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# "Unequal cities": class-based spatial stereotyping in urban contexts

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**Abstract**
Socioeconomic segregation increasingly structures contemporary cities, yet little is known about how social class stereotypes shape the perception of the neighborhoods where different groups live. Building on the Stereotype Content Model, the present research examines whether class-based stereotypes extend from social groups to urban space. Across four studies ($N$=717) using complementary methods, including correlational survey measures, experimental manipulations of neighborhood social class, and a visuospatial mapping task assessing mental representations of urban space, we show that neighborhoods are perceived through an ambivalent, class-based lens. High-status neighborhoods are consistently perceived as more efficient (the spatial analogue of competence) than low-status neighborhoods and as more efficient than warm, whereas low-status neighborhoods are perceived as warmer than efficient, with no systematic differences in overall warmth between neighborhood types. In addition, participants mentally map wealth closer to the city center and associate it with pleasant locations, while poverty is represented as more peripheral and linked to unpleasant or neglected areas. A small-scale meta-analysis confirms the robustness of efficiency-related effects and the absence of systematic warmth differences across studies. Together, these findings reveal that class-based stereotypes shape not only evaluations of social groups but also the cognitive representation of urban space, extending stereotype content theory to the spatial domain and highlighting the psychological foundations of urban inequality.

**Keywords** Class-based stereotypes · Urban context · Social classes segregation · Socioeconomic inequalities · Inclusive cities

## Introduction

The phenomenon of global urbanization (UN, 2019), and the parallel increase in socio-economic inequalities worldwide (Van Ham et al., 2021), are leading to growing socio-economic segregation, defined as the residential segregation of social groups based on occupation, income, and education level (Musterd, 2005; Reardon & Bischoff, 2011). In many contemporary cities, wealthier social classes tend to concentrate in well-serviced areas, while lower-status groups are disproportionately relegated to disadvantaged and peripheral neighborhoods (Atkinson & Blandy, 2013; Van Ham et al., 2021).

As urban spaces, particularly neighborhoods, are increasingly characterized in terms of the social class of their residents, it becomes crucial for psychological research to examine how such class-based associations shape the perception of urban environments. Rather than focusing on objective spatial inequalities, the present research examines how attributes stereotypically associated with higher- and lower-status social groups extend to the neighborhoods associated with them, thereby influencing how rich and poor neighborhoods are evaluated and mentally represented. In this sense, evaluations of urban space may reflect not only physical features of neighborhoods, but also socially shared beliefs about the people who are assumed to live there.

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## The bidirectional relationship between space and social groups

Research in social cognition has long shown that physical environments shape cognitive processes and social perception, with spatial and social identity being closely intertwined (Proulx et al., 2016). However, much of this work has examined how environmental cues influence the perception of people, including impression formation, stereotype activation, and social evaluation.

Specifically, research on stereotyping demonstrates that environmental contexts play a central role in activating and shaping stereotypical associations. Stereotype activation depends on the congruence between social categories and situational cues, such that stereotypical attributes are more likely to be activated in contexts that match culturally shared associations (Chiu et al., 1998; Casper et al., 2010). For example, stereotypical links between social groups and attributes (e.g., regional groups and cultural practices) emerge selectively when contextual cues render these associations salient.

Contextual environments can also amplify negative stereotypes. Threatening or negative contexts have been shown to trigger unfavorable stereotype activation toward outgroup members, affecting immediate evaluative and motor responses (Capellini et al., 2016). Similarly, background scenes influence implicit attitudes: exposure to stereotypical versus counter-stereotypical settings can strengthen or attenuate automatic evaluations even under conditions of minimal cognitive control (Wittenbrink et al., 2001). This body of work also highlights the flexibility of stereotypes, showing that the same social category can activate different trait inferences depending on comparative or situational contexts (Van Rijswijk & Ellemers, 2002; Guinote & Fiske, 2003). By contrast, far less attention has been devoted to the reverse process: how stereotypes about social groups shape the perception and evaluation of the spaces they inhabit.

Recent research has begun to address this gap through the study of *space-focused stereotypes* (Bonam et al., 2016). Space-focused stereotypes refer to generalized evaluations of physical places that are closely associated with particular social groups, whereby characteristics attributed to groups are transferred to the environments they inhabit. These representations often portray places associated with marginalized groups as unsafe, deprived, or socially problematic, shaping how spaces are evaluated, emotionally experienced, and socially engaged with.

Empirical evidence documents space-focused stereotypes across a range of social categories and contexts. In the United States, neighborhoods associated with Black Americans are perceived as impoverished, crime-ridden, and undesirable, with downstream consequences for emotional attachment to place, housing valuation, and willingness to protect these environments (Bonam et al., 2016; Yantis & Bonam, 2020). Crucially, difficulty in imagining Black neighborhoods as stably middle class has been shown to reinforce negative evaluations and contribute to the persistence of racialized spatial inequalities (Yantis & Bonam, 2020). Similar patterns have been observed in Germany, where immigrant neighborhoods are systematically associated with danger, dirtiness, and low social status, even among individuals who do not personally endorse these stereotypes, suggesting that such representations operate as shared cultural knowledge (Essien & Rohmann, 2024).

Space-focused stereotypes have also been identified in relation to other stigmatized social categories. Communities associated with health-related stigma, such as HIV, are evaluated more negatively and elicit lower approach intentions, with these effects mediated by both cognitive evaluations of the space and affective responses such as perceived threat (Wen et al., 2022). Place-based stereotyping processes have also been observed beyond residential segregation, extending to the symbolic organization of public space. For instance, recent psychological work shows that urban environments are systematically associated with masculinity rather than femininity, reflecting gendered representations of public space that are widely shared and culturally reinforced (Sacchi et al., 2025).

Despite these advances, two important gaps remain. First, existing research on space-focused stereotypes has devoted limited attention to social class, despite the central role of socioeconomic stratification in structuring urban space and residential segregation (Musterd, 2005). Moreover, when social class has been examined, it has typically been embedded within racialized representations of space. Specifically, research on Black neighborhoods in the US shows that class-related attributes such as poverty, desirability, and housing quality are systematically inferred from racial cues (Yantis & Bonam, 2020). As a result, class-based evaluations of space are often filtered through race, making it difficult to disentangle representations of social class per se from racialized space stereotypes.

Second, space-focused stereotypes have largely been conceptualized in unidimensional terms, relying on global positive–negative evaluations of places. Such approaches overlook the possibility that neighborhoods may be perceived in ambivalent ways, combining positive and negative attributes rather than eliciting uniformly favorable or unfavorable impressions. Ambivalence is a well-established feature of social class perception, with higher- and lower-status groups often evaluated through mixed profiles that blend admiration and resentment, or warmth and threat. Extending this logic to the spatial domain, the present research examines whether similar ambivalent patterns characterize

perceptions of neighborhoods associated with different social classes. To do so, we draw on the Stereotype Content Model (SCM; Fiske et al., 2002) as a conceptual framework that allows ambivalence in social perception to be systematically examined across distinct evaluative dimensions.

## The ambivalent perception of social class

Social class stereotypes are characterized by a fundamentally ambivalent structure (Durante et al., 2017). Rather than being evaluated along a simple positive-negative continuum, social classes are typically represented through mixed profiles that combine both positive and negative attributes. This distinction is crucial, as global evaluations of favorability or unfavorability fail to capture how admiration and disapproval can coexist within the same social target (Cuddy et al., 2008). Across cultural contexts, higher-status groups tend to be perceived as more competent, intelligent, and capable, but also as colder, less trustworthy, and more self-interested. Conversely, lower-status groups are often seen as warmer and more communal, yet simultaneously as less competent, less capable, or even dehumanized (Durante et al., 2017). This ambivalence allows social hierarchies to be cognitively maintained while preserving a sense of moral balance between admiration and resentment (Cuddy et al., 2008; Durante et al., 2017).

Crucially, this ambivalent structure is not incidental but plays a central role in the psychological maintenance of inequality (Durante et al., 2017). By distributing positive and negative traits across different dimensions rather than collapsing evaluations into a single dimension of valence, class stereotypes legitimize status differences without relying on uniformly negative portrayals of disadvantaged groups or uniformly positive portrayals of advantaged ones. In this sense, ambivalence represents a key organizing principle through which social class disparities are rendered psychologically acceptable, reducing the likelihood that existing hierarchies are questioned or contested (Cuddy et al., 2008; Durante et al., 2017).

The Stereotype Content Model (SCM; Fiske et al., 2002) provides a formal framework for capturing this ambivalence by distinguishing between warmth and competence as two fundamental dimensions of social perception. As urban space becomes increasingly associated with social class, it is therefore plausible that similar ambivalent class-based representations extend beyond social groups to the neighborhoods they are perceived to inhabit.

Applying this perspective to physical environments builds on the idea that urban spaces, particularly neighborhoods, are not perceived as neutral backdrops, but as socially meaningful entities that embody identities, power relations, and patterns of inclusion and exclusion. Research in environmental and community psychology has long shown that places actively shape psychological experience and are interpreted through shared social representations (see Di Masso, 2025). From this perspective, people may respond to places in ways that parallel their responses to social targets, relying on analogous evaluative dimensions.

However, when the target of evaluation is a physical environment rather than a social group, these dimensions require conceptual adaptation. In the spatial domain, warmth can be understood as the perceived affective tone of a place, such as whether it feels welcoming or inviting. Competence, by contrast, is inherently agentic and cannot be directly attributed to environments without implying intentionality. We therefore operationalize this dimension at the spatial level through perceived neighborhood *efficiency*, defined as the extent to which a neighborhood is seen as functionally organized, well-serviced, dynamic, and conducive to goal-directed activity.

## Dimensions of neighborhood perception in low- versus high-status contexts

Beyond warmth and efficiency, perceptions of urban neighborhoods may also include judgments of neglect. In contexts of residential segregation, low-status neighborhoods are frequently described as neglected, decaying, or abandoned in both urban policy discourse and everyday representations of the city (Allen et al., 2012; Andersen, 2002; Lombard, 2015). These judgments are grounded in visible cues of disinvestment such as physical deterioration, disorder, and lack of services, which become salient markers through which socioeconomic disadvantage is inferred and made meaningful.

Notably, perceived neglect does not constitute a dimension of stereotype content in the strict sense. Rather, it reflects evaluations of whether a place appears cared for or left to deteriorate, based on observable signs of upkeep, institutional presence, and public attention (Skogan, 1992). Nevertheless, neglect features prominently in research on space-focused stereotypes. Studies consistently show that neighborhoods associated with marginalized social groups are represented as dirty, deteriorated, or run-down, and that these representations shape emotional responses to place, place attachment, and willingness to invest in or protect neighborhoods (Bonam et al., 2016; Yantis & Bonam, 2020). In this sense, perceived neglect can be understood as a key outcome of class-based spatial representations, translating social disadvantage into visible and affectively charged characteristics of place.

Judgments of neglect are closely intertwined with broader socio-spatial logics that structure urban inequality, most notably the symbolic organization of cities along

a center–periphery axis. Sociological and philosophical accounts emphasize that urban centers concentrate economic activity, services, and symbolic authority, whereas peripheral areas are systematically marginalized and excluded from political, economic, and cultural resources (Harvey, 2009; Sassen, 2001). Development policies and investment patterns tend to reinforce this asymmetry, privileging central districts while leaving peripheral neighborhoods more vulnerable to disinvestment and decline (Brenner & Schmid, 2015; Zukin, 1991).

From this perspective, center and periphery function not merely as geographic locations but as complementary and hierarchical categories of meaning. The center operates as the locus where norms, values, and distinctions are produced, whereas the periphery receives these meanings and is positioned as marginal or deficient (Schneider & Shils, 1975). Interestingly, this socio-spatial hierarchy resonates with more general principles of social cognition. Research on social networks shows that central positions within relational structures are consistently associated with greater influence, visibility, and power, whereas marginal positions signal reduced impact and exclusion (Kameda et al., 1997). When applied to urban contexts, these relational schemas may be spatialized through center–periphery distinctions, allowing social hierarchies to be cognitively mapped onto physical space.

Despite the centrality of center-periphery dynamics in sociological and urban theory, this spatial dimension of socioeconomic inequality has received limited attention as a psychological component of neighborhood perception. While urban studies have extensively documented how centrality and marginality structure access to resources, visibility, and power, far less is known about how these spatial hierarchies are cognitively represented and subjectively perceived by individuals. In the present research, we address this gap by incorporating *perceived centrality* as a key outcome of class-based spatial representations. By focusing on subjective perceptions of center and periphery rather than solely on objective distance or urban morphology, we examine how longstanding socio-spatial hierarchies are translated into shared mental representations of urban neighborhoods. In doing so, we bridge insights from urban theory with social-cognitive approaches, highlighting centrality as a psychologically meaningful dimension through which socioeconomic inequality becomes mapped onto urban space.

## The present research

Although space-focused stereotypes have received growing attention, gaps remain, particularly regarding how social class shapes perceptions of neighborhoods. The present research addresses these gaps by examining class-based space-focused stereotypes through a multidimensional framework. Specifically, we apply the Stereotype Content Model (SCM) to capture ambivalent evaluations of neighborhoods in terms of warmth and efficiency, and we extend this approach by considering two additional spatial dimensions that are particularly relevant in contexts of urban stratification, i.e. perceived neglect and center-periphery position.

Neglect closely tied to socioeconomic disadvantage and residential segregation (Allen et al., 2012; Andersen, 2002; Bonam et al., 2016; Lombard, 2015). Perceived spatial positioning captures the extent to which neighborhoods are cognitively located closer to the city center or toward the urban periphery, a distinction that may functions as a marker of social status and marginality in urban contexts. Together, these dimensions allow us to examine how social class is mapped onto urban space not only through affective and functional evaluations, but also through representations of spatial position.

We conducted four studies to examine whether the social class of neighborhood residents influences how neighborhoods are perceived. We formulated three main hypotheses:

*H1*: Status differences would be reflected in both physical and symbolic distance, with wealthy neighborhoods associated with central, influential areas, and poorer ones with peripheral, marginalized spaces.
*H2*: Ambivalent class-based stereotypes would extend to neighborhoods: high-status areas would be seen as more efficient and less warm, while low-status areas would appear warmer but less efficient.
*H3*: Neglect would be more strongly associated with low-status neighborhoods, reinforcing perceptions of abandonment and disadvantage.

Across four studies, we adopted a cumulative research strategy to examine how social class shapes the perception of urban neighborhoods. Study 1 provided an initial test of the hypotheses by examining through a correlational approach whether neighborhoods associated with different social classes are systematically evaluated along dimensions of center-periphery continuum, warmth, efficiency, and neglect. Study 2 built on these findings by introducing an experimental manipulation of neighborhood social class, allowing us to test the causal role of class-based representations in shaping spatial evaluations. Study 3 extended the investigation to explicitly spatial representations by examining how class-based stereotypes are projected onto urban space using map-based measures, thereby capturing how social class is cognitively mapped onto the city.

Finally, Study 4 more directly isolated the stereotyping process by testing whether attributes typically associated

with social classes are transferred to the neighborhoods perceived as inhabited by those groups. To provide an integrative assessment of the robustness and consistency of the effects observed across studies, we additionally conducted an internal meta-analysis synthesizing the results of the four studies.

All studies received ethical approval from the Ethics Committee of the Department of Psychology at University of Milano-Bicocca (protocol no. RM-2023-642) and were conducted in accordance with the Declaration of Helsinki. All adult respondents voluntarily agreed to participate after receiving comprehensive information and accepting the written informed consent form at the beginning of each survey. Datasets and analyses codes are publicly available on OSF [https://osf.io/d3kqz/?view_only=d4e534be639143508c59c39da135c5f6].

## Study 1

The objective of the first study was to explore whether stereotypes related to social classes are also extended to urban neighborhoods occupied by the same social classes.

### Participants

The study involved a sample of Italian speakers over the age of 18. Given that this research was exploratory and correlational in nature and given that correlations typically do not stabilize below 250 participants (Schönbrodt & Perugini, 2013), the sample should have consisted of at least 250 people. 253 people complete the survey (see Supplementary Materials for more sociodemographic details). With such a sample size, a sensitivity analysis conducted with G*Power 3.1.9.7 indicates that we should be able to detect a correlation $r = .175$ with $\alpha = 0.05$ and statistical power $(1 - \beta) = 0.80$ (Faul et al., 2009).

### Procedure and materials

Participants completed an anonymous online questionnaire on Qualtrics. They were shown 5 photos representing different neighborhoods in Italian cities. Photos were taken from Google Street View and edited to remove city identifiers and human presence.

For each photo, participants indicated the hypothesized social class of neighborhood residents, estimate its distance from the city center, and evaluate the neighborhood according to the stereotypical characteristics associated with social classes.

Below, the measures relevant to this research are presented in more detail:

**Social class of the people who live in the neighborhood** Participants answered three questions: they estimated the average household income (0-€10,000), and the likelihoods (0–100%) that respectively a rich and a poor family live in the neighborhood.

**Distance of the neighborhood from the city center** Participants indicated the estimated number of bus stops to the city center, on a scale from 0 (center) to 10 (outskirts) stops; higher scores indicated greater distance.

**Stereotypes** As no existing scale measures stereotypes of places, we developed a 12-item list reflecting warmth and competence (efficiency). After EFA and item reduction, a 6-item scale was retained: three items for *warmth* (warm, authentic, welcoming; $\alpha = 0.71$) and three for *efficiency* (dynamic, productive, well-serviced; $\alpha = 0.69$). Ratings were given on 7-point Likert scales (1 = *Not at all*, 7 = *Very much*). Full EFA details are reported in the Supplementary Materials.

**Neglect** Perceptions of urban decay were assessed with 6 items inspired by previous research. After EFA, 3 items were retained (dangerous, neglected, and clean - reversed; $\alpha = 0.66$), rated on the same 7-point scale.

### Dataset preparation

Analyses were conducted in R (version 4.4.1). Some operations on the dataset were necessary before proceeding with the analyses.

To obtain a single variable describing the perceived social class, we first reversed the probability that the poor family lived in the neighborhood represented in the image. Since the response scales of the variables were different, we standardized the 3 measures and averaged them to form an index where higher values indicate higher social class. Cronbach's alpha was calculated for each image to assess internal consistency (mean $\alpha = 0.74$ across the five images).

### Results

Descriptive statistics are presented in Table 1.

All inferential analyses reported below were conducted using mixed-effects or Bayesian multilevel models; model assumptions and convergence diagnostics were systematically inspected and are described in detail in the Supplementary Materials.

To examine the association between perceived social class and estimated distance from the city center, we conducted a mixed-effects regression analysis using lmerTest package in R (Kuznetsova et al., 2017). Mixed-effects models account

**Table 1** Study 1. Means and SDs of the main variables

| Variable | Pic1 M (SD) | Pic2 M (SD) | Pic3 M (SD) | Pic4 M (SD) | Pic5 M (SD) |
|---|---|---|---|---|---|
| 1. Social class | −0.36 (0.70) | 0.66 (0.70) | −0.10 (0.73) | −0.07 (0.87) | −0.13 (0.81) |
| 2. Distance | 7.49 (2.08) | 2.84 (1.95) | 7.40 (2.15) | 7.53 (2.04) | 4.06 (2.45) |
| 3. Warmth | 3.66 (1.07) | 3.76 (1.05) | 3.49 (1.06) | 4.15 (1.20) | 4.08 (1.09) |
| 4. Efficiency | 2.96 (0.91) | 5.43 (0.98) | 2.96 (1.01) | 3.03 (1.06) | 4.61 (1.15) |
| 5. Neglect | 3.11 (1.00) | 3.11 (1.00) | 2.78 (1.00) | 2.70 (1.12) | 3.79 (1.09) |

for the repeated-measures structure of the data, with each participant evaluating five images. These models allow for controlling both individual variability between participants and variability between images. Consistent with our hypotheses, results showed a significant negative association: the higher the social class of the people living in the neighborhood, the closer to the city center the neighborhood was placed, $b = -1.02$, $SE = 0.07$, 95% CI [−1.16, −0.89], $p < .001$ (*H1*). The intercept was also significant, $b = 5.86$, $SE = 0.88$, 95% CI [4.14, 7.59], $p = .003$. Random effects indicated meaningful variance across participants ($SD = 1.15$) and across images ($SD = 1.96$).

Subsequently, a multivariate regression model was used to examine the influence of social class on the stereotypical dimensions of warmth and efficiency associated with the neighborhood. The data were analyzed using the brms package in R (Bürkner, 2017), which allows for the modeling of multivariate data in a Bayesian context. In this model, warmth and efficiency were specified as related dependent variables, while the social class attributed to the neighborhood was used as a fixed predictor. Random effects were specified for participants and images to account for the repeated measures structure of the data. The results are summarized in Table 2. As predicted by our hypotheses, there is a negative and statistically significant association between the social class of people living in the neighborhood and the efficiency attributed to the neighborhood: the higher the social class of the inhabitants, the more the neighborhood was perceived as efficient, consistent with stereotypes of higher social classes (*H2*). Moreover, no such association was found for warmth.

Finally, we analyzed the relationship between perceived social class and perceived neglect of the neighborhood by computing a mixed-effects regression with lmerTest package (Kuznetsova et al., 2017). Consistently with *H3*, the association between the social class of the residents and the neglect perceived in the neighborhood was significant and negative: lower social class predicted higher perceived neglect, $b = -0.51$, $SE = 0.04$, 95% CI [−0.58, −0.44], $p < .001$. The intercept was also significant, $b = 3.10$, $SE = 0.21$, 95% CI [2.69, 3.51], $p < .001$. Random intercepts indicated variability across participants ($SD = 0.35$) and across images ($SD = 0.46$).

## The role of individual variables

To test the robustness of our effects, we conducted a series of regressions incorporating perceived neighborhood status and individual characteristics such as gender, age, political orientation, education level, and subjective social status (SSS) as predictors of neighborhood distance from the city center and stereotype dimensions. The effect of social class on distance, efficiency, and neglect remained significant, while the effect on warmth stayed not significant when accounting for the individual characteristics of the participants.

**Table 2** Study 1. Multivariate regression results for the influence of social class on stereotypical dimensions of warmth and efficiency

| Predictor | Estimate | SE | 95% CI | | Var | SD |
|---|---|---|---|---|---|---|
| | | | LL | UL | | |
| *Warmth* | | | | | | |
| Fixed effects | | | | | | |
| Intercept | 3.86 | 0.27 | 3.46 | 4.34 | | |
| Social Class | 0.06 | 0.04 | −0.02 | 0.13 | | |
| Random effects | | | | | | |
| Participant | | | | | 0.44 | 0.04 |
| Image | | | | | 0.43 | 0.44 |
| *Efficiency* | | | | | | |
| Fixed effects | | | | | | |
| Intercept | 3.82 | 0.60 | 2.69 | 5.00 | | |
| Social Class | 0.34 | 0.04 | 0.26 | 0.41 | | |
| Random effects | | | | | | |
| Participant | | | | | 0.41 | 0.04 |
| Image | | | | | 1.35 | 0.57 |

## Discussion

Study 1 provided the first evidence of an association between stereotypes attributed to social classes and places occupied by those same social classes. An association emerged between the social class of neighborhood residents and the efficiency attributed to the neighborhood. However, there was no difference in the warmth dimension. It seems, therefore, that stereotypical perception in its ambivalence also applies to spaces. Similarly, poor neighborhoods are more associated with neglect and decay. Additionally, we found initial empirical evidence of an association between social class and the city center-periphery continuum. In Study 2, we attempted to replicate and expand these results using an experimental methodology.

# Study 2

The aim of Study 2 was to test our hypotheses experimentally and confirm the results obtained from the first study.

## Participants and design

As in the first study, a sample of Italian adult speakers was involved. Participants were randomly assigned to one of the two conditions (neighborhood status: high versus low, between-participants factor). An a priori power analysis for a *t*-test with $\alpha = 0.05$, statistical power $(1 - \beta) = 0.80$, and medium effect size = 0.25 indicated a sample size of at least 128 participants. The final sample consisted of 250 people. For more details on the demographic characteristics of the sample, see Supplementary Materials.

## Procedure and materials

As in Study 1, participants completed an anonymous online questionnaire on Qualtrics. They were randomly assigned to one of two conditions (high-status neighborhood: $N = 122$, low-status neighborhood: $N = 128$). All participants viewed the same seven photographs, but the accompanying textual descriptions varied to convey either high or low resident status. To check the manipulation, participants estimated the likelihood that a high- or low-status family lived in the neighborhood. Subsequently, participants estimated the neighborhood's distance from the city center and rated it on stereotypical traits and neglect.

**Manipulation and manipulation check** To manipulate perceived status without changing the neighborhood's visual features, we used identical photos across conditions and varied only the text description, which included: (1) environmental info (same in both conditions); (2) demographic data (e.g., income, unemployment, poverty risk); and (3) real estate values (e.g., rent and sale prices). National averages were also provided to aid interpretation.

To assess manipulation effectiveness, participants estimated the likelihood that the same rich and poor families from Study 1 lived in the neighborhood.

**Distance of the neighborhood from the city center** As in Study 1, participants estimated how many bus stops separated the neighborhood from the city center.

**Stereotypes** Warmth and efficiency were assessed using the same 6 items from Study 1 ($\alpha = 0.61$).

**Neglect** Perceived neglect was measured with the same 3 items used in Study 1 ($\alpha = 0.64$).

## Results

Standard model diagnostics (e.g., residual distributions, homoscedasticity, and model convergence) were inspected for all analyses; detailed results are provided in the Supplementary Materials.

As in Study 1, we reversed the probability that the poor family lived in the neighborhood and averaged it with the probability assigned to the rich family to compute a social class index. We then conducted an independent samples *t*-test to compare the two experimental conditions on this social class index. Results showed a highly significant difference between conditions, $t(248) = 14.780$, $p < .001$, 95% CI [32.44, 42.41], Cohen's $d = 1.87$, indicating that participants accurately understood the socioeconomic cues.

Then, we conducted a *t*-test for independent samples comparing the perceived distance from the city center. As expected, participants perceived the high-status neighborhood as being closer to the city center ($M = 4.24$, $SD = 2.25$) than the low-status neighborhood ($M = 5.77$, $SD = 2.06$), $t(248) = -5.635$, $p < .001$, 95% CI [−2.07, −1.00], Cohen's $d = -0.71$ (*H1*).

In addition, a mixed ANOVA was conducted to test the effect of the social class of the neighborhood residents (experimental condition: low- versus high- status neighborhood, between factor) on the stereotypical perception of the neighborhood (stereotypical dimension: warmth and efficiency, within factor). As expected, a significant interaction between the experimental condition and the stereotypical dimensions emerged, $F(1, 135.80) = 23.194$, $p < .001$, $n_p^2 = 0.09$, meaning that there is a significant difference in the stereotypical perception according to the social status of the neighborhood (*H2*).

Pairwise comparisons were conducted for each stereotypical dimension. Consistently with the results of Study 1, a statistically significant difference emerged between low- and high-status neighborhoods alongside the efficiency dimension, $t(248)=5.198$, $p<.001$, 95% CI [0.26, 0.92], Cohen's $d = 0.66$. More precisely, the high-status neighborhood is perceived as more efficient ($M=4.72$, $SD = 0.89$) than the low-status neighborhood ($M=4.13$, $SD = 0.91$). The same difference did not emerge for the warmth dimension, $t(248)=-0.389$, $p=.698$, 95% CI [−0.28, 0.19], Cohen's $d=-0.05$, thus replicating our previous results.

In addition, pairwise comparisons were conducted to investigate the differences between the stereotypical dimensions within each experimental condition. In the high-status neighborhood condition, the analysis revealed a significant difference between warmth and efficiency, $t(248)=-2.855$, $p=.013$, 95% CI [−0.49, −0.05], Cohen's $d=-0.28$. Similarly, in the low-status neighborhood condition, warmth and efficiency were significantly different, $t(248)=3.970$, $p<.001$, 95% CI [0.15, 0.59], Cohen's $d = 0.41$. Congruent with *H2*, the high-status neighborhood was perceived as more efficient ($M=4.72$, $SD = 0.89$) than warm ($M=4.45$, $SD=1.02$), whereas the low-status neighborhood was perceived as warmer ($M=4.49$, $SD = 0.87$) than efficient ($M=4.13$, $SD = 0.91$).

Finally, a *t*-test for independent samples was conducted to compare the perceived neglect. In contrast with Study 1, the analysis did not yield a significant difference, $t(248) = -1.594$, $p=.112$, 95% CI [−0.40, 0.04], Cohen's $d=-0.20$. Although the difference was not statistically significant, the pattern of means was consistent with higher perceived neglect for poor ($M=2.84$, $SD = 0.89$) than for rich neighborhoods ($M=2.66$, $SD = 0.87$).

## Discussion

Study 2 confirmed and extended the findings of Study 1: neighborhoods associated with wealthier individuals were perceived as closer to the city center and more efficient, but not significantly different in warmth or neglect. Moreover, wealthy neighborhoods were seen as more efficient than welcoming, while poorer ones were viewed as more welcoming than efficient. These results suggest that social class stereotypes influence how urban spaces are evaluated, not through a simple positive–negative lens, but in ways consistent with class-specific stereotypes. The absence of a significant effect on perceived neglect is considered in the General Discussion, where findings are integrated across studies and examined more systematically through a small-scale meta-analysis.

Study 3 tried to replicate these patterns using a map-based methodology, offering deeper insight into the symbolic role of the center–periphery divide in the perception of classed urban space.

## Study 3

Study 3 had a twofold aim: first, to replicate the findings from Studies 1 and 2 using a different methodology; second, to further explore the symbolic significance of social class positioning and neighborhood location along the center-periphery axis, beyond socioeconomic and stereotypical perceptions.

### Participants

Since we adopted an experimental design with two conditions (high-status neighborhood versus low-status neighborhood), we determined the sample size by conducting a power analysis using G*Power 3.1.9.7 for an independent samples *t*-test. The analysis was set with an alpha level of $\alpha=0.05$, a power of $1\text{-}\beta=0.80$, and an effect size of $d = 0.66$ based on the results of our previous studies. The power analysis suggested a required sample size of 72 participants to achieve adequate statistical power for detecting meaningful effects. A total of 85 participants agreed to take part in the study, completed the survey, and submitted the file containing information about their completed task. Sociodemographic details are provided in Supplementary Materials.

### Procedure and materials

Participants completed an anonymous online survey via Qualtrics. They were randomly assigned to one of two conditions: high-status ($N=40$) versus low-status neighborhood ($N=45$). All viewed the same generic city map with a highlighted neighborhood, described using the same text as in Study 2. They were instructed to study the map and memorize the neighborhood's location. As in Study 2, a manipulation check was included.

To introduce a temporal delay before the main task, participants first completed sociodemographic questions. Next, they were shown the city map again- this time without the highlighted area - and asked to redraw the neighborhood and locate a list of common urban places. Participants then estimated the distance of the neighborhood from the city center and rated it on stereotypical traits and neglect. Finally, they evaluated the perceived valence of each urban place from the list.

Below, the measures relevant to this research are presented in more detail:

**Manipulation and manipulation check** Participants viewed a city map with a marked neighborhood described as inhabited by either high- or low-status residents, using the same text and manipulation check as in Study 2.

**Task and visuospatial data** Participants were shown the same city map without the neighborhood highlighted and received a list of 10 common urban locations (e.g., hospital, train station). They were instructed as follows:

> "*This is the map of the city where you live. Your task is to recall and draw your neighborhood on the map. Once you have done this*, *place the items from the list by dragging and dropping them on the city map based on where you think they are most likely located*".

Through the integration of JavaScript and HTML in Qualtrics, we were able to collect visuospatial data: (i) the area and centroid coordinates of the neighborhood drawn by each participant; and (ii) the coordinates of each placed location.

**Mental representation of the distance of the neighborhood from the city center** As in previous studies, participants estimated the number of bus stops between the neighborhood and the city center.

**Stereotypes** We used the same 6 items to assess warmth ($\alpha = 0.62$) and efficiency ($\alpha = 0.76$).

**Neglect** We used the same 3 items ($\alpha = 0.86$).

**Locations positive valence** To consider the connotation of the placed locations, participants rated the positive valence of each on a scale from 1 (*Not at all*) to 7 (*Very much*).

## Results

Model assumptions for all main inferential analyses were systematically inspected; detailed diagnostic results are reported in the Supplementary Materials.

## Manipulation check

An independent samples *t*-test confirmed that participants correctly perceived the neighborhood's social class, $t(83) = -11.135$, $p < .001$, 95% CI [−53.52, −37.30], Cohen's $d = 2.45$.

## Distance from the city center

We calculated the distance from each drawn neighborhood's centroid to the map center using the Pythagorean theorem. Subsequently, we conducted an independent samples *t*-test on the new measure. The analysis contradicted *Hypothesis 1* and did not reveal a significant difference in the distance from the city center between high-status ($M = 45.40$, $DS = 4.45$) and low-status ($M = 41.51$, $DS = 5.43$) neighborhoods, $t(83) = 0.104$, $p = .918$, 95% CI [−2.05, 2.27], Cohen's $d = -0.02$.

However, when using the bus stop measure, the analysis yielded a significant result, confirming *Hypothesis 1*: specifically, low-status neighborhoods were placed farther from the center ($M = 6.42$, $SD = 1.64$) compared to high-status neighborhoods ($M = 5.10$, $SD = 1.97$), $t(83) = 3.370$, $p = .001$, 95% CI [0.54, 2.10], Cohen's $d = -0.74$. This apparent contradiction is discussed later.

## Neighborhood size

To examine differences in the size of the drawn neighborhoods, we conducted an independent samples t-test comparing the mean area across conditions. The initial analysis showed high variability ($SD = 263.99$ for low-status, $SD = 509.90$ for high-status), prompting us to identify and exclude 7 outliers using the IQR method (5 in the low-status, 2 in the high-status group).

After removing the outliers, a second independent samples t-test revealed a statistically significant difference in area estimates between the two conditions, $t(76) = -2.380$, $p = .020$, 95% CI [−202.55, −17.98], Cohen's $d = 0.54$. The mean area of the drawn neighborhood was wider for the high-status group ($M = 472.97$, $SD = 264.99$) compared to the low-status group ($M = 362.71$, $SD = 122.10$).

## Placement of locations on the map

We calculated the distance of each location from the neighborhood center using the Pythagorean theorem based on x/y coordinates. Independent samples *t*-tests showed that some locations were placed differently depending on neighborhood status. Notably, the cinema was positioned significantly closer to high-status neighborhoods ($p = .038$), with a trend also observed for the sports center ($p = .064$).

To classify locations by perceived valence, we conducted one-sample *t*-tests comparing each rating to the scale midpoint (4). We then computed two indices: the average distance of positive locations (park, museum, cinema, sports center, school) and of negative ones (landfill, hospital) from the neighborhood center. A 2 (neighborhood status) × 2 (valence) mixed ANOVA tested whether the placement of pleasant versus unpleasant locations varied by neighborhood type.

A significant main effect of location valence emerged: pleasant places were placed closer to the neighborhood center ($M = 33.23$, $SD = 16.45$) than unpleasant ones ($M = 50.23$,

*SD* = 24.63), $F(1, 69) = 56.114$, $p < .001$, $\eta p^2 = 0.45$. There was also a significant interaction between valence and neighborhood status, $F(1, 69) = 7.605$, $p = .007$, $\eta p^2 = 0.10$. In both conditions, unpleasant locations were placed farther than pleasant ones, but this difference was greater in high-status neighborhoods ($\Delta M = 23.92$, $p < .001$) than in low-status ones ($\Delta M = 11.34$, $p = .002$). An independent *t*-test on the valence-based distance difference confirmed this effect: $t(73) = -2.643$, $p = .010$, 95% CI [–20.33, −2.85], $d = -0.61$.

### Stereotypical perception of the neighborhood

A mixed 2 (between-subjects factor: low- versus high-status neighborhood) x 2 (within-subjects factor: warmth and efficiency) ANOVA was conducted to examine the effect of neighborhood status on stereotypical perceptions. As expected, a significant interaction between neighborhood status and stereotypical dimensions emerged, $F(1, 83) = 14.783$, $p < .001$, $n_p^2 = 0.15$, indicating that perceptions differed depending on the neighborhood's social status.

Post hoc comparisons using Tukey's method revealed significant differences in perception of efficiency between conditions, while no significant difference emerged for warmth. Specifically, participants rated the high-status neighborhood as more efficient ($M = 5.17$, $SD = 0.94$) than the low-status neighborhood ($M = 4.10$, $SD = 1.26$), $t(83) = 4.361$, $p < .001$, fully replicating our previous results from Studies 1–2.

### Neglect associated with the neighborhood

An independent samples *t*-test was conducted to examine the differences in the neglect associated with the neighborhood between the two experimental conditions. Results showed that the high-status neighborhood was associated with lower levels of neglect ($M = 2.71$, $SD = 1.24$) compared to the low-status neighborhood ($M = 4.01$, $SD = 1.21$), $t(83) = -4.896$, $p < .001$, 95% CI [−1.84; −0.78], Cohen's $d = -1.06$, thus confirming Study 1 outcomes.

### Discussion

Study 3 reinforced prior findings, showing that urban spaces are interpreted through social class stereotypes. High-status neighborhoods were perceived as more efficient and drawn as physically larger, indicating that spatial perceptions are shaped by social meaning.

The discrepancy between objective and subjective distance from the city center further supports this: even when spatial information is accurate, mental representations remain biased by class-based expectations.

Findings also confirmed the symbolic significance of the center-periphery axis: city centers were associated with power, beauty, and leisure, while peripheries were linked to neglect and everyday mundanity.

Study 4 aimed to consolidate these results by testing whether social class traits are directly projected onto their neighborhoods.

## Study 4

Study 4 examined the link between stereotypes attributed to social classes and those applied to neighborhoods. We assessed perceived warmth and competence of *individuals* (rich versus poor), and warmth and efficiency of *neighborhoods* (high versus low status), to explore potential overlaps in stereotypical representations.

### Participants and design

As in Studies 2 and 3, participants were randomly assigned to one of two conditions (high- versus low-status neighborhood). A power analysis ($\alpha = 0.05$, power = 0.80, medium effect) suggested a minimum of 128 participants; 129 Italian speakers completed the study (63 women, 61 men, 3 non-binary; *M* age = 34.5, *SD* = 11.1; political orientation: $M = 2.99$, $SD = 1.25$; SSS: $M = 5.47$, $SD = 1.48$).

### Procedure and materials

Participants, recruited via Prolific, completed an anonymous online questionnaire.

First, they rated stereotypical perceptions of *rich* and *poor* individuals in Italian society using six SCM-based traits. They were then assigned to the high-status ($N = 65$) or low-status ($N = 64$) neighborhood condition. A simplified manipulation presented the distribution of residents across five wealth levels, followed by a manipulation check. Participants also rated the neighborhood's position along the center–periphery axis and evaluated it on traits.

**Stereotypes people-related** Participants rated six SCM-based traits, three for warmth (e.g., friendly) and three for competence (e.g., skilled), for rich ($\alpha = 0.81$) and poor individuals ($\alpha = 0.87$) as perceived in Italian society (Fiske, 2018).

**Manipulation and manipulation check** A simplified graphic displayed the distribution of residents across five wealth levels. Participants rated the neighborhood's perceived wealth on a 1 (*very poor*) to 7 (*very rich*) scale.

**Distance of the neighborhood from the city center.** Perceived location was rated on a 1 (*city center*) to 7 (*outskirts*) scale.

**Stereotypes neighborhood-related.** Stereotypical perceptions of neighborhoods were measured using six items from previous studies (α = 0.74).

**Neglect** We used the same 3 items as in Studies 1–2−3 (α = 0.89).

## Results

Summary statistics of all the variables sorted by experimental condition are reported in Table 3. Prior to hypothesis testing, we verified that the assumptions of the statistical models were reasonably satisfied. Residual diagnostics did not indicate substantial violations of normality, and homogeneity of variance was supported by Levene's tests (see Supplementary Materials).

## Manipulation check

An independent samples *t*-test confirmed that the manipulation was effective, $t(127) = -28.830$, 95% CI [−5.386, −4.694], $p < .001$, Cohen's $d = -5.08$.

## Distance from the city center

The independent samples *t*-test revealed a significant difference in estimated distance depending on neighborhood status, $t(127) = 16.479$, 95% CI [3.491, 4.445], $p < .001$, Cohen's $d = 2.90$. Consistent with previous studies and *Hypothesis 1*, the high-status neighborhood ($M = 1.95$, $SD = 1.44$) was more centrally located than the low-status neighborhood ($M = 5.92$, $SD = 1.29$).

**Table 3** Study 4. Mean and standard deviation of main variables for each experimental condition

| | Italy | |
|---|---|---|
| Variables | Poor neighborhood | Rich neighborhood |
| | M (SD) | M (SD) |
| Warmth poor people-related (a) | 4.64 (0.09) | |
| Competence poor people-related (a) | 3.58 (0.12) | |
| Warmth rich people-related (a) | 3.12 (0.10) | |
| Competence rich people-related (a) | 4.64 (0.12) | |
| Manipulation check | 1.39 (0.88) | 6.43 (1.09) |
| Peripherality | 5.92 (1.29) | 1.95 (1.44) |
| Warmth | 4.11 (0.13) | 3.71 (0.12) |
| Efficiency | 3.52 (0.14) | 5.21 (0.12) |
| Neglect | 4.93 (0.98) | 2.39 (1.05) |

(a) Since we measured the warmth and competence attributed to rich and poor people before the manipulation, the descriptive statistics of these variables will not be presented separately for each experimental condition

## Stereotypes people-related

A 2 (social class: high versus low; within-participants) × 2 (trait dimension: competence versus warmth; within-participants) repeated-measures ANOVA was conducted to examine differences in the evaluation of rich and poor individuals across the two dimensions of social perception.

The analysis showed both main effects of social class ($F(1, 128) = 3.901$, $p = .05$, $\eta^2 = 0.03$) and stereotypical dimension ($F(1, 128) = 14.301$, $p = .05$, $\eta^2 = 0.03$) on trait evaluations.

Crucially, and consistent with the SCM, a significant interaction between social class and trait dimension emerged, $F(1, 128) = 156.695$, $p < .001$, $\eta^2 = 0.55$.

Post hoc comparisons confirmed that rich people were rated as more competent ($M = 4.64$, $SD = 0.12$), than warm ($M = 3.12$, $SD = 0.10$), and more competent than poor people ($M = 3.58$, $SD = 0.12$); conversely, poor people were judged as warmer ($M = 4.64$, $SD = 0.09$) than competent and warmer than rich people, $ps < 0.001$.

## Stereotypical perception of the neighborhood

A mixed-design ANOVA was conducted with neighborhood status (low versus high) as a between-subjects factor and trait dimension (warmth versus efficiency) as a within-subjects factor to examine their effects on neighborhood evaluation. As shown in Fig. 1, the analyses revealed significant main effects of neighborhood status, $F(1, 127) = 16.880$, $p < .001$, $\eta^2 = 0.12$, and trait dimension, $F(1, 127) = 24.395$, $p < .001$, $\eta^2 = 0.16$.

Specifically, participants rated the high-status neighborhood more positively than the low-status one, and efficiency higher than warmth, $ps < 0.001$.

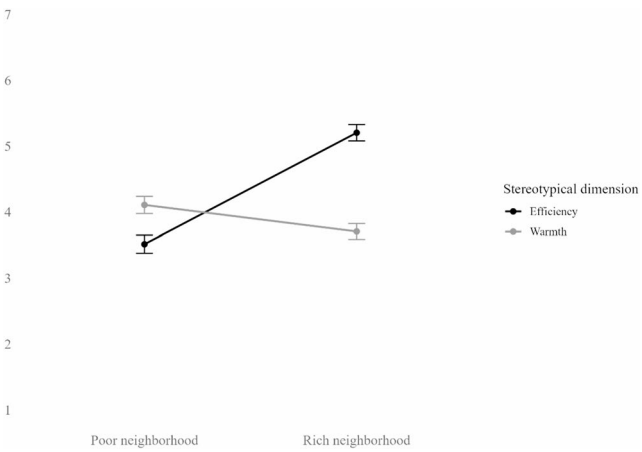


**Fig. 1** Study 4. Effect of neighborhood status on perceived warmth and efficiency

Most importantly, a significant interaction between neighborhood status and trait dimension emerged, $F(1, 127) = 133.525$, $p < .001$, $\eta^2 = 0.51$, indicating that the effect of neighborhood status varied depending on whether participants evaluated warmth or efficiency.

Pairwise comparisons were conducted to explore differences in perceived warmth and efficiency between the two neighborhoods. Results revealed that the high-status neighborhood was perceived as significantly more efficient than warm, $t(127) = -1.497$, $p < .001$. It was also rated as more efficient than the low-status neighborhood, $t(127) = -1.690$, $p < .001$. In contrast, the low-status neighborhood was seen as significantly warmer than efficient, $t(127) = 0.594$, $p < .001$. Additionally, no significant difference emerged between the neighborhoods in terms of warmth, $t(127) = 0.402$, $p = .111$, confirming findings from Studies 1, 2, and 3.

## The overlap between people- and neighborhood-traits

We next examined the extent to which the traits attributed to poor and rich individuals overlapped with those attributed to the neighborhoods. To assess the similarity between residents and their environment, we employed an idiographic approach (Robbins & Krueger, 2005; see also Sacchi et al., 2012). Because the two sets of traits were parallel (personal traits adapted to describe places), we computed within-subject correlations between the two trait groups for each participant. To normalize the distribution of these nonparametric correlations, we applied a Fisher's F transformation. A higher index thus reflects greater similarity between residents and their respective neighborhoods. In other words, the higher the score, the greater the perceived overlap between the social group and the space they inhabit.

A 2 (neighborhood status: low versus high, between-participants) × 2 (trait correlation: poor versus rich traits, within-participants) mixed ANOVA was then conducted. The analysis revealed a significant interaction effect, $F(1, 127) = 11.091$, $p = .001$, $\eta^2 = 0.08$. See Fig. 2.

Pairwise comparisons revealed that participants attributed significantly more rich-associated traits to the high-status neighborhood than to the low-status neighborhood, $t(127) = -1.001$, $p < .001$. Moreover, participants in the high-status condition attributed more rich-associated traits than poor-associated traits to that neighborhood, $t(127) = -1.102$, $p = .023$. In other words, participants attributed to the neighborhood traits typically associated with their inhabitants.

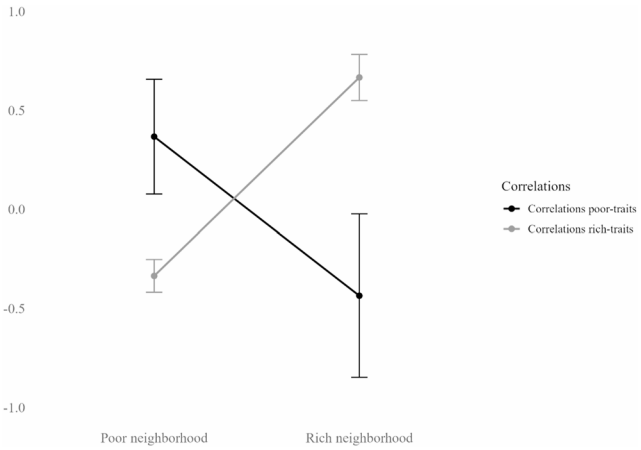


**Fig. 2** Study 4. Attribution of poor and rich traits by neighborhood status

## Neglect associated with the neighborhood

The independent samples *t*-test revealed that the high-status neighborhood was perceived as significantly less neglectful ($M = 2.39$, $SD = 1.05$) than the low-status neighborhood ($M = 4.93$, $SD = 0.98$), $t(127) = 14.201$, $p < .001$, 95% CI [2.19, 2.90], Cohen's $d = 2.50$, replicating findings of Studies 1–2.

## Discussion

Study 4 examined whether social class stereotypes attributed to individuals are projected onto the neighborhoods they inhabit, clarifying the cognitive mechanisms underlying class-based spatial perception. By jointly assessing stereotypes of rich and poor individuals and evaluations of high- and low-status neighborhoods, the study provides evidence for selective trait projection from social groups to physical environments.

Consistent with the Stereotype Content Model (Durante et al., 2017), participants reproduced the classic ambivalent pattern in person perception: rich individuals were seen as more competent than warm, whereas poor individuals were seen as warmer than competent. A parallel ambivalent structure emerged for neighborhoods, but with asymmetric consequences across dimensions. high-status neighborhoods were consistently perceived as more efficient than warm and more efficient than low-status neighborhoods, whereas low-status neighborhoods were perceived as warmer than efficient. Importantly, no systematic differences in perceived warmth emerged between neighborhoods.

Idiographic overlap analyses further showed that participants attributed to neighborhoods traits typically associated

with their presumed residents, providing direct evidence for selective stereotype projection. The absence of warmth differentiation suggests that projection operates in a dimension-specific rather than global manner. One plausible explanation lies in the social meaning of neighborhoods themselves (Chaskin, 1997; Perkins & Long, 2002): as lived-in spaces implicitly construed as communities, neighborhoods may elicit a baseline expectation of warmth that varies little by socioeconomic status. Consequently, competence-related traits appear more diagnostic of neighborhood status than warmth.

## Small-scale meta-analysis

To evaluate the robustness of our findings and address potential inconsistencies, we conducted a small-scale meta-analysis (Cumming, 2013) across Studies 1–4 ($N$=717), comparing perceptions of high- versus low-status neighborhoods on efficiency, warmth, and neglect. For Study 1 (correlational), $r^2$ was converted to Cohen's $d$ for comparability. Using the MAJOR module in Jamovi 2.5, we combined effect sizes ($d$) and their standard errors (see Fig. 3).

**Efficiency** The meta-analysis revealed a large and statistically significant overall effect, $d$ = 0.88, $SE$ = 0.27, $Z$=3.26, $p$ <.001, 95% CI [0.35, 1.41], indicating that high-status neighborhoods are consistently perceived as more efficient than low-status ones. Although heterogeneity was high ($I^2$ = 90.71%, $Q(3)$=29.19, $p$ <.001), the direction of the effect was uniform across studies. This pattern suggests that perceived efficiency represents a robust and generalizable dimension through which neighborhood socioeconomic status is encoded, even across different operationalizations and methodological approaches. The observed heterogeneity likely reflects variation in effect magnitude driven by differences in study design, stimuli, and measurement, rather than conceptual inconsistency.

**Warmth** In contrast, the meta-analysis revealed no reliable difference between high- and low-status neighborhoods in perceived warmth, $d$ = –0.10, $SE$ = 0.08, $Z$ = − 1.32, $p$ =.18, 95% CI [–0.25, 0.05]. Crucially, heterogeneity was low ($I^2$ = 33%, $Q(3)$=4.48, $p$ =.21), suggesting that this pattern was consistent across studies. Rather than providing evidence for a strong status-based differentiation in warmth, the convergence of findings indicates that warmth may be less sensitive to socioeconomic distinctions between neighborhoods. This pattern is coherent with the idea that warmth-related evaluations may reflect more general assumptions about neighborhoods as lived-in and socially meaningful spaces, which are not necessarily contingent on socioeconomic status (see Study 4 discussion).

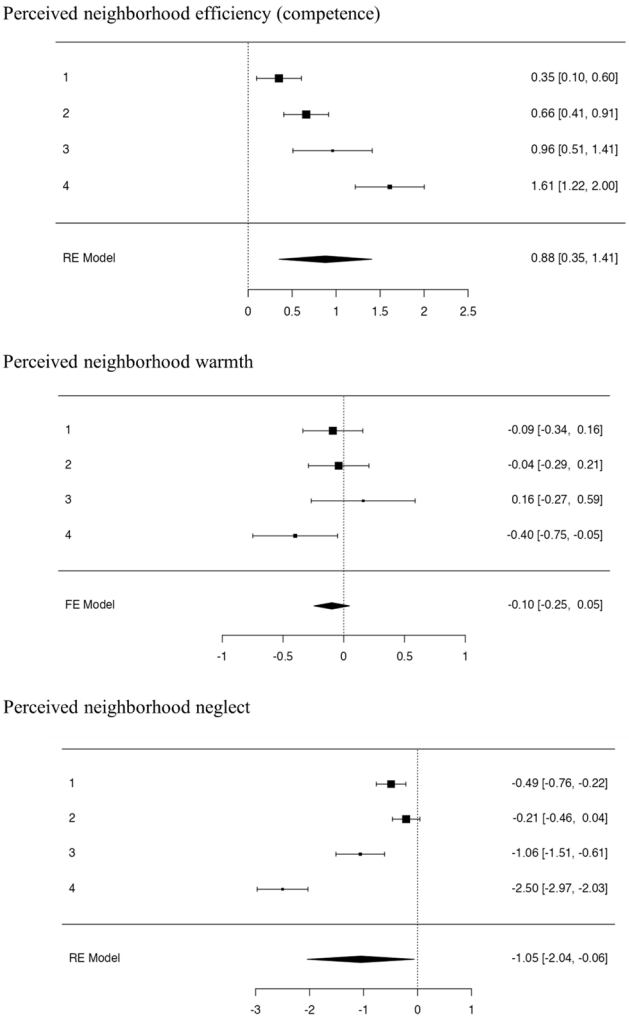


**Fig. 3** Small meta-analysis for efficiency, warmth, and neglect effects

**Neglect** The meta-analytic estimate indicated a large and statistically significant effect, $d$=−1.05, $SE$ = 0.51, $Z$=−2.08, $p$ =.038, 95% CI [−2.04, −0.59], showing that neighborhoods associated with lower socioeconomic status are systematically judged as more neglected than higher-status areas. Despite substantial between-study heterogeneity ($I^2$ = 97.06%, $Q(3)$=75.14, $p$ <.001), all studies converged in the same directional pattern. This convergence underscores neglect as a salient and consistently activated dimension in the social evaluation of neighborhoods, tightly linked to socioeconomic cues. Variability in effect magnitude may partly reflect differences in stimulus modality and design across studies. Specifically, the first two studies relied on visual stimuli (one correlational and one experimentally manipulated), whereas the latter two employed verbal neighborhood descriptions. Such methodological differences may influence the salience and interpretability of neglect-related cues, contributing to stronger effects in description-based paradigms and more attenuated effects

when judgments are based on images. Notably, this heterogeneity is more consistent with variation in cue availability and measurement sensitivity than with instability in the underlying association between neighborhood socioeconomic status and perceived neglect.

## General Discussion

Across four studies, the present research demonstrates that social class stereotypes extend beyond perceptions of social groups to influence how urban spaces inhabited by different social categories are evaluated and mentally represented. Building on the Stereotype Content Model (SCM; Fiske et al., 2002), we show that the ambivalent structure of warmth and competence extends beyond interpersonal perception to neighborhoods, albeit in a spatially adapted and dimension-specific form. While social cognition has traditionally examined how environments influence group perception (Remedios & Sanchez, 2018), we reverse this focus to demonstrate how group-based stereotypes provide interpretative frameworks through which urban environments themselves are perceived.

Across studies, neighborhoods associated with higher social class were consistently evaluated as more efficient, reflecting a stereotypical link between class and competence (Durante et al., 2017). Moreover, consistent with the Stereotype Content Model, evidence from Study 2 further shows that this association takes an ambivalent form within neighborhoods: affluent neighborhoods were perceived as more efficient than warm, whereas disadvantaged neighborhoods were perceived as warmer than efficient. These within-neighborhood contrasts clarify how stereotype content is distributed across evaluative dimensions rather than expressed as a global positive or negative judgment. Study 4 provides converging evidence for this interpretation by showing a direct overlap between stereotypes of social groups and stereotypes of the places they are believed to inhabit. Participants projected traits associated with rich and poor individuals onto the corresponding neighborhoods, indicating that class-based stereotypes of people and places are tightly intertwined and mutually reinforcing. Crucially, this pattern emerged independently of systematic differences in warmth between affluent and poorer neighborhoods, highlighting an ambivalent perception of space: rather than a simple good–bad dichotomy, neighborhoods are shaped by specific class-based stereotypes.

As suggested by the study-specific discussions, the lack of significant differences in perceived warmth may reflect the inherent sense of community that can exist in both affluent and poorer areas: regardless of wealth, neighborhoods are often perceived as cohesive communities where individuals form connections and relationships (Chaskin, 1997; Perkins & Long, 2002). This, in turn, may foster relatively stable perceptions of warmth that are less sensitive to socioeconomic differentiation.

This overall pattern is further corroborated by the small-scale meta-analysis aggregating evidence across Studies 1–4. By synthesizing results obtained with different designs and operationalizations, the meta-analysis confirms that the association between neighborhood social class and perceived efficiency is robust and reliable across studies. At the same time, it shows a consistent null effect for warmth, indicating that perceptions of neighborhood warmth do not systematically vary as a function of socioeconomic status. This integrative evidence strengthens the interpretation that class-based spatial stereotypes are dimension-specific rather than globally evaluative: efficiency reliably tracks neighborhood status, whereas warmth remains comparatively stable across contexts. In this sense, the meta-analysis consolidates the main theoretical contribution of the present research by demonstrating that the ambivalent structure predicted by the Stereotype Content Model extends to the perception of urban space, while also revealing that its dimensions play distinct roles when applied to spatial targets.

Beyond evaluative judgments, our findings indicate that social class differentiations are also translated into spatial organization. Across studies, higher-status neighborhoods were consistently associated with greater proximity to the city center, whereas lower-status neighborhoods were relegated to peripheral locations. This center-periphery mapping reflects a cognitive translation of social hierarchy into urban space, whereby spatial proximity to the center functions as a symbolic marker of power, legitimacy, and access to resources. This mapping can be understood as the spatial instantiation of status-based stereotype content, rather than as a reflection of objective urban structure: within the Stereotype Content Model, competence-related judgments are structurally linked to perceived status and power (Fiske et al., 2002; Durante et al., 2017), suggesting that competence-based inferences provide a key psychological mechanism through which social hierarchy becomes mapped onto urban space. Accordingly, class-based stereotypes do not merely color evaluations of neighborhoods but contribute to the mental organization of the city itself. Spatial hierarchies can thus be understood as a downstream expression of class-based stereotype content, whereby competence-related inferences become mapped onto urban centrality and access to resources.

Evidence from the mental map task further supports this interpretation. Participants' spatial representations of neighborhoods reflected class-based distortions, with high-status areas perceived as larger and placed closer to positive locations. Discrepancies between objective and subjective

distance measures suggest that class-based stereotypes shape not only evaluations but also spatial memory, consistent with research on cognitive maps (Tversky, 1981). The symbolic meaning of the center-periphery divide aligns with classic accounts linking central areas to power, beauty, and leisure, and peripheral areas to decay and mundanity (Richard, 1992).

Across studies, perceptions of neighborhood neglect generally followed dominant narratives about urban space (Allen et al., 2012; Andersen, 2002; Bonam et al., 2016; Lombard, 2015), with poorer neighborhoods perceived as more neglected in Studies 1, 3, and 4. This convergence suggests that low-status urban areas are commonly represented as spaces where neglect and decay are expected, reflecting widely shared cultural frames about urban disadvantage. This pattern was further supported by the small-scale meta-analysis, which revealed a robust overall association between neighborhood socioeconomic status and perceived neglect across studies.

This association did not emerge in Study 2, where participants evaluated visually identical neighborhoods accompanied by experimentally manipulated descriptions of residents' social class. Although both Study 1 and Study 2 relied on visual stimuli, they differed in design. In Study 1, visual characteristics and social class cues were naturally correlated, allowing class-based inferences to emerge from the images themselves. In Study 2, by contrast, visual information was held constant across conditions while social class was manipulated through textual descriptions. Under these conditions, participants may have relied more strongly on the available visual cues, limiting the extent to which experimentally induced class information influenced perceptions of neglect in the absence of perceptual signs of decay. This interpretation is consistent with the meta-analytic pattern of heterogeneity. Specifically, stronger neglect effects were observed in Studies 3 and 4, which relied on map-based and verbal descriptions rather than images. Overall, these findings suggest that perceived neglect operates as a structurally grounded dimension of spatial stereotyping, while remaining sensitive to the availability and diagnosticity of perceptual cues.

Taken together, these findings have broader theoretical implications for research on space-focused stereotypes and social perception. Previous research on space-focused stereotypes has primarily documented negative evaluations of spaces associated with marginalized groups, such as perceptions of danger, disorder, or lack of resources (e.g., Bonam et al., 2016; Essien & Rohmann, 2024). The present findings extend this literature by showing that neighborhood perception is not merely unidimensional or uniformly negative, but structured along distinct evaluative dimensions. Specifically, we show that class-based spatial stereotypes are organized in an ambivalent manner, with functional and positional evaluations (e.g., efficiency and spatial centrality) playing a more central role than global affective responses.

More broadly, these results contribute to research on the Stereotype Content Model by extending its scope beyond social groups to physical environments. While the SCM has been extensively validated in interpersonal and intergroup perception, evidence for its application to non-social targets remains limited. Our findings demonstrate that the ambivalent structure of warmth and competence can be meaningfully translated to urban space, while also identifying clear boundary conditions, namely, that competence-related judgments are more diagnostic of spatial status than warmth.

In conclusion, the present research shows that social class stereotypes are not confined to judgments of people but play a central role in shaping how urban environments are evaluated and mentally organized. By integrating the Stereotype Content Model with spatial class hierarchy perspectives, we demonstrate that neighborhoods become symbolic extensions of social class divisions, structured along dimensions of efficiency and spatial centrality rather than global affective evaluation. These findings highlight the psychological mechanisms through which social inequality is mapped onto urban space, with important implications for understanding spatial stigma, segregation, and urban policy.

## Limitations and future directions

While our findings offer valuable insights into how social class stereotypes shape neighborhood perceptions, several limitations must be acknowledged.

First, all studies were conducted in Italy. Although the association between spatial centrality and social status investigated here primarily derives from cognitive link between centrality, power, and influence, it is also the case that, in many Italian and European cities, this association corresponds to relatively stable urban patterns. Historical city centers are often characterized by higher symbolic, cultural, and economic value, whereas peripheral areas are more frequently associated with socioeconomic disadvantage (Harvey, 2009; Sassen, 2001). However, this spatial logic may not generalize to contexts with different urban layouts. For example, in several North American cities affluent neighborhoods are often located in suburban areas (Phelan & Schneider, 1996), whereas in many Asian megacities urban stratification departs from the classic center–periphery gradient, taking polycentric (Li & Liu, 2018) and, in some contexts, vertical forms (Saitluanga, 2017). Future research should therefore replicate the present paradigm across diverse cultural and geographic contexts to assess the generalizability of class-based spatial stereotypes.

Second, the present research deliberately focused on social class as a distinct dimension shaping neighborhood perception, given its pervasive role in structuring urban space and everyday spatial inequalities. While this focus allowed us to isolate class-based spatial representations, future research would benefit from extending this framework to other social categories and from examining their intersection. In particular, urban segregation often reflects the joint structuring role of class and race (Massey & Rugh, 2017). Prior work suggests that these dimensions may be cognitively intertwined, as participants can struggle to imagine, for instance, middle-class Black neighborhoods (Yantis & Bonam, 2020). Investigating how class- and race-based stereotypes jointly and independently shape perceptions of urban space represents a promising avenue for future research.

A further limitation concerns the modest internal consistency of the warmth and efficiency scales (α ranging from 0.61 to 0.76). The magnitude of Cronbach's alpha is a function of the number of items included in a scale, increasing mechanically as item count grows, even when the average inter-item correlation remains constant (Streiner, 2003; Vaske et al., 2016). As a result, short scales are structurally constrained to yield lower alpha values, particularly when assessing broad and abstract constructs like spatial warmth and efficiency, which are not expected to show high item redundancy. In line with conventions in human dimensions and psychological research, alpha coefficients in the 0.65–0.80 range are commonly considered adequate when interpreted in light of scale length and measurement goals (Green et al., 1977; Spector, 1992; Vaske, 2008). Because no validated instruments currently exist for assessing stereotypes of physical places, our objective was to develop parsimonious measures that could be repeatedly administered across multiple tasks and studies without inducing participant fatigue or demand characteristics. Consistent with recommended practice (Vaske et al., 2016), scale quality was therefore evaluated by examining dimensionality and structural validity. Exploratory and confirmatory factor analyses supported the hypothesized factor structure across studies (see Supplementary Materials), indicating that the items formed coherent and conceptually distinct dimensions. Moreover, the scales exhibited theoretically meaningful patterns of associations across four independent studies, further supporting their construct validity. Future research may refine these measures by expanding the item pool with the aim of improving reliability while preserving parsimony.

These avenues represent promising directions for future research and could significantly enhance our understanding of contemporary social dynamics.

## Implications

This research underscores the need to address both structural and psychological dimensions of urban inequality. While global initiatives like Sustainable Development Goal 11 promote "inclusive, safe, resilient, and sustainable" cities, interventions often prioritize physical infrastructure, neglecting the cognitive and social biases that contribute to exclusion.

Our findings show that social class stereotypes shape how neighborhoods are perceived, reinforcing symbolic boundaries within the city. Affluent areas tend to be associated with centrality, desirability, and functional value, whereas low-status neighborhoods are cognitively linked to marginality and unpleasantness, reflecting deeply ingrained mental representations rather than solely material conditions (Elliott et al., 1999). Crucially, such representations may contribute to self-reinforcing dynamics: neighborhoods perceived as low-status or undesirable are more likely to be avoided, which can reduce interclass contact, limit social investment, and foster processes of neglect and abandonment over time (Logan & Molotch, 1987; Skogan, 1992; Watson & Wilson, 1988). These dynamics risk transforming symbolic marginalization into concrete urban disadvantage.

These processes have direct implications for urban policies and planning models such as the 15-minute city (Moreno et al., 2021), which aim to promote equity through spatial proximity to services. Their effectiveness may depend not only on redistributing resources, but also on challenging the symbolic association between class and space. If wealth continues to imply centrality and poverty marginality, spatial reforms alone risk being undermined by persistent patterns of avoidance and disengagement. Moreno et al., 2021

By revealing how urban inequality is mentally mapped onto space, the present research highlights the importance of planning strategies that integrate material interventions with efforts to reshape social perceptions, ensuring that all neighborhoods are viewed and treated as equally legitimate parts of the city.

## Conclusion

The research sheds light on the influence of social class stereotypes on urban perceptions, revealing that these biases shape not only our views of the people who inhabit neighborhoods but also our perceptions of the neighborhoods themselves. By demonstrating how stereotypes influence spatial perceptions, this work underscores the nuanced role that social biases play in shaping urban spaces in our minds.

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**Data availability** All datasets, materials, and analysis scripts are publicly available on the Open Science Framework (OSF): [https://osf.io/d3kqz/?view_only=d4e534be639143508c59c39da135c5f6].

## Declarations

**Ethics approval** All studies were conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Department of Psychology of the University of Milano-Bicocca (protocol number: RM-2023-642).

**Consent to participate** Informed consent was obtained from all individual participants included in the study.

**Competing interests** The authors have no relevant financial or non-financial interests to disclose.



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