

Provision and Accessibility of Urban Green Space Across City Zones

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ABSTRACT

Parks, gardens, and other green spaces are not a luxury in a city but a necessity for the health and well-being of its people, offering places to rest, exercise, and meet, and cooling and cleaning the urban air, yet green space is often shared unequally, some parts of a city being well provided and others starved of it. This study examines the provision and accessibility of urban green space across the zones of a city. The amount of green space available to each resident, the green space per person, was examined across the zones of a city and compared against the standard commonly recommended for adequate provision, so that the zones with enough green space and those falling short could be identified and the evenness of provision judged. The provision of green space varied widely from zone to zone: some zones had ample green space per person, well above the recommended standard, while others fell well below it, their residents having little green space within reach, so that provision across the city was uneven and several zones were under-served. The zones falling short were left without adequate access to the benefits that green space brings, while the well-provided zones enjoyed them, an inequality in a resource important to health and well-being. This unevenness arises because green space is distributed according to how each zone developed, with little green space created in densely or poorly planned zones, so provision does not match where people live. The study shows that urban green space is often provided unequally across a city, with some zones well served and others under-served against the recommended standard, and it discusses the importance of green space, the inequality in its provision, and the implications for planning a fairer and greener city.

KEYWORDS: *Urban green space, Green space provision, Accessibility, Environmental justice, Urban parks, City zones, Per-capita green space, Urban planning, Well-being*

INTRODUCTION

Parks, gardens, tree-lined streets, and other green spaces are not a mere amenity in a city but a necessity for the health and well-being of its people. They offer places to rest, to exercise, to play, and to meet others; they cool the city and clean its air; they support wildlife; and contact with them has been shown to benefit physical and mental health. For these reasons, green space is recognised as an essential part of a liveable city, and its provision is a concern of urban planning (1, 2).

Green space, however, is often shared unequally across a city. Some neighborhoods are generously provided with parks and greenery within easy reach, while others, often the more densely built or less affluent, have little, their residents far from any green space. Because the benefits of green space depend on having it nearby and accessible, this uneven provision means that the advantages of green space are enjoyed by some residents and denied to others, an inequality in a resource important to health (3, 4).

Assessing how fairly green space is provided requires measuring how much is available to the people of each part of a city. A common measure is the green space per person, the area of green space available to each resident, which can be compared against a recommended standard for adequate provision and examined across the zones of a city to see where provision is sufficient and where it falls short (1, 6). This paper examines the provision and accessibility of urban green space across the zones of a city, comparing the green space per person in each zone against the recommended standard. The aim is to show how evenly or unevenly green space is provided and to discuss its importance, the inequality in its provision, and the implications for planning a greener, fairer city.

LITERATURE REVIEW

The importance of urban green space for health and well-being, and the unevenness of its provision, are well documented in the literature (1, 2, 7). Studies have established that access

to green space is associated with better physical and mental health, so that its provision is a matter of public health as well as amenity (2). At the same time, research has repeatedly found green space to be distributed unequally, often to the disadvantage of poorer and minority communities, raising it as a question of environmental justice (3, 4, 8).

Provision, Accessibility, and Equity

The literature describes the assessment of green space and the inequality in its provision:

- Access to green space benefits health and well-being, making its provision a public-health concern (1, 2).
- Green space is often distributed unequally, to the disadvantage of poorer communities, a matter of environmental justice (3, 4, 8).
- Provision and accessibility are assessed by per-capita green space and by spatial accessibility analysis (5, 6).
- Green infrastructure and equitable provision are central aims of green-space planning (7, 9).

A recurring theme is that green space is important to health but unevenly provided, so its fair distribution is a planning concern.

The literature assesses green space in two complementary ways: by the amount provided, often as green space per person compared against recommended standards, and by its accessibility, how easily residents can reach it, analysed spatially with geographic methods (5, 6). Both consistently reveal inequality between areas, which the environmental-justice literature interprets as a disadvantage borne by particular communities (3, 4, 8). The role of green space within green infrastructure, and the planning approaches to provide it more equitably and to integrate it into the sustainable city, are set out in the broader literature (7, 9, 10).

RESEARCH GAP

Although the importance and inequality of urban green space are well documented, a concise demonstration that compares the green space per person across a city's zones against the

recommended standard, identifying the under-served zones, remains useful as a clear illustration. There is therefore value in a study that displays the provision across zones and relates the unevenness to how the city developed and to the planning of a fairer distribution.

OBJECTIVES

The objectives of this study are:

- To examine the green space per person across the zones of a city.
- To compare each zone's provision against the recommended standard for adequate green space.
- To identify the zones with adequate green space and those falling short, and judge the evenness of provision.
- To relate the unevenness to how the city developed and discuss the implications for planning.

METHODOLOGY

Green Space per Person and Standard

The amount of green space available to each resident, the green space per person, was examined across the zones of a city, the city being divided into zones for the purpose (6). The provision in each zone was compared against the standard commonly recommended for adequate green space per person (1). The basis is summarised in Table 1.

Table 1: Basis of the green space assessment

Element	Description
Green space per person	Area of green space per resident in a zone
Recommended standard	Per-capita green space taken as adequate
Zones	The parts of the city compared
Judgement	Whether each zone meets the standard

Assessment

The green space per person in each zone was compared against the recommended standard, the zones meeting or exceeding it being identified as adequately provided and those below it as under-served, and the spread across the zones was examined to judge how even or uneven the provision was (3, 6). The unevenness was related to how the zones had developed, since green space reflects past development and planning (4).

RESULTS AND FINDINGS

The provision of green space varied widely from zone to zone, as shown in Figure 1, which gives the green space per person in each zone against the recommended standard. Some zones had ample green space per person, well above the standard, while others fell well below it, their residents having little green space within reach, so that provision across the city was uneven and several zones were under-served (3).

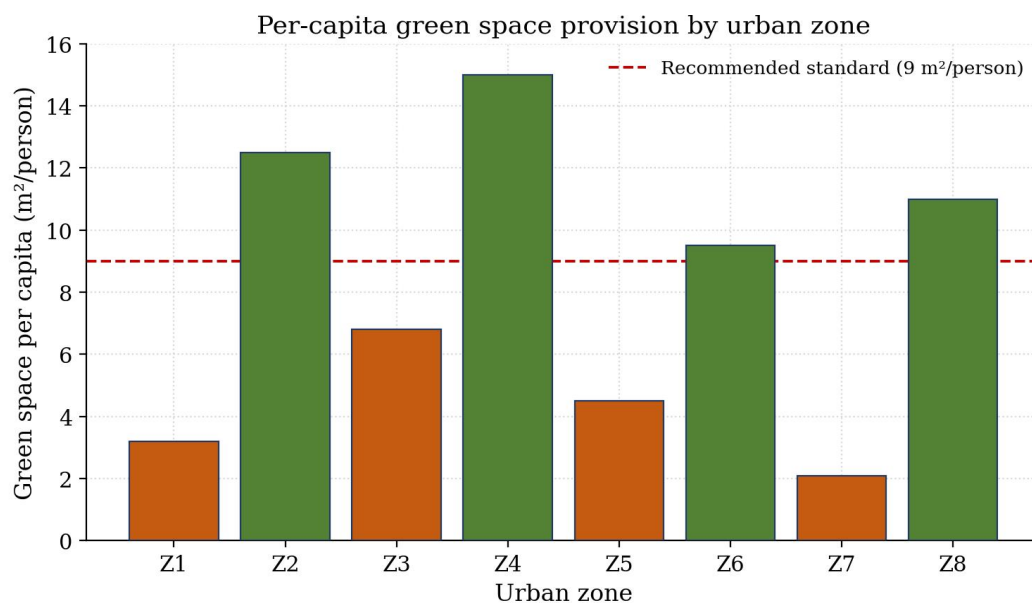


Figure 1: Per-capita green space by urban zone against the recommended standard

The zones falling below the standard were left without adequate access to the benefits that green space brings, while the well-provided zones enjoyed them, an inequality in a resource important to health and well-being (2, 4). The provision did not match where people lived,

some densely populated zones being among the worst provided. This unevenness reflects how each zone developed rather than any plan for fair provision. The findings are summarised in Table 2.

Table 2: Green space provision across zones

Zone type	Green space per person	Against standard
Well-provided zones	High	Above the standard
Under-served zones	Low	Below the standard
Across the city	Varies widely	Uneven provision
Match to population	Poor	Some dense zones under-served

DISCUSSION

The results show that urban green space is often provided unequally across a city, with some zones well served and others under-served against the recommended standard, and they matter because green space is important to health and well-being. Green space is not merely decorative: nearby parks and greenery give people places to be active and to rest, support mental health, and cool and clean the urban environment, and the evidence links access to green space with better health, so that having enough of it within reach is a real benefit and lacking it a real disadvantage (1, 2). The provision of green space is therefore a question of public health and of fairness, not only of amenity.

The inequality found, some zones well above the standard and others well below, is the central concern and a recognised pattern. Because the benefits of green space depend on its being nearby and accessible, residents of under-served zones, often the more densely built or less advantaged, are denied benefits that residents of well-provided zones enjoy, which the environmental-justice literature identifies as an inequity falling on those already disadvantaged (3, 4, 8). That provision did not match where people lived, some crowded

zones being among the worst served, sharpens the concern, since it is precisely the dense zones, with little private outdoor space, whose residents most need public green space (5).

This unevenness arises because green space is largely a legacy of how each zone developed rather than the product of a plan for fair provision: zones that were laid out with parks and open space, or that retained green land as they grew, are well provided, while densely or haphazardly developed zones, where land was given over to building, are poorly provided, so provision reflects past development and not present need (4). The implication for planning is that a fairer, greener city requires deliberate action to provide green space where it is lacking, creating parks, greening streets and vacant land, and protecting existing green space, directed especially to the under-served zones, with provision and accessibility measured to target the effort and track progress (7, 9, 10). The practical conclusion is that planning should aim to provide green space equitably across a city, redressing the shortfall in under-served zones, the main caveats being that per-capita provision is one measure among several, that accessibility and the quality of green space also matter, and that the figure illustrates the pattern rather than the provision of a specific city.

CONCLUSION

The provision and accessibility of urban green space across the zones of a city were examined by comparing the green space per person in each zone against the recommended standard. Provision varied widely, some zones having ample green space well above the standard and others falling well below it, so that provision was uneven and several zones, including some densely populated ones, were under-served, their residents denied benefits that well-provided zones enjoyed. The study shows that urban green space is often provided unequally across a city, an inequity in a resource important to health and well-being that reflects how each zone developed rather than present need, and that planning should act to provide green space equitably, redressing the shortfall in under-served zones, with the caveats that per-capita provision is one measure among several, that accessibility and quality also matter, and that the figure illustrates the pattern rather than the provision of a specific city.

LIMITATIONS

The following limitations apply to this study:

- Per-capita provision is one measure; the accessibility, distribution, and quality of green space also matter.
- The figure illustrates the pattern of provision rather than that of a specific city.
- Zones were compared in aggregate; variation within zones was not examined.
- The standard for adequate green space is a general guide and may vary with context.

FUTURE SCOPE

Future work could extend the present study as follows:

- Spatial accessibility analysis of how easily residents can reach green space.
- Assessment of the quality and usability of green space, not only its area.
- Relating green-space provision to the population and disadvantage of each zone.
- Identification of opportunities to create or expand green space in under-served zones.
- Application to a specific city to guide equitable green-space planning.

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