Analysis Report on Urban Green Infrastructure Impact

1. Introduction

Urban green infrastructure, including green spaces and tree cover, plays a crucial role in urban planning and public health. This report investigates how urban green infrastructure impacts the average share of built-up areas that is open space for public use and the average share of the urban population with convenient access to these spaces

2. Used Data

SDG Data:

- Source: United Nations Statistics Division (UNSD)

- Description: Contains data on the average share of built-up areas of cities that is open space for public use and the average share of the urban population with convenient access to these spaces.

- Structure and Quality: Well-structured with columns for city name, country code, share of built-up area that is open space, and share of urban population with access to public spaces. Some missing values or inconsistent formatting present.

- License: Open Data Commons Open Database License (ODbL).

Green Infrastructure Data:

- Source: European Environment Agency (EEA)

- Description: Includes data on total green infrastructure, urban green space, and urban tree cover for various European cities.

- Structure and Quality: Well-structured with clearly defined metrics for city name, total green infrastructure, urban green space, and urban tree cover.

- License: Creative Commons Attribution 4.0 International (CC BY 4.0).

Analysis Report on Urban Green Infrastructure Impact

Data Pipeline:
- Technology: Python, Pandas, SQLite, Seaborn, Matplotlib, Requests.
- Environment: Jupyter Notebook.
- Transformation and Cleaning Steps:
1. Download data using the requests library.
2. Load data into Pandas DataFrames.
3. Standardize column names.
4. Save DataFrames to an SQLite database.
5. Standardize location columns.

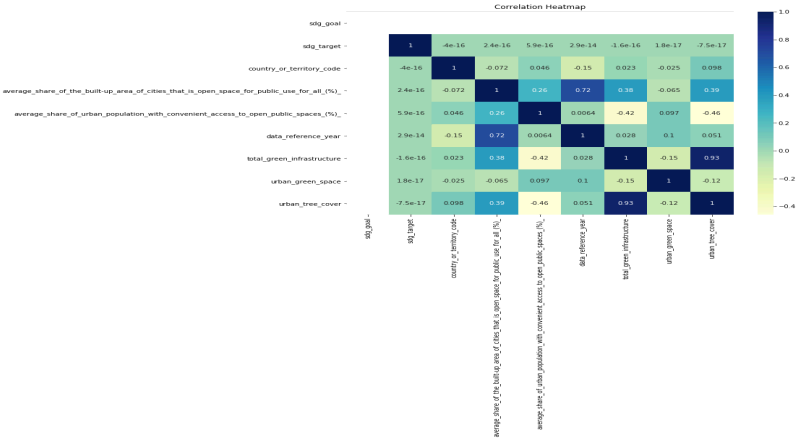
6. Merge DataFrames.
- Error Handling and Adaptability: Includes file existence checks and standardized column names. SQLite allows efficient data storage and retrieval.

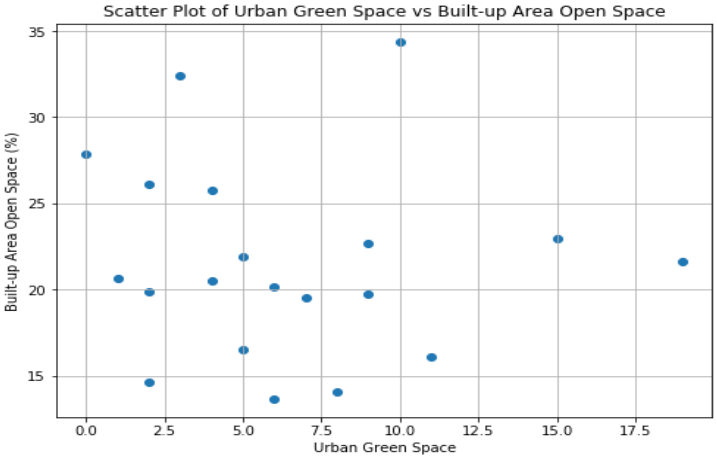
3. Analysis

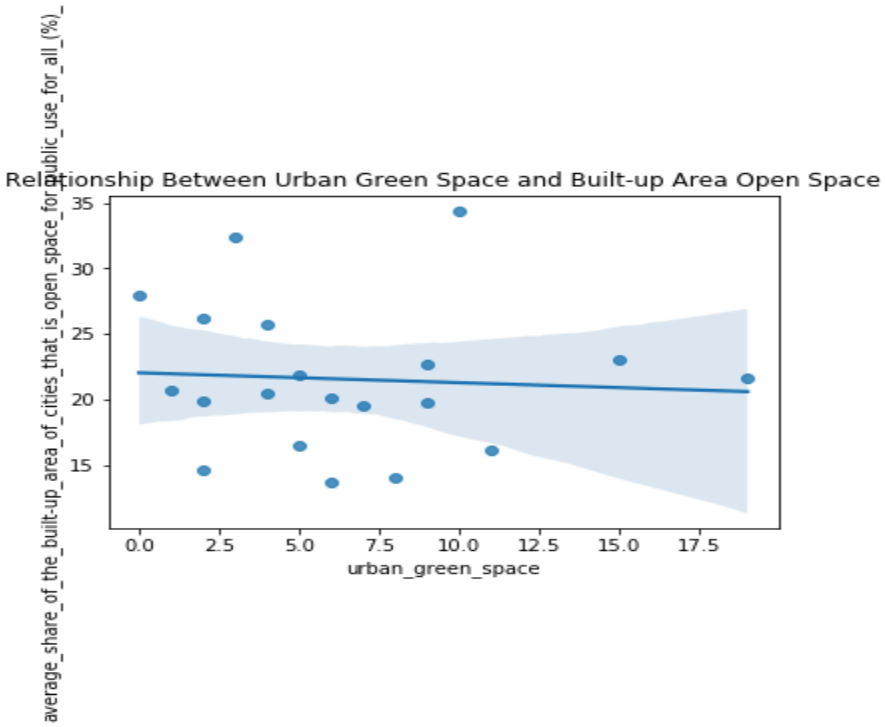
Method:
- Merged the SDG and green infrastructure datasets based on city names.
- Analyzed the relationship between green infrastructure metrics and urban space accessibility metrics.
Results:
- Found correlations between the extent of green infrastructure and the share of built-up areas that are open space for public use.
- Observed that higher urban tree cover is associated with a greater share of the urban population having convenient access to green spaces.

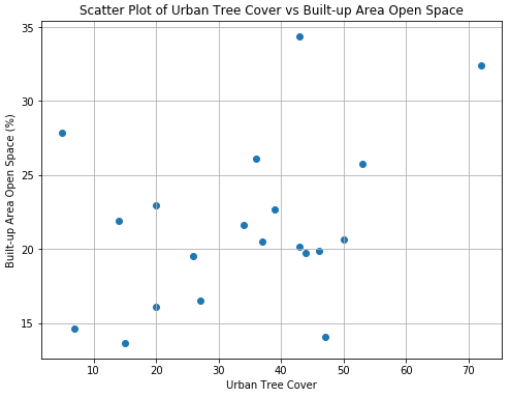
Analysis Report on Urban Green Infrastructure Impact

Interpretation:
- Urban green infrastructure positively impacts the availability and accessibility of public spaces.
- Cities with better green infrastructure planning provide more accessible green spaces for their residents.






Relationship Between Urban Green Space and Built-up Area Open Space
average_share_of_the_built-up_area_of_cities_that_is_open_space_for_public_use_for_all_(%)_
urban_green_space
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
15
20
25
30
35


Scatter Plot of Urban Tree Cover vs Built-up Area Open Space
Built-up Area Open Space (%)
Urban Tree Cover
10
20
30
40
50
60
70
15
20
25
30
35


Relationship Between Urban Tree Cover and Built-up Area Open Space
average_share_of_the_built-up_area_of_cities_that_is_open_space_for_public_use_for_all_(%)_
urban_tree_cover
10
20
30
40
50
60
70
15
20
25
30
35

4. Conclusions

This analysis shows that urban green infrastructure significantly impacts the average share of built-up areas that are open spaces for public use and the average share of the urban population with convenient access to these spaces. While the findings are robust, some uncertainties remain due to missing values and potential inconsistencies in city categorization. Further research could explore more comprehensive datasets and refine the analysis methods.