



STREET VENDORS AS ACTIVITY SUPPORT FOR PUBLIC SPACE CONTINUITY AND LIVABILITY IN SURAKARTA CITY

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Abstract

Public spaces are an important element in urban areas, serving as a venue for social interaction, recreational activities, and economic activities. Street vendors are a common informal activity found in public spaces in city centers and play a role in supporting activities. On the one hand, street vendors are able to enliven public spaces and support the local economy, but on the other hand, they have the potential to cause conflicts over space use and disrupt the main functions of public spaces. In line with the Habitat III agenda, which emphasizes the importance of safe, inclusive, accessible, and high-quality public spaces, this study aims to analyze the influence of street vendors on the continuity and livability of public spaces in Surakarta based on user perceptions. This study uses a quantitative approach with data collection through a Likert Scale questionnaire. Data analysis was performed using the Structural Equation Modeling–Partial Least Squares (SEM–PLS) method. The existence of street vendors was modeled as a formative construct, while continuity and livability were modeled as reflective constructs. The results show that the presence of street vendors has a positive and significant effect on the continuity and livability of public spaces. However, not all indicators that determine the presence of street vendors contribute significantly. This study concludes that street vendor management in public spaces should focus on maintaining zone functions and controlling activities to ensure both continuity and livability.

Keywords: Continuity, Livability, Perception, Public Space, SEM-PLS, Street Vendors

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INTRODUCTION

Public spaces play an important role in urban life. As a key element of urban areas, public spaces serve as venues for social interaction, cultural activities, recreational activities, and even economic activities. In the Habitat III Agenda, the management of public spaces is emphasized in order to fulfill the principles of safety, inclusiveness, accessibility, greenness, and quality as part of sustainable development in urban areas. One element that is inseparable from the dynamics of public spaces is the presence of street vendors, which are found in various corners of the city, especially in public spaces with high visitor traffic, such as city parks, town squares, pedestrian paths, and tourist areas. As part of the informal economy, Street Vendors are not only drivers of the micro-economy, but also create a lively and dynamic atmosphere in urban spaces and are considered an element that can support the main functions of public spaces through the presence of additional activities that strengthen the functionality of the space (Shirvani, 1985).

Previous studies highlight both positive and negative implications of street vendors in public spaces. On the positive side, street vendors have been shown to enhance user comfort and accessibility to daily necessities (Sitompul et al., 2019), as well as contribute to social sustainability by fostering a sense of security and cross-class social interaction (Zaman & Ahmed, 2023). Conversely, other studies indicate that unregulated street vendor activities often disrupt spatial order, reduce environmental quality, and generate conflicts over space use, particularly when vendors occupy sidewalks or circulation areas (Murti et al., 2023). Public perception toward street vendors is therefore divided: while some view them as disruptive to spatial layout and primary activities, others recognize their economic and social value, especially when their presence is well-organized (Akbar et al., 2023; Febrianti et al., 2024).

In the context of Surakarta City, the growth of street vendor activities is closely linked to post-New Order socio-economic changes and the national economic crisis of the late 1990s, which led many urban residents to seek livelihoods in the informal sector (Suwandi, 2012). Since then, street vendors have become an integral part of the city's urban landscape, simultaneously contributing to local economic recovery and generating challenges for urban spatial management when operating without clear regulation (Widjajanti, 2014; Wiyatrini et al., 2023).

This diversity of findings suggests that the presence of street vendors cannot be assessed in a binary manner as purely beneficial or detrimental. Public perceptions are highly contextual and influenced by factors such as location, activity intensity, spatial orderliness, functional compatibility, and user characteristics. Despite numerous studies discussing comfort, liveliness, and social interaction, limited empirical research has explicitly examined which

factors most strongly determine the continuity and livability of public spaces in the presence of street vendors. This research addresses a gap in the existing literature and offers a more integrative understanding of how street vendor activities can coexist with sustainable public space management.

LITERATURE REVIEW

Activity Support

Cities as centers of activity will continue to grow along with the development of areas that encourage various community activities, where activity support elements play an important role in strengthening the character and function of public spaces within them (Adwitya, 2017; Wirasa, 2022). Activity support can arise in a planned and unplanned/spontaneous manner as a driver of urban activity functions that are closely related to the purpose of building public open spaces (Wirasa, 2022). Activity support is an important element in urban design, encompassing various functions and activities within it (Shirvani, 1985) and its presence of activity support can serve as a key driver of urban life dynamics (Amalia et al., 2021).

According to Mustikowati et al. (2015), the criteria for designing activity support include the diversity and intensity of activities presented, coordination between activities and the designed built environment, consideration of contextual aspects, measurable forms and locations of spaces or facilities that accommodate and are based on human scale. Commercial activities are part of activity support that plays a role in strengthening urban public spaces, due to the complementary relationship between the two (Paputungan et al., 2023). One form of activity support that utilizes public space is street vending, whose presence in public spaces is often considered an element of spatial disorder and spatial planning in urban areas (Widjajanti et al., 2020, 2022).

According to Sonaesti & Sari (2022) the most dominant activity support is street vendors, which results in activities that support the main benefits of public open spaces being marginalized and less than optimal. The presence of street vendors leaves trash in public open spaces, affects ecological and aesthetic functions, causes traffic impacts, reduces facilities, and disrupts road access (Pratiwi et al., 2022; Rahman et al., 2020). Furthermore, street vendors encroach on spaces that should be reserved for visitor facilities and sports activities and cause changes in planned zoning functions (Irwan et al., 2019).

However, there are several positive impacts of street vendors on public open spaces. The presence of street vendors can influence social functions and express local identity, particularly through traditional food trade (Rahman et al., 2020). Research conducted in Ahmedabad, India, shows that street vendors enhance the experience of space by making areas more lively, safer, and more comfortable (Deore & Lathia, 2019). Street vendors also play a vital role in

enhancing social cohesion and social sustainability by encouraging active involvement from various social classes in public spaces (Zaman & Ahmed, 2023). Rahayu et al. (2019) reveal that the arrangement of street vendors that considers location, aesthetics, security, and cleanliness contributes to the creation of more orderly and active public spaces.

Public Space Continuity and Livability

As a key element in urban development, public spaces play an important role in supporting urban life through their function as open spaces that accommodate various community activities, as well as contributing to creating harmony in urban lifestyles and improving the overall quality of the urban environment (Kustianingrum et al., 2013; Rahman et al., 2020). Public spaces are areas that can be accessed and utilized by all levels of society, which not only function as places for recreation, entertainment, or sports, but also play a role in supporting various supporting activities related to the main functions of an area (Shirvani, 1985; Tiesdell & Carmona, 2007). Public space is an important component of the urban environment because it contributes to improving livability (Praliya & Garg, 2019). Livability is the suitability of a place for comfortably meeting daily and long-term needs (Ahmed et al., 2019) while its quality is also shaped by continuity, which includes spatial and visual relationships that allow easy access for all users (Brandão & Brandão, 2017). Experiencing continuity in public spaces in daily life plays a fundamental and practical role in shaping our sense of identity, well-being, and belonging (Chang, 2020).

The existence of street vendors has a complex impact on public spaces. On the one hand, street vending activities can create dynamic neighborhoods and open up economic opportunities through the diversity of products offered to the community. However, on the other hand, the unregulated use of space causes disturbances to accessibility, cleanliness, and the visual quality of public spaces, requiring systematic efforts to ensure that street vendors contribute positively to the overall quality of public spaces (Oktaviani & Wibisono, 2024). However, problems arise when street vendors operate outside designated locations, exceeding their role as activity support and disrupting the circulation of space, thereby adding to urban spatial planning challenges (Wiyatrini et al., 2023).

This dynamic shows that street vendors can both enhance and challenge the continuity and livability of public spaces. Therefore, public spaces must be accessible to all groups, facilitate movement, and provide good visual access, supporting urban health and comfort (Sepe, 2025). Thus, the integration of proper street vendor management, good space management, and strategic placement of facilities can strengthen the continuity and livability of public spaces while minimizing the negative impacts of unregulated informal activities.

RESEARCH METHODOLOGY

This study covers 16 public spaces in the Surakarta Urban Area, as illustrated in Figure 1. These locations have been designated by the local government as special zones for controlling street vendor activities as part of a comprehensive policy to manage the informal sector in public spaces. The criteria for selecting these locations were the presence of formally organized street vendors, which allowed for an assessment of public perceptions of their informal presence in public spaces. These locations represent different functions of public space and are characterized by intense social interaction and urban activity.

In addition, the selected locations were also identified as potential references for developing design guidelines regarding the presence of street vendors in public spaces. Several spatial considerations were identified from the existing conditions of street vendor distribution, including proximity to areas with high public activity, accessibility to pedestrians, continuity with previous vending locations, proximity to residential areas, and the availability of public land managed by the government. These considerations were used to evaluate the suitability of street vendor locations in supporting public space activities without disrupting the primary function of the space.

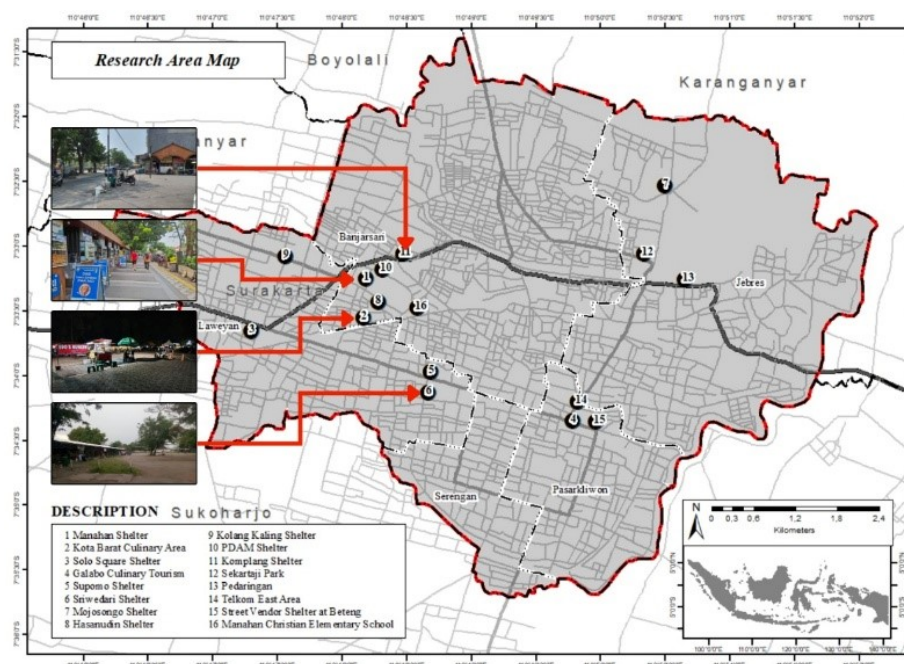


Figure 1: Geographic location of the study area

Source: Author

Respondents in this study were individuals who were active in public open spaces at 16 locations (Figure 1). Respondents were selected randomly by surveyors, so that every public space user at each location had an equal chance of being selected as a sample.

This study used a questionnaire that was developed through a process of variable operationalization. The variable of street vendor presence was operationalized into 10 main indicators in Table 1, which were then broken down into questionnaire items to measure respondents perceptions.

Table 1: Research Indicator

Indicator	Operational Definition
Image and visual quality	The street vendor's impact on public space's aesthetics
Binding spaces and transit spaces	The impact of street vendor as an attraction on public space visits
Social function	The role of street vendors and their impact on local culture
Vibrant and lively impression	The street vendor's role in the dynamics and public bustle
Enhancing space experience	The influence street vendors as catalyst for public space utilization
Improving public space safety	The role of street vendors concerning safety in public space
Increasing activity	The role of street vendors in public space activities
Does not change zone function	The consequences of street vendors on the misuse of space within common public venues
Does not disrupt main activities	The consequences of street vendors on the function of public space
Does not reduce environmental quality	The consequences of street vendors on the environmental value

Source: Author

There were 68 respondents distributed proportionally across street vendor locations in public spaces in Surakarta City. These respondents were people who were currently or had previously engaged in activities in public spaces in Surakarta City. The questionnaire consisted of several sections, as follows: (1) Respondent Profile; (2) Perceptions regarding the existence of street vendors in public spaces, measured using a five-point Likert scale ranging from "1" for Disagree, "2" for Disagree somewhat, "3" for Neutral, "4" for Agree, and "5" for Agree strongly.

Data analysis in this study used the Partial Least Squares–Structural Equation Modeling (PLS–SEM) method, which is a multivariate statistical technique for analyzing the relationships between latent variables simultaneously. Model evaluation was carried out in two main stages, namely outer model and inner model testing. Outer model testing includes construct validity and reliability testing, including checking for multicollinearity and indicator significance for formative constructs, as well as reliability and

convergent validity testing for reflective constructs. Meanwhile, inner model testing includes analysis of the coefficient of determination (R^2), predictive relevance, model fit evaluation, and testing the significance of relationships between variables using the t-test through the bootstrapping procedure.

ANALYSIS AND DISCUSSION

Outer Model

In this study, Variable X uses a formative approach because its indicators are different aspects that form the understanding of “the existence of Street Vendors”. Meanwhile, Variable Y or continuity and livability uses a reflective approach because its indicators are manifestations of latent variables. Therefore, for Variable X, the outer model is viewed based on the Multicollinearity or Outer VIF value and the Significance of Indicator Weights (t-value). For Variable Y, the outer model is viewed based on Indicator Reliability, AVE Value, and HTMT (Heterotrait-Monotrait). The measurement model was evaluated by examining convergent validity through the outer loading values of reflective constructs, where indicators with loadings of 0.70 or higher were considered acceptable. Indicators with outer loadings between 0.50 and 0.69 were retained provided that the Average Variance Extracted (AVE) exceeded 0.50, the Composite Reliability (CR) was above 0.70, and the indicators were statistically significant (t -value > 1.96). These criteria follow the recommended guidelines for PLS-SEM measurement model assessment (Hair & Alamer, 2022). The SEM-PLS model form of this study can be seen in Figure 2.

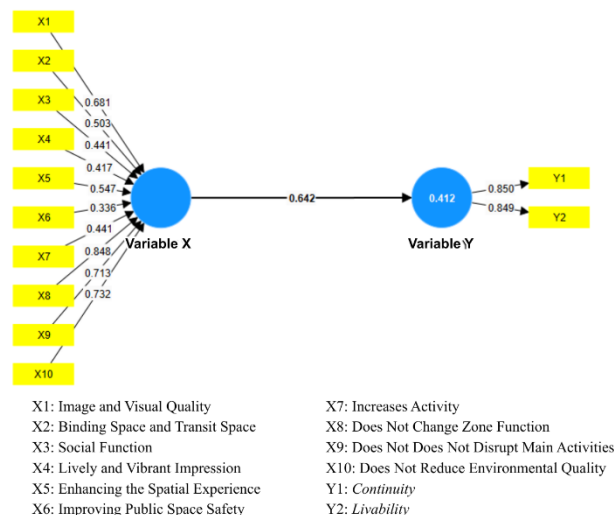


Figure 2: SEM-PLS Model
Source: Author's Calculation

Inner Model

Based on the results of the outer weights analysis in Table 2, only two formative indicators, namely X8 and X9, were proven to significantly shape the Street Vendors Existence construct. Indicator X8 had the greatest influence with a weight of 0.655 ($p = 0.001$), followed by X9 with a weight of 0.509 ($p = 0.006$). This shows that among all indicators that shape perceptions of Street Vendors existence, these two aspects are the most important contributors in influencing visitors' perceptions of the continuity and livability of public spaces. The contribution of each formative indicator to the Street Vendors Existence construct shows quite significant variation. Of the ten indicators tested, X8 was the most influential indicator with an outer weight of 0.655, a t-statistic of 3.383, and a p-value of 0.001, indicating a significant contribution to visitors' perceptions of the existence of street vendors in public spaces. Indicator X9 also made a strong contribution with an outer weight of 0.509, a t-statistic of 2.757, and a p-value of 0.006. This indicates that these two indicators are the main factors influencing perceptions of the existence of street vendors and indirectly affect the continuity and livability of public spaces.

Meanwhile, several other indicators show weaker or even negative contributions. For example, X5 has a weight of -0.006 ($p = 0.978$), X7 -0.200 ($p = 0.288$), and X4 -0.120 ($p = 0.564$), which indicates that their influence on the Street Vendors Existence construct is not statistically significant. Other indicators such as X3, X2, X10, X6, and X1 have positive but small weights and are also insignificant. However, in the formative construct, insignificant indicators are not automatically removed because each indicator is retained based on theoretical grounds and conceptual relevance. Small or negative weight values still enrich the construct and reflect variations in visitors' perceptions of various aspects of Street Vendors existence.

Table 2: Outer Weight Analysis

Indicator	Outer Weight	T-stat	P-value	Description
X8	0.655	3.383	0.001	Most Influential, Significant
X9	0.509	2.757	0.006	Very Significant, Strong Contribution
X5	-0.006	0.028	0.978	Not Significant, Very Weak Contribution
X7	-0.200	1.062	0.288	Negative, Not Significant
X4	-0.120	0.576	0.564	Negative, Not Significant
X3	0.114	0.553	0.58	Positive, Weak, Insignificant
X2	0.09	0.536	0.592	Positive, Weak, Insignificant
X10	0.101	0.441	0.659	Positive, Weak, Insignificant
X6	0.07	0.396	0.692	Positive, Very Weak, Insignificant
X1	0.044	0.188	0.85	Positive, Very Weak, Insignificant

Source: Author's Calculation

Analysis of Street Vendor's Influence on Public Space Continuity and Livability

The results of the analysis show that the presence of street vendors selectively affects the continuity and livability of public spaces, whereby not all indicators that form the construct of street vendor presence contribute significantly. Of the ten indicators tested, only indicators X8 (does not change zone function) and X9 (does not disrupt main activities) were found to significantly influence public perceptions of the continuity and livability of public spaces. These findings indicate that perceptions of the continuity and livability of public spaces are determined more by the preservation of space functions and the absence of disruption to main activities than by visual, social, or activity intensity aspects presented by street vendors.

In the continuity variable, the significance of the indicator not altering the functional zoning indicates that the sustainability of public space use is strongly influenced by the perception that the presence of street vendors does not cause functional deviation. This finding can be explained through the concept of activity thresholds proposed by Gehl (2011), which suggests that informal activities may enrich public spaces only up to a certain point. Once such activities begin to interfere with primary functions and circulation, perceptions of spatial quality tend to decline. Within the continuity variable, the significance of the indicator not altering zone function further demonstrates that the sustainability of public space use is closely associated with perceived functional stability. This result is consistent with Carmona (2021), who emphasizes that the success of public spaces is more strongly determined by functional clarity and effective spatial management than by activity intensity alone.

When street vendors are perceived as not causing functional shifts or deviations, public spaces are regarded as usable in a consistent and sustainable manner. This finding aligns with Damanik (2021), who argues that informal activities have the potential to alter spatial functions if not properly managed. Similarly, Widjajanti & Wahyono (2018) highlight the importance of placing street vendors in appropriate and designated locations to prevent disruptions to the order and functionality of public spaces.

Indicators that do not interfere with main activities also have a significant effect on continuity, which shows that the regularity of main activities, such as recreation, social interaction, and pedestrian movement, are important factors in shaping perceptions of the sustainability of public spaces. When street vending activities do not hinder these main functions, public spaces continue to be perceived as having a stable rhythm of use. This reflects the coexistence of formal and informal activities in public spaces (Patil et al., 2025). Although previous studies have shown that informal activities can strengthen social interaction and increase the utilization of public spaces (Ali & Baper, 2023;

Deore & Lathia, 2019), these findings indicate that these aspects have not been directly translated into the sustainability of public space use by the community. In contrast to perspectives that equate vitality with spatial quality, (Gan & Bian, 2022) emphasizes that high levels of activity intensity do not necessarily correspond to increased comfort or long-term sustainability of public spaces. This perspective reinforces the findings of the present study, which indicate that the vibrancy introduced by street vendors does not automatically enhance either the continuity of public spaces.

In the livability variable, the emerging influence patterns are relatively similar. The indicator of not changing the function of the zone shows that changes or deviations in the function of space are perceived as factors in the livability of public space. Users perceive public spaces as more livable when street vending does not shift or encroach upon their intended functions, such as circulation, leisure, social gathering, or recreation. Sandhika et al. (2024) argue that vendors' spatial arrangements influence the dynamics and sustainability of public space use and that unmanaged spatial shifts can lead to conflicts with planned function and environmental comfort. When the presence of street vendors does not shift the function of public space, the space is still considered comfortable and suitable for use. This is in line with Ojeda & Pino (2019) who state that informal activities can contribute positively to public spaces as long as they do not cause spatial conflicts and excessive density.

The indicator of not interfering with main activities also has a significant effect on livability, which shows that the comfort of public spaces is closely related to the smooth running of users' main activities. When street vendors do not obstruct pedestrian circulation or social activities, public spaces are still perceived as livable. When pedestrian circulation, social interaction, and core activities occur without obstruction from street vendors, users report higher comfort levels. This supports the notion that livability is tied to ease of movement and predictable use patterns, which street vendors can either support or disrupt based on their spatial placement (Widjajanti et al., 2025). This is consistent with inclusive design strategies that emphasize accessibility, circulation, and physical safety as fundamental components of comfortable and livable spaces.

This finding is in line with Patil et al. (2025), who emphasize that the presence of street vendors can increase accessibility and ease of use of space if they are placed appropriately. The indicator not interfering with primary activities also shows a significant effect on livability, indicating that perceptions of public space comfort are closely related to the smooth functioning of users' primary activities. When street vendors do not obstruct pedestrian circulation or social activities, public spaces continue to be perceived as livable. This finding reinforces the view of Patil et al. (2025) regarding the importance of appropriate street vendor placement in supporting ease of spatial use. However, the present

study adds that increased accessibility and activity do not automatically translate into higher perceptions of livability if they are not accompanied by functional control and spatial order.

Research into street vendor dynamics suggests that when vending locations are integrated into daily pedestrian flows, without spatial conflicts, they can foster social interaction and a sense of community (Rahayu et al., 2025). While some studies focus on governance tensions between order and social vibrancy, they indicate that poorly regulated setups reduce both safety and social cohesion. This highlights the importance of functional order in balancing vendor activities with safe, sociable public use. Although various studies emphasize the role of street vendors in improving public space comfort, vitality, and socioeconomic function (Al-Jundi et al., 2022; Torky & Heath, 2021; Ulfa et al., 2025) the findings of this study suggest that these contributions are not directly perceived as improvements in public space livability.

This aligns with research indicating that unregulated street vendor activities can lead to spatial disorder and reduced environmental aesthetics, which in turn diminish users' perception of comfort and quality in public space (Phen et al., 2025). Additionally, respondents' neutral to negative perceptions of visual and environmental quality reinforce the notion that despite socioeconomic benefits, street vendor presence may contribute to degradation of visual and environmental conditions, which undermines the perceived livability of public spaces. Tian et al. (2025) argue that visual perception and pedestrian satisfaction confirms that the arrangement and visual clarity of urban elements significantly influence perceived comfort in public spaces. A public space that maintains visual order such as clear circulation paths, spatial hierarchy, and unobstructed sightlines tends to be rated as more livable. These perceptual qualities overlap with functional order, as users interpret cluttered or chaotic arrangements as discomfort, while orderly visual and spatial design enhances ease of use and orientation. Such impacts have been observed in other contexts where street vending contributes to conflicts in space use, compromised environmental aesthetics, and reduced comfort if not properly managed (Rahman et al., 2020) further highlight that although street vendors contribute positively to socioeconomic aspects, their presence has the potential to reduce the ecological and aesthetic value of public spaces. Respondents' neutral to negative assessments of visual and environmental quality also support findings from studies emphasizing the need for visual and environmental management to preserve public space quality (Yadewani & Syafrani, 2018; Zhang & Shao, 2024).

CONCLUSION

This study analyzes the effect of street vendors in public spaces on continuity and livability based on the perceptions of space users. Using the PLS-SEM approach,

the presence of street vendors is modeled as a formative construct, while continuity and livability are modeled as reflective constructs, to understand how informal activities affect the quality of public spaces. Based on the results of the discussion, it can be concluded that the influence of the presence of street vendors on the continuity and livability of public spaces is determined by the indicators does not change zone function (X8) and does not disrupt main activities (X9). This shows that public perception is more influenced by the regularity of space utilization and the smooth running of activities than by other characteristics of street vendors activities.

Indicators related to enjoyment, social function, safety, increased activity, and visual and environmental quality do not have a significant effect on continuity and livability. This shows that the level of crowding or intensity of street vendor activity is not sufficient to shape the perception of a sustainable and livable public space without the support of functional suitability. Thus, these indicators serve as complementary elements that enrich the spatial experience, but they are not determining factors in shaping perceptions of continuity and livability. These findings emphasize the need for urban spatial planning policies and strategies that integrate street vendors in a managed manner into the public space system. An approach that focuses on regulating spatial functions, controlling main activities, and clear spatial governance has the potential to maintain continuity and livability without eliminating the socio-economic role of street vendors.

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DISCLOSURE STATEMENT

The authors declare that there is no conflict of interest related to this research.

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