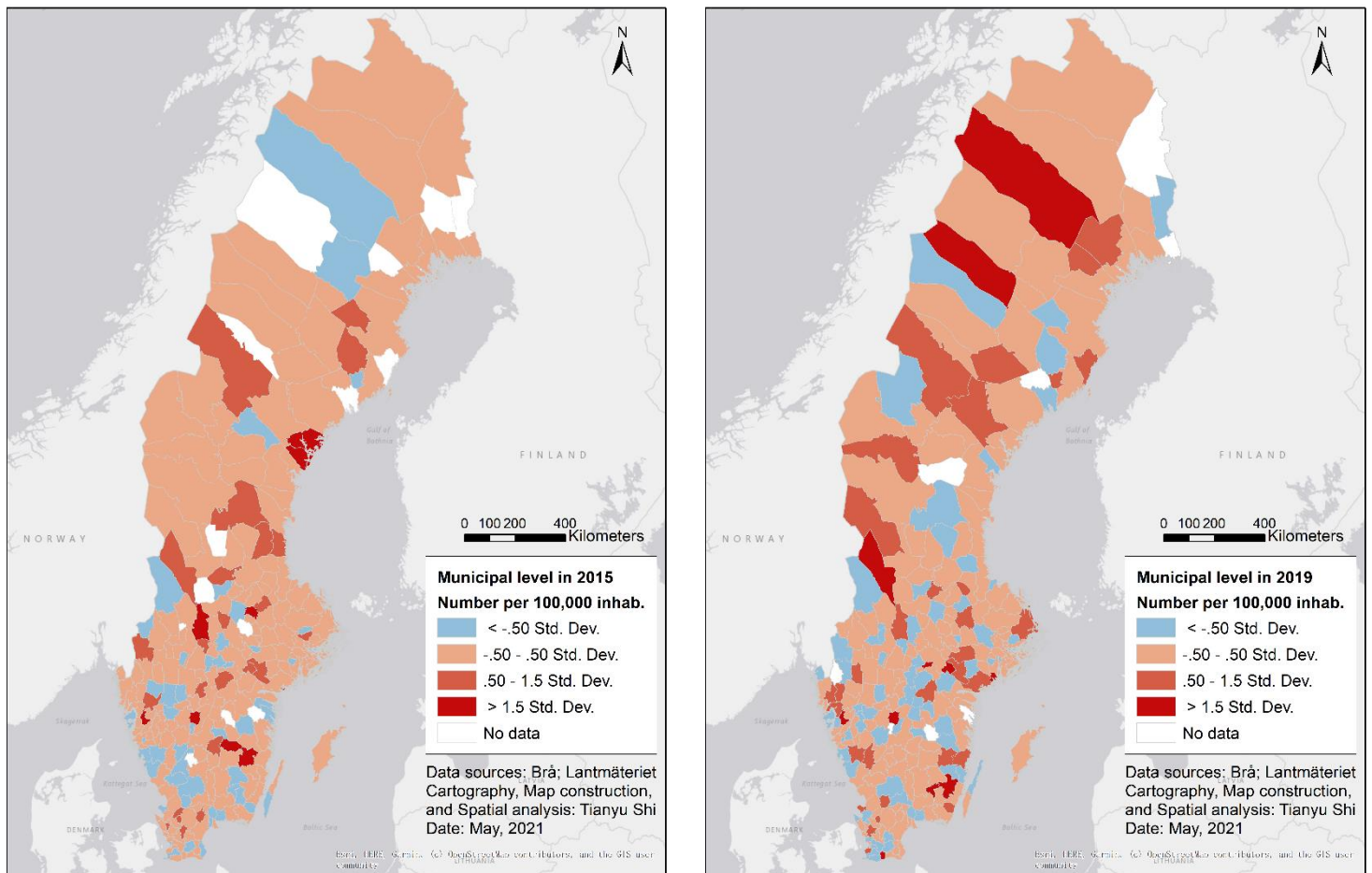
Figure 4.2 Rapes against women per 100,000 inhabitants, per municipality
(2015 and 2019)

Figure 4.2 (see also Appendix) displays a map of rape rates for Swedish municipalities based on standard deviation classifications. Locally, the highest rates of rape against women were reported in Tidaholm municipality in 2015 and 2019, while the lowest number of reported crimes was in Knivsta municipality in 2015 and Götene municipality in 2019. In the year 2015, high crime rates were observed in Eksjö municipality, Filipstad municipality, and Norberg municipality, while low rates were in Orust municipality, Götene municipality, and Öckerö municipality.

In the year 2019, Kumla municipality and Lessebo municipality have high rates of rape against women reported, while Vaxholm municipality and Kil municipality have low rates. In contrast to the fact that all types of reported crimes are particularly concentrated in larger cities, such as Stockholm, Malmö, and Gothenburg, the concentration of rape against women per 100,000 inhabitants is not distinct upon visual

examination of the maps. Both relatively high and low rates of rape against women both are shown in the small municipalities in the years 2015 and 2019.

4.1.2 Temporal pattern of rape against women in Sweden

There has been a continuously rising rate of rape against women during the study period among all police regions and over half of the municipalities. All the regions of Sweden have increased the number of rape against women in terms of the total number of rapes (see Legends in Figure 4.1). Moreover, the sharpest increase among police regions is seen in Region Syd to the tune of 70% during the period 2015 and 2019.

At the municipal level, Tidaholm municipality had the highest rates of crime in 2015 and 2019, whereas the incidences have decreased approximately 31% (Figure 4.2). The rates of rape against women in Götene municipality stayed at a low level in the examined years. High rates of rape against women in Eksjö municipality and Filipstad municipality in 2015 reduced by approximately 67% and 33%, respectively, in 2019. Conversely, the rate in Kumla and Lessebo municipality increased by around 30% in 2019.

4.1.3 The hypothesis of socio-economic-demographic associations

In this study, the correlations of rape against women between social conditions are discussed based on hot-spot spatial analysis and visual comparisons with spatial patterns of rape crime in different years (see Appendix). There is no significant difference between the concentrations of the female population, median income differences and education at the police region level between 2015 and 2019. As for associations between high/low rates of rape and examined social conditions, not all examined variables seem relevant for all the police regions. No link between rates of rape against women and all examined socioeconomic and demographic factors has shown in police regions, including Region Öst, Region Väst, Region Mitt, and Region Bergslagen. Interestingly, high rates of rape against women in low populated Region Nord is inversely proportional to the variables, which showed less female population, lower median income inequality by gender, and higher education level.

In contrast, it is noted that the consistent correlations between high rates of rape crime and socioeconomic variables have been shown in Region Syd, Region Stockholm (except Gotland), and some areas around Region Stockholm. The relatively larger female population and population with lower education levels seem to be relevant to a sharp increase of reported rape in Region Syd. According to the clusterings of social variables, Region Stockholm, with a larger female population, income inequalities between men and women, and people with lower education level, has relatively high rates of rape crimes over 2015 and 2019. The higher populated region cases fit this pattern better, possibly because they contain a more significant proportion of mixed land use (Ceccato, 2014).

As analyses above, there are visible spatial and temporal variations in the number of rape against women per 100,000 inhabitants in Sweden in 2015 and 2019. It proves that the prevalent traits of space are changing over time and space (Lefebvre, 1991). The clustering of socioeconomic factors in Region Stockholm and areas around Region Stockholm matches the hybrid characteristics of urban space that the production of space can go beyond geographical boundaries (Lefebvre, 1991).

However, socioeconomic and demographic factors in this study cannot explain the spatial-temporal patterns of rape against women at macro-national and micro-municipal levels, especially for high rates in small municipalities. Among municipalities, no significant relationship between the concentration of rape and statistically substantial variables was observed upon the visual examination of the maps. As for small municipalities, such as Tidaholm municipality and Kumla municipality, their relatively high rates of rape against women may be related to local religious culture (Stack and Kanavy, 1983), military history (Morris, 1996), and some other potential contextual factors.

Besides, the social practices that produce the data collection methodologies conducted to record police-reported crime might affect the high or low rates of rape against women (Brå, 2019:5; Jefferson, 2020, p. 11-15). According to the Swedish National Council for Crime Prevention (2020:13), repeated rapes with the same victim and the same perpetrator are counted as serial offences several times, which might impact the figures seen in the statistics on police-reported police. Compared to the data

collection methodology conducted by Swedish Crime Survey, figures of rape sometimes often show noticeable differences (Brå 2019:5). For example, the number of sexual offences, including rape and sexual molestation, reported to the police increased from 2015 to 2019, while self-reported exposure to sexual offences remains stable. It is because cases had taken place a relatively long time before being reported (Brå 2019:5). Also, changes in the legal definition of rape, resulting from legislation that came into force in 2018, have contributed to the increase in rapes reported to the police (Brå 2019:5), and thus regional figures on rape against women have increased during the examined period.

Furthermore, the central role of social actors, such as news media platforms, has been examined in affecting how people perceive, frame, and report rape (Brå 2019:5). A combination of societal changes in the way people communicate and socialize with one another might lead to an increase in reporting rape (Brå 2019:5).

4.2 Qualitative results

4.2.1 Interpretation of news media on rape against women

Printed news reports on rape against women and girls from January through December in 2019 (in total 52 articles) were coded as themes, categories, and subcategories and provided information about common situational illustrations and explanations used to explain rape against women in Sweden.

Table 3.2 provides examples of how the coding analysis abductively categorizes explanatory information into main subjects' news reports. Four themes emerged (see Table 4.1). One was *no explanation*, which means no additional information was provided, and thus some articles did not include explanatory language in reporting.

Table 4.1 Results from coding of explanatory portray in printed news reports on rape against women in ten Swedish newspapers, 2019

Subcategories	Categories	Themes
Woman's family holding part of the responsibility	Families playing a role	Social responsibility
Social media platforms providing the chance Social pressure on the victim	Societal failure	
Crime records and connections Violence involved in incident	Criminal record and violence against women and others	Individual situation
Having difficulty in establishing life in the society	Having a difficult life	
Habits and addictions Substances in direct relation to event	Indicating alcohol and drugs	
Immigrant background other than Swedish Lack of guidance on working standards	Othering	
Crime not seeming in concordance with personality/temper Insinuating (mental) health or social issues	Personality and temper	
Couple having conflicts Mistrust or jealousy in the relationship Relationship as causes Unequal power relation Victim's actions	Relational causes	
Professional title or work status Social status	Socioeconomic status	

Table 4.1 *Cont.*

Subcategories	Categories	Themes
	Admitting the description of the incident but denying the crime Blaming someone else Claiming what happened was mutual or voluntarily Having no memory of the incident Insinuating or claiming false accusations Stating act as noncriminal or without intent	Proposing alternative theories
		No explanation

The second theme, termed *proposing alternative theories*, consisted of explanations and claims from the alleged perpetrators and quotes from the prosecutors or lawyers in charge of the criminal case and news editors. The categories included *blaming someone else*, *having no memory of the incident*, *claiming what happened was mutual*, *insinuating or claiming false accusations*, and *stating that the act was noncriminal or without intent*. These two themes did not attempt to explain the rape against women but the latter rather disproves it.

The next theme was *social responsibility*. This theme included the *societal failure* category. Social media platforms, such as dating apps targeting young people under 18 years old, were noted to have noticed several criminal convictions appearing on the platform in recent years but failed to act (*social media platforms providing the platform chance*). These kinds of social media have been criticized for providing a new arena for perpetrators to get in touch with victims, especially minor girls. Besides, this theme comprised families playing a role, which mentioned information about, for example, a victim's family is gone when incidents happened (*victim's family holding part of the responsibility*).

However, the most popular theme was the *individual situation*, which seeks reasons for rape against women in the individual's life situation or circumstances. The categories that this theme encompasses are mentioned below. *Unequal power relations*

under the categories of *relational issues* were a recurring explanation, most often with reference to the incident against under-aged girls, but also at times to take advantage of the victim in the vulnerable situation associated with the situational factors, including use of *substances in direct relation to the event*, *sex purchase* and *violence involved*. Moreover, news reports pointed to the relationships between criminal records and violence of the perpetrator and incidents. The most common subject was *criminal history and connection*, ranging from references to violence, assault, and threats to child pornography crimes, rapes, and murders. Another category was *personality and temper*, which was also commonly used to portray the alleged perpetrator. Description ranged from references to *mental health or social issues*, including particular ruthlessness, psychic terror, and Pedophilia, to very popular among some colleagues, which seemed not to concordance with the incident.

In *relation issues* category, some reports presented conflict or mistrust in one relationship that led to the occurrence of rape against women between couples and people who know each other before. In these cases, female victims were often portrayed as obtaining the same degree of maturity as the perpetrator regardless of whether she was under-aged, voluntarily participating in sex trading the place to stay, or not daring to resist because of her child in the same room. Under the category of *othering*, descriptions about perpetrators as non-Swedish were noted, and their criminal acts were explained for their *immigrant background* or *differences in work standard or culture*, such as *having had difficulty in establishing a life in Swedish society* and conducting the same routine for the medical examination in other countries rather than Sweden.

4.2.2 Relations between news media discourses and spatial patterns

As for geographical range, however, no reports about municipalities with the highest rates of rape against women examined in the previous section were shown among ten printed newspapers during the studied period, the year 2019. The geographical range of news on rape against women mainly focused on the largest cities and some small municipalities close to the newspaper head office. However, some indicated trends in rape against women examined can be linked to the spatial analytical

framework to understand how news media (re)produces the social space for rape against women.

In contrast to police-report rape, in which most victims are aged 18 or over, over half of the news reports present rape against girls aged under 15 and between 15 and 18 in the year 2019. Sometimes the descriptive terms instead of ages were used in the articles, such as "minor girl", "teenage girl" and "girl in preschool/primary school age". The victims were often in a vulnerable situation and alcohol and drugs were involved at the time of the incident, either outdoors or in the private spheres. Toilets, bus stops, and bushes in the park were typical pictures of the suburb rapes. Most news reports also portrayed quite significant features in perpetrators' "unusual" behaviors in the outdoor rapes. The men had neglected the rape myths and racist stereotypes, and their particularly ruthless personality does not necessarily show any sympathy for the girls. This type of portrayal, which characterized rapist and victim and situational outdoor rapes, has become a metaphor that categorizes individuals, groups, and certain places as "other" (Worthington, 2013; Nilsson, 2019). In this sense, space is being differentiated in the process of categorization, and thus women's right to the city has been restricted by the explanatory discourse (Lefebvre, 1991).

Even though most news reports did not situate the rape crime in any social context, the reported crime *per se* can reflect the embedded gender relations in the public or private space where the crime occurred (Lefebvre, 1991; van Dijk, 1993). Not to mention, by actively situating the rape in different settings, *the individual situation* was not only providing the place where the rape committed, but also using the connotations of these places as an implicit explanation of the crime (Nilsson, 2019). Inherently, it connected rape with other societal problems such as segregation, immigrant, and cultural differences (Karlsson et al., 2020; Nilsson, 2019). In this way, rape symbolizes societal failure on a broader level, allowing a debate beyond gender conflicts and maintaining spatial appropriation and gender inequalities (Lefebvre, 1991; Nilsson, 2019).

5 Discussion

5.1 Reflections on the methodology

The methodology of this study departed from a spatial analytical lens, combining spatio-temporal pattern mapping and discourse analysis to present the spatio-temporal patterns of rape against women in Sweden and to explore its socioeconomic and sociopolitical associations. The methods used in this research fulfilled two research questions drawn at the beginning of the study. In general, the methodology in this study is of significance to analyze the development of rape against women. It can be duplicated in examining the same type or other types of crime in different social settings where one or more discursive field emerging regarding rape against women. However, considering the diversity of geography, place, and space, the appropriation of methodology, specific research methods should be performed place-specifically and scale-specifically (Campebell, 2018).

When it comes to selecting quantitative and qualitative approaches, as I described in the methods section, both methods have some limitations. The choropleth mapping and comparisons of rape crimes and other independent variables have some constraints of representing actual crimes (Chainey and Dando, 2005). From the critical geographic perspective, crime mapping tends to be far from a value-neutral approach to representing illegal activities (Jefferson, 2020). Consistent with the theoretical framework, social practices regarding data collection conducted by the criminal justice system are influenced by the wider social and political context in the space (Jefferson, 2020). Hence, this study included the role of the crime dataset from the criminal justice system itself in the analysis of results. Regarding critical discourse analysis, data collection and analysis methods were clarified in the methods.

Dataset on rape against women, which I achieved from the Swedish National Council for Crime Prevention (Brå, 2021) database, not only largely determines the methods framed for this study, but also has a significant impact on the results of spatial-temporal patterns. First, the data is limited at the municipal level without any geolocation information and does not include any details of individual crime cases because of privacy and other ethical and legal issues. Further study into hot spots areas where high or low rates of rape against women concentrate at a suitable scale will be

interesting if relevant data is available. Correspondingly, the relations between spatio-temporal patterns of rape against women and the conditions of the economy, educational level, and immigration remain being examined beyond the preliminary level. Moreover, there are some no data areas in different examined years in the dataset from Brå which possibly affects the study result.

Furthermore, the methods of Brå's data collection could affect the validity of this research. No reports can be removed based on legal or police assessments, even if the incident is obviously made up at the time of the complaint (Brå 2020:13). The most important is that repeat offences of the same type involving the same victim and perpetrator are counted more times in the statistics, according to Brå(2020:13). Lastly, "Speaking openly (tala öppet)" by reporting someone to the police commonly means more significant "costs (kostnader)" for the women than self-reporting the incident to SCS (Brå 2019:5). As a result, it is difficult to tell precisely the amount of the increase in police-reported rapes and how much comes from an actual increase.

The study period was examined not continuously from the year 2015 to 2019 for both quantitative and qualitative analysis. The year examined in qualitative research has been motivated in the methods section. The quantitative analysis only included two years, the beginning year 2015 and the ending year, 2019, since I found that the total number of rape against women and rape against women by different age groups had constantly increased in the five years. However, the prevalent crime rate traits in each region or municipality and the whole spatial traits might change from 2015 to 2019. Concerning qualitative analysis, it only examined news articles in the year 2019 when the number of rape against women reached the highest record before the outbreak of Covid-19. Diverse evidence has shown that the Covid-19 epidemic may have impacted the police-recorded sexual crime and the behavior of the perpetrator (Lockwood, 2021; United Nations Office on Drugs and Crime, 2020).

5.2 Expectations and limitations

This research has some space to improve. Regarding the data process in the quantitative analysis, there is more space for developing it since it is based on spatial statistical methods without examining the statistical relationship between selected socioeconomic and demographic variables and rape crime. For example, Mitchell (2001) uses stepwise multiple linear regression methods to identify any significant relationship between socioeconomic and demographic variables and the crime variables. Even though this kind of statistical analysis has its assumptions or limitations, it can indicate the variables that may be useful and highly related as preparation for crime mapping (Berman, 2002).

As for content analysis methods, it also has some limitations. When I combined the search terms to select news articles on rape cases, the term "child" was not excluded as Nilsson (2019). As a result, the search results include extensive reporting about rape against child or child sexual abuse, and meanwhile, it eliminates the coverage of rape cases. The qualitative part comprised a shorter time frame even though it included a considerable amount of news reports. The search engine for Swedish media articles, Retriever Research, is somewhat restricted and unreliable since it sometimes skips some dates (Karlsson et al., 2020). As a result, some themes could be missed, which could potentially have minor effects on the results.

Besides, it should be noted that information about neither the alleged perpetrator nor the victims was available in most news reports. The distinguishing difference between representations of rape against women depending on the perpetrator's national/ethnic/religious/cultural background is thus based on the limited source. It further requires comparing between articles on the same crime case from two or more different newspapers, and assumptions and interpretation. The nature of coding processes found in this study should thus be considered as an indication other than a certainty. Furthermore, a larger sample would yield a somewhat different constitution and prevalence of categorizations (Karlsson et al., 2020).

When different newspapers report on the same criminal case, it shows that contextualized information and representation of the same rape case sometimes differ.

It is also noted that news on rape against children, referred to as girls under 18 years old, are mostly reported among the examined samples. Such tendencies in news reporting on rape against women are interesting. Analysis of differences between political affiliations remains further research.

6 Conclusion

The innovation of the study lies in that it investigates the development of rape against women in Sweden from 2015 to 2019 through a spatial analytical lens. It combines data from different sources and adds to existing studies by using GIS methods and critical discourse analysis. In doing so, this research characterizes the spatio-temporal dynamics of rapes against women in Sweden at the national and regional level and combines the discursive dimension. As the answer to the first research question, the spatial and temporal variations of rape against women at the national and regional level have been examined by spatial mapping. Overall, there are marked spatial variations for rape against women across Sweden. However, the variation may be inevitable due to regional and socioeconomic diversity at various levels in the country (Lefebvre, 1991). No significant traits were found among municipalities, which may lie in distinct regional differences. Besides, there are examined socioeconomic and demographic factors that seem relevant to prevalent characteristics of relatively high populated regions. As the answer to the second research question, this study critically conducted a content analysis. Swedish national and regional news media have their sociopolitical role in shaping the spatial production of rape against women and the broader gender relations by combining portray of rape crime with other social issues. Thus, this research has explored how the socio-economic and socio-political context of Sweden impact on spatial distribution of rape against women over time, which was so far lacking in previous empirical analysis.

This study engages a gender perspective with space theory conceptually and empirically. Conceptually, the case exemplifies the importance of the combination of spatial perspectives and discursive analysis that sees power relations in news media discourses and enmeshed within a broader political, social, and economic context over the precarious living environment of women, and thus spatial appropriation of women in the social space. This spatial analytical thinking, in turn, can provide complementary reference to prevalent legislation and regulations that address the issues of gendered rights to everyday life. Empirically, the study looks at the development of rape in Sweden over time by looking at its spatio-temporal characteristics by region and municipality and verifies the socioeconomic and demographic factors drawn from

relevant studies that play a role. It also contributes to examine the role of sociopolitical factors towards the discursive construction of rape in Sweden by analyzing representations of women and rapes against women in the Swedish news media. Furthermore, studies from spatial analytical perspectives possibly help understand rape against women better in real life or the decision-making process in the urban planning or feminist agenda or feminist-involved for a more inclusive social space.

The objective of this study was not to examine rape against women regarding situational conditions, such as indoors and outdoors, relationships between victims and perpetrator. Instead, the term "rape" is in accordance with the standard definition in the Swedish criminal code (Government Office of Sweden, 2015). While situational and environmental characteristics of rapes are not the focus of the paper, knowing their prevalence at regional and municipal levels through a spatial lens can be helpful to understand how rape against women has been constructed over time and space. This might also contribute to exploring where high rates of rapes against women exist while they have never been discussed. Besides, contextual information about regions and municipalities could shed light on the association between societal development and rapes against women. It suggests the importance of crime prevention in different settings and for the formulation of appropriate policies in identifying social and cultural factors for high rates of rapes. The case-evidenced indications are that the highest and lowest rape rates exist in the small municipalities in Sweden. Thus it could be that the locations of the rapes are not a significant influence, but rather sociocultural factors matter. Likewise, reports on information about rapes against women in the news media materials could shed light on the focus of new media discourse on rapes against women. The study does not link the environmental structure of rapes places nor prevalent characteristics of perpetrators and victims at the individual level, and as it is suggested here, they may overlap in some areas. The nature of places and activities of individuals have to be further associated with socioeconomic contexts and investigated for their role in crime high occurrence at multiple levels. On top of that, the complexity of rape crime and subjectivity of rape selection suggests more possible factors relevant to assessing the geographical distribution of rapes against women and regional differences.

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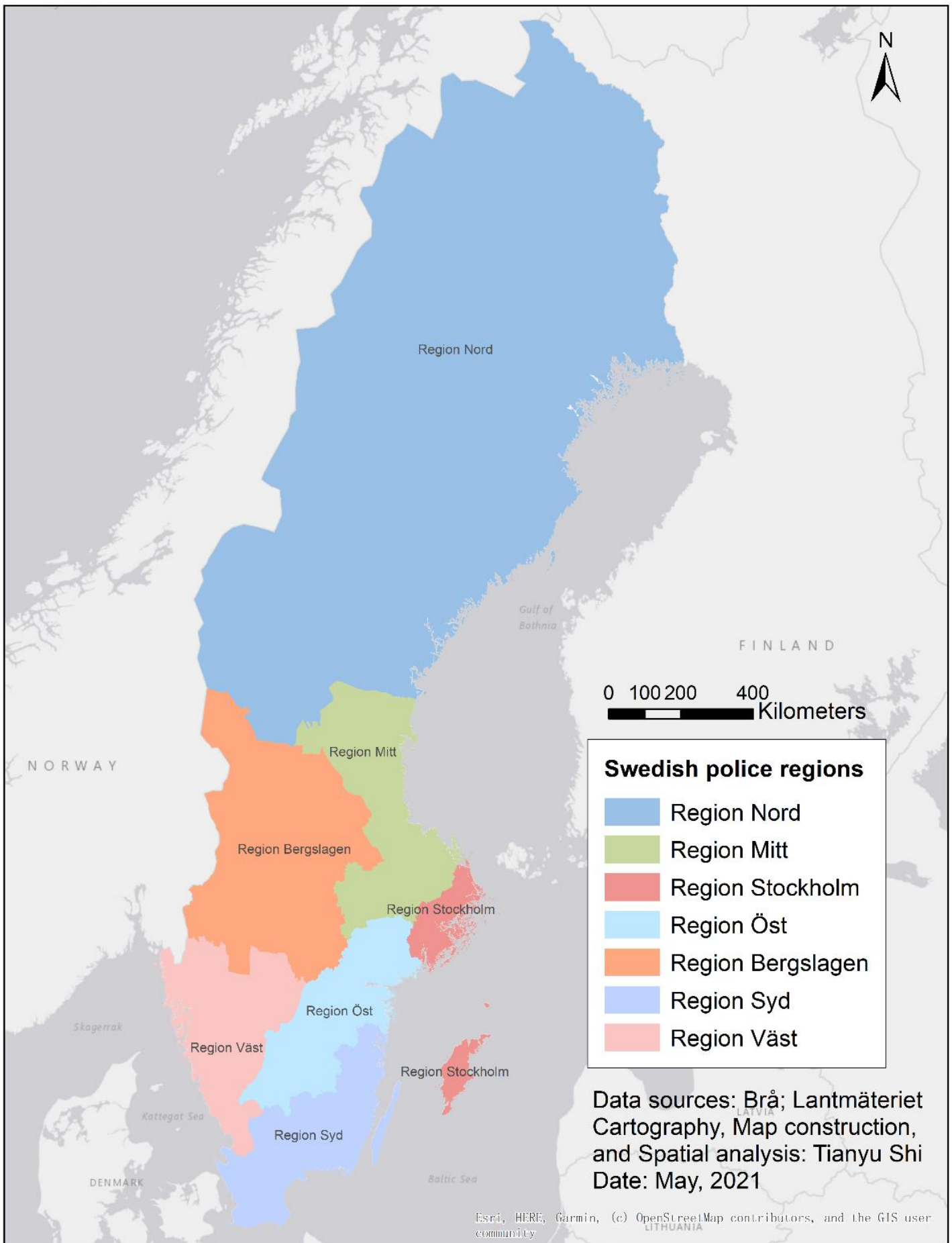
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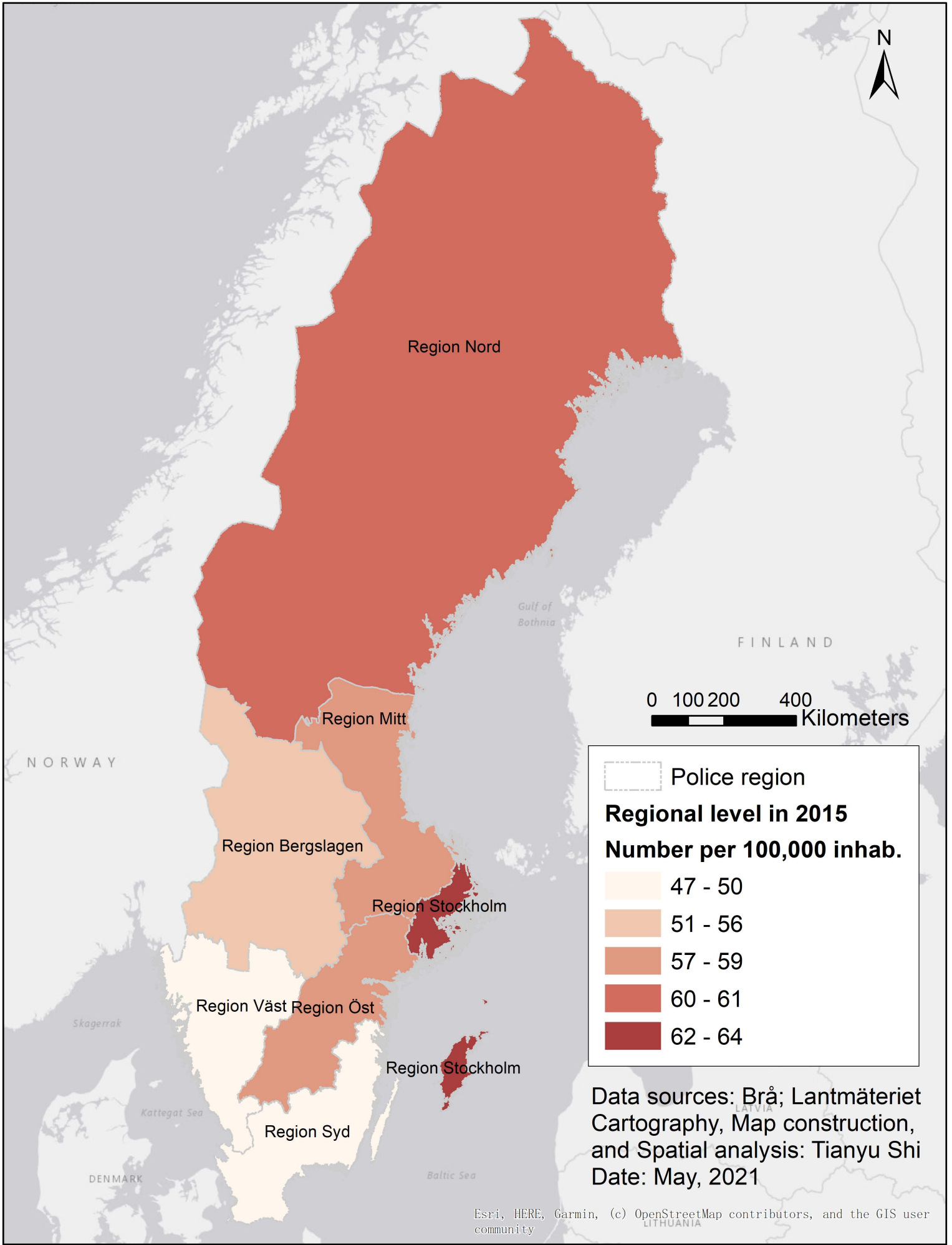
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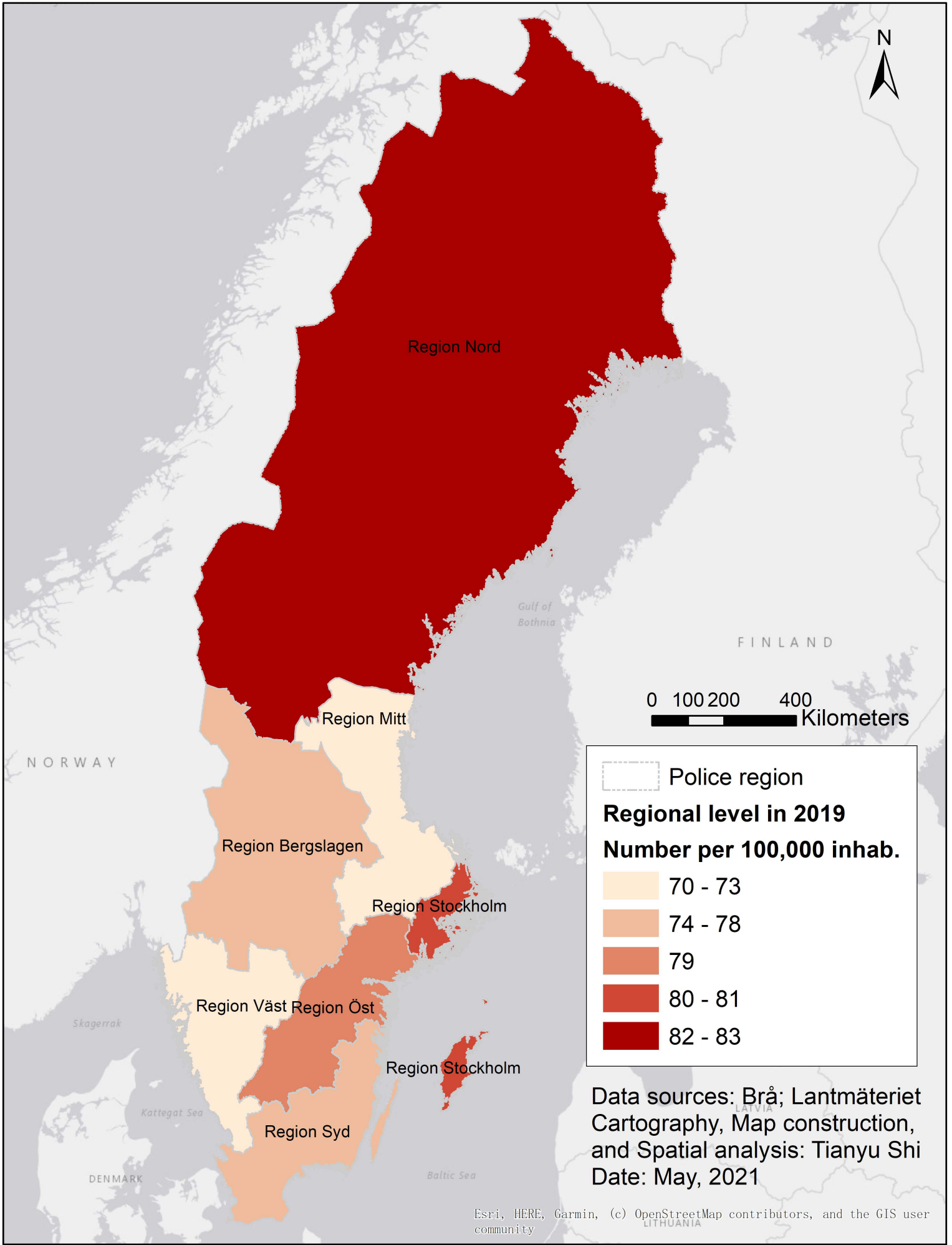
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Appendix
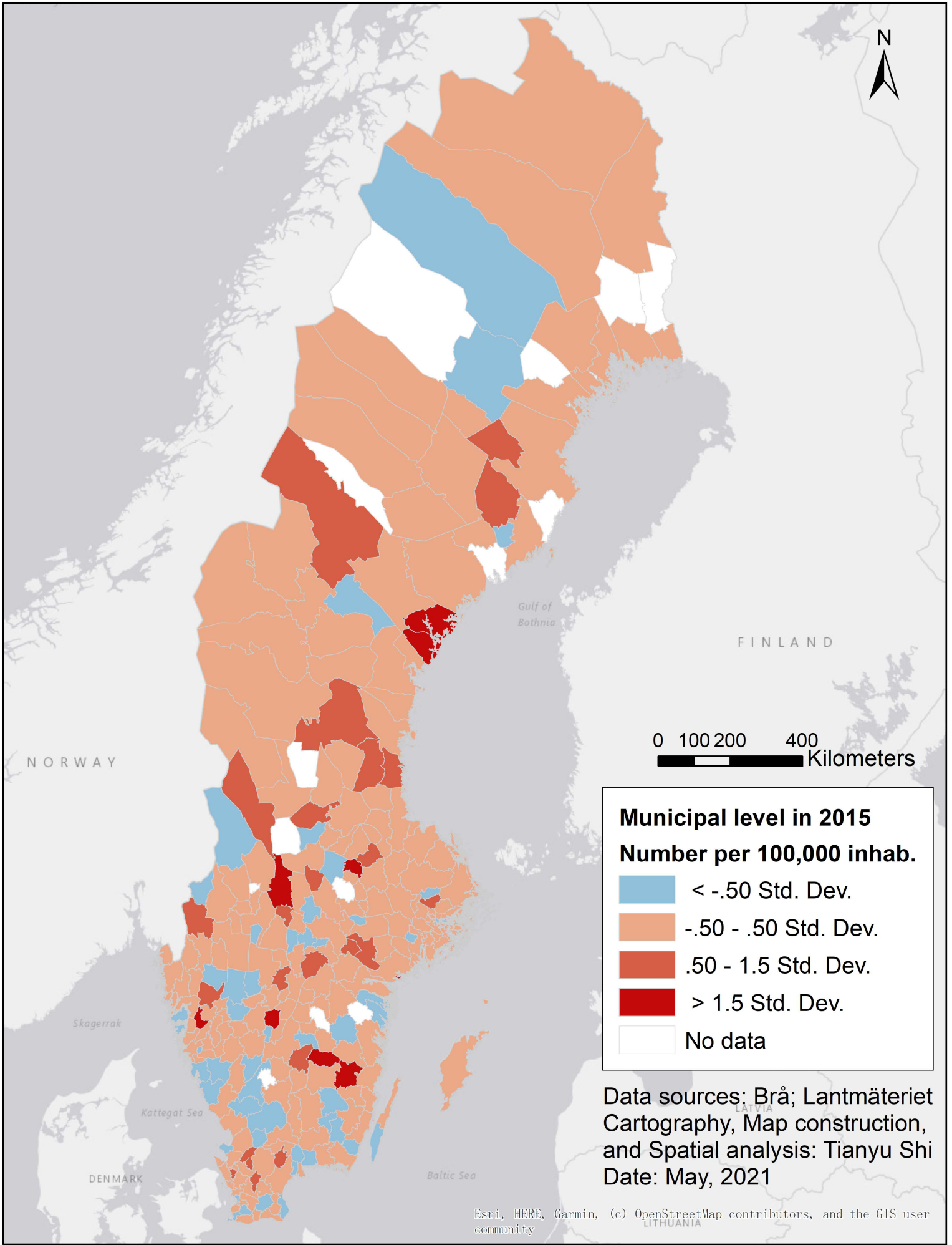
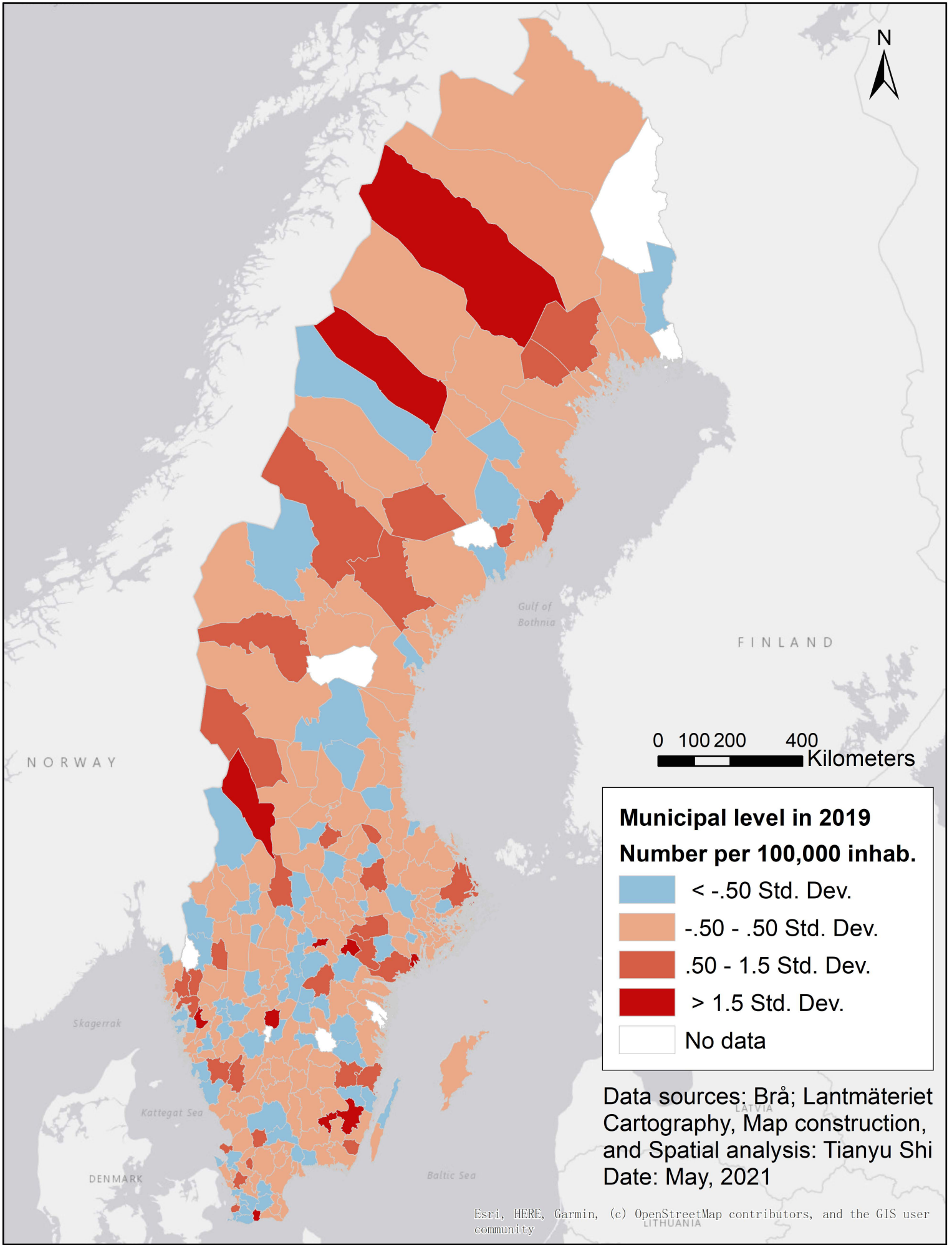

Swedish police regions

- Region Nord
- Region Mitt
- Region Stockholm
- Region Öst
- Region Bergslagen
- Region Syd
- Region Väst

Data sources: Brå; Lantmäteriet
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Region Nord

Region Mitt

Region Bergslagen

Region Stockholm

Region Väst Region Öst

Region Stockholm

Region Syd

NORWAY

DENMARK

FINLAND

Gulf of
Bothnia

Skagerrak

Kattegat Sea

Baltic Sea

LATVIA

LITHUANIA

N

0 100 200   400
Kilometers

Police region

Regional level in 2015
Number per 100,000 inhab.

47 - 50

51 - 56

57 - 59

60 - 61

62 - 64

Data sources: Brå; Lantmäteriet
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user
community

N

Region Nord

FINLAND

Gulf of
Bothnia

Region Mitt

NORWAY

Region Bergslagen

Region Stockholm

Region Väst Region Öst

Region Stockholm

Region Syd

Skagerrak

Kattegat Sea

DENMARK

Baltic Sea

0 100 200   400
Kilometers

Police region

Regional level in 2019

Number per 100,000 inhab.

70 - 73

74 - 78

79

80 - 81

82 - 83

Data sources: Brå; Lantmäteriet
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

LATVIA

LITHUANIA

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community

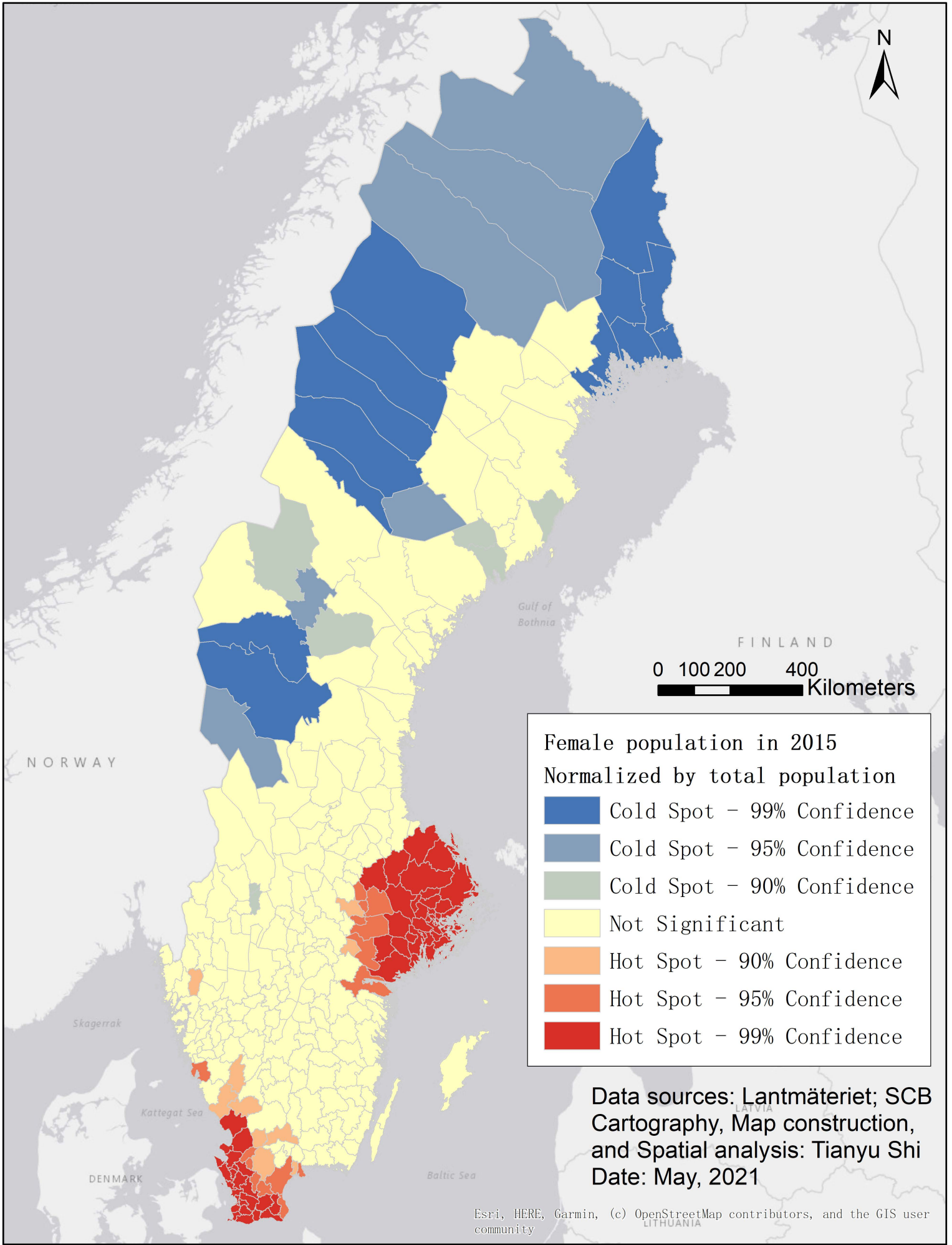Municipal level in 2015
Number per 100,000 inhab.

- < -.50 Std. Dev.
- -.50 - .50 Std. Dev.
- .50 - 1.5 Std. Dev.
- > 1.5 Std. Dev.
- No data

Data sources: Brå; Lantmäteriet
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Municipal level in 2019
Number per 100,000 inhab.

	< -.50 Std. Dev.
	-.50 - .50 Std. Dev.
	.50 - 1.5 Std. Dev.
	> 1.5 Std. Dev.
	No data

Data sources: Brå; Lantmäteriet
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Female population in 2015
Normalized by total population

- Cold Spot – 99% Confidence
- Cold Spot – 95% Confidence
- Cold Spot – 90% Confidence
- Not Significant
- Hot Spot – 90% Confidence
- Hot Spot – 95% Confidence
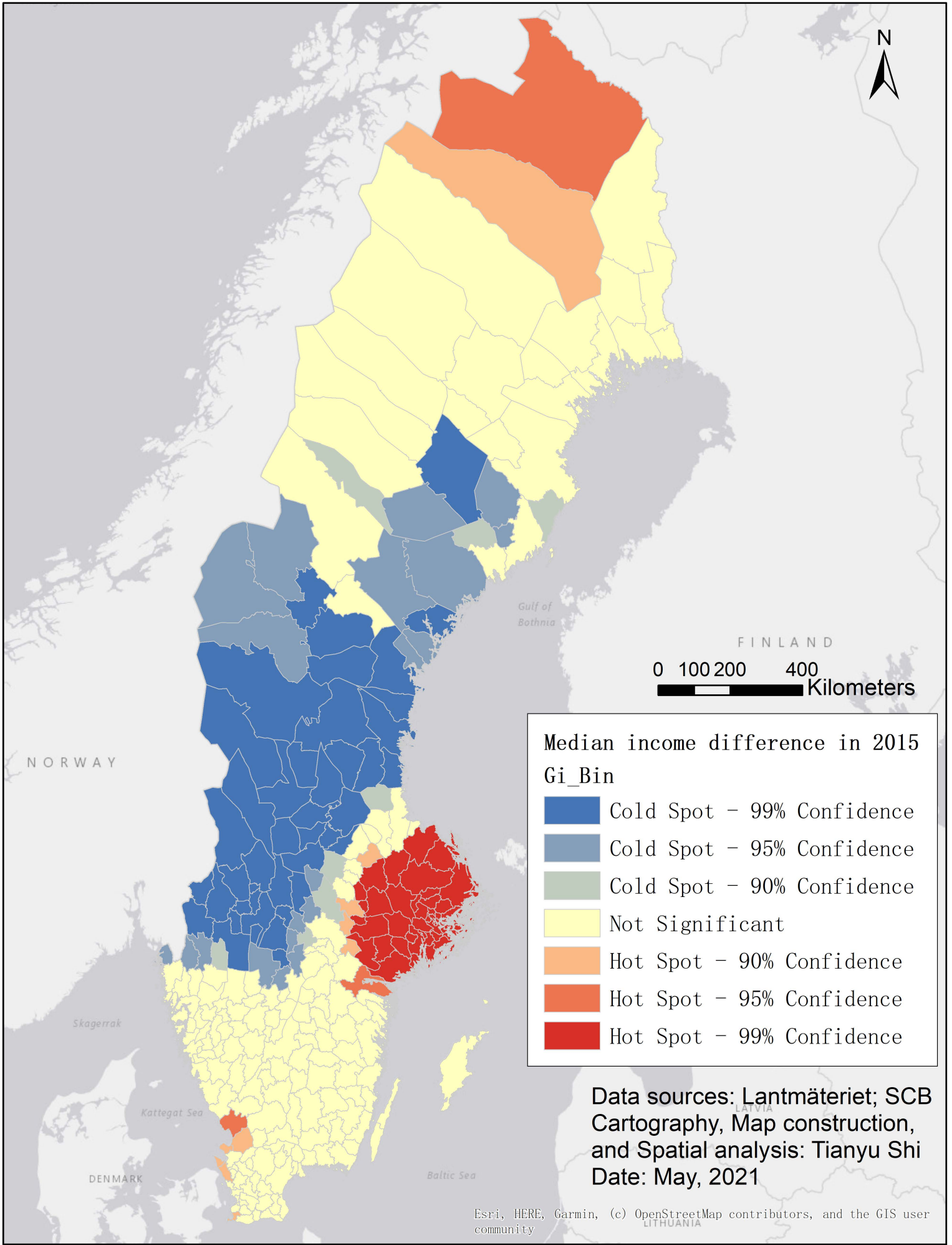- Hot Spot – 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user
community
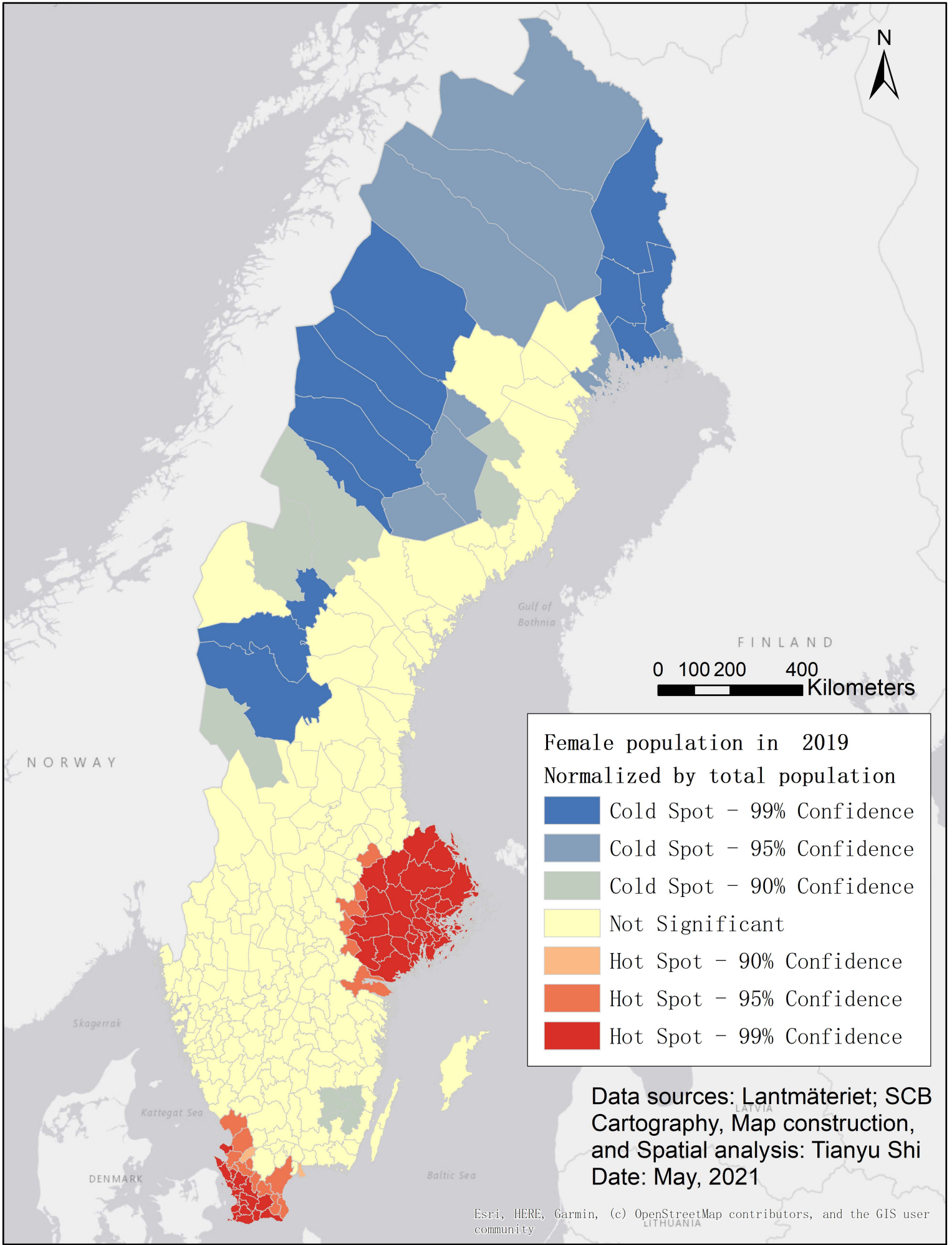
Female population in 2019
Normalized by total population

- Cold Spot – 99% Confidence
- Cold Spot – 95% Confidence
- Cold Spot – 90% Confidence
- Not Significant
- Hot Spot – 90% Confidence
- Hot Spot – 95% Confidence
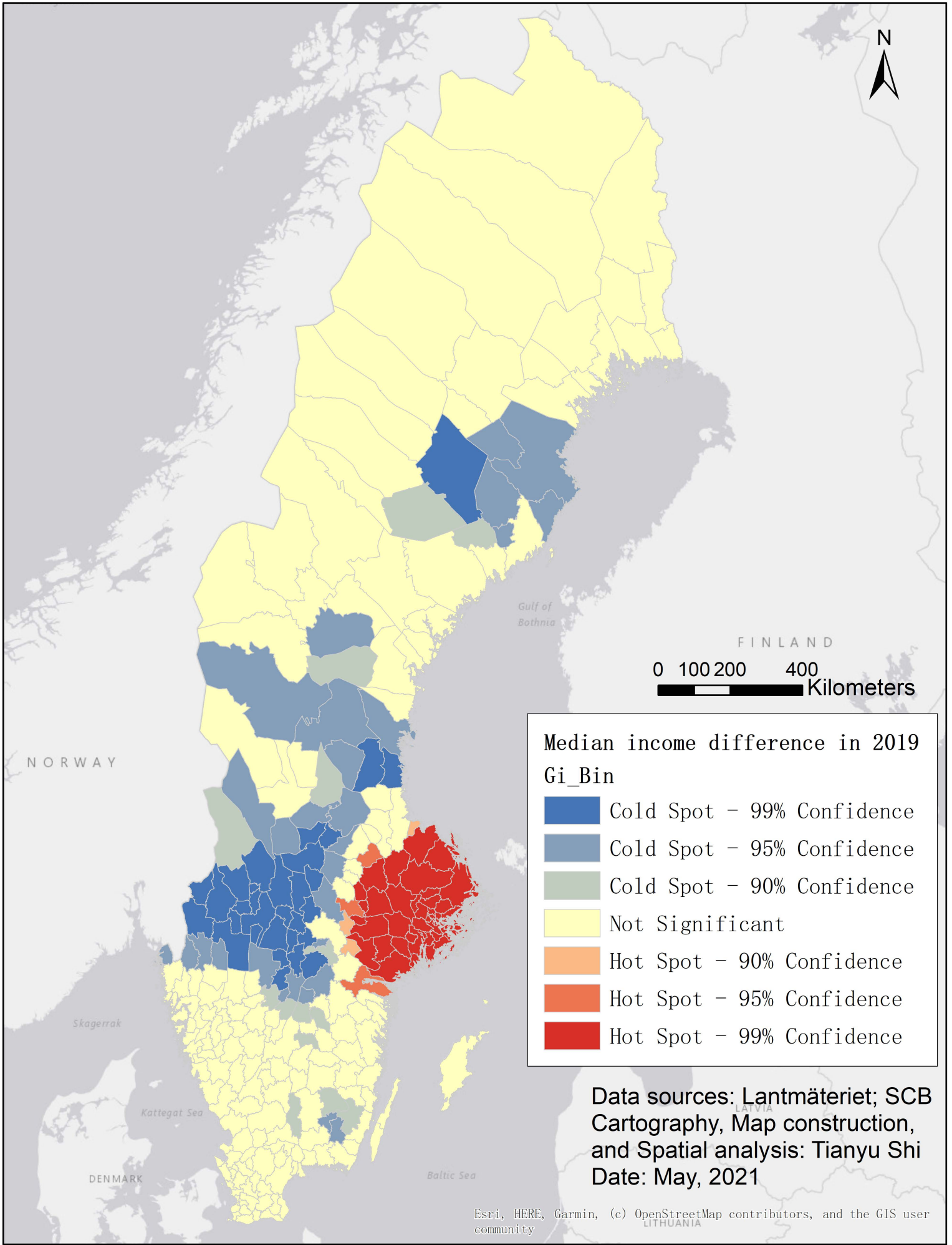- Hot Spot – 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user
community

Median income difference in 2015
Gi_Bin

Cold Spot – 99% Confidence
Cold Spot – 95% Confidence
Cold Spot – 90% Confidence
Not Significant
Hot Spot – 90% Confidence
Hot Spot – 95% Confidence
Hot Spot – 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Median income difference in 2019
Gi_Bin

- Cold Spot – 99% Confidence
- Cold Spot – 95% Confidence
- Cold Spot – 90% Confidence
- Not Significant
- Hot Spot – 90% Confidence
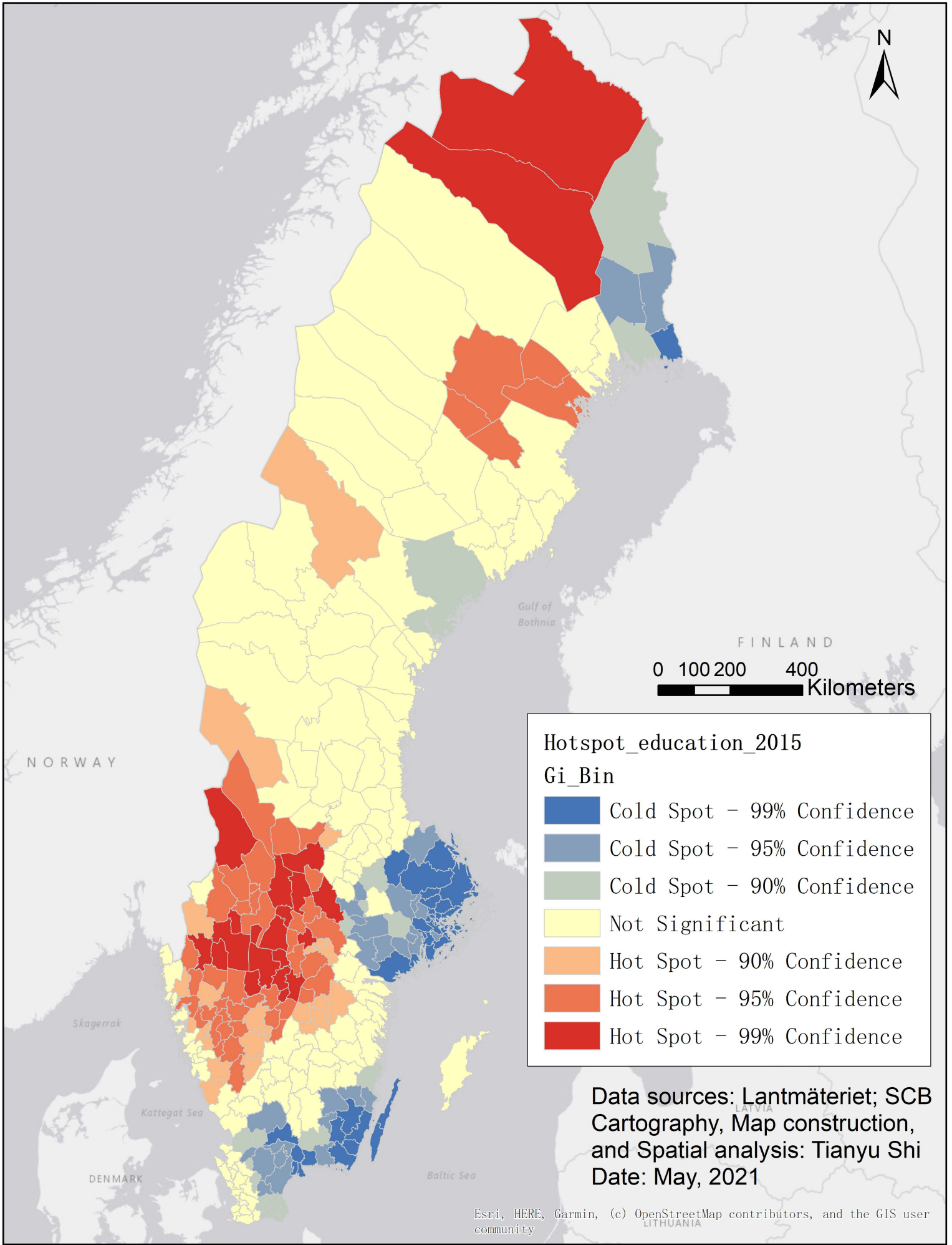- Hot Spot – 95% Confidence
- Hot Spot – 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
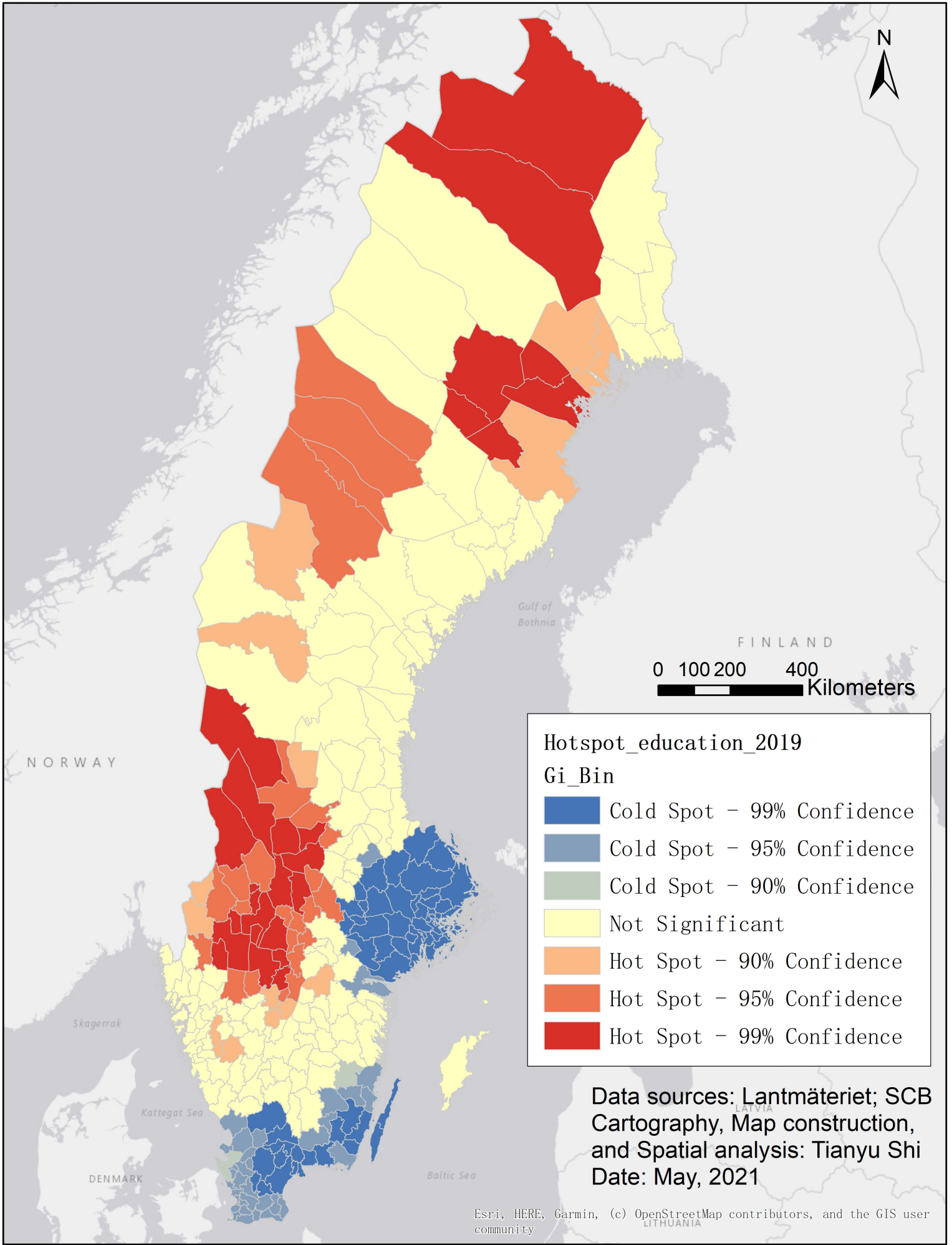and Spatial analysis: Tianyu Shi
Date: May, 2021

Hotspot_education_2015
Gi_Bin

Cold Spot − 99% Confidence
Cold Spot − 95% Confidence
Cold Spot − 90% Confidence
Not Significant
Hot Spot − 90% Confidence
Hot Spot − 95% Confidence
Hot Spot − 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

Hotspot_education_2019
Gi_Bin

- Cold Spot – 99% Confidence
- Cold Spot – 95% Confidence
- Cold Spot – 90% Confidence
- Not Significant
- Hot Spot – 90% Confidence
- Hot Spot – 95% Confidence
- Hot Spot – 99% Confidence

Data sources: Lantmäteriet; SCB
Cartography, Map construction,
and Spatial analysis: Tianyu Shi
Date: May, 2021

NORWAY

FINLAND

DENMARK

Gulf of
Bothnia

Baltic Sea

Skagerrak

Kattegat Sea

LATVIA

LITHUANIA