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E4S White Paper

The Building Stock of Swiss Real Estate Investment Vehicles: Characteristics and ES Scores

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Executive Summary

This report provides an in-depth analysis of Swiss Real Estate Investment Vehicles (REIVs), focusing on building-level Environmental and Social (ES) scores and portfolio characteristics. Using data from Quanthome and the PRESS Scores methodology, the report evaluates over 20,000 buildings across 136 portfolios, representing CHF 200 billion in assets under management.

Physical Characteristics: REIV portfolios are heavily concentrated in Zurich, Basel, Lausanne, and Geneva, with over 40% of properties built between 1950 and 1980. These older buildings are prime candidates for retrofitting to meet energy efficiency standards.

Environmental Performance: Basel leads in CO_2 efficiency, driven by strong regulations and coordinated planning that promote renewable heating systems. In contrast, Geneva and Lausanne lag due to older buildings and and less effective regulatory frameworks.

Social Factors: Accessibility, rents, and amenities vary less regionally, but Lausanne's low new resident rates and high relative pricing indicate a tight market, potentially restricting growth and affordability.

ES Scoring Model: The report presents a scalable ES scoring framework that combines environmental and social indicators into a standardized metric. Basel and Zurich achieve high scores, while French-speaking cantons lag in environmental performance, highlighting opportunities for targeted sustainability improvements.

Conclusions and Recommendations: ESG scores can guide investments in two ways: rewarding high-scoring REIVs for sustainability, or targeting lower-scoring ones to drive transformation. Prioritizing only the former risks a two-speed transition, while the latter requires active engagement to ensure real progress. Investors can choose their approach based on the impact they seek to achieve. The ES scoring framework offers a practical tool to support both strategies in advancing Switzerland's 2050 climate goals.

Résumé Exécutif

Ce rapport propose une analyse approfondie des véhicules d'investissement immobilier suisses (REIV), en se concentrant sur les scores Environnementaux et Sociaux (ES) au niveau des bâtiments ainsi que sur les caractéristiques des portefeuilles. Reposant sur les données de Quanthome et la méthodologie PRESS Scores, l'étude couvre plus de 20,000 bâtiments et 136 portefeuilles, représentant 200 milliards de CHF d'actifs sous gestion.

Caractéristiques Physiques : Les portefeuilles des REIV sont concentrés à Zurich, Bâle, Lausanne et Genève, avec plus de 40% des bâtiments construits entre 1950 et 1980. Ces bâtiments anciens sont des cibles prioritaires pour des rénovations visant à respecter les normes d'efficacité énergétique.

Performance Environnementale : Bâle se distingue par une meilleure efficacité CO_2, portée par une réglementation stricte et une planification coordonnée favorisant le chauffage renouvelable. À l'inverse, Genève et Lausanne accusent un retard en raison d'un parc immobilier plus ancien et de cadres réglementaires moins efficaces.

Facteurs Sociaux : L'accessibilité, les loyers et les équipements varient peu selon les régions, mais Lausanne présente un marché tendu avec un faible taux de nouveaux résidents et des prix élevés, ce qui pourrait limiter la croissance et l'abordabilité.

Modèle de Score ES : Le rapport propose un cadre de score ES qui combine les indicateurs environnementaux et sociaux en une métrique standardisée. Bâle et Zurich obtiennent des scores élevés, tandis que les cantons romands accusent un retard environnemental, révélant des marges d'amélioration.

Conclusions et Recommandations : Les scores ESG peuvent orienter les investissements de deux manières : récompenser les REIV performants en matière de durabilité ou financer la transition des moins performants. Favoriser uniquement les premiers risque d'accentuer une transition à deux vitesses, tandis que le second demande un suivi actif pour assurer des progrès réels. Le cadre de score ES constitue un outil pratique pour soutenir ces deux approches et accompagner la transition immobilière vers les objectifs climatiques de 2050.

Zusammenfassung

Dieser Bericht bietet eine detaillierte Analyse der Schweizer Immobilienanlagevehikel (REIVs) mit Fokus auf die Umwelt- und Sozialbewertungen (ES) auf Gebäudeebene sowie auf die Portfolioeigenschaften. Mithilfe von Daten von Quanthome und der PRESS Scores Methodik wurden über 20,000 Gebäude in 136 Portfolios untersucht, die Vermögenswerte von rund 200 Milliarden CHF repräsentieren.

Physische Merkmale: Die REIV-Portfolios sind stark auf Zürich, Basel, Lausanne und Genf konzentriert, wobei über 40% der Gebäude zwischen 1950 und 1980 erbaut wurden. Diese Gebäude sind vorrangige Kandidaten für Sanierungen zur Einhaltung der Energieeffizienzstandards.

Umweltleistung: Basel weist die höchste CO_2-Effizienz auf, begünstigt durch strenge Vorschriften und koordinierte Planung zur Förderung erneuerbarer Heizsysteme. Genf und Lausanne hingegen liegen zurück, was vor allem auf ältere Gebäude und weniger wirksame regulatorische Rahmenbedingungen zurückzuführen ist.

Soziale Faktoren: Die Erreichbarkeit, Mietpreise und Infrastruktur variieren regional nur wenig. Lausanne zeigt jedoch eine niedrige Zuzugsrate und hohe relative Preise, was auf einen angespannten Markt hindeutet und Wachstum sowie Erschwinglichkeit einschränkt.

ES-Bewertungsmodell: Der Bericht stellt ein skalierbares ES-Bewertungsmodell vor, das Umwelt- und Sozialindikatoren zu einer standardisierten Kennzahl kombiniert. Basel und Zürich erzielen hohe Werte, während die französischsprachigen Kantone in der Umweltleistung zurückbleiben, was gezielte Nachhaltigkeitsverbesserungen erfordert.

Schlussfolgerungen und Empfehlungen: ESG-Scores können Investitionen auf zwei Arten lenken: entweder durch Förderung nachhaltiger REIVs oder gezielte Investitionen in weniger nachhaltige REIVs, um deren Transformation voranzutreiben. Eine einseitige Fokussierung birgt das Risiko einer zweigeteilten Entwicklung, während der zweite Ansatz aktive Beteiligung erfordert, um Fortschritte sicherzustellen. Das ES-Scoring-Framework unterstützt beide Strategien und fördert die Schweizer Klimaziele für 2050.

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1 Introduction

This report provides an in-depth analysis of Swiss Real Estate Investment Vehicles (REIVs), focusing on their building-level Environmental and Social (ES) scores alongside their current portfolio characteristics.[1] Leveraging detailed data from Quanthome[2] and a methodology adapted from the PRESS Scores framework (Alessandrini et al., 2024), the report examines physical, environmental, and social dimensions of REIV assets while introducing a scalable ES scoring model. Representing 136 REIV portfolios with over 20,000 buildings and a total asset value nearing CHF 200 billion, the analysis provides stakeholders with insights into the current state of REIV assets, their alignment with sustainability goals and areas needing improvement.[3]

The report is structured into two main sections. Section 2 establishes a baseline by analyzing key physical, environmental, and social attributes of REIV portfolios. Metrics such as energy intensity, accessibility, noise levels, and green space availability are evaluated using indicators drawn from the PRESS Scores methodology. All indicators are based on publicly available data. This section reveals regional differences in environmental performance, with Basel leading due to its strong regulations and coordinated planning, which have accelerated the shift to renewable heating. In contrast, Geneva and Lausanne lag behind, highlighting the need for focused investment and more effective framework to modernize older building stocks. Social indicators, such as accessibility and rent levels, reveal fewer disparities, but in Lausanne the signs of higher rents charged

1 The scores focus only on Environmental and Social factors from traditional ESG frameworks since Governance cannot yet be measured at the building level.

2 Quanthome is a fintech company specializing in detailed real estate data across Switzerland, offering granular insights into building and investment vehicle characteristics. For more information, see `www.quanthome.com`.

3 The data in this report are from August 2024 and do not reflect trends since then.

by funds, relative to comparable apartments in nearby areas, underline the difficulty of reconciling growth and accessibility.

Section 3 introduces the ES scoring model, which integrates environmental and social indicators into a standardized score for each building. This score enables stakeholders to benchmark property performance, identifying assets that excel and those requiring targeted upgrades. While regions like Basel and Zurich achieve high ES scores, French-speaking cantons show lower averages, emphasizing structural challenges rather than deliberate neglect. This scoring framework, currently applied to REIV portfolios, has the potential to be scaled nationally if comparable datasets were available, offering a unified standard for sustainability assessment across Switzerland.

By combining granular building-level data with an innovative scoring system, this report highlights both the opportunities and challenges faced by REIVs in meeting Switzerland's 2050 climate goals. While some regions are leading the way, others risk falling behind, raising concerns about a two-speed transition. The ES score framework provides actionable insights to guide investment decisions, enabling stakeholders to prioritize impactful upgrades and promote a more balanced and inclusive real estate transition. Through targeted investment, regulatory support, and tools like the ES score, REIVs can play a central role in fostering a sustainable and resilient real estate sector

2 REIV Portfolio Characteristics

This section provides an overview of the key building characteristics within Swiss REIV portfolios, categorized into physical, environmental, and social dimensions. It also includes a comparison of building characteristics by REIV legal structure, followed by an analysis of ESG scores at the building level. The assessment highlights how REIV assets align with sustainability and resilience objectives. While environmental and social attributes are evaluated at the building level, governance aspects are excluded as they pertain more directly to overall REIV portfolio management.

Subsection 2.1 examines physical characteristics, i.e., the asset distribution across Swiss cantons, building age, and size, uncovering geographic concentrations, exposure to regional risks, and age-related retrofit needs. Subsection 2.2 focuses on environmental characteristics, i.e., on energy intensity, heating systems, CO_2 emissions, solar panel installations, and green areas, providing a comprehensive sustainability profile of REIV assets. It identifies regions and properties where energy efficiency improvements are most needed to meet Switzerland's decarbonization targets. Subsection 2.3 explores social characteristics, i.e., the factors influencing tenant well-being and community impact, including rent prices, accessibility, and proximity to amenities. This analysis clarifies how REIV assets contribute to social sustainability and tenant satisfaction. Subsection 2.4 compare the building characteristics per REIV types and highlights minor differences across REIV legal structures—companies, foundations, listed funds, and unlisted funds—while emphasizing their overall portfolio similarity. It provides insights into variations in asset types, CO_2 emissions, and pricing strategies.

The final subsection, ES Building Scores 3, integrates the environmental and social attributes into an ES score at the building level. This scoring framework allows stakeholders to benchmark individual properties for sustainability performance, identifying areas where improvements are necessary.

2.1 Physical Characteristics

2.1.1 Geographic Distribution

The geographic distribution of REIVs' properties across Swiss cantons reveals important patterns in asset concentration and potential risk exposure. At the cantonal level (Figure 1), Assets under Management (AuM) are heavily concentrated, with Zurich leading at over 70 billion CHF, followed by Vaud, and Geneva. This concentration in a few regions suggests that local market or regulatory changes in these cantons could significantly impact overall portfolio performance. The focus on these core cantons also indicates where most investment resources and strategic attention are directed.

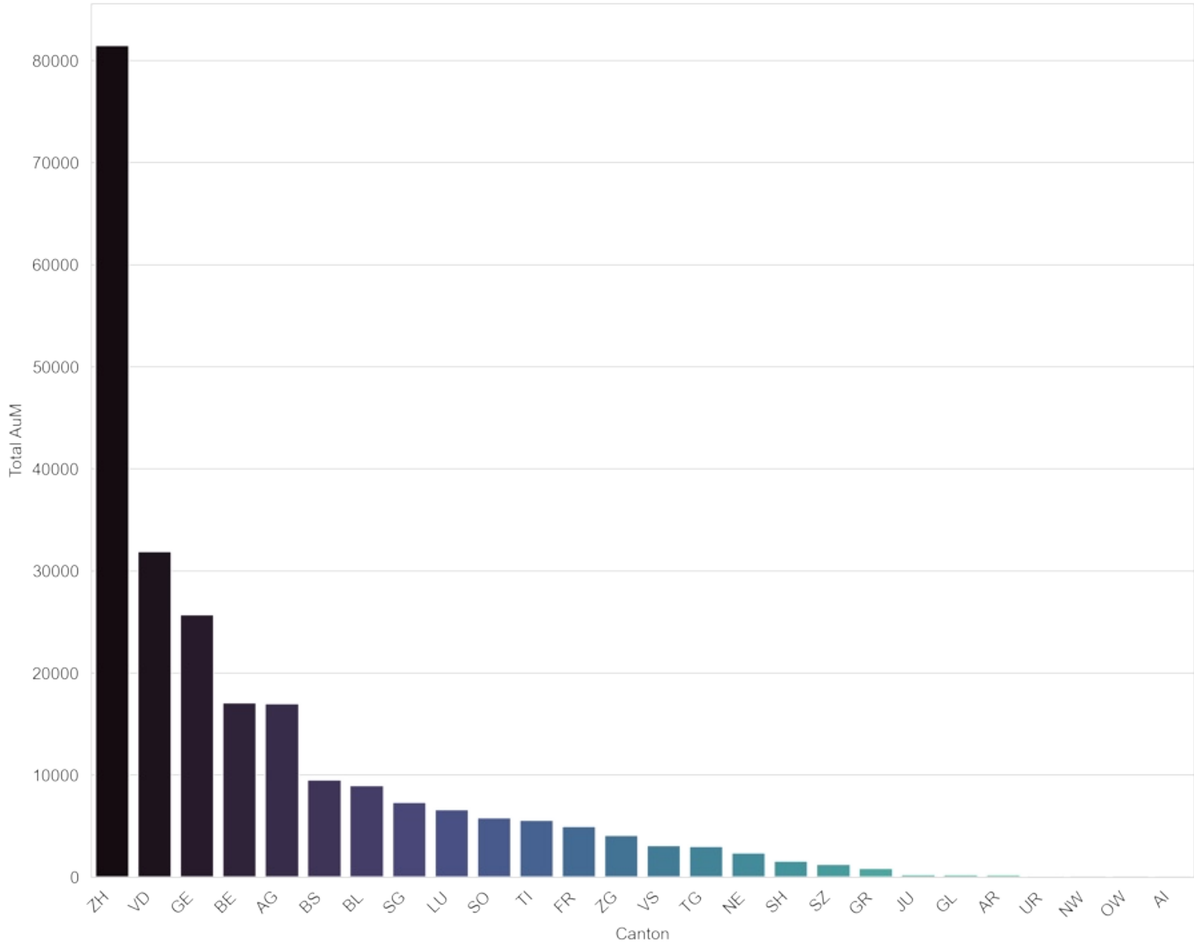
A closer look at the municipal level (Figure 2) shows that Zurich, Basel, Lausanne, and Geneva are key hubs for REIV assets, reflecting their roles as major financial and business centers.[4] These cities attract significant real estate investments, with Zurich accounting for 1,851 buildings, followed by Lausanne with 921, Basel with 873, and Geneva with 777.[5] In contrast, Bern hosts only 387 building. However, this may indicate that some portfolios have significant geographic concentration, making them more vulnerable to economic changes, policy shifts, or climate-related risks. Given the significance of these cities, this report offers targeted insights into REIV-owned buildings in these four cities, where relevant. These insights focus exclusively on the buildings within REIV portfolios and do not reflect the broader real estate landscape of each city.

This concentration influences the strategies of REIVs, as stability and growth depend heavily on these high-value locations. At the same time, the uneven spread of assets across regions highlights differences in how markets respond to

[4] Note that in all maps presented in this report, municipalities shown in white indicate areas where no REIV buildings have been recorded.

[5] These buildings represent 2.99% of Zurich's, 6.60% of Lausanne's, 3.50% of Basel's, and 7.51% of Geneva's relevant building stock.

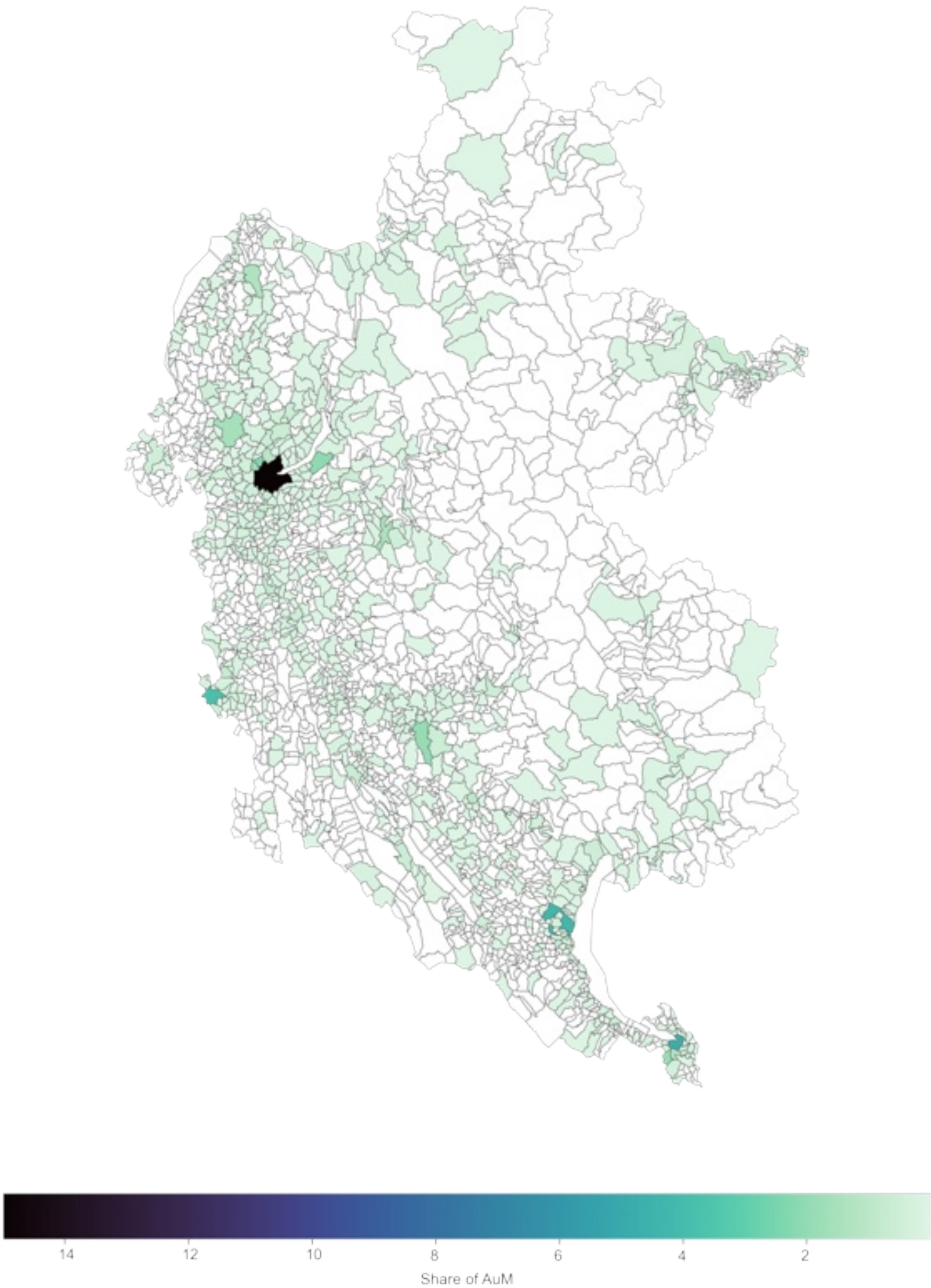
Figure 1: Total Assets Under Management per Canton (in Mio CHF)



shifts in demand, rents, and competition. For instance, while Zurich and Geneva have high property values, they may also face more market uncertainty or stricter regulations than smaller, less concentrated areas.

In summary, understanding the geographic distribution of AuM is essential to assessing the REIV landscape, as it helps identify the most important regions in terms of asset concentration, and lays the foundation for more in-depth analyses of building characteristics and market trends.

Figure 2: Total Asset Under Management per Municipality (in Mio CHF)



2.1.2 Construction Years

The analysis of construction years for REIV properties highlights the distribution of building ages within Swiss portfolios. As shown in Figure 3, over 40% of REIV-owned buildings were constructed between 1950 and 1980, a period associated with less stringent energy standards. This suggests a significant portion of the portfolio may require retrofits to align with current energy efficiency and emissions reduction targets. Buildings from this era often lack modern insulation and efficient heating systems, presenting challenges for achieving compliance with evolving regulations.

Figure 4 compares the average construction year of REIV-owned properties across major cities, including Basel, Lausanne, Geneva, and Zurich. Lausanne and Geneva exhibit older building stocks on average, indicating a higher proportion of properties built before modern energy standards were introduced. In contrast, Zurich and Basel show relatively newer building inventories. These differences suggest that funds with significant investments in Lausanne and Geneva may need to prioritize renovation efforts, focusing on upgrades such as insulation improvements and heating system modernization, to meet regulatory requirements and enhance energy performance.[6]

[6] For a broader perspective, Figure A4 illustrates the geographic distribution of average construction years across all municipalities, providing a detailed view of building age trends within REIV portfolios.

Figure 3: Distribution of Construction Years per Buildings

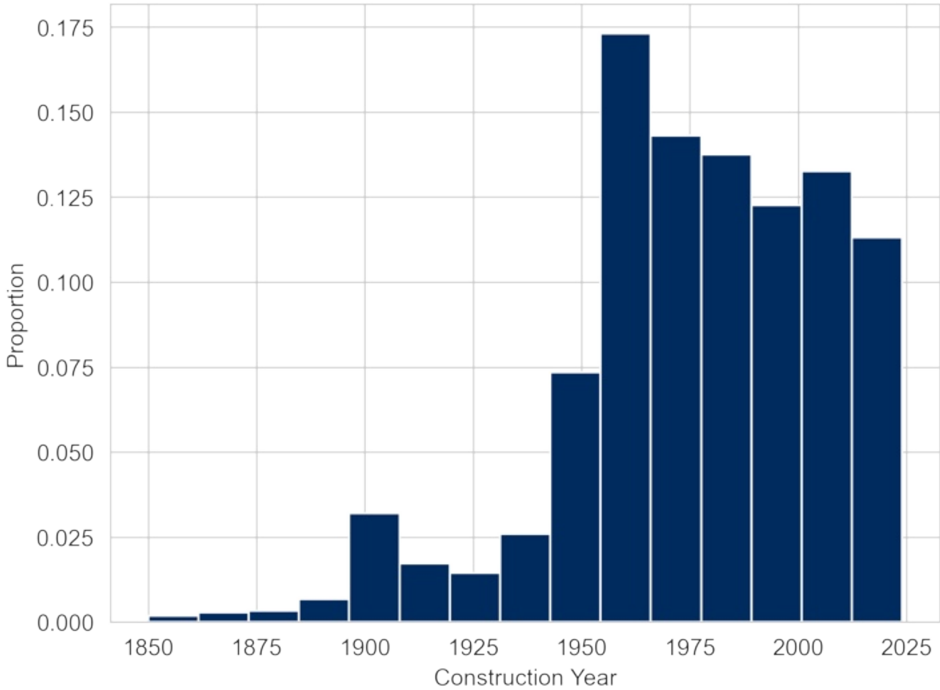
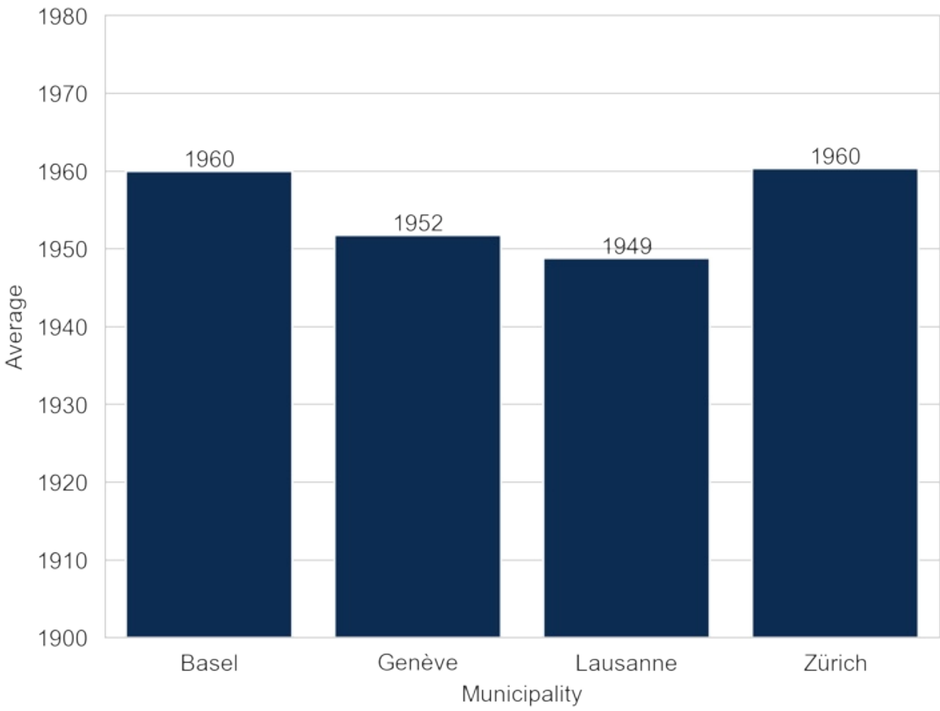


Figure 4: Average Construction Years in Main Municipalities



2.1.3 Building Size

Building sizes, in terms of floors and heated areas, reveal important trends within Swiss REIV portfolios. Most buildings, as shown in Figure 5, have three to five floors, reflecting Switzerland's preference for mid-rise structures.[7] High-rise buildings with more than 10 floors are scarce. Regional differences emerge in Figures 6 and A5, with urban centers like Basel, Geneva, and Zurich featuring taller buildings due to high demand and dense land use, while rural and suburban areas predominantly consist of shorter structures with two to three floors.

For heated areas, Figure A6 shows that larger spaces are concentrated in peripheral municipalities, often representing industrial, commercial, or logistical facilities. In urban centers such as Zurich and Geneva, smaller heated areas dominate, reflecting a focus on compact, multipurpose buildings. This distribution illustrates how REIV portfolios combine dense urban assets for stability with larger-scale properties in less populated regions.

[7] Approximately 67% of Swiss buildings have five floors or fewer, with only 27% exceeding three floors.

Figure 5: Distribution of Number of Floors per Buildings

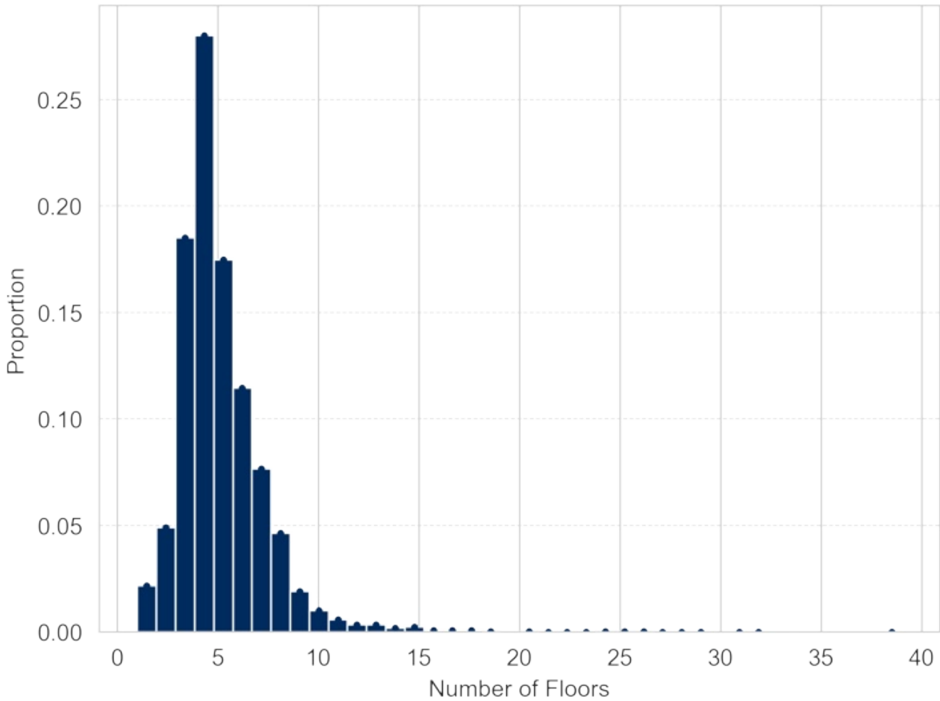
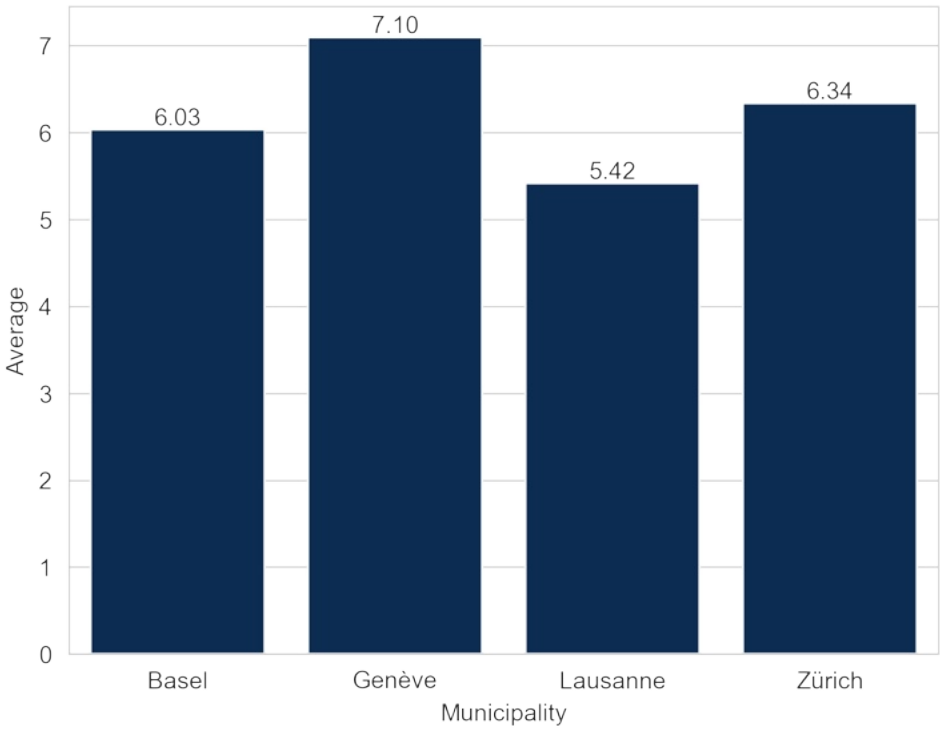


Figure 6: Average Number of Floors in Main Municipalities



2.1.4 Categories of Buildings

The distribution of commercial and residential buildings across Switzerland varies considerably. This variation reveals how REIVs structure their portfolios according to regional characteristics and the intended function of these properties.

The share of commercial buildings (Figure 7) is highest in peripheral areas and smaller municipalities. This pattern mirrors the distribution of larger heated spaces, suggesting the presence of industrial facilities, logistical hubs, and specialized commercial assets outside major urban centers. These regions, with more available land and lower property costs, are well suited for such large-scale uses.

In contrast, residential buildings (Figure 8) are more concentrated in the northern and central regions of Switzerland, as well as in the suburban areas surrounding major cities. Areas near Zurich and Bern, along with rural municipalities, show high densities of residential properties, highlighting a focus on housing supply outside of commercial and mixed-use zones.

This distribution of building types reflects the economic and spatial strategies of REIVs. Commercial properties are clustered in areas with lower land costs, while residential properties are spread across urban, suburban, and rural areas to meet housing demand and ensure stable, long-term investment returns. Recognizing these geographical patterns is essential for assessing the risk and return profile of real estate portfolios.

Figure 7: Share of Commercial Buildings per Municipality

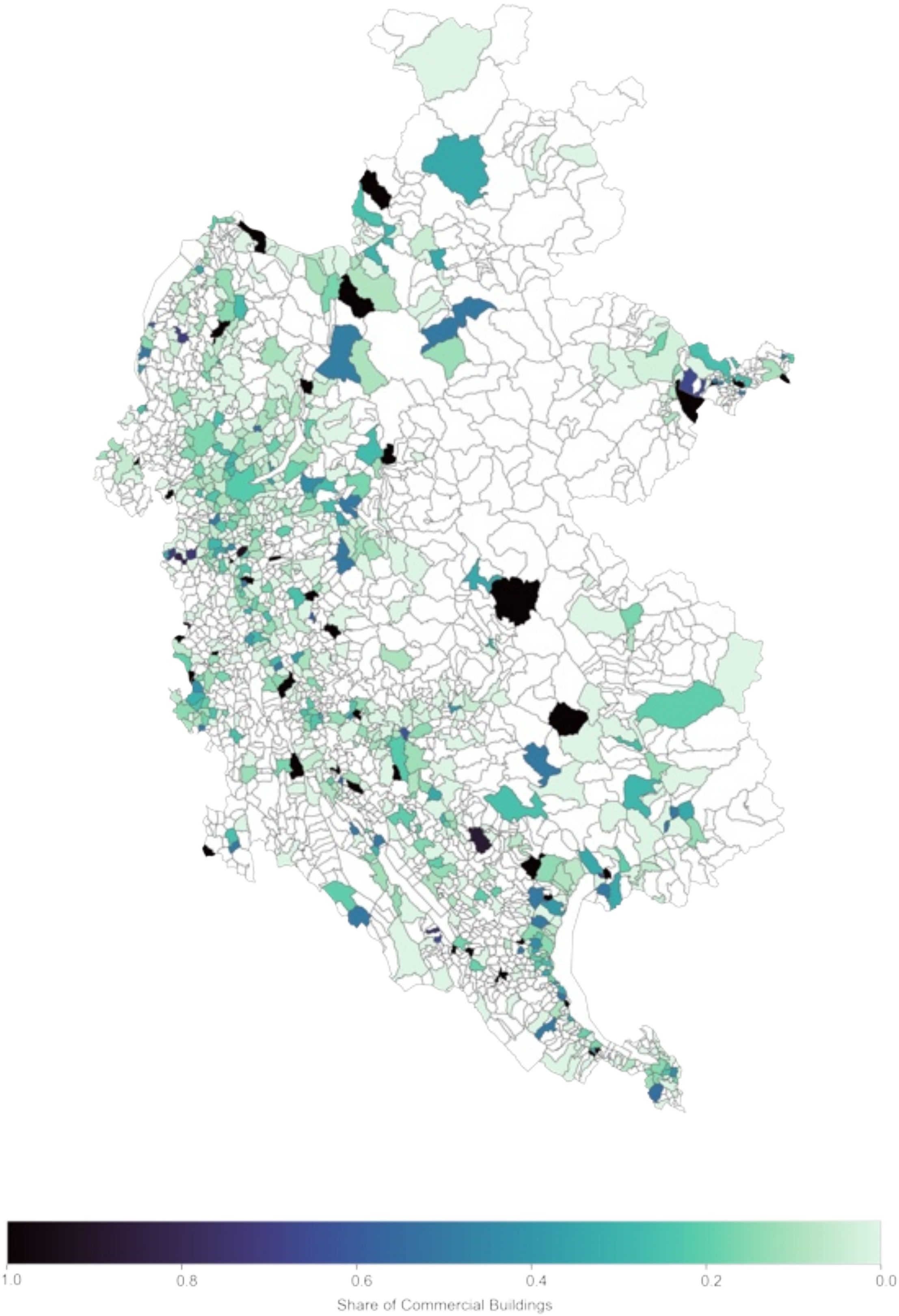
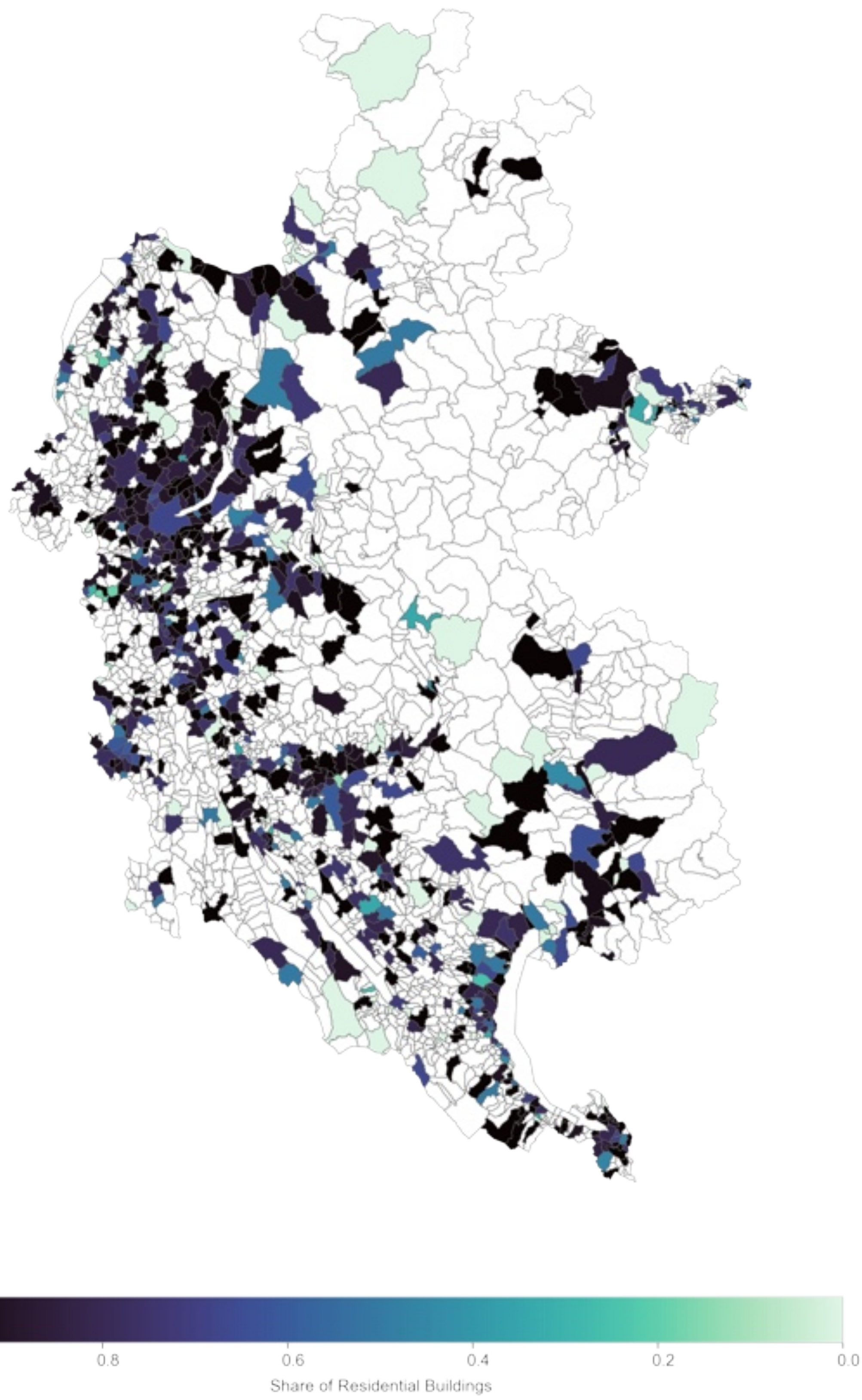


Figure 8: Share of Residential Buildings per Municipality



2.2 Environmental Characteristics

This section assesses REIV properties' environmental performance using indicators derived from the environmental metrics defined in the PRESS Scores methodology (Alessandrini et al., 2024). It examines energy intensity, heating systems and CO_2 emissions (2.2.1), solar panel installations (2.2.2), and green area presence (2.2.3). These factors provide insights into the environmental impact of properties, identifying areas where assets align with climate goals and where further improvements in energy efficiency and renewable energy adoption may be beneficial.

2.2.1 Energy Intensity, Heating Systems and CO_2 Emissions

The first metric evaluates the energy consumption per square meter (kWh/m^2) for each REIV building. Building-level energy consumption data is generally unavailable, with the exception of the canton of Geneva, which collects such data. The Geneva Buildings Dataset comprises a collection of 11,750 buildings with building level information, such as energy intensity values. This data is used to feed a machine learning model that utilizes decision trees to predict energy intensity values using 16 factors such as building age, size, and use type. Although based primarily on data from Geneva, it provides valuable insights applicable to the broader Swiss building stock.

The energy intensity analysis reveals notable variations in building efficiency. As shown in Figure 9, most properties consume between 80 and 120 kWh/m^2, with a few outliers exceeding 200 kWh/m^2, indicating lower efficiency typically associated with older buildings. Among the four main municipalities in REIV portfolios, Basel shows the highest average energy intensity (see Figure 10).

Energy intensity alone does not account for all CO_2 emissions, as factors like energy sources and heating systems also influence emissions. The second metric examines the types of heating systems used across REIV portfolios. Figure 11 shows that almost 65% of REIV buildings rely on gas and fuel-based systems, which are highly CO_2 intensive.

Figure 12 highlights differences among the four main cities. Basel emerges as the city with the lowest reliance on fossil fuel-based heating within REIV properties, signaling stronger alignment with decarbonization goals in its building stock. This contrast underscores Basel's proactive transition toward cleaner energy sources, positioning the city as a potential model for other urban centers aiming to reduce reliance on fossil fuels. Notably, the canton of Basel-Stadt has enacted stringent regulations, including measures that effectively eliminate oil-based heating systems, as highlighted in the WWF Suisse (2024) report.

The third metric, CO_2 intensity, quantifies emissions by considering both energy sources and heating demand, expressed in $kgCO_2e/m^2$. This indicator utilizes standardized emissions factors as outlined by Intep (2022).

Because CO_2 emissions are closely tied to both energy consumption and heating system type, the CO_2 intensity distribution correlates strongly with energy intensity. However, as Figure 13 illustrates, the heating system has a substantial impact: fossil based systems emit significantly more CO_2 than alternatives. Figure 14 illustrates this effect, where despite Basel's relatively high energy intensity, its CO_2 intensity remains comparatively low due to its lower dependence on fossil fuel heating systems relative to other major municipalities.[8]

The scatterplot in Figure 15 reveals that most buildings are concentrated within an energy intensity interval of 95 to 120 kWh/m^2 and a CO_2 intensity interval of 6 to 26 $kgCO_2/m^2$, representing the typical building profile in REIV portfolios.

[8] Figures A7 and A8 display the municipal distribution of average energy intensity and CO_2 emissions across REIV portfolios.

Reducing CO_2 emissions relies on improving energy efficiency and replacing fossil fuel heating systems. Strategies such as better insulation, modernizing heating systems, and switching to renewable energy sources can significantly lower CO_2 intensity and energy use, helping meet sustainability goals.

Figure 9: Distribution of Energy Intensity (in kWh/m^2)

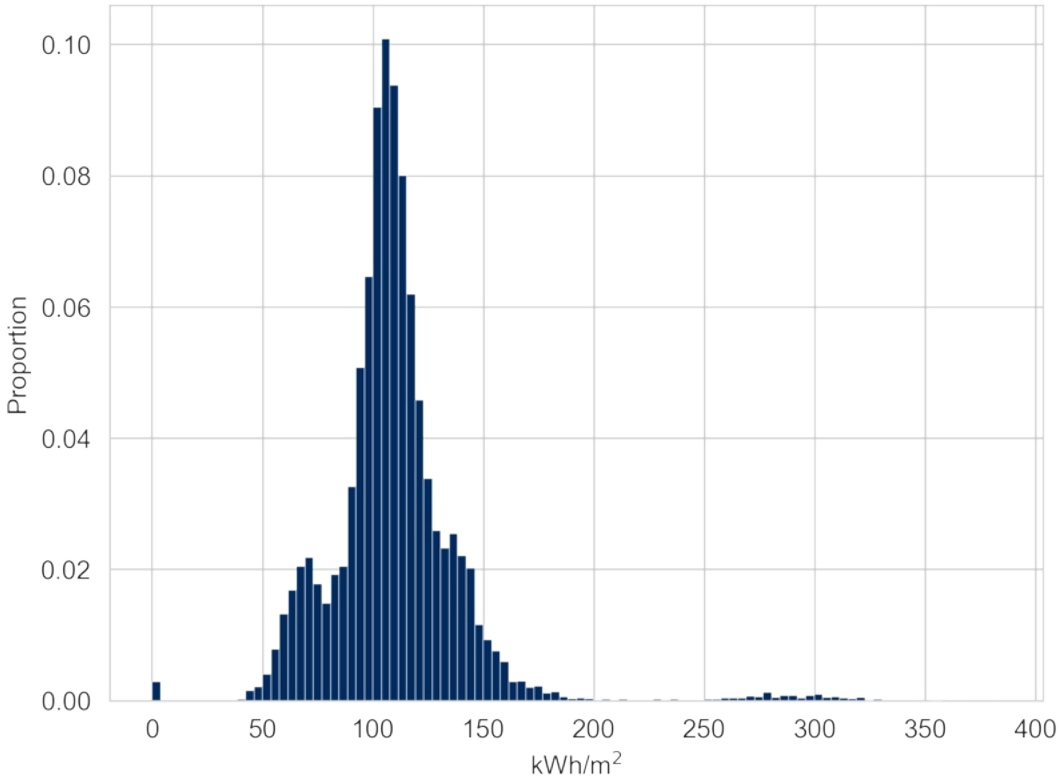


Figure 10: Average of Energy Intensity of Main Municipalities (in kWh/m^2)

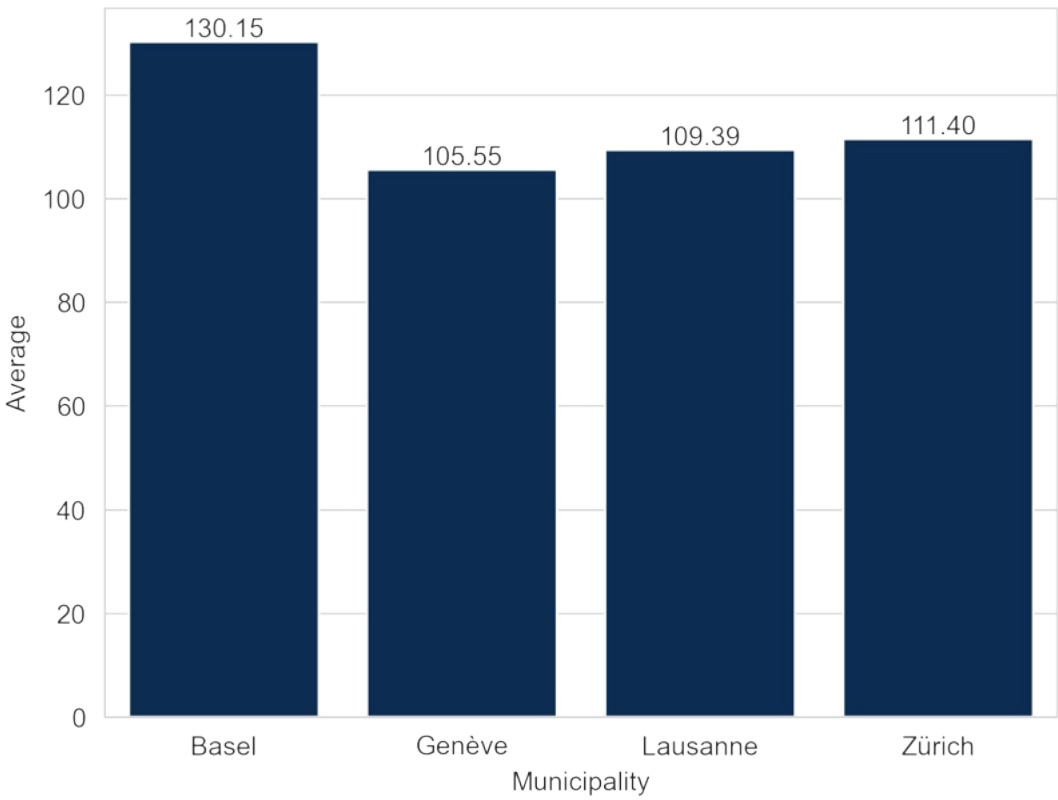


Figure 11: Share of Type of Heating Systems

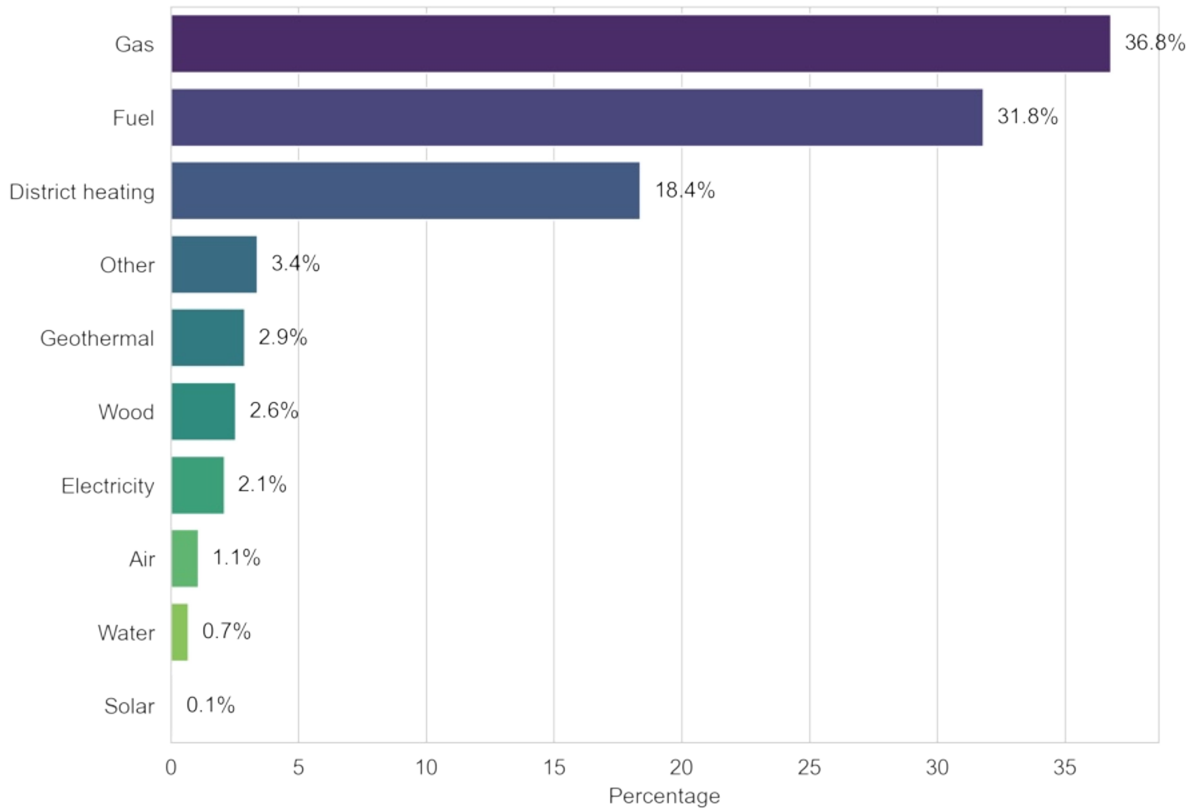


Figure 12: Share of Building with Fossil Heating Systems in Main Municipalities

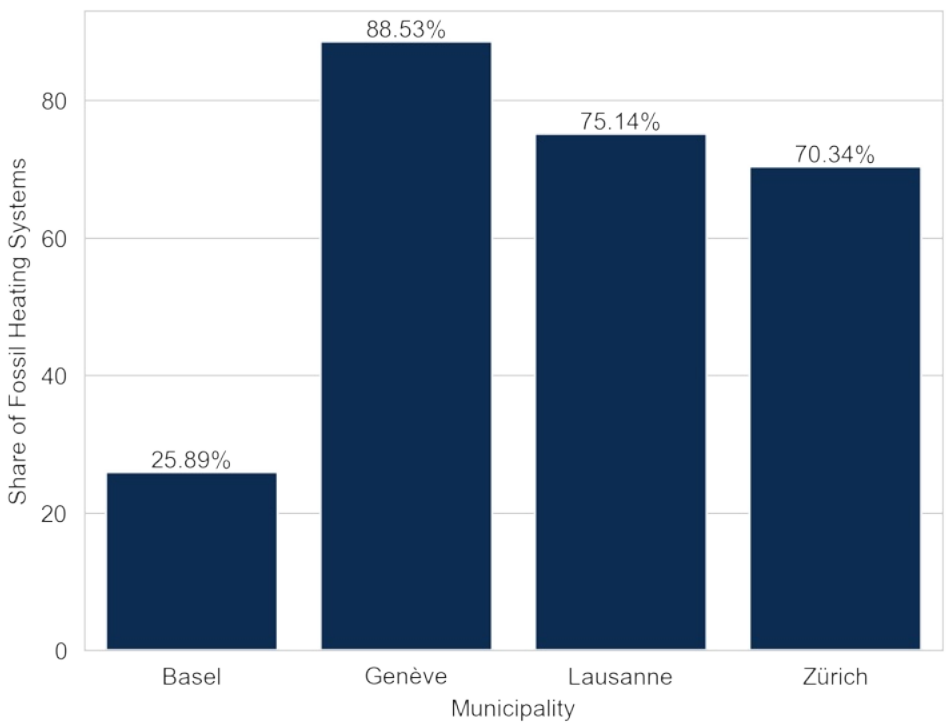


Figure 13: Distribution of CO_2 intensity (in $kgCO_2e/m^2$)

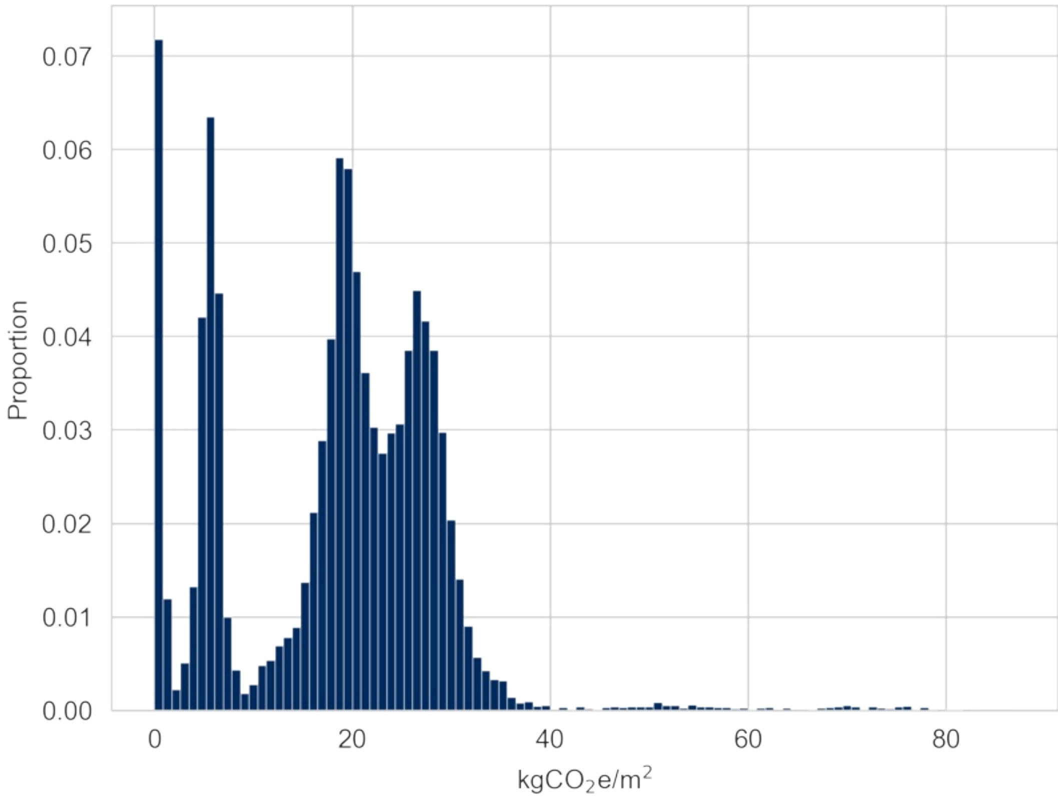


Figure 14: Average of CO_2 intensity in Main Municipalities (in $kgCO_2e/m^2$)

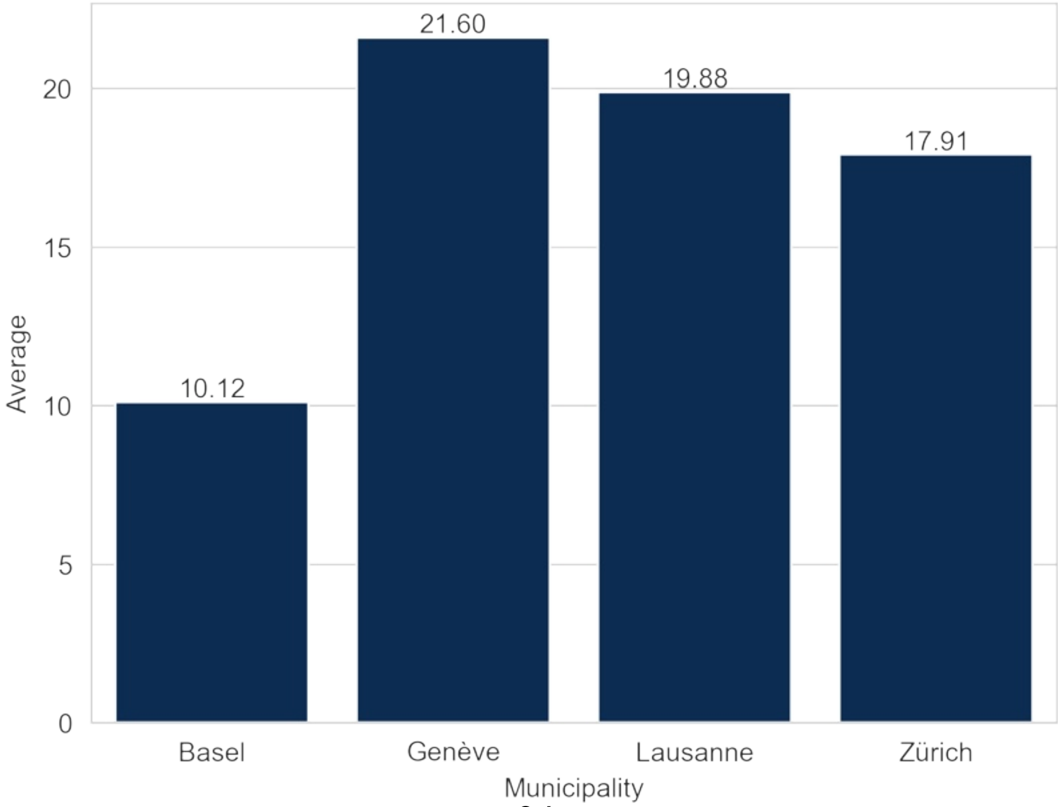
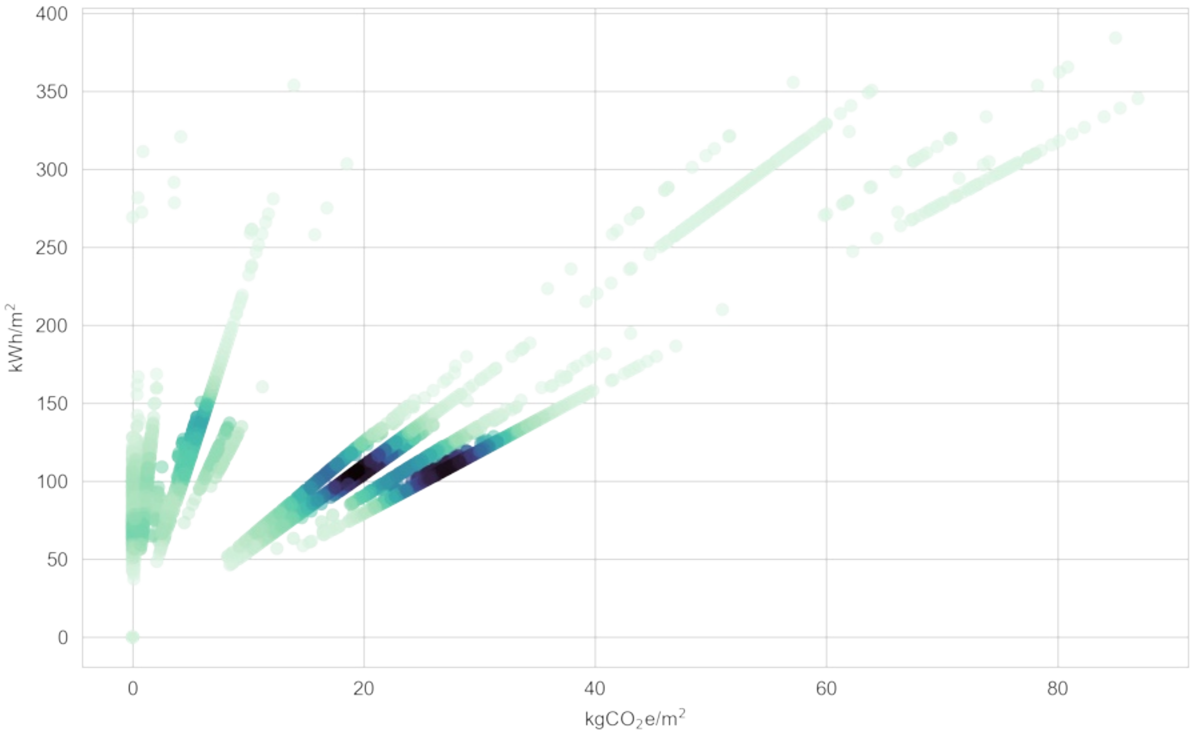


Figure 15: Scatter Plot of Energy Intensity and CO_2 Intensity



2.2.2 Solar Installations

The solar panel installations metric measures the proportion of roof area equipped with solar panels, relative to the total roof area available for such installations.[9] The analysis across REIV properties shows a low overall adoption rate, as depicted in Figure 16.

Figure 17 shows that across most municipalities, solar panel coverage per square meter is low, reflecting limited adoption of renewable energy. Buildings in Basel have the most solar panels installed among major cities, while Geneva has the least, likely due to administrative challenges or restrictions on protected buildings. Higher installation levels are more common in rural and peripheral areas, where rooftop space and sun exposure are more favorable.[10] This pattern indicates that expanding solar deployment in cities presents a key opportunity to boost renewable energy use across REIV portfolios.

[9] The solar panel installations variable is calculated as the ratio of the roof area covered by solar panels to the total roof area suitable for solar installations. Roof suitability is determined based on criteria such as orientation, slope, and shading, as defined in the dataset. The metric provides a percentage representation of the potential solar energy utilization for each building. For more details on the methodology, see Alessandrini et al. (2024).

[10] See Figure A9 for average solar panel installations by municipality.

Figure 16: Distribution of Solar Panels per m^2

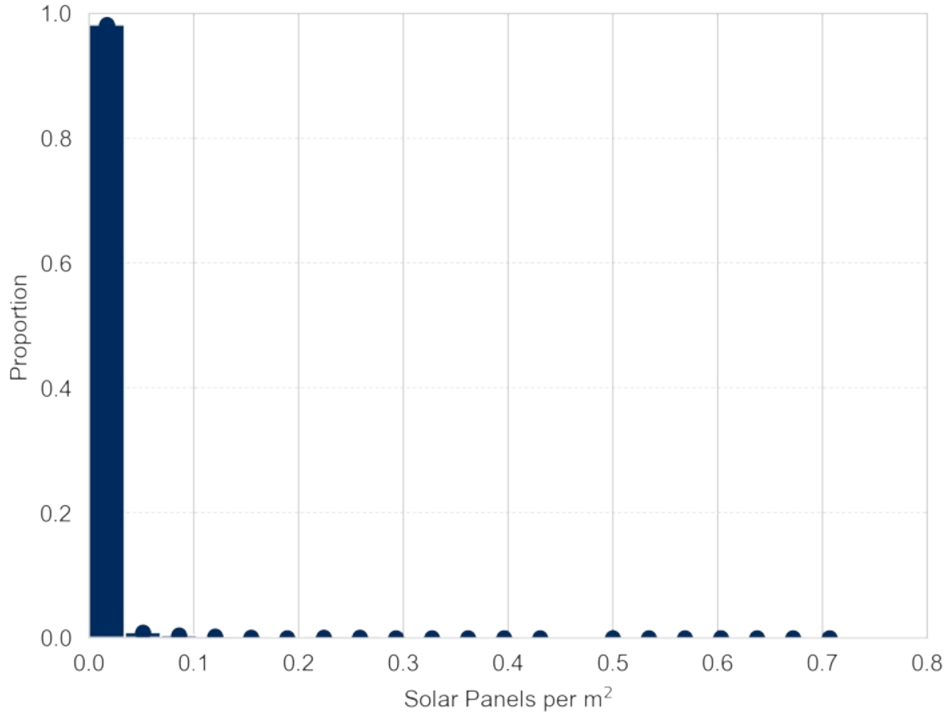
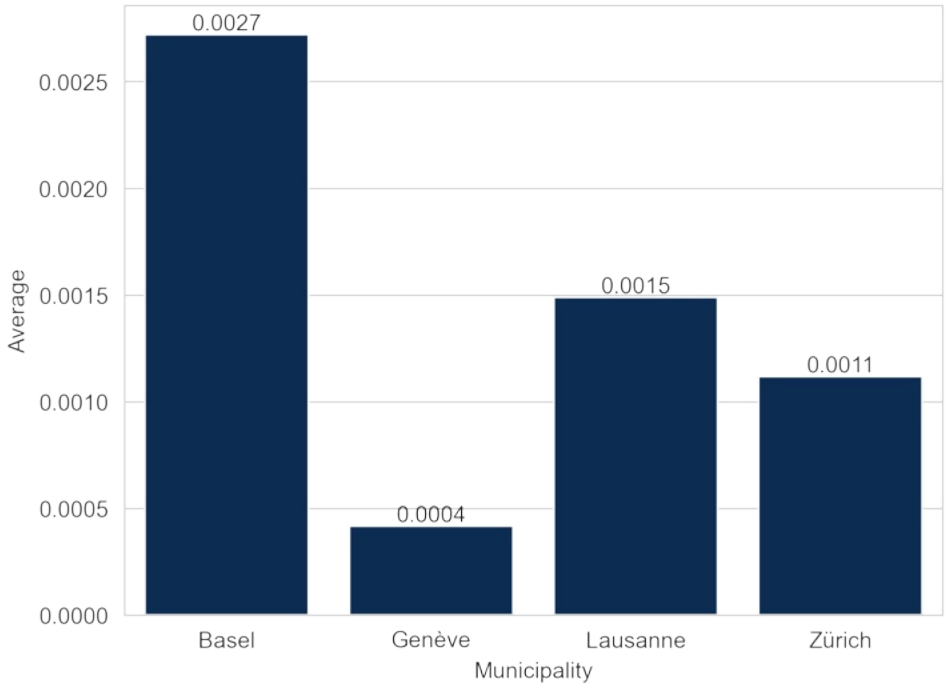


Figure 17: Average Solar Panels per m^2 in Main Municipalities



2.2.3 Green Areas

The green area metric measures the percentage of natural or landscaped space surrounding REIV properties, reflecting their contribution to environmental sustainability, biodiversity, and tenant well-being.[11]

The analysis shows that most properties in REIV portfolios have limited green space. Figure 18 reveals that over 70% of properties lack surrounding green areas, with only a small fraction exceeding 40% green coverage within a 100-meter perimeter. This highlights a general scarcity of greenery, potentially affecting biodiversity and tenant satisfaction.

Figure 19 shows significant regional differences: rural, less dense areas tend to have more green space, while urban centers like Zurich, Geneva, and Lausanne exhibit notably lower coverage. This pattern reflects the emphasis on land use efficiency in high-density areas, which limits opportunities for green area development.

Expanding green space, particularly in urban regions, could enhance the environmental and social value of REIV properties by supporting biodiversity, improving microclimates, and boosting tenant satisfaction. Such efforts would align REIV portfolios with broader sustainability and livability objectives.

[11] The green area metric is calculated as the proportion of vegetated or landscaped space within a 100-meter perimeter of each building, using satellite imagery and land-use classifications. See Alessandrini et al. (2024) for details.

Figure 18: Distribution of Green Areas

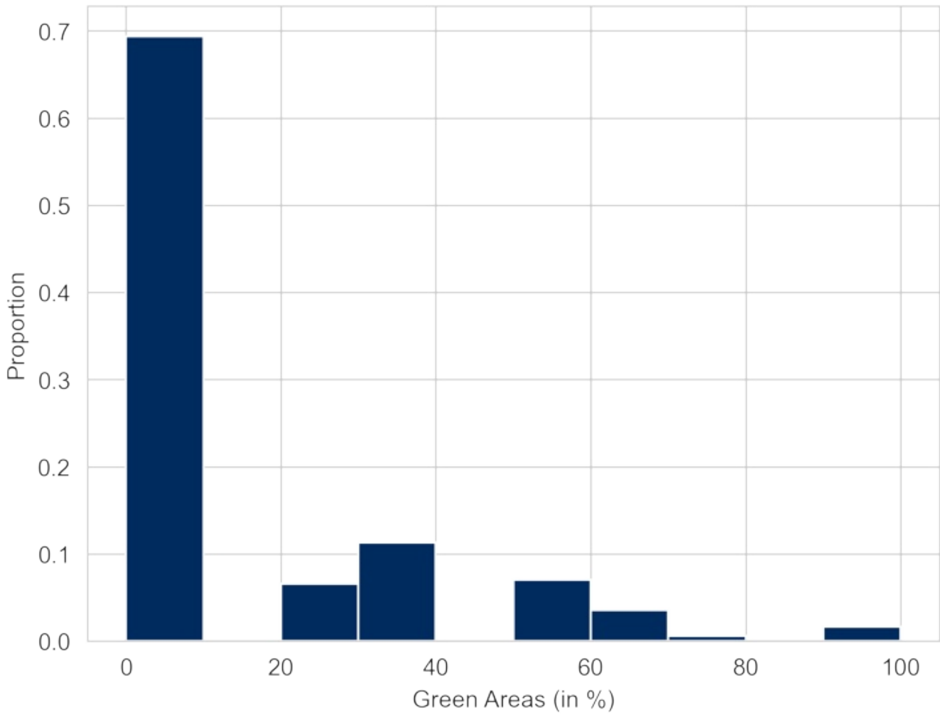
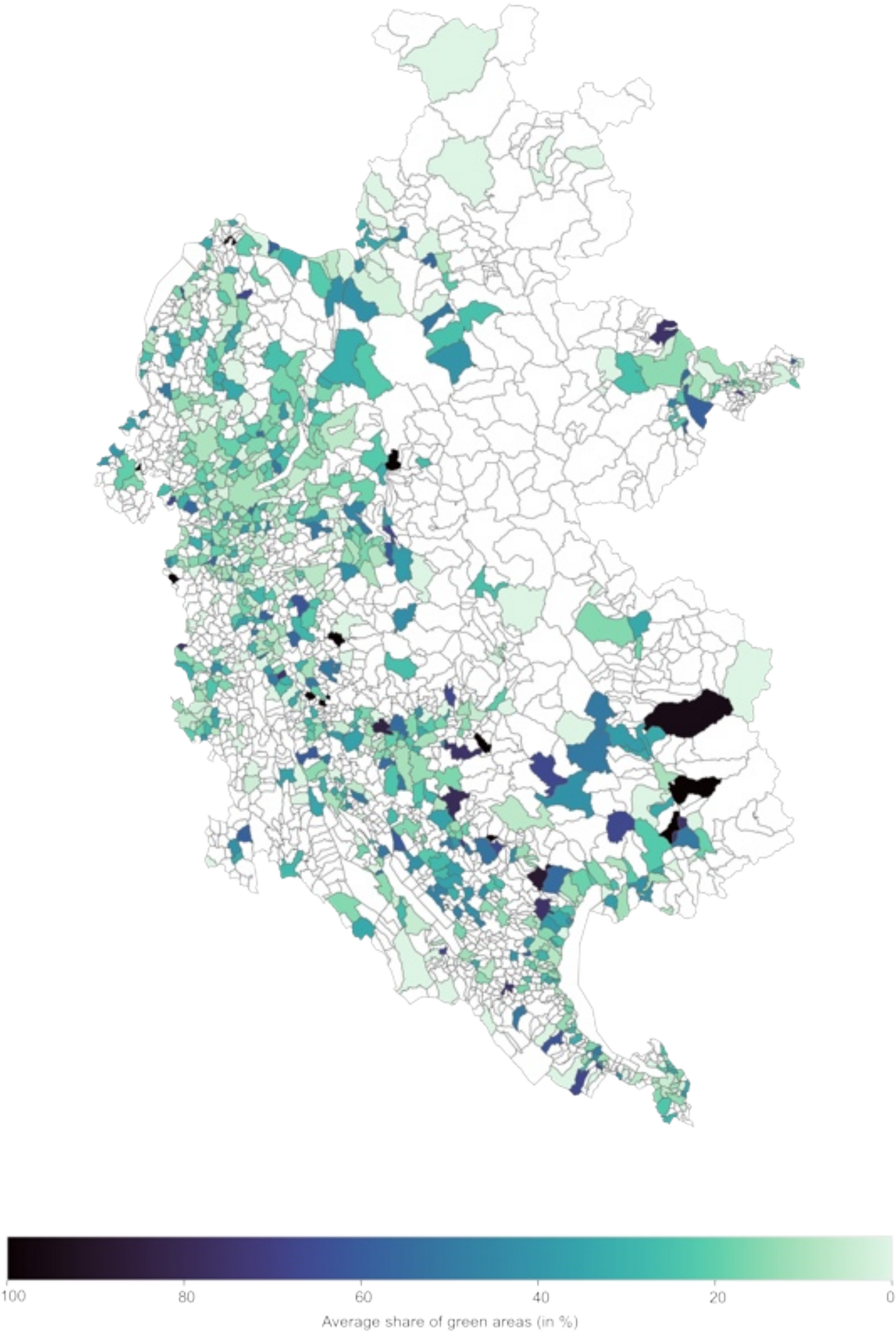


Figure 19: Average Green Areas by Municipality



2.3 Social Characteristics

This section evaluates the livability and community impact of REIV properties using indicators derived from the social metrics defined in the PRESS Scores methodology (Alessandrini et al., 2024). It assesses rents (2.3.1), accessibility (2.3.2), noise levels (2.3.3), tenants turnover (2.3.4), and proximity to amenities (2.3.5). These factors influence tenant satisfaction, community well-being, and property appeal for long-term occupancy, highlighting where properties meet social sustainability goals and where improvements are needed.

2.3.1 Rents

The first metric for rents evaluates the yearly rent per square meter for apartments owned by REIVs. As shown in Figure 20, most properties rent between just under 280 CHF/m^2 and slightly above 205 CHF/m^2, suggesting consistent rental rates likely due to standardized pricing strategies or targeted rental segments.

At the municipal level, rent levels vary widely, with higher rents concentrated in urban and economically strong regions like Zurich and the Lemanic Arc, while rural or less active areas generally exhibit lower prices.[12] Among the four main municipalities, Figure 21 shows that REIV properties command the highest average rents in Geneva, followed by similar rates in Lausanne and Zurich, and significantly lower rates in Basel.

The second metric evaluates the rent differential between REIV-owned properties and comparable apartments in nearby areas. This metric compares the per-square-meter rental rate of REIV-owned residential units with the average rent in the surrounding locality, indicating whether REIVs charge above or below local market averages. This comparison provides insights into the affordability

[12] See Figure A10 for municipal rent levels.

Figure 20: Distribution of Rent

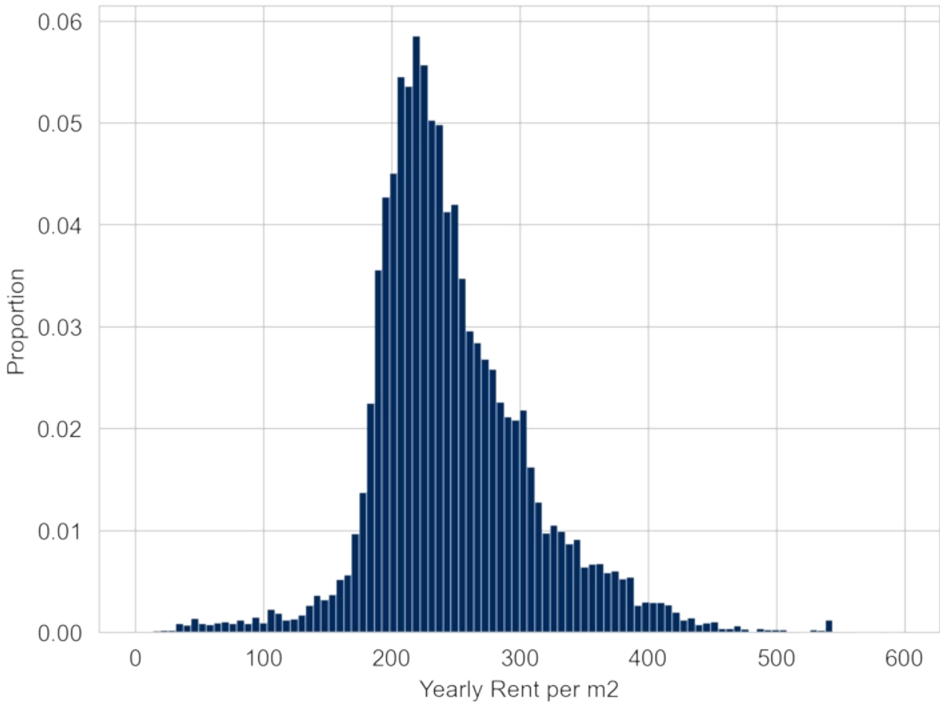
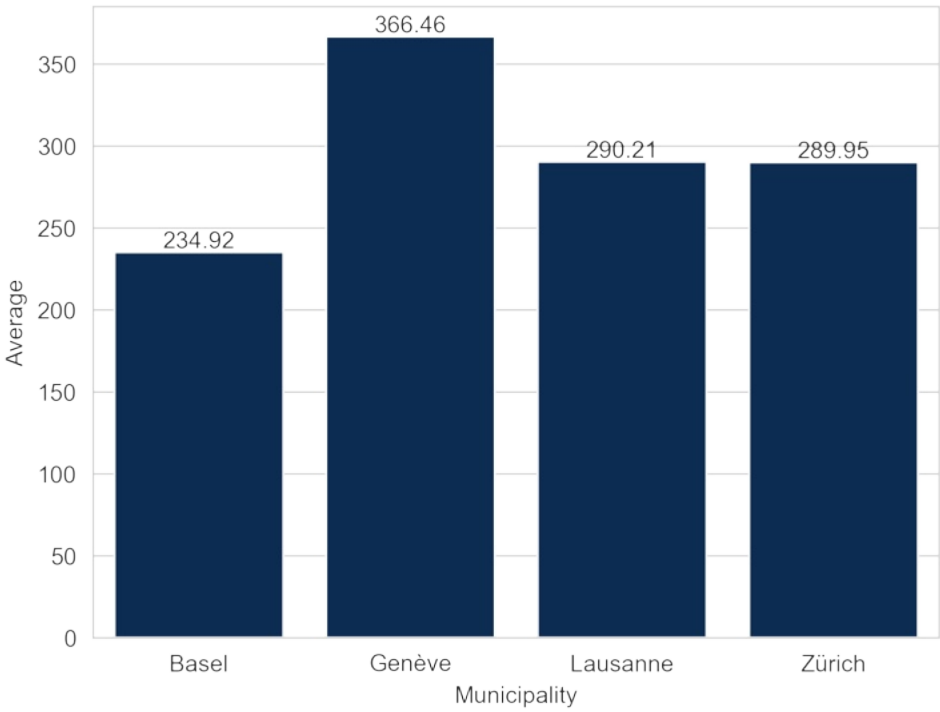


Figure 21: Average Rent of Main Municipalities



and competitiveness of REIV rental properties.

The histogram in Figure 22 shows a roughly symmetric distribution of the rent differential around zero, indicating that REIV-owned apartments are generally priced close to neighborhood averages, though there is notable variability. This variability reflects differing pricing strategies across funds and municipalities, with both higher and lower rent levels observed.

Comparing the main municipalities in Figure 23, REIV buildings in Lausanne appear to have the highest relative pricing compared to similar neighborhood properties, while those in Basel are priced lower relative to their local counterparts.[13]

This analysis highlights the differences in rental strategies among REIVs, shaped by location-specific demand and market conditions. Buildings in Geneva and Lausanne tend to have higher rents in response to strong demand in these urban markets, while Basel shows a focus on maintaining competitive pricing to attract tenants in a relatively more affordable market.

[13] Figure A11 shows average pricing across municipalities.

Figure 22: Distribution of Rent Differential

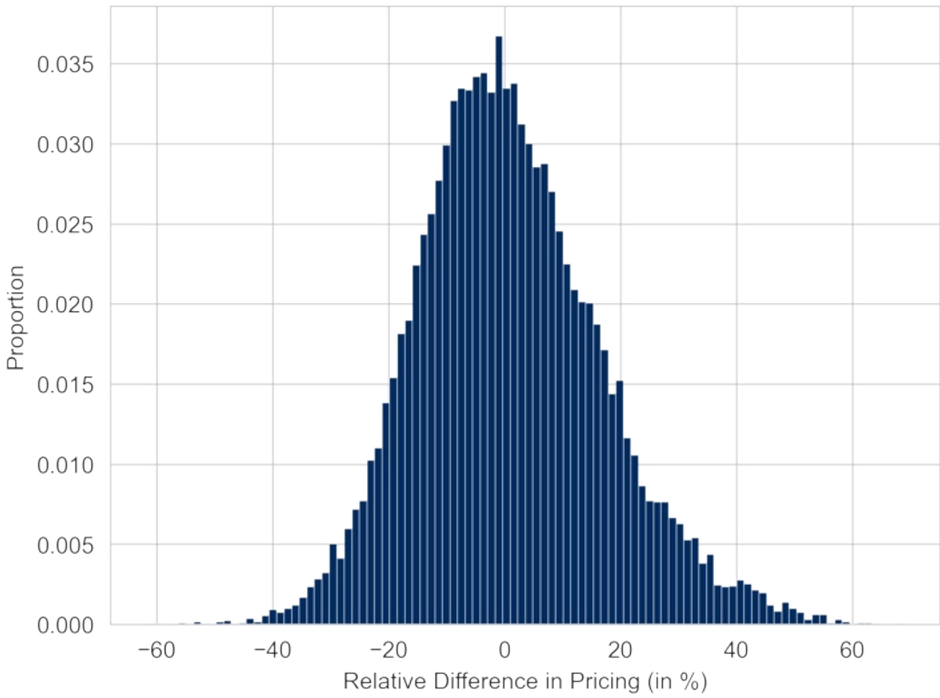
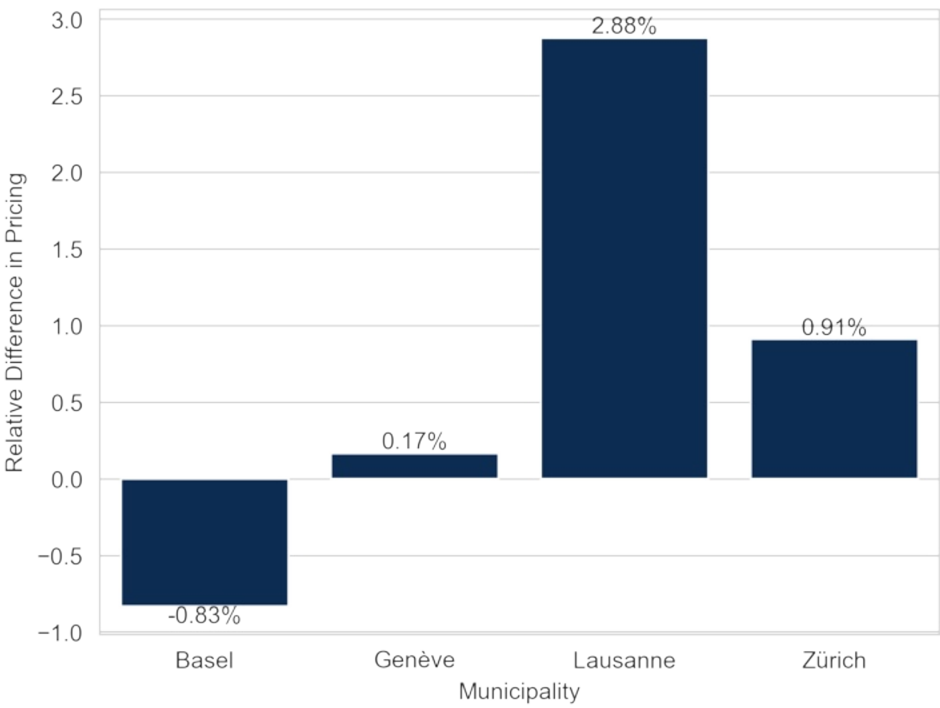


Figure 23: Average Rent Differential of Main Municipalities



2.3.2 Accessibility

Figure 24: Residential accessibility criteria at the building level

The accessibility of each building is assessed through two complementary metrics of the density of essential transit options and services within a 700-meter radius (approximately a 10-minute walk). On the one hand, commercial accessibility focuses on access to retail, restaurants, and transit hubs important for business operations. High scores indicate locations that support business growth and customer convenience, with relatively high accessibility extending into some suburban and peripheral areas outside major urban centers. On the other hand, residential accessibility evaluates proximity to essential amenities like schools, grocery stores, healthcare, and public transport. Figure 24 illustrates the components of this indicator. High scores in this metric reflect locations that enhance residents' quality of life by providing convenient access to daily needs.

The analysis of commercial and residential accessibility measures reveals distinct connectivity patterns across municipalities. The commercial accessibility map (Figure 25) shows high scores concentrated in major urban centers such as Zurich, Basel, Bern, Geneva, and Lausanne, with some suburban and peripheral areas also benefiting from strong networks of amenities and transit options that support business investments. Accessibility declines slightly in more rural and sparsely populated regions, which generally have fewer commercial resources.

In contrast, the residential accessibility map (Figure 26) shows a broader spread of high scores across urban and suburban areas. Municipalities around Zurich, Bern, and Basel, along with several in central and western Switzerland, demonstrate strong residential accessibility, thanks to well-developed transport networks and essential services. Lower scores are mostly found in remote areas with limited infrastructure.

These patterns suggest a concentration of commercial developments in urban centers, with some suburban areas also offering high commercial accessibility. Residential properties, however, are more evenly distributed to meet demand across both high-density and suburban areas. Understanding these trends highlights where investments in commercial and residential properties are likely to yield higher returns based on accessibility to services and infrastructure.

Figure 25: Average Commercial Accessibility per Municipality

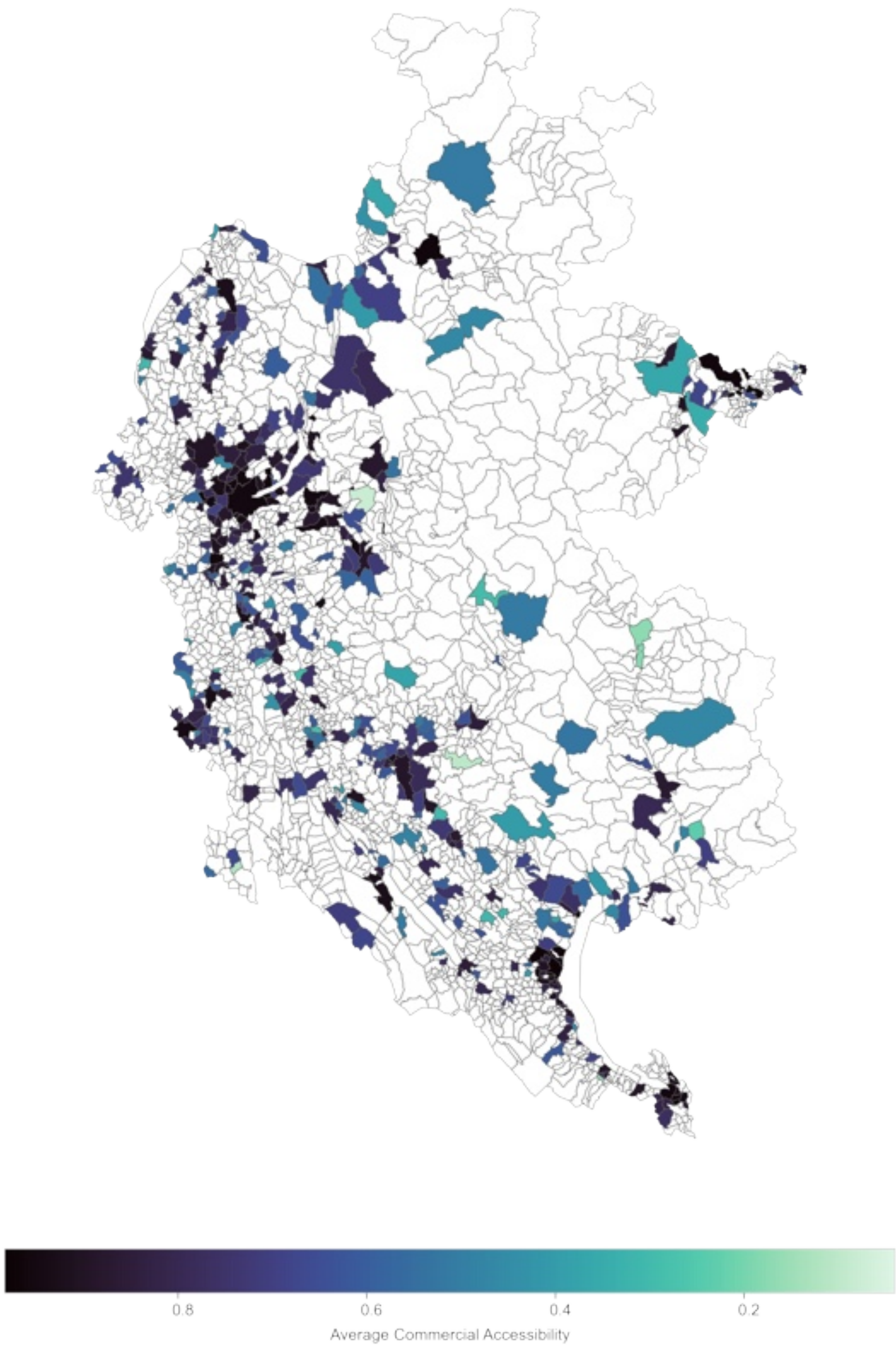
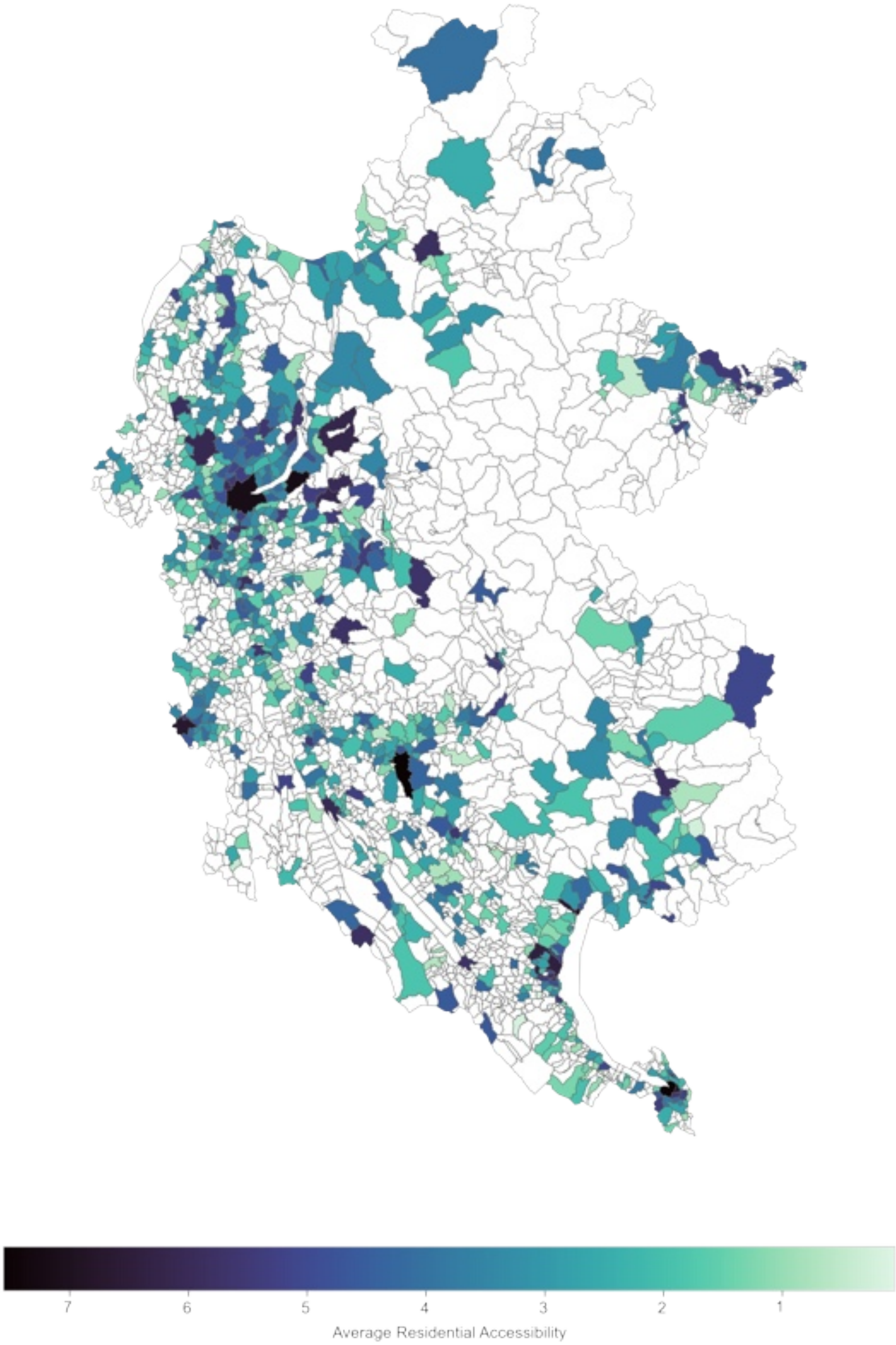


Figure 26: Average Residential Accessibility per Municipality



2.3.3 Noise

The outdoor noise pollution indicator is based on the following maps published by the Federal Office of the Environment (FOEN, 2022): Daytime and nighttime road traffic noise and daytime and nighttime train traffic noise in decibels (dB). Estimates are based on traffic data, vehicle category and type, and location-specific characteristics, such as obstacles or road coverings (FOEN, 2023a).[14]

Our noise indicator, measured in decibels (dB), reflects the exposure of REIV properties to sounds from road and rail traffic. High noise levels can detract from residential satisfaction and property appeal, with lower exposure generally preferred for tenant well-being.

The analysis of noise around REIV properties shows considerable variation, influencing the desirability and livability of these areas. As seen in Figure 27, most properties have noise levels between 29 and 40 dB, with only 0.48% of buildings exceeding 60 dB. High exposure can particularly affect tenant satisfaction and property appeal in residential buildings.

The spatial map in Figure 28 indicates that higher average noise levels are concentrated in urban centers and along major transport lines. The four main cities exhibit elevated noise exposure due to dense traffic and commercial activity, though differences among these cities are minimal (see Figure A12). In contrast, rural areas and smaller towns generally enjoy quieter environments with lower noise levels, making them better suited to residential properties where tenant satisfaction and long-term appeal are closely tied to a quieter atmosphere.

[14] In Switzerland, residential noise level limits are set at 60 dB during the day and 50 dB during the night (FOEN, 2024).

Figure 27: Distribution of Noise per Building

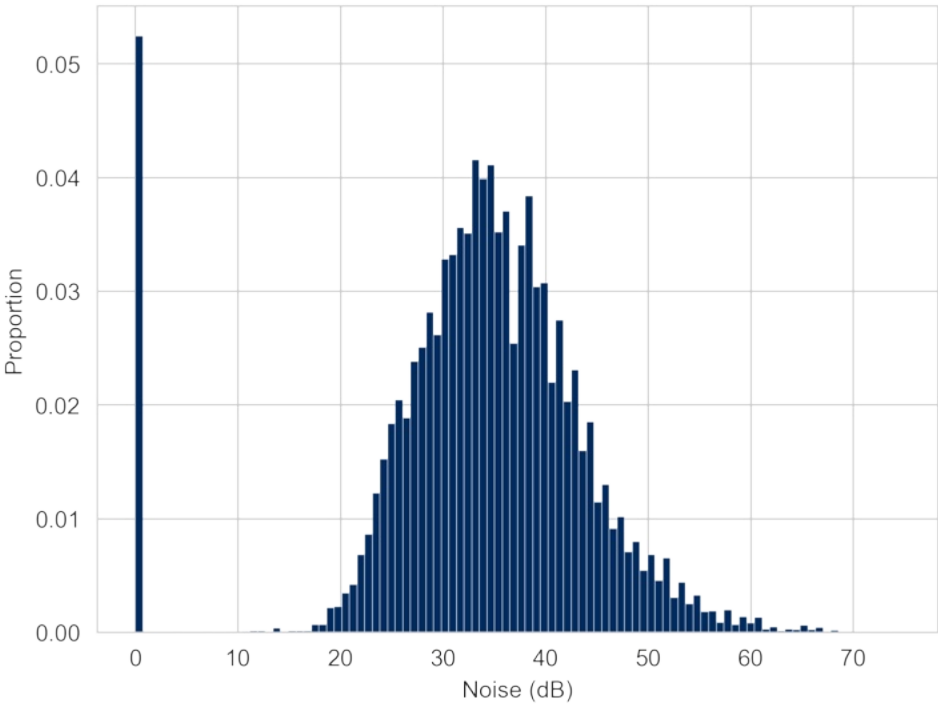
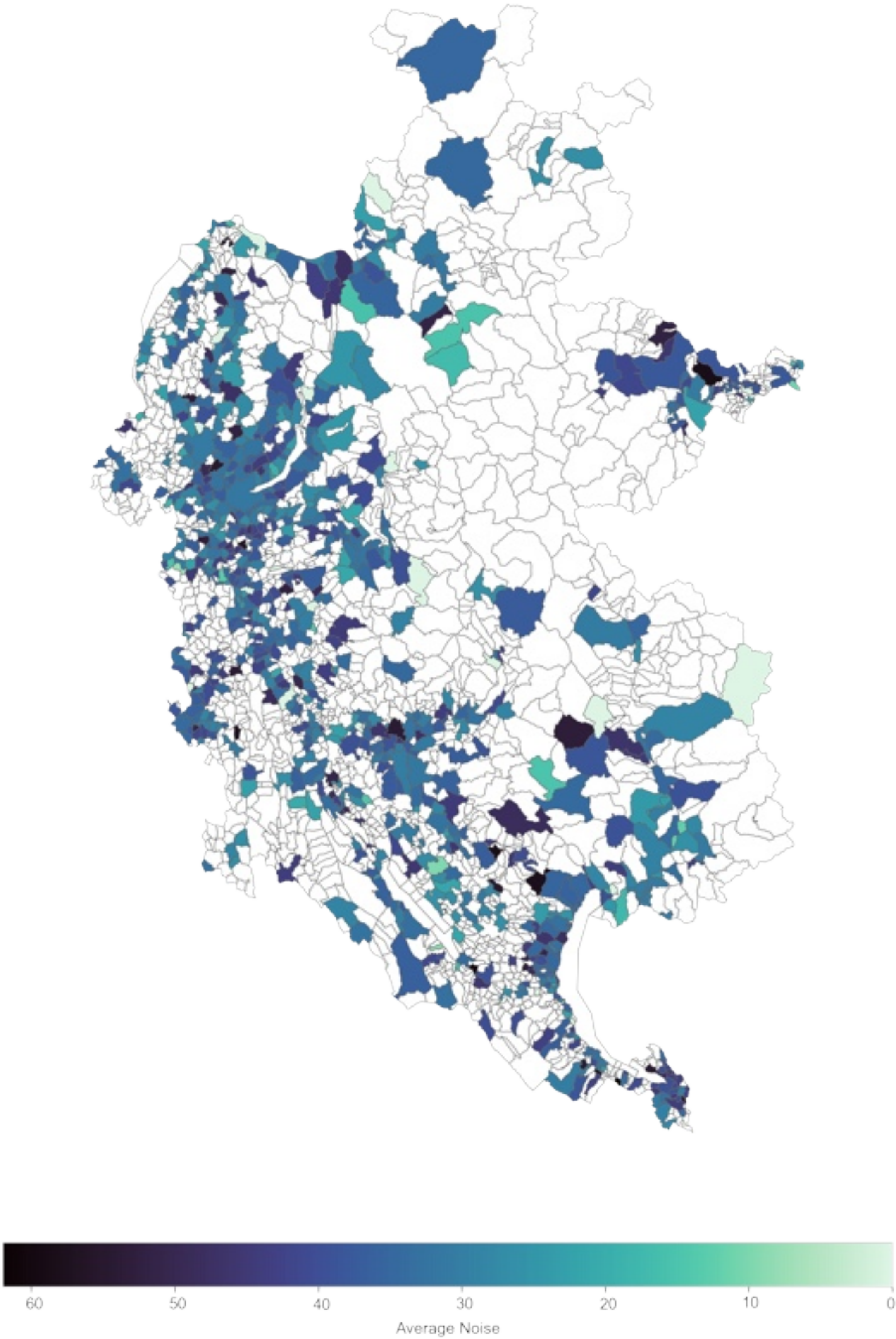


Figure 28: Average Noise per Municipality



2.3.4 Tenants Turnover

Turnover rates are evaluated through rental advertisement frequency and the proportion of new tenants, with each property compared to others in the same area. High turnover may signal instability, while low turnover is a proxy for tenant satisfaction and desirability. However, new properties or apartments may have inflated turnover rates due to naturally higher advertisement activity and tenant changes, which does not necessarily indicate instability.

The rental advertisement sub-indicator relies on rental advertisements collected from rental ad websites. The normalization of advertisements per building is done with the heated area instead of the number of dwellings. This adjustment is necessary as rental advertisements may include both residential and commercial properties, with the latter lacking dwellings. The distribution of advertisement frequency (Figure 29) shows that most properties have turnover rates in line with neighborhood averages, suggesting a stable rental environment. Some buildings, however, display higher advertisement frequency, indicating frequent tenant changes possibly due to short-term leases or lower tenant retention, which can imply greater volatility from an investment perspective.

Similarly, the new residents sub-indicator relies on the STATPOP dataset from 2021, specifically the number of residents living in a hectometer for less than a year, assumed to be new residents. To estimate the number of new residents for each building, the value at the hectometer level is attributed to the building based on its share of dwellings in the hectometer. Then the average number of new residents per municipality is calculated. Finally, the indicator, which represents the difference between these two metrics.

The distribution of new residents (Figure 31) is centered around zero, with minimal change in most buildings. Certain buildings show positive spikes, indicating an important influx of new tenants, probably due to REIVs developing new

Figure 29: Distribution of Difference in Advertisements per m^2

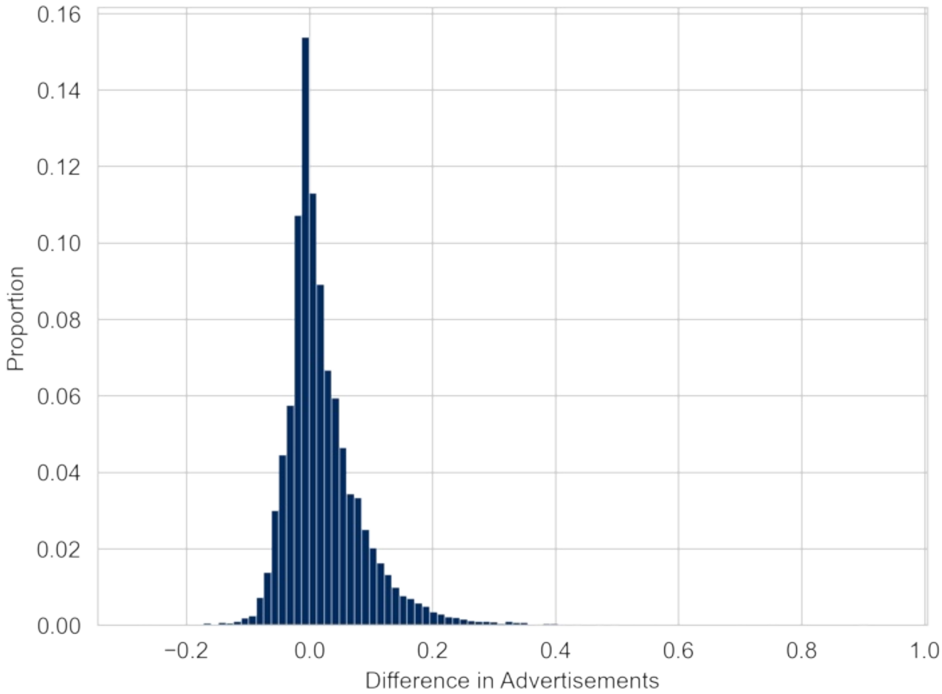
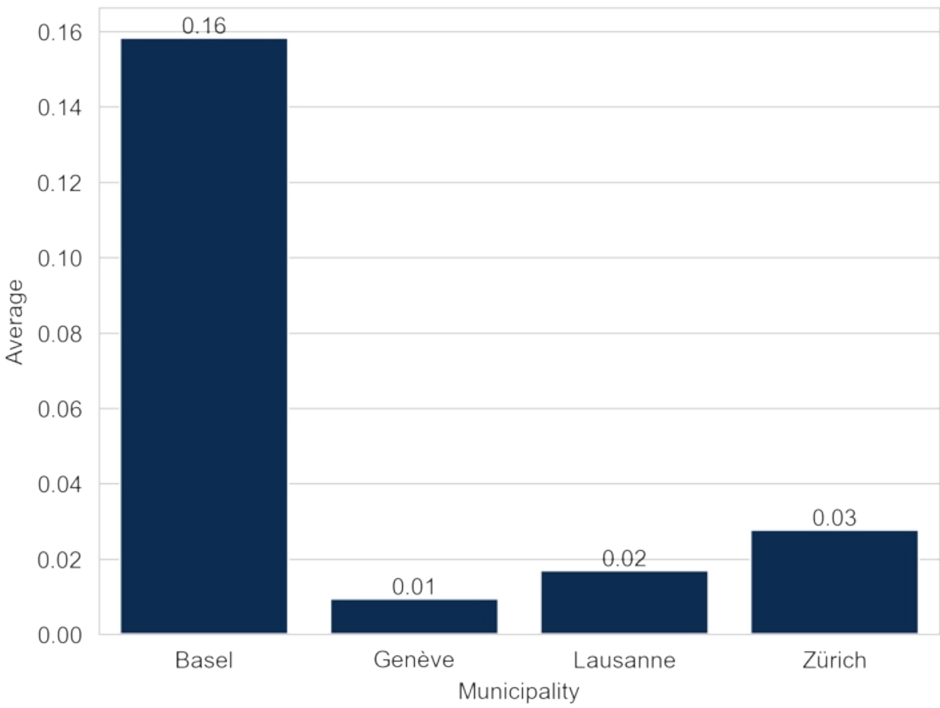


Figure 30: Average Difference in Advertisements in Main Municipalities



programs.

Among the primary municipalities, Basel shows the highest advertisement frequency (Figure 30), suggesting more frequent tenant transitions in REIV buildings relative to similar properties. Zurich, on the other hand, has the highest share of new residents (Figure 32), indicating strong demand and active tenant turnover in both cities.

Across municipalities, new residents are concentrated in expanding suburban areas and smaller towns, marking these as growth zones for residential demand. Conversely, higher advertisement turnover is more common in rural areas, possibly reflecting greater tenant turnover or an active rental market. These trends, shown in Figures A13 and A14, identify areas of rental instability and growth potential, helping investment vehicles manage and forecast property performance based on tenant dynamics.

Figure 31: Distribution of Difference in New Residents per Building

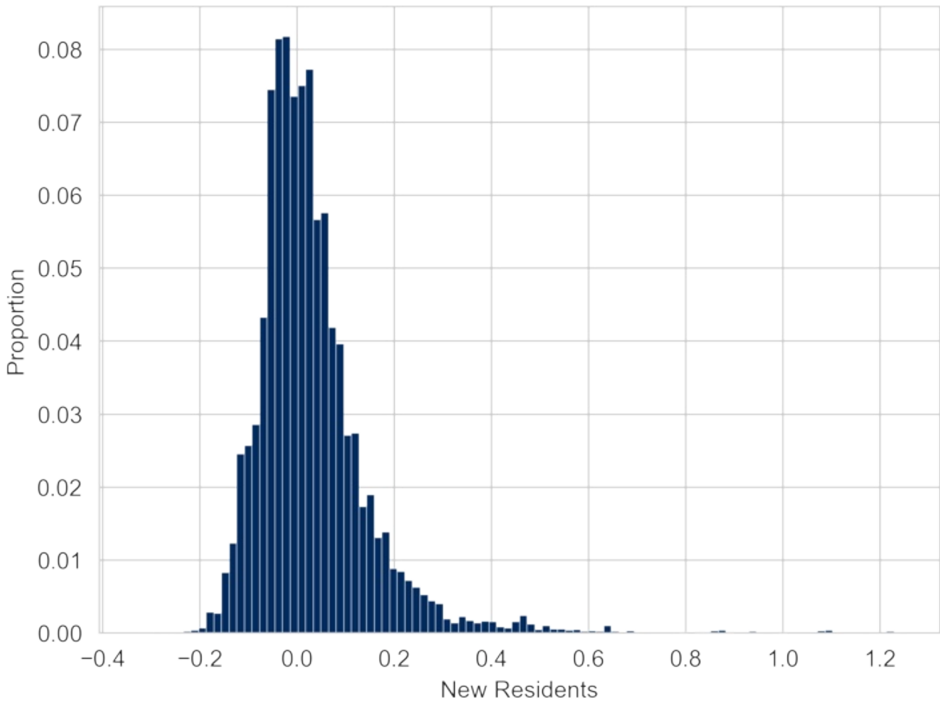
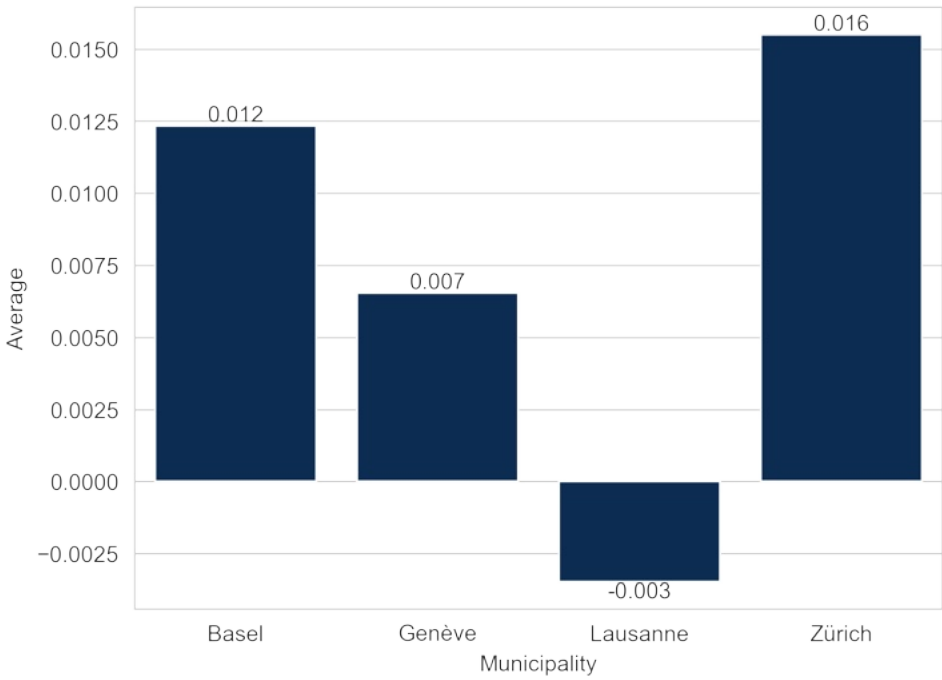


Figure 32: Average Difference in New Residents per Building in Main Municipalities



2.3.5 Amenities

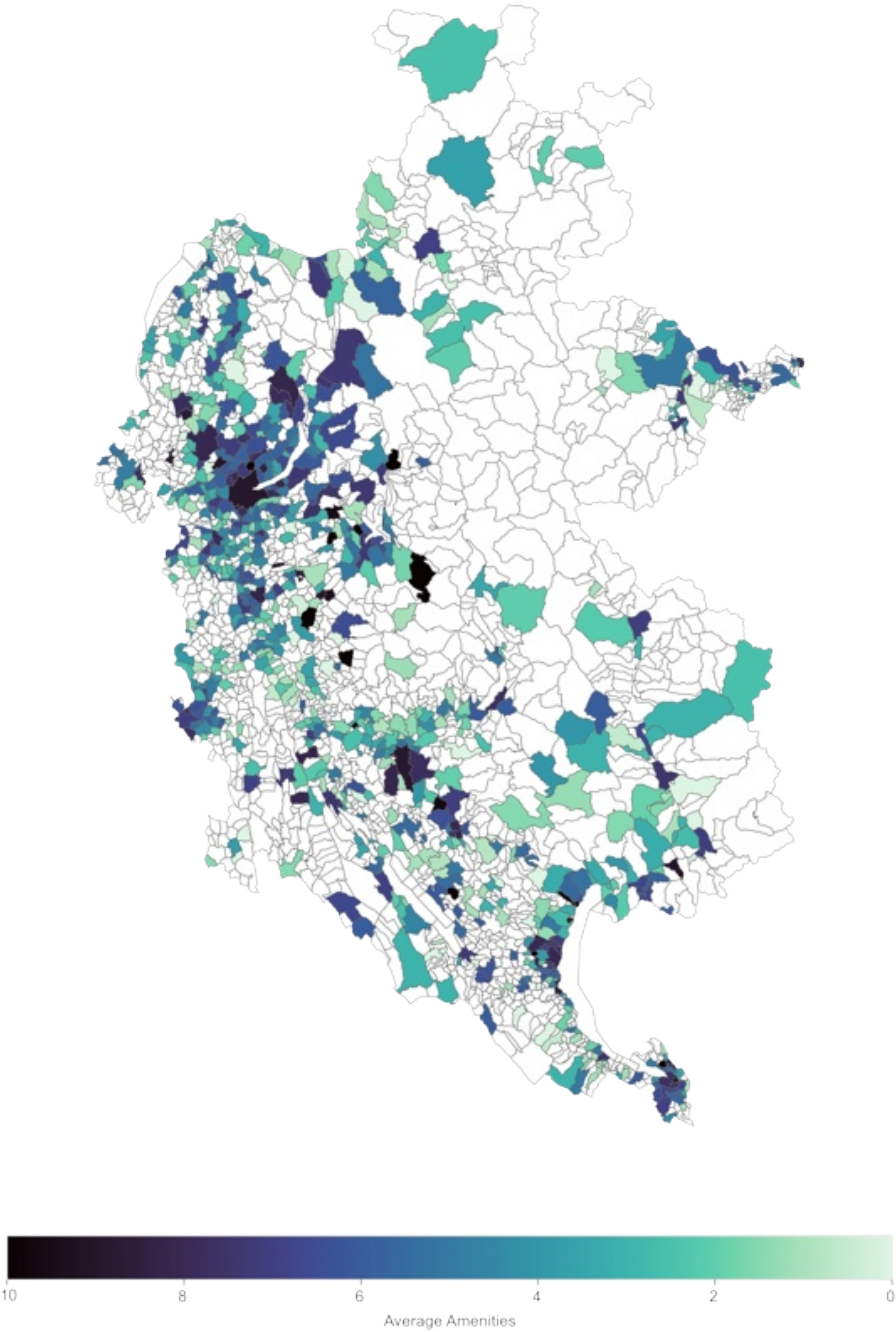
The amenities metric measures the availability of public parks and sports facilities within a 10-minute walk of each building, emphasizing access to recreational and natural spaces that enhance quality of life.[15]

The spatial distribution map in Figure 33 shows a concentration of amenities in major urban centers like Zurich, Geneva, and Basel, where parks and sports facilities are more abundant. In contrast, rural and peripheral regions generally have fewer amenities, reflecting a lower density of these facilities.

The distribution of amenities in Figure A15 suggests that most REIV buildings have relatively good access to nearby amenities. This variation is significant for understanding property appeal and tenant retention. Properties in amenity-rich urban areas attract a more selective tenant base, while those in less-equipped regions may rely on lower rents and longer-term tenants to maintain occupancy.

[15] The amenities metric evaluates the availability of public parks and sports facilities within a 700-meter radius, roughly corresponding to a 10-minute walk from each building. This calculation uses geospatial data and mapping of local infrastructure to identify recreational and natural spaces. For more details, refer to Alessandrini et al. (2024).

Figure 33: Average Number of Amenities per Municipality



2.4 Comparison of Building Characteristics Across REIV Types

This subsection examines how building characteristics vary based on the legal structure of Swiss REIVs. Table 1 presents the average and median values for key indicators discussed throughout this report, categorized by companies, foundations, listed funds, and unlisted funds. While buildings across different REIV types share many similarities, three notable differences emerge.

First, companies tend to include more commercial or mixed-use properties in their portfolios. Correspondingly, their buildings feature larger average heated areas, reflecting the needs of these property types.

Second, unlisted funds report significantly lower average CO_2 emissions (16.8 kgCO_2/m^2) compared to other REIV types, which average over 18 kgCO_2/m^2. However, this difference is less pronounced when comparing median values, suggesting that the lower emissions in unlisted funds may be driven by a few particularly efficient buildings.

Lastly, listed funds exhibit higher average rents per m^2, whereas companies demonstrate a greater tendency to price their properties above neighborhood averages. This indicates that portfolios with higher absolute rents do not necessarily employ the most aggressive pricing strategies.

These estimates highlight subtle distinctions in how different legal structures influence average building characteristics, reflecting variations in portfolio strategies and property types.

Table 1: Average Building Characteristics Per REIV Legal Form

	Companies		*Foundations*		*Listed Funds*		*Unlisted Funds*	
	Average	Median	Average	Median	Average	Median	Average	Median
Construction Year	1971	1978	1977.10	1982	1975	1975	1975	1981
Building Value	10'196'841	6'938'942	8'665'853	4'675'099	8'740'146	5'013'759	9'068'415	5'137'959
Heated Area	4'681	1'665	1'981	1'160	2'239	1'249	1'446	719
Number of Floors	5.07	5	4.78	4	4.97	5	4.59	4
Residential Building	0.53	1	0.84	1	0.82	1	0.83	1
Commercial Building	0.34	0	0.10	0	0.13	0	0.11	0
Mixed Building	0.11	0	0.04	0	0.04	0	0.05	0
Energy Intensity	110.82	107.27	107.63	105.53	111.05	108.75	110.90	109.43
Share of Fossil Heating	59.26	100	65.96	100	65.46	100	60.18	100
CO_2 Intensity	18.36	19.39	18.15	19.51	18.68	19.97	16.81	18.76
Share of Solar	0.003	0	0.001	0	0.002	0	0.003	0
Green Area	13.02	0	13.33	0	13.01	0	14.51	0
Rent per m^2	243.98	234.92	236.78	228.81	253.54	243.49	237.30	227.62
Rent Pricing	4.50	3.09	-0.03	-1.25	1.33	0.21	0.19	-1.29
Residential Accessibility	5.10	5.27	4.44	4.15	4.87	4.88	4.49	4.57
Commercial Accessibility	0.83	0.94	0.85	0.92	0.78	0.84	0.85	0.93
Noise	32.42	34.75	34.24	34.5	33.45	34.25	34.29	35
Advertisement	0.009	-0.008	0.038	0.009	0.038	0.009	0.028	0.012
New Resident	0.038	0.014	0.031	0.010	0.033	0.010	0.022	0.010
Amenities	6.27	6.5	6.01	6	6.25	6.5	5.73	6

3 ES Scores

The ES score analysis at the building level provides a detailed view of environmental and social performance, independent of the owning investment vehicle. This approach evaluates individual properties based on the variables discussed earlier in this chapter, offering a clear view of their ES status—essential for compliance and strategic planning.

While the PRESS Scores framework incorporates all three ESG pillars, the building-level approach in this report focuses solely on environmental and social factors. This limitation arises from both theoretical and technical challenges in assessing governance at the building level instead of REIV level. However, if a robust methodology is developed, a governance pillar could be integrated in the future.

3.1 Methodology

To provide a comprehensive assessment of each building and facilitate cross-comparison, individual indicators are standardized onto a common scale. The standardized indicators are combined to calculate overall ES scores as well as separate E and S pillar scores. These scores offer a comprehensive overview of each building.

The transformation of separate indicators into ratings occurs on a scale ranging from 0 to 10, where 0 represents the least favorable outcome, and 10 signifies the most favorable result. Our rating methodology is an adaptation of the approach outlined by Refinitiv (2020).

In our scoring methodology, we employ the percentile rank scoring method presented by Refinitiv (2020) to minimize the influence of outliers. The final score for each indicator is determined by the percentile position of the metrics. In the case of indicators with positive polarity the score (S_f^+) is calculated as follows:

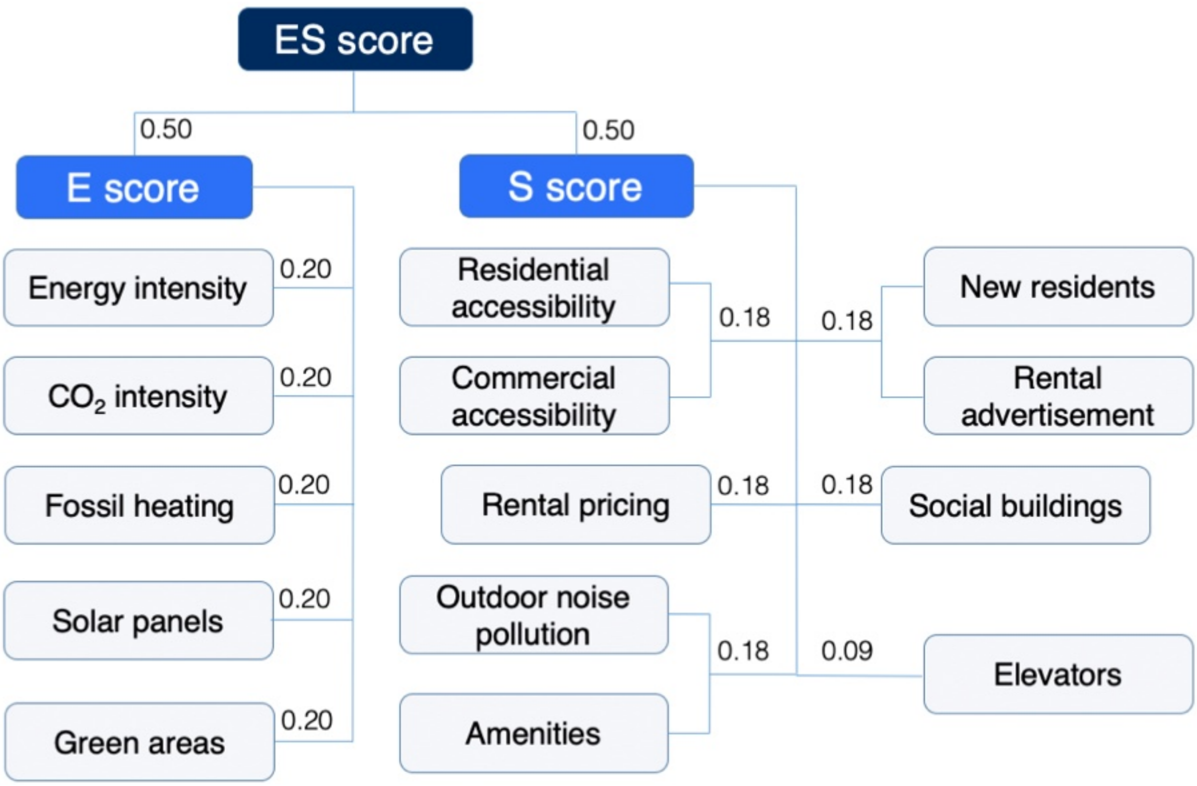
$$S_f^+ = \frac{\text{Buildings with a smaller value} + \frac{\text{Buildings with the same value}}{2}}{\text{Total buildings with a value}} \times 10 \quad (1)$$

For indicators with negative polarity, the reverse percentile, denoted as S_f^-, is calculated as:

$$S_f^- = 10 - S_f^+ \quad (2)$$

The ES pillar scores are computed as weighted averages of a set number of indicators. The Environmental pillar scores are based on 4 indicators, and the Social pillar scores rely on 3 indicators and 5 sub-indicators. The indicators within each pillar are assigned equal weights, ensuring that each indicator contributes equally to the final pillar score. For sub-indicators, weights are distributed evenly across specific policy-related questions to maintain balance and avoid overemphasizing particular information. The resulting pillar scores range from 0 (least favorable) to 10 (most favorable). Figure 34 provides the detailed weights for each indicator.

Figure 34: Indicator weights



3.2 Building Assessment

The canton-level comparison in Figure 35 reveals notable differences in average ES scores. Cantons such as Uri (UR), Nidwalden (NW), and Obwalden (OW) score highest, while French-speaking cantons (Fribourg, Geneva, Vaud, and Neuchâtel) generally score lower, suggesting a need for targeted improvements.

A similar trend is seen among the four main cities in Figure 36, where Basel and Zurich have higher ES scores than Geneva and Lausanne. This difference may be due to older buildings and different regulations in the French-speaking cities. Additionally, rents in Geneva and pricing in Lausanne show greater variation, highlighting areas where social factors affect ES performance. These findings show where targeted investments in sustainable improvements could boost ES scores and create positive environmental and social outcomes.[16]

[16] Map A16 shows the average ES building scores for each municipality.

Figure 35: Average ES score per Canton

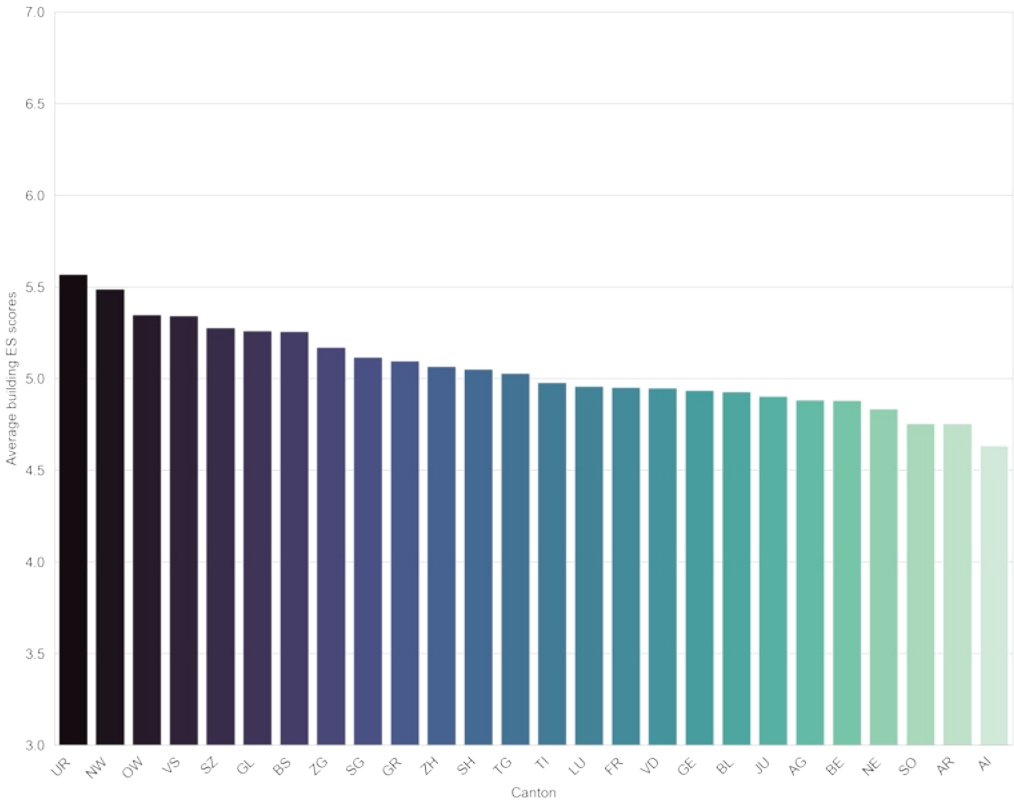
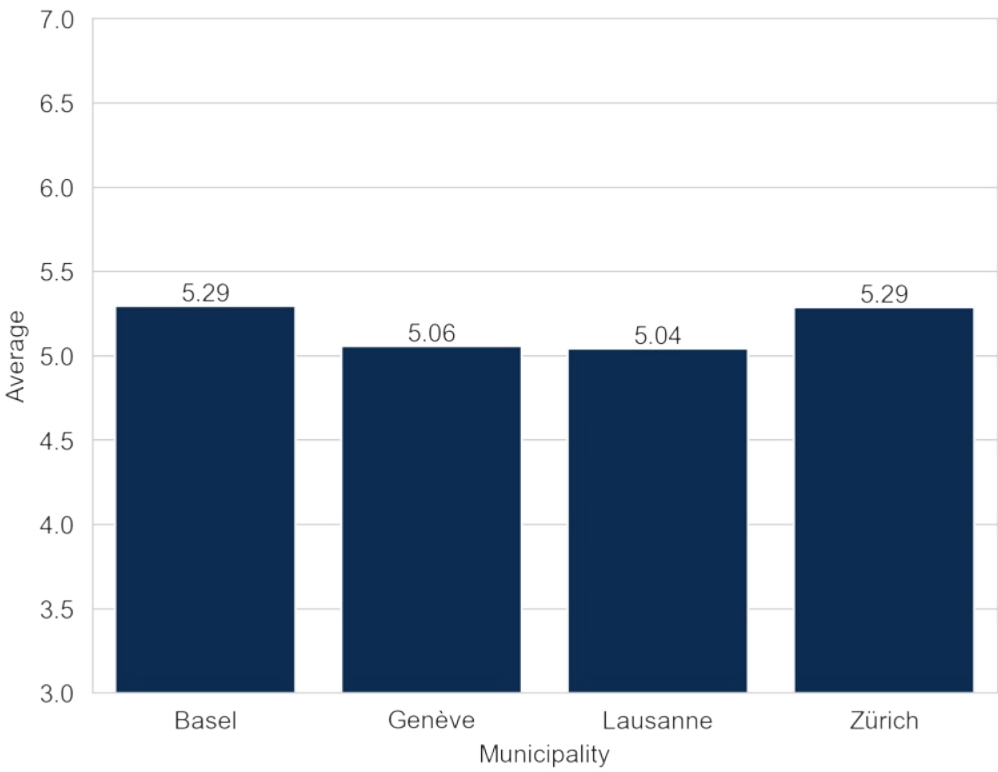


Figure 36: Average ES Score in Main Municipalities



3.2.1 E Scores

The environmental component evaluates the sustainability performance of individual buildings. Analyzing E scores helps identify properties that align with environmental best practices and those needing further improvements to meet sustainability standards.

The canton-level comparison in Figure 37 shows that cantons like Nidwalden (NW), Obwalden (OW), and Schwyz (SZ) have the highest average E scores, indicating stronger environmental practices. In contrast, many cantons in French-speaking Switzerland show lower scores, suggesting they lag in environmental performance.

Among the main municipalities, Basel ranks highest in E scores, with Zurich following, ahead of Geneva and Lausanne, consistent with previous discussions on energy intensity and CO_2 emissions (see Figure 38). Across all municipalities, however, the pattern is more varied, with high E scores appearing not only in major cities but also in select rural areas, indicating that sustainable building practices are influenced by local policies and initiatives beyond urban centers.[17]

These E scores are essential for assessing the environmental compliance of real estate portfolios and identifying regions where investments in sustainability could substantially enhance the environmental profile of these assets.

[17] See detailed map by municipality in Figure A17

Figure 37: Average E score per Canton

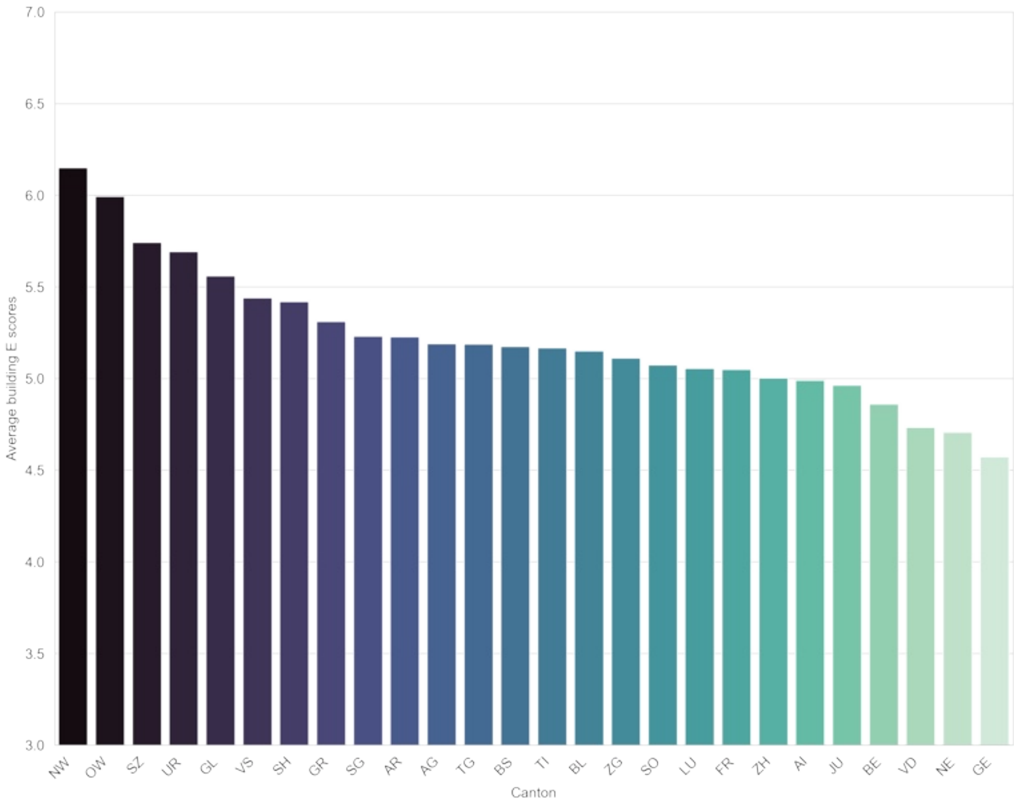
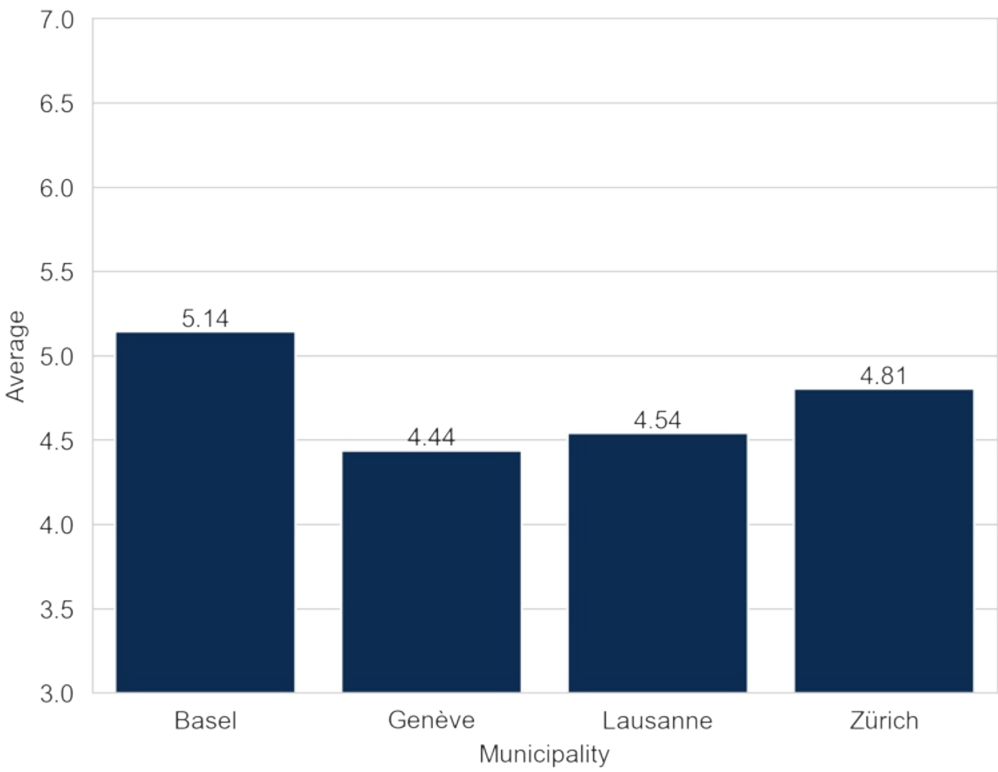


Figure 38: Average E Score in Main Municipalities



3.2.2 S Scores

The social component (S score) measures how well individual buildings address social aspects of real estate. A high S score reflects better integration into the social environment, contributing positively to tenant well-being.

In the canton-level analysis in Figure 39, cantons like Uri (UR), Basel-Stadt (BS), and Geneva (GE) achieve the highest average S scores, likely due to higher amenity density and improved accessibility features. Conversely, cantons like Appenzell Innerrhoden (AI) and Aargau (AG) show lower average scores, suggesting areas where social features may be less developed.

Among the four main municipalities, the S score distribution is more even than the other scores, with Basel, Zurich, Geneva, and Lausanne showing similar average scores. This aligns with the general pattern across municipalities, where high S scores appear in both urban and rural areas, indicating that social attributes are shaped by local planning policies and community investments rather than by region or property type.[18]

Recognizing these social patterns can guide investment strategies that prioritize enhancing social sustainability. Targeting properties with lower S scores for upgrades can increase tenant satisfaction and elevate the social performance of real estate portfolios.

[18] Figure A18 shows the average S scores by municipality.

Figure 39: Average S score per Canton

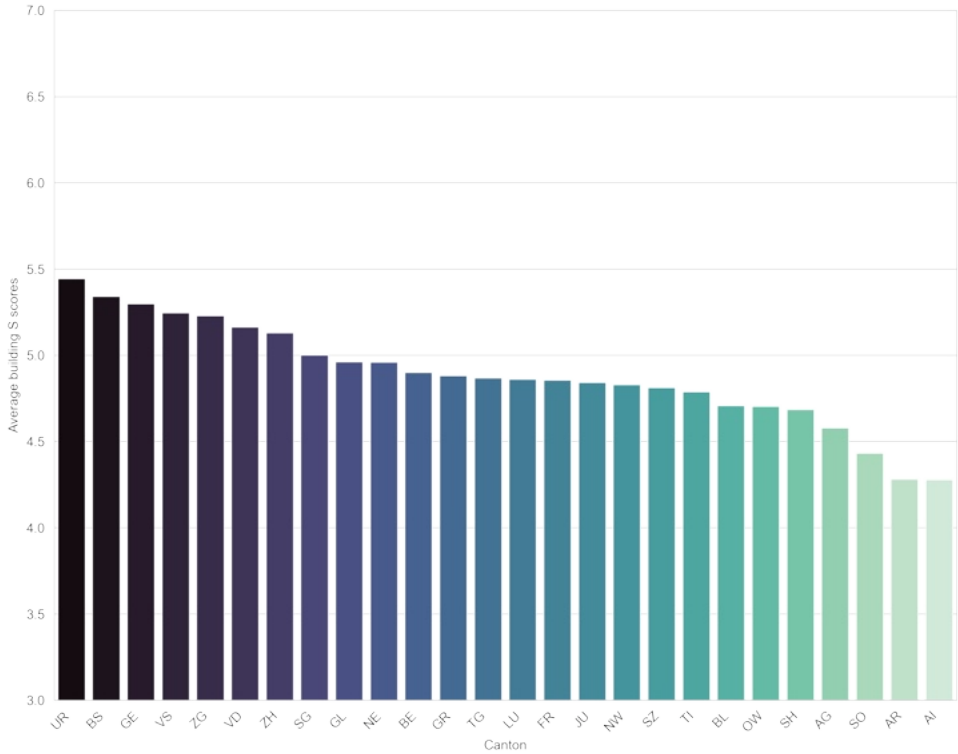
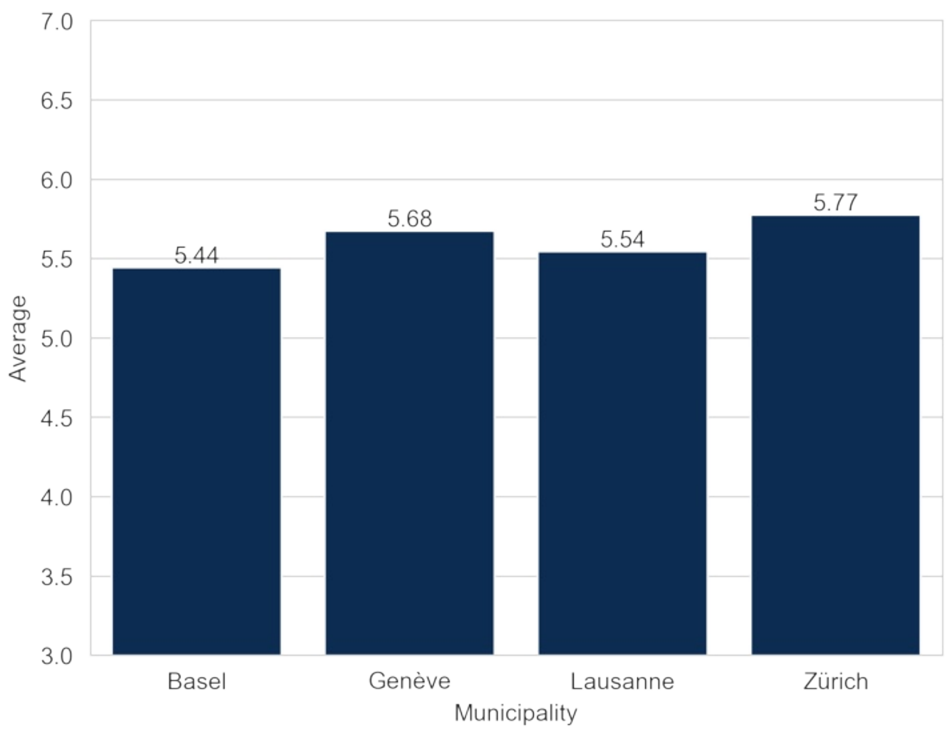


Figure 40: Average S Score in Main Municipalities



4 Discussion and conclusion

This report provides a comprehensive analysis of Swiss REIV portfolios, evaluating key physical, environmental, and social building characteristics. By integrating granular building-level data with a standardized methodology, we have developed insights into how REIV assets align with Switzerland's 2050 climate goals and broader sustainability objectives.

A key innovation in this report is the introduction of an Environmental and Social (ES) score at the building level. This score consolidates multiple, publicly available, environmental and social indicators into a single metric, offering stakeholders a clear and actionable tool to benchmark property performance. The ES score framework is based on the PRESS Scores methodology, emphasizing scalability and adaptability. With access to similar data, this approach could be extended to evaluate all buildings across Switzerland, providing a consistent, nationwide standard for sustainability assessment.

The findings highlight both challenges and opportunities within REIV portfolios. Environmentally, CO_2 emissions and energy intensities vary significantly. Basel outperforms other major urban centers due to an effective framework, in terms of prescriptions, planification and coordination, which has led to an accelerated transition to renewable heating systems.[19] In contrast, Geneva and Lausanne lag behind, reflecting older building stocks and less effective legal framework, planification and coordination. These disparities stem from complex dynamics that require further in-depth research. Socially, there is greater consistency across accessibility, rent levels, and amenities, indicating that tenant satisfaction and community impact are less heterogeneous across regions. However, regions like

[19] The WWF Suisse (2024) report provide an extensive evaluation on cantonal regulatory and sustainable objective frameworks, which helps to contextualize our results.

Vaud, with low rates of new residents and elevated relative pricing highlighting potential affordability challenges.

These regional differences in ES scores underscore the importance of targeted investment strategies. While Basel sets an example of environmental leadership, Geneva and Lausanne represent areas where modernization efforts could yield the greatest impact. Investing in retrofits and designing more ambitious local regulatory frameworks could help these cities catch up, bridging the gap with regions already aligned with sustainability goals.

These regional differences highlight the need for a deeper reflection on how ESG scores are used. ESG scores help make sustainability information more accessible to investors. The common approach is to prioritize investments in REIVs with high ESG scores, as they serve as an indirect measure of a portfolio's overall sustainability performance. Such a strategy based on investor's values might incentivize REIVs with low scores through the increase in their cost of financing. However, relying too heavily on this approach risks creating a two-speed transition, where investments flow disproportionately toward already sustainable assets, neglecting regions in need of significant transformation. This structural imbalance may hinder Switzerland's ability to achieve its national climate goals.

An alternative approach, inspired by an activist investment philosophy, merits consideration. This strategy involves targeting investments toward REIVs with lower ESG scores while holding them to stringent standards for driving their sustainability transitions. Such an impact-driven framework focuses on transforming underperforming assets and could foster a more balanced and forward-looking real estate transition. This approach not only addresses existing disparities but also ensures inclusivity in progress. However, it requires active investor engagement and stewardship to monitor and ensure that investments are catalyzing genuine improvements rather than supporting inertia. The renovation strategies of

REIVs remain largely unexplored, but our upcoming report will begin to provide deeper insights and forward-looking data on their transition efforts.

Clear regulatory support and targeted incentives will be essential to accelerate progress in regions like Geneva and Lausanne. By channeling resources toward retrofitting efforts and strengthening local policies, these areas can evolve from sustainability laggards to leaders. The ES score provides stakeholders with the tools to identify underperforming properties, prioritize upgrades, and align investments with financial returns and sustainability goals. Ultimately, a cohesive strategy that emphasizes tangible improvements over mere compliance will ensure that Switzerland's real estate sector makes a meaningful contribution to the country's 2050 climate objectives.

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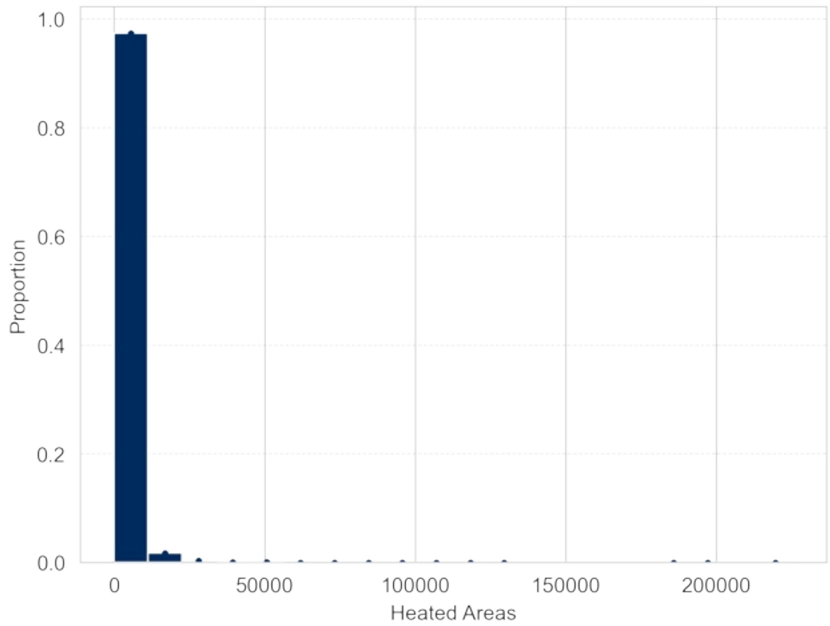
Appendix

Figure A1: Physical Characteristics Histograms

(a) Heated Areas



(b) Market Values

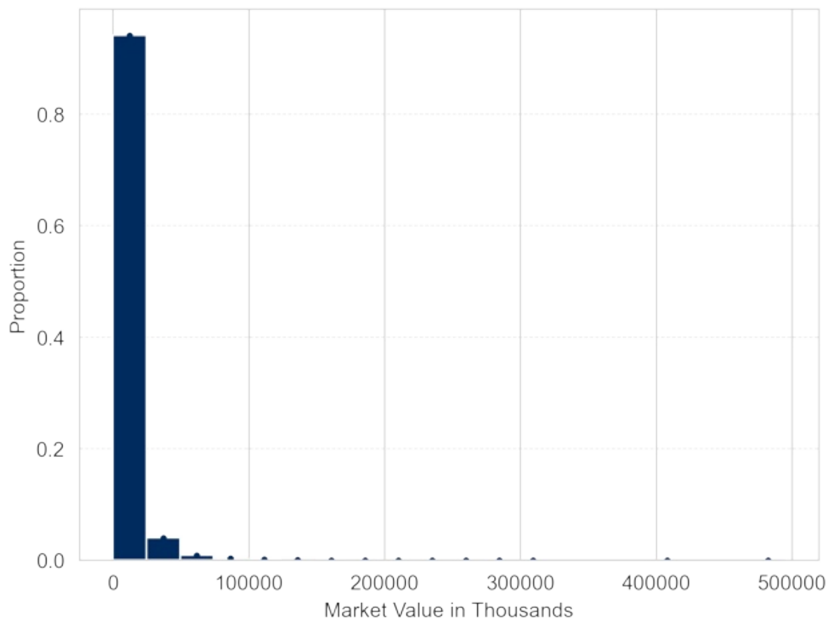


Figure A2: Count of Buildings per Municipality

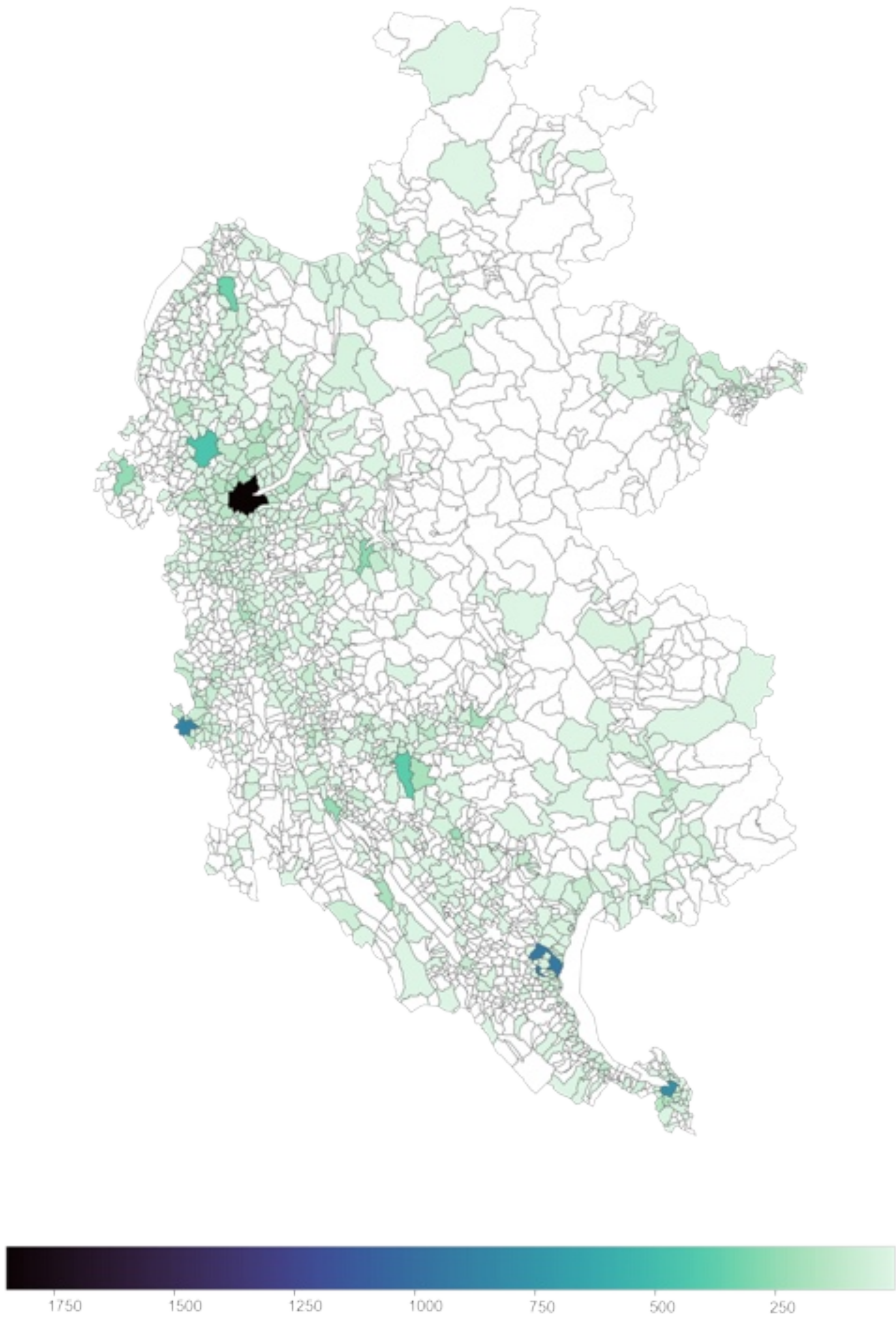


Figure A3: Sum of Heated Areas per Municipality

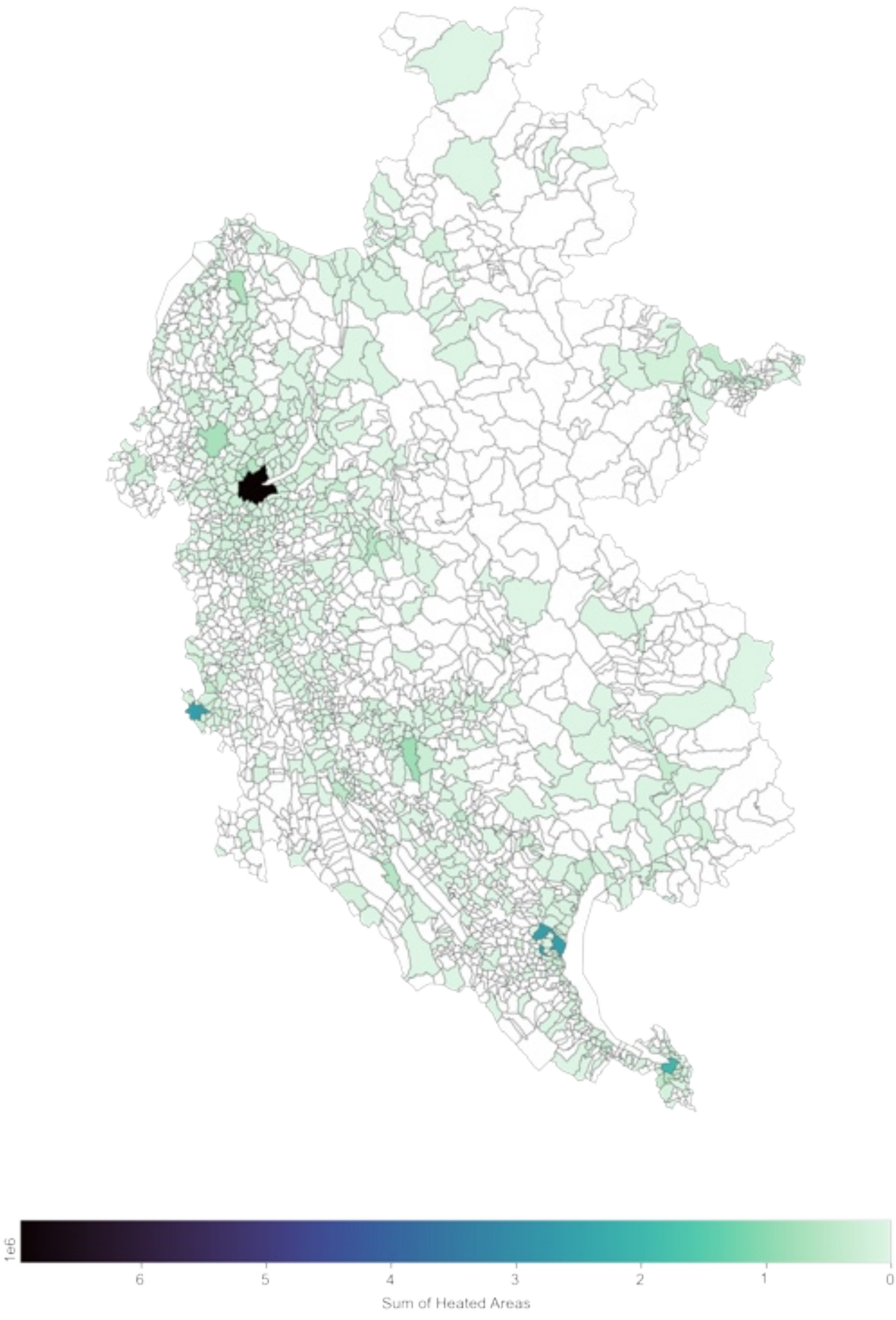


Figure A4: Municipality Average Construction Years

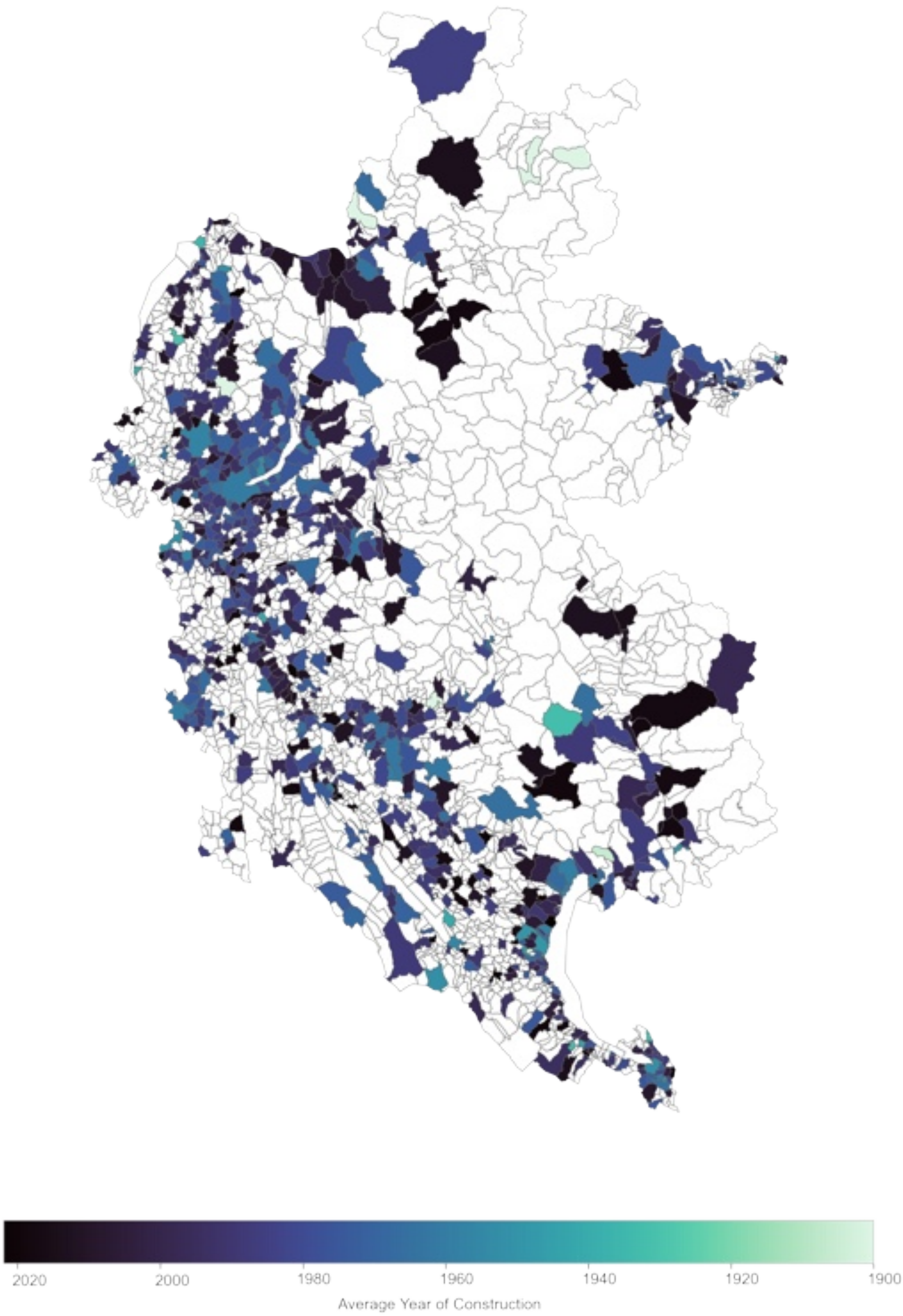


Figure A5: Average Number of Floors per Municipality

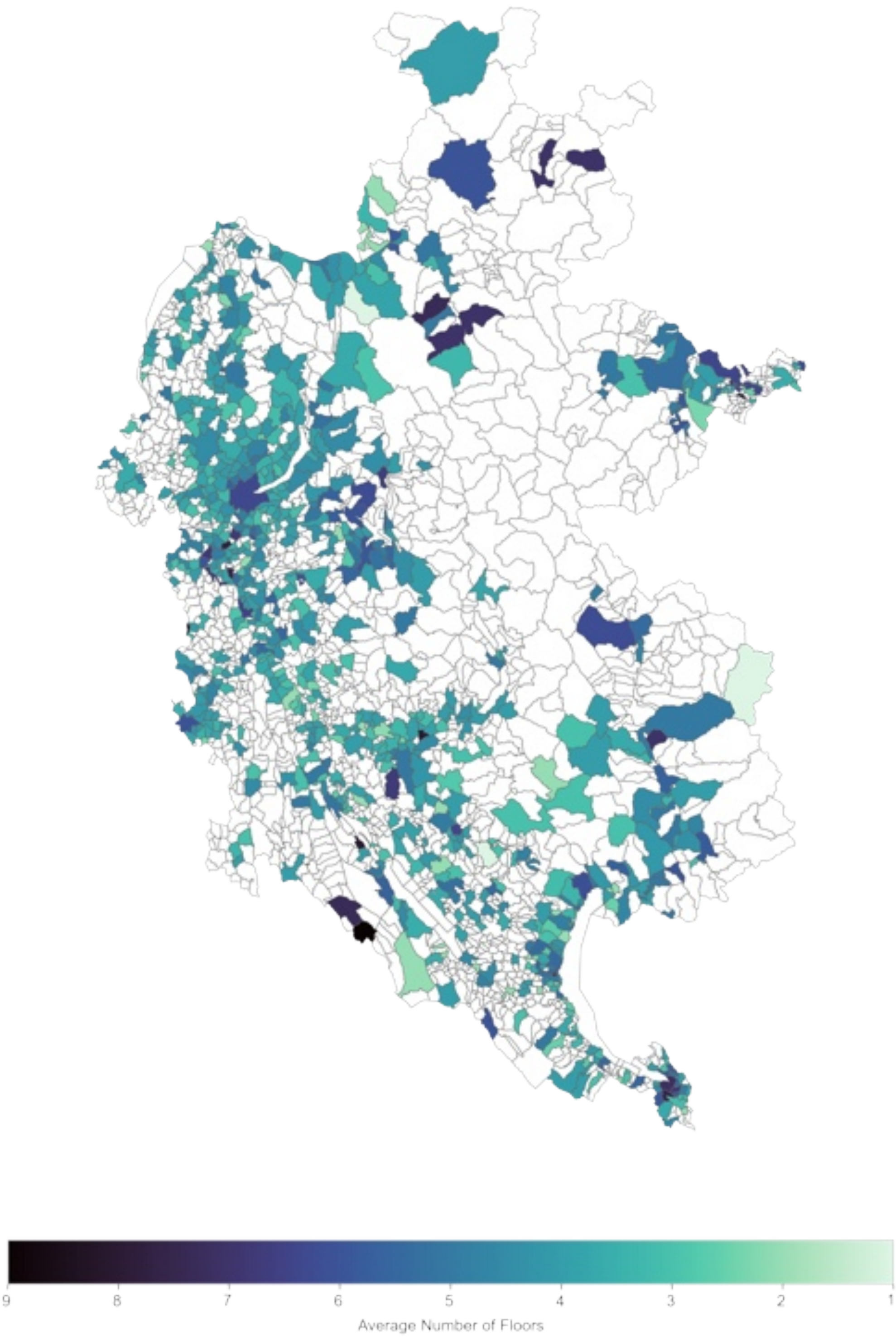


Figure A6: Average Heated Area per Municipality

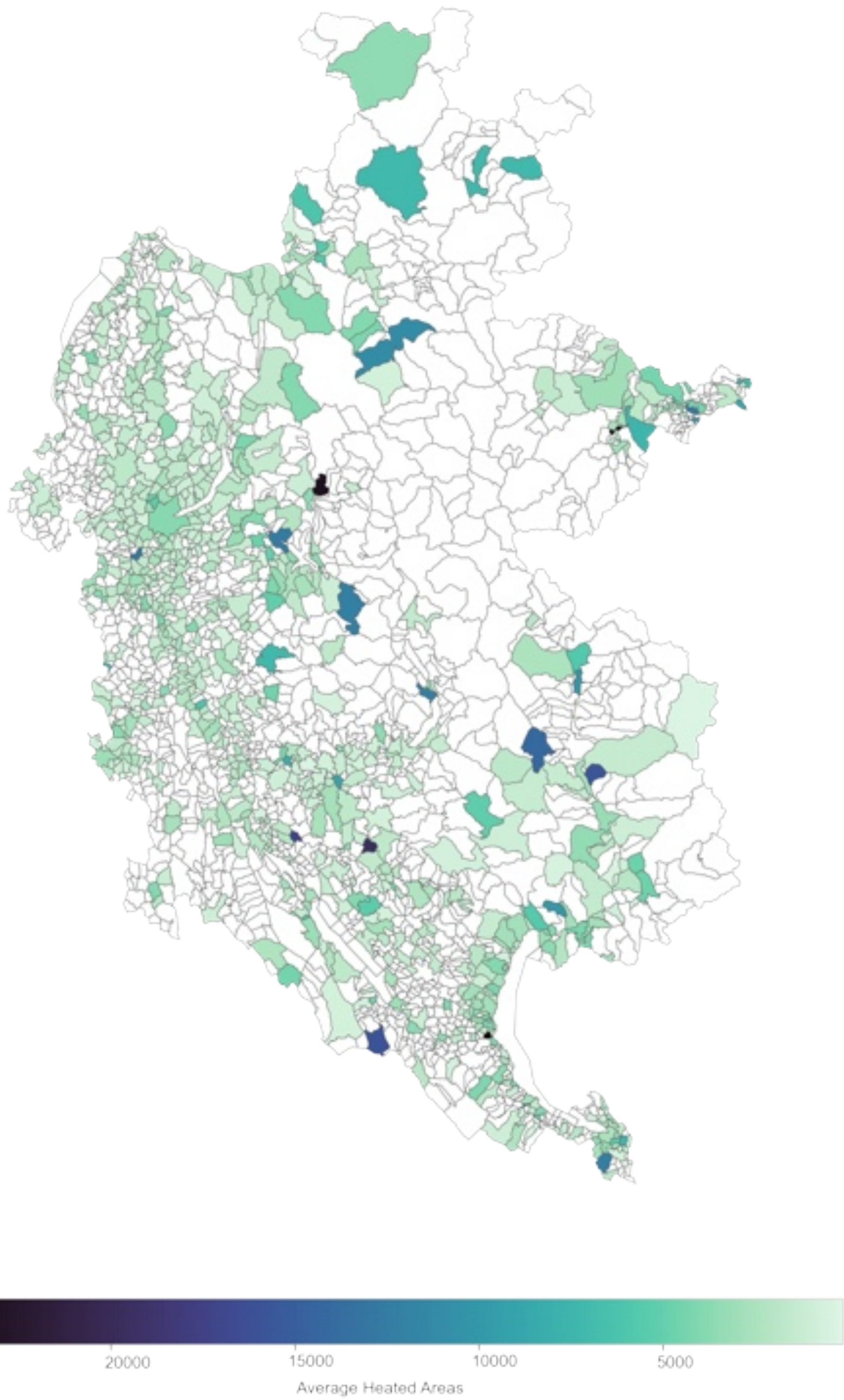


Figure A7: Average Energy Intensity per Municipality

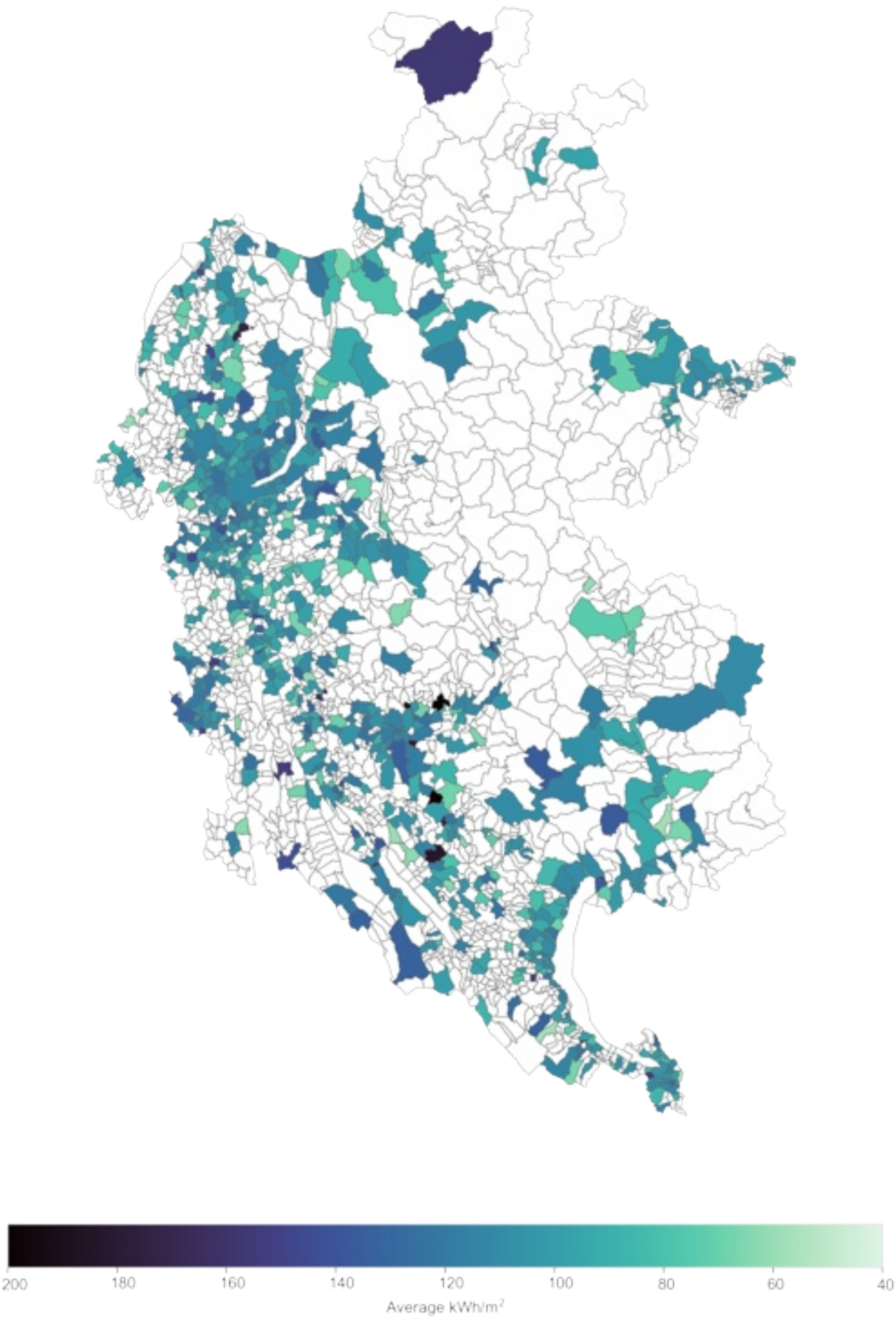


Figure A8: Average CO_2 per Municipality

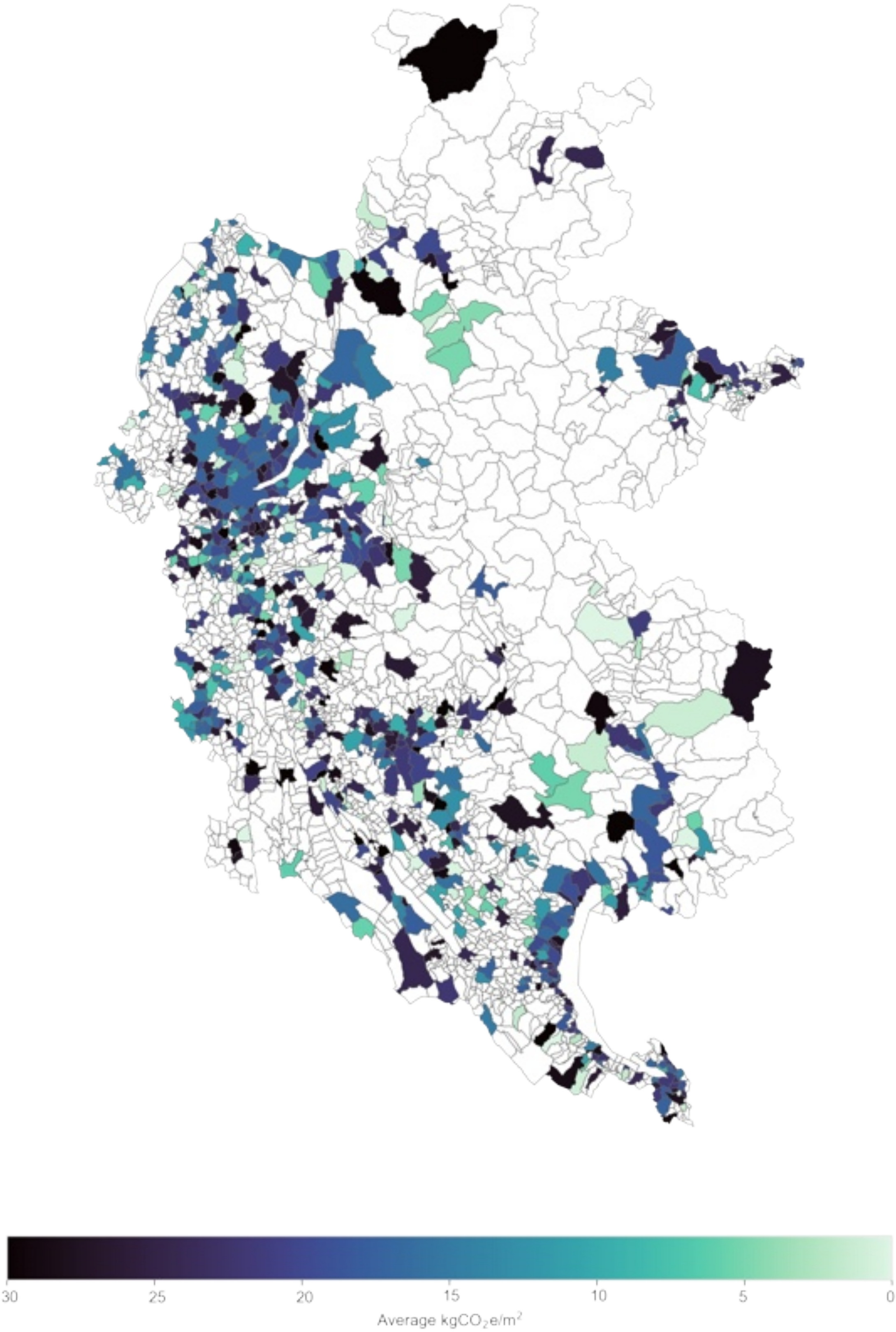


Figure A9: Average Solar Panels per Square Meters by Municipality

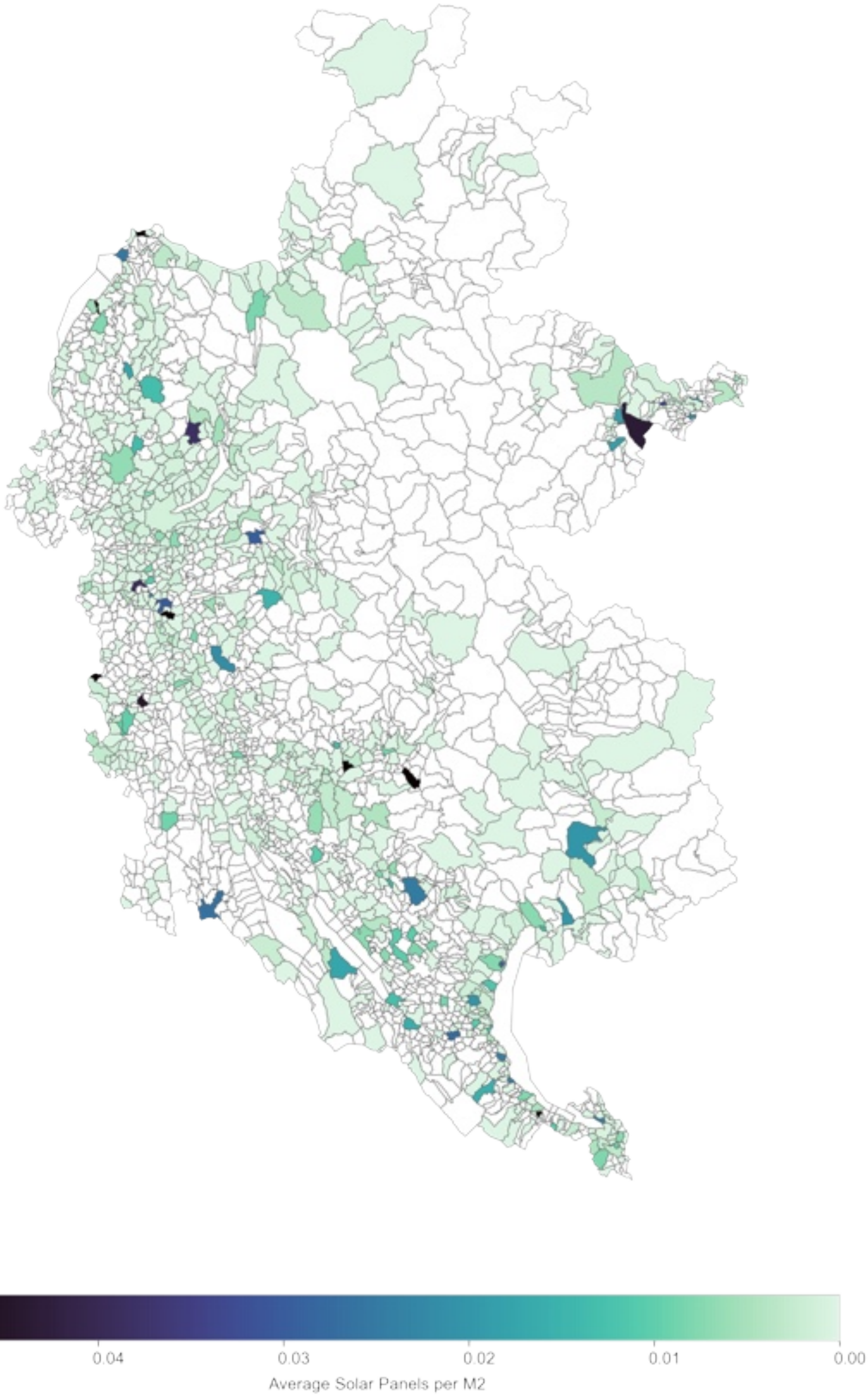


Figure A10: Average Rent per Municipality

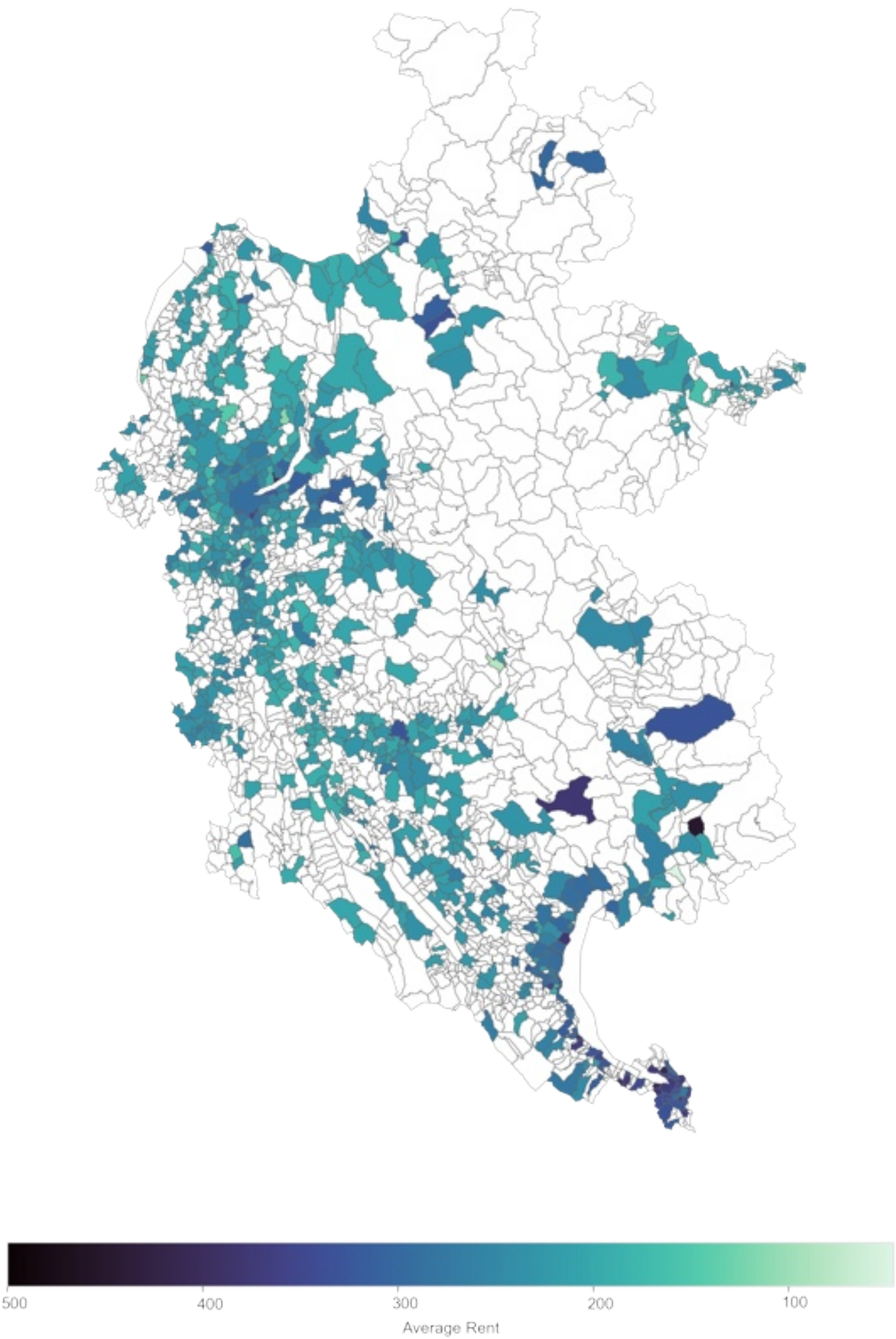


Figure A11: Average Pricing per Municipality

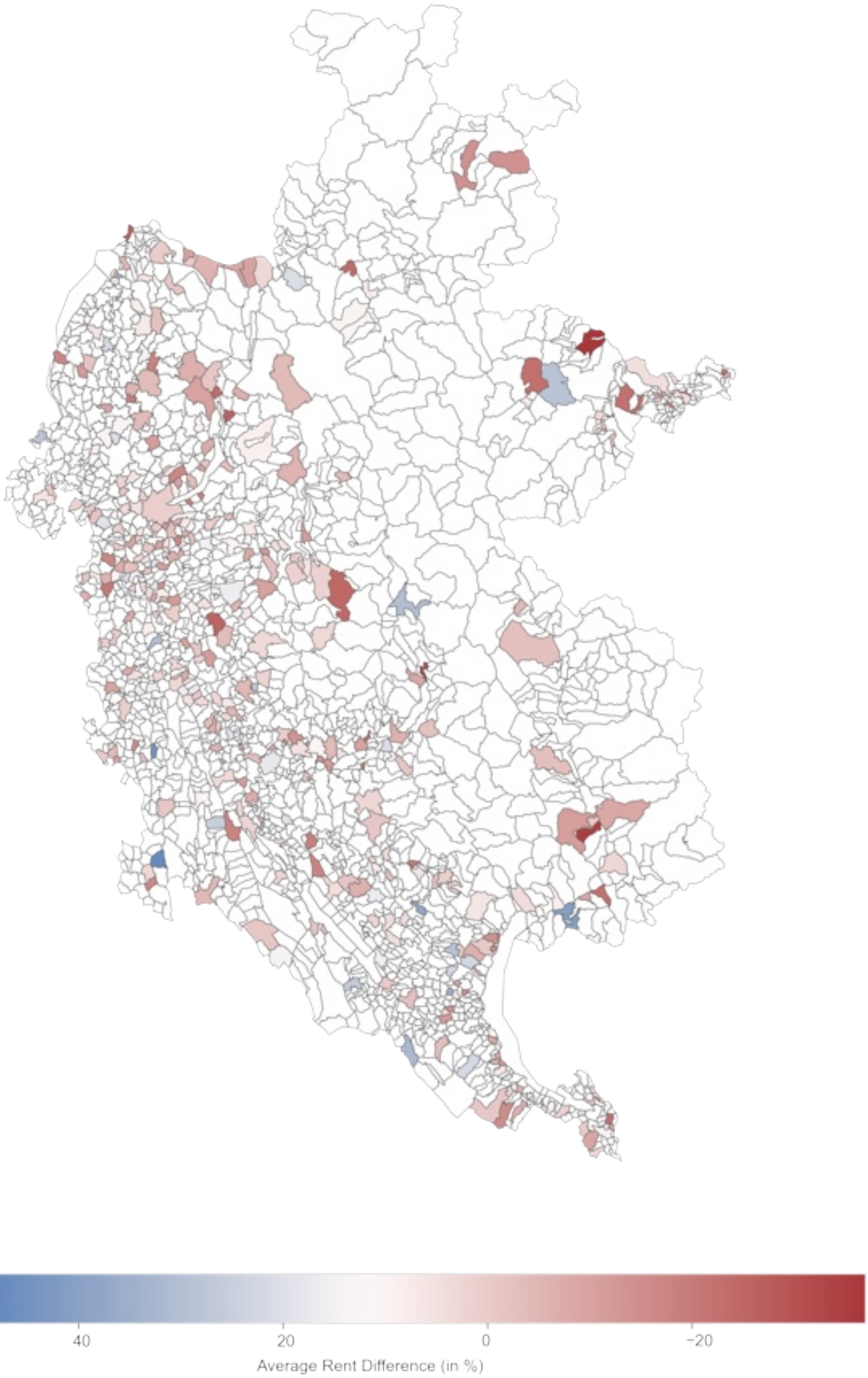


Figure A12: Average Noise in Main Municipalities

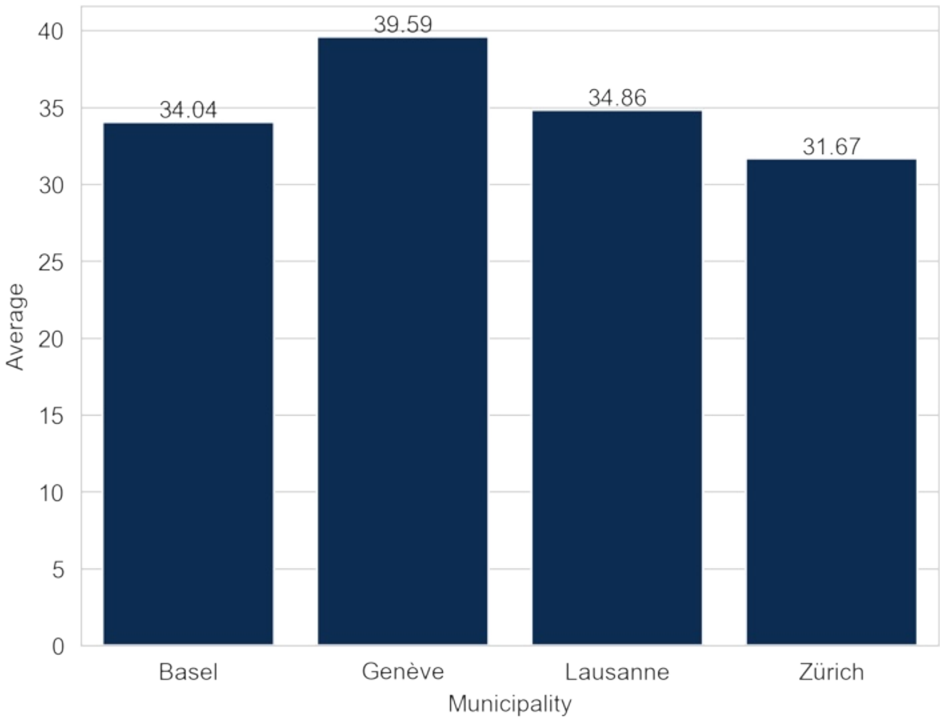


Figure A13: Average Difference in Advertisements per Municipality

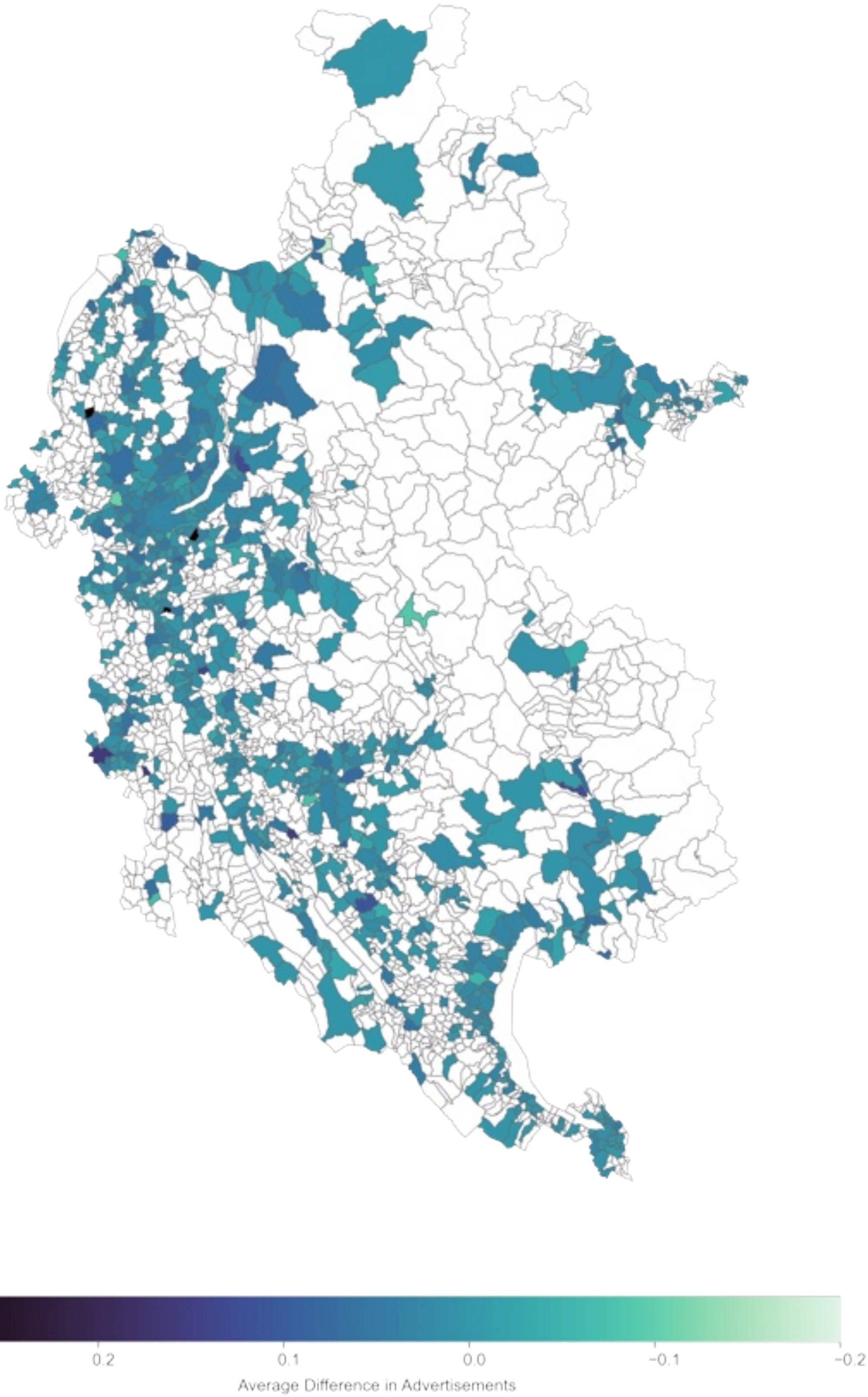


Figure A14: Average New Residents per Municipality

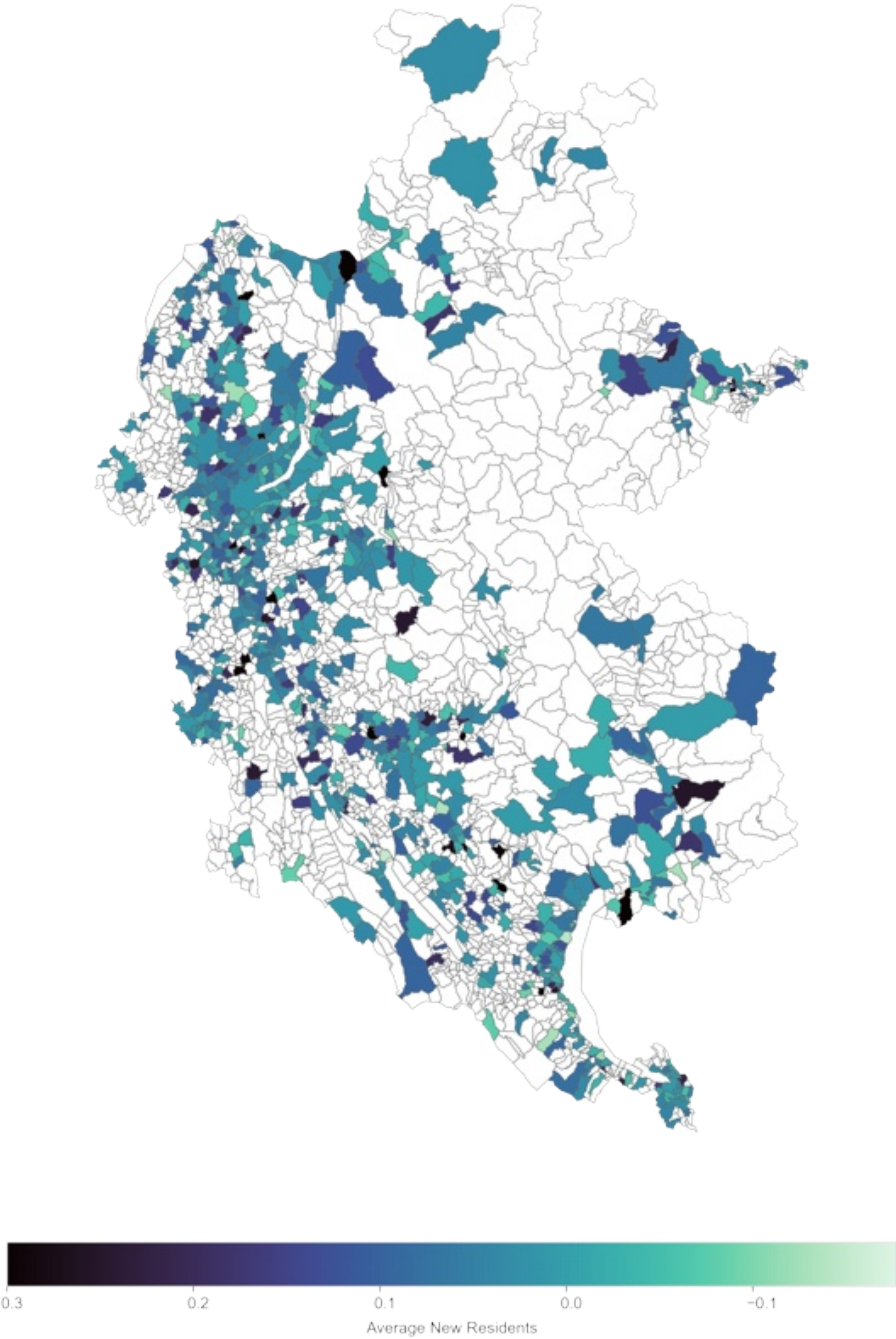


Figure A15: Distribution of Number of Amenities per Building

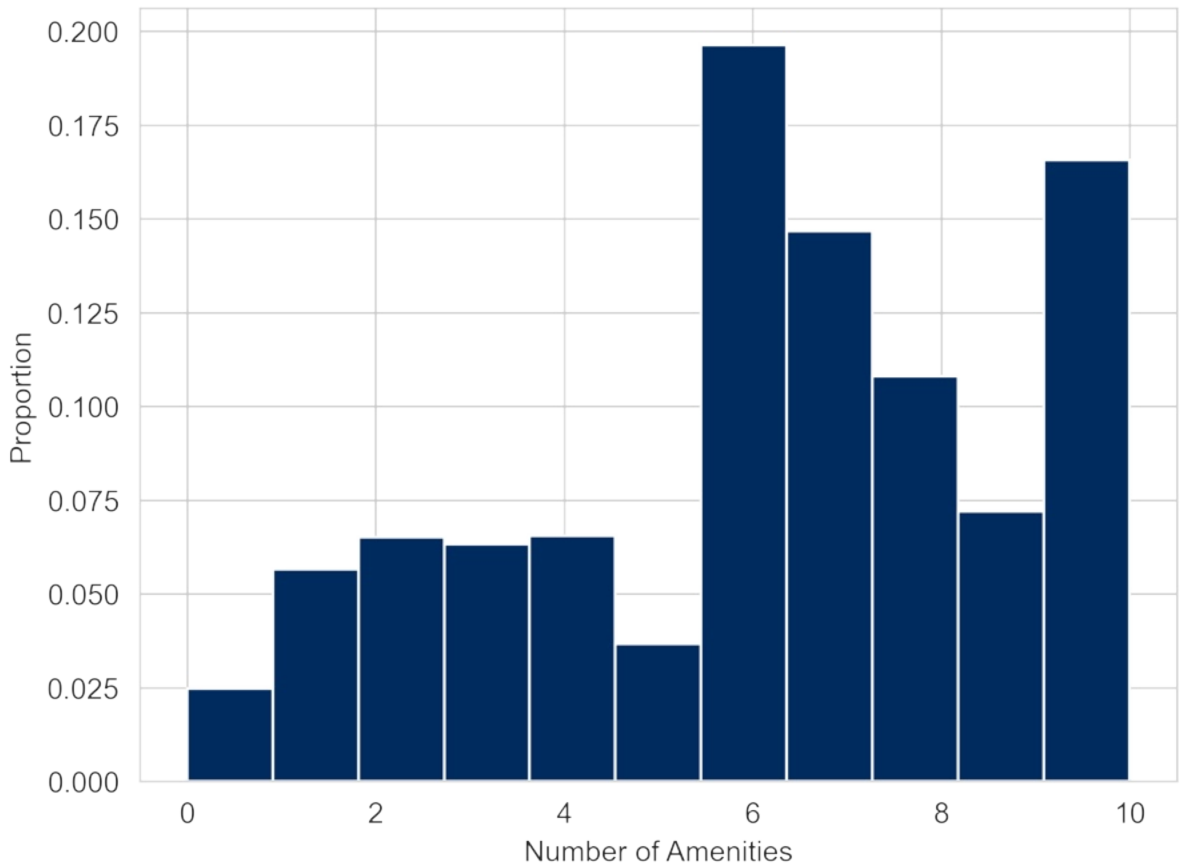


Figure A16: Average ES score per Municipality

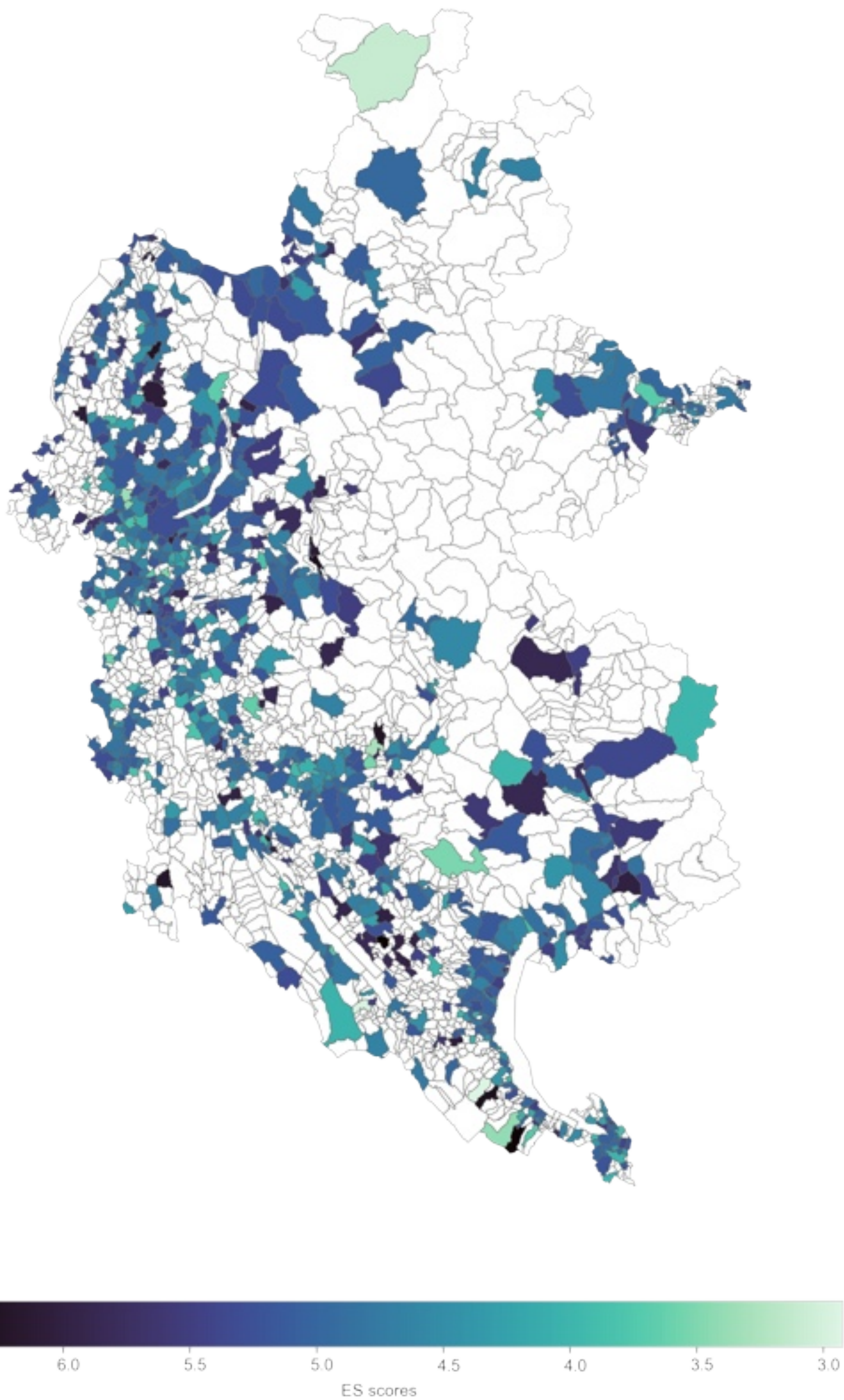


Figure A17: Average E score per Municipality

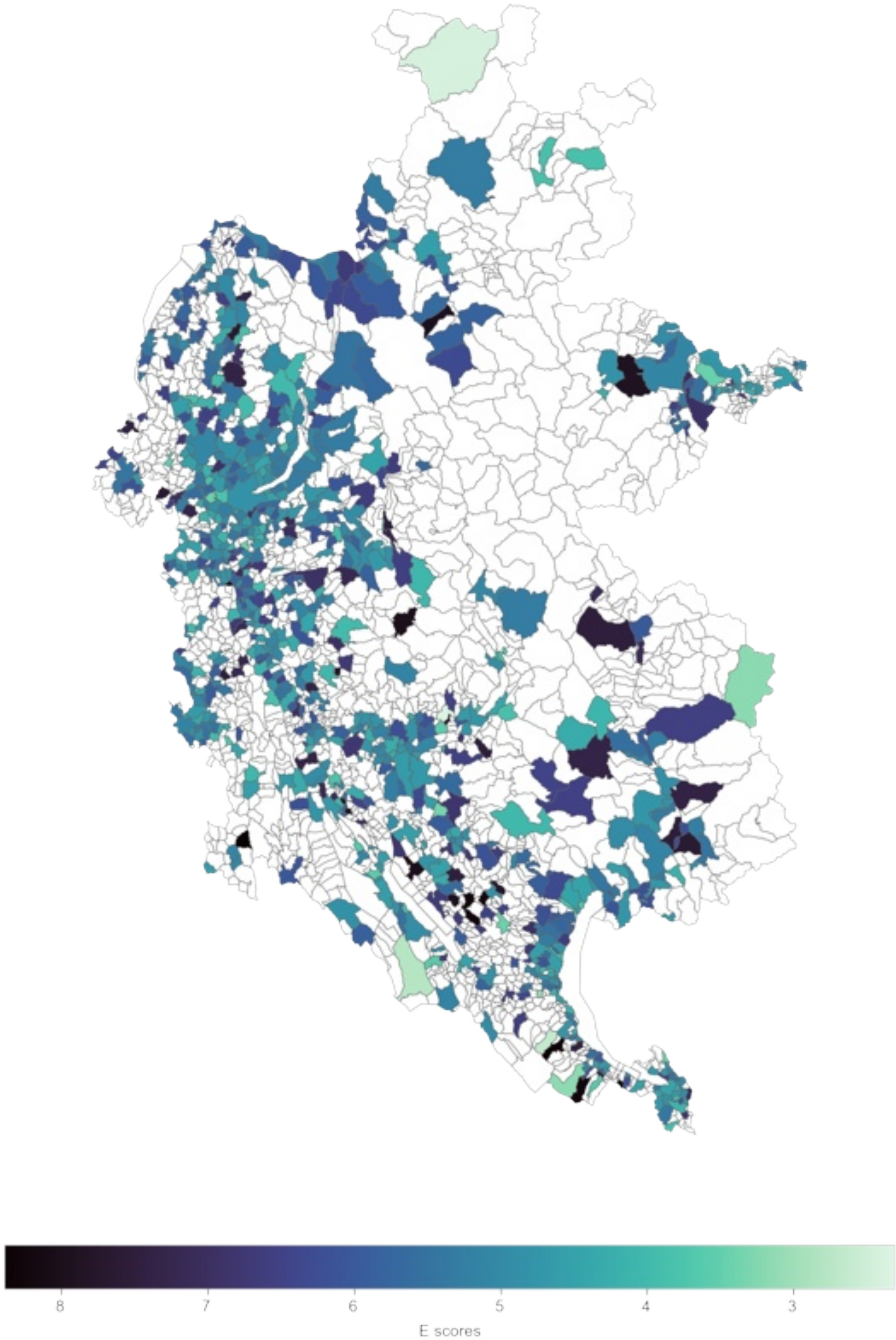


Figure A18: Average S score per Municipality