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Spatial and social segregation in Bergen

Spatial and social analyses of the neighbourhoods Laksevåg and Sandviken

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ABSTRACT

The aim of this short paper is to demonstrate how various spatial analyses tools can be used to make diagnosis of the degree of safety and liveability in two different neighbourhoods in Bergen. These two neighbourhoods, Laksevåg and Sandviken, are located adjacent to Bergen centre in Norway. However, the socio-economic conditions differ a lot between these two neigbourhoods. The results from the various spatial analyses are tested with the registration on how the spaces are used, registrations of locals on which streets or spaces that are perceived as unsafe, and with the registrations of graffiti and vandalism.

The various spatial analyses shows that spatial segregation may create social segregation. As the results show, neighbourhoods with low integration values of the street network (Choice with low metric radius is decisive), combined with having vehicle dominated road profiles, dominance of freestanding buildings turned away from streets, and mono-functional land use tend to have deserted streets and vandalism risk. Women tend to avoid streets with these spatial features. Conversely, an even distribution of all age groups, genders and activity takes place in areas that are spatially integrated and having a diverse land use and buildings blocks oriented towards the streets. Findings in this study correlate well with previous findings form other case studies in other countries.

KEYWORDS

Spatial segregation, social segregation, street visibility, vandalism, safety

1 INTRODUCTION

Bergen municipality have a policy to achieve socially diverse neighbourhoods. Some neighbourhoods are struggling with social segregation with a risk is that it may be isolated from the large community.

Therefore, it is important that urban areas are perceived as vibrant, safe and inclusive. At present, current planning practice lacks operational tools for making spatial diagnosis of poorly functioning neighbourhoods (Miranda and van Nes 2020, van Nes and López 2013, van Nes and Yamu 2021). This short paper demonstrates how the physical environment is related to social segregation. The aim is to reveal the spatial parameters of the socially "integrated" and "segregated" neighbourhoods. Two different neighbourhoods, Laksevåg and Sandviken, located adjacent to Bergen centre, are used as case. Both neighbourhoods are unique with strong place identity, planned and constructed under different planning ideals. However, the social composition of dwellers differs a lot between these two neighbourhoods.

There are opinions in Norway that some neighbourhoods are becoming more socially segregated than before. Several of these socially segregated areas have low living standards, high crime rates, low number of ethnic Norwegians living there, and are dealing with poverty issues. The purpose here is to investigate the spatial properties of two different neighbourhoods in Bergen. Laksevåg has the reputation to be socially segregated, whereas Sandviken is the opposite. The purpose is to investigate whether the degree of safety and social segregation has a connection with the various spatial features of a neighbourhood.

There exist some guidelines for urban planners that might remedy the social segregation problems in Norway. However, these guidelines are outdated (Norsk byggforsk institutt, 1998). Moreover, profit maximising in new housing areas is often on the costs on creating good quality outdoor areas.

As the situation is now, trends of a divided society between immigrants and ethnic Norwegians may become a reality in the future. Both project developers, public planners and private consulting companies as well as politicians will greatly benefit from having operational tools for creating safe urban areas in future development plans and transformation projects using the spatial and physical properties. The planning guidelines from the state place special emphasis on new cities that are sustainable, lively, promote health, the environment and quality of life (Regjeringen, 2014). However, safety issues and crime prevention are often neglected in current planning process in Norway.

To what extent can various spatial macro and micro scale analyses give a good indication of whether certain neighbourhoods are at risk of being called e.g. 'Ghetto' or 'multi-cultural' neighbourhood? There have always been poor neighbourhoods, segregated from the rest of the city. The trend we see today is that sub-urban or modern neighbourhoods are becoming more segregated than before. Often a high number of immigrants together with lower housing prices and high provision of rental housing in a neighbourhood can contribute to social segregation. Often segregated neighbourhoods are perceived that various social groups in society have their own communities, separated from the rest. It will therefore be interesting to examine the spatial conditions from a spatial planning approach. The following questions are at stake:

1) What is the correlation between social segregation and spatial segregation in Bergen?
2) What spatial characteristics exist in a socially integrated and a segregated neighbourhood?

The two neighbourhoods have been planned and built under completely different planning principles. These chosen neighbourhoods are within the municipal planning area's densification zone for Bergen. Both neighbourhoods are unique but at the same time very different. Sandviken and Laksevåg neighbourhoods are located along the sea with a short distance from Bergen city centre.

These two neighbourhoods also give different but also similar results in living conditions surveys in several issues, especially when it comes to crime statistics, the number of municipal housing and the perception of safety. Laksevåg is dominated by streets that stretch over large distances along the Damsgård side. Residential buildings and apartment blocks with green space around dominate the area. Sandviken, on the other hand, is dominated by a more compact street network structure with urban blocks structure containing apartments of 2-3 floors.

Different spatial analyses are carried out in both neighbourhoods. Various micro and macro scale spatial analyses methods as well as morphological analyses methods are used. The purpose is to give a wider overview over the spatial features for making a comprehensive spatial diagnosis (van Nes and Yamu 2021).

2 EARLIER RESEARCH ON SPACE AND SOCIAL SEGREGATION

In 2019, Rønneberg Nordhov et.al investigated and carried out various micro-scale analysis methods in six different neighbourhoods around Bergen city centre. 200 local inhabitants were interviewed, and they pointed out the areas they perceived as the most unsafe ones. As their results shows, monofunctional segregated streets with buildings turned away from streets contributes to perceived unsafe streets (Rønneberg Nordhov et.al 2019).

Some spatial analyses of Laksevåg were carried out in a research project on how children use urban space. The results showed that highly spatially locally integrated streets, streets with sidewalks for pedestrians and cyclists and a high degree of inter-visibility from adjacent buildings contribute to safe streets for children. The opposite contributes to few children in streets and the few children that are found are accompanied by an adult (Meinert et al 2019).

As research has shown, street network configuration matters for the degree of social segregation (Shu 2000, van Nes and López 2010 and 2013). Neighbourhoods with a more fragmented and labyrinthine street network with cul-de-sac streets and with a low degree of inter-visibility from adjacent buildings towards streets, segregates ethnic groups from each other (Aghabeick and van Nes 2015). Conversely, high degree of spatial integration creates a high degree of social integration between people (Rooij and van Nes 2015). A well-integrated main street that runs through instead of outside a

neighbourhood can create a big impact on the overall integration. In addition, a neighbourhood with a low degree of integration in the street network, together with low or non-existent "intervisibility" of entrances and windows, will create social segregation between genders (Miranda and van Nes 2020), different age groups (Rooij and van Nes 2015) and ethnic groups (Agabeik and van Nes2015). Often spatially segregated neighbourhoods can be defined as a 'ghetto' if many non-western immigrants live there. Conversely, spatially integrated neighbourhoods with highly inter-visible streets are often labelled as 'multicultural neighborhoods' (Aghabeik and van Nes 2015).

As other research has shown, a high degree of spatial integration in a street network creates greater variety of all types of people in a neighbourhood (Rooij and van Nes 2015, Rueb and van Nes 2009). Neighborhoods established before World War II tend to be more integrated at both the macro and micro scale level than the modern ones. The highest integrated main routes run through the district instead of around them. The effect is high variation of types of shops and a vibrant local street life (Rooji & van Nes 2015).

In a research project for analysing 40 'problem' neighbourhoods in the Netherlands showed that there is a strong correlation between spatial accessibility, connection possibilities and the spread of crime within a neighbourhood. The study also showed that a street with few changes of direction from the main routes usually has a lower probability of burglary (van Nes and López 2013). As other space syntax research has shown, streets with high spatial integration contribute to more people in the streets and to the location of small businesses (Hillier et al 1993, Penn et al 1998, van Nes 2021 a,b). These streets are perceived to be vital and social safe streets.

3 THE SPATIAL AND SOCIAL ANALYSES OF LAKSEVÅG AND SANDVIKEN

The following spatial analyses methods were applied: Space syntax (van Nes and Yamu 2021), macro scale tools (van Nes and López 2010), Analyses of street profiles (Eldijk et al 2014), spacematrix (Rådberg 1996), and the degree of function mixture (van der Hoek, 2009). Static snapshots of people in streets (van Nes and Yamu 2021) were conducted in both neighbourhoods for a weekday and a weekend day. Likewise, registration of graffiti and registrations for perceived unsafe streets or roads from the short questionnaires from residents were recorded.

According to Ye and van Nes (2014) the spatial configuration of the street network is the underlying driving force for the degree of urbanity and liveability of an urban area. Figure 1 shows various space syntax analyses of both neighbourhoods. As can be seen, Sandviken scores high on the local angular choice analyses, whereas Laksevåg scores very low.

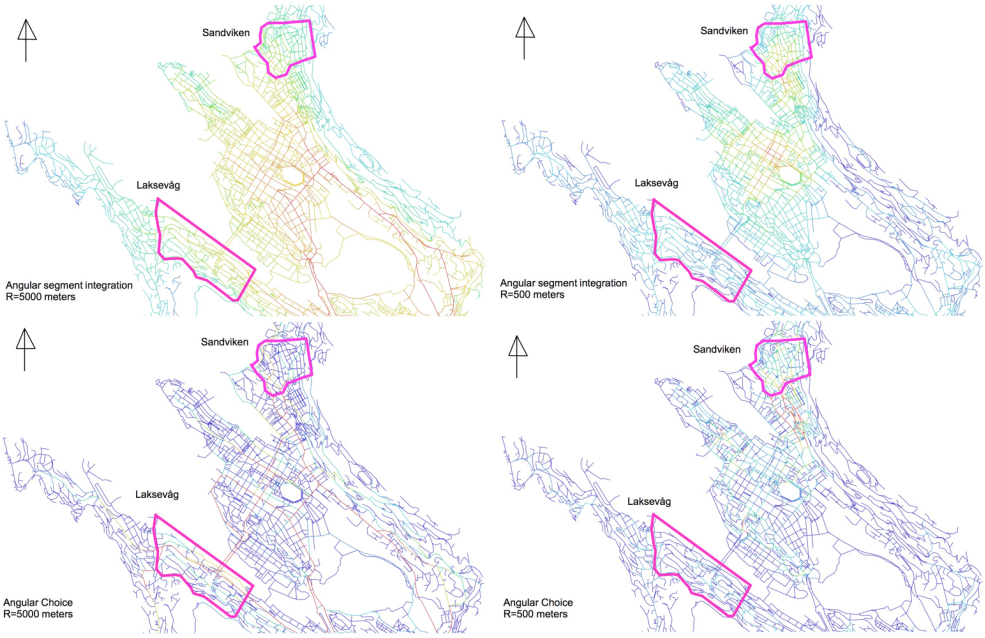

Figure 1: Space syntax analyses of the street and road network of Bergen with the two case study areas

Figure 2 shows the results from the street profiles analyses (top), spacematrix (middle) and street inter-visibility of both neighbourhoods. As the results show, Sandviken has more pedestrian friendly and balanced streets between vehicles and pedestrians than Laksevåg. Sandviken has compact urban blocks, whereas Laksevåg has middle rise strip and low-rise point buildings. Sandviken has high degree of inter-visibility of streets, whereas it is low in Laksevåg.

Figure 3 shows the results from the various registrations. On the top the registrations of vandalism and graffiti is juxtaposed with the MXI analyses and the degree of street inter-visibility. The largest occurrence of vandalism and graffiti takes place along poorly inter-visible streets with monofunctional working places. In the middle the registrations of the most perceived unsafe areas from respondents are registered. In Sandviken the most perceived unsafe areas are in a park and along one street, whereas in Laksevåg the most perceived unsafe areas are located at poorly inter-visible streets with monofunctional factory and storage buildings. Below in figure 3 the results from the static snapshots are presented. As the results show, there is a balance between genders in Sandviken, whereas some streets are dominated by men in Laksevåg. These roads tend to be poorly inter-visible and are located in mono-functional working areas.

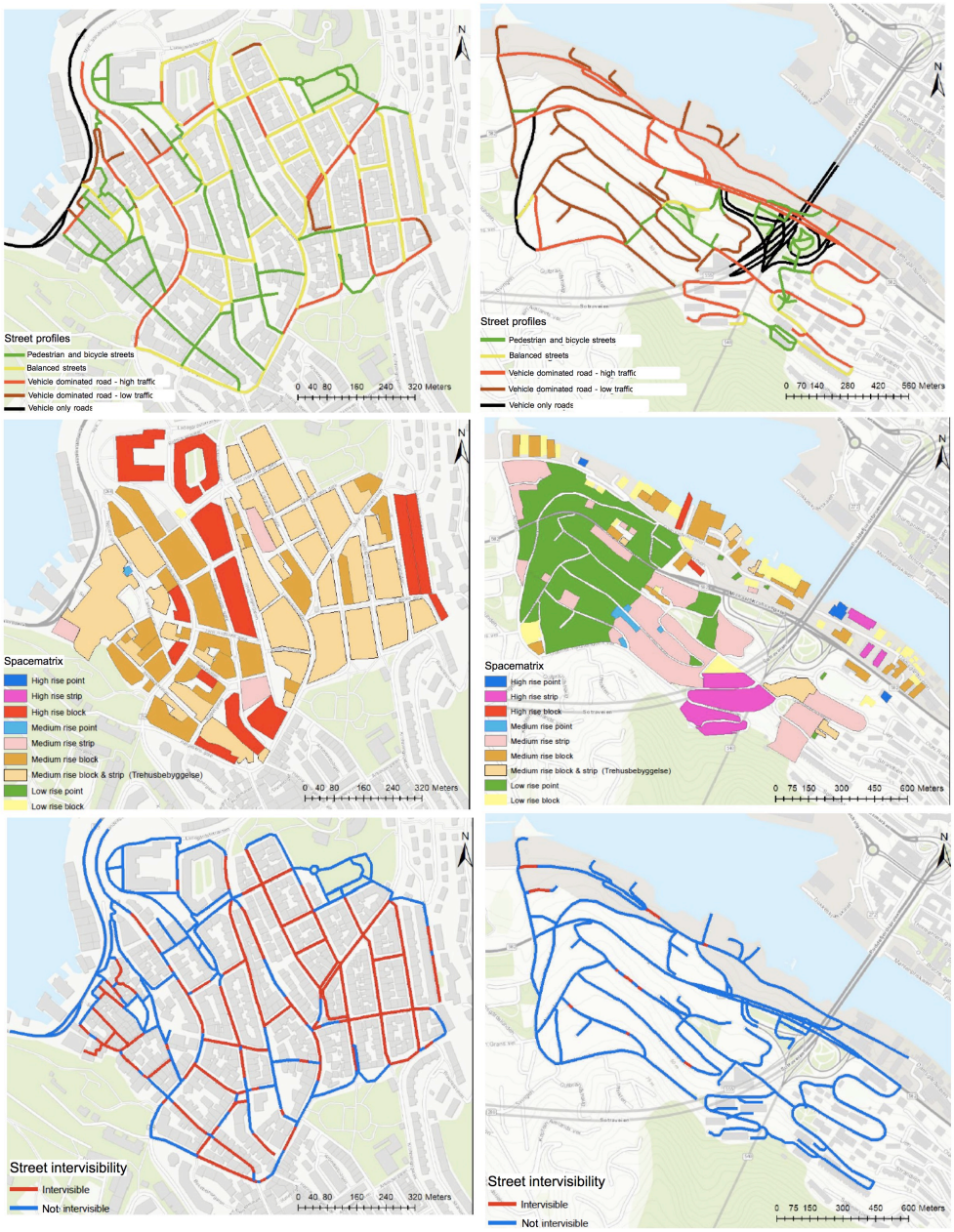

Figure 2: Other morphological and spatial analyses of Sandviken (left) and Laksevåg (right)

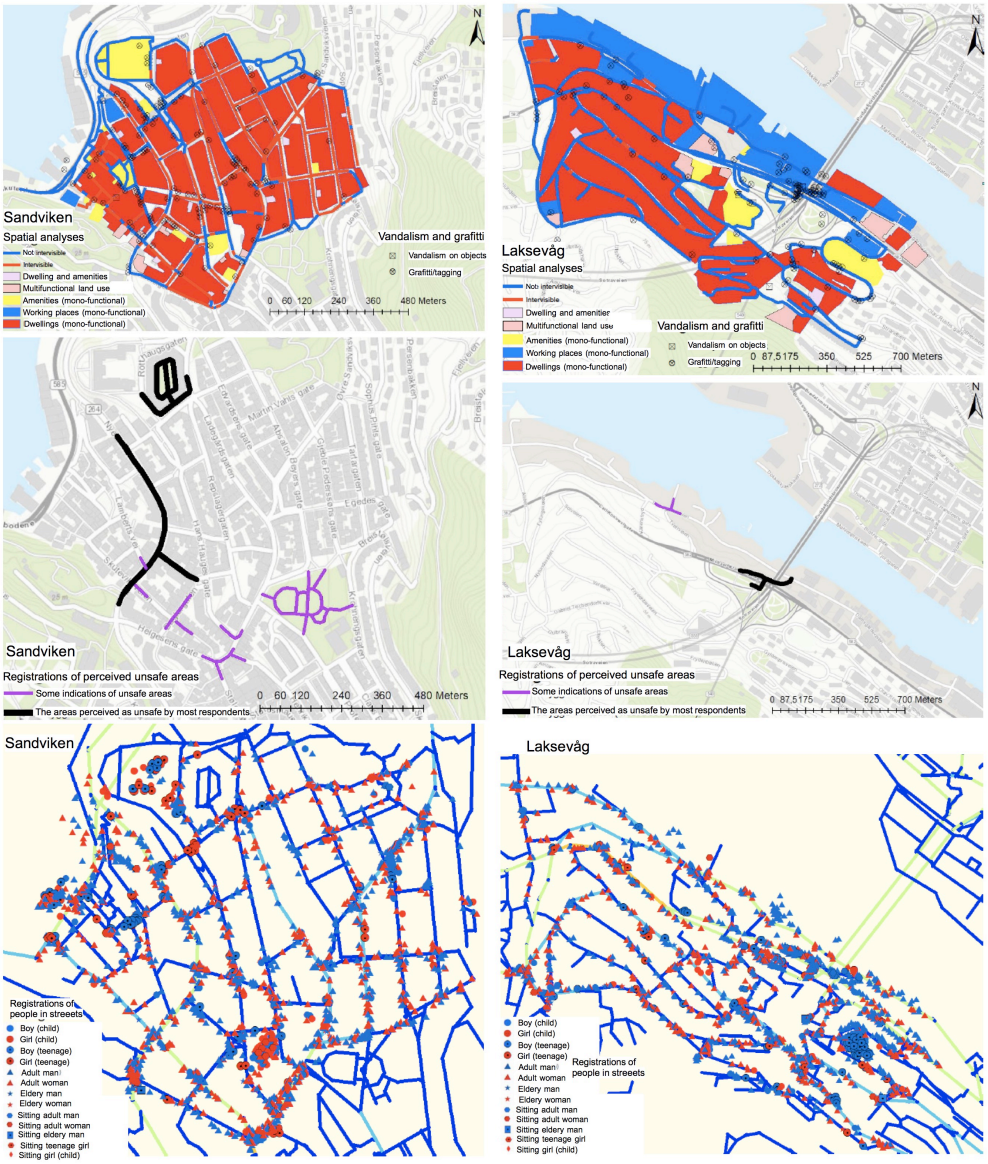

Figure 3: Registrations of graffiti and vandalism juxtaposed with MXI analyses (top), recorded perceived unsafe areas (middle), and static snapshot registrations of people in streets (below)

4 CONCLUSIONS

Seemingly, spatial segregation sets the physical framework for social segregation. Two factors are decisive: the integration values in the street network (primarily Choice analysis with a low metric radius) and street inter-visibility. The spatial structure of the street network matters. An area with a network street structure with short urban blocks enhance walkability and thus creates opportunities for social contact if the public spaces have good spatial qualities. If the spatial properties of a built environment reduce the possibilities for social contact and the natural surveillance process in an area, activities in streets will also be reduced. Buildings turned away from streets reduce inter-visibility. When the street lighting is in addition poor, the streets and roads are to a greater extent dominated by various forms of vandalism and create unpleasant

urban spaces. A diverse mix of functions inside adjacent buildings will strengthen the social control mechanism throughout the day. The effect is that the streets are perceived to be safe.

Laksevåg has a segregated street network that is vehicle dominated. Most streets score low on all microscale analyses. Few good outdoor areas exist. The streets are designed for vehicular traffic surrounded by several monotonous detached buildings and houses ("low rise point", "medium rise strip", "high rise strip"). The distributions of functions are separated from each other. The effect is that there are large differences in activity in the streets before and after normal working hours. A high number of blind facades oriented towards streets shapes opportunities for vandalism. These streets often have low spatial integration values, and lacks street inter-visibility. According to the well-being analysis, people feel more insecure in Laksevåg than Sandviken. Several crime incidents have been reported in Laksevåg at the police office.

Sandviken is generally a socially integrated district in contrast to Laksevåg. Most spatial integration values are high. One of the reasons is the fine-grained network street structure with short urban blocks that enhance walkability. Several streets are converted from balanced streets to pedestrianised playgrounds streets, creating good outdoor and living areas contributing to social interactions. Many use the streets both during the day and at night. The above parameters are reflected in the crime statistics for the neighbourhood: fewer offenses have been registered in Sandviken than in Laksevåg.

As the results from the spatial analyses show, there are three measures that can reduce the opportunities for social segregation:

• Make a differentiated street network though breaking up large urban blocks and create short urban blocks,
• Enhance a balanced street profile with a focus on pedestrians and cyclists,
• Enhance high density of buildings with active frontages towards the streets on both sides of the street.

Seemingly, these spatial aspects can set the spatial framework for a gentrification or a natural urban transformation from a ‘ghetto’ towards a vibrant and multicultural neighbourhood where social contact between different types of people is created and maintained. Streets and urban spaces must be accessible and safe for everyone so that trade and business can flourish.

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