Neighbourhoods, Ethnicity, and Moves

The Spatial Sorting of Well-Being in Sweden

Gijs Westra

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Abstract
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This thesis connects ethnic and socioeconomic spatial sorting and its neighbourhood effects to the spatial dimension of well-being. The work investigates how well-being is spatially sorted, particularly where and why. Three papers explore these questions through measures of well-being either as a good life through the performance in seven or eight well-being-related life course domains (known as external well-being) obtained from the population registers or satisfaction with life (known as internal well-being) obtained from the 2020 Neighbourhood Survey.

Paper 1 explores the spatial distribution of external well-being over various bespoke scales finding the most variation at the most-detailed scales. The neighbourhood level well-being is correlated with levels of education and concentration of ethnic minorities. K-means cluster analysis finds that 24% of the labour force live in neighbourhoods of homogenised well-being over all scales. 10% of the labour force live in areas of spatially homogenous low well-being. **Paper 2** explores the variation in internal well-being between sociodemographic neighbourhood types in relation to attitudes towards the neighbourhood. Linear regression shows that migrant-dense, socioeconomically deprived neighbourhoods are associated with lower well-being. This association disappears when attitudes towards the neighbourhoods are included. **Paper 3** explores the development of external well-being around the time of moving among various types of movers. Fixed effect growth curve models find that ethnic minorities and long-distance relocators have a long-term decrease in well-being after moving. Ethnic minorities already have a decline in well-being before moving, which might suggest a tendency for forced relocations.

It is concluded that well-being is spatially sorted at the neighbourhood level: a geography and demography of low well-being can be observed to answer the ‘where’ well-being is spatially sorted. The geography of low well-being refers mainly to migrant-dense areas built during the Million Homes programme at the edge of cities. The demography of low well-being refers to non-European migrants consistently having lower well-being. Regarding ‘why’ well-being is spatially sorted indications are found for both sorting effects, through the differences in well-being around moving, and neighbourhood effects, through the difference in neighbourhood appraisal.

Keywords: Segregation, Neighbourhood, Well-being, Human Geography, GIS

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Voor Pake en Beppe, wiens
levenslange harde werk dit mogelijk
heeft gemaakt

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Uppsala, April 2025

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

I Westra, G.H., (2024) Segregation and Well-Being in Sweden: Geographies of Well and Ill-Being. *Population Space and Place*, 30(5)

II Westra, G.H., Haandrikman, K. Spatial Sorting of Well-Being in Sweden: The Role of Attitudes towards the Neighbourhood and Neighbourhood Type. *Unpublished manuscript undergoing minor revisions for Tijdschrift voor Economische en Sociale Geografie.*

III Westra, G.H. Residential Relocations, Well-Being, and Moving Characteristics. Divergences between Distance and Ethnicity. *Unpublished manuscript submitted to an international peer-reviewed journal.*

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1. Introduction

Occurrences of spatial sorting, the emergence of a differential residential pattern among, for example, socioeconomic and ethnic—in the European context, normally individuals of an ethnic minority due to their migrant background—groups, has been the cause of considerable anxiety in European societies. A central explanation is that socio-spatial inequalities are associated with reduced social cohesion (Cassiers & Kesteloot, 2012). For instance, areas where ethnic minorities with a migrant background are sorted into have been termed parallel societies (Henley, 2022), 'holes in society', and 'ghettos' (Lundsteen, 2023) by the media and politicians. These terms illustrate how ethnic segregation—the spatial polarisation of ethnic minorities—is often considered to impede integration into society (Bolt, 2009; Musterd, 2003).

Although the relationship between integration and ethnic segregation is more complicated than that (Musterd, 2003), there are some negative consequences of ethnic segregation, mostly for the migrant groups being spatially sorted. For example, ethnic segregation is associated with divergences in school results (Andersson et al., 2010), reduced economic opportunities (Andersson et al., 2007), and marginalisation (Malmberg et al., 2013). Similarly, socioeconomic spatial polarisation is associated with negative outcomes for individuals sorted into economically marginalised areas. Growing up in a socioeconomically deprived area, for instance, is associated with increased poverty later in life (E. K. Andersson & Malmberg, 2018) and reduced upward social mobility (Chetty et al., 2020; Musterd & Andersson, 2006). It is thus unsurprising that spatial sorting is widely perceived as something that should be avoided.

This debate has affected Sweden as well; since the 1970s, socioeconomic sorting has emerged in the public agenda (E. K. Andersson & Malmberg, 2018) and ethnic spatial sorting entered the political and academic debate in the 1990s (Grundström & Molina, 2016). Some factors make Sweden stand out, although the level of spatial segregation, not socioeconomic nor ethnic, is not higher than other similar European countries (E. K. Andersson et al., 2018) and

much lower than the levels of spatial sorting found in the US. Firstly, since the 1990s, Sweden has had a high intake of migrants. Sweden can consequently be termed a migrant society, with 15% of the population having a migrant background (Malmberg et al., 2018). Secondly, Sweden has also had rising income inequality (The Lancet Regional Health-Europe, 2023), which is bound to be reflected in an increased spatial polarisation as well. Indeed, it is a well-attested fact that people are sorted into different neighbourhoods in Sweden. As a consequence, a societal fabric develops where different people live in different places and are, therefore, exposed to different environments, social contexts, and exposures. These have been attested to lead to differences in life courses as illustrated through the previously mentioned examples of how spatial sorting affects individual outcomes. It is unsurprising, then, that the spatial sorting of people has been a topic of interest both in research and society at large.

Nevertheless, how well-being—the everyday capability to live a healthy, meaningful, or satisfactory life—is influenced by the neighbourhood or contributes to this spatial stratification has been rarely studied. The neighbourhood should matter for well-being: it is the primary anchor of daily life. The centre of our neighbourhoods is the residence: where we return for sleep and, consequently, start the day; and where we eat two meals most days (Hägerstrand, 1986). In other words, well-being is the capability to live a 'good' life; a sizeable part of that life is lived and takes place in the neighbourhood.

In recent decades, the topics of well-being, quality of life, and happiness—terms that all relate to this capability to a 'good' life—have received increased attention within the social sciences (Clark et al., 2018; Smith & Reid, 2018). The geographical dimensions, distribution, and underlying sorting processes of well-being have been a topic of study as well (Smith & Reid, 2018; Ziogas et al., 2023). At the same time, there is increased attention to geographies of unhappiness. For instance, Rodríguez-Pose (2018) has argued that economic stagnation leads to discontent expressed in voting patterns, although the connection to actual well-being is strenuous (Koeppen et al., 2021) and there is coarse geographical resolution. Some studies that look at the actual spatial variation of well-being have been conducted, as well. However, few studies have been undertaken with a sufficiently detailed spatial resolution that focuses on the neighbourhood.

When the neighbourhood is considered as the spatial unit for well-being, it often concerns one particular aspect of the neighbourhood, such as the income of neighbours (Knies et al., 2021; Luttmer, 2005; Rijnks et al., 2019) and the ethnicity of neighbours (Knies et al., 2016),

or amenities (Rijnks et al., 2019) rather than a spatial sorting inquiry focus. Other studies use a low-detailed spatial resolution. For example, Goetzke and Islam (2016) use large multi-state census regions that split the US into nine regions, and Lin et al. (2013) use nation-states. Even more spatially detailed studies rarely have more detail than the city level, e.g. Hong and Park (2021) compare neighbourhood effects of proximate cities. Consequently, little is known of the distribution of neighbourhood-level well-being and there are few explanations for the underlying mechanism (Ziogas et al., 2023).

The neighbourhood is the prism through which many of the factors and exposures that underly well-being are spatially constituted. For instance, many studies find a positive relationship between factors in the direct environment and self-reported well-being, such as exposure to green and blue space (Douglas et al., 2017; Fleming et al., 2016; Smith & Reid, 2018). Similarly, the morphology of the built environment has been found to affect well-being (Chen et al., 2023). In other words, the different exposures should not only matter for the aforementioned economic and educational aspects but are also likely to affect individual well-being.

Beyond a direct relationship between the physical neighbourhood and well-being, other factors that are associated with well-being are unevenly distributed among neighbourhoods. The aforementioned socioeconomic and ethnic sorting could be of importance, for example. The sorting among socioeconomic lines is crucial, as both income and labour status are tied to well-being: being employed and relatively wealthy generally are associated with increased self-reported well-being (Clark et al., 2018). Through mechanisms of housing prices and institutional barriers on the housing market, neighbourhoods with more benign morphologies and dwellings of higher quality might be available to ethnic majority groups and higher socioeconomic classes (Andersson et al., 2010). As such, with socioeconomically and ethnically segregated cities, a variety of several levels of neighbourhood well-being can be expected.

From the perspective of homophily—the preference for living among similar neighbours—some people might want to live close to those of similar class, ethnicity, or life course as a goal in life and thus have higher well-being in a homogenised neighbourhood. Contrastingly, being close to different groups might have a negative impact. For instance, from research on social frontiers, areas in which two different subgroups live in geographical proximity but are not mixed, exposure to other groups can have adverse effects through this confrontation of otherness (Iyer & Pryce, 2024). Consequently, there may be a

positive influence on well-being with spatial sorting of socioeconomic and ethnic minorities (Montero et al., 2021). However, living in areas where people are less able to live meaningful lives might have adverse neighbourhood effects. For instance, unequal societies, where the chance of spatial socioeconomic inequalities also increases, are less healthy (Pickett & Wilkinson, 2015) and have lower trust (Rothwell, 2012; Ziller & Spörlein, 2020). Community resources, similarly, might be less available in deprived areas. Thus, there are many pathways between individual well-being and the neighbourhood and neighbourhood composition. Nevertheless, most studies of the effects of living in, growing up, or moving into socioeconomically or ethnically homogenised neighbourhoods are rarely assessed in terms of well-being. An advantage that measures of well-being have over these approaches is that they assess life as a whole, taking into account these economic approaches, as well as possible trade-offs in housing quality.

Besides a spatial distribution of well-being as a neighbourhood effect, another pathway could be a spatial sorting of unwell people into certain places. If well-being is understood as a form of utility, individuals who are well might be more successful economic actors overall: they could leverage their extra utility to obtain more beneficial spatial outcomes. For example, higher well-being is associated with increased career success (Walsh et al., 2018), higher wages (Graham et al., 2004), and a higher likelihood of marriage (Grover & Helliwell, 2019), which could result in specific spatial outcomes.

Conclusively, despite potential pathways between well-being and the neighbourhood, the spatial distribution of well-being has rarely been studied at spatial resolution in more detail than at the regional level. Moreover, the link between ethnic and socioeconomic segregation and well-being has consequently rarely been studied. This has led to a lack of explanations for patterns of spatial distributions of well-being and how the sorting mechanism of well-being takes place.

Research Questions and Aims

In this thesis, I fill this gap by exploring the spatial sorting of well-being. The aim of this dissertation is to explore how well-being is spatially sorted, in particular where and why well-being is spatially sorted. The ‘where’ in this aim refers to the extent to which well-being is spatially sorted, whether there is a landscape of spatially differentiated well-being, and where these are located. Besides the absolute spatial distribution of well-being, the spatial variation between types of places is also

explored. For example, the demographic differences between high- and low-well-being places are investigated. In addition, special attention is paid to the spatial reference and the definition of the neighbourhood. For instance, a neighbourhood can be seen as the area with our immediate closest neighbours, i.e. an individual and their 20 nearest neighbours, or a predefined territory with boundaries, an area often known by a name such as Manhattan, Östermalm, or Kensington (or Harlem, Rinkeby, and Brixton, if one prefers less posh examples). The 'why' in this aim refers to understanding the mechanism behind the spatial sorting: whether there are places of low well-being because of features of the neighbourhood or because less well people are moving into these places. Moreover, throughout the entirety of the dissertation, the spatial sorting of well-being is discussed concerning causes, processes, and outcomes to better-explored dimensions of spatial sorting, such as ethnic and socioeconomic spatial sorting. Therefore, this work has the purpose of clarifying well-being research in the main stage of daily life: the neighbourhood. Moreover, I intend to complement residential segregation by adding a dimension more focused on everyday life in the form of well-being.

The research questions for the thesis are:

1. To what extent and at what scales is well-being spatially sorted?
2. How does the spatial sorting of well-being relate to the experience of the neighbourhood?
3. How does spatial mobility between neighbourhoods reproduce the spatial distribution of well-being?

The dissertation consists of three papers. In Paper I, I explore spatial patterns of well-being for all of Sweden and relate these patterns to previously found levels of socioeconomic and ethnic segregation. In Paper II, the relationship between internal well-being and the sociodemographic profile of the neighbourhood and attitudes toward the neighbourhood is explored. Finally, Paper III examines how residential mobility affects the well-being of individuals. It is one of the first studies to connect residential relocations to well-being, with particular attention to life-course characteristics as opposed to treating relocation as a homogenous event. Taken together, these papers provide an examination of the spatial sorting, spatial resolution, and demographic differences in well-being, finding a geography and demography of well-being.

Contributions

The dissertation makes two major contributions stemming from the discovery of an unequal distribution of well-being: a geography of well-being and a demography of well-being. Firstly, the work illustrates that well-being is spatially sorted, particularly at the most detailed neighbourhood level. Thus, there is a geography of well-being: certain places have higher well-being and other places much lower. These findings of neighbourhood-level differences contribute directly to the aforementioned deficiency in studies of well-being at a sufficiently granular spatial level (Weckroth et al., 2022; Ziogas et al., 2023), revealing that important variation takes place at levels that have been hitherto rarely explored. In addition, it is revealed how the patterns of spatial sorting overlap with ethnic and socioeconomic patterns of segregation. Secondly, the research shows that ethnic minorities, i.e. people with a migration background tend to have lower well-being whereas Swedes without a migration background have higher. This is what is referred to with a demography of well-being: certain demographic groups have more capability to live a pleasant, healthy, or meaningful life than others. This connects to previous findings that find that migrants have lower well-being (Arpino & de Valk, 2018; Safi, 2010) but adds a specific spatial element to these findings by tying it into spatial sorting studies.

The work in the dissertation provides some additional potential explanatory avenues, although it should be cautioned that none of the studies has had a causal research design. Whereas previous spatial explorations of well-being have focused mostly on urban-rural divides and institutional factors (Weckroth et al., 2022; Ziogas et al., 2023; Ziogas & Konstantinis, 2024), exploring the spatial sorting angle provides new insights from an already well-established field of neighbourhood effects. In particular, various explanatory mechanisms are explored; neighbourhood effects approaches, for instance, are explored through mechanisms such as attitude towards the neighbourhood (in Paper II). Alternatively, sorting mechanisms through the life course transition of residential relocation are studied as a potential explanation (in Paper III).

In the dissertation, two operationalisations of well-being have been used. Self-reported ‘internal’ approaches and more proscriptive ‘external’ approaches. To do so, the dissertation draws on a range of data sources, combining statistical power, large samples (virtually the entire Swedish labour force), and the unique qualities of the Swedish population register to estimate the overall distribution of well-being with smaller representative surveys that contain attitudes to life and the environment. While many studies of spatial well-being suffer from sample

sizes that are too small for spatial analysis (Weckroth et al., 2022), this operationalisation of the registers allows for an estimation of well-being for a very large sample and more fine-grained spatial analysis.

As such, various operationalisations of the neighbourhood are included. These range from solely the direct neighbours to more city-wide measures. Also covered is the scope from bespoke, ego-centric neighbourhoods, such as the concept of the nearest neighbours discussed in the previous section, to land-based administrative statistical neighbourhoods, such as the territorial approach previously discussed. Previous studies of neighbourhood well-being have mostly focused on these territory-based neighbourhood types (e.g. Fleming et al., 2016; Phelps et al., 2023; Ziogas et al., 2023); when it is used (e.g. Knies et al., 2021), it differs from it is in a manner different than the standard bespoke practice (Amcoff, 2025). Nevertheless, as Knies et al. (2021) note, 'it would seem reasonable to expect many different scales to be important for individual wellbeing [*sic*]' (p. 2642). Thus, the work in this study explores these various scales to contribute to the understanding of scale in well-being.

Besides various understandings of scale and neighbourhood, the dissertation also features various classifications of space. Three varieties ranging from administrative classifications of municipality types to more complex data-driven sociodemographic profiles are used. Moreover, how these places relate to each other is studied. Doing so, the neighbourhood composition is assessed holistically rather than just one aspect such as economic or ethnic composition done in previous studies (e.g. Knies et al., 2021; Rijnks et al., 2019).

Structure of the Thesis

The dissertation is structured as follows. Chapter 2 discusses the theoretical underpinnings of the approaches to well-being, spatial sorting, and mobility that have informed this research. Here, I outline the fundamental distinction between internal and external well-being—the two types of well-being I have studied. Moreover, I discuss the concepts of residential segregation and spatial sorting and how residential mobility relates to these. Lastly, a brief overview of how residential mobility and spatial sorting are related to well-being is given. Then, Chapter 3 provides the Swedish context in terms of both well-being and various types of residential segregation. In Chapter 4, both data sources and well-being measures are discussed. I give a brief overview of the PLACE database and Swedish population registers in general and introduce the papers' methodologies. In this chapter, I describe the index that forms

the basis of Paper I and Paper III and compare it to the more conventional measure of internal well-being used in Paper II. Chapter 5 contains summaries of the articles, followed by Chapter 6, in which I provide a concluding discussion.

2. Theoretical Underpinnings

In this chapter, the various theoretical understandings of well-being and spatial sorting will be reviewed. Two broad approaches to conceptualising well-being will be introduced: eudaimonic and hedonic. The former are process-based ideas of well-being that stress self-actualisation and personal growth. The latter are outcome-based approaches to well-being, emphasising satisfaction with life. Following, operational approaches to outcome-based conceptions of well-being are presented: internal, eye-of-the-beholder-based approaches in which respondents are asked to rate their well-being. Moreover, external living conditions-based measures of well-being are introduced, in which meaningful living conditions are selected and measured. Subsequently, the life course is presented as a framework to understand how well-being is achieved. The life course shows that agency is warped around the spatial context, shaping well-being spatially and linking individual acts like residential mobility between neighbourhoods to collective spatially sorted outcomes. Finally, how spatial sorting happens and how it influences individuals and individual well-being is discussed, with special attention to different understandings of neighbourhoods.

Well-Being: Situating a Good Life in Time and Place

While studied for most of human history, academic interest in well-being within the social sciences was sparked mainly by Sen and Nussbaum's formulation of the capability approach (Nussbaum & Sen, 1993; Smith & Reid, 2018). A so-called 'happiness turn' (S. Ahmed, 2007; Smith & Reid, 2018) followed since, in which there has been increased attention to measuring, quantifying, and assessing places, life courses, and life course events in terms of well-being as opposed to previous approaches based more on income and GDP (Ballas, 2013; Smith & Reid, 2018). GDP has been seen as too simplistic to understand human flourishing (Scott, 2012; Smith & Reid, 2018). A key instigator of this growing unease is the Easterlin paradox. Despite a general improvement in living conditions and GDP growth during the 20th century, self-reported measures of happiness have not increased (Easterlin,

1974; Easterlin et al., 2010). As an alternative, Sen (1995) defines well-being as the capability to achieve meaningful functionings and actions. Sen has avoided giving an exhaustive list of meaningful functionings and considers these capabilities to be fluid and contingent, whereas Nussbaum sees the capability of meaningful functioning as something universal and somewhat fixed, attempting to list meaningful capabilities (Nussbaum, 1993; Smith & Reid, 2018).

These divergences between Sen and Nussbaum in listing capabilities to well-being reflect a broader trend that has emerged alongside this expansion of academic interest in well-being; the term well-being has been broadened to incorporate a more holistic perspective than the traditional, narrow (physical) health approach (Fleuret & Atkinson, 2007). Consequently, well-being has been increasingly used interchangeably with terms such as 'quality of life' and 'happiness' (Ballas, 2013). This conceptual confusion partly stems from a difficulty in defining and operationalising well-being. Arguably, the conflation between well-being, happiness, and quality of life is justified. To be well and to have a high quality of life are both questions that reflect whether a person in question is living a 'good' life. Indeed, it will be up to the researcher to decide what constitutes the 'well' in well-being (Scott, 2012; Smith & Reid, 2018). As a result, well-being is an inherently normative concept rooted in the time and place in which it is defined and measured.

Generally, hedonic and eudaimonic are two conceptual understandings of the 'well' in well-being. Hedonic approaches are outcome-based approaches rooted in utilitarian philosophy and establish well-being in immediate positive affect such as satisfaction or pleasure. Adherents of this approach define well-being as an 'absence of discomfort' (Huta, 2013, p. 202). Eudaimonic approaches, alternatively, are process-based and often assign some higher meaning to life: being well means moving towards this purpose (S. Ahmed, 2007; Smith & Reid, 2018). Huta (2013) defines eudaimonic well-being as revolving around fulfilment and achieving one's full potential. In her argument, eudaimonic well-being is about achieving Maslow's highest dimension of needs: self-actualisation. However, what this full potential might entail and what self-actualisation looks like remains unclear. Some authors stress autonomy, while others stress 'intrinsic motivation' behind activities, such as personal growth (Huta, 2013). Naturally, outcome-based approaches lend themselves best to academic empirical research and have been the most popular (Huta, 2013).

Which Outcome? Internal and External Approaches to Well-Being

Within outcome-based approaches to well-being, two approaches to measuring outcomes loosely follow the eudaimonic and hedonic perspectives: internal and external. The internal approach is rooted in hedonic concepts of well-being. Rather than defining a 'good' life, applying such an approach relies on letting research participants rate whether they find their lives to be good or satisfactory themselves. There are various ways of approaching this, but the current standard is through a single-measure question, such as: 'How satisfied are you with your life?'. Other research relies on measures that consist of indices that measure the day-to-day affect through questions such as the PANAS scale and similar indices (Jovanović, 2015), which assess the emotions felt throughout the day, such as excitement, happiness, and anxiety, or the GHQ scale (Ballas & Tranmer, 2012). This scale was developed as a screening instrument for mental health and includes questions such as: 'Have you been able to concentrate on whatever you are doing?' and 'Have you been feeling unhappy and depressed?'. The central idea of these approaches is that respondents to such questions will weigh what is important to their quality of life, sidestepping researchers' bias. In capability approach terms, life satisfaction or psychosocial stress is assumed to reflect whether one has the capability to achieve meaningful functionings, as defined by oneself.

Alternatively, the more eudaimonic internal approaches ask respondents if they can strive for self-actualisation. For example, Waterman et al. (2008) developed scales that measure hedonic and eudaimonic well-being separately: the hedonic measures focus on the satisfaction derived from actions and life, whereas the eudaimonic questionnaire focuses on the process through questions like 'This activity gives me my strongest feeling that this is who I really am' and 'I feel more complete or fulfilled when engaging in this activity than I do when engaged in most other activities' (Waterman et al., 2008, p. 51). However, these two scales have a strong correlation (Huta, 2013; Waterman et al., 2008). This somewhat favours the arguments for proponents of measures of life satisfaction: respondents can assess whether life is meaningful and will incorporate that in their assessment if they are satisfied.

The validity of the internal measures and their relationship to being 'well' are hotly debated (Kashdan et al., 2008; Ryan & Huta, 2009). Several studies point out the mathematical validity of internal well-being indices and their relationship to brain activity and facial expressions associated with feeling positive emotions (Davidson, 2000; Davidson

et al., 2000; Urry et al., 2004). Alternatively, hedonic internal approaches have been strongly criticised for separating well-being from material reality (Sen, 2012; Smith & Reid, 2018). For instance, measures of life satisfaction merely measure if expectations for life are met: someone can be doing relatively poorly and live in poor conditions but have lower expectations of life and, therefore, be somewhat satisfied. Few would agree that this person is doing well. On a similar note, Kourtit et al. (2024) argue that measures of life satisfaction excessively fluctuate and cannot reflect the appreciation of constant factors, such as the urban environment. A final, more practical drawback is that internal measures of well-being are laborious and difficult to collect. Indeed, studying internal well-being from a geographic perspective requires large-size surveys with spatial samples—preferably panel surveys. Consequently, internal well-being has rarely been explored except where such surveys exist: Germany (e.g. Erlinghagen et al., 2021; Stawarz et al., 2022), the UK (e.g. Ballas & Tranmer, 2012; Nowok et al., 2013, 2018), and Australia (e.g. Phelps et al., 2023; Wu & Bernard, 2024).

The second type of approach to operationalise well-being is external. While external approaches are also outcome-based, they are more prescriptive than internal approaches; therefore, they are somewhat closer to the eudaimonic concept of well-being. In these approaches, several states associated with being well are selected; performance in these domains is measured with a 'good' performance, suggesting high well-being (Ballas & Tranmer, 2012; Hendriks & Bartram, 2019; Voukelatou et al., 2021). In terms of the hedonic-eudaimonic divide, they are a form of middle ground. At the same time, they are firmly outcome- rather than process-based, they are more prescriptive in defining what a good life is like as they assess actual material conditions. Regarding the previous discussion about the capability approach, this operationalisation sets a list of meaningful functionings, followed by an assessment of whether they were achieved. Failure to do so assumes hindered capability to achieve meaningful functionings.

These approaches have been criticised for their explicit normativity. However, due to the advantage of being rooted in actual living conditions, they are more compatible with ideas of equity (Smith & Reid, 2018). In the case of geography, these approaches to 'who gets what where' (Smith, 1974) used to be quite popular. A disadvantage, however, is that many researchers place different importance on external states based on their norms and notions of being well, generating many competing indices. Consequently, these approaches have fallen somewhat out of favour compared to internal approaches. However, an

advantage is the potential for more inventive uses of data sources for creating measures of external well-being other than surveys, compared to the practical limitations of internal measures.

Due to the normativity of well-being and the variance in available data sources, many external indices of well-being (Macků et al., 2020), each highlighting different things, exist. Many of these focus on regions rather than individuals. From an overview provided by Macků et al. (2020), some shared dimensions can be discerned, along with some notable spatialised approaches. Firstly, virtually all indices have a measure of income, although the exact measure differs: some simply have the GDP per capita of the region, whereas others look at median household income. Similarly, the (un)employment rate is often included. Secondly, many include an indicator of health (Macků et al., 2020). However, these measures tend to be relatively coarse: for example, many include life expectancy or the mortality rate, while some redefine health as access to health care. Thirdly, education—particularly university education in European contexts—is a common factor (Macků et al., 2020). Lastly, measures of internal well-being are sometimes included, as well as a dimension of external well-being (Durand, 2015).

Conclusively, well-being is an inherently normative concept centred around a 'good' life and achieving meaningful functionings. Whatever is considered good and what these meaningful functionings are, whether this leans more towards pleasure or fulfilment, is up to the researcher to define and is consequently contested. In operational terms, this ambiguity has been dealt with in two ways: external and internal approaches, which are far more favoured. Internal approaches, the main driver behind the 'happiness turn', centre around self-reported measures of whether life is enjoyed or, for eudaimonic approaches, of whether life is meaningful and the achievement of self-actualisation. External approaches, however, measure performance in various life domains associated with being well. Still, both approaches are within the realm of outcome-based approaches to well-being, stressing an absence of dissatisfaction or unpleasant conditions. A key question, however, is how individuals transition between and achieve these states regardless of well-being being defined as a set of positive states or the satisfaction derived from certain states. The life course approach is a successful technique for studying the sequence, timing, and occurrence of various life course states and their consequences for well-being.

Life course, Well-Being, and Mobility: Entrenching the Individual in the Neighbourhood

The life course approach is a theoretical framework used to study the timing and transitions of events and the structures of individuals' lives (Dykstra & van Wissen, 1999). The life course approach conceptualises individuals' lives as bundles of trajectories, also called careers. Careers consist of the sequences of various states—being employed, married, a parent—across multiple life domains, such as housing, family, and labour. Besides states, careers summarise life events—usually the transition between states, such as marriage, childbirth, and job displacement (Bailey, 2009). Not every life event comes with a transition between states. For example, the life event of moving comes with a clear transition in the housing career, but the ability or decision to stay put likewise shapes the life course (Findlay, A. et al., 2015). The collective whole of these concurrent bundles of careers is summarised in a biography (Bailey, 2009).

The meaning of events in a biography can be interpreted based on five principles formulated by Elder et al. (2003). Firstly, there is the principle of lifelong learning, meaning that individuals keep developing over their entire life course. Consequently, the meaning of life events and states derives from past experiences, events, and states. Secondly, there is the principle of agency: that is to say, individuals are the drivers behind the development of their life course within what is possible within the structure. Thirdly, the structure is summarised in the principle of time of place. Life courses occur in their spatial-temporal context, and any meaning is embedded in them. Fourthly, there is the principle of timing. Individuals have different outcomes from their life events depending on the timing. For example, someone who moved to Sweden as a child might have different outcomes than somebody who moved as an adult. Fifth and finally, there is the principle of linked lives: life courses occur within a network of linked life courses. The meaning of life events and even the occurrence of life events is embedded in these social networks.

All of the principles that underpin relationality naturally influence well-being. The principle of life-long learning can be reflected in internal well-being with the idea of an effect called the 'hedonic treadmill': the quick adaptation of well-being after certain life events and entering new life course states, such as marriage. As the life course progresses, understanding and expectations of life change. Similarly, the timing principle has notable importance for well-being. For instance, the meaning of childbearing for well-being can significantly differ depending on

where it is in the life course, i.e. as a teenager versus later in life. The principles of agency and time and place are particularly crucial to understanding well-being in this research, as they relate to spatial sorting. The principle of agency means that individuals are the principal actors shaping well-being by both deciding where to live and achieving that well-being. However, as reflected in the principle of time and place, there are limits to individual agency: not every individual is satisfied with their life, nor does every individual achieve the highest levels of external qualities in life.

An approach that closely reflects the principle of time and place and its relationship with the principle of agency, despite not being connected to the life course approach explicitly, is Galster's (2012b) notion of opportunity structures[1]. The framework is used to explain how the opportunities and possible decisions available to each individual to improve their socioeconomic status are warped by, on the one hand, intangible personal characteristics and, on the other, the spatial structure of the neighbourhood where they live. In fact, Galster (2012b) understands that neighbourhood characteristics such as the social structure and local institutions, combined with jurisdictional factors such as education and healthcare and broader regional factors unique to the metropole, create opportunities. These opportunities are mediated through the unique permanent characteristics of the individual, such as their age and ethnicity. This results in achieved life course outcomes—socioeconomic status in his example—although well-being could also be placed there. As a result of how opportunities fold among the urban landscape, individuals have different opportunities to improve their well-being based on where they live. However, if two different individuals make the same decision, the results might differ based on their opportunity structure. Crucially, these opportunity structures tend to benefit affluent and ethnic majority households (Galster & Hedman, 2014). In addition, besides spatial and individual factors, the opportunity structure is also influenced by linked lives in Galster's model through the socioeconomic status of parents and partners, leading to the last life course principle. Similarly, events in linked life courses might influence the individual well-being of individuals: a partner receiving a promotion and increasing their income might lead to higher well-being or a child leaving the parental house might reconfigure the derived quality of housing for the parents (in either direction).

All these principles can be summarised into the central concept of the life course approach of relationality: the trajectories and events

[1] Referred to as urban opportunity structures by the author, although there is nothing inherently urban about the concept.

taking place in these trajectories are embedded in their socio-temporal and institutional contexts (Bailey, 2009). On the micro-level, this means that life courses are linked: life events that occur in the life course of family members, friends, and neighbours reverberate into the structure, timing, and meaning of individual life courses. On a macro-level, the life course is embedded in the economic, historical, and institutional context (Coulter et al., 2016). For example, someone's labour career is embedded into the local labour market. The life course is also relational to itself, expressed through, among others, turning point life events. These events open up and close off opportunities in other careers (Piccarreta & Studer, 2019). For example, a residential relocation is often induced by an event in another life course career, such as job displacement, marriage, or childbirth (Wimark, 2020). Similarly, as lives are interdependent, key events in one life course trigger events, open up opportunities, and close off potential trajectories in the life courses of linked lives, such as children, partners, or other social relations (Coulter et al., 2016). As such, the life course can be understood as in constant flux through the dynamic sequence of life events, life course states, and the continual reconfiguration of these careers with the greater social and institutional context (De Vuijst et al., 2016). Consequently, while the 'being' in well-being suggests a static equilibrium, the principles of the life course instead reflect a dynamic state in which the conditions in life are constantly reassessed and recalibrated.

With these influencing principles, well-being can be given a variety of places within the life course (Veenhoven, R., 2000). However, it is mainly considered as either a form of (mental) health—a career in itself—or a measure of utility: some general level of success of the life course (Layard et al., 2014) or the extent to which an individual has been able to achieve their life course aspirations, in particular for studies regarding internal well-being. In external well-being studies, the health dimension is often coarsely measured, potentially limiting the usefulness of such measures to assess health. Moreover, the utility argument becomes important to the previous discussion on how there tends to be a group of unsatisfied individuals or groups who do not meet conditions associated with well-being. In fact, well-being can be seen as the extent to which individuals have managed to leverage their agency through the opportunity structure.

If well-being is seen as a career, life events in the life course can be categorised into two types according to the set-point concept. This approach starts with the assumption that individuals have a baseline of well-being, set by factors such as character traits and childhood (Diener et al., 2018; Layard et al., 2014). Life course events of the first type

cause deviations in well-being from this baseline, some of these deviations are only temporary as the individual adapts to their new life course state through the aforementioned 'hedonic treadmill'. Nevertheless, the second type of life event has been shown to have lasting impacts on well-being, permanently changing the baseline (Diener et al., 2018; Plagnol, 2010).

Baseline Setting and Baseline Moving Events

Several empirical studies have been undertaken to explore these baseline-setting and baseline-moving events, particularly with studies relying on life satisfaction. Life course studies of life events of particular importance can be categorised into three careers: labour, health, and family (Plagnol, 2010). From geographical studies, the careers of housing and the neighbourhood—in particular, access to amenities—and the greenness of the environment are added (Clapham et al., 2018; Rijnks, 2020; Smith & Reid, 2018). What follows is a brief overview.

Firstly, the relationship between income and life satisfaction is hotly debated within the labour category. Nevertheless, relative income is structurally found to be important for individual life satisfaction but with marginal returns (Ballas, 2013; A. Clark et al., 2018; Diener et al., 2018). Similarly, employment is found to be a strong predictor of well-being; put differently, or rather unemployment is a strong predictor of ill-being, well beyond changes in earnings (A. Clark et al., 2018; Diener et al., 2018; Layard et al., 2014). Secondly, health is such a crucial factor in well-being that they are used interchangeably by some. In particular, chronic ill health and self-rated health are found to be strongly related (Plagnol, 2010). Related to health, the relationship between age and well-being is found to be U-shaped, with the lowest point around middle age (Diener et al., 2018; Plagnol, 2010). Thirdly, on the family front, partnership is usually significantly associated with life satisfaction. However, the duration of the found relationship is relatively brief. Similarly, divorce is associated with a small decrease preceding or following the event, with quick restoration (Grover & Helliwell, 2019; Soons et al., 2009). Fourthly, in terms of housing, two of the aspects that are found to matter are tenure and quality. The relationship with the latter is quite clear: higher quality leads to higher life satisfaction. However, the relationship with tenure is more inconsistent (Clapham et al., 2018). Fifth, the level of amenities is found to matter. For example, Rijnks (2020) finds that access to four amenities has moderate effects on well-being: food retail, hospitality (hotels and restaurants), education, and healthcare facilities (Rijnks, 2020).

Sixthly, for the environment, access to green and blue spaces has a wide array of positive impacts on well-being (Smith & Reid, 2018).

In sum, regardless of whether (internal) well-being is seen as an overall measure of the utility of the life course or a career in itself, it fluctuates constantly as events and transitions occur in other careers. Some life course states and events are robustly found to change (internal) well-being. Crucially, some of these states and events are explicitly spatial thus establishing a clear spatial dimension to well-being. For instance, housing is the anchor point to the neighbourhood and access to housing is one of the key mechanisms in spatial sorting. Similarly, the level of amenities and greenness expressed in the neighbourhood career illustrates how it can be expected that the sorting of life courses leads to differences in neighbourhood-level well-being. Having established the spatial dimension to both the individual life course and well-being, understanding how individual life courses and life course events constitute a spatially sorted landscape is crucial, along with how these well-being-related careers' spatial sorting leads to a differentiated distribution of well-being among neighbourhoods. Although this section has discussed the physical qualities of the neighbourhood in relation to well-being, the relationship between the sociodemographic composition of the neighbourhood needs to be established as well.

Spatial Sorting in the Life Course: Mobility and Well-Being

The findings set out in the previous section reflect how individual well-being is constituted over the life course. As the life course is embedded in the macro-level context through the principle of time and place, it is a useful framework for understanding spatial sorting and the relationship of spatial sorting to well-being as well. Spatial sorting is the macro-level outcome of micro-level decisions (Musterd, 2020) in several life course careers: housing or residential mobility (W. A. V. Clark, 2012) and differences in natural growth between demographic groups caused by differences in childbearing and partnership careers (Finney & Simpson, 2009). The housing and neighbourhood careers reflect moves within and between neighbourhoods to maintain and change the spatial distribution of different populations (Hedman, 2011), such as less well populations. While natural growth between neighbourhoods can explain differences in the concentration of ethnic minorities, it is unlikely that this is a sorting mechanism behind well-being.

The decision to move is often assumed to originate from a disequilibrium: someone moves once their needs or capabilities in terms of

housing, neighbourhood, and the environment are no longer matched (Clark, 2012; Coulter et al., 2016). Several factors determine the destination of the move, ranging from information about available locations, previous experiences, and the aspirations of an individual (Coulter et al., 2016). The notions of unmatched needs seem neutral, but the mismatch in capabilities should be stressed. For instance, it can entail the choice between moving to suboptimal housing or daily necessities (Clark, 2016). Moreover, in some cases, there is no 'choice' as structural forces evict individuals or make life unaffordable through processes of urban renewal and gentrification.

Along those lines, structuralist approaches to residential mobility focus on the macro context, i.e. the opportunity structure. They argue that individuals move because of macroeconomic differences between regions. Moreover, structural factors create an opportunity structure in which the decision to move or stay is continuously assessed. These structural factors are understood to give more opportunities or agency regarding staying and moving powers (Galster & Hedman, 2014; Hedman, 2011). Consequently, these individualised approaches have increasingly come under scrutiny. For example, a growing body of literature illustrates the broader neighbourhood influences moving and staying behaviour (Hedman, 2011). Nonetheless, most movers in the Nordics move out of their own volition (according to themselves), and many non-economic factors are found to affect the rate of relocations, such as social networks and familial ties (Lundholm et al., 2004; Niedomysl, 2011). However, these are also naturally part of the opportunity structure. Whether macroeconomic forces or life course aspirations force this move, the link between well-being and the neighbourhood is clear: a move comes with a recalibration of environmental exposures, new direct social contacts, new housing and, in the case of longer moves, new employment. Given the different opportunity structures that people have, it is likely that these impacts differ between various life courses.

The relationship between (internal) well-being and residential mobility between neighbourhoods is not as straightforward as the previously described domains such as labour, partnership, and health. The current state of the field has been predominantly occupied with long-distance mobility. In these studies, some form of a positive association is generally found (Erlinghagen et al., 2021; Nowok et al., 2013; Switek, 2012). An unclarity that remains is the timing of the effect. Nowok et al. (2013) find a negative association for years preceding relocations, a post-move return to old levels, and a more complete restoration for long-distance movers. Sloan and Morrison (2015) find that

adaption within a year of moving to the new location. Moreover, some cross-sectional studies report a significant positive result post-move (Mao & Wang, 2020; Switek, 2012) Besides the timing, the effect's duration is also unclear; Erlinghagen et al. (2021) report a lasting positive impact for all moving distances. On the other hand, Nowok et al. (2013) and Sloan and Morrison (2015) find temporary associations, namely negative anticipatory associations. It is unclear if gender matters in the relationship between well-being and moving; Erlinghagen et al. (2021) find no difference. However, Magdol (2002) finds significant moving stress only for women. For household migration, while it was found that female partners are often tied movers (Cooke, 2008), this is not reflected in significant differences in well-being (Mao & Wang, 2020; Nowok et al., 2013). Lastly, repeat mobility is found to have a negative association with well-being—particularly serial migration—whereas return migration has more moderate associations (Wu & Bernard, 2024).

Conclusively, the life course approach enables understanding the timings and transitions of various aspects of an individual's life as they are entrenched in time, space, and social context. Moreover, the life course provides a framework for how micro-level decisions, such as moving, amount to macro-level spatial sorting. Concerning spatial sorting, the tension between the principle of agency and the principle of space and time is particularly important While individuals are the primary instigators in promoting their well-being, their agency is limited by the institutional and social context. The concept of opportunity structures has been used to show how time and place particularly warp the opportunities and life course outcomes that individuals have, particularly regarding their residential career. A set of life course domains has been robustly found to be important for well-being: labour, family, health, housing, amenities, and the environment. For movement between places, the life course event is most clearly linked to spatial sorting, the picture is somewhat unclear, however. Nevertheless, most studies find a positive return regarding well-being to moving in one form or the other, although the duration, timing, and universality are unclear.

Spatial Sorting and Neighbourhood Effects

The spatial sorting of certain life courses that are related to internal well-being or that are considered socioeconomic factors constituting well-being in some external well-being studies has been extensively studied in the form of studies on residential segregation. Besides

socioeconomic segregation, ethnic segregation and other demographic factors, which tend to be considered less often in well-being studies, have also been studied as dimensions of residential segregation. This sorting and residential segregation of different populations into different places gained prominence in the 1980s and has had increased attention in the Swedish context since the 1990s.

Residential segregation is usually understood as the spatial concentration of the residences of one sociodemographic subgroup in particular neighbourhoods. These staying and moving behaviours are caused by two types of factors affecting the individual opportunity structure (E. K. Andersson & Fransson, 2008). Firstly, there are factors internal to the sociodemographic subgroups, such as a tendency to homophily or a preference to be near certain facilities (e.g. religious sites). While tendencies of homophily might be perceived as innocuous, even mild homophily can result in a strongly segregated landscape (Petrović et al., 2024; Schelling, 1971). Also, traits intrinsic to a group can lead to social sorting: for example, many Swedish municipalities use a seniority-based queue to access affordable rental housing. As migrants have spent less time in the country, they have fewer credits in this queue and, therefore, have fewer options than their peers (Scarpa, 2024). Secondly, characteristics outside the subgroup, such as stigmatisation and discrimination, limit certain individuals' opportunity structures. For example, racist stereotypes can lead to majority groups leaving and avoiding relocating to specific neighbourhoods (Andersson, 2013; Skifter Andersen, 2017) in phenomena called 'white flight' and 'white avoidance'. Moreover, institutional factors such as barriers to the housing market can lead to further sorting. For example, Ahmed & Hammarstedt (2008) find that individuals get different responses to bids on housing based on their demographic characteristics such as gender or if they have typical Swedish names.

The two different causal pathways can be summarised into two hypotheses: the ethnic preferences hypothesis posits that white avoidance and white flight result from the homophily and ethnic preferences of the ethnic majority. Alternatively, there are well-being-based explanations in the racial proxy hypothesis which posits that the difference in settlement patterns reflects differentials of the variance in opportunity structures; there are differences in socioeconomic status, insider knowledge, and institutional power between the ethnic majority and minority (Dekker, 2012). Consequently, the ethnic majority is better able to leave and avoid less desirable neighbourhoods characterised by, for instance, housing quality, social structure, and amenities. To relate this discussion of structural and aspiration-based approaches to residential

mobility, the former emphasises the factors outside a demographic group, such as institutional barriers. In contrast, the latter might put more emphasis on within-group elements, such as preference and homophily.

The demographic subgroups created by researchers can be categorised into three dimensions (Bråmå & Andersson, 2020): socioeconomic subgroups, such as those at risk of poverty; ethnic minorities, such as migrant populations; and demographic subgroups, which is a rather strange categorisation as ethnicity is also a demographic grouping. Instead, it seems to be a miscellaneous category for demographic factors that do not fit ethnicity and socioeconomic status such as spatial sorting among age (Andersson & Kährik, 2015). Unsurprisingly, this miscellaneous grouping has received less attention than the ethnic and socioeconomic categories (Bråmå & Andersson, 2020).

The individual outcomes of living, growing up, or spending time in a homogenised neighbourhood are studied through the studies of neighbourhood effects (Hedman & Galster, 2013). In his seminal chapter, Galster (2012a) identifies four categories of mechanisms behind the influence of the neighbourhood on individual outcomes: geographical, such as the accessibility and relative location of the neighbourhood; institutional, such as stigmatisation or regeneration programmes; environmental, such as exposures to green space or pollutants; and social interactive, such as social norms and social networks. These four mechanisms create something akin to a dose of medicine, which is the neighbourhood effect. The composition of the effect, the exposure, and the dosage-response relationship are crucial.

There are multiple theoretical pathways in how these mechanisms of neighbourhood effects could relate to well-being. For example, employment and relative income—something that is either seen as a state of being well or deeply linked to internal well-being—can be both a result of social networks and institutions or a result of a process that affects their chances of employment. All these factors relate to well-being: the aspects of well-being that relate to employment and income. Factors affecting well-being, such as partnership formation and dissolution, are also affected by social interactive neighbourhood effects. Factors related to the amenities and healthiness of the environment are distributed through environmental neighbourhood effects. Lastly, institutional mechanisms obviously affect health, but potentially also well-being (Ziogas et al., 2023). Conclusively, well-being theoretically fits well into the framework of neighbourhood effect studies; however, its precise role in the process remains unclear.

The Scope and Scale of the Neighbourhood

Both in studying the level of segregation and its outcomes in terms of well-being, the question of scale and operationalisation of the neighbourhood is a vital matter. For example, Galster (2012a), using a metaphor of a dosage of medicine, stressed the importance of the scope of the neighbourhood effects. Similarly, the fact that patterns can vary considerably depending on how aggregating units are drawn, the Modifiable Area Unit Problem (henceforth referred to as MAUP), as formulated by Openshaw (1984), has been well documented. Nevertheless, many segregation studies have found themselves limited to using whatever available measure of a neighbourhood (Andersson & Kährik, 2015). These 'off-the-shelf' conceptualisations are often provided by national statistical agencies, but they do not necessarily accurately fit the scope of segregation and neighbourhood effects. For instance, it can be argued that individuals do not function on one scale: the idea of a single-scale neighbourhood unit affecting an individual is increasingly challenged (E. K. Andersson & Malmberg, 2015; Wimark et al., 2020). In a particularly Swedish example, Amcoff (2012) finds that small market area statistical areas (henceforth referred to as SAMS), a neighbourhood definition commonly used for segregation studies (e.g. Andersson, 2013; Andersson et al., 2007; Bråmå & Andersson, 2020), are particularly ill-suited for studying neighbourhood effects. Since then, Statistics Sweden has created a new type of neighbourhood: DeSO (*Demografiska statistikområden* [demographic statistical area]). These areas had a population between 600 and 2,300 residents in 2018; the borders are drawn around voting districts and supposedly take physical urban barriers, such as major roads, into account for their demarcation. Crucially, these areas never have been and (are likely never will be) used as a unit in planning procedures (Alm Fjellborg, 2018).

As an alternative, there is the practice of using individual bespoke (sometimes called ego-centric) operationalisations of the neighbourhood. This approach defines the neighbourhood as an area around the individual as a point of departure rather than a pre-set area that individuals live in. Bespoke neighbourhoods are created for each individual of the study population with either an increasing unit of land, so each individual is surrounded by a neighbourhood of the same area of land or an expanding buffer until a *k* number of neighbours is met (Macallister et al., 2001), so every individual has a neighbourhood with the same number of neighbours (Östh et al., 2015) (henceforth referred to as *k*nn [*k* nearest neighbours]). An advantage of the bespoke areas is that this method makes it easier to include a variety of levels of scale. This way, the interplay between various scales can be explored, and it is more

likely that the most impactful scale will be appropriately assigned. From the specific point of well-being, it can also be further argued that people compare themselves to their neighbours rather than that they compare themselves to the mean of a territory.

There are also some drawbacks to bespoke neighbourhoods. First, they are blind to physical, e.g. impassable highways and social barriers, a social frontier (Amcoff, 2025; Dean et al., 2019). In particular, the land-based bespoke neighbourhoods are in fact just rather crude buffers due to their directional blindness (Petrović et al., 2022). This is problematic considering that human activity spaces rarely take the same perfect circular approach as bespoke neighbourhoods. Second, they are functionally blind. Because *k*nn is resident-based, it does pay attention to the particular functional structure of the neighbourhood: many buildings in some neighbourhoods provide a vital feature of the neighbourhood and generate subsequent neighbourhood effects. In contrast, some other neighbourhoods have barely any non-residential buildings. A third drawback of bespoke neighbourhoods that is also a consequence of them being resident-based is that many actors in the neighbourhood do not reside there but still play vital roles (Amcoff, 2025): kids go to school in different neighbourhoods, and travellers pass through. In that sense, bespoke neighbourhoods also may not reflect the social functional aspects of a neighbourhood well.

Some have argued that bespoke neighbourhoods are, to a varying extent, an effective way of dealing with MAUP or even solving it (Amcoff, 2025). This is debatable, regardless of the method used for creating bespoke neighbourhoods. If methods of creating bespoke neighbourhoods through population are chosen, the levels and increment of population will influence the result. Moreover, the neighbourhoods will not cover comparable landscapes depending on location: 100 people in a city is just a couple of flats, while 100 people in northern Sweden is the whole village. This not only holds for urban-rural dichotomies, but the urban structure also greatly differs, thus refuting the idea that the chosen *k* represents a 'true' neighbourhood over the entire locality. The same argument applies to bespoke neighbourhoods based on area, where the population counts will differ vastly between bespoke neighbourhoods in rural areas versus urban. Another factor that strongly refutes claims of victory over MAUP is that most bespoke neighbourhoods require grid-based inputs to aggregate spatially (Amcoff, 2025). Naturally, the size of the cells in the grid will affect the level of detail possible (Amcoff, 2025; Nielsen & Hennerdal, 2017). Despite these drawbacks, bespoke neighbourhoods have provided the ability to nuance findings of segregation substantially and to explore multiple fine-

grained scales that are more detailed than many territory-based neighbourhoods.

In summary, how a neighbourhood is defined matters for distributions that are found and for the accuracy of the subsequent neighbourhood effects. As I have illustrated, there has been a shift towards multiscalar approaches, often using ego-centric bespoke neighbourhoods. While these approaches allow for greater sensitivity to scale, MAUP remains a persistent problem. Moreover, bespoke neighbourhoods can be blind to physical, social, and functional qualities. While it has been found that the scope and scale matter for the theoretical pathways between the neighbourhood, most spatial well-being studies still rely on 'off-the-shelf' administrative demarcations.

Neighbourhood, Neighbourhood Composition, and Well-Being

From the connections made in the neighbourhood effects studies, the role of well-being in this process can be envisioned both as a neighbourhood effect resulting from other types of segregation or as a form of segregation in itself. For instance, the aspects of well-being that relate to employment and income can be both a result of social networks and institutions and a result of a process that affects their chances of employment. Similarly, partnership formation and dissolution, which affect and are affected by well-being, are also influenced by social interactive neighbourhood effects. The influence of amenities and the healthiness of the environment on well-being is shaped by the exposure to environmental neighbourhood effects. Lastly, institutional mechanisms obviously affect health and potentially well-being too.

Despite this theoretical connection, the studies of spatial sorting of well-being are, as mentioned, relatively scant. There is a small section of studies, however. For socioeconomic effects, Ballas and Tranmer (2012) find considerable British census district-level variation in well-being, but little impact from district-level factors. Using English Lower Super Output Area (LSOA, 1,000–1,500 residents), Houlden et al. (2024) find that living in a 'left-behind' region, defined as an LSOA that ranks relatively poorly on crime, housing and services, living environment, and residents' health, income, education, and employment rates, is associated with lower life satisfaction. Similarly, Knies et al. (2021) find that LSOA deprivation in England and Wales negatively affects life satisfaction, albeit this is probably a selection effect rather than causal: people in these areas have lower well-being because they earn less rather than a neighbourhood effect. Moreover, they find that

the association remains stable across various bespoke scales. Montero et al. (2021) find a positive impact of living in socioeconomically homogenous Chilean census tracts, even if the tract is relatively deprived. Using Australian census tracts, Phelps et al. (2023) find a positive impact of neighbourhood-level income on individual life satisfaction.

For similar reasons, the relationship between living in an ethnically homogenous area and well-being is unclear too. Often, the effect of the proportion of the minority population is tested on the well-being of the majority or general population. Ziogas et al. (2023) find a negative association in Canada between the proportion of foreign-born residents within a community (minimum 250 residents) on individual life satisfaction. Contrarily, Knies et al. (2016), find an enclave effect: a positive association of living in English and Welsh LSAOs with many co-residents of a similar ethnicity.

In summary, residential segregation is the spatial segmentation of sub-groups of the population among ethnic, demographic, or socioeconomic lines caused by factors within the group, such as homophily, and factors that are extraneous to the group, such as stigmatisation. The consequences for the individual living in areas undergoing such homogenisation are studied through neighbourhood effects. Theoretically, well-being can be seen as both a neighbourhood effect that follows from ethnic and socioeconomic segregation or as a form of utility that is spatially sorted itself. From empirical results, neighbourhood well-being is associated with deprived neighbourhoods, though the causal mechanism or the peer-to-peer effects remain unclear. Moreover, the exact relation between neighbourhood well-being and ethnic concentration also remains unclear. The studies have used various spatial resolutions, further clouding the comparison. It should be noted, however, that these studies have also been undertaken in rather different contexts, i.e. the fabric of class, ethnicity, and spatial planning of the neighbourhood differs considerably between these research settings. Therefore, it could be that cultural, institutional, and other context-specific differences cause these somewhat ambiguous results.

Points of Departure

In this chapter, the theoretical foundation that will inform the rest of the research presented in the dissertation was introduced. Firstly, I have laid out that while well-being can straightforwardly be defined as living a good life, determining what this good life entails is an inherently normative and contested process. Two defining approaches have been to

define being ‘well’ as self-actualisation in eudaimonic process-orientated conceptualisations versus defining ‘well’ as an absence of discomfort in hedonic, outcome-based approaches. Outcome-based approaches are mostly operationalised in two ways: internal self-reported approaches and external living conditions-based approaches. The work in this dissertation will rely on both approaches.

Secondly, the life course has been presented as the framework for understanding how states that underly or constitute well-being are or are not achieved. Its five principles are related to well-being, creating a relational understanding of well-being in which it is constantly assessed and constituted. From this perspective, I have identified five dimensions (labour, partnership, health, housing, environment) within the life course that influence well-being either temporarily or more long-term. The concept of opportunity structures is used to connect the principle of agency with the principle of time and place to explain how agency to achieve well-being is spatially constrained and how micro-level decisions can lead to macro-level landscapes of different well-beings. The opportunity structure is also helpful in studying how spatial sorting comes to be, in particular with location choice and residential mobility. Mixed impacts on well-being are generally found; however, the timing and duration of the associations found differ. The following macro-level spatial distribution of some factors that are part of these external operationalisations, such as socioeconomic status, has been studied extensively in addition to the spatial distribution of various demographic categorisations, mainly ethnicity. In studying the patterns of how these populations are sorted and their subsequent neighbourhood effects, the definition of the neighbourhood is of crucial importance. In the last years, within neighbourhood effects research, there has been a shift towards multi-scalar ego-centric neighbourhoods. Finally, I have demonstrated how there is a small body of research exploring the relationship between residential segregation, the neighbourhood, and well-being, finding mixed results.

3. Well-Being and Neighbourhoods in Sweden

After reviewing how the relationship between well-being, spatial sorting, and mobility can be understood, the specific Swedish context is introduced here. This chapter presents the well-developed research into socioeconomic and ethnic segregation in contrast to the relatively sparse findings on Swedish well-being and its spatial dimension.

Well-Being and its Spatial Distribution

From both internal and external perspectives, well-being is surprisingly sparsely studied quantitatively in the Swedish context. This might be partially explained by the absence of large panel surveys that contain the current gold-standard measure of life satisfaction. A summary of both internal and external findings is presented here.

Regarding internal well-being, there are three broad data sources: European Social Surveys, EU statistics on income and living conditions (EU-SILC), and smaller surveys, such as the survey used for the second paper in this dissertation. Looking at these sources, the majority of Swedes are satisfied with their lives; only 16.3% rated their life satisfaction as six or lower, and the average life satisfaction is 7.1 on a scale from 0 to 10 (Andreasson & Birkjær, 2018; Eurostat, 2023). This is slightly lower than other Nordic countries. Life satisfaction is slightly less equally distributed in Sweden than in its Nordic neighbours. This inequality has increased (Andreasson & Birkjær, 2018), which might be reflected in more spatial contrasts. Women and younger adults seem at risk of lower life satisfaction (Andreasson & Birkjær, 2018), whereas more highly educated people report higher well-being (Eurostat, 2023). Okulicz-Kozaryn (2011) provides a rare geographical study based on the EU-SILC data and a four-point scale measurement of life satisfaction. The spatial resolution is the very large NUTS-2 areas across some EU member states, equivalent to the 8 *Riksområden* in Sweden. Of these areas, Skåne is in the lowest EU-wide quantile of average life satisfaction, whereas the rest of Sweden is the highest.

Besides these more extensive surveys, smaller surveys collect data on life satisfaction and alternative measures of internal well-being, such

as the PANAS scale. However, none of these surveys (besides the Neighbourhood Survey 2020 used in Paper II) have the spatial resolution of the neighbourhood—if they have a spatial definition at all. Moreover, many have small samples of niche populations (e.g. hotel managers (Haver et al., 2015), Iranian adolescents (Garcia & Moradi, 2013), or cohabiting parents (Håkansson et al., 2019). They are consequently not well-suited to make any extrapolations on the quality of life of the Swedish population, let alone its spatial distribution.

With the decreased attention to external well-being, the findings of this type of well-being are relatively scant as well. Many of the studies emanate from the European Commission's 'Beyond GDP' well-being initiative. As such, many are cross-EU comparisons of several EU regions. For this number of areas across nations, the only reliable data providers are Eurostat, which also compiles EU-SILC, and the OECD (Macků et al., 2020), which has its own index: the Better Life Index.

As will become apparent from the brief overview in the next section, these approaches have two drawbacks. Firstly, the level of spatial aggregation is somewhat low resolution, especially compared to the high standards of segregation research. Secondly, both within the EU and the OECD, Sweden is one of the more affluent members. Combined with the low-resolution aggregation, the variation in Sweden is often between the two highest quintiles. This is useful information but other European regions are an unlikely frame of reference for an individual living in Sweden. For example, someone scoring low on well-being compared to the Swedish average will feel little consolation that they are better off on average compared to someone in southern Portugal, if their neighbours in Sweden are doing much better than them. With these limitations in mind, the following section will give a brief overview of findings on how Swedish regions score in these types of indices.

In a study applying the aforementioned OECD Better Life Index, Sweden stands out with relatively good environmental conditions, life satisfaction, and health (Durand, 2015). Veneri & Murtin (2019) find that most regions in Sweden score slightly above average in their OECD comparisons in their regional well-being index, consisting of income, employment rate, and life expectancy. However, they use the rather crude measure of NUTS-3 (one level below NUTS-2, equivalent to *Län*) regions and seem to have forgotten to include the Västra-Götaland region. Macků et al. (2020) link life satisfaction from EU-SILC to an index of region-level well-being in another EU-level regional study on a NUTS-1 level.

Despite being described as a context of high well-being, the base of evidence from Sweden is relatively narrow, regardless of the

conceptualisation. The few findings, however, indicate that most Swedes are satisfied with their lives, and Swedish regions have a comparatively high quality of life. As a result of the lack of spatially granular data, the geographical dimension of well-being in Sweden has been hitherto neglected. The existing geographical studies have a spatial resolution that is less detailed than the neighbourhood, often in regions so large that the spatial variation within Sweden is rendered meaningless.

Spatial Sorting and Neighbourhood Effects in Sweden

Unlike well-being, the spatial sorting of populations has been relatively well-researched in Sweden. All three dimensions— socioeconomic, ethnic, and demographic —have been explored. Nevertheless, of these dimensions, the third 'miscellaneous' category of so-called demographic segregation has received the least attention (Andersson & Kährik, 2015; Bråmå & Andersson, 2020). Nevertheless, in a rare study, Bråmå and Andersson (2020) have found that spatial sorting of age groups has remained stable in Stockholm from 1990 to 2014, using the spatial resolution of SAMS. Amcoff (2022) finds entropy scores that indicate evenness for the spatial distribution of age and gender in Swedish urban localities in 2015 but high unevenness for family type. Malmberg et al. (2024) find that older adults are sorted differently spatially over bespoke neighbourhoods (k=200) in 2011, among others, according to marital status.

Lastly, there is a field of study on same-gender couples. In particular, large conurbations have been termed areas that become a sort of "Gay male magnet" (Wimark & Östh, 2014, p. 739), although this notion has become increasingly challenged (Wimark & Fortes De Lena, 2022). In the Swedish case, Wimark & Östh (2014) find that gay and lesbian couples indeed tend to live in municipalities with large populations. However, for married lesbian and gay couples, urbanity is less important. Moreover, Wimark and Fortes De Lena (2022) note that same-gender couples avoid particularly remote rural areas. Considering non-urban areas as a whole, they find that lesbian couples are less underrepresented than gay male couples.

In summary, in the fit-all demographic spatial sorting, some spatial variation is found for age. However, the family type is highly variable. For older adults and same-gender couples, marital status also seems to be a key factor in their spatial distribution. In particular,

for gay couples, a clear urban magnet can be found, with decreases in strength for couples.

Socioeconomic Segregation in Sweden: Middling Cities, Widening Gaps

Regarding socioeconomic segregation, income inequality has increased in Sweden since 2000 (The Lancet Regional Health-Europe, 2023), increasing the likelihood of spatial inequalities (Andersson & Kährik, 2015). However, many studies regarding socioeconomic segregation focus on one metropolitan area, often with gaps between the waves. For example, Andersson & Kährik (2015) studied socioeconomic segregation in Stockholm in only 1990, 2000, and 2010. Moreover, a wide variety of spatial aggregation methods is used. For example, studies use small-market area statistics (Andersson & Kährik, 2015), bespoke neighbourhoods (Amcoff et al., 2014; Haandrikman et al., 2023), or different municipality-based areas (Biterman, 2010; Biterman & Franzén, 2007). The findings can be summarised in international comparisons: between cities (Haandrikman et al., 2023; Musterd et al., 2017), findings for Swedish cities (Amcoff et al., 2014; Andersson & Kährik, 2015; Biterman, 2010; Biterman & Franzén, 2007; Scarpa, 2015), and findings about trends (Andersson & Kährik, 2015; Biterman, 2010; Musterd et al., 2017).

Firstly, in terms of income segregation, Swedish cities tend to score somewhat in the middle. For example, Musterd et al. (2017) find dissimilarity indices comparable with Amsterdam, and values indicating a moderately segregated city. However, Haandrikman et al. (2023) find that Stockholm is one of the most strongly segregated capitals in Europe in terms of low earners both on macro and micro scales.

Besides international comparisons, some contrasts between Swedish cities can also be made, particularly the three largest cities: Stockholm, Malmö, and Gothenburg. Evidence shows that Malmö is usually more segregated (Biterman, 2010). The trend of socioeconomic segregation is somewhat harder to gauge. For example, many studies find that, along with increasing income inequality, lower incomes are also progressively polarised based on SAMS (Andersson et al., 2009; Andersson & Kährik, 2015; Musterd et al., 2017). However, these studies do not use yearly measurements. Biterman's (2010) study finds that socioeconomic segregation fluctuates more with conjuncture. Malmberg & Clark (2021) find that an increased share of the population lives in homogenously poor or rich k=1600 bespoke neighbourhoods and fewer in mixed areas from 1990 to 2015.

In summary, Sweden is moderately socially segregated at a level comparable to other Northern European countries, although the level of scale changes Sweden's relative position. While income inequality has increased, it is unclear if socioeconomic segregation has similarly increased. However, most studies do find an increase.

Ethnic Segregation in Sweden: Questionable Increases

Ethnic segregation too has been studied extensively. Again, the question of time interval, spatial definition, and spatial extent are key here. The interest in ethnic segregation emerged after the 1990s, with the perceived failure of the integration of migrant groups (Bolt et al., 2010). Thus, Swedish segregation studies have mostly focused on the spatial concentration of first- and second-generation migrants (Andersson, 2013), as opposed to the spatial concentration of native-born ethnic minorities, such as is done in the US (Quillian, 2002) and Baltic contexts (Krisjane et al., 2023).

Ethnic minorities are defined mainly by migration backgrounds. Most studies in Sweden are based on the population registers, which do not directly record ethnicity. Researchers instead abstract ethnicity by country of birth and, occasionally, the country of birth of their parents: if someone is an immigrant or has parents who are immigrants, they can be assigned as an ethnic minority. However, which migrant groups are assigned as ethnic minorities varies as the selection of countries of birth being classified as ethnic minorities differs between studies. Some diversify between EU migrants and non-EU migrants, sometimes with an added third category of Nordics who supposedly stand out less in Swedish society through cultural and lingual similarities. Others use the measure of visible minorities, which defines a set of birth countries that increase the likelihood of a person looking different than the Swedish visible majority and therefore are likely to be treated differently (Andersson et al., 2010; Östh et al., 2015).

Regarding ethnic segregation, Sweden scores again somewhat in the middle, comparable to the Netherlands and Denmark (E. K. Andersson et al., 2018). These levels of ethnic segregation are well below what is typically found in American cities (Andersson, 2013). Andersson et al. (2018) find that while Sweden has a high proportion of migrant-dense neighbourhoods in small *k*nn neighbourhoods compared to Denmark, Belgium, and the Netherlands, this is likely to be a consequence of the fact that Sweden has a larger migrant population (thus more neighbourhoods will have a high concentration). On a scale with a larger *k*, very few places have a homogenous non-European population (E. K. Andersson et al., 2018). Moreover, it should be mentioned that one

nationality, other than Swedish, rarely dominates a neighbourhood profile (Andersson, 2013). Nevertheless, an ethnic hierarchy has been observed in certain nationalities, which are more segregated than others (Andersson et al., 2010). For example, Andersson (2013) notes that migrants from Iraq, Somalia, and other primarily Muslim countries tend to live farther away from 'native' Swedes than European migrants.

Another important observation is that ethnic and socioeconomic segregation considerably overlap, the poorest SAMS are also among the neighbourhoods with the highest proportion of migrants. This correlation has led to an increasing conflation of ethnic and socioeconomic segregation to mean the same in popular discourse (Andersson et al., 2010). Nevertheless, it should be noted that despite this conflation, a process of double sorting has been observed by Andersson & Kährik (2015): socioeconomically deprived "native" Swedes sort into different areas than socioeconomically deprived ethnic minorities.

Whether ethnic segregation is increasing in Sweden is somewhat unclear. Most studies find an increase (Amcoff et al., 2014; Biterman, 2010; Nielsen & Hennerdal, 2017) but some recent findings have troubled this consensus (Malmberg et al., 2018; Malmberg & Clark, 2021). In fact, Malmberg et al. (2018) present an interesting empirical puzzle. Namely, they find that while the number of migrant-dominated neighbourhoods has increased, the distribution of ethnicities over space has gotten more equal as expressed through dissimilarity indices. They find more homogenously foreign-born dominated areas through an overall increase in non-European populations. However, this increase is not exclusive to migrant-dense areas; hence, segregation as measured through a dissimilarity index has decreased.

Housing and Segregation: the Geographical Anchor Point

One of the factors that is critical in the reproduction of spatial sorting is the Swedish housing market through differentials in housing prices (Malmberg et al., 2018). The housing price mechanism leads to a distinct spatial pattern intrinsically linked to the history of the housing regime in Sweden (Grundström & Molina, 2016). The development of the Swedish housing regime can be considered a part of the development of the Swedish welfare state in the 1930s. As part of this development, the government has taken an active role in providing housing.

This peaked in 1965–1974 with the Million Homes Programme, in which approximately one million dwellings were constructed (Andersson et al., 2020). Of this new housing, 60% was either cooperatively

owned or owner-occupied. Much of this housing was built in landscapes of singular tenure. The design philosophy followed the modernist style of the time, resulting in large-scale apartment blocks (Grundström & Molina, 2016). Moreover, the monotonal design of the neighbourhoods created a segmentation of class by urban form (though not intended): working-class families in multi-storey flats, middle-class families in terraced houses, and the upper middle class and upper-class families in self-standing villas (Grundström & Molina, 2016). Additionally, many of the neighbourhoods built during the Million Homes programme had peripheral locations at the edge of cities (Andersson et al., 2010; Rokem & Vaughan, 2019).

However, since the 1990s, following a deep economic recession, the Swedish housing policies and housing markets have greatly transformed as housing policy was liberalised and deregulated (E. K. Andersson et al., 2022). Under these new policies, housing subsidies and rent subsidies were cut to reduce budget deficits (Wimark et al., 2020) and public housing stock was sold off in big cities (though with considerable regional variation) (Grundström & Molina, 2016). Consequently, the relative share of municipal housing stock has decreased in favour of cooperative house owning, homeownership, and private rent, especially in big cities such as Stockholm (Andersson & Kährik, 2015; Wimark et al., 2020). However, it should be mentioned that the public housing stock was lowest in 2010 and has since 2020 surpassed the volume of 1995 (Sveriges Allmännytta, n.d.).

Due to the mono-tenurial design and peripheral location, housing in the neighbourhoods of the Million Homes programme has become less popular. Through differences in housing prices and queuing time to rental housing, many of these neighbourhoods have become ports of entry for migrants and affordable for the socioeconomically deprived, which have become typified as ports of entry and areas of high transit (Andersson, 2013; Scarpa, 2024). Consequently, most of the spatial sorting among ethnic and socioeconomic lines takes place in these large suburbs at the edge or just outside Swedish large and medium-sized cities (Grundström & Molina, 2016).

Conclusive Remarks on the Swedish Context

In this chapter, I have shown that relatively little is known about well-being at the neighbourhood level in Sweden; there have been relatively few surveys and studies collecting information on well-being. In terms of internal well-being, no spatial studies have been conducted, but the

national-level sample has found increased inequality. Regarding external well-being, the spatial resolution has been and studies have been conducted internationally, eliminating any intra-Swedish variation. Moreover, I have illustrated that residential segregation has been primarily studied in terms of socioeconomic and ethnic sorting. Most areas of socioeconomic deprivation tend to be migrant-dense areas, leading to a conflation of the two types of segregation. For either category, it is somewhat unclear to what extent segregation, either ethnic or socioeconomic, has increased or if it has remained level due to differences in time scale, neighbourhood definition, indicator of inequality, and definition of the subgroup. However, certain unique aspects of the Swedish case are clear. Firstly, Sweden has a larger migrant population than other European countries but quite similar levels of ethnic and socioeconomic segregation. Secondly, the places that are deprived and/or migrant dense tend to be in large housing estates built in the post-war period at the edge of Swedish cities, mostly in the rental sector. In summary, while the spatial distribution of well-being is not meaningfully known, trends do indicate an increase in (spatial) inequality.

4. Methodologies and Data

The research in this thesis has drawn from two main sources. First, I draw from a rich Swedish tradition of population registration that provides unique opportunities for large samples. A drawback, however, is that these population registers do not contain clear health data—let alone attitudes towards life—thus warranting the creation of an index indicating external well-being. Secondly, I use the register-linked Neighbourhood Survey 2020 for the second paper. The survey does have, among others, a measure of life satisfaction but has a relatively limited sample. Besides two concepts of well-being, three different approaches to constructing and classifying neighbourhoods are used.

External Well-Being Indices: The PLACE Database and Land Ordinance Survey

The register data used for creating the external well-being measures is the PLACE database, a compilation of various databases assembled by Statistics Sweden for researchers of the Department of Human Geography at Uppsala University and supplemented by data from the Land Ordinance Survey. Both have geo-resolution of a 100m by 100m grid. The PLACE database consists of various registers but, most importantly, contains the *Longitudinell integration databas* [Longitudinal Integrated Database], *Fastighetsregistret* [Real Property Register], and *Geografidatabasen* [Geography database], which form the basis of many studies about spatial sorting (Andersson, 2013; Haandrikman et al., 2023; Östh et al., 2015), registers linking individuals to their residence, and every individual's residential location in a100m by 100m grid. The registers in PLACE contain information on every registered individual in yearly waves between 1990 and 2017.

The Swedish registers like PLACE are renowned for their high quality (Monti et al., 2020; Van Der Wel et al., 2019). Nevertheless, there are three major limitations. Firstly, the quality is only as good as residents register their changes. In particular, with regard to their geographical location, this can cause considerable problems. Moreover, this can lead to substantial issues with the over-coverage of individuals who have left Sweden but have not deregistered. This is particularly

prevalent among those with a non-Nordic migration background (Monti et al., 2020). This can cause inaccuracies in any study regarding ethnic minorities in Sweden, like the work in this thesis, which defines ethnic minorities often as non-European groups.

Secondly, because of the discrete yearly nature of the data, similar to MAUP, the aggregation of data into discrete points of time—in the case of the register single years and six years in the case of the Land Ordinance Survey—changes the patterns that are observed (Cheng & Adepeju, 2014). Cheng and Adepeju (2014) list three problems: aggregation, segmentation, and boundaries. The aggregation refers to how events get aggregated as happening at the same moment: for example, one might divorce and then move—or vice versa—in the span of months. Thus, the sequence of these events is lost in the yearly aggregation. Additionally, the segmentation refers to the fact that where the year gets cut off and influences the results too. In the registers, all data is standardised to the same date in January, except for housing which is standardised to December 31st. However, individuals do not necessarily plan their lives from January to January; for instance, the summer break also provides a realistic cut-off point. Lastly, the issues of boundaries refer to the fact that the limits chosen for the study period are often arbitrary and influence the data as well. For instance, the register is used from 2009 to 2017 because of the reliability of housing data during this period. Nevertheless, in Paper III, individuals are censored before their second observed move, creating a time variable relative to the first move. However, it is possible that this person moved in 2008, thus biasing the observed effects.

The bias stemming from the three modifiable temporal unit problems is somewhat a feature of the discrete data and not necessarily solvable. However, the problem of aggregation and segmentation is of minor importance, given that the index is not necessarily about the timing or sequence of events within the one-year time resolution. It does not matter if someone has a new house after divorcing or before, as both affect the well-being of the individual. Studying the exact sequence of changes in these dimensions relative to each other is beyond the scope of this dissertation. Similarly, while a boundary around midsummer might be more intuitive to the reality of how individuals plan their lives, it is unlikely that this changes the long-term trends in well-being significantly. Lastly, the problem of boundaries is dealt with to some extent. For the temporal elements in the index—the time in certain labour and marital states—the registers before the study period are used as well, starting in 1990. On the moving histories outside the boundaries, few people are observed moving several times (about a quarter in the nine-year

observed period), and the relocating rates for first and second moves have been stable over time. Moreover, there is a large number of cases. In other words, the temporal boundary effect is unlikely to cause major bias: most people who move before the boundary are unlikely to move and are not included; those who do are a small proportion of those observed moving. A third drawback of using register data relates to the fact that no data on attitudes, beliefs, and feelings are collected. Self-reported internal measures cannot be obtained from the register to measure well-being. However, be that as it may, the sheer number of cases and the accuracy of measuring living conditions are still considerable. As I will show below, the qualities of this data allow for the external approach as the registers contain high-quality external 'objective' data.

Creating External Well-Being Indices

The unique data source of the registers allows for estimating the well-being of a population hitherto unmatched by creating an index of external well-being. Unlike the aforementioned external indices, this particular index can specify well-being on an individual level. Moreover, given the high spatial resolution of the data, the spatial patterns on neighbourhood levels are well below the very coarse regional levels that are normally used for external and internal well-being studies, both in Sweden and other contexts. Moreover, as the register data is aggregated in waves of years, the data is very well-suited to study movement between neighbourhoods in relation to well-being. In addition to the registers, the Land Ordinance Surveys of 2006, 2012, and 2018 are used, with each observation linked to the survey conducted closest to that year.

The selection of criteria of components for the index is rooted in the previously presented solid findings in the six dimensions of labour, partnership, health, housing, amenities, and green space. From these findings, up to eight components for an index were selected: income, labour status, marital status, received health benefits, age, proximity to amenities, and green space around the residence. Each component was standardised on a scale from 0 to 10 in a procedure depicted in Figure 1 to put them on a comparable scale. Eventually, these components were added into two indices. Index A was used to describe the spatial variation, and Index B was used to explore the development when moving. The process to create these indices is depicted in Figure 1 and a brief description of the resulting variables is given here. The distribution of each component is listed in Table 1.

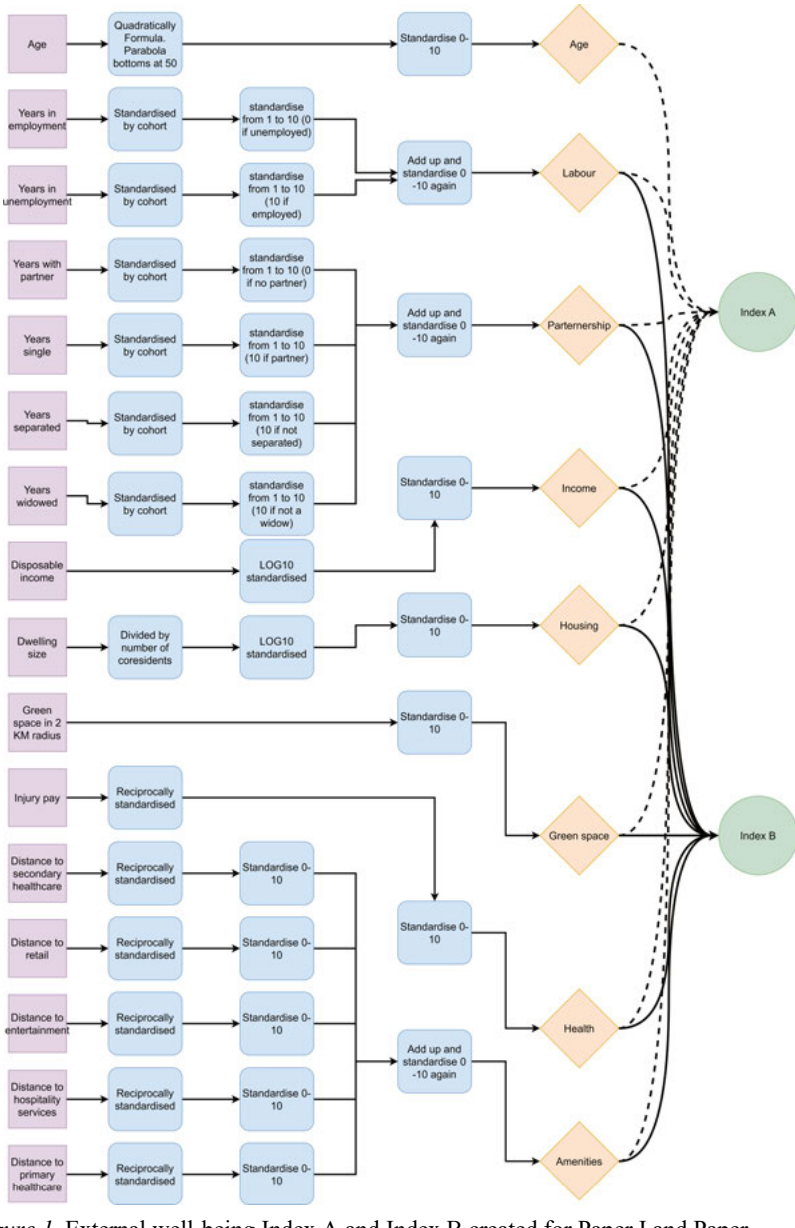

Figure 1. External well-being Index A and Index B created for Paper I and Paper II: 16 or 15 variables (red) are transformed and standardised 1–10 (blue) into seven- or eight-dimensions (orange) reflecting well-being, which are combined (dotted line for Index A, solid line for Index B).

For the component of income, a LOG10 transformed measure of disposable income was used, the transformation both normalised the distribution and made the effect of increasing income more marginal,

which corresponds with previously reported findings (Ballas, 2013; A. Clark et al., 2018; Diener et al., 2018). The disposable income can technically be negative in some of the later years of the register; however, all negative values have been set to zero for consistency and because one can only have a negative income administratively.

For the component of labour, the time in employment and time in unemployment, stratified by cohort, were combined into a single value. For the years spent in employment, being among the longest employed in the cohort is the highest value, while the shortest receives the lowest value. While someone is employed, their unemployment score is always 10 (the highest) to ensure that those with employment have the desired positive effect found in the literature (A. Clark et al., 2018; Diener et al., 2018; Layard et al., 2014). The scores of these concurrent indices are combined and rescaled in a single component ranging from 0 to 10.

A similar approach to years spent in a state is taken for the component of partnership status, although with four concurrent states: single, with a partner, separated, and surviving partner. As the working population is used, being a surviving partner is relatively rare. The partnership status is notoriously difficult to obtain from the register: many Swedes do not enter formal unions while already cohabiting. Until 2011, the only certain approach to finding cohabiting unmarried couples was if they had children together (Cantalini et al., 2024). The partnership status was obtained by combining the civil and family status variables to include those who live alone with their child as separated, even if they have never entered a registered union and those who live together with one of their children and another unrelated adult (or their children) as someone in a relationship. Being in a relationship starts with the highest well-being impact (10) and decreases with the years, stratified by cohort. Similarly, being without a partner has a positive impact at the start, which will decrease over time. Separating will start as negative and will increase towards more positive scores over time. Widowhood increases in negativity over time. Moreover, similar to the labour status, each partnership status gets assigned a score when the individual is in a different partnership status.

For the component of housing, the quality of housing is included to reflect the role of housing for well-being (Clapham et al., 2018). To measure housing quality, the housing size was taken and divided by the number of individuals that live in that real estate unit. As with income, the measure is LOG10 transformed and subsequently scaled from 0 to 10 in order to account for outliers and to better model the marginal returns for housing.

For access to amenities, the Euclidean distance to four different types of amenities was calculated: retail (i.e., supermarkets), primary healthcare (health wards), secondary healthcare (hospitals), hospitality (bars and restaurants), and entertainment. Distance to these amenities is taken to indicate access, as data regarding the actual use of amenities is unavailable. The location of the amenities is retrieved via the information on the place of employment of registered individuals. Each workplace is coded according to its sector and, thus, amenities can be retrieved. As most people live very near these amenities, the data is reciprocally normalised to highlight individual differences. The scores of these concurrent indices are combined and rescaled in a single component ranging from 0 to 10.

To operationalise exposure to green space, the Land Ordinance Surveys of 2006, 2012, and 2018 were used. Each was observation linked to the survey that was conducted closest to that year. There will be a lag of up to two years in the land data, but the idea is that land use does not change quickly. The amount of land classified as green or blue space (including urban green space for parks) in a 2-kilometre radius was taken to indicate the greenness of the environment. Larger radii did not change the results meaningfully: the distribution does not change.

The aspect of health is assessed indirectly, as I lack access to healthcare registers. Rather, the amount of injury pay received was taken. The measure was standardised by income, as the size is dependent on that. As very few people receive injury pay, the variable was reciprocally standardised to highlight individual differences. There were some other similar health benefits variables from the register that could not be used for this measure as the law in the distribution of such benefits has changed during the study period. Consequently, such variables are only available for the first couple of years of the study period or are very inconsistent over time.

For the age component used in Index A, a quadratic formula was specified to create the well-attested u-shaped relationship often found in relation to internal well-being (Ballas, 2013; A. Clark et al., 2018; Diener et al., 2018). The equation reaches its minimum value at age 50.

Table 1. *Mean and standard deviation of each subcomponent*

Component	M (SD)
Income	5.07 (0.958)
Labour	6.18 (2.866)
Partnership	5.91 (2.448)
Housing	4.59 (0.846)
Amenities	2.78 (0.939)
Green space	4.29 (2.478)
Health	9.49 (0.648)

Using these components two indices of well-being were created: one including age, theoretically ranging between 0 and 80 (Index A) and one that does include an age component (Index B) with a theoretical range of 0 and 70. Index A has a practical range between 13.98 and 64.33 and a mean of 41.00, while Index B has a practical range between 13.43 to 57.17 and a mean of 38.08. The distribution of all subcomponents is given in Table 1. Index A was used as the main variable in Paper I and Index B was the dependent variable in Paper II. The difference between the two is that the index in Paper I includes a quadratic transformed component for age, whereas the index in Paper II does not. This is because the main research aim is to follow the change in well-being after a relocation, and age does not change differently as a result. Both indices have a normal, slightly positively skewed distribution that does not change much over time, as shown in Figure 2. However, excluding age in Index B leads to a more skewed distribution and a more noticeable difference between years: for Index B, the first years under observation, namely 2009, 2010, and 2011, are more positively skewed. To illustrate these trends in time, period, and cohort between various demographic subgroups in Index B, lexis diagrams of Index B are depicted in Figure 3. As age is an explicit dimension for Index A, a lexis diagram would not be informative. A first standout is that the average variance between years, age and cohort is relatively low for any group. Nevertheless, it does stand out that visible majorities and men seem to have higher well-being for most years and ages than women and visible minorities. The difference is more pronounced for the latter. Moreover, some clear age effects can be observed: in particular, younger people tend to have a lower index score. This could cause the differences in the skewness of the yearly distributions between Index A and B.

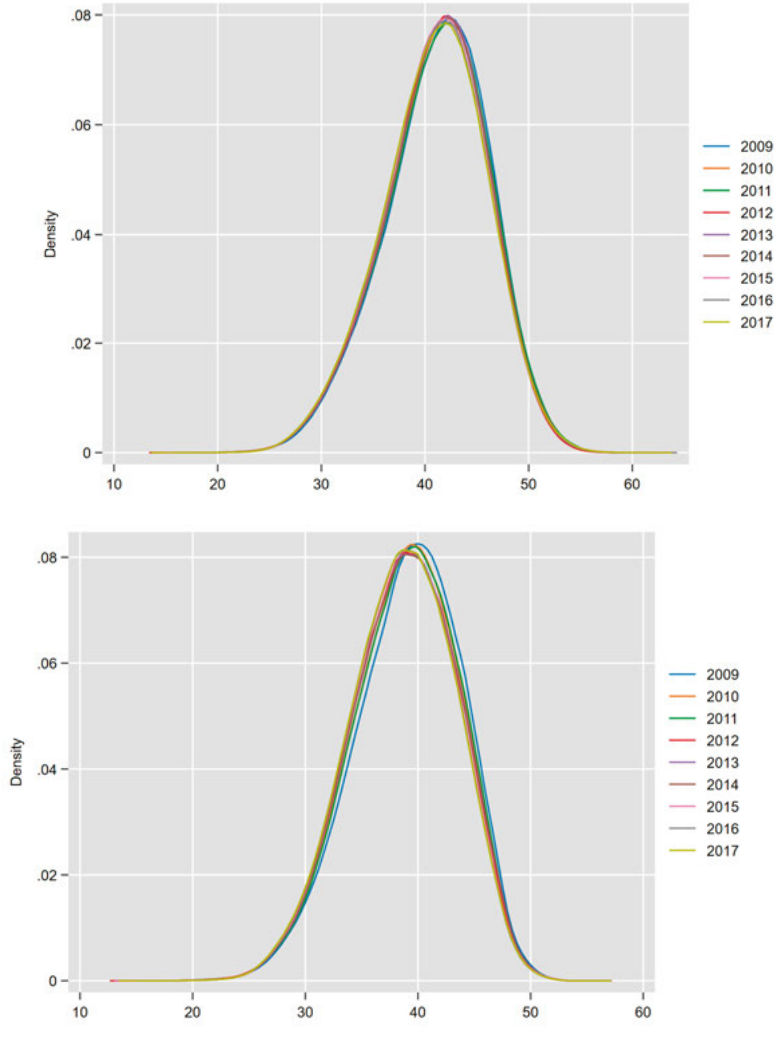

Figure 2: Kernel density of the distribution per year of index scores of Index A (up) and Index B (down).

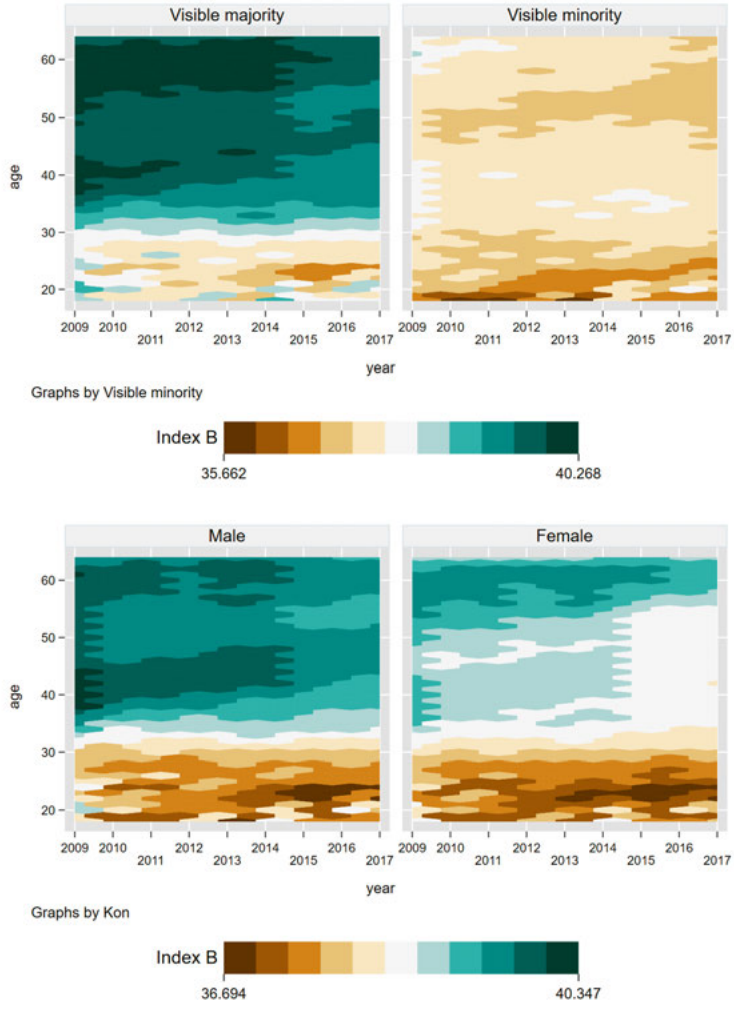

Figure 3: Lexis diagram of Index B for various demographic subgroups. The colour depicts the mean Index B score for each year for each age.

External Well-Being and Actual Life Satisfaction

The approach to measuring well-being through indices introduced in the previous section is quite new and somewhat uncommon measure of well-being. Therefore, some critical reflection on the indices is crucial. Broadly, three key considerations can be made: firstly, whether the indices truly measure well-being; secondly, if this is a viable approach to measure well-being, whether these components have the desired accuracy; thirdly, and finally, why other potential components have not been included.

In the first case, some criticism of the index measures well-being can be made. For example, from a hedonic perspective, a stringent question would be to wonder if a person with high assessments of life satisfaction but a low index score should be considered not well. Indeed, one may criticise this index for being too material and overly focused on a normative view of a partnered, productive member of society. At the same time, some criticism has been levelled at subjective approaches that their measures are too adaptive: they might only capture if people's expectations are being met (Christensen et al., 2006). In that sense, life satisfaction can be used to rather justify social differences in the sense that inequality is fine as long as people are not unsatisfied. Ultimately, the rationale behind the indices is that these states are associated with people feeling satisfied with their lives. Of course, it is quite possible that lower-scoring individuals might feel satisfied with their lives and vice versa, but the assumption is that individuals' feelings will be affected by the components on the general scale. The sample taken for this index is so large that this is likely to even out in the direction that the solid findings in life satisfaction find. In fact, the index can be seen as measuring a potential for well-being in some sense: the individual might not necessarily feel corresponding life satisfaction but is likely to. In that sense, the indices reflect something of an opportunity structure to well-being: it is spatially warped among local factors (such as green space and housing), institutional factors (such as the availability of amenities), malleable personal factors (such as income and employment), and linked lives (through their marital status). Just like a constrained opportunity structure to socioeconomic improvement does not impede it completely, one might feel well despite their opportunity structure to well-being.

In the second case, these indices can be criticised for being somewhat coarse well-being indicators. Moreover, some of the dimensions are still not greatly specified for the individual, such as the health dimension (a common problem in external well-being indices) and the housing dimension. The health dimension has very low variability. On

the other hand, the variable does catch more acute cases of ill-health that are likely to disturb well-being deeply. While the housing quality variable is also somewhat coarse, the distribution of the variable seems to catch variety in quality well. Again, given the large number of individuals and observations and the strength of the relations operationalised, we can expect that well-being is predicted with some accuracy despite the coarseness of the index. Moreover, unlike previous measures of external well-being, this index has an individual approach and spatial resolution that lends well to life course studies and spatial approaches. Furthermore, the operationalisation of this index creates inequalities: the highest and lowest values are taken as extremes, so it might be argued that the inequalities found in this work are artificially enhanced. Nevertheless, as this work is concerned with spatial distribution, if the inequalities were truly random, then a random spatial distribution and a random distribution among demographic groups would be expected.

In the third case, some variables might be considered missing from these indices. For instance, long commuting times have quite solidly been negatively linked to lower well-being (Ingenfeld et al., 2019). In this case, it has not been included because of the unemployed part in the sample, which would automatically have no commuting distance as relations would get needlessly muddled. Another factor that is not present is socioeconomic status (Navarro-Carrillo et al., 2020). To some extent, this is already represented in the wages and employment components. Level of education would have been an obtainable variable to catch some level of prestige; however, the relationship between the level of education and well-being has not been as clearly established in previous studies (Diener et al., 2018; Navarro-Carrillo et al., 2020). Therefore, education is included as a control variable in each paper. Lastly, social networks, such as family and friends, are also found to be important to well-being (Ballas, 2013; Diener et al., 2018). Social networks are, of course, not recorded in the registers. The impact of familial networks is less clear. Besides the impact of having a partner, the last traceable familial ties are children, for which evidence is also mixed (Plagnol, 2010).

In sum, the register data has been used to create two indices to measure well-being. One includes age, and the other does not. Both indices are normally distributed and mostly stable over time. Nevertheless, Index B has a slight negative time trend, mostly due to age effects. Some preliminary exploration also reveals that visible minorities have lower mean scores, while the gender differences are minimal. The index can be criticised as coarse or incomplete but does, in fact, provide a large sample indicating the well-being of registered individuals.

Life Satisfaction and Neighbourhood Attitudes: Sweden Neighbourhood 2020 Survey

The dataset that is used for measurements of internal well-being in Paper II is the Neighbourhood Survey: a survey collected to study the spatial sorting of life courses in relation to their neighbourhood and their subsequent attitudes to life and their environment (Haandrikman & Strömblad, 2022). The survey takes an explicitly geographically randomly stratified sample based on a neighbourhood typology of 10 different types created by Kawalerowicz and Malmberg (2021). Statistics Sweden collected the data for this survey for a project at Stockholm University. The survey design and data collection were done by the members of the project, including my co-author; I gained access to the data later. The exact division of tasks between my co-author and me is established in Appendix 1.

Using data from the 2016 population register with a spatial resolution of 250 metres in built-up areas and 1,000 metres in rural, they created bespoke neighbourhoods at nine different *k*-nearest neighbour levels (k=200; 400; 800; 1600; 3,200; 6,400, 12,800; 25,600; 51,200). At each of these levels, the percentage of seven sociodemographic indicators is calculated: unemployment, social benefit recipients, non-EU migrants, EU migrants, earners within the highest income decile, earners within the lowest three deciles, and those who have a tertiary degree. Thus, for each individual aged 18–65, there are 63 sociodemographic indicators. This variation of these indicators is further subjected to a factor analysis grouping them into eight orthogonal factors (Haandrikman & Strömblad, 2022; Kawalerowicz & Malmberg, 2021). Finally, these eight factors are clustered to create a typology of ten types of bespoke neighbourhoods. Two of these neighbourhoods have been excluded to inform the sampling: firstly, a type common in border regions that has a very small population, and secondly, a type in urban buffer zones that is rather uncommon. The types of neighbourhoods that have been included and their characteristics are given in Table 2. A more detailed description of the typologies and maps of the distribution of these types can be found in Kawalerowicz and Malmberg (2021)

To create a sampling frame, DeSO areas that consist of at least 97% of one of the remaining eight types are selected, from which a representative sample is taken. Moreover, to compensate for the loss of urban buffer areas, 15 DeSOs that have been marked as Deprived Areas in the URBAN-15 Programme by the Swedish government have been included. From these DeSOs, a stratified sample of adults aged 18–80 is taken.

Table 2. *Neighbourhood types and their characteristics informing the sample frame in the Neighbourhood Survey 2020* (Haandrikman & Strömblad, 2022; Kawalerowicz & Malmberg, 2021).

Type	Characteristics
Rural homogenous	Low % high earners, low % non-EU migrants, low % tertiary educated
Rural working class	High % employment, low % high earners, low % tertiary educated
Rural adjacent	Bordering small non-EU enclaves, high % receiving social assistance
Rural diverse	High % employed, low % of migrants, low % at risk of poverty, low % high earners
Urban adjacent	High contrast over all scales, proximate to more deprived places, locally affluent
Urban academic	High % tertiary educated, high % employed, lower % of high earners, average % non-EU migrants
Urban elites	High % high earners, high % tertiary educated, moderate % of migrants
Urban diverse	High % of non-EU migrants, high % at risk of poverty, low % employed, average % tertiary educated
Deprived areas	Marked as deprived in the URBAN-15 programme based on low % employed, high % social benefits recipients, and low % eligible for upper secondary school

The sample was collected between December 2020 and March 2021 among a random sample of 20,000 residents, both online and on paper, of which 4784 responded (23.92% response rate). The reason for non-response is unknown for the majority of non-responses (95%). A set of sampling weights was created to make the sample more representative in terms of demographic characteristics (Haandrikman & Strömblad, 2022). The survey is collected with the goal of studying the spatial sorting of life courses in relation to attitudes to life and the neighbourhood and neighbourhood characteristics.

A short description of the sample will be given here. Figures 4A and 4B show the distribution of several socioeconomic, demographic, and housing variables over the sample. Before any inference is made, it should be stressed that these are the descriptive statistics of the cases included for analysis in this dissertation and that these descriptive statistics do not necessarily reflect the population of these neighbourhoods as a whole. Nevertheless, several differences between neighbourhood types can be observed. Firstly, the urban academic neighbourhoods stand out in almost every statistic: the respondents have high employment and live in apartments that they tend to rent or cooperatively own. Moreover, they tend to be single more frequently. Respondents in deprived, urban diverse, and rural diverse neighbourhood types also stand out as having relatively many singles with tendencies to live in

apartments. However, whereas respondents from urban academic neighbourhoods have a fair representation of tenant cooperatives, most respondents in these neighbourhoods are renters. Moreover, they tend to be unemployed more often, too. Lastly, residents of urban and rural homogenous types tend to live in detached housing, be homeowners, and be married more frequently than other neighbourhood types.

The advantage of using the survey is that it contains a variety of 'soft' variables regarding attitudes to life and the neighbourhood. The survey constitutes a spatially detailed and extensive sample of life satisfaction in Sweden. There are two drawbacks to the survey. Firstly, it is a cross-sectional survey. Thus, combined with the relatively small sample, the data is unsuitable for causal inference. For example, the data could have been collected in a year with major disruptions to life and the neighbourhood. The second drawback is that the data was, in fact, collected in such a period: the COVID-19 pandemic. While Sweden did not have a stringent lockdown like some other European countries, Swedes did have reduced mobility and spent more time in their neighbourhood (Shuttleworth et al., 2024). The survey contains some variables that indicate COVID-related changes. For example, 28% of the respondents say that they think differently about their neighbourhood due to COVID-19, while 10% have COVID-19-related moving wishes. It is unclear, however, how this has affected life satisfaction as we do not have information on their pre-pandemic life satisfaction.

The survey consists of four parts: 1) a part composed of questions about residential history; 2) a part with questions about attitudes towards and interactions with the neighbourhood and neighbours; 3) a part surveying general attitudes to life; and 4) a part containing questions about demographic and socioeconomic information, in addition to the register link. However, the earliest available register link is to January 2019, meaning there can be a one to two-year lag. The main variables of interest in Paper II and this dissertation are the neighbourhood indicators and the attitudes to life. In particular, for well-being, a variable indicating life satisfaction is used as the main dependent variable in all analyses. The life satisfaction measure is obtained through the question: 'How satisfied are you with life in general at the moment?'. The variable is measured on a Likert scale, ranging from 0 (very dissatisfied) to 10 (very satisfied). The neighbourhood indicators are: 1) attitudes towards the neighbourhood; 2) social interactions within the neighbourhoods; 3) activities taken in the neighbourhood; 4) the duration of the residence; and 5) the neighbourhood type of the DeSO that the individual was sampled, as per Table 2.

In sum, the Swedish 2020 Neighbourhood survey has been used as a source of life satisfaction. The sample is unique in its stratification among DeSOs dominated by certain sociodemographic typologies of bespoke neighbourhoods. While the data has some limitations such as its gap between the coupled register data and potential disturbance due to COVID-19, its variables on attitude towards the neighbourhood and spatial sample provide great opportunities to study the spatial sorting of well-being.

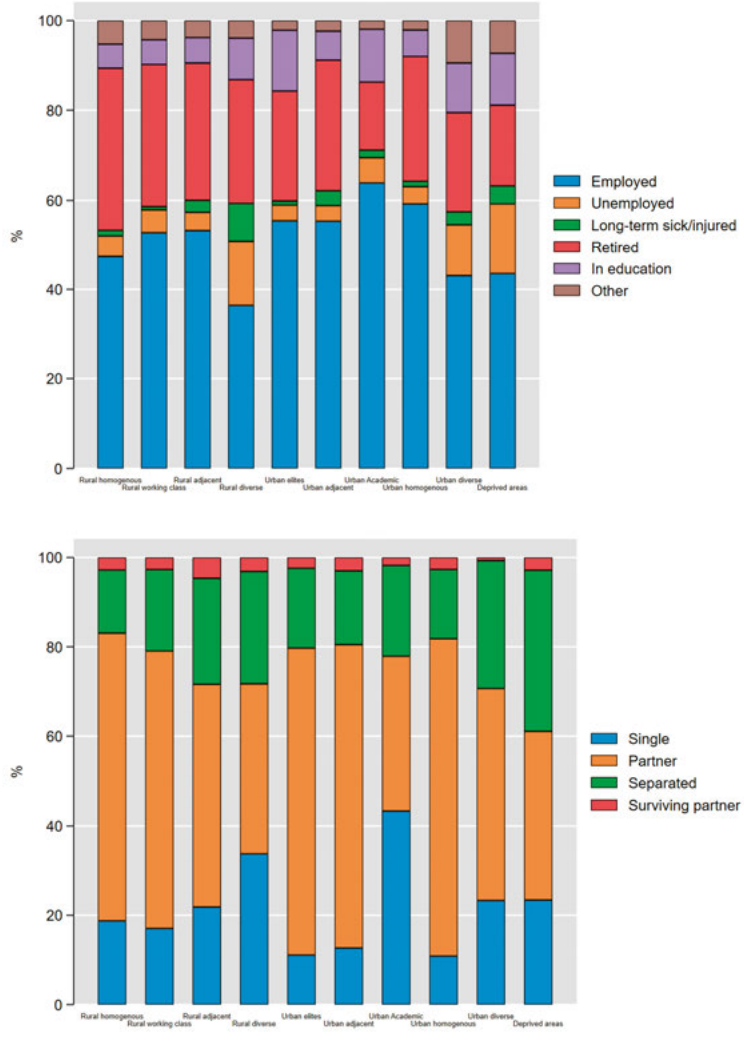

Figure 4a: The weighted distribution of labour status (up) and marital status (down) per neighbourhood type of the respondents to the Neighbourhood 2020 Survey.

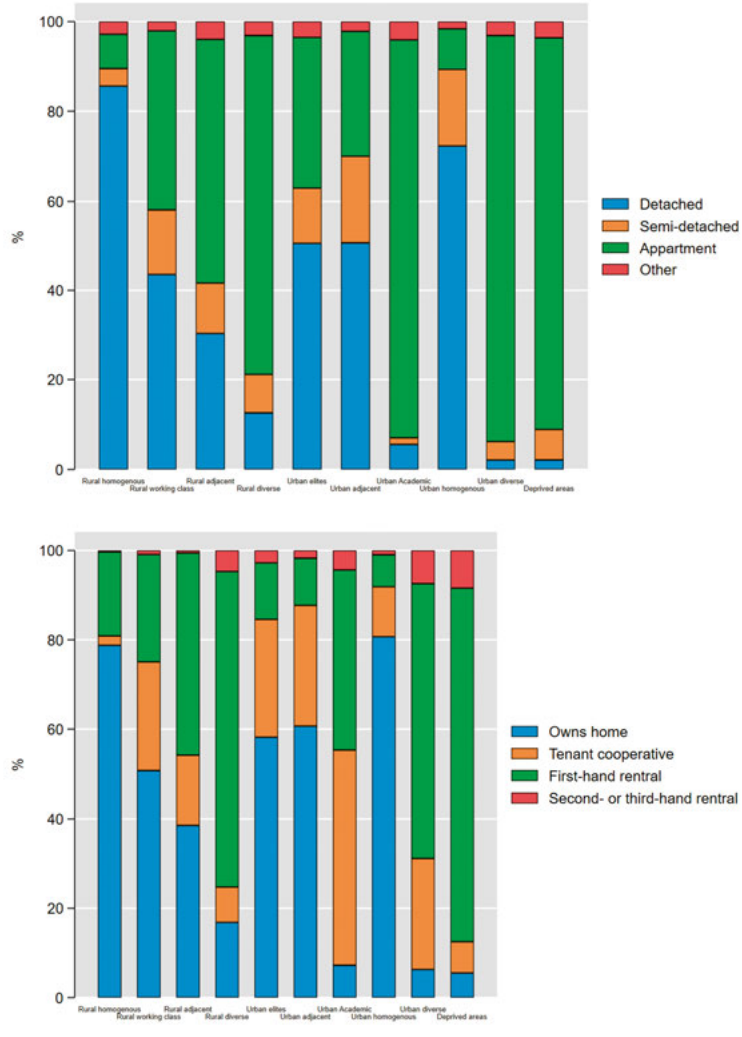

Figure 4b: The weighted distribution of housing type (up) and tenure (down) per neighbourhood type of the respondents to the Neighbourhood 2020 Survey.

Table 3: *Overview of studies*.

Paper	**Paper I**	**Paper II**	**Paper III**
Data sources	PLACE 2015 (LISA, *Geografidatabasen*, *Fastighets registret*, *Befolkningsregistret*), Land Ordinance Survey 2016	Neighbourhood Survey 2020 linked to LISA 2019	PLACE 2009–2016 (LISA, *Geografidatabasen*, *Fastighets registret*, *Befolkningsregistret*), Land Ordinance Survey 2016
Period under study	2015	2020–2021	2009–2016
Measure of well-being (range)	External well-being: Index A (13.98–64.33)	Life Satisfaction (0–10)	External Well-being Index B (13.43 -57.17)
Population	Labour population [2] (4,922,031 individuals)	Adult population with full answers to the survey (3,894 individuals[3])	P0: Labour population[1] (6,584,278 individuals) P1: Labour population[1] observed moving (1,383,348 individuals) P2: Labour population[1] observed long-distance- moving (11,574 individuals) P3 Labour population[1] observed short-distance- moving two times (1,838,519 individuals) P4: Labour population[1] observed long-distance- moving two times (15,844 individuals)
Method of spatial aggregation	*K*nn, *k*-means	DeSOs dominated by typologies created by Malmberg & Kawalerowicz (2021) based on *k*nn aggregated data.	Municipality type
Method of analysis	*k*-means, Moran's Local I	Weighted multivariate regression	Fixed effect panel regression

[2] Unemployed individuals are included in the labour population. Rather, the labour population refers to all adults that are not retired or studying.
[3] Unweighted

Main exposures	N/a	Neighbourhood type, attitude towards the neighbourhood	Moving time interacted with gender, visible minority, moving history, moving distance
Covariates	Visible minorities, education	Social contact, activities in the neighbourhood, tenure, housing type, wage, labour status, education, age, marital status, gender, migration background, time in the neighbourhood	Municipality type, education, number of children, ten
Research aim	Where well-being is spatially sorted	Where and why well-being is spatially sorted	Why well-being is spatially sorted
Corresponding research question	RQ 1	RQ 2	RQ 3

Research Populations

In summary, there were two measures of well-being derived from three data sources that formed the input of the analysis in this work: the external indices derived from the registers and the ordinance surveys and the internal measure from the survey. To tease out the spatial distribution of these measures, the demographic differences, and to explore potential sorting mechanisms, a variety of methods of spatial agglomeration, demographic subdivision and statistical analysis are used. An overview of the research design for each paper is given in Table 3. In the following sections, a more detailed overview is given.

Varieties of Clustering and Spatial Indicators

Throughout this work, varieties of spatial aggregation and spatial classification are used, particularly in Paper I. Firstly, there is the *k*nn clustering method of creating neighbourhoods. The *k*nn approach is used in particular for Paper I as a means to obtain several levels of neighbourhood well-being, namely: 50; 100; 200; 400; 800; 1,600; 3,200; 6,400; 12,800; 24,600; 51,200; 102,400; and 204,800 nearest neighbours. Other scholars have taken similar levels, e.g. Wimark et al. (2020). *K*nn clustered bespoke neighbourhoods have also been the inputs for the typology that informed the sampling frame of the Neighbourhood Survey: we can say with at least 97% certainty that the respondent's nearest neighbours conform to a certain sociodemographic profile. Paper III does not have an explicit spatial resolution; however, a control variable is used, indicating the DeSO type a respondent is residing in. The classification is made by the Swedish Association of Local Authorities and is based on local labour market characteristics, population, and commuting patterns (Swedish Association of Local Authorities and Regions, 2017).

Two other forms of spatial indication are used in Paper I, namely k-means and Local Moran's I. This creates a trajectory in average well-being for each neighbourhood as the *k*nn increases. K-means cluster analysis was performed to obtain a classification of these trajectories. K-means is a supervised machine learning algorithm that groups cases that have similar means for a set of *v* variables into a *k* number of clusters. It is commonly used in studies of spatial sorting and spatial distributions across various levels of scale such as Wimark et al. (2020) and Malmberg et al. (2024). As the *k* is set by the researcher before the analysis and there is no clear way of obtaining a 'correct' number, it is common to run the analysis for multiple *k*s before choosing an appropriate

number. In this case, the analysis was run for any number between two and 20 clusters. A common way of finding the most appropriate number of *k* is to explore how the within-sum of squares (WSS) decreases with every increment of *k*. In other words, the squared sum of deviations of each observation for their cluster mean, decreases with each increment of *k*—the *k* value where the decline in WSS flattens could be the best number. The log-transformed WSS is depicted in Figure 5; as can be seen, there are three kinks in the curve that indicate a potential good fit at *k*=5, *k*=8, and *k*=12. After exploring how the curves progress as the *k*nn increases, 12 clusters were found to be most appropriate to describe well-being changes, as they have clear groupings at the extreme ends of the scale, making it easy to interpret the clusters in terms of trajectory over scale.

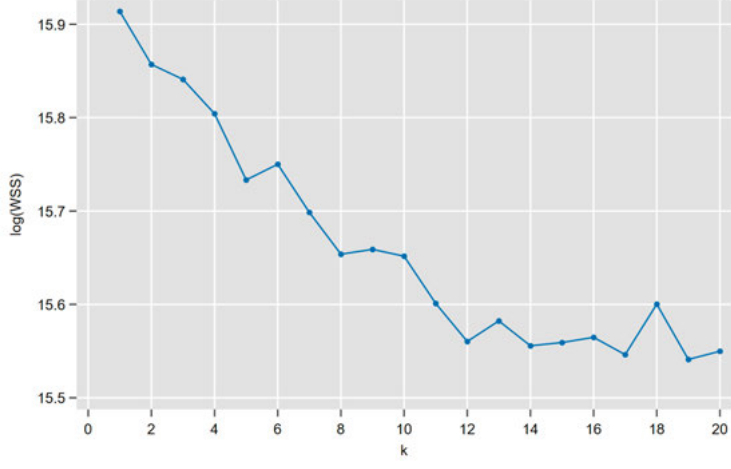

Figure 5: Elbow plot of the log transformed Within Sum of Squares per *K* for the *k*-means cluster analysis for Paper I.

Local Moran's I is a local indicator of spatial association used for disentangling the decomposition of global spatial distributions. It has been used previously to study neighbourhood effects on well-being and spatial clustering of well-being (Rijnks et al., 2019; Ziogas et al., 2023) and used in neighbourhood effects research, as well (Kuyvenhoven et al., 2023). Local Moran's I is a method that compares the observed value versus an expected value that would take place in a random pattern. Five outcomes are obtained by classifying the observed value compared to neighbours: dissimilar and a high value, similar and a high value, dissimilar and a low value, similar and low value, and no significant

difference from the expected value. The significance should be taken with a grain of salt as human activity rarely follows a random spatial pattern in the first place, so significant patterns will almost always be found (Anselin, 1995). The Local Moran's I analysis was run for Malmö, Gothenburg, and Stockholm for the six components that show greater variance between neighbourhoods: income, housing, labour status, partnership, access to nature, and age. However, inputs are individuals and their scores for the component because Local Moran's I need a single input value, and the individualised neighbourhoods have 13 values for each *k*nn.

Comparing Spatial Classifications

Between the three papers, the three spatial classifications, the 12 clusters of neighbourhood-level external well-being from Paper I, the DeSO dominated by a typology in Paper II, and the type of DeSO according to local authorities have been created based on approximately the same period using related but different variables and different methods and each yields a different number of classes. It is useful to explore how they relate to each other. Figure 5 shows the municipality types of the DeSOs that form the sampling frame for Paper II and the type of clusters found in Paper I that are in the DeSO that form the sampling. The typologies are from comparable time frames: the typology for Paper II is based on data from 2016 and the typology in Paper I is based on data from 2015.

As visible in the figure, the classification of urban and rural by Malmberg & Kawalerowicz (2021) seems to be in accordance with the municipality type: most rural typologies are in commuter or rural areas, though not with perfect overlap. In particular, the rural town working class and rural homogenous are also found in cities. Similarly, urban elites-type neighbourhood-type DeSOs are, in some cases, rather small towns. The sampling frame seems somewhat to blur the line between suburb and rural, which might be the result of similar densities in those places.

Comparing the sampling frame of Paper II to the clusters in Paper I in the DeSOs of the frame, it stands out that the DeSOs used in Paper II contain every external well-being cluster as defined in Paper I. Moreover, urban elites-type neighbourhoods, used as a reference in the models in Paper II, do not have a large proportion of the high external well-being type locations in them (e.g., 12Hs and 10Hs). Instead, urban elites-type neighbourhoods tend to have neighbourhoods in the middle

(M) type well-being clusters in them. It is particularly interesting that the neighbourhoods that had a persistent negative association with internal well-being in Paper II, urban and rural homogenous neighbourhoods are well represented in the higher external well-being clusters. Neighbourhoods that had lower life satisfaction and less positive attitudes towards the neighbourhood—rural diverse, deprived areas, and rural adjacent—have a higher proportion of lower external well-being clusters as well, in particular cluster 4Ls. Another remarkable aspect is that rural adjacent type DeSOs often overlap with 10Hs locations.

Conclusively, the high well-being clusters are not necessarily associated with places associated with higher internal well-being in the sampling frame of Paper II, in fact, the neighbourhood types that have a negative association with well-being have a sizeable portion of high external well-being clusters in them. On the other hand, the low well-being clusters can mostly be found in types of DeSOs with a negative association too. In other words, it seems that the sampling frame aligns well with clusters of low external well-being, but the relationship between high external well-being and neighbourhood type is less clear. This can be related back to the previous discussion on whether the positive states in the index correspond to actual life satisfaction: the findings from the neighbourhood type seem to suggest that the index is less related to high life satisfaction but fairly well related to low life satisfaction – at least a neighbourhood level. Nevertheless, it should be noted that many of the findings in Paper II are after including individual controls, whereas such a separation between individual and neighbourhood effects was not done in Paper I.

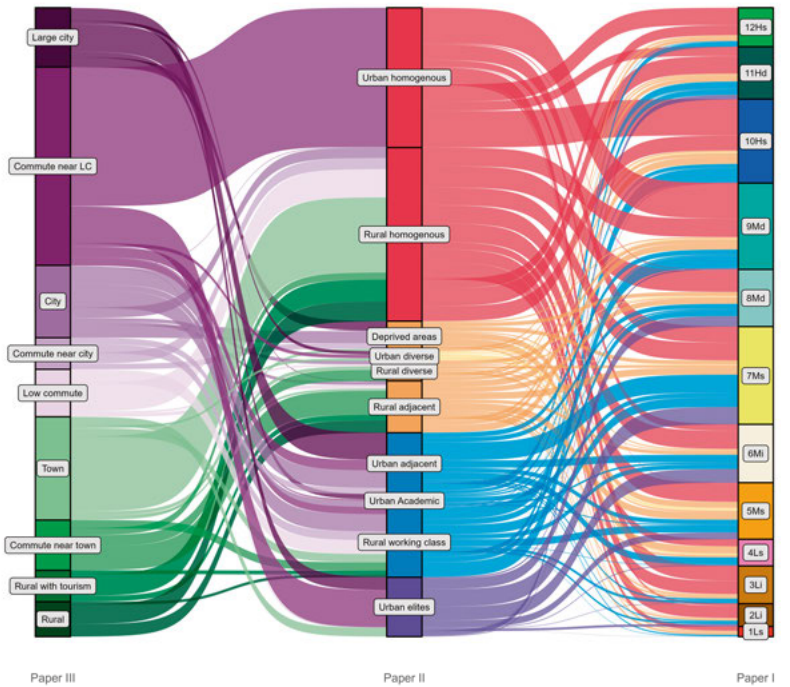

Figure 6: Classification of locations in Paper I, found in the DeSOs that formed the sampling in Paper II and the municipality type of the DeSO area that they are in.

Creating Demographic Groups

In this work, various demographic groups are used to compare well-being to each other and to relate to previous measures of socioeconomic and ethnic residential segregation. A brief overview will be given here. Firstly, to distinguish between various individuals with different migrant backgrounds, two measures are used between the papers. For Paper II, which is not primarily concerned with ethnic variations in well-being, a simple measure of whether one is foreign-born or has at least one foreign-born parent is used, with no distinctions between countries. For Papers I and III, which explore ethnic variations in levels of well-being, a more sophisticated distinction is used in the form of visible minorities. Visible minorities are a statistic used in previous research on ethnic segregation (see, e.g. Andersson et al., 2010). They are operationalised by the country of birth of the individual and their parents. The central idea is that individuals born or with parents born in Sub-Saharan, Latin America, Middle Eastern, and Asian countries are unlikely to be perceived as white by the white Swedish majority population, who may change their perception and manner towards these individuals (Andersson et al., 2010). Similar approaches are used for statistics in, for example, Canada (Government of Canada, 2015) and have formed the basis for some studies on well-being there (Agyekum & Newbold, 2016). The coding approach has been the same as in Andersson et al. (2010). The list of the countries that are considered visible minorities is included in Appendix 2.

Some notes can be made on the accuracy of this measure. The use of country of birth as a proxy for ethnicity is falling out of favour, as opposed to a self-reported measure of ethnicity. The drawbacks of country-of-birth approaches are that they mostly rest within a singular view of ethnicity, and nation-states are poor proxies for ethnicities (Stronks et al., 2009). For instance, somebody with a mixed heritage might feel like they belong to multiple ethnic groups. Moreover, countries can contain many ethnicities; for instance, a Swedish speaker from Finland might be registered as a Nordic migrant in some approaches but will have a different experience if they move to Sweden than a monolingual Finnish speaker. Some of these issues are not necessarily a problem in the measure of visible minorities, as the logic of the measure is rooted in the idea that the visible majority group might change their behaviour towards visible minorities. The visible majority might not be aware of the ethnic nuance of the country of birth. On the other hand, it will result in some misclassification. For example, an African American or Asian American migrant from the US is likely to be treated differently than a Caucasian migrant, following the logic of the measure, but is nevertheless classified as a visible majority in this approach. It is not really

possible to assess the error in the measurement. Nonetheless, using country of birth has some benefits: the categories are stable over time; second-generation migrants can be identified with some ease (Stronks et al., 2009); and, in the Swedish case, availability, as the registers do not have any other available measure of ethnicity.

For comparisons between genders, the survey data and register data differ as well. Whereas the Swedish registers only allow for a static male-female binary, the survey permitted respondents to self-identify as something 'other' than the binary or to decide not to disclose that information. However, so few respondents fell outside of the binary (of all respondents, 20 replied with 'other' and 65 preferred not to answer) that they have been simply removed from the sample.

Lastly, while not being one of the main demographic groups in this study, the variable of education is included as a control in each paper. The same register-based variable is used for each study. However, the number of levels is slightly different between Paper II on the one hand and Papers I & III on the other. In Papers I & III, a dummy is created to indicate whether someone has finished more than 12 years of education. In Paper II, the same variable is used, but more categories for those who have finished more than 12 years of education are included.

Regression Models of Well-Being

Rather than clusters and local indicators of spatial association, Papers II and III use regression models to estimate changes in well-being structurally. Due to the simple cross-sectional nature of the survey used for Paper II, a simple multivariate regression approach was taken, with as the dependent variable the 11-point scale of life satisfaction and weighted with the sampling weights. Technically, this is an ordinal variable and not a continuous one. Hence, an order logistic regression would be most appropriate. However, previous findings have shown that life satisfaction-dependent variables with even fewer categories have similar estimates for order logistic regression and linear regression (Ferrer-i-Carbonell & Frijters, 2004). As linear regressions are less restrictive and more straightforward to interpret, they have been the common choice in well-being research and have been used here, too. Against the measure of life satisfaction, the aforementioned neighbourhood indicators were regressed in addition to controls for demographic, socioeconomic, and housing factors.

The register data has a panel design. Consequently, a simple linear regression will yield biased results as the observations are tied together

by being repeated among the same set of individuals. Therefore, in Paper III, the variance of Index B consists of two parts: variance caused by variation between individuals and variance within individuals between moments in time (Bell et al., 2019; Bell & Jones, 2015). Thus, some correction to separate these two variances is required. For instance, the intraclass correlation, which signifies how much of the variance is caused by between effects, is 71% for all the movers used for analysis. There have been two approaches to deal with these: random and fixed effects. Random effects split up the error term into an error term that varies between observations and individuals and a random intercept. These two terms are assumed to be uncorrelated, something that is in practice seldom true also for the data in this research. This is a consequence of heterogeneity in the coefficient of time-varying variables: one part of the coefficient is caused by within factors, and one part is caused by between factors, biasing the coefficient and therefore the error term (Bell et al., 2019). While more complicated specifications of random effects that are better equipped to deal with heterogeneity are available, they are not necessarily preferable: the heterogeneity they model in explicitly is not the variance we are interested in.

Fixed effects models deal with the problem by removing all between variances, basically rendering it a single-level model. This is achieved by demeaning every variable, including the dependent—that is, subtracting the individual-level mean from the observed value. A drawback is that, besides removing the majority of the variance, time-invariant variables cannot be included either. Their individual level mean is always the same as the observation. Another issue with fixed effects models is that including both period and age effects, in addition to the inherent control of cohort effects inherent to fixed-effects modelling (as the cohort is time-invariant), is very hard. Including both age and period effect variables can lead to further bias and should be done carefully (Brüderl & Ludwig, 2015) and in the case of this research, was not viable. As such, these models are non-causal. However, fixed effects models have some advantages. Firstly, losing the between variance does not hamper the research objective. As we are interested in the development of well-being over time in the period around migration, the only relevant effects are within effects. Secondly, fixed effects models are less sensitive to bias caused by heterogeneity. Thirdly, fixed effects are computationally more efficient. Thus, the fixed effects approach was chosen.

In particular, a fixed-effect growth curve model was chosen. Growth curve analysis is a set of estimation models that studies the development of a variable over time, with one common previous time point as a

reference. For example, in their studies into internal well-being and long-distance relocations, Nowok et al. (2013) measure the development of well-being relative to the moment five years before relocating. A similar approach is taken for this study, which is the following: for every individual, a time variable is generated that signifies the time relative to their relocation (e.g. T=-5, meaning five years before relocating), which was interacted with an individual level variable indicating the type of mover (e.g., their ethnicity, gender, or if they moved a long distance). This results in various curves that diverge from the reference moment in time (e.g., five years before moving). This approach is similar to Nowok et al. (2013) and Erlinghagen et al. (2021). Unlike Erlinghagen (2021), the models in Paper III exclude all individuals who are not observed moving during the study period. The reason for this is twofold. Firstly, it allows for easier computation and interpretation of the results. Second, it makes for easier comparison between moving groups.

Ethical Considerations

Both data sources contain sensitive information on a considerable number of individuals: the survey collects a portion of variables that could indicate philosophical beliefs and personal information from a sizeable part of the population, whereas the registers contain information about every person legally residing in Sweden. It is crucial, then, that the research is conducted ethically and securely. Consequently, ethical approval has been obtained for both data sources. For the PLACE database, this approval was granted by the Swedish Ethical Review Authority [*Etikprovningsmyndigheten*] (Dnr. 2022-02279-01). For the data from the Neighbourhood Survey, ethical approval was obtained by Stockholm University (Dnr. 2020-02792) before the survey was circulated. The data was shared with me under a data-sharing agreement as the data was located at Stockholm University.

Both datasets were stored on a secure server. Only authorised users who are approved members of the Department of Human Geography at Uppsala University can access this server. Moreover, they have been stored in a folder that has been protected by a password, meaning that only the administrators of the data servers and I can access it. To protect the privacy of informants, the personal identifiers of individuals in either dataset have been pseudonymised. Both databases have different pseudonymisation keys and cannot be accurately linked to each other. In the case of the PLACE database, the pseudonymisation key has since

been destroyed. Despite these efforts, it is possible to track people back in the database through great effort, either through already being familiar with this person's personal details or having rare identifiers, such as a rare country of birth. To minimise this risk, unaggregated data is never presented in the thesis. Likewise, no unaggregated data left the protected server.

Conclusions on the Methods

In summary, this dissertation draws on three data sources used for two operational approaches to well-being. Taken together, these methods contribute to the aim of exploring how well-being is spatially sorted, with various spatial models to explore how well-being varies over spaces and between types of places and regression models to study how well-being differs between various types of demographic groups. Paper I focuses primarily on the 'where' well-being is sorted. This was done by aggregating external well-being over bespoke scales and analysing these patterns using *k*-means clustering and local indicators of spatial association, providing a sophisticated spatial analysis of neighbourhood well-being. Paper II is primarily concerned with where and why. Through the measures of attitudes towards the neighbourhood that the survey provides, an explicit link between the qualities of the neighbourhood could be made, providing some explanation as to why residents of certain neighbourhoods are less well. Moreover, through the typology of neighbourhoods, the paper provides more insight into what types of neighbourhoods are spaces of low well-being, further providing an answer to the 'where'.

Finally, Paper III explores 'why' well-being is spatially. Through the fixed effect growth curve models, the differences in the development of the well-being of various demographic subgroups when moving are studied, exploring the potential impacts of spatial sorting. Moreover, as the difference between groups is studied, more light is shed on how well-being is differently distributed among demographic groups.

5. Summary of the Papers

This chapter presents short summaries of the three papers that constitute this dissertation. The second paper uses the Neighbourhood 2020 survey, whereas the other two use Swedish registers. More detailed results can be found in the Appendix, with the papers attached in full.

Paper I: Segregation and Well-Being in Sweden: Geographies of Well and Ill-Being

This study explored the spatial distribution of well-being and its relationship to various forms of residential segregation. Firstly, an external well-being index was created based on the performance of eight well-being-related domains of the 2015 Swedish labour force: labour, income, partnership, green space, health, age, amenities, and housing. Secondly, to assess the spatial homogenisation of well-being over various scales, bespoke *k* neighbourhoods were created containing the mean values of the well-being index over 13 different levels of nearest neighbours. The relationship between average well-being and conventional measures on each *k*nn scale level, namely the concentration of ethnic minorities and lower educated individuals, was strongly correlated. Thirdly, to explore whether these neighbourhoods are homogenous in terms of well-being, the well-being at all 13-scale levels for each location was categorised using k-means cluster analysis. These classified locations have been mapped to explore their spatial patterns in the metropolitan areas of Sweden. Lastly, the spatial distribution of the scores of the individual components of the index is explored through Local Moran's I analysis to study the underlying patterns of spatial well-being.

Visible minorities and lower-educated individuals are strongly correlated to a lower well-being index score, for lower-educated people, particularly on the lower *k*nns. At the same time, the correlation is quite stable over scale for visible minorities. From the *k*-means cluster analysis, six types of clusters have isolated well-being on every scale, two of which have low neighbourhood well-being, regardless of scale. Half of the working population lives in areas that have homogenised levels

of well-being; 10% live in a well-being-deprived neighbourhood. Regarding geographic location, many of the low well-being neighbourhoods are located in areas typically associated with ethnic and socioeconomically deprived concentrations. The Local Moran's I shows that areas that score low on well-being are deprived in most of the eight domains of well-being dimensions, while middle- and high-scoring neighbourhoods vary in the domains in which they excel.

The paper finds that external well-being is spatially sorted: 24% live in neighbourhoods of homogenously high or low well-being. Particularly at more detailed scales, spatial differences become apparent. The study is among the first to connect spatial sorting as a potential explanatory framework for spatial variations in well-being.

A key question is whether these variations are due to neighbourhood effects or spatial sorting itself. Arguments against neighbourhood effects would highlight that many areas with low ethnic or socioeconomic segregation also exhibit homogenised low well-being. Conversely, the higher individual variance of well-being suggests that it may be more appropriate to interpret it as an individual outcome.

Paper II: Spatial Sorting of Well-Being in Sweden: The Role of Attitudes towards the Neighbourhood and Neighbourhood Type

With the increase in attention to matters of well-being, quality of life, and happiness, there has also been an increase in attention to the spatial distribution of well-being. However, many studies either have a rather coarse resolution—for instance, only looking at the city or region level—or only relate well-being to one particular aspect of the neighbourhood. This study examines the associations between internal well-being and the sociodemographic composition of the neighbourhood. Moreover, the role of attitudes towards the neighbourhood in overall individual well-being is explored.

The paper contributes to the growing field of neighbourhood-level studies of well-being by analysing the role of the sociodemographic composition as a whole of the neighbourhood and by including individual attitudes through which the neighbourhood is perceived. By doing so, a more explicit explanatory pathway between the neighbourhood and well-being is made. To do this, the unique Neighbourhood Survey 2020 is used, in which residents of representative types of neighbourhoods in Sweden were sampled. These neighbourhood types are

constructed using full register data and bespoke neighbourhoods based on demographic and socioeconomic characteristics. The data include attitudes towards the neighbourhood and life in general, local activities and contacts with neighbours, and residential histories (Haandrikman & Strömblad, 2022). In addition, each respondent is linked to their record in the high-quality Swedish population registers, providing accurate information on their employment, family composition, and place of residence.

The empirical approach involved a descriptive exploration of how life satisfaction and attitudes towards the neighbourhood were distributed among the various neighbourhood types. Then, two weighted multivariate models were estimated. Firstly, a model was estimated with only individual life course controls, such as demographic and socioeconomic characteristics and neighbourhood type (Model 1). Subsequently, a model including attitudes towards neighbourhoods was estimated (Model 2). Model 1 assesses whether life satisfaction is spatially sorted according to the sociodemographic profile of neighbourhoods beyond individual characteristics. Model 2 assesses how potential spatial sorting of life satisfaction may also be explained by attitudes that individuals have towards the neighbourhood and how much of these attitudes are related to the sociodemographic profile of that area.

From the descriptive evidence, we find that neighbourhoods that are socioeconomically deprived and have high proportions of non-EU migrant populations have proportions of unsatisfied residents. Moreover, we find that their residents are less likely to find their neighbourhood a good place, identify with their neighbourhood, and are more likely to not feel at home and want to move. Model 1 indeed finds significant negative associations for residents of deprived, migrant-dense neighbourhoods; however, this significance disappears in Model 2 when the attitudes towards the neighbourhood are included. Nevertheless, for residents of neighbourhoods that are homogenously Swedish and not economically affluent, a stable significant association is found in both models.

We conclude that there is spatial sorting of well-being: residents of neighbourhoods with high shares of less affluent inhabitants and non-EU migrants report lower life satisfaction compared to residents in well-off urban areas, with residents in rural diverse and deprived areas having noticeably low life satisfaction. The significant effects for neighbourhood type disappear when controlling for attitude towards the neighbourhood, which is positively associated with life satisfaction. This implies that lower life satisfaction is associated with how people perceive their neighbourhood. Thus, we conclude that the lower well-

being might result from poorer individuals and non-EU migrants being sorted into less desirable neighbourhoods. There is no clear theoretical reason why the homogeneous Swedish areas also report lower well-being. However, it is unlikely that this is due to neighbourhood appraisal.

Paper III: Residential Relocations, Well-Being, and Mover Characteristics in Sweden: Divergences between Distances and Ethnicity

Relocating is a life event that comes with a considerable reconfiguration of contextual factors, such as exposure to certain neighbourhoods and social contacts. A small field studying the relationship between relocating and well-being has consequently emerged. However, these analyses tend to focus on long-distance relocations and treat relocating as a uniform event. This study contributes to this field by studying both long- and short-distance relocations.

The empirical approach was to compare the development of Index B around the time of relocating for different groups: long-distance versus short-distance movers, men versus women, and visible minorities versus the visible majority. This was first done by comparing their mean index and index component score over time relative to moving. Then, four fixed effects growth curve models were specified to estimate the development of well-being over the time relative to moving. The first model compared the development of well-being for women, visible minorities, and long-distance movers. The second compared the development of well-being around the time of long-distance relations between women and visible minorities, compared to a visible majority male baseline. The last two models studied the development of well-being during the time of the second move to the first for short-distance and long-distance moves, respectively.

From mapping the average well-being over time, I find that the well-being of stayers is slightly higher for all years. However, most demographic groups have a convergence in well-being between stayers and movers over time, indicating a positive impact of moving. Moreover, visible minorities and long-distance movers show divergent trends in well-being compared to their staying counterparts. When studying the development of index subcomponents over time relative to moving, a different composition also becomes clear for long-distance movers and visible minorities. For long-distance movers, the changes are more

sharply negative. For visible minorities, negative trends already start before moving, particularly for labour and partnership.

From the models, further divergences become clear. Firstly, in the first years at their new residence, there is a fluctuation in well-being for all subgroups except visible minorities: the first year there is a minor spike in the first year after moving, followed by a minor decrease in the second year. There is an immediate restoration to the pre-move trend and improvement for men, women, and visible majorities in the subsequent years. However, for long-distance movers, there is a deeper negative shock and less complete restoration; well-being is lower in the long term than before relocating. For visible minorities, the decline in well-being already starts in the years preceding the move. In the first years of moving, the shock to well-being is the largest; there are no signs of any significant subsequent restoration to previous levels of well-being. The same pattern is reproduced when comparing visible minorities to visible majorities only for long-distance relocations. A second move is associated with a more positive association before relocating but no significant differences compared to first-time short-distance relocators after moving. For second-time long-distance relocators, no significance with first-time long-distance moves is found at any moment.

I conclude that relocation is far from a universal life course event in terms of well-being. In particular, it seems that relocating comes with serious harm to visible minorities' well-being. Given that the negative associations start before moving, it can be interpreted as a higher propensity of forced moves for visible minorities. Moreover, the study provides a point of divergence from studies using internal well-being, finding immediate positive effects for moving in terms of internal well-being. However, it should be noted that the size of the association is a small part of the variation.

6. How Well-Being is Spatially Sorted

In this thesis, the overarching aim has been to explore how well-being is spatially sorted in Sweden—particularly, to study where well-being is sorted and why well-being is sorted. On the one hand, this thesis connects to an emerging awareness that well-being has a spatial dimension and, therefore, a spatial distribution. On the other hand, the research presented here connects to studies on residential segregation, which study the distribution and spatial sorting of life courses and subsequent individual outcomes. Combining these fields enhances spatial awareness, in particular at the most detailed neighbourhood scales, while also incorporating the hitherto overlooked dimension of well-being into research on spatial sorting. In fact, unlike previous studies concerning spatial sorting that have been preoccupied with opportunities, such as employment opportunities (Andersson et al., 2014; Vogiazides & Mondani, 2020) or chances later in life (Brandén et al., 2023), the findings in this project stress a more immediate and wider problem: that spatial sorting is directly related to the worse experience of life and the worse living conditions on a wide spectrum of certain underprivileged groups, namely ethnic minorities.

As I have illustrated throughout the thesis, well-being data in Sweden is rare, and well-being data of a sufficiently high spatial resolution is even rarer, as many well-being studies rely on internal measures through surveys. Because of this lack of data sources on well-being, there are considerable lacunae in knowledge both of Swedish well-being and neighbourhood well-being in general, which this thesis has set out to fill. Potentially, the lack of data sources in the form of surveys is a consequence of one of the major scientific opportunities in Sweden: the availability of population registers. With this in mind, another important contribution of my work can be found in the mobilisation of the Swedish population registers for well-being, used in Paper I and Paper III. Moreover, we used one of the few spatially coded sources for internal well-being (in Sweden) to obtain insights into the relationship between the neighbourhood, individual, and internal well-being. While the types of well-being have not been explicitly linked, the findings do partially corroborate each other: similar types of neighbourhoods with similar populations are shown to have lower well-being, as will be discussed in the following sections. In this final chapter, the

findings will be summarised and discussed. Lastly, I will also review the limitations of the work presented in this study and some future avenues for research.

Where Well-Being is Spatially Sorted

To answer the first research question— 'To what extent and at what scales is well-being spatially sorted in Sweden'—I have found evidence of spatial sorting of well-being, whether it is operationalised internally or externally. The spatial sorting of Swedish well-being can be understood in two ways: a geography of low well-being and a demography of low well-being. The geographical dimension refers to the spatial sorting of individuals with low well-being into certain neighbourhoods, namely peripheral urban neighbourhoods. The demographic dimension refers to the spatial sorting of certain groups into areas associated with lower well-being. As a result, or maybe because of the spatial sorting of low well-being into neighbourhoods with high concentrations of people with a migration background, visible minorities are consistently found to have lower external well-being. For internal well-being, no differences were observed between respondents with a migration background and 'natives'. However, for that study, migration background was not diversified to the extent it was for external well-being. The study does find that residents in migrant-dense areas have an association with lower internal well-being. In a mirrored pattern, men were found to have higher external well-being, while a significant gender difference in favour of women was found for internal well-being. However, the gender difference in internal is of rather minimal size and models comparing male and female movers found no significant differences. Thus, it seems that ethnicity is the main demographic aspect that constrains any opportunity structure to achieve being well.

Regarding the extent of the spatial sorting, I found that 10% of the population live in a neighbourhood of homogenised low external well-being and 14% in neighbourhoods of homogenous high external well-being. Moreover, 24% of respondents were registered in a neighbourhood type associated with lower well-being through worse appreciation of the neighbourhood. An additional 21% of the sample was found to be residents of neighbourhood types associated with lower internal well-being that is not so clearly tied to the neighbourhood. Moreover, as noted in Chapter 4, while there is considerable overlap between areas associated with lower life satisfaction and areas with low external well-being, the overlap between areas with high external well-being and

areas not associated with lower life satisfaction is not so clear. It should be noted, however, that the classification for external well-being was based on a much larger sample and spatial extent. Both for external and internal well-being, areas not typically associated with migrant concentrations and socioeconomic deprivation were highlighted as having lower well-being.

Regarding the scale at which the spatial sorting of well-being happens, the findings indicate that the neighbourhood level is the scale at which the main spatial variation in well-being takes place. In Paper I, the largest difference between clusters of neighbourhoods was the most detailed scale. This fits with more recent studies that find the most pronounced spatial polarisation at the highest spatial resolution (Petrović et al., 2022). In Paper II, while the scale is somewhat obscured by the typology, we do find a neighbourhood effect. Moreover, an explicit link between the neighbourhood and well-being is made through the association between life satisfaction and the attitude towards the neighbourhood. This clarifies that the importance of the neighbourhood—its features and sociodemographic composition—should be a factor in well-being studies. Furthermore, the findings illustrate that in places with levels of ethnic and socioeconomic residential segregation similar to Sweden, studies are missing an important dimension if they do not consider the neighbourhood or use a less detailed resolution, such as regions or cities (e.g. Goetzke & Islam, 2017; Hong & Park, 2021; Okulicz-Kozaryn, 2012).

Where well-being is spatially sorted can also be answered more specifically. In terms of the exact locations in which lower well-being is concentrated, I have found that neighbourhoods of homogenously low external well-being in Stockholm, Gothenburg, and Malmö tend to be in multi-family housing areas that were built during the Million Homes programme at a considerable distance from the urban centre. These areas are often identified as socioeconomically deprived and migrant-dense (Andersson et al., 2010). Similarly, for internal well-being, it becomes clear that the pattern of peripheral deprived neighbourhoods having lower well-being is not just limited to external well-being or only in metropolitan areas of Stockholm, Gothenburg, and Malmö. We also found lower well-being in certain types of neighbourhoods that tend to be located away from the urban cores, although the overlap with external well-being is not perfect, as mentioned before. In the spatially stratified sample, residents of economically deprived neighbourhoods and neighbourhoods with strong non-EU migrant concentrations have structurally lower internal well-being. These types of neighbourhoods are found, among others, in the same Million Homes Programme areas that

have been classified as clusters of homogenised low external well-being. Similarly, among movers, the municipality types of urban and suburban neighbourhoods, in which these Million Homes Programme areas tend to be, are associated with lower external well-being. Moreover, rural areas are shown to have quite high external well-being across a wide range of *k*nn scales. This fits into a wider argument that the quality of life in rural areas might be higher (Okulicz-Kozaryn, 2015) and that individuals are attracted to cities mostly through structural economic forces. However, this is quite contrary to the findings that residents of rural homogenous type neighbourhoods—the vast majority of rural neighbourhoods—have lower internal well-being. Similarly, residents of other types of neighbourhoods that tend to be rural are not found to have significantly lower or higher internal well-being than areas that tend to be urban. However, the labelling of these areas is not restrictive; rather, it reflects that they are predominantly found in rural areas. They are not inherently rural. It should be noted that the association found for neighbourhood types takes into account a variety of individual factors, whereas the *k*nn exploration of scale is merely an aggregation. Nevertheless, these findings illustrate that a simple rural-urban divide, which has been used previously (Okulicz-Kozaryn, 2015; Weckroth et al., 2022), is not sufficient for studying well-being. Just as there is variety among neighbourhoods in cities, rural localities also differ in sociodemographic aspects and, consequently, in their well-being.

Why Well-Being is Spatially Sorted

The remaining question is whether the reported spatial pattern is an effect of socioeconomically deprived groups being sorted into the same area, such as Knies et al. (2016) find, or if there is some type of neighbourhood effect of some type. This relates to the 'why' in the research aim. In the thesis, two pathways have been explored although not with a causal research design. Firstly, as reflected in the research question 'How does the spatial sorting of well-being relate to the experience of the neighbourhood?', explanatory pathways of neighbourhood effects are explored. Secondly, whether the distribution of well-being is the result of spatial sorting of well-being is explored through the research question: 'How does spatial mobility between neighbourhoods reproduce the spatial distribution of well-being?' In the following section the evidence for these two explanatory pathways.

In terms of neighbourhood effects, being a resident of the neighbourhood types with a population that tends to be more economically

deprived and ethnically non-Swedish is associated with lower internal well-being. In fact, as I have illustrated, residents in these neighbourhoods also have less social interaction with their neighbours and perceive their neighbourhood considerably more negatively: they identify less with it, would like to move, do not feel at home, and/or do not consider it a good place. These findings suggest a neighbourhood effect: certain people are sorted into less desirable neighbourhoods, which lowers their (internal) well-being.

In terms of spatial sorting of well-being through mobility, I have illustrated how the process of moving—whether it is over a long distance or a short one—does not come with an improvement in external well-being for visible minorities. In fact, compared to visible majorities, it comes with a lasting downgrade in external well-being. This is similar to previous findings of place stratification for migrant groups (Magnusson Turner & Hedman, 2014; Vogiazides, 2018; Vogiazides & Mondani, 2020). However, the external well-being of visible minorities was found to decline already before moving, which can be taken as a sign that negative changes in the life course affect visible minorities more before they move and that their relocation is not entirely voluntary. Another explanation could be that while visible minorities might move out of accumulated housing stress, they are less able to navigate the spatial opportunity structure and, consequently, are not able to improve their external well-being. Internal well-being, on the other hand, is found to be significantly higher in the first years of living in a neighbourhood. This relationship, however, has not been interacted with minority status, gender, moving distance, or neighbourhood type.

Certainly, sorting effects and neighbourhood effects are not mutually exclusive processes but rather two interrelated and ongoing processes. In particular, a point of connection might be found in the racial proxy hypothesis. The more negative attitude towards the neighbourhood could reflect that the neighbourhood has less-desirable qualities. Ethnic and socioeconomic minorities, in turn, might be less able to navigate the opportunity structure of the housing and rental markets than their ethnic majority counterparts and get disproportionately sorted into these neighbourhoods.

Previously, the concept of a hedonic treadmill was introduced, in which an individual gets used to a new life course state and returns to a baseline of well-being after some time. Here, we can speculate about some type of hedonic spiral as there may be a feedback effect. For some individuals, particularly those part of the visible minority, well-being deteriorates, which may cause a (potentially involuntary) relocation, during which they sort into a less desirable neighbourhood.

Subsequently, their well-being decreases further on account of the neighbourhood being less desirable.

Nevertheless, some retrospection can be made about what constitutes the racial proxy. For instance, Dekker (2012) finds that the lower satisfaction with minority-concentrated neighbourhoods is mostly related to the concentration of economically deprived residents in an area rather than a reflection of social problems in the neighbourhood. In fact, the more negative attitude towards the neighbourhood may be a side effect of the potential involuntariness of the move that was speculated about earlier. This might be related to the fact that many of the areas that have been found socioeconomically and ethnically segregated are typified by high transit. Given that the attitudes towards the neighbourhood include identification with the neighbourhood and desires to remain put there, the flow might be a missing link. However, caution should be used; the approach in Paper III was spatially blind, so there is not an empirical link between neighbourhood type and moving destination. While the individual time of staying was included, the amount of mobility in and out of the area was not considered in Paper II.

With this in mind, it seems that some of the theoretical avenues, which have been described as missing (Ziogas et al., 2023) to the spatial distribution of well-being, could be found within the theory of spatial segregation. Hitherto, the main explanations that have been relied on for spatial variation in well-being have been cultural and institutional (Ziogas et al., 2023). Although it is true that many areas with lower well-being have a considerable portion of residents with a non-European background and, therefore, different cultural references to well-being, these spatial segmentation approaches might be more compelling. The spatial sorting approach can also complement the previously often-used institutional explanations for spatial differences in well-being. Institutional mechanisms behind ethnic and socioeconomic segregation and their neighbourhood effects should be studied, such as barriers in the housing market limiting spatial assimilation and stigma. The stigmatisation of places might be a particularly fruitful avenue, as the importance of a neighbourhood being perceived as a good place—something that stigmatisation surely does not help with—for internal well-being.

Limitations and Further Research

In the papers, several pathways for further research have already been presented. For example, in Paper I, I mention that flows in and out of

neighbourhoods with homogenously low and homogenously high well-being might be an interesting avenue. While Paper III studies residential mobility, it has a spatially blind approach in terms of origin and destination. Thus, further research could focus on inflows, outflows, and turnover rates in areas of high or low well-being to better understand and advance the argument about place stratification of well-being.

Paper I, Paper III, and Chapter 4 highlight that the index is a somewhat crude measure of well-being, most notably in the health dimension. The health dimension is often a problematic factor in external well-being indices. It would be a promising avenue for future research to explore if living in these neighbourhoods with ethnic concentration, socioeconomic deprivation, and reduced well-being are also mirrored by changes in physical and mental health. There are relatively few (recent) studies about general health (as opposed to specific morbidities) disparities in Sweden; the few recent ones only have a regional sample and have not been spatially specified (Amroussia et al., 2017; Degerlund Maldi et al., 2019).

Another aspect of individual-level well-being that this research has not studied is the duration of the exposure to the neighbourhood. In fact, Papers I and II are cross-sectional, while Paper III only considers people staying in neighbourhoods in the descriptive evidence. It would be interesting, for instance, if those who are staying in a neighbourhood with homogenously low well-being have higher well-being themselves. While the analysis in Paper II has a measure of how long people have been at their residence, there were unfortunately too few cases to interact it with neighbourhood types. It would be interesting to explore if the duration of stay could have a moderating effect on neighbourhood-related well-being.

Nevertheless, I have deepened the understanding of the spatial dimension of well-being with this dissertation, by finding that well-being is spatially sorted at the neighbourhood level and that this process is related to ethnic and socioeconomic segregation through something of a hedonic spiral. Through suboptimal conditions around residential relocation, ethnic minorities are sorted into less desirable areas. The resulting geographies and demographies of low well-being have been the main findings in this research. As the findings, but also the limitations, of these studies, illustrate, the neighbourhood should be a primary concern in future well-being studies.

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Appendix 1: Author Statement for Paper II

This work was written jointly and will be part of Gijs Westra's PhD dissertation. Gijs Westra developed the paper idea, and after a joint meeting where the authors discussed the paper setup, Gijs Westra wrote a first draft. After that, Karen Haandrikman contributed to the text, especially to the section on data and methods, and the presentation of results. The statistical analyses were performed by Gijs Westra. Both authors contributed to the paper submitted to *Tijdschrift voor Economische en Sociale Geografie* in December 2024.

Appendix 2: Birth Countries that Are Coded as Visible Minority

Table 4. *Birth countries that are coded as a visible minority*

Country
Ethiopia
Somalia
Gambia
Tunisia
Morocco
Uganda
Algeria
Egypt
Eritrea
Other African
Lebanon
Syria
Turkey
Iraq
Iran
Other Middle Eastern
Cambodia/Vietnam
Thailand
China (incl. Taiwan)
Philippines
Japan
Afghanistan
Bangladesh
India
Korea
Pakistan
Sri Lanka
Other Asian
Central America & Caribbean
Chile
Bolivia
Peru
Brazil
Argentina
Colombia
Other South American
Oceania (excl. Australia and New Zealand)
Unknown

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