LUND UNIVERSITY

CIRCLE
CENTRE FOR
INNOVATION RESEARCH

Tracing local well-being through time and space: From an operationalization to a research agenda

Alvaro von Borries, Markus Grillitsch, Ola Hall

Paper in Innovation Studies no. 2026/03

Tracing local well-being through time and space:

From an operationalization to a research agenda

Alvaro von Borries, Markus Grillitsch, and Ola Hall

Lund, Sweden

April 2026

Abstract: This paper develops and applies a multidimensional indicator of objective well-being grounded in the capabilities approach to analyze spatial and temporal patterns across Swedish municipalities from 2002 to 2020. Operationalizing well-being as a place-based capability environment across six dimensions – economic, health, education, safety, civic, and inclusion – the study moves beyond income-centered accounts of regional inequality and examines how different dimensions of well-being are jointly shaped by local institutional and socioeconomic contexts. The analysis reveals that well-being is persistently structured by municipality type and industrial composition, yet in ways that defy a simple urban advantage: large municipalities lead on economic and educational dimensions but score systematically lower on safety and inclusion, while rural and small municipalities display more balanced capability profiles. Over the study period, well-being improved broadly but unevenly, with rural and peripheral municipalities converging toward the national median while former industrial towns experienced broad-based capability decline across multiple dimensions. The geography of well-being has increasingly aligned with the geography of political discontent, with electoral support for the Sweden Democrats growing strongest in capability-disadvantaged municipalities. Together, these findings advance a spatially grounded, multidimensional understanding of territorial inequality and offer a framework for identifying where structural disadvantage and capability deprivation intersect most acutely.

1 Introduction

In recent years, there has been a call for a more capacious interpretation of local and regional development, complementing the dominant perspective that focuses on growth, competitiveness, and industrial dynamics. This concerns, for instance, the study of developmental consequences of regional industrial path development (Breul et al., 2025), the discontent associated with regional disparities in economic development (Rodriguez-Pose, 2018), the provision of foundational services and infrastructure needed for everyday life (Henderson et al., 2024), and green and environmentally sustainable forms of development (Grillitsch & Hansen, 2019). Moreover, with this turn to a more capacious interpretation of regional development, people are moving to the center, not as a means of production but as an end, thus centering development around people's well-being (Castellacci et al., 2025; Grashof, 2025; Grillitsch et al., 2025). Contributing to a more capacious interpretation of regional development, we ask the following explorative research questions, which we study in the Swedish context.

- How are well-being and its constituent capability dimensions distributed across the Swedish municipal system, and what place-based structural characteristics are associated with these differences?
- How have these patterns evolved over the period 2002–2020?

We take an exploratory approach because, to date, we don't have empirical studies that could serve as benchmarks. It is a question of great interest from a geographic perspective because different types of regions may score differently on different dimensions of well-being. For instance, larger city regions tend to perform well economically while often having lower levels of safety and social cohesion.

This paper makes both conceptual and empirical contributions. Conceptually, it traces the evolution from welfare to well-being, reviews various well-being approaches, and introduces a geographical perspective. We focus on the capability approach (Nussbaum, 2011; Sen, 1985) and connect it to opportunity structures and local preconditions (Bernard et al., 2023; Grillitsch et al., 2025). Accordingly, we outline an operationalization and measurement strategy to study well-being across regions and over time.

Empirically, we contribute by analyzing the spatial distribution of well-being at the municipal level in Sweden, a scale that remains underexplored due to data constraints in many countries. The municipal level is particularly relevant in the Swedish context, as municipalities are responsible for delivering key welfare services and possess substantial fiscal autonomy. They therefore play a central role in shaping local opportunity structures and, by extension, residents' capability sets. Previous research documents pronounced regional disparities in Sweden, often reflecting historical

patterns of industrialization, urbanization, and regional policy (Enflo et al., 2018; Henning et al., 2022). Urban regions benefit from agglomeration economies and dense service provision, while rural and peripheral municipalities face challenges related to depopulation, ageing populations, and declining access to services. From a capabilities perspective, these disparities translate into uneven opportunities to achieve secure, autonomous, and socially embedded lives.

Hence, this paper seeks to advance a spatially grounded understanding of well-being, linking capabilities, regional opportunity structures, and patterns of territorial inequality. We integrate the capabilities approach with regional opportunity structures to analyze well-being at the municipal level. By operationalizing well-being as a multidimensional, place-based capability environment, the study moves beyond income-centered accounts and highlights how local institutional and socio-economic contexts jointly shape well-being. In doing so, it offers a framework for understanding how territorial inequalities lead to unequal substantive freedoms.

2 Well-being in regional development

2.1 From welfare to well-being

Improving social welfare has long been a central normative objective of research in the social sciences (Flyvbjerg, 2012; Habermas, 1991; Sen, 1992; Weber, 1949). Throughout much of the twentieth century, this objective was largely anchored in the assumption that expanding consumption possibilities – enabled by rising incomes, productivity growth, and market expansion – would naturally translate into better lives for citizens. Welfare was therefore commonly equated with economic performance and assessed through indicators such as GDP growth, employment rates, or labor productivity. Within this paradigm, economic growth was not merely a means to improve welfare but was often treated as a proxy for it.

This growth-centered conception of welfare has increasingly been challenged on both empirical and normative grounds (Castellacci, 2023; OECD, 2011, 2024; Sen, 1999). A substantial body of research demonstrates that once basic material needs – such as food, shelter, and physical security – are satisfied, further increases in income do not systematically lead to higher levels of happiness or life satisfaction, a pattern commonly referred to as the Easterlin paradox (Easterlin, 1974). These findings highlight the limitations of equating welfare with economic output and point to the need for broader conceptualizations of human well-being.

A major turning point in this debate was the introduction of the Human Development Index (HDI), inspired by Amartya Sen's capabilities approach (Sen, 1993, 1999). By incorporating health and education alongside income, the HDI marked an important shift

away from purely economic metrics and toward a more human-centered understanding of development. However, despite its conceptual advances, the HDI remains constrained by its continued reliance on GDP as a core component and by its limited ability to capture the wider set of social, institutional, and environmental conditions that shape people's real opportunities to live dignified and meaningful lives (Stiglitz et al., 2009).

In response, recent frameworks have aimed to capture well-being's multidimensional nature more fully. The OECD's Better Life Initiative (OECD, 2011) measures well-being in diverse dimensions: income, work, housing, health, environment, security, social connections, and civic engagement. This approach shows that well-being depends on material resources as well as social relations, institutional quality, and opportunities for participation and agency. These initiatives also promote measuring well-being at subnational levels, since national averages often hide significant territorial inequalities.

Despite these advances, GDP and income-based indicators remain dominant in policy evaluation and public debate. Alternative dimensions of well-being are frequently treated as secondary, instrumental, or relevant only to the extent that they contribute to economic growth. As a result, a persistent gap remains between the widespread acknowledgement of well-being as a multidimensional phenomenon and its systematic integration into policy analysis and regional development strategies.

2.2 What kind of well-being?

The study of well-being is commonly structured around a distinction between subjective and objective perspectives (Castellacci, 2023; Castellacci et al., 2025). Subjective well-being refers to individuals' self-reported evaluations of their lives, including happiness, life satisfaction, and emotional states (Binder, 2014; Binder et al., 2011). This perspective closely aligns with utilitarian traditions in welfare economics, which assess social outcomes by aggregating individual utilities. Subjective well-being measures are valuable in capturing experiential and psychological aspects of human flourishing, yet they are also sensitive to adaptation, expectations, and social norms, which may obscure underlying inequalities in living conditions and opportunities.

Objective well-being, by contrast, focuses on observable conditions that shape people's lives, such as income, health, education, housing, and access to services. Early formulations of this perspective are closely associated with the basic needs approach (Streeten et al., 1981), which emphasizes the satisfaction of essential material requirements necessary for survival and dignity. While the basic needs approach highlights the foundational role of material security, it remains limited in its ability to account for differences in agency, choice, and the capacity to pursue valued ways of living.

The capabilities approach, developed by Amartya Sen (Sen, 1993, 1999) and further elaborated by Martha Nussbaum (2003), provides a more comprehensive normative framework for understanding objective well-being. Rather than focusing on resources or subjective satisfaction, the capabilities approach centers on the substantive freedoms individuals have to achieve valuable "functionings" – that is, what they are effectively able to do and to be. Nussbaum's formulation is particularly explicit in this regard, proposing a list of central human capabilities that constitute a minimum threshold for a life worthy of human dignity. These capabilities extend beyond material living standards to include bodily integrity, health, practical reason, affiliation, political participation, and control over one's environment.

This study adopts an objective conception of well-being grounded in the capabilities approach, while remaining attentive to basic material conditions. From this perspective, well-being is understood not simply as the possession of resources, but as the real opportunities individuals have to convert those resources into valued forms of living. Crucially, these opportunities are shaped by social, institutional, and spatial contexts, making the analysis of well-being inherently place-based.

2.3 Geographies of well-being and regional opportunity structures

A growing body of research highlights that well-being is unevenly distributed within countries, reflecting deep-seated spatial inequalities in economic structures, service provision, and institutional capacity (OECD, 2014). From a capabilities perspective, this territorial dimension is central: the freedoms people enjoy are fundamentally conditioned by the environments in which they live. Access to education, healthcare, employment opportunities, and social participation is not evenly distributed across space, and these spatial disparities translate into unequal capability sets.

The concept of regional opportunity structures provides a useful analytical bridge between spatial inequality and the capabilities approach. Regional opportunity structures refer to the regionally specific configurations of labor markets, public and private services, civic institutions, and physical environments that shape individuals' access to opportunities (Bernard et al., 2023). These structures do not determine individual outcomes mechanically, but they define the range of realistically available possibilities, thereby acting as spatially embedded conversion factors within the capabilities framework.

Empirical research at the subnational level illustrates how these opportunity structures translate into spatial patterns of well-being. Elburz et al. (2022), for example, document spatial clustering of well-being in Turkey, with higher levels in urban areas but also negative effects of population density, pointing to trade-offs between agglomeration benefits and social or environmental pressures. Similarly, Ferrara et al. (2022) show that

EU Cohesion Policy has sustained positive effects on regional well-being, even where returns in terms of GDP diminish, suggesting that investments in regional opportunity structures yield lasting improvements in quality of life.

Recent work using income-independent measures of well-being further reinforces this point. Grashof (2025), using the Social Progress Index, finds that economic growth and industrial diversification positively contribute to objective well-being, while avoiding the Easterlin paradox observed in subjective measures. These findings indicate that diversified regional economies tend to offer broader opportunity structures, supporting multiple dimensions of well-being beyond income alone.

The well-being perspective has also entered debates on innovation and regional development. Rather than assuming a linear relationship between innovation, growth, and welfare, scholars increasingly emphasize the need to examine the social and spatial trade-offs associated with innovation processes (Binz & Castaldi, 2024). Castellacci et al., p. (2025, p. 13) similarly argue for a reconceptualization of regional development as a co-evolutionary process where "well-being is as much about the outcome and effects of innovation at different spatial scales, as it is about the social processes through which citizens, at various scales, articulate their normative views about capabilities and well-being ('valuation'), and contribute to directing innovation processes towards improving particular aspects of well-being".

3 Data and methods

3.1 Operationalizing objective well-being through capabilities

The multidimensional indicator of objective well-being developed in this study is theoretically grounded in the capabilities approach, particularly in Nussbaum's (2011) formulation of central human capabilities. Nussbaum (2011) argues that a just society must secure for all individuals a minimum threshold of substantive freedoms – capabilities that enable people to live lives worthy of human dignity. These capabilities extend beyond income or utility and encompass health, bodily integrity, practical reason, affiliation, and control over one's environment. From this perspective, well-being is not reducible to economic performance or subjective satisfaction, but concerns the real opportunities individuals have to achieve valued ways of being and doing.

Importantly, Nussbaum emphasizes that capabilities are context-dependent: individuals' freedoms depend not only on personal resources but also on social, institutional, and spatial conditions. This makes the capabilities approach particularly well-suited for subnational analyses of well-being, where differences in local labor markets, welfare provision, public safety, and civic life translate into unequal capability sets across places.

The indicator constructed in this study does not claim to directly measure capabilities. Capabilities are, by definition, counterfactual and unobservable: they refer to what individuals could do under feasible conditions, not necessarily to what they actually do. Instead, the indicator captures observable conditions and outcomes that function as capability-relevant proxies, reflecting the extent to which municipalities provide environments conducive to the realization of central capabilities. In this sense, the indicator should be understood as measuring place-based capability environments, rather than individual functionings, which we operationalize along six dimensions as shown in Table 1. The data was obtained from several Swedish administrative and register-based data sources, covering all 290 municipalities over the period 2002–2020. Data are compiled at six time points – 2002, 2006, 2010, 2014, 2018, and 2020 – corresponding to years for which consistent coverage across all indicators is available.

Table 1. Dimensions, indicators and sources

Dimension	Indicator	Source
Economic	Average disposable income (25-64)	LISA
	Employment, % of residents (25-64)	LISA
Health	Insured days per all insured	Försäkringskassan
	Life expectancy	SCB
Education	Death rate under 60	SCB
	Share 25-64 with post-secondary education	SCB
	Share 25-64 with post-graduate education	SCB
Safety	Reported crimes against life and health per 100,000 inhabitants	BRÅ
	Reported crimes against freedom per 100,000 inhabitants	BRÅ
	Reported sexual crimes per 100,000 inhabitants	BRÅ
Civic	Share of population afraid to go outside alone	Folkhälsomyndigheten
	Share of population with low trust in other people	Folkhälsomyndigheten
	Voter turnout in municipality elections	SCB
	Share of population lacking practical support	Folkhälsomyndigheten
	Share of population lacking emotional support	Folkhälsomyndigheten
Inclusion	Gini index, disposable income (25-64)	LISA
	Employment gender gap	LISA
	Employment income gap, native-born vs. foreign-born	LISA

The economic dimension captures disposable income and employment among the working-age population, relating primarily to Nussbaum's capability of control over one's material environment as well as the opportunities to pursue a career and deploy one's intellectual and creative potential. Stable employment and sufficient disposable income are key preconditions for exercising autonomy, planning one's life, and avoiding economic vulnerability.

The health indicators closely align with the central capabilities of life and bodily health. Life expectancy and mortality under age 60 reflect the most fundamental capability: the ability to live a normal life. Insured days capture both access to healthcare and broader public health conditions that shape individuals' ability to maintain bodily integrity and physical functioning. While these indicators reflect realized health outcomes rather than

capabilities per se, they are strongly shaped by local health systems, prevention policies, and socio-economic environments, making them appropriate proxies for health-related capability conditions at the municipal level.

Education is a core enabling factor across multiple central capabilities. In Nussbaum's (2011) framework it relates most directly to the capabilities of *'senses, imagination, and practical reason'* – the capacities for informed thought, critical reflection, and autonomous decision-making that formal education cultivates. By distinguishing between post-secondary and post-graduate attainment, the indicator captures both the breadth and depth of learning opportunities available within a municipality, signaling the presence of skill-enhancing environments that shape long-term life chances and intergenerational mobility.

The safety dimension relates directly to bodily integrity and, indirectly, to emotions and affiliation. Reported crimes against life and health, crimes against freedom, and sexual offenses capture objective exposure to violence and coercion, while the share of the population afraid to go outside alone captures the experiential consequences of unsafe environments, which can limit individuals' effective freedoms even in the absence of direct victimization. From a capabilities perspective, safety is not merely the absence of crime, but the presence of conditions that allow people to inhabit public space without fear or coercion.

The civic dimension reflects capabilities related to affiliation and control over one's political environment. Voter turnout captures opportunities for political participation and voice at the local level, while interpersonal trust reflects the social bases of self-respect and mutual recognition emphasized by Nussbaum (2011). The shares of the population lacking practical or emotional support serve as proxies for the quality of informal social networks and care structures, which are central to capabilities related to affiliation and emotions. Together, these indicators capture the social and institutional foundations that enable individuals to engage with others and participate meaningfully in community life.

Finally, the inclusion dimension addresses equity in access to economic opportunities – a concern that is central to the capabilities approach but analytically distinct from average economic performance. The Gini index of disposable income captures the distribution of economic resources within a municipality, which matters because high inequality can undermine social participation, self-respect, and effective freedom even where average incomes are high. The employment gender gap and the employment income gap between native-born and foreign-born residents reflect the capability approach's concern with non-discrimination, ensuring that structural barriers to economic participation for particular social groups are explicitly captured in the indicator.

Taken together, the six dimensions of the indicator reflect key elements of regional opportunity structures. Municipalities differ systematically in the extent to which they provide secure employment, accessible healthcare, educational pathways, safe environments, and arenas for civic participation. These differences shape the range of capabilities that residents can realistically exercise, regardless of individual preferences or efforts.

By operationalizing well-being through multiple capability-relevant dimensions, the indicator moves beyond income-based conceptions of welfare and aligns with Nussbaum's insistence that no single dimension can substitute for another. High economic performance, for example, cannot compensate for deficits in health, safety, or civic participation without resulting in capability deprivation. At the same time, the indicator remains sensitive to the empirical realities of regional analysis, relying on observable, policy-relevant measures that reflect municipalities' institutional responsibilities in the Swedish welfare state.

In this sense, the indicator provides a theoretically grounded yet empirically tractable tool for analyzing how place-based opportunity structures translate into unequal capability environments across municipalities. It allows for identifying regions where economic resources coexist with capability deficits, as well as regions where relatively modest economic conditions support broader forms of well-being through strong public services, social cohesion, and inclusive institutions.

3.2 Scope and limitations of our indicator

While the capabilities approach provides a broad normative framework for evaluating well-being, any empirical operationalization necessarily involves selection and omission. The multidimensional indicator developed in this study focuses on six dimensions – economic conditions, health, education, safety, civic life, and inclusion – that are both theoretically central and empirically observable at the municipal level in Sweden. Other dimensions of well-being, such as housing quality, environmental conditions, or subjective life satisfaction, are not explicitly included.

The exclusion of environmental indicators does not reflect their lack of importance from a capabilities perspective. On the contrary, environmental quality is closely linked to central capabilities such as bodily health, life, and the ability to enjoy one's surroundings. However, reliable, comparable environmental data at the municipal level over time are limited, and environmental effects often operate across spatial scales that do not neatly align with municipal boundaries. Including partial or inconsistently measured indicators would risk introducing noise and compromising longitudinal comparability.

Housing conditions are similarly important for capabilities related to bodily integrity, health, and control over one's material environment. Yet housing outcomes in Sweden are shaped by a combination of national regulations, regional housing markets, and household-level factors that are difficult to disentangle at the municipal level. Moreover, many housing indicators capture outcomes that are already indirectly reflected in economic, health, and safety dimensions, raising concerns about redundancy rather than conceptual omission.

Subjective well-being measures are also excluded by design. While self-reported life satisfaction and happiness capture valuable experiential aspects of well-being, they are influenced by adaptation, expectations, and social comparison. From a capabilities perspective, reliance on subjective evaluations alone risks masking objective constraints on freedom, particularly in contexts where individuals adjust their aspirations to limited opportunity structures. Given the study's focus on spatial inequality and regional opportunity structures, objective, capability-relevant conditions are therefore prioritized.

Importantly, the indicator does not aim to provide an exhaustive account of all central capabilities listed by Nussbaum (2011). Capabilities such as emotions, play, and relationships with other species are only indirectly captured through proxies related to health, safety, and civic life. This reflects an explicit trade-off between conceptual completeness and empirical feasibility. The indicator should thus be interpreted as a measure of municipal capability environments rather than a full assessment of individual well-being or human flourishing.

The internal consistency of each dimension was assessed using Cronbach's alpha prior to index construction. Values range from 0.6 to 0.9, with most dimensions exceeding the conventional threshold of 0.7. For dimensions with lower values, we note that the capabilities approach does not require perfect internal consistency within dimensions: indicators are expected to capture related but distinct facets of the same capability domain, and some degree of heterogeneity within dimensions is theoretically anticipated rather than problematic. Moreover, with two to three indicators per dimension, alpha is mechanically constrained by scale length. Inter-item correlations confirm that all indicators within each dimension are positively associated, supporting their combination into dimension scores.

3.3 Constructing the well-being indicator

The first step to calculate the well-being index was to normalize each indicator using the min-max normalization method, scaling values to a 1–100 range according to the formula:

$$Score = 99 \times \frac{x - \min(x)}{\max(x) - \min(x)} + 1$$

For indicators where higher values indicate worse outcomes (e.g., Gini index, crime rates), the normalization was reversed:

$$Score = 99 \times \frac{\max(x) - x}{\max(x) - \min(x)} + 1$$

Normalization was performed both within each year and across the whole period (2002 – 2020) to account for temporal changes and capture overall trends, respectively. Then, scores for each dimension were calculated as the arithmetic average of the normalized scores of their respective indicators. The final well-being index was computed as the geometric mean of the dimensions' scores as suggested by Meyer et al. (2016). This approach avoids full compensation between dimensions, ensuring that low performance in one dimension cannot be entirely offset by high performance in another, thus providing a balanced and nuanced measure of overall well-being. The constant of 1 is added to all scores to avoid zeros, which would otherwise cause the geometric mean to drop to zero for any municipality that scores the minimum in all indicators of one dimension (rare but possible).

It is worth noting that Sweden has developed its own well-being measure, BRP+, created by Tillväxtverket and RegLab based on the OECD's Better Life Initiative (OECD, 2011, 2024). BRP+ is currently only available for the year 2024 at the municipal level. In contrast, our study restricts the analysis to six core dimensions – economic, health, education, safety, and civic life, and inclusion – to ensure robust data coverage across the entire period (2002–2020) and to focus on the most critical aspects of well-being identified in the literature (Fudge et al., 2021), and to maintain alignment with the central capabilities most directly relevant to place-based opportunity structures as outlined by Nussbaum (2011). This approach enables consistent, comparable analysis over time, providing deeper insights into long-term trends and spatial disparities in objective well-being.

3.4 Cluster analysis

To explore spatial patterns of well-being in Sweden, we employ hot spot analysis using the Getis-Ord Gi* statistic. This method identifies statistically significant clusters of high (hot spots) and low (cold spots) well-being across municipalities, accounting for spatial dependencies in the data.

The analysis involves calculating a spatial weights matrix to define neighborhood relationships (e.g., contiguity or distance-based) and applying the Gi* statistic to detect areas where well-being values are significantly higher or lower than expected by chance. The resulting clusters are visualized on maps to highlight regions with concentrated

levels of well-being, providing insights into spatial disparities and potential underlying socio-economic drivers.

This approach helps uncover systematic regional patterns, revealing how historical and contemporary factors – such as industrial heritage, migration trends, and regional policies – may have shaped the geography of well-being in Sweden. The analysis is conducted for all six years in the study period to track temporal changes in spatial clustering and is applied to the composite indicator and the individual dimensions.

4 Results

This section presents the empirical findings on the spatial and temporal patterns of objective well-being across Swedish municipalities from 2002 to 2020. By examining variations in well-being scores, identifying spatial clusters, and exploring associations with key socio-economic factors, the analysis seeks to uncover the underlying dynamics shaping regional disparities in Sweden. The following subsections address different dimensions of the research question, providing insights into the distribution, evolution, spatial patterns, and determinants of well-being at the municipal level.

4.1 Variation of well-being across municipalities

Figure 1 maps the overall well-being index and its six constituent dimensions across Swedish municipalities in 2020, using a color scale ranging from dark purple (low scores) to amber-yellow (high scores). The overall well-being map reveals a pronounced spatial pattern in which higher well-being is concentrated in and around the major metropolitan areas – particularly Stockholm and its surrounding municipalities – as well as in parts of southern Sweden, while lower scores are more prevalent across the northern interior and many rural and peripheral areas.

Examining the individual dimensions reveals considerable heterogeneity in how well-being is spatially structured. The Economy map shows a sharp urban concentration of high scores, clustering around metropolitan municipalities and fading toward the northern interior and peripheral regions. The Education dimension displays an even more extreme spatial concentration: a narrow band of high-scoring municipalities centered on the Stockholm region stands out, while the vast majority of the country scores in the lower range, reflecting the strong spatial sorting of higher educational attainment toward major urban labor markets. The Health dimension follows a broadly similar pattern of urban advantage, though with somewhat more variation and pockets of relatively good health outcomes in parts of northern Sweden.

The Safety, Civic, and Inclusion dimensions exhibit more dispersed spatial patterns. Safety scores are notably lower in urban and peri-urban municipalities, particularly in southern and central Sweden, consistent with higher reported crime rates in denser areas, while rural and northern municipalities tend to perform better. The Civic dimension shows comparatively stronger performance in many rural and northern municipalities, suggesting that social trust, political participation, and access to informal support networks are not systematically disadvantaged outside urban centers. Finally, the Inclusion dimension displays an intermediate pattern, with lower scores in some urban municipalities – likely reflecting higher income inequality and labor market segmentation – alongside stronger performance in smaller municipalities with more homogeneous economic structures.

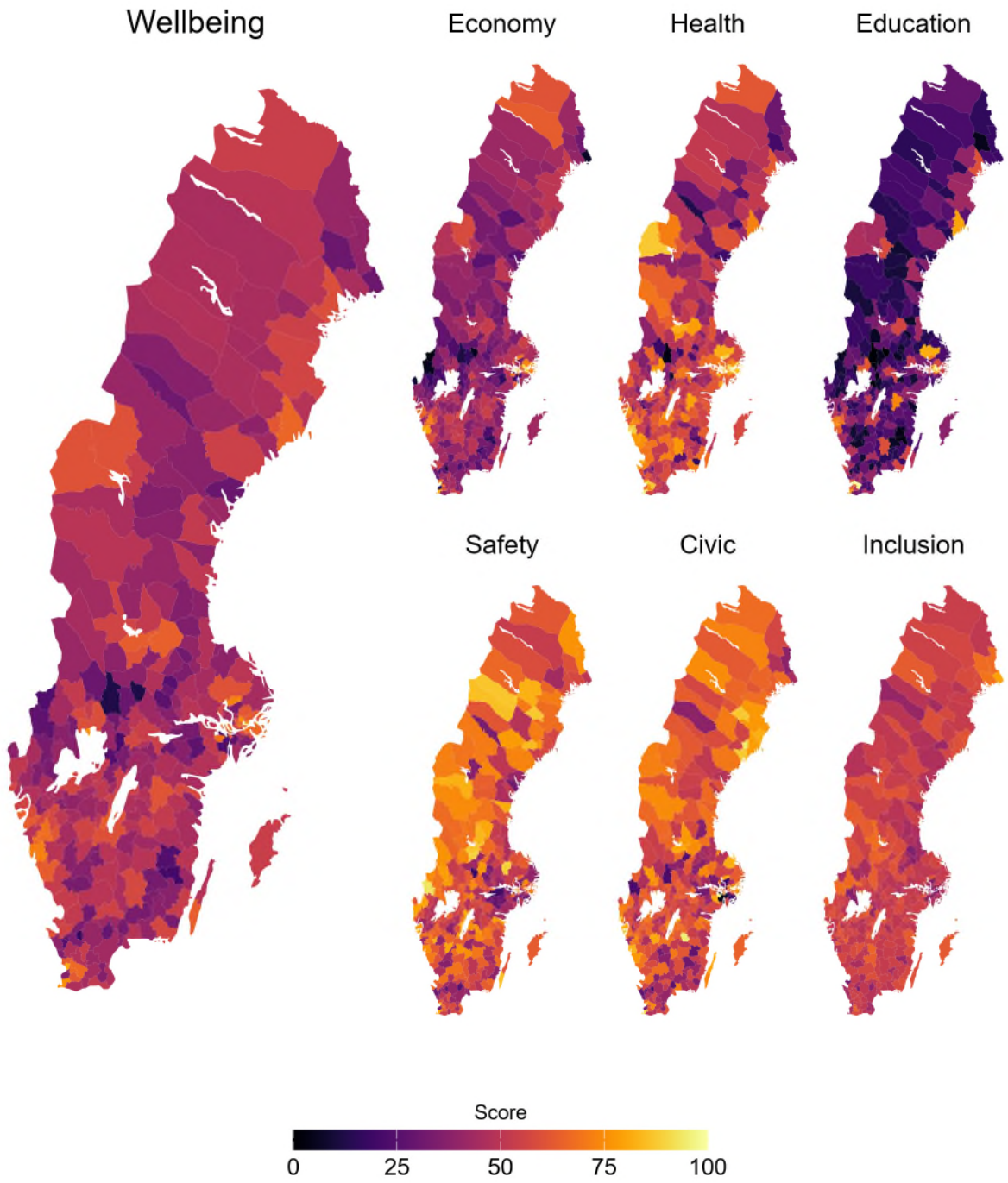

Figure 1. Maps of well-being and dimensions scores by municipality (2020)

The regional system in Sweden is characterized by pronounced differences between municipality types. To examine how these translate into capability environments, Figure 2 compares the distribution of well-being and dimension scores across four categories: large, medium, small, and rural. The well-being panel (left) clearly shows a stepwise decline in median scores from large to rural municipalities, with large municipalities outperforming medium and small municipalities, and rural municipalities recording the

lowest median scores. Large municipalities also exhibit considerably greater internal variation, as indicated by wider interquartile ranges and longer whiskers, reflecting the heterogeneity within this category. Rural municipalities, by contrast, show a more compressed distribution, suggesting greater homogeneity in well-being outcomes.

The dimension-level panels reveal that this urban advantage is far from uniform across capability domains. In the Economic dimension, the gap between large municipalities and the remaining three categories is particularly stark, with large municipalities' median score nearly double that of rural municipalities. A similarly strong urban advantage is visible in the Education dimension, where large municipalities score markedly higher and exhibit a wide spread of values, while medium, small, and rural municipalities cluster at comparatively low levels with little differentiation between them.

The Health dimension tells a somewhat different story: while large municipalities still lead, the gap between categories is narrower, and all four types span a broad range of outcomes. In the Safety dimension, the differences between municipality types are notably smaller – rural municipalities, in fact, perform comparably to or slightly better than large municipalities – suggesting that the safety dimension is not systematically structured by urbanization in the way that economic or educational dimensions are. The Civic and Inclusion dimensions show similarly compressed differences between categories, with the ordering less consistent, further reinforcing the picture that social and equity-related dimensions of well-being do not simply mirror urban–rural economic gradients.

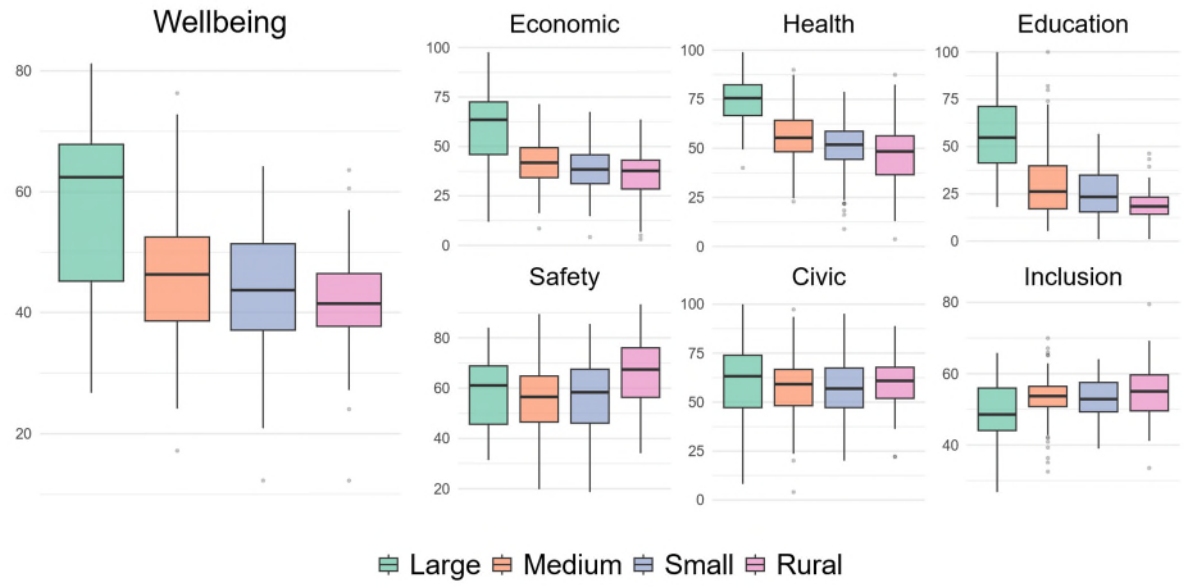

Figure 2. Boxplots of overall wellbeing and dimensions by municipality classification (2020)

4.2 Changes in time

The geography of well-being is not static. Figure 3 traces its spatial distribution across Swedish municipalities at six time points – 2002, 2006, 2010, 2014, 2018, and 2020 – using the same color scale as Figure 1. All scores in this and subsequent figures are normalized across the full 2002–2020 period rather than within each year, making them comparable both across municipalities and over time, so that changes across maps reflect genuine shifts in well-being rather than artifacts of annual rescaling. The map series reveals a broadly stable regional hierarchy alongside a general upward trend in absolute scores over the study period.

The map series reveals a broad improvement in well-being scores across Swedish municipalities over the study period, reflecting the general upward trend in income, health, and educational attainment that characterizes this era. More substantively, the relative spatial hierarchy of municipalities remains remarkably stable across the six time points: the municipalities that perform strongly in 2002 largely continue to do so in 2018, and those that lag behind show little tendency to close the gap in relative terms. The 2020 map shows a modest but visible setback across much of the country, consistent with the disruptions of the COVID-19 pandemic, though the underlying spatial structure remains intact.

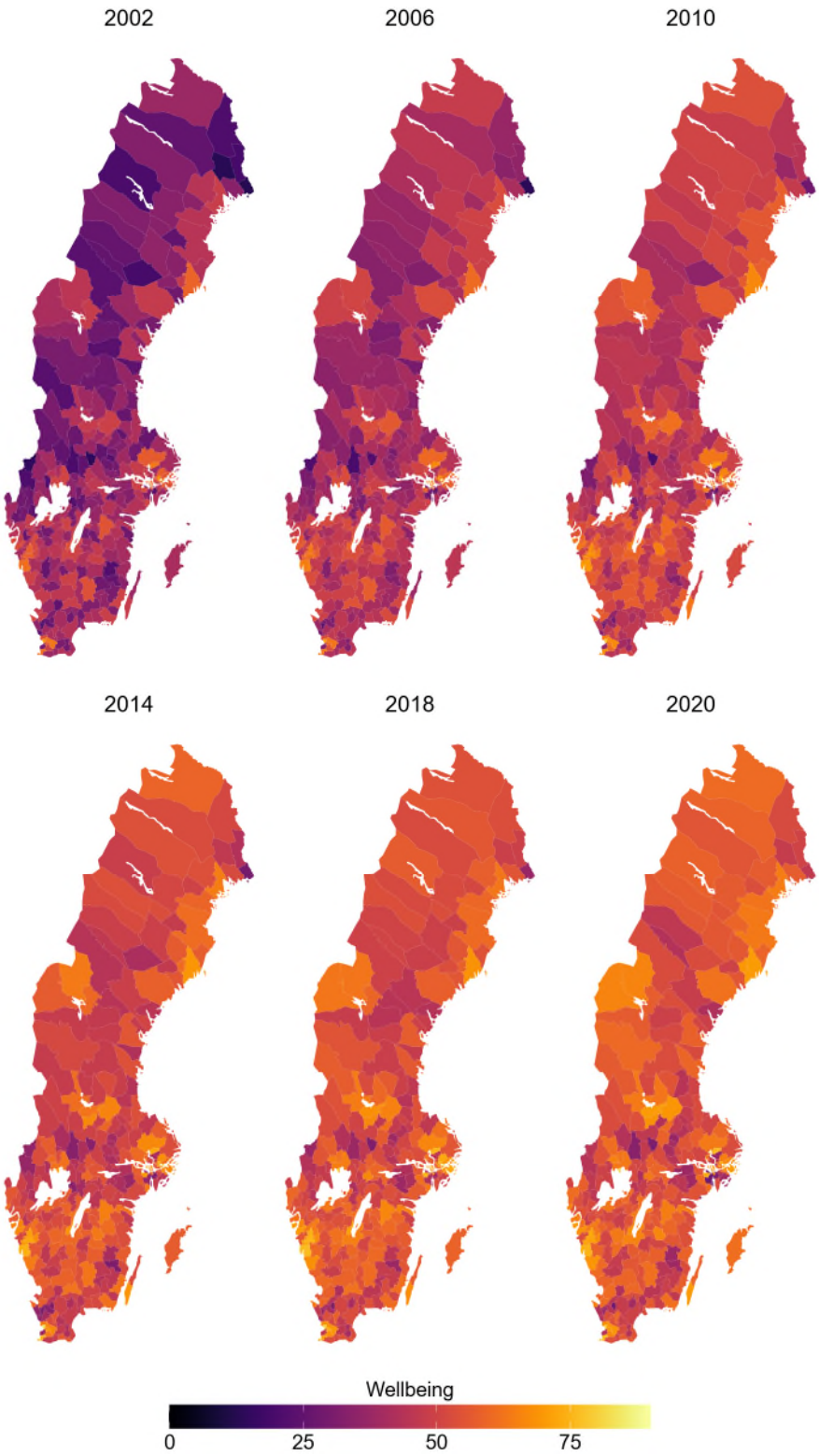

Figure 3. Well-being by municipality (2002-2020)

Figure 4 traces the evolution of the composite well-being index across the four municipality types from 2002 to 2020. A first and consistent finding is that median well-being improves across all municipality types throughout the study period, confirming that the upward trend visible in Figure 3 is not confined to any particular segment of the

regional system but reflects a broad and sustained improvement in absolute capability conditions.

A second notable pattern is the gradual convergence of rural municipalities toward the medium and small categories. Rural municipalities start the period as the clear laggards, but their median scores rise steadily and by 2014–2018 have largely caught up with those of small and medium municipalities, which by then form a tightly clustered group. This catching-up dynamic is consistent with the relative improvements in northern and peripheral municipalities documented in Table 2 and the spatial convergence suggested by Figure 3.

Third, while the median of large municipalities rises throughout the period, so does their internal heterogeneity: the interquartile range widens markedly from 2002 to 2018, indicating growing divergence within this category. The other three municipality types, by contrast, maintain a comparatively stable spread across the entire period, suggesting that it is specifically within large municipalities that well-being trajectories have become most unequal.

Finally, the 2020 time point introduces an important asymmetry. The median well-being score of large municipalities declines noticeably – the only category to register a clear COVID-related setback – while medium, small, and rural municipalities continue their upward trajectory uninterrupted. This suggests that the disruptions of the pandemic fell disproportionately on larger urban centers, at least according to the composite well-being index.

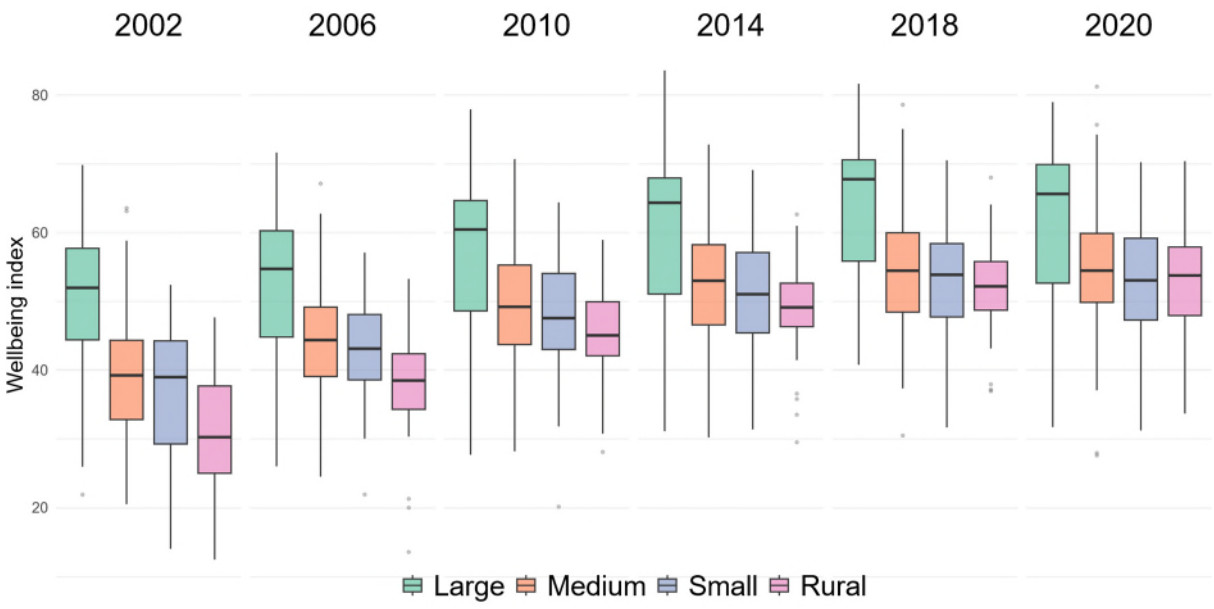

Figure 4. Well-being by municipality type (2002-2020)

Figure 5 presents radar charts showing the median scores of the four municipality types across the seven axes of the well-being framework at each of the six years considered.

Three patterns stand out. First, in the early years, non-large municipalities hold a clear advantage over large ones on both Safety and Inclusion – reflecting lower crime rates and more equal economic structures in smaller and rural settings. This advantage erodes steadily over the period and has largely disappeared by 2018–2020, suggesting a structural convergence on these dimensions that partly offsets the growing overall gap between municipality types. Second, the Civic dimension is remarkably similar across all municipality types throughout the period, except in 2018, when some differentiation is visible, suggesting a broadly shared institutional foundation for social participation and political engagement regardless of municipality size. Third, large municipalities have pulled progressively and substantially ahead on the Economic and Education dimensions over the study period, driving the widening gap in overall well-being documented in Figure 4 and reinforcing the picture of a regional system increasingly structured by knowledge and economic capital concentrated in urban centers.

Finally, the 2020 charts show a partial contraction relative to 2018, most visibly on the Economic dimension of large municipalities – consistent with the asymmetric COVID impact documented in Figure 4 – while the profiles of medium, small, and rural municipalities remain broadly stable.

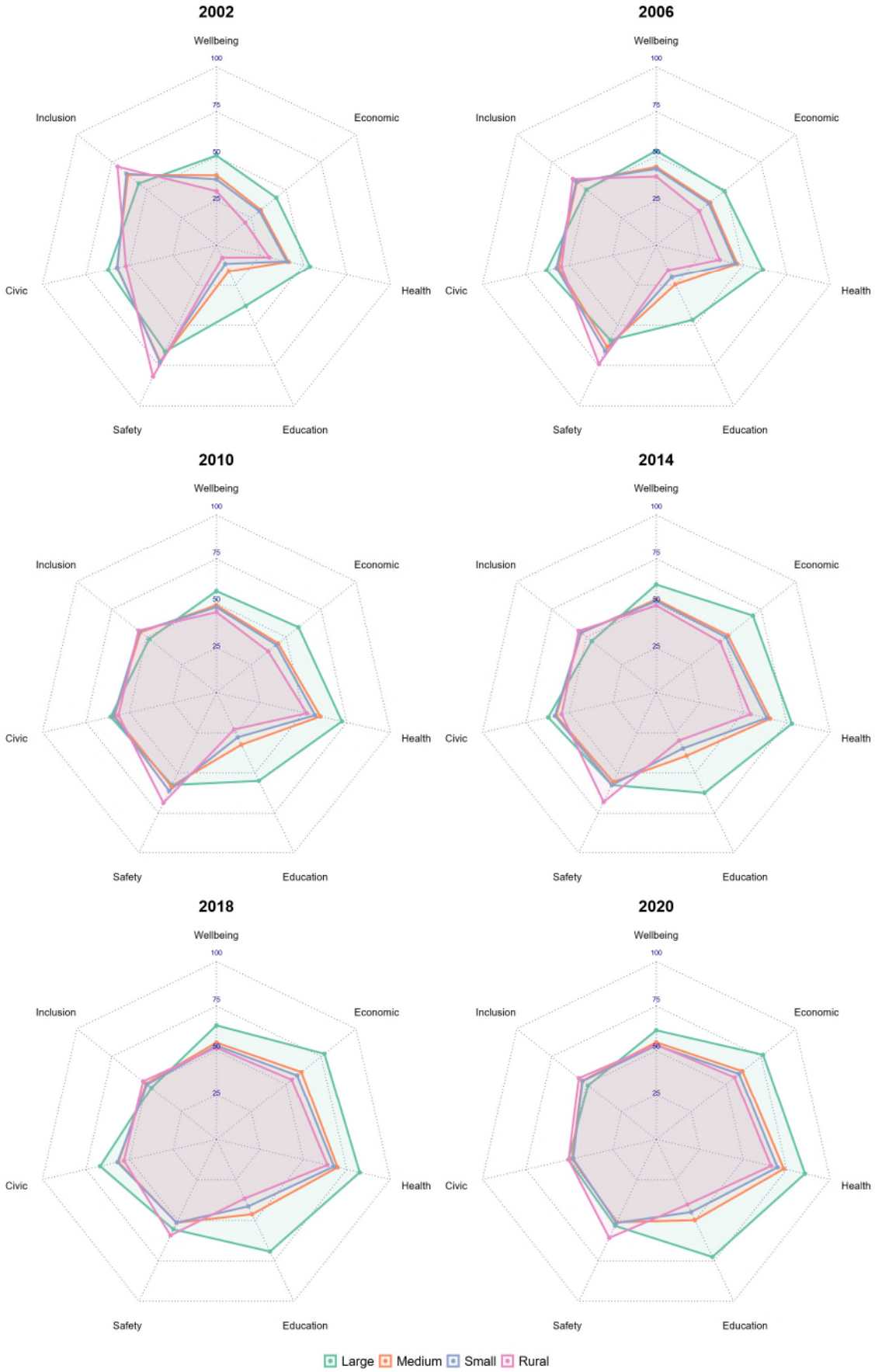

Figure 5. Spider plots for different types of municipalities (2002-2020)

Table 2 identifies the 10 municipalities with the largest upward and downward shifts in well-being rankings between 2002 and 2020, providing a window into the most dramatic individual trajectories within the broader patterns described above.

Among the top upward movers, the most striking feature is the dominance of rural municipalities: seven of the ten largest risers are classified as rural, with the remaining three being small or medium-sized. Gällivare leads the group, climbing 164 positions – from rank 269 to 105. Arjeplog and Älvdalen recorded similarly dramatic ascents of 138 and 112 positions, respectively, both starting from very low absolute scores in 2002 and ending the period around the national median. Several of these municipalities – including Sorsele, Härjedalen, and Arjeplog – are located in the sparsely populated far north of Sweden, suggesting that some of the most peripheral municipalities in the country have experienced significant improvements in well-being relative to the national distribution. Åre stands out within this group as a municipality that was already relatively well-performing in 2002 (rank 135, score 46.3) and rose to rank 41 with a score of 60.6 by 2020 – the highest absolute end-point among the upward movers – likely reflecting the sustained development of its tourism economy. Among the non-rural risers, Hallstahammar and Smedjebacken, both former industrial municipalities, climbed around 100 positions while registering absolute score gains of roughly 12 points, pointing to a degree of post-industrial recovery in certain small and medium-sized towns.

The downward movers present a contrasting and more heterogeneous picture. Järfälla, a large suburban municipality in Stockholm's commuter belt, recorded by far the steepest decline: a drop of 154 positions, from rank 37 to 191, with its absolute well-being score falling from 58.6 to 41.7. This is a notable finding given that large municipalities, on average, improved their relative position over the period – Järfälla's trajectory thus represents a substantial exception within its category, possibly reflecting growing socioeconomic polarization or deteriorating safety and inclusion conditions within a rapidly growing suburban context. The remaining downward movers are predominantly small and medium-sized municipalities, many with a legacy of manufacturing employment: Gislaved, Nässjö, Lessebo, Falköping, and Härnösand all share industrial backgrounds and experienced declines of between 84 and 118 positions. Their absolute well-being scores declined by 8–12 points, and in several cases – Lessebo (34.2) and Gislaved (37.0) – they ended the period among the lowest-scoring municipalities in the country. Vänersborg and Eksjö, which began the period with relatively favorable scores (53.9 and 55.0 respectively), also fell sharply, suggesting that starting from a stronger position did not insulate these municipalities from the structural pressures associated with deindustrialization and demographic decline.

Taken together, the mobility patterns in Table 2 point to two distinct dynamics operating over the study period. The upward movers are overwhelmingly rural and peripheral

municipalities that started from a low base, suggesting a degree of convergence at the lower end of the distribution, driven in part by improvements in non-economic dimensions where rural areas hold relative advantages. The downward movers, by contrast, are concentrated among small and medium-sized municipalities with industrial legacies, where the erosion of manufacturing employment has translated into broad-based declines in capabilities across economic, health, and social dimensions.

Table 2. Top 10 Upward and Downward Movers (2002 vs 2020)

Name	Type	Rank 2002	Rank 2020	Difference	Wellbeing change
Top 10 upward movers					
Gällivare	Rural	269	105	-164	+18.1
Arjeplog	Rural	272	134	-138	+15.6
Smedjebacken	Small	244	127	-117	+12.0
Älvdalen	Rural	281	169	-112	+16.2
Sorsele	Rural	223	125	-98	+10.3
Härjedalen	Rural	204	107	-97	+10.3
Hallstahammar	Medium	259	163	-96	+11.9
Sävsjö	Small	232	136	-96	+9.8
Ödeshög	Small	225	130	-95	+9.8
Åre	Rural	135	41	-94	+14.2
Top 10 downward movers					
Järfälla	Large	37	191	+154	-16.9
Gislaved	Rural	115	233	+118	-11.6
Eksjö	Small	60	173	+113	-11.6
Lessebo	Medium	139	251	+112	-11.9
Nässjö	Medium	92	200	+108	-9.5
Härnösand	Small	82	186	+104	-9.8
Falköping	Small	93	188	+95	-8.0
Vänersborg	Medium	65	152	+87	-8.7
Kungsör	Small	132	219	+87	-8.2
Ronneby	Small	118	202	+84	-8.4

4.3 Spatial patterns

Figure 6 presents scatterplots of the bivariate relationship between the composite well-being index and eight regional structural characteristics, each shown at three time points – 2002, 2010, and 2018 – with dot size scaled to each municipality's adult population. Together, the panels provide a descriptive overview of the socioeconomic and structural correlates of well-being and of how these associations have evolved over time.

The relationship between well-being and population size (log adult population) is positive and consistent across all three years, confirming the urban well-being advantage already documented in Figures 2 and 4. The slope and scatter remain broadly stable over time, suggesting that population size is a persistent structural correlate rather than a growing driver of divergence. The relationship with internal excess migration is also strongly positive and tightens markedly over the study period: in 2002, the association is already visible, but the cloud of points is wide, whereas by 2018, the relationship is among the tightest in the figure. This pattern points to a reinforcing dynamic in which well-being attracts population inflows while population loss accompanies capability disadvantage, a process that appears to have intensified over the period.

The share of employment in the knowledge economy demonstrates one of the strongest and most consistent positive relationships with well-being across all three years. The slope is steep, the fit is relatively tight, and the relationship remains stable over time. This finding supports the argument that knowledge-intensive economic structures foster broader capability environments, encompassing higher education, improved health outcomes, and greater civic engagement, beyond the effects of income alone. Conversely, the share of employment in manufacturing exhibits a strong and persistent negative relationship with well-being, with one of the steepest negative slopes observed and stability from 2002 to 2018. Municipalities with high manufacturing shares consistently score lower on the composite index, indicating that industry is associated with more constrained capability environments across multiple dimensions.

Economic diversity shows a weak to moderate positive association with well-being that strengthens somewhat over the period. In 2002, the relationship was weak and the scatter wide; by 2018, the trend line was more pronounced, consistent with the argument that diversified local economies support broader opportunity structures. The share of private employment also exhibits a positive but weak association throughout, with a slight steepening of the slope by 2018. By contrast, the share of self-employment shows virtually no systematic relationship with well-being at any of the three time points, with the trend line remaining essentially flat across the full period – suggesting that the prevalence of self-employment is not in itself a reliable indicator of local capability conditions.

Perhaps the most striking temporal evolution in the figure concerns discontent – proxied by the share of votes for the Sweden Democrats. In 2002 – a year in which the party was still politically marginal – the association with well-being is essentially flat, indicating no systematic relationship at the time. By 2010, a negative slope has emerged, and by 2018, it has steepened considerably, with municipalities recording higher electoral support for the Sweden Democrats clustering at lower well-being scores. The points are rather dispersed, indicating substantial variation around the trend, but the direction and growing magnitude of the association are clear. This pattern is consistent with the broader literature linking political discontent to perceptions of being left behind in terms of economic and social opportunity and suggests that the geography of well-being disadvantage has increasingly overlapped with the geography of populist electoral support over the study period (Rodriguez-Pose, 2018).

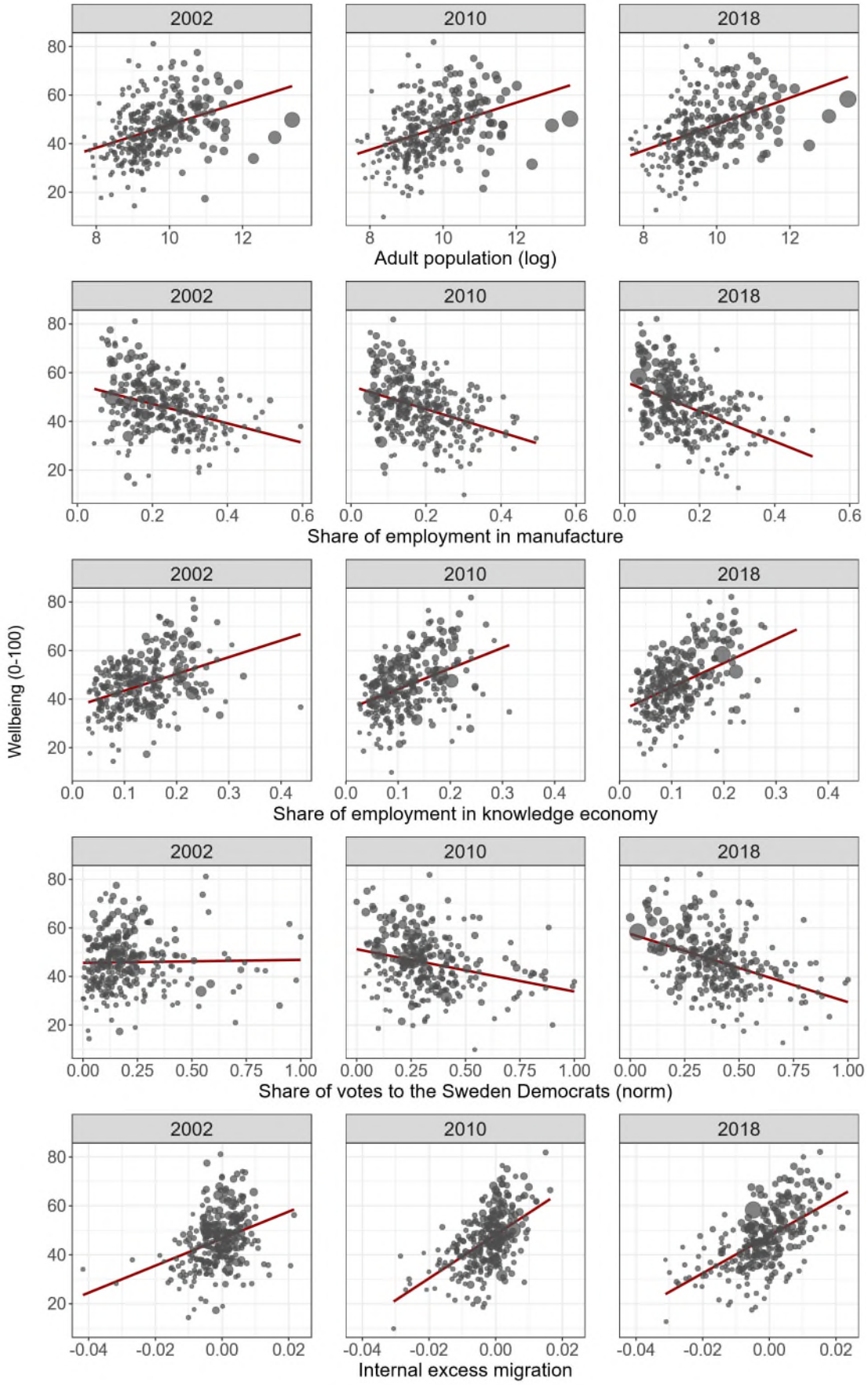

Figure 6. Scatterplots well-being vs selected regional indicators (2002, 2010, 2020)

Finally, Figure 7 presents the results of hot spot analysis (Getis-Ord Gi*) for the composite well-being index and each of the six dimensions, shown at 2002, 2010, and 2020. Statistically significant clusters of high well-being (hot spots) are shown in amber-yellow, and clusters of low well-being (cold spots) in dark purple. Municipalities where no statistically significant spatial clustering is detected are shown in grey. The figure allows assessment of whether well-being is spatially autocorrelated – that is, whether high- or low-scoring municipalities systematically cluster together – and of how these spatial structures have evolved over the study period.

For the composite well-being index, the 2002 map reveals a striking, extensive cold spot across large parts of northern Sweden, indicating that low well-being was not only prevalent in the north but also spatially concentrated and self-reinforcing across neighboring municipalities. Additional cold spots appear in scattered parts of central and western Sweden. Hot spots are comparatively limited in extent, confined primarily to the Stockholm metropolitan area and a small cluster in southernmost Sweden. By 2010, this picture had changed substantially: the northern cold spot had almost entirely dissolved, and the remaining cold spots had shifted southward, clustering in parts of central Sweden and around the Malmö region. The hot spot around Stockholm persists and continues to consolidate. By 2020, this reorganization is largely maintained, with cold spots now dispersed across a small number of central and southern clusters rather than forming the vast northern block visible in 2002. This temporal pattern is consistent with the broad improvements in well-being documented in Figures 3 and 4 across northern and rural municipalities.

The dimension-level panels reveal that this aggregate trajectory conceals quite different spatial dynamics across capability domains. The economic and health cold spots in 2002 follow a pattern similar to the composite index – both show large northern cold spot clusters reflecting the concentration of low economic performance and poor health outcomes in peripheral areas, though the health cold spot is particularly extensive, covering a greater share of northern territory than the economic one. Both diminish over time, though the economic cold spot retains more residual structure through 2020, particularly in scattered areas of central Sweden. Hot spots for both dimensions remain anchored in and around Stockholm across all three years.

The education dimension shows a notably different spatial structure. Cold spots are limited in extent and relatively stable across the period, while hot spots are almost entirely confined to the Stockholm metropolitan area throughout, reflecting the extreme spatial concentration of high educational attainment already evident in Figure 1. The near-absence of significant clustering elsewhere in the education maps underscores the degree to which this dimension is driven by a single dominant urban agglomeration rather than by any broader regional pattern.

As expected, the Safety dimension tells a different story: it is rural and peripheral municipalities that form the high-performing clusters, while cold spots concentrate around urban centers – the reverse of the pattern seen in the economic and educational dimensions. This pattern is stable across all three time points, though the cold spots around Stockholm appear to intensify slightly over the period, consistent with rising reported crime rates in urban areas documented in the broader literature.

The civic dimension shows limited but persistent spatial clustering. A small hot spot cluster – indicating high social trust, voter turnout, and access to social support – is visible around the Stockholm area in all three years, a somewhat counterintuitive finding given the city's lower relative performance on safety. Cold spots in the civic dimension are scattered across parts of southern Sweden and remain modest in extent throughout. The overall limited clustering suggests that civic well-being is less strongly structured by spatial proximity than by economic or health dimensions.

Finally, the inclusion dimension presents perhaps the most striking reversal in the figure. In 2002, a very large hot spot cluster covered much of northern Sweden, reflecting the concentration of relatively equal economic structures in peripheral areas with less segmented labor markets. Simultaneously, cold spots indicating low inclusion clusters around Stockholm and, to a lesser extent, other urban centers are consistent with the higher income inequality and labor-market stratification characteristic of large metropolitan economies. Over the period, this pattern partially weakens: the northern hot spot contracts considerably by 2010 and further by 2020, while the cold spots around urban centers persist and in some cases intensify. This trajectory reinforces the notion that the inclusion advantage of peripheral areas has eroded over time, potentially reflecting the spread of labor market inequalities into regions that were previously more sheltered from them.

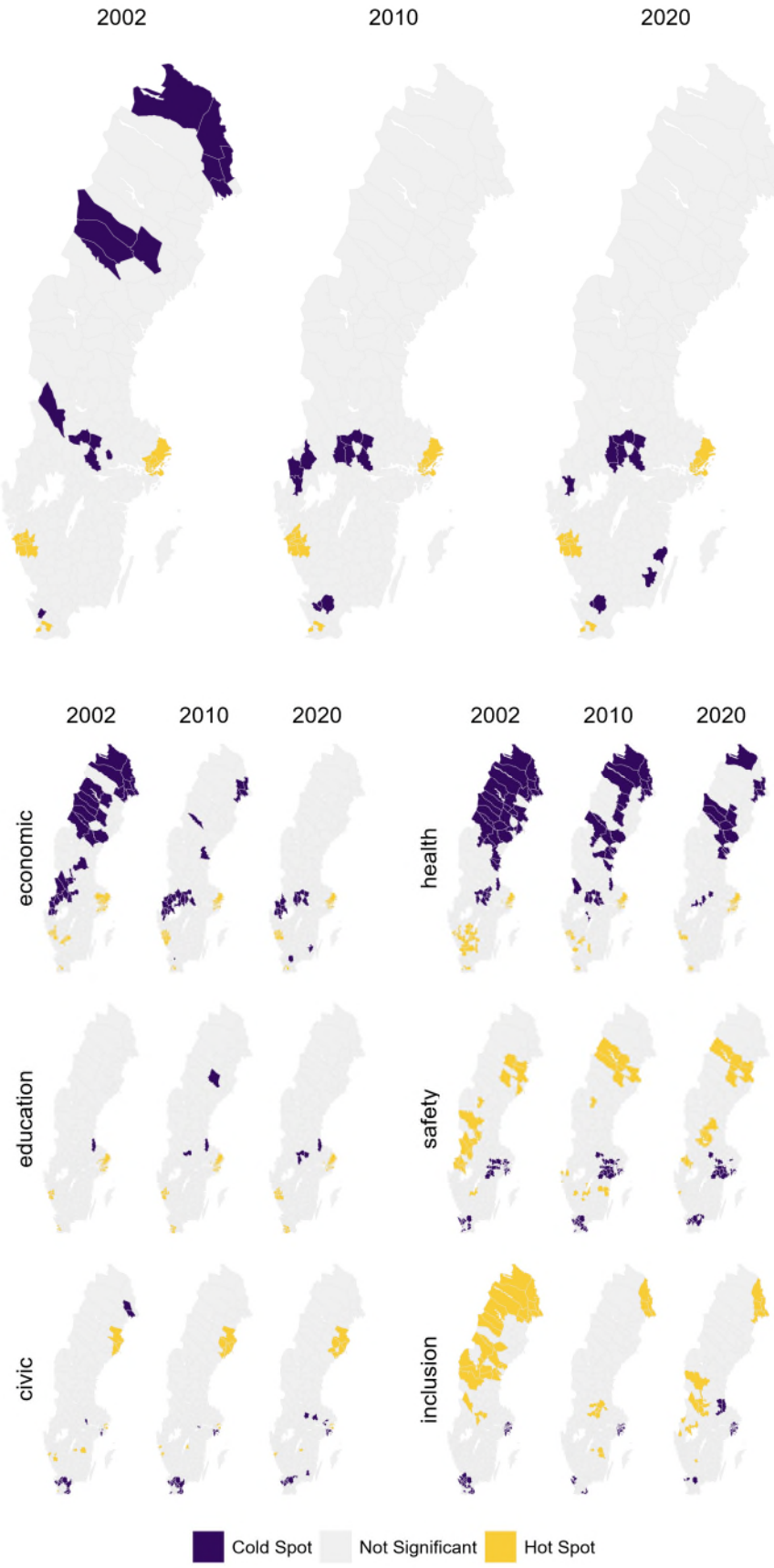

Figure 7: Hot and cold spots of overall well-being and dimensions (2002, 2010, 2020)

5 Discussion and Conclusions

5.1 Discussion

This study set out to explore how well-being differs across the Swedish regional system and how it has changed over time. By constructing a multidimensional, capability-grounded indicator at the municipal level and tracing its spatial and temporal dynamics from 2002 to 2020, the analysis yields several findings that advance both the conceptual and empirical understanding of territorial inequality in Sweden.

A first and central finding is that well-being is strongly and persistently structured by municipality type, but in ways that are not reducible to a simple urban advantage. Large municipalities consistently lead the composite index, driven primarily by their economic and educational environments. Yet this aggregate advantage conceals a systematic trade-off: the same municipalities that score highest on economic and educational dimensions score comparatively lower on safety and, to a lesser extent, civic and inclusion dimensions. This multidimensional heterogeneity within the urban advantage is theoretically significant. From a capabilities perspective, it suggests that the agglomeration benefits associated with large cities – denser labor markets, higher educational attainment, greater economic diversification – do not translate uniformly into broader substantive freedoms. Urban residents may face deficits in physical security and social cohesion that partially offset their economic and educational advantages. In this way, the finding reinforces Nussbaum's (2011) insistence that capability dimensions are irreducible to one another: high economic performance cannot substitute for deficits in safety or civic engagement.

A second finding concerns the temporal dynamics of well-being. The study period is characterized by a general improvement in absolute well-being scores across most municipalities, yet this aggregate trend masks both divergence and convergence. Rural and peripheral municipalities – many located in Sweden's sparsely populated north – improved most dramatically in relative terms, driven by genuine gains in non-economic dimensions, particularly health and civic, that lifted their overall scores even where economic performance remained constrained. At the same time, small and medium-sized municipalities with industrial legacies were left behind, experiencing broad-based deterioration that extends across health, safety, and civic dimensions rather than being confined to the economic dimension alone – pointing to a comprehensive erosion of the local capability environment rather than a narrowly economic decline. Within large municipalities, a third dynamic is at play: while their median well-being improved substantially, the spread of outcomes widened considerably over the period, reflecting growing internal heterogeneity between high-performing urban cores and more disadvantaged suburban or peri-urban municipalities. Together, these three trajectories

paint a picture of a regional system that has become simultaneously more unequal between types and more internally differentiated within them, a pattern consistent with the broader literature on regional polarization in advanced economies (Iammarino et al., 2019; Storper, 2018).

Third, the structural correlates of well-being identified in Figure 6 point to the central role of industrial structure as a place-based determinant of capability. The share of employment in the knowledge economy is among the strongest positive predictors of well-being throughout the period, while the share of manufacturing employment is among the strongest negative ones, with both relationships remaining stable over time. These findings are consistent with recent work linking industrial diversification and knowledge-intensive economic structures to broader well-being outcomes (Grashof, 2025) and suggest that the sectoral composition of local economies shapes capability environments through channels that extend beyond income and employment to encompass health, education, social cohesion, and inclusion. The growing association between net out-migration and low well-being further illustrates the self-reinforcing nature of these dynamics: capability-poor municipalities lose residents, which in turn weakens the tax base, reduces demand for services, and further constrains local opportunity structures – a feedback mechanism that the regional policy literature has increasingly recognized as central to understanding persistent territorial inequality (Henderson et al., 2024).

Fourth, the growing correlation between electoral support for the Sweden Democrats and lower well-being scores is a substantively important finding, even if its interpretation requires caution. The near-absence of any relationship in 2002 and the progressive emergence and steepening of a negative association through 2010 and 2018 suggest that the geography of political discontent has increasingly overlapped with the geography of capability disadvantage over the study period. This is consistent with the argument that political support for anti-establishment parties reflects not merely economic insecurity but a broader experience of being left behind across multiple life domains – what Rodriguez-Pose (2018) describes as the "revenge of places that don't matter." The multidimensional nature of the well-being measure used here strengthens this interpretation: the association is with a composite of economic, health, educational, safety, civic, and inclusion conditions, rather than with income or employment alone.

Finally, the hot spot analysis reveals that the spatial structure of well-being clustering has changed substantially over the study period. The dissolution of the large northern cold spot – one of the most visible features of the 2002 map – reflects the genuine convergence of peripheral municipalities documented in the ranking analysis. At the same time, the persistence and intensification of cold spots in parts of central Sweden and the urban periphery, combined with the erosion of the inclusion hot spot in the north,

suggests that the geography of capability disadvantage has not simply improved uniformly but has reorganized – shifting from a predominantly north–south pattern toward a more complex mosaic in which pockets of disadvantage are distributed across different types of municipalities and regions.

5.2 Research agenda

The findings of this study open several avenues for future research. A first and immediate priority is to extend the temporal coverage of the analysis beyond 2020 in order to assess the longer-term consequences of the COVID-19 pandemic on the spatial distribution of well-being. The modest reversal visible in 2020 across multiple dimensions and municipality types warrants closer examination, particularly in light of the differential vulnerability of rural and urban economies to pandemic-related disruption.

A second direction concerns the causal mechanisms linking industrial structure to well-being outcomes. While the correlational patterns documented here are robust and consistent, the channels through which manufacturing decline or knowledge economy growth affect capability environments remain underspecified. Future research combining the municipal-level indicator developed here with individual-level longitudinal data could examine how structural change translates into capability outcomes across different socioeconomic groups and life stages, and whether the effects of economic transition are mediated by local institutional conditions such as welfare service provision, housing access, or labor market intermediaries.

Third, the growing alignment between capability disadvantage and political discontent identified in Figure 6 warrants dedicated investigation. A more systematic analysis of the mechanisms linking multidimensional well-being deprivation to electoral behavior – distinguishing, for instance, between the roles of economic insecurity, perceived social status, and institutional distrust – could contribute to ongoing debates about the political consequences of regional inequality.

Fourth, the study of labor market mobility and the different mechanisms that operate across urban, semi-urban, and rural places, and of how the different dimensions of well-being and opportunity structures operate in different place types, represents a promising agenda. This could be pursued either at the individual or aggregated level, examining how place-based capability environments shape individual life trajectories and whether mobility decisions both respond to and reproduce spatial inequalities in well-being.

Finally, a comparative extension of the framework beyond Sweden would help establish how context-specific the patterns identified here are. Sweden's combination of strong municipal autonomy, high welfare state capacity, and pronounced regional disparities makes it a particularly instructive case, but whether similar multidimensional capability

dynamics are observable in other Nordic or European countries remains an open question with important implications for regional policy.

5.3 Limitations

Two main limitations of the analysis should be acknowledged. First, although the indicator covers six theoretically grounded dimensions, it necessarily excludes aspects of well-being that are either difficult to measure at the municipal level or unavailable across the full study period. Housing conditions, environmental quality, and subjective life satisfaction are among the dimensions most notably absent, and their exclusion means that the indicator captures a carefully selected but inevitably partial account of municipal capability environments.

Second, the reliance on observable outcomes as proxies for capabilities introduces a conceptual gap that cannot be fully resolved within a quantitative framework. The indicator measures the conditions under which capabilities can be exercised rather than the capabilities themselves, and it remains possible that similar observable conditions translate into different actual freedoms depending on individual circumstances and preferences that are not captured at the aggregate level.

5.4 Conclusion

This paper has measured objective well-being across Swedish municipalities from 2002 to 2020 using a multidimensional indicator grounded in the capabilities approach. Tracking six dimensions – economic, health, education, safety, civic, and inclusion – it shows that territorial disparities in Sweden are not reducible to income gaps, and that the spatial structure of well-being looks markedly different depending on which dimension you examine.

The findings demonstrate that well-being is persistently structured by municipality type and industrial composition, that it improved broadly but unevenly over the study period, and that the geography of capability disadvantage has increasingly aligned with the geography of political discontent. Large municipalities hold systematic advantages in economic and educational capability environments, but at the cost of lower safety and, over time, reduced inclusion. Former industrial municipalities have experienced the most pronounced decline in multidimensional capabilities, while peripheral and rural municipalities in the north have improved substantially in relative terms, driven by gains in non-economic dimensions.

Methodologically, the study demonstrates the feasibility and value of constructing longitudinal, multidimensional well-being indicators at the municipal level in contexts with rich administrative data. The resulting framework provides a more complete and theoretically grounded basis for monitoring territorial inequalities than conventional

economic indicators, and offers a tool for identifying municipalities where economic resources coexist with capability deficits, or where modest economic conditions support broader forms of well-being through strong institutions, social cohesion, and inclusive labor markets.

From a policy perspective, the findings underscore the importance of place-sensitive approaches to regional development that attend to the full range of capability dimensions rather than focusing narrowly on economic performance. Addressing the compound disadvantage of municipalities facing simultaneous deficits in economic, health, educational, and civic dimensions requires coordinated intervention across policy domains – and the analytical framework developed here provides a basis for identifying where such intervention is most urgently needed.

6 References

Bernard, J., Steinführer, A., Klärner, A., & Keim-Klärner, S. (2023). Regional opportunity structures: A research agenda to link spatial and social inequalities in rural areas. *Progress in Human Geography*, *47*(1), 103–123. https://doi.org/10.1177/03091325221139980

Binder, M. (2014). Subjective well-being capabilities: Bridging the gap between the capability approach and subjective well-being research. *Journal of Happiness Studies*, *15*(5), 1197–1217. https://doi.org/10.1007/s10902-013-9471-6

Binder, M., Witt, U., & Binder, M. (2011). *As Innovations Drive Economic Growth, Do They also Raise Well-Being?* (1105; Papers on Economics and Evolution). https://nbn-resolving.de/urn:nbn:de:gbv:27-20110630-114932-7

Binz, C., & Castaldi, C. (2024). Toward a normative turn in research on the geography of innovation? Evolving perspectives on innovation, institutions, and human well-being. *Progress in Economic Geography*, *2*(2), 100018. https://doi.org/10.1016/j.peg.2024.100018

Breul, M., Atienza, M., Grillitsch, M., & Pugh, R. (2025). Towards studying the developmental consequences of regional industrial path development. In *Regional Studies* (Vol. 59, Number 1). Routledge. https://doi.org/10.1080/00343404.2025.2517884

Castellacci, F. (2023). Innovation and social welfare: A new research agenda. *Journal of Economic Surveys*, *37*(4), 1156–1191. https://doi.org/10.1111/joes.12537

Castellacci, F., Evenhuis, E., & Frenken, K. (2025). Geographies of innovation and well-being. *Review of Regional Research*, *45*(3), 377–394. https://doi.org/10.1007/s10037-025-00257-9

Easterlin, R. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In P. David & M. Reder (Eds.), *Nations and Households in Economic Growth* (pp. 89–125). Elsevier. https://doi.org/10.1016/b978-0-12-205050-3.50008-7

Elburz, Z., Kourtit, K., & Nijkamp, P. (2022). Well-Being and Geography: Modelling Differences in Regional Well-Being Profiles in Case of Spatial Dependence—Evidence from Turkey. *Sustainability (Switzerland)*, *14*(24). https://doi.org/10.3390/su142416370

Enflo, K., Alvarez-Palau, E., & Marti-Henneberg, J. (2018). Transportation and regional inequality: the impact of railways in the Nordic countries, 1860–1960. *Journal of Historical Geography*, *62*, 51–70. https://doi.org/10.1016/j.jhg.2018.05.001

Ferrara, A. R., Dijkstra, L., McCann, P., & Nisticó, R. (2022). The response of regional well-being to place-based policy interventions. *Regional Science and Urban Economics*, *97*. https://doi.org/10.1016/j.regsciurbeco.2022.103830

Flyvbjerg, B. (2012). Making Social Science Matter. In G. Papanagnou (Ed.), *Social Science and Policy Challenges: Democracy, values and capacities* (pp. 25–56). UNESCO Publishing.

Fudge, M., Ogier, E., & Alexander, K. A. (2021). Emerging functions of the wellbeing concept in regional development scholarship: A review. *Environmental Science and Policy*, *115*, 143–150. https://doi.org/10.1016/j.envsci.2020.10.005

Grashof, N. (2025). Rethinking Regional Performance: Examining the role of economic growth and industrial clusters in the objective well-being of European regions. *Review of Regional Research*. https://doi.org/10.1007/s10037-025-00224-4

Grillitsch, M., Cobos-Cabral, F., & Horvat, A. (2025). Change Agency and the Capability Approach: Regional Development and Well-Being on the Edge. *Economic Geography*, *101*(5–6), 385–410. https://doi.org/10.1080/00130095.2025.2571094

Grillitsch, M., & Hansen, T. (2019). Green industry development in different types of regions. *European Planning Studies*, *27*(11), 2163–2183. https://doi.org/10.1080/09654313.2019.1648385

Habermas, J. (1991). *The Structural Transformation of the Public Sphere: An inquiry into a category of bourgeois society*. MIT Press.

Henderson, D., Morgan, K., & Delbridge, R. (2024). Mundane innovation in the periphery: the foundational economy in a less developed region. *Regional Studies*, *58*(11), 2146–2157. https://doi.org/10.1080/00343404.2024.2320769

Henning, M., Westlund, H., & Enflo, K. (2022). Urban–rural population changes and spatial inequalities in Sweden. *Regional Science Policy and Practice*. https://doi.org/10.1111/rsp3.12602

Iammarino, S., Rodriguez-Pose, A., & Storper, M. (2019). Regional Inequality in Europe: Evidence, theory and policy implications. *Journal of Economic Geography*, *19*(2), 273–298.

Meyer, D. F., De Jongh, J., & Meyer, N. (2016). The Formulation of a Composite Regional Development Index. *International Journal of Business and Management Studies*, *8*(1), 100–116.

Nussbaum, M. (2003). Capabilities as fundamental entitlements: Sen and social justice. *Feminist Economics*, *9*(2–3), 33–59.

Nussbaum, M. (2011). The Central Capabilities. In *Creating Capabilities: The Human Development Approach* (First Edition, 2). Harvard University Press.

OECD. (2011). How's life?: Measuring well-being. In *How's Life?: Measuring Well-Being* (Vol. 9789264121164). Organisation for Economic Cooperation and Development (OECD). https://doi.org/10.1787/9789264121164-en

OECD. (2014). *How's Life in Your Region? Measuring Regional and LocalWell-being for Policy Making* (OECD Regional Development Studies). OECD. https://doi.org/10.1787/9789264217416-en

OECD. (2024). *How's Life? 2024: Well-being and resilience in times of crisis* (How's Life?). OECD Publishing. https://doi.org/10.1787/90ba854a-en

Rodriguez-Pose, A. (2018). The Revenge of the Places That Don't Matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, *11*(1), 189–209.

Sen, A. (1985). Well-Being, Agency and Freedom: The Dewey Lectures 1984. *The Journal of Philosophy*, *82*(4), 169–221. https://about.jstor.org/terms

Sen, A. (1992). *Inequality Reexamined*. Oxford University Press.

Sen, A. (1993). Capability and Well-Being. In M. Nussbaum & A. Sen (Eds.), *The Quality of Life* (pp. 30–53). Oxford University Press. https://doi.org/10.1093/0198287976.001.0001

Sen, A. (1999). *Development as Freedom* (First Edition). Oxford University Press.

Stiglitz, J., Sen, A. K., & Fitoussi, J.-P. (2009). *The measurement of economic performance and social progress revisited: Reflections and Overview*. https://sciencespo.hal.science/hal-01069384v1

Storper, M. (2018). Separate Worlds? Explaining the current wave of regional economic polarization. *Journal of Economic Geography*, *18*(2), 247–270.

Streeten, P., Burki, S. J., Haq, M. ul, Hicks, N., & Stewart, F. (1981). *First Things First: Meeting Basic Human Needs in Developing Countries*. Oxford University Press.

Weber, M. (1949). *The Methodology of Social Sciences* (First Edition). The Free Press.