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Neighborhood Proximity and Civic Hold in Metropolitan Rome: Public-Space Retention Across Urban Morphologies

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Abstract

The closeness of a neighborhood may be measured by the quantity of services present within easy reach by foot, even though services close at hand do not create a thriving public domain. In metropolitan Rome, such differences may be observed in the public realm outside the periphery, wherein services may be found close by, including schools, stations, shops, pharmacies, cafes, and green space, while the ordinary use of the site remains minimal. The current study measures this phenomenon using Civic Hold, a four-variable approach to retaining public space. The metric integrates walking orientation, routine use, dwelling probability, and perceived centrality, and has been used to analyze a representative Roman sample of urban fabric including historical compactness, consolidated twentieth-century development, linear planning form, irregular residential planning, and isolated low density. The principal contrast is drawn between Largo Niccolò Cannella in Spinaceto and Piazza Erasmo Piaggio in Villaggio Breda, both sites containing six categories of services within proximity, while district density ratios remain very close. The Civic Hold for Piazza E. Piaggio is found to be 77.50, while that of Largo N. Cannella is 32.75, despite a density differential of just 2.91%. The ratio of their Civic Hold results is 2.37. It is clear that neighborhood proximity is only socialized through connectivity between services through legible paths, appealing edges, regular use, and localized importance.

Keywords: fifteen-minute city; civic hold; public space; urban morphology; Rome; walkability; proximity planning; neighborhood centrality

1. Introduction

Proximity planning has emerged as one of the most important languages of urban policy today. The fifteen-minute city offers an eloquent expression of proximity planning by contending that individuals should be able to fulfill their day-to-day needs nearby without relying upon lengthy journeys by motor transport. There are several urban policy problems that the proximity planning idea addresses, including reduced transport emissions, healthy living

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practices, robust neighborhood economies, improved access to facilities, and enhanced visibility of civic presence. Yet such conceptual simplicity comes with the risk of reducing complex urban phenomena to a matter of reach and distance. Places can be close-by geographically yet far from being functional and comfortable public spaces.

This becomes a particular issue for the topic of civic presence because public spaces such as streets, squares, parks, and pedestrian routes do not serve as passive vessels connecting housing and services. Instead, public spaces shape the use of amenities in their immediate vicinity. One square can be surrounded by schools, shops, transit stations, pharmacies, and bars and function as just another point of passage to other destinations, whereas another square may function as a neighborhood focal point despite operating at a moderate density due to the intelligibility of its periphery, comfortable pedestrian pathways, and linkage with the activities of neighboring local amenities. In short, proximity planning requires understanding not merely how many facilities exist nearby but rather the extent to which urban morphology allows residents to use nearby facilities comfortably.

The notion of Civic Hold captures this requirement. Civic Hold refers to a public space's ability to retain daily civic presence. This capacity expresses itself when residents regularly travel to, through, or inside the public space, use the space often, stay there longer than needed for basic passage, and consider it a focal point of neighborhood life. The Civic Hold notion does not imply that a public space does not need to be accessible in the first place; instead, it evaluates whether the accessibility is translated into use, presence, and recognition of the public space as a focal point of daily life. The spatial features surrounding a public space, including its pedestrian connectivity and physical quality, may hinder accessibility even if the space itself is accessible as a destination.

One of the advantages of the Rome example as a site of research is its variety of urban fabrics. The Roman metropolitan territory includes historic neighborhoods, dense twentieth-century neighborhoods, large-scale estate developments, unplanned or loosely planned neighborhoods, small open spaces surrounded by buildings, and low-density peri-urban developments. As such, any single proximity policy in Rome faces radically different urban contexts. The neighborhoods of Trastevere, Gordiani, Tufello, Torre Angela, Spinaceto, Acilia Nord, and Vallerano Castel di Leva have diverse physical morphologies, despite falling within the same city and thus sharing similar institutional structures and policy-making systems. Each of these neighborhoods differs significantly from others in terms of density, inter-building relationships, street network continuity, and open space qualities.

The empirical analysis focuses on this issue of physical context. Specifically, Largo Niccolò Cannella in Spinaceto and Piazza Erasmo Piaggio in Villaggio Breda represent two similar cases, being peripheral Roman neighborhoods with a comparable number of six service types and similar district densities differing by 2.91%. Yet in contrast to Piazza Erasmo Piaggio, Largo Niccolò Cannella fails to generate regular public-space usage. Differences in civic retention are related to the spatial conversion of nearby amenities into everyday civic presence.

This paper discusses this conversion process by looking first at the general physical variation among Roman neighborhoods and then analyzing how similar service configurations translate differently into the public space performance in the chosen case study pair.

2. Theoretical Background

The fifteen-minute city is an example of the broader theme of local accessibility, mixed uses, and walkable urbanism. Moreno et al. see the idea as a way towards sustainability, resilience, and place identity, with the benefit of focusing on organizing urban life via local access, rather than long-distance dependencies [22]. Similar efforts at defining and measuring twenty-minute neighborhoods and X-minute cities have approached accessibility as a target that could be expressed in a certain number of services provided within a selected travel-time radius [3, 18]. Such an approach can be useful due to making service availability explicit and enabling comparative studies across neighborhoods.

However, accessibility alone is not enough to define the quality of proximity. A fifteen-minute walk down a shaded, continuous, and lively urban street is quite different from the fifteen-minute walk down exposed residual terrain and car-focused intersections with poor-quality open spaces. Services may be there, but the paths and destinations may lack conditions for regular use. Research on assessing proximity thus focuses on the problems of fixed thresholds, differences in local experiences, and individual mobility behavior [8, 13, 17]. It is crucial because proximity policy would be successful only if it turns potential access into routine.

Such an emphasis is possible thanks to the ideas developed within urban design and public-space studies. Jacobs defined urban street vitality in terms of mixed uses, small-block size, active frontages, and the visibility created by diverse people using public space at different moments [16]. Gehl's research made clear how human scale, comfort, visual distance, places for sitting and resting, protection from climate factors, and a ratio of necessary, desired, and social activities affect public life [12]. Observations of people using plazas by Whyte showed that they stay and return to public spaces which offer comfortable conditions for sitting, observing others, meeting acquaintances, eating, and moving around [27]. The third places concept explained by Oldenburg why informal public and semi-public spaces are vital for neighborhood sociability [23].

More recently, studies have elaborated these concerns into measurable and design-oriented dimensions. Inclusion, meaningfulness, comfort, safety, and pleasurability of public space form Mehta's index for measuring the quality of public spaces, proving that it is not reducible to availability alone [19]. Carmona's research on designing public space and managing it stresses the importance of strategic planning, maintenance, responsiveness to local needs, and governance of public space on a daily basis [4, 5]. They all imply that one should measure a square according to how well it works rather than whether it exists.

Research on transport and the built environment provides yet another perspective. Cervero and Kockelman's research highlights the importance of density, diversity, and good design in affecting travel behavior [6]. Ewing and Cervero reviewed built-environment factors in influencing transportation behavior as density, diversity, design, accessibility of destinations, and transit access [10]. The relationship between built-form variables and travel behavior was critically discussed by Handy et al. and called for avoiding oversimplifications [14]. Walkability concepts presented by Dovey and Pafka also emphasize the interactive character of density and diversity, while Forsyth argues that walkability may refer to infrastructure, environment, outcomes, or more general design quality [9, 11]. The current analysis thus follows in this line by measuring civic retention via behavior and perceptions of physical proximity.

Urban morphology helps explain differences in proximity outcomes. The spatial configuration theory of Hillier and Hanson explores the impact of urban form on movement and co-presence [15]. Research on permeability, connectivity, and pedestrian accessibility shows how directness, interface conditions, and route coherence affect walkable use [2, 24, 26]. In other words, a pharmacy, school, bar, or bus station strengthens the square by opening it to a legible and accessible pedestrian network; otherwise, the effect would be much less powerful. In the present study, morphology is considered a factor enabling public-space retention.

The essential difference between these two factors is that while service reach is a question of whether daily functions are accessible nearby, civic retention is concerned with how nearby functions are integrated into the life of citizens. It becomes particularly evident in a city like Rome where metropolitan fabric ranges from dense historic quarters to sparse peripheries. For the same service count, service reach means something else depending on the particular fabric. Thus, a morphology-calibrated evaluation becomes necessary to understand how effective proximity policy in generating public life might be in different fabrics.

3. Data and Analytical Procedure

3.1. European policy context and Roman setting

The data set includes reported findings on proximity-based public spaces in Rome and similar programs in Europe, such as comparison with other European programs, characteristics of the zones involved, service provision, and survey percentages for two focus spaces [20]. Data were used for analyzing public-space performance through the Civic Hold calculation framework. No additional behavioral variables and measures were included. The analysis remained confined to existing values such as population density, number of services, walking orientation, routine use, dwellers' propensity to walk, and perceived centrality.

The European examples presented in Table 1, meanwhile, demonstrate that Rome appears to be the city most morphologically vulnerable. For both Paris and Barcelona, compactness or regularity of the grid system applies; in Milan's case, compact and semi-compact requalification of public space prevails. Rome stands apart because the very same programmatic typology spans compact, low-density, and dispersed settings. This makes Rome particularly interesting in terms of testing a hypothesis: a particular public space policy should not be assumed to yield similar results within varying morphologies.

Table 1. European proximity programs

Dimension	Paris	Milan	Barcelona	Rome
Program	Cour Oasis and Rue aux Ècoles	Piazze Aperte	Superblocks	Centopiazze
Territorial output	165 oasis spaces and 218 calm streets	55 public spaces	12 superblocks	178 public spaces
Public-space types	Courtyards and streets	Squares and streets	Squares and streets	Streets, squares, gardens, and parks
Compact morphology	Yes	Yes	Yes	Yes
Low-density morphology	No	Yes	No	Yes
Dispersed morphology	No	No	No	Yes
Tactical urbanism	Yes	Yes	Yes	No
Planning meaning	School and street-space reuse in dense fabrics	Incremental street and square redistribution	Pedestrian priority inside a strong grid	Public-space formation across heterogeneous fabrics

3.2. Roman public spaces: diversity of morphological setting

Seven different public spaces scattered across various urban contexts in Rome are studied here. They include Piazza S. Cosimato, Largo Agosta, Piazza degli Euganei, Piazza E. Piaggio, Largo N. Cannella, Piazza Capelvenere, and Piazza Z. Betti. Different settings include compact historic fabric, consolidated high-density expansion, linear planned layout, free-form residential development, and isolated low-density settlement. The category of density is included despite the fact that it is a commonly used surrogate for the presence of public life potential because it does not provide any information about the morphology of the place.

Table 2. Roman public-space evidence.

Public space	**Urban zone**	**Centrality**	**15MC**	**Residents**	**Density**	**Spatial reading**
Piazza S. Cosimato	1B Trastevere	No	No	13,648	7540.33	Compact block fabric with strong enclosure
Largo Agosta	6D Gordiani	Yes	No	41,449	23417.51	High-density block fabric with strong pedestrian potential
Piazza degli Euganei	4I Tufello	No	Yes	14,181	16114.77	Linear settlement with readable spatial order
Piazza E. Piaggio	8F Torre Angela	Yes	No	87,397	5274.41	Lower-density linear fabric with closer building relations
Largo N. Cannella	12G Spinaceto	No	Yes	24,219	5430.27	Free-form rows and large open surfaces
Piazza Capelvenere	13B Acilia Nord	Yes	No	28,047	3075.32	Isolated fabric with weak enclosure
Piazza Z. Betti	12H Vallerano Castel di Leva	No	No	29,758	762.44	Very low-density isolated fabric

The evidence in Table 2 shows that density and spatial continuity do not move together in a simple way. Largo Agosta has the highest density, while Piazza Z. Betti has the lowest. The more revealing comparison lies between

Piazza E. Piaggio and Largo N. Cannella because their densities are close but their spatial form differs sharply. The table therefore establishes why the paired comparison cannot be reduced to demographic pressure alone.

Figure 1. Seven Roman fabric conditions.

The photographic-style plates in Figure 1 give visual evidence for the fabric gradient summarized in Table 2. The compact cases show tighter building relations and clearer enclosure, while the free-form and isolated cases show

more open land, looser edges, and weaker spatial concentration. The image set is used as a morphological aid rather than as a substitute for the numerical comparison.

3.3. Largo N. Cannella and Piazza E. Piaggio

The detailed comparison focuses on Largo N. Cannella and Piazza E. Piaggio because they offer a service-parity test. Largo N. Cannella is associated with a bus stop, primary school, public park, pharmacy, bar, and supermarket. Piazza E. Piaggio is associated with a bus stop, secondary schools, postal office, pharmacy, bar, and shops. Both spaces therefore contain daily anchors that should be capable of supporting local movement and repeated public-space presence.

The parity in Table 3 is central to the argument. A service-count reading would treat the two spaces as equivalent because each has six nearby categories. The spatial setting column shows why that equivalence is incomplete. Spinaceto presents a broader free-form public-space condition, while Villaggio Breda presents a more continuous linear setting. The subsequent calculation tests whether this spatial difference appears in use and perception.

Table 3. Service parity in the paired case.

Public space	Nearby service categories	Spatial setting	Service count
Largo N. Cannella	Bus stop; primary school; public park; pharmacy; bar; supermarket	Free-form modernist layout with serpentine rows and broad open surfaces	6
Piazza E. Piaggio	Bus stop; secondary schools; postal office; pharmacy; bar; shops	Regular linear layout with closer building spacing and semi-public ground-floor relations	6

The paired views in Figure 2 make the service-parity test visible. Largo N. Cannella appears as a large and loosely edged setting, whereas Piazza E. Piaggio appears more closely related to surrounding buildings and pedestrian edges. The images support the interpretation that service presence must be read together with the form that connects services to public space.

Figure 2. Service-equivalent paired settings.

3.4. Indicator construction

Civic Hold is calculated from four reported values. Walking orientation, denoted by W, represents the pedestrian share of neighborhood movement. Piazza E. Piaggio has a walking value of 62%. Largo N. Cannella is characterized

by 75% primary car use, so the corresponding walking value is 25%. Routine use, denoted by R, represents frequent use of the square. Piazza E. Piaggio has 74% daily use. Largo N. Cannella has 32% rare use and 54% non-use, so use more frequent than rare equals 14%. Dwelling propensity, denoted by D, is the inverse of pass-through use. Largo N. Cannella has 63% pass-through use, giving $D = 37\%$. Piazza E. Piaggio has 26% pass-through use, giving $D = 74\%$. Perceived centrality, denoted by C, combines very central and fairly central responses. Largo N. Cannella has 12% very central and 43% fairly central, giving $C = 55\%$. Piazza E. Piaggio has 72% very central and 28% fairly central, giving $C = 100\%$.

The Civic Hold value for public space i is the mean of the four components:

$$H_i = \frac{W_i \;\; R_i \;\; D_i \;\; C_i}{4}. \tag{1}$$

The equation is intentionally simple because the available evidence does not justify assigning unequal weights to the four components. Its value lies in bringing movement, frequency, staying behavior, and perceived centrality into a single transparent reading. The index is not used to predict behavior beyond the two focus spaces; it is used to test whether similar service and density conditions produce similar civic retention.

A density-difference value is calculated to show how close the two districts are in demographic terms:

$$\delta_\rho = \frac{|\rho_{\text{Cannella}} - \rho_{\text{Piaggio}}|}{\rho_{\text{Cannella}} \;\; \rho_{\text{Piaggio}}{}^2} \times 100. \tag{2}$$

This calculation establishes that the paired comparison is not driven by a large density gap. The resulting value is 2.91%, which is small enough to make the difference in public-space performance analytically meaningful. If density were the decisive variable, the two spaces would be expected to show much closer Civic Hold values.

Service conversion is expressed as:

$$\eta_i = \frac{H_i}{S_i}, \tag{3}$$

where S_i is the number of nearby service categories. Since both focus spaces have six service categories, η_i shows how strongly equivalent service quantity is translated into public-space use and recognition. The calculation improves the interpretation of service parity by showing that equal service presence can have unequal public-space effects.

The component panels in Figure 3 show that the difference between the two spaces is not confined to one response category. Piazza E. Piaggio has higher values for walking orientation, routine use, dwelling propensity, and perceived centrality. The final values of 77.50 and 32.75 therefore reflect a consistent behavioral and perceptual separation rather than a single isolated indicator.

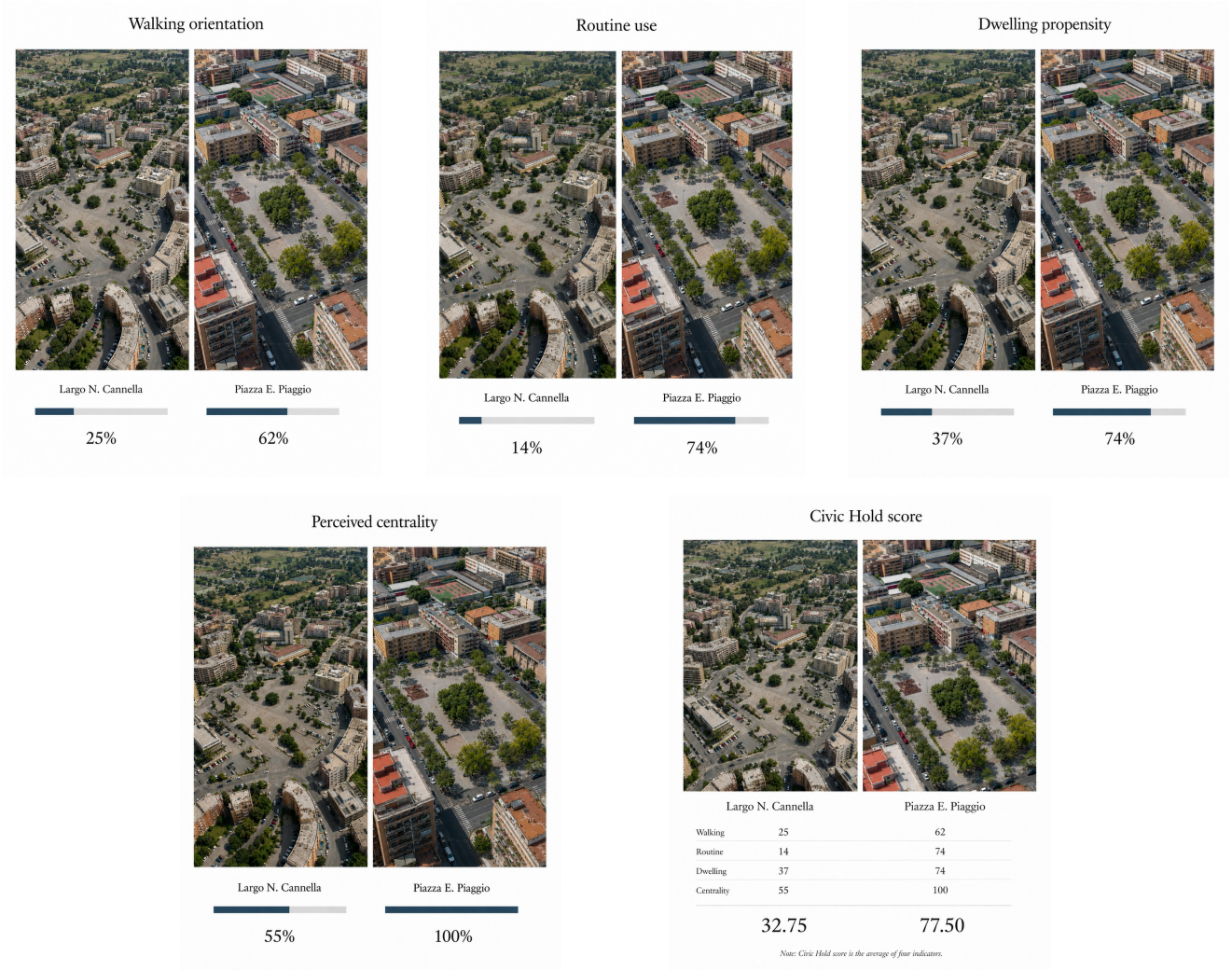

Figure 3. Civic Hold component evidence.

4. Results

4.1. Urban-fabric gradient across the case set

First, there appears to be a distinct spatial gradient among the seven examples under study. For instance, both Piazza S. Cosimato and Largo Agosta are part of a more or less compact block-based urban fabric. There are differences in their density as well as their level of development. On the other hand, Piazza degli Euganei and Piazza E. Piaggio represent the examples of ordered linear fabrics. It means that the route and building structure remains quite understandable. Largo N. Cannella represents the case of difficult spatial form due to the presence of free-form route structure and creation of extensive open areas. Finally, Piazza Capelvenere and Piazza Z. Betti are the cases of increasing isolation within low-density urban environment.

It is important to emphasize the significance of such a gradient because the policy of proximity does not work on the surface. In the context of urban fabric characterized by compact structure, even small changes can take advantage of existing pedestrian flows and relatively short distance as well as active street edge. In case of linear planned fabric, the key point is whether the sequence of buildings and streets maintains some degree of legibility of public space. In turn, free-form and isolated urban fabrics may lack such conditions because public space itself may be insufficient for generation of civic space. It explains why one cannot evaluate metropolitan Rome according to the single neighborhood concept.

Perhaps, the most striking comparison between the two middle-density locations is possible. Piazza E. Piaggio contains 5274.41 inhabitants per square kilometer while Largo N. Cannella has 5430.27 inhabitants per square kilometer. Thus, there is only 2.91% difference in terms of population density. However, there is no similarity in terms of morphology because Piazza E. Piaggio is related to linear urban fabric while Largo N. Cannella reflects free-form spatial pattern. As a consequence, population density and retention of public spaces are separated from each other.

4.2. Equal service count and contrasting spatial support

Piazza E. Piaggio and Largo N. Cannella provide the same number of nearby service categories. First of all, both of them are adjacent to the transit facility and educational institution as well as facilities related to health care and daily services. Second, both squares are close to commercial establishments and bars. Nevertheless, Largo N. Cannella offers additional access to the park and supermarket while Piazza E. Piaggio is closer to postal services and shops. From the perspective of pure accessibility, both squares seem to be equally service-providing.

However, the analysis shows that service presence is not equal to successful public space function. The presence of services may reinforce the coherence of the whole public space sequence when it comes to Piazza E. Piaggio. In the case of Largo N. Cannella, it is also true. Nevertheless, the free-form spatial structure weakens the ability of public space to retain its civic nature. One should not confuse the issue with service deficiency. It means that services are simply transformed into public space less effectively.

4.3. Density-service equivalence and Civic Hold divergence

Calculation of Civic Hold index reveals the following result. Piazza E. Piaggio demonstrates 62% of walking orientation, 74% of routine use, 74% of dwelling propensity and 100% of perceived centrality. In turn, Largo N. Cannella shows 25%, 14%, 37% and 55%, respectively. According to Eq. 1 the final values will be 77.50 and 32.75, respectively.

The calculation in Table 4 shows that the two spaces differ across every Civic Hold component. The gap is largest in routine use and perceived centrality, but the walking and dwelling values also separate strongly. Piazza E. Piaggio converts service presence into a pattern of use and recognition, while Largo N. Cannella remains much weaker despite an equivalent service count. The service-conversion values make this difference explicit: 12.92 Civic Hold points per service category for Piazza E. Piaggio compared with 5.46 for Largo N. Cannella.

Table 4. Civic Hold calculation.

Public space	ρ	S	W	R	D	C	H	η
Largo N. Cannella	5430.27	6	25	14	37	55	32.75	5.46
Piazza E. Piaggio	5274.41	6	62	74	74	100	77.50	12.92

ρ = inhabitants per km^2; S = nearby service categories; W = walking orientation; R = routine use; D = dwelling propensity; C = perceived centrality; H = Civic Hold; η = Civic Hold per service category.

The four panels in Figure 4 place the main result in one visual sequence. Density and service count are nearly equivalent or identical, while Civic Hold and service conversion are strongly unequal. This directly supports the paper's central claim: proximity inputs do not automatically become public-space retention.

The ratio between the two Civic Hold values is:

$$\Omega = \frac{H_{\text{Piaggio}}}{H_{\text{Cannella}}} = \frac{77.50}{32.75} = 2.37. \tag{4}$$

This ratio means that Piazza E. Piaggio performs more than twice as strongly as Largo N. Cannella under the Civic Hold reading. The result is especially important because the paired case controls for service count and minimizes the density difference. The remaining explanation lies in how the spatial setting connects or fails to connect amenities, pedestrian movement, and staying behavior.

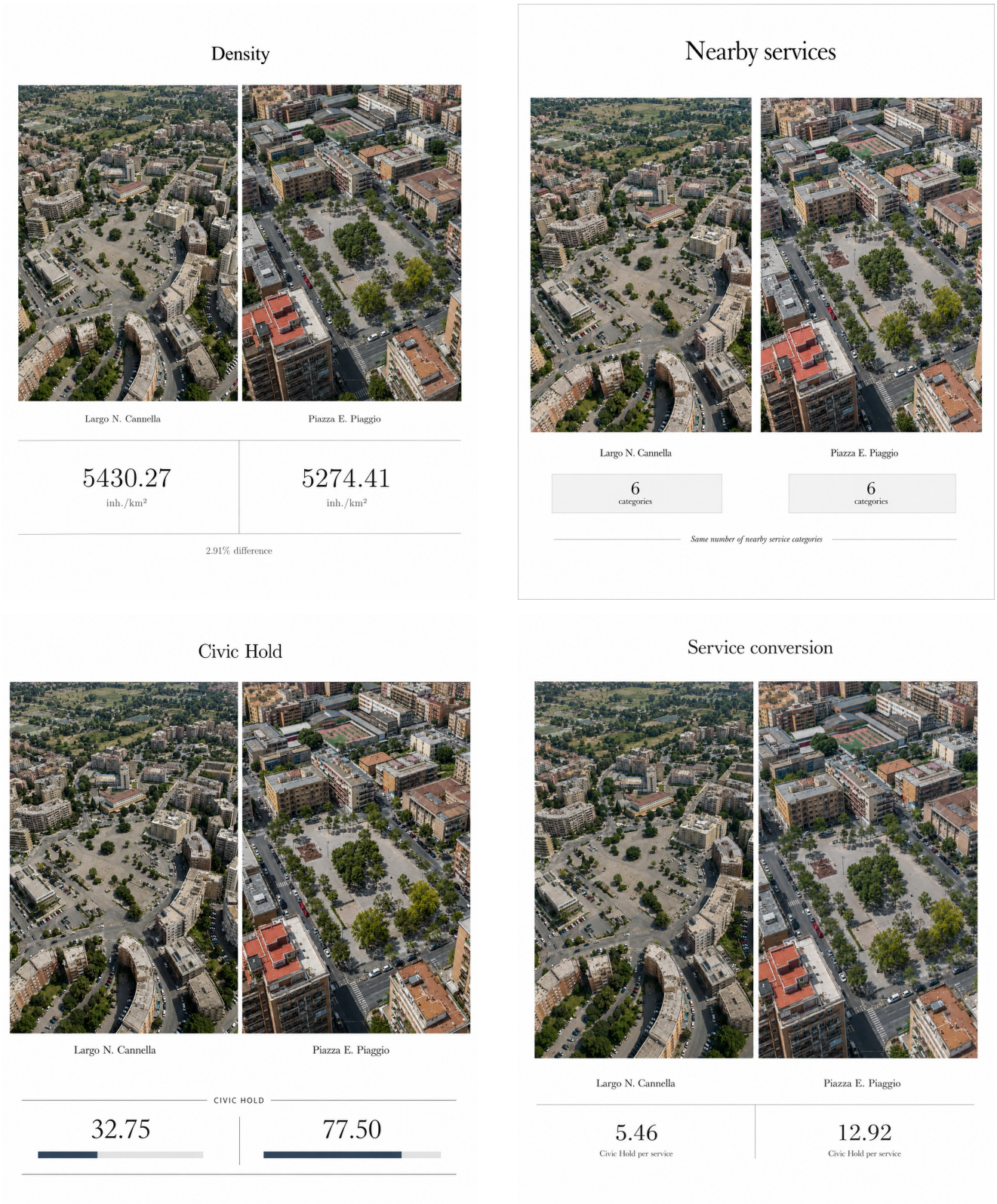

Figure 4. Equivalent inputs and divergent outcomes.

4.4. Reported use and perceived centrality

The behavioral evidence clarifies the meaning of the Civic Hold values. In Largo N. Cannella, 63% of valid respondents pass through without stopping. The space is also associated with 32% rare use, 54% non-use, 33% no activities, and 35% visits only during public events. These values describe a public space that may be available and occasionally programmed but is weakly embedded in ordinary routines.

Piazza E. Piaggio shows a different pattern. Only 26% pass through without stopping, while 40% remain for several hours and 34% remain for less than one hour. Daily use reaches 74%. These values indicate that the space functions not merely as a route but as a setting where residents spend time. The difference between the two spaces is therefore not only numerical; it concerns the nature of public presence. Largo N. Cannella is more strongly associated with transit through space, while Piazza E. Piaggio is more strongly associated with remaining in space.

The behavioral profiles in Figure 5 translate the survey percentages into public-space use patterns. The weaker ordinary retention of Largo N. Cannella is visible in pass-through, rare use, non-use, and event dependence. The stronger retention of Piazza E. Piaggio is visible in daily use and longer stays. The image reinforces the interpretation that civic hold depends on ordinary repetition, not only on occasional events.

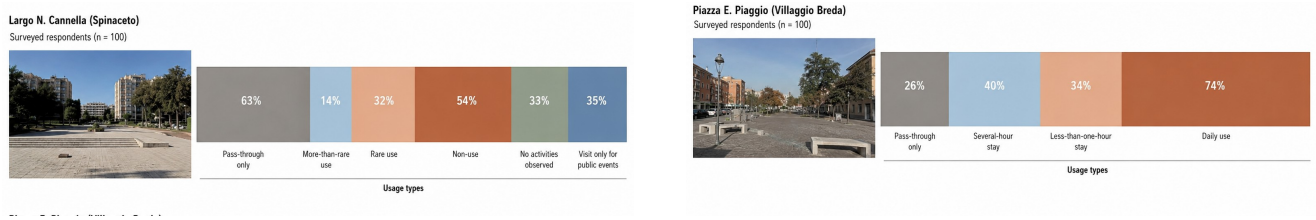

Figure 5. Behavioral retention profiles.

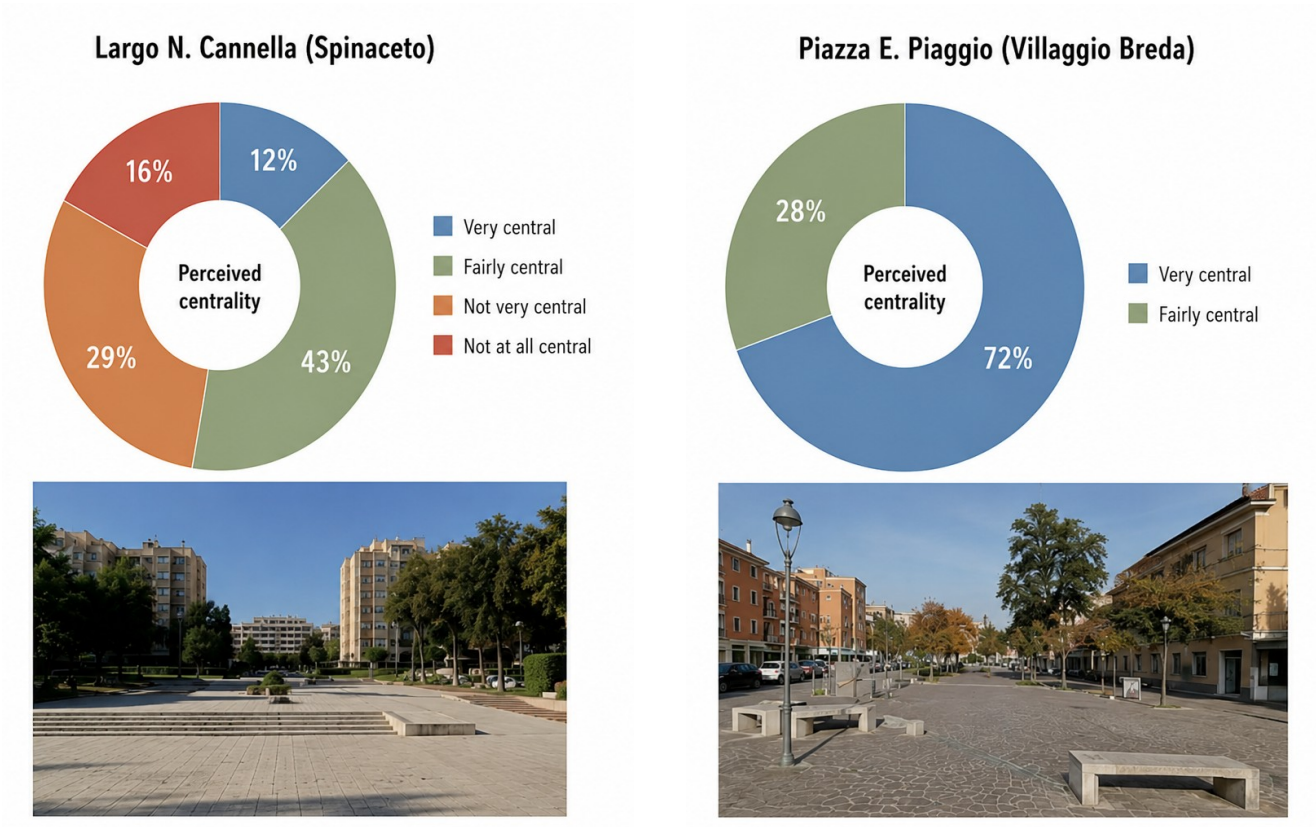

Figure 6. Perceived centrality.

Perceived centrality adds a further distinction. Largo N. Cannella receives 12% very central and 43% fairly central

responses, giving 55% positive centrality. It also receives 29% not very central and 16% not at all central responses. Piazza E. Piaggio receives 72% very central and 28% fairly central responses, giving 100% positive centrality. A space can therefore have nearby services and still fail to gain full neighborhood recognition.

As shown in the centrality panels in Figure 6, divided and complete recognition occur. Piazza E. Piaggio has more consistent neighborhood recognition, whereas Largo N. Cannella achieves partial recognition. Thus, these findings confirm that public-space performance encompasses a perceptual element not fully covered by the service count.

5. Discussion

5.1. Access and civic retention

From the findings, it follows that proximity takes meaning if it is maintained in the daily experience of public-space life. Proximity defined either as short distance or fifteen minutes can refer to the potential of access to amenities, but not to actual walking, presence, stopping, recognition, and use of nearby public space. Therefore, the Civic Hold calculation helps to make an important clarification in the debate about proximity policy: it is not enough to verify the presence of services nearby. It is important to determine whether the urban fabric transforms their presence into walking, presence, and neighborhood recognition.

5.2. Urban form as a service-retention condition

The findings suggest that morphology influences the value of public services. Piazza E. Piaggio and Largo N. Cannella have the same service count, but the conversion power of Piazza E. Piaggio is almost three times higher than that of Largo N. Cannella. In other words, services are important, but their transformation into public-space performance requires a supportive spatial condition.

As seen in Figure 7, the two public spaces under investigation differ significantly in their morphology, including the relationship between the space and adjacent edges. Piazza E. Piaggio seems more continuous and better connected to building edges and pedestrian paths. As such, the image helps to interpret the results: the higher Civic Hold score comes with more successful spatial conversion of nearby services.

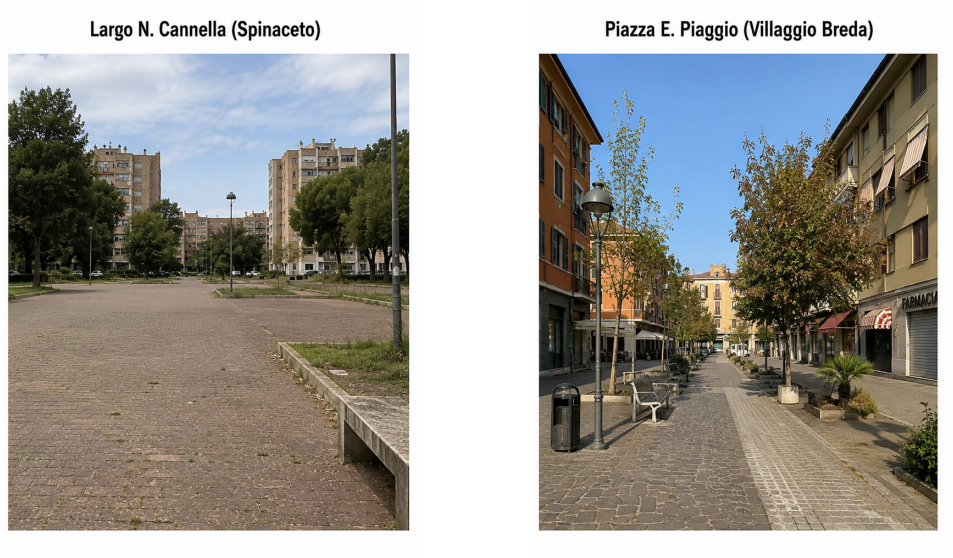

Figure 7. Spatial conversion settings.

However, proximity cannot be explained only by density. Piazza E. Piaggio does not have the highest density

among the seven spaces. Rather, it is characterized by the spatial legibility that encourages movement and creates connections between buildings and public spaces. In this way, the finding contributes to the development of proximity policy for peripheral districts: the policy should not demand unrealistic compactness from each district but consider its own unique possibility.

5.3. Spatial reading of free-form and linear fabrics

The case of Largo N. Cannella explains why square-making might be less effective in free-form fabrics. First, it is necessary to remind that the formation of a public-square character requires street convergence, enclosure, active edges, and crossing. Without these elements, a square might look more open but retain low use and presence despite nearby services. Indeed, this is exactly what happened to Largo N. Cannella, as shown by the following values: high pass-through frequency, low more-than-rare presence, substantial non-presence, and presence only during events.

Consequently, in a fabric with limited possibilities for a classic square configuration, another strategy needs to be found. Instead of improving only the surface, it is necessary to improve the sequence that connects houses, transit stops, shops, schools, parks, and the public space. The steps of this kind include, for example, shaded paths, safer crossings, visible edges, seating aligned with pedestrian movement, maintenance of daily use zones, etc. All this will allow strengthening the conversion of nearby amenities into civic hold.

The case of Piazza E. Piaggio shows the advantages of a linear planned fabric. This space is characterized by closer building relations, higher routine use, better legibility of the public space, and higher perceived centrality. At the same time, Piazza E. Piaggio also has lower population density. Consequently, the finding reveals another condition under which the proximity of services is transformed into public life: a linear planned fabric. The main challenge in designing this fabric is to protect the existing public-space quality and to increase pedestrian comfort.

5.4. Implications for metropolitan proximity policy

In relation to the metropolitan proximity policy, it is necessary to distinguish four conditions of the fabric, each of which requires a specific approach. The first case involves traffic calming, proper maintenance, shading, and protecting active ground floors in the context of compact block fabrics. The second case involves enhancing pedestrian continuity, improving semi-public edges, and managing connecting routes in a linear planned fabric. The third case involves defining actual pedestrian routes, repairing edges, and clustering daily services along them in the case of a free-form fabric. Finally, in the case of an isolated low-density fabric, the strategy should involve establishing safe pedestrian links, service clustering around transit nodes, and public space anchors before a central square can be developed.

As seen from Figure 8, a proximity policy for Rome should take into account fabric sensitivity. However, this sensitivity does not affect the empirical method of calculating proximity. It just means that proximity should not be understood in a uniform manner for all fabrics since it is determined by morphological features and behavioral patterns characteristic of particular urban forms.

The proposed approach can be applied in other metropolitan areas where there are compact districts, planned housing estates, free-form edges, and isolated districts. As such, the current proximity policy that counts nearby amenities can prove to be insufficiently sensitive to differences in fabric conditions. By considering such conditions, the analysis of Civic Hold helps to complement the accessibility study and to pay more attention to spatial aspects of amenity proximity.

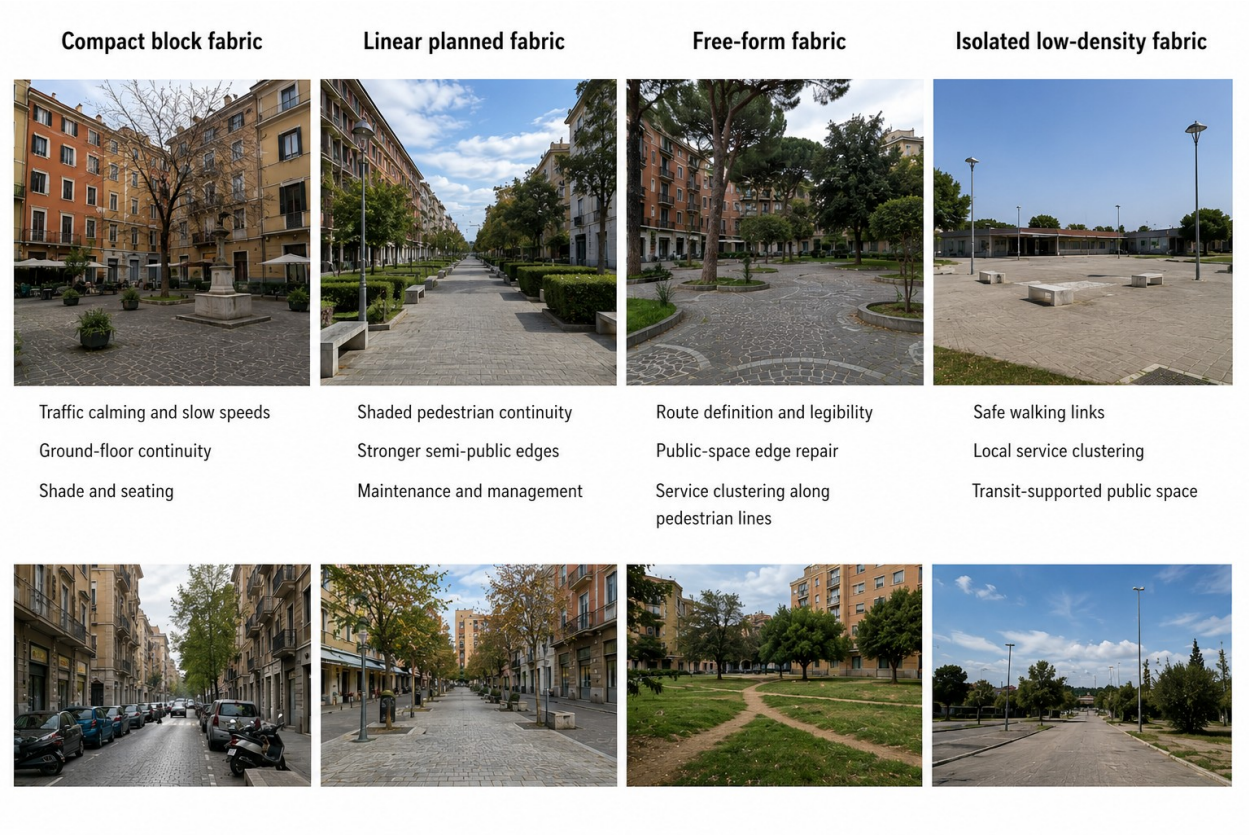

Figure 8. Fabric-sensitive planning priorities.

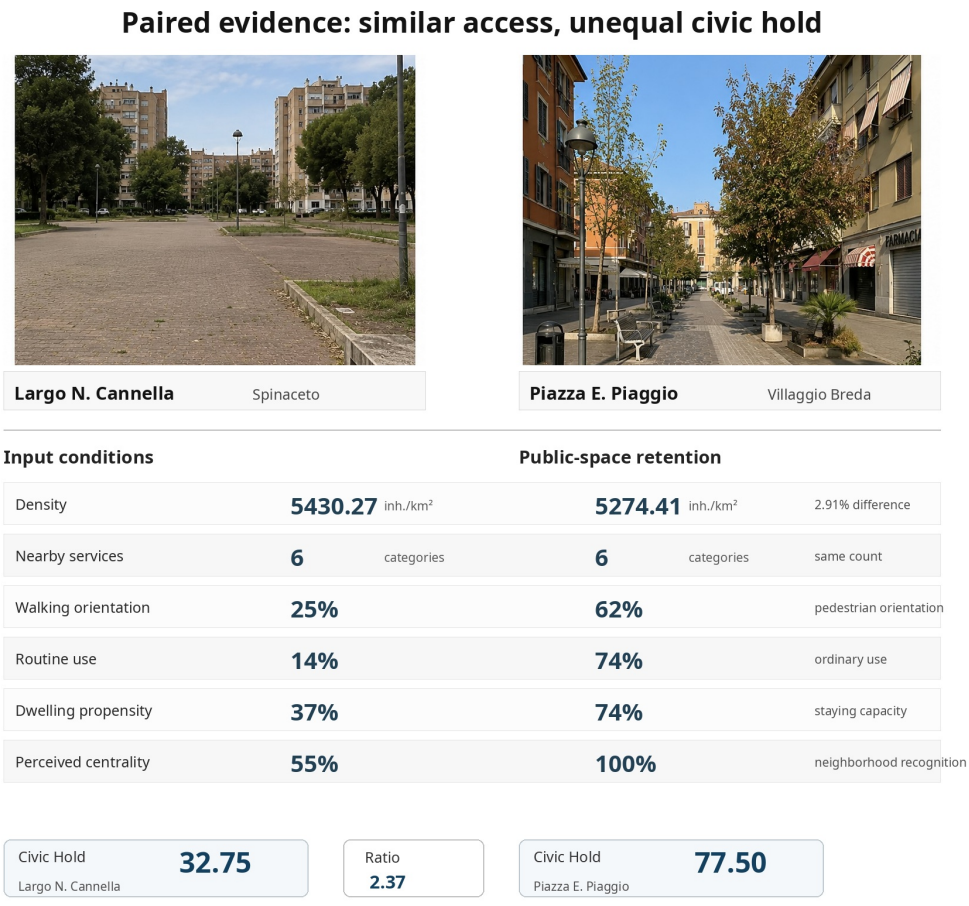

Figure 9. Civic Hold synthesis.

Figure 9 summarizes the findings in the synthesized form. As noted above, the two public spaces have a similar density and the same number of nearby services, but they differ in all Civic Hold components and in overall scores. As such, the synthesis proves that the crucial difference does not lie in amenities but in the spatial and behavioral conversion of services into public-space performance.

6. Limitations

The analysis is based on a restricted sample that includes seven spaces in Rome. Although these spaces help to understand the morphological gradient of Roman public-space performance, the Civic Hold calculation is possible for only two spaces, namely Piazza E. Piaggio and Largo N. Cannella, since they have identical values of walking orientation, routine use, dwelling propensity, and neighborhood centrality. If a full Civic Hold was calculated for all seven spaces, the same values would be needed.

Equal weighting is another limitation of the analysis since equal weights are suitable for the selected sample. The reason is that the sample size, survey counts, and observational data do not enable the prioritization of any component over others. Future research projects can use various weights depending on the available evidence. They can also extend the evaluation criteria by including factors such as maintenance, shade, seating, service surface conditions, traffic exposure, and frontage activity.

Service count is the least comprehensive criterion due to the restriction to a basic type and absence of intensity, opening hours, frontage quality, and other details. The interpretation treats service equality as a planning comparison and does not claim that services of different kinds contribute equally to public-space performance. However, future research can use more detailed and complex criteria.

Images of the spaces can help to understand them better, but cannot replace measurements. The photographs are helpful for comprehending morphology, edges, spatial atmosphere, and other morphological characteristics that cannot be measured numerically. Nevertheless, more precise data collection is still possible. Additional studies can measure the following characteristics: time of day use, age and gender diversification, seating use, pedestrian lines, seasonality, etc. However, such detailed research should use the same logic of Civic Hold assessment.

7. Conclusion

The goal of the paper was to find out whether two public spaces with equal service counts and closely similar densities can have similar performances. The study concludes that this similarity is impossible. Both Piazza E. Piaggio and Largo N. Cannella have six service categories nearby, and their population densities differ only by 2.91%. Meanwhile, the Civic Hold score of Piazza E. Piaggio is 77.50, and the Civic Hold of Largo N. Cannella is 32.75. Moreover, the service-conversion value of the former is 12.92, whereas it is only 5.46 in the latter case. Thus, the ratio between the Civic Hold values of the two spaces is 2.37.

The explanation of such a large gap in performance involves proximity and morphology. In addition to proximity of services, it is essential to consider walkable routes, spatial and edge quality, routine and dwelling use, and recognition as part of proximity. The study shows that a regular linear fabric successfully converts services into civic hold, whereas a free-form fabric limits this conversion.

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