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URBAN POVERTY AS A SOCIO-SPATIAL PRODUCTION PROCESS: A SOCIAL-GEOGRAPHICAL FRAMEWORK

Abstract: Urban poverty is a complex and multidimensional phenomenon shaped by the interaction between social processes, the built environment, and governance structures. This study employs a qualitative analytical review from a socio-geographic perspective, synthesizing a selection of peer-reviewed articles published between 2021 and 2026. Using an integrative framework with three dimensions spatial organization, socio-spatial determinants and territorial differentiation, and human-environment interactions the analysis interprets recurring spatial patterns, contextual mechanisms, and locally embedded interventions across urban cores, peri-urban zones, informal settlements, and marginalized neighborhoods. The findings indicate that deprivation is spatially concentrated rather than random, influenced by infrastructure availability, institutional arrangements, environmental exposure, and historical inequalities. Accessibility and connectivity emerge as key mediating mechanisms, shaping whether local opportunities translate into multidimensional poverty reduction. Socially and territorially embedded interventions, including participatory and philanthropic initiatives, are most effective when aligned with local spatial and institutional contexts. By integrating empirical evidence with socio-geographical interpretations, this study advances the understanding of territorially differentiated urban poverty. Practically, it underscores the importance of location-sensitive, multi-scale strategies that combine infrastructure development, equitable service delivery, and inclusive governance. It contributes both theoretically and methodologically by demonstrating how conceptually grounded qualitative analyses can yield coherent insights into the spatial patterns of urban poverty.

Keywords: Spatial inequality, informal settlements, connectivity, participatory governance, multidimensional vulnerability, territorial production, socio-spatial analysis

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Introduction

Urban poverty is widely recognized as a complex and multidimensional phenomenon that is fundamentally shaped by geographical processes. Increasingly, it is understood not merely as income deprivation, but as a socio-spatial condition produced through uneven urban development, territorial exclusion, and differentiated access to urban resources (Zhou & Liu, 2022; Ahmed et al., 2023; Chao et al., 2024). Beyond material deprivation, urban poverty reflects how cities are spatially organized, how socio-economic activities are distributed across urban territories, and how social processes interact with both built and natural environments. Contemporary urban poverty is therefore not randomly distributed, but tends to cluster spatially in specific urban zones such as inner-city districts, peri-urban areas, informal settlements, and environmentally vulnerable neighborhoods. These spatial concentrations are shaped by historically rooted socio-spatial inequalities produced through planning regimes, land and housing markets, uneven infrastructural provision, and differentiated access to public services. This interpretation aligns with broader geographical traditions that view urban inequality as socially produced through spatial organization and uneven development. From a social-geographical perspective, urban poverty thus represents the territorial expression of structural inequality and human–environment interactions rather than merely an individual socio-economic condition (Rath, 2022; Gustafsson & Sai, 2023).

Recent advances in social geography and urban studies have increasingly challenged income-based and aspatial interpretations of poverty by emphasizing the analytical importance of place, territory, and scale. Empirical studies consistently demonstrate that poverty incidence, intensity, and depth exhibit distinct intra-urban spatial configurations, even within the same city. Spatial analysis and GIS-based research highlight the influence of population density, land-use composition, and built environment quality (Wang et al., 2023; Olabamiji & Ajala, 2024), while other studies underscore the importance of transportation networks, service accessibility, and locational advantage within urban systems (Liu et al., 2021; Qu et al., 2024). Studies in leading international journals further show that unequal access to mobility systems, amenities, and urban opportunities can reproduce deprivation even under conditions of aggregate economic growth (Calafiore et al., 2022). Recent studies from North African urban contexts further reinforce this argument by demonstrating that urban quality of life, social behaviour, and well-being are strongly shaped by spatial organization, housing environments, and neighbourhood-level territorial conditions (Hama & Djeflal, 2025). Together, these findings reaffirm a core geographical insight: location remains a critical determinant of life chances and socio-economic outcomes in urban contexts.

In cities of the Global South and other rapidly urbanizing regions, the spatial concentration of poverty is often intensified by informal urbanisation, regulatory exclusion, and uneven infrastructural development. Comparative research on African, Asian, and Latin American cities highlights that informal settlements should not be interpreted as temporary or marginal anomalies, but rather as structurally produced socio-spatial formations deeply embedded within formal urban systems (Torres Parra et al., 2024; Akomolehin et al., 2025; Li et al., 2025). While these settlements function as survival spaces for low-income households, they simultaneously expose residents to heightened environmental risks, infrastructural deficits, and socio-spatial exclusion, illustrating the tension between formal and informal urban governance. Evidence from social housing and neighbourhood studies

in Algeria likewise illustrates how housing form, outdoor spatial arrangements, and neighbourhood environments influence residents' well-being, social interaction, and perceived quality of urban life (Djouima et al., 2025; Arab & Boutabba, 2022). These findings further support the argument that urban poverty and inequality should be understood as socio-spatial conditions embedded within everyday residential environments rather than solely as measures of economic deprivation. This pattern reflects broader processes of territorial disadvantage through which poverty is reproduced by weak service delivery, unequal planning capacity, and environmental vulnerability. However, many of these studies rely on cross-sectional designs, limiting the capacity to capture temporal dynamics, while GIS-based studies vary considerably in spatial resolution, complicating cross-city comparison. Urban poverty therefore emerges from the interaction of structural constraints, institutional arrangements, environmental conditions, and localized coping mechanisms rather than from individual shortcomings alone.

At neighbourhood and household scales, recent empirical research increasingly focuses on spatial accessibility as a mediating mechanism between urban opportunities and poverty reduction. Studies employing spatial econometrics and structural equation modelling show that access to transport networks, public facilities, and functional diversity within the built environment significantly determines whether spatial opportunities can translate into reductions in multidimensional poverty (Gachanja et al., 2025). Conversely, economic growth and opportunity expansion that are not accompanied by improvements in accessibility tend to reproduce socio-spatial inequalities. A social-geographical perspective is particularly valuable here because it links spatial form, territorial differentiation, and human–environment relations within a unified analytical lens. These findings suggest that poverty interventions must be territorially targeted, context-sensitive, and aligned with both infra-structural and socio-environmental conditions.

Despite the growing volume of spatially explicit research, the literature on urban poverty remains fragmented across regions, analytical scales, and disciplinary traditions. Despite extensive scholarship, research often remains divided across housing, mobility, governance, environmental vulnerability, and scale-specific analyses, limiting integrated explanations of urban poverty across diverse urban contexts. Many studies focus on single cities, specific dimensions of poverty, or isolated spatial variables such as housing density or infrastructure provision (Khoir et al., 2025). Others employ advanced GIS, remote sensing, or bibliometric techniques but remain weakly connected to broader social-geographical frameworks that integrate territorial differentiation, human–environment interactions, and socio-spatial reproduction processes (Yumnam et al., 2024; Henn et al., 2025). Previous review studies likewise tend to emphasize methodological innovation or single-case analyses and rarely synthesize spatial, socio-spatial, and environmental dimensions across multiple urban contexts, leaving a conceptual gap regarding the interplay of these factors.

This study seeks to address that gap by applying a three-dimensional social geography framework that integrates spatial organization, socio-spatial determinants, and human–environment interactions. Few existing reviews have examined urban poverty simultaneously through spatial, socio-spatial, and environmental lenses. Rather than treating poverty as a purely economic indicator, the framework conceptualizes it as a territorially differentiated urban process shaped by spatial concentration, institutional arrangements, and environmental exposure. In contrast to previous reviews that focus primarily on methods or individual cases, the present study emphasizes territorial differentiation across city centers,

peripheries, informal settlements, and marginalized urban spaces. By critically assessing methodological approaches, identifying contradictions between Global South and Global North contexts, and synthesizing empirical and conceptual findings, this review provides a more analytically rigorous and internationally relevant understanding of contemporary urban poverty dynamics.

Furthermore, this paper critically positions locally embedded socio-economic mechanisms such as zakat-based and community-oriented redistribution not as universal solutions, but as context and place-based institutional responses that interact with spatial structures and human–environment relationships (Shi et al., 2023). This positioning extends the broader theoretical argument of the paper: effective poverty alleviation depends not only on resource transfers, but also on how institutional interventions are embedded within specific territorial and socio-environmental contexts. It thereby reinforces the study's originality, theoretical relevance, and policy contribution beyond descriptive synthesis.

Materials and Methods

Research Design and Analytical Orientation

This study adopts a structured integrative literature review design grounded in social geography to examine urban poverty as a territorially differentiated and socio-spatially produced process. Integrative literature reviews are widely recognized as a distinct form of research that generates new knowledge through the critical synthesis of diverse theoretical and empirical traditions rather than through simple descriptive summary (Torraco, 2005, 2016). In the present study, this orientation is combined with transparent and clearly documented literature identification, screening, and evaluative procedures in order to strengthen methodological rigor and analytical coherence.

Unlike a full systematic review, which is generally oriented toward exhaustive retrieval, narrowly specified questions, and standardized appraisal protocols, the present review is designed to achieve conceptual integration across heterogeneous bodies of scholarship, multiple spatial scales, and varied urban contexts (Cho, 2022). Its primary objective is therefore not statistical aggregation or effect-size estimation, but the synthesis of recurring spatial patterns, socio-spatial mechanisms, territorial differentiation, and human–environment interactions that shape urban poverty.

This approach is particularly appropriate for the study of urban poverty because the phenomenon is multidimensional, place-based, and context dependent, while relevant evidence is dispersed across geography, urban studies, planning, sociology, and development research. Previous scholarship has likewise emphasized that poverty research often requires interpretive and interdisciplinary synthesis capable of integrating diverse methodologies and geographically uneven experiences (Barbosa et al., 2020; Zhou & Liu, 2022). Accordingly, a structured integrative review provides an appropriate methodological basis for developing a geographically informed understanding of contemporary urban poverty dynamics.

Analytical Framework

The analysis is organized around a social-geographical framework that has three interrelated dimensions of analysis that are consistently repeated in contemporary research on urban poverty. These dimensions are used as lenses through which the literature is viewed.

Spatial Organisation of Urban Poverty

This dimension investigates the distribution, concentration, and spatial organisation of urban poverty in cities. It considers the regular spatial patterns of poverty, such as inner-city areas, peri-urban areas, slums, and poor urban areas. Research on concentration, segregation, neighbourhood effects, and intra-urban disparities is reviewed to understand the organisation of poverty in urban space.

Socio-Spatial Determinants and Territorial Differentiation

This dimension explores the role of socio-spatial factors in the organisation of urban poverty, such as accessibility to infrastructure and services, land use patterns, housing and land markets, transport systems, institutional settings, and policies. Territorial differentiation is identified as a key analytical tool to understand how uneven development and differentiated governance patterns create and sustain poverty in cities.

Human-Environment Interactions in Urban Settings

The third dimension focuses on human-environment interactions, such as environmental vulnerability, risk exposure, environmental degradation, and infrastructure gaps. This dimension applies the concept of urban and environmental geography to emphasize the co-production of poverty through spatial, environmental, and socio-institutional processes, especially in the context of rapidly urbanising areas.

The three dimensions above form a coherent framework for analysis that allows for comparison while being consistent with the epistemological bases of social geography.

Temporal and Conceptual Delimitation and Construction of the Analytical Corpus

The review was limited to publications from 2021 to 2026 in order to capture contemporary theoretical, empirical, and methodological developments in the study of urban poverty. This period was selected to capture the most recent post-pandemic and rapidly urbanizing phase of urban poverty scholarship. This temporal delimitation served three purposes: (i) incorporating recent advances in social geography and urban studies; (ii) reflecting current socio-spatial and environmental conditions across diverse urban contexts; and (iii) including recent developments in urban spatial analysis, GIS applications, and human–environment research (Malaker & Meng, 2024; Affandi et al., 2025). By bounding the review temporally, the study emphasizes contemporary relevance while maintaining analytical coherence across the three analytical dimensions: spatial organization, socio-spatial determinants and territorial differentiation, and human–environment interactions.

A literature search was conducted in the major international databases Scopus and Web of Science (both accessed January 2026) to ensure broad coverage of peer-reviewed scholarship. The search was limited to English-language publications. In addition, nationally accredited journals indexed in the Indonesian SINTA system, as well as selected international journals outside these databases, were considered where peer-review standards were demonstrably robust.

The following Boolean search string was applied to titles, abstracts, and keywords: ("urban poverty" OR "spatial poverty" OR "urban inequality" OR "urban deprivation") AND

("spatial analysis" OR "GIS" OR "accessibility" OR "urban form" OR "territorial differentiation" OR "socio-spatial dynamics").

The analytical corpus was developed through a structured search and screening process guided by predefined thematic and methodological criteria. The initial search yielded 210 records. After removal of 30 duplicates, 180 records remained for title and abstract screening. Screening procedures excluded 70 studies (45 due to insufficient spatial relevance and 25 due to rural rather than urban focus), leaving 110 articles for full-text assessment. A further 43 studies were excluded because of insufficient methodological transparency or limited relevance to the analytical framework, resulting in a final corpus of 67 peer-reviewed journal articles (Figure 1).

Studies were included when they: (1) explicitly addressed urban poverty as a spatial, socio-spatial or human–environmental phenomenon; (2) were published in peer-reviewed outlets with transparent editorial standards; (3) offered empirical or theoretical contributions relevant to at least one of the three analytical dimensions; and (4) focused on neighbourhood, city or intra-urban contexts.

Studies were excluded when they focused exclusively on rural poverty, lacked territorial relevance, did not analyse urban spatial arrangements or environmental conditions, or failed to meet minimum standards of scholarly transparency.

The resulting corpus was intended to ensure conceptual relevance, analytical diversity, and alignment with the study’s socio-geographical framework rather than exhaustive inclusion of all available publications. This approach enhances transparency, maintains thematic consistency, and preserves the interpretive flexibility required for integrative synthesis in social geography (Barbosa et al., 2020; Abusaada & Elshater, 2025).

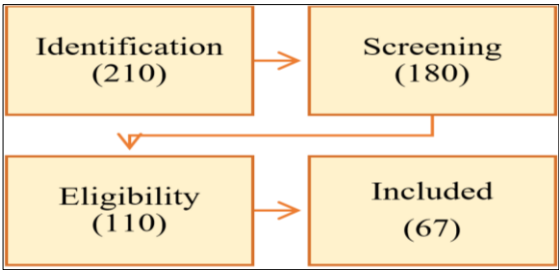


Fig. 1. Literature selection process

The stepwise selection process presented in Figure 1 demonstrates the progression from the initial search results to the final analytical corpus and provides a transparent overview of the literature identification, screening, eligibility assessment, and final inclusion stages.

Analytical Procedure

The analytical process followed a structured interpretive synthesis rather than an unstructured narrative summary. In addition to thematic relevance, each included study was evaluated for methodological clarity, empirical transparency, analytical contribution, and relevance to at least one of the three socio-geographical dimensions. This evaluative step informed the relative weighting of evidence during the synthesis process. These criteria were applied comparatively to assess evidentiary robustness and interpretive value across the included studies.

Each study in the corpus was analyzed using the three analytical dimensions, which focused on: (a) spatial arguments and interpretations, (b) conceptual frameworks employed, and (c) empirical findings related to territorial differentiation and human–environment interactions.

Conceptual and thematic mapping was then applied to identify recurring spatial patterns, common socio-spatial determinants, areas of convergence, and points of divergence across the literature. This approach facilitated the comparison of studies across different urban settings, including neighborhoods, peri-urban zones, informal settlements, and marginalized urban spaces, without aggregating findings into statistical measures (Zhou & Liu, 2022).

Methodological variation across the corpus was also systematically recorded. Approximately 40% of the reviewed studies employed cross-sectional designs, 35% used GIS-based spatial analyses (with varying spatial resolutions), and 25% relied primarily on qualitative case-study approaches. These differences were considered during synthesis in order to avoid overgeneralization across heterogeneous evidence bases.

Discrepancies between Global South and Global North studies were likewise identified. Studies from the Global South more frequently emphasized informal settlements, rapid urbanization, and service deficits, whereas studies from the Global North focused more strongly on policy-mediated segregation and socio-economic stratification within formally planned urban environments.

Through this comparative evaluation, several research gaps were identified: (a) a limited number of longitudinal studies capturing temporal dynamics; (b) insufficient micro-scale analyses of household- or neighborhood-level processes; and (c) uneven integration of spatial, socio-spatial, and environmental dimensions.

Synthesis and Conceptual Integration

The final stage involved interpretive synthesis and conceptual integration of the reviewed evidence. Empirical and theoretical insights were combined to develop a territorially differentiated explanation of urban poverty based on interactions between spatial organization, socio-spatial determinants, and human–environment dynamics. Locally embedded mechanisms, including territorially grounded redistribution and zakat empowerment schemes, were interpreted as context-sensitive institutional responses rather than universal solutions (Abu Bakar et al., 2025).

The synthesis also considered variation across contexts and methods. Studies from Global South cities more frequently emphasized informal settlements, service deficits, and rapid urbanization, whereas Global North studies focused more on segregation and socio-economic stratification within formally planned urban environments. Most reviewed studies were cross-sectional, while GIS-based analyses varied in spatial resolution and data quality. These differences were taken into account during comparative interpretation.

Several research gaps were identified, including limited longitudinal evidence, insufficient neighbourhood and household-scale analysis, and uneven integration of spatial, socio-spatial, and environmental dimensions. Addressing these gaps would strengthen future urban poverty research.

This review contributes methodologically by applying a three-dimensional analytical framework spatial organization, socio-spatial determinants and territorial differentiation, and human–environment interactions to synthesize fragmented literature into a more integrated understanding of urban poverty across diverse urban contexts.

Methodological Contribution and Limitations

Methodologically, this study demonstrates how a structured integrative literature review grounded in social geography can synthesize dispersed empirical findings and theoretical insights into a coherent socio-spatial explanation of urban poverty. The approach offers conceptual flexibility, geographical sensitivity, and interdisciplinary integration while maintaining transparent procedures for literature identification, screening, and evaluation (Abusaada & Elshater, 2025).

At the same time, the review has important limitations. Its findings are interpretive rather than statistically generalizable, and causal inference remains constrained by the heterogeneity of the underlying studies. Variations in research design, data quality, spatial scale, and contextual specificity across the reviewed literature also limit direct comparability between cases.

Accordingly, the results should be understood as analytical and theoretical contributions that inform conceptual debate and policy reflection rather than as definitive empirical estimates. This methodological stance is consistent with the study’s broader aim to advance a geographically informed understanding of urban poverty and its socio-spatial determinants.

Results and Discussion

Urban Poverty Spatial Organization Patterns of Urban Poverty

The synthesis of the recent empirical research shows that urban poverty is not randomly distributed but rather structured in space, regularly forming specific clusters according to urban structure, accessibility, and territorial differentiation. In different urban settings, such as inner-city areas, peri-urban zones, informal settlements, and fragmented metropolitan areas, poverty regularly appears in space through clustering, locational disadvantage, and territorial inequality in accessibility to infrastructure and services (see Table 1. Summary of Urban Poverty Spatial Patterns). This reveals that poverty is integrated into the spatial structure of the city rather than being a household-level socio-economic phenomenon.

Table 1. Summary of urban poverty spatial patterns

Author	City/Country	Urban Context	Spatial Pattern	Quantitative Indicators
Fosudo et al. (2026)	Africa and Global South	Informal settlements	Concentration in peripheries and near formal areas	Qualitative and participatory analysis
Khoir et al. (2025)	Yogyakarta, Indonesia	Urban periphery	Clustered, along river courses	29,481 poor population; cluster in southern city
Nikpour et al. (2022)	Hamadan, Iran	Statistical blocks	Poverty zone clusters	Poverty zone: 27.36% city area, 48.84% population; Moran's I = 0.677
Chao et al. (2024)	China	City center	High poverty depth near center	Poverty rate, intensity, depth
Nurrokhman et al. (2026)	Tangerang, Indonesia	Periphery / urban sprawl	Overlapping urban sprawl poverty	41.54% of households <48 m ²
Ramadhanis et al. (2025)	Jakarta, Indonesia	Facility distribution	Spatial inequality in education and health	Central: 57.43–65.06% adequately served; North and Kepulauan: 50–100% under-served
Gachanja et al. (2025)	Kenya	Transport networks	Road density → multidimensional poverty	Network density: -1.004 ($p < 0.01$); network efficiency $\pm 16\%$
Ghorbani and Dadazade Silabi (2021)	Ardabil, Iran	Temporal	Poverty improvement 2006–2016	53% → 46% of blocks poor; macro factors 0.82–0.68
Olabamiji and Ajala, (2024)	Nigeria	Medium-sized city	High poverty and building density clusters	>29 wards: poverty index >0.20
Aswani (2025)	Developing countries	Multi-city	Autocorrelation and clustering	Spatial econometrics, FSAR model

Comparative evidence suggests that urban poverty mechanisms vary across geographical and institutional contexts. Cross-city and cross-country studies consistently associate poverty clustering with rapid urbanisation, uneven service provision, transport accessibility, land-market dynamics, and formal–informal urban interactions (Chao et al., 2024; Khoir et al., 2025; Gachanja et al., 2025; Fosudo et al., 2026). Peripheral zones, informal settlements, and densely populated inner-city areas with limited infrastructure frequently emerge as concentrated poverty spaces, although their spatial configurations differ according to governance structures, historical development, and urban form.

Informal settlements and peripheral urban zones represent some of the most persistent concentrations of poverty, commonly associated with weak governance, infrastructure deficits, and long-term vulnerability (Nurrokhman et al., 2026; Fosudo et al., 2026; Nikpour et al., 2022).

Spatial econometric evidence further confirms that poverty clustering is reinforced by spillover effects, whereby disadvantage in one area increases the likelihood of similar conditions in neighbouring locations (Aswani, 2025). Fragmented infrastructure, high building density, urban sprawl, and unequal public facility distribution constrain access to education, healthcare, and transport services, thereby intensifying multidimensional vulnerability (Ramadhanis et al., 2025; Gachanja et al., 2025; Olabamiji & Ajala, 2024). In contrast, areas with higher connectivity and adequate infrastructure demonstrate greater socio-economic resilience.

Comparative studies in global urban settings also confirm the broader relevance of these trends. In China, poverty vulnerability among migrants and permanent residents is associated with settlement location and environmental conditions (Gustafsson & Sai, 2023), while similar vulnerability patterns remain prevalent in cities of the Global South

(Rath, 2022). Comparable clustering trends are also evident in African secondary cities (Ahmed et al., 2023; Esrael et al., 2024).

The spatial configuration of poverty is also dynamic rather than static. Longitudinal evidence shows that governance quality, infrastructure investment, and location-specific policy engagement can alter poverty trajectories, although outcomes remain context-dependent (Ghorbani & Dadazade Silabi, 2021; Wang et al., 2023). Studies from China and Indonesia further indicate that improved public service delivery, integration of formal and informal settlements, and place-based development initiatives can reduce concentrated poverty when aligned with local spatial conditions (Mukaddas et al., 2021; Li et al., 2023; Shi et al., 2023; Hasddin et al., 2025).

Socio-Spatial and Structural Determinants of Urban Poverty

Urban poverty emerges from the interaction of socio-spatial and structural mechanisms rather than from isolated individual factors. Comparative evidence further indicates that the effects of accessibility, infrastructure, transport systems, and institutional arrangements vary across urban contexts; for example, accessibility improvements significantly reduce poverty in Kenya but show weaker effects in Makassar (Gachanja & Yang, 2025; Irwan et al., 2025). Accordingly, this section synthesizes urban poverty determinants through an integrated analytical narrative that emphasizes the interaction between mechanisms rather than treating them as separate variables.

Accessibility as a Mediating Socio-Spatial Mechanism (Structural Factors)

Accessibility serves as a key mediator between spatial form and socio-economic outcomes. Cross-city and cross-country evidence indicates that proximity to public services, transport connectivity, and land-use diversity directly shape the realization of economic opportunities and poverty reduction (Wang et al., 2023). In this sense, accessibility does not operate in isolation but interacts with the broader spatial opportunity structure available to urban residents. Effective access to jobs, education, and services depends not only on physical proximity but also on social and institutional conditions that enable or constrain the use of available resources.

Empirical evidence shows that limited accessibility contributes to the territorial concentration of poverty. Limited accessibility reinforces territorial differentiation by constraining access to formal services, employment, and educational opportunities, particularly in peripheral and underserved urban areas (Fosudo et al., 2026). These spatial limitations reinforce socio-spatial inequality through the interaction of accessibility, infrastructure, and institutional constraints. Future research should further disentangle the relative weight of physical versus social accessibility constraints and examine how these factors co-produce spatial patterns of poverty.

Infrastructure and Public Services as Structuring Inequalities

Uneven infrastructure and public service provision systematically reproduces spatial inequality. Evidence from Jakarta shows pronounced disparities in access to education and healthcare, with central urban areas remaining significantly better served than peripheral and island communities (Ramadhanis et al., 2025). Transport infrastructure plays a decisive mediating role: higher road network density and efficiency are consistently associated with lower levels of multidimensional poverty by facilitating mobility and economic access (Gachanja et al., 2025). Conversely, empirical evidence from mid-sized Nigerian cities

demonstrates that building density and infrastructure deficits are significantly correlated with widening poverty gaps (Olabamiji & Ajala, 2024). Infrastructure therefore operates not as a neutral technical system, but as a spatial selector that structures inclusion and exclusion within urban environments.

Built Environment and Land-Use Structure

The quality of the built environment and land use structure has a direct influence on mobility, social interaction, and livelihood opportunities. Mixed-use development that combines residential, commercial, and industrial activities has been found to improve economic opportunities and resilience against poverty among urban dwellers (Irwan et al., 2025). Empirical studies conducted in the city centers of China have found a significant relationship between population density, quality of the built environment, and poverty intensity (Chao et al., 2024). At the neighborhood level, a deteriorated built environment and a lack of social relationships have been found to worsen multidimensional poverty and socio-economic vulnerability (Ari et al., 2021). The evidence indicates that land-use structure actively shapes the reproduction of poverty by constraining spatial behaviour and socio-economic opportunities.

Transport Networks and Mobility Constraints

Transport networks and mobility infrastructure are of prime importance in defining the employment, education, and basic service accessibility of poor households. The empirical findings suggest that network density, efficiency, and betweenness play an important role in reducing multidimensional poverty, as increased connectivity reduces travel time, improves labor market accessibility, and increases access to public services (Gachanja et al., 2025). These findings reinforce the role of mobility as a mediating factor that translates spatial opportunities into socio-economic gains for the urban poor.

On the other hand, spatial structures defined by fragmented transport networks and urban sprawl systematically impede mobility and exacerbate vulnerability. Evidence from rapidly growing metropolitan peripheries indicates that urban sprawl increases travel costs, reduces access to employment centres, and raises public service costs for low-income households, particularly those located in peripheral areas (Nurrokhman et al., 2026). This pattern highlights how inadequate transport connectivity can reinforce socio-spatial inequality rather than mitigate it.

Institutional and Regulatory Drivers of Spatial Poverty

Institutions, land markets, and regulatory frameworks are structural factors that play a pivotal role in shaping the performance of socio-spatial mechanisms in cities. Empirical research has shown that the failure of governance, exclusionary policies, and inefficient land markets increase the size of poverty areas and entrench spatial segregation in rapidly expanding cities (Fosudo et al., 2026; Ghorbani & Dadazade Silabi, 2021). These structural factors hinder the ability of low-income groups to access formal housing, tenure security, and urban development opportunities, thus embedding poverty in a particular territorial structure.

However, evidence from planning reforms suggests that adaptive and collaborative institutional frameworks can address these disparities. GIS planning systems and collaborative planning efforts enhance spatial planning and facilitate more equitable distribution of urban

resources (Akomolehin et al., 2025). At the same time, zakat and Islamic philanthropy initiatives have been found to have a positive poverty reduction impact when contextualized within a specific territorial structure, rather than being used as a universal redistributive tool (Ibrahim & Kollin, 2024; Sari et al., 2025; Fajri & Kusumawardhani, 2025).

From Determinants to a Socio-Spatial Production Mechanism

Evidence synthesis indicates that accessibility, infrastructure, land use, mobility, and institutions interactively co-produce urban poverty, rather than acting as isolated factors. Poverty clusters tend to form in informal settlements, urban peripheries, and areas with fragmented infrastructure and weak governance (Chao et al., 2024; Li et al., 2025), highlighting the territorial intersection of socio-spatial constraints. Context, governance, and informal dynamics significantly modulate these mechanisms, reinforcing the view that urban poverty is territorially produced through interdependent physical, social, and institutional processes.

Conceptualizing urban poverty as a socio-spatial production mechanism provides a stronger analytical framework for understanding spatial inequality, guiding place-based and integrated interventions, and offering a transferable framework for comparative urban research. Integrating physical, social, and institutional aspects into a unified narrative (Figure 2) clarifies how spatial inequality is produced, reproduced, and potentially mitigated.

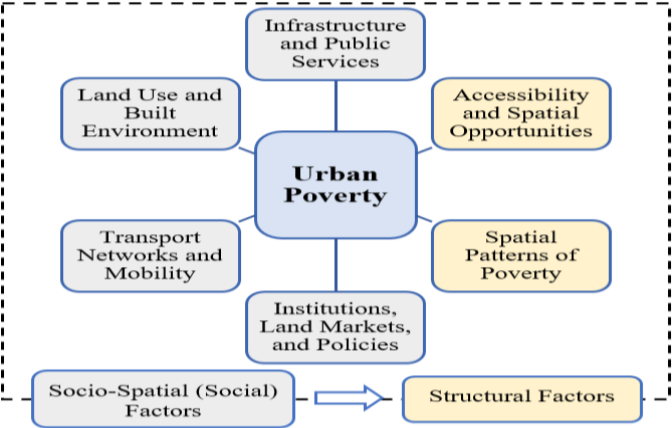


Fig. 2. Conceptual framework of socio-spatial and structural determinants of urban poverty

Table 2 complements this framework by summarizing empirical findings, highlighting contextual contradictions, identifying research gaps, and suggesting analytical directions. Together with Figure 2, it allows readers to simultaneously appreciate both the conceptual interactions of mechanisms and the supporting empirical evidence.

Table 2. Analytical summary of socio-spatial mechanisms producing urban poverty

Mechanism	Empirical Findings	Contradictions / Contextual Variability	Research Gaps	Analytical Recommendations	Supporting References
Accessibility and Spatial Opportunities	Proximity to public services, transport connectivity, and land-use diversity improves economic opportunities in Kenya, and limited access in informal peripheries of Indonesia	Similar interventions yield different outcomes across cities → context strongly influences effects	Comparative analysis on the interaction of accessibility, land use, and institutional constraints is limited	Examine the combined effects of accessibility and spatial opportunity structures; consider social and institutional mediators of access	Gachanja et al. (2025), Gachanja and Yang (2025), Calafiore et al. (2022), Logan et al. (2021)
Infrastructure and Public Services	Well-distributed infrastructure reduces multidimensional poverty and infrastructure deficits in Nigeria widen poverty gaps	New infrastructure does not necessarily reduce poverty without accompanying social policies	Lack of studies on the interaction between physical development and social policy	Analyze combined effects of infrastructure and social policy; test context-specific effectiveness	Ahmed et al. (2023), Kuntjorowati et al. (2024), Ramadhanis et al. (2025)
Built Environment and Land-Use Structure	Mixed-use and high-quality environments improve economic opportunities, and deteriorated neighborhoods increase vulnerability	Similar density and land-use patterns can have different effects across cities	Cross-city comparative studies are rare	Compare the effects of land-use and density on poverty in different contexts; analyze social-physical interactions	Liu et al. (2021), Yang et al. (2021)
Transport Networks and Mobility	Network connectivity improves access to work and services, and sprawl and fragmented networks increase costs and exacerbate poverty	Network effects vary where informal labor markets dominate	Systematic analysis of informal conditions and transport networks is lacking	Incorporate variables of economic informality and governance in mobility impact analyses	Wang et al. (2023), Qu et al. (2024), Akomolehin et al. (2025)
Institutions and Regulation	Institutional collaboration and GIS-based planning reduce inequality, and regulatory failures increase segregation	Policy impacts vary across cities → scale and institutional capacity matter	Comparative studies on institutional reforms and policy transferability are limited	Evaluate institutional reform effectiveness across cities; incorporate social and cultural perspectives	Abusaada and Elshater (2025), Elshater and Abusaada (2025)

From Empirical Determinants to a Socio-Spatial Production Mechanism of Urban Poverty

The studies included in Table 3 were carefully selected for their empirical robustness and their relevance to the socio-spatial processes of urban poverty. They offer a comprehensive synthesis of indicators, effects, and urban spaces. The evidence points to the fact that urban poverty does not result from any singular dimension of socio-economic deprivation but from the interplay between various dimensions of socio-spatial processes. The studies, by systematically highlighting contradictions between studies, contextual variability, and research gaps and avenues for future research, help to foster an analytical approach to the processes through which urban poverty is constructed, reconstructed, and spatially differentiated.

To improve analytical clarity, empirical findings and contextual interpretations are presented separately in Tables 3 and 4. Table 3 summarizes empirical indicators and spatial effects of urban poverty mechanisms, while Table 4 synthesizes contextual variability, research gaps, and analytical implications.

Table 3. Empirical Indicators and Effects of Urban Poverty Mechanisms

Mechanism	Empirical Indicator / Evidence	Direction of Effect	Spatial Context	Study
Informal settlements	Slum concentration; land-market exclusion; regulatory barriers	↑ poverty; ↑ vulnerability	African and Global South cities	Fosudo et al. (2026)
	Slum population share (54.6%); service deprivation	↑ inequality; ↑ wealth gap	Sub-Saharan Africa (32 countries)	Li et al. (2025)
	Spatial fragmentation; uneven infrastructure	↑ socio-spatial inequality	Lagos, Nairobi, Accra, Addis Ababa	Akomolehin et al. (2025)
Urbanisation and mobility	Urban sprawl; housing size <48 m ²	↑ service costs; ↑ poverty exposure	Jakarta Metropolitan Area	Nurrokhman et al. (2026)
Service accessibility	Health and education coverage (57–100%)	↓ equality; ↑ deprivation	Jakarta (6 municipalities)	Ramadhanis et al. (2025)
	Ward-level poverty incidence >0.20	↑ poverty gap; ↑ spatial inequality	Medium-sized cities, Nigeria	Olabamiji and Ajala (2024)
Spatial clustering	Moran's I = 0.677	↑ poverty clustering	Hamadan, Iran	Nikpour et al. (2022)
	Hotspot concentration; factor mixture	↑ social poverty concentration	Ardabil, Iran	Ghorbani and Dadazade Silabi (2021)
	Clustered distribution along rivers/periphery	↑ concentrated poverty	Yogyakarta, Indonesia	Khoir et al. (2025)
Mobility and transport	Network density –1.004**; betweenness	↓ multidimensional poverty	Kenya	Gachanja and Yang (2025)
	Land-use mix; GWR mobility variation	↑ mobility; ↑ inequality	Makassar, Indonesia	Irwan et al. (2025)
Poverty–crime nexus	Poverty and unemployment	↑ crime rates	Indonesia (32 provinces)	Kurniasih et al. (2024)
Technological mapping	GIS + big data; Urban Poverty Spatial Index	↑ mapping accuracy; ↑ risk identification	Zhengzhou, China	Wang et al. (2023)
	Bibliometric spatial inequality clusters	Identifies five inequality domains	Global	Malaker and Meng (2024)
Philanthropy and welfare	ZIS distribution (2019–2023)	↓ poverty (significant)	20 Indonesian provinces	Sari et al. (2025)
	Zakat concentration (Malaysia > Indonesia)	↓ poverty	Indonesia and Malaysia	Haq and Azzahra (2025)
	Zakat productivity for MSMEs	↑ empowerment; ↑ resilience	Bengkulu, Indonesia	Wahyuni et al. (2025)
	CSR + human development factors	↓ spatial poverty	Tapin, Indonesia	Safitri et al. (2024)
Economic structure	Economic growth; domestic investment	↑ poverty (growth paradox)	Sumatra, Indonesia	Ramadona et al. (2025)
Environmental vulnerability	Urban heat; pollution exposure	↑ socio-environmental disadvantage	China	Chao et al. (2024)

Note: The coefficient –1.004** indicates a statistically significant negative relationship between transport network density and multidimensional poverty, while betweenness centrality highlights the role of strategically connected transport corridors in mediating accessibility and poverty reduction. Reported coefficients are extracted from the original studies to indicate direction, magnitude, and significance within an analytical review framework.

Table 4 extends the analysis by synthesizing contextual variability, research gaps, and analytical implications associated with socio-spatial mechanisms of urban poverty.

Table 4. Contextual Variability, Research Gaps, and Analytical Recommendations

Mechanism	Contradictions / Contextual Variability	Research Gaps	Supporting References
Informal settlements	Effects vary according to governance capacity, formalization policies, and transport connectivity	Limited comparative research on formal–informal settlement dynamics and integrated infrastructure–social policy relationships	Akomolehin et al. (2025), Li et al. (2025), Fosudo et al. (2026)
Urbanisation and mobility	Urban sprawl and mobility effects are context-dependent and mediated by informal economic structures	Limited evidence from medium-sized cities and varying labour-market contexts	Qu et al. (2024), Nurrokhman et al. (2026)
Service accessibility	Similar levels of service coverage may produce different outcomes depending on governance quality and informal barriers	Insufficient integration of spatial accessibility with institutional and social dimensions	Calafiore et al. (2022), Ramadhani et al. (2025), Gachanja et al. (2025)
Spatial clustering	Poverty clustering differs according to urban density, social networks, and environmental conditions	Limited longitudinal and neighbourhood-scale analyses of poverty concentration dynamics	Ghorbani and Dadazade Silabi (2021); Wang et al. (2023), Sari et al. (2025)
Mobility and transport	Connectivity may reduce poverty, but outcomes vary depending on informal labour structures and land-use patterns	Few comparative studies linking transport systems with informal economies and social networks	Qu et al. (2024), Akomolehin et al. (2025)
Poverty–crime nexus	Relationships between poverty and crime vary across institutional and law-enforcement contexts	Limited multidimensional analyses integrating socio-spatial and crime dynamics	Kurniasih et al. (2024)
Technological mapping	GIS- and big-data-based approaches are influenced by data availability and methodological variation across countries	Lack of standardized indicators and applications in low-data urban contexts	Wang et al. (2023), Malaker and Meng (2024)
Philanthropy and welfare	Poverty alleviation outcomes differ according to institutional capacity and regional socio-economic contexts	Limited longitudinal evaluation of scalability and long-term welfare impacts	Abu Bakar et al. (2025), Sari et al. (2025)
Economic structure	Growth paradox varies by labor absorption	Few studies linking growth with spatial poverty	Leal Filho et al. (2021), Affandi et al. (2025)
Environmental vulnerability	Effects moderated by governance and mitigation measures	Limited multi-hazard studies	Shi et al. (2023); Manetti et al. (2026)

Urban poverty, therefore, is not caused by individual socio-economic factors but is the product of the combined outcome of various mechanisms. For example, informal settlements are both means of survival and poverty traps, as indicated by the fact that the slum population percentage in Sub-Saharan Africa is more than 50% and the exclusion from the land market in cities in the Global South is evidence that urban poverty is perpetuated through regulatory, fragmentation, and service-related deprivations (Li et al., 2025; Fosudo et al., 2026).

Urban poverty, as seen in informal settlements, is also bivalent, as it offers economic opportunities but increases environmental and social risks, as seen in the trade-offs in socio-economic and environmental deprivations in informal settlements in Ghana (Takyi et

al., 2021; Agyabeng et al., 2022). For example, uncontrolled urban growth in Wuhan, China, exposes urban dwellers to environmental risks, and therefore there is a need to integrate participatory governance and risk mitigation strategies (Wang et al., 2022).

Overall, the two-table approach is seen to effectively illustrate the interactive production of urban poverty, as well as the ways in which accessibility, infrastructure, land use, and mobility, as well as institutional frameworks, contribute to the production of urban inequality. In the sense that it links empirical indicators (Table 3) with contextual interpretation and recommendations (Table 4), this review is seen to address major issues raised regarding methodological transparency, critical synthesis, and originality, as seen in previous studies in the same subject area.

Discussion

The synthesis of evidence presented in Tables 1–4 consistently demonstrates that urban poverty is neither randomly distributed nor adequately explained by income deprivation alone. Rather, poverty emerges as a territorially differentiated condition concentrated in urban spaces characterized by weak accessibility, inadequate infrastructure, environmental vulnerability, and institutional marginalization. Across diverse urban contexts including inner-city districts, peri-urban zones, informal settlements, and fragmented metropolitan peripheries the reviewed studies indicate that deprivation is embedded within the spatial organization of cities. This finding reinforces broader contributions in urban geography and social geography that interpret poverty as a socio-spatial outcome of uneven urban development rather than merely a household-level economic condition. This also resonates with canonical arguments on uneven development and the production of urban space, whereby urban inequalities are materially embedded in territorial arrangements and planning processes.

A first recurring pattern concerns the mediating role of accessibility between spatial opportunity structures and socio-economic outcomes. Evidence from Kenya shows that greater transport network density and connectivity are associated with lower multidimensional poverty through improved labor-market participation and service access (Gachanja & Yang, 2025). By contrast, findings from metropolitan Jakarta indicate that fragmented transport systems and peripheral sprawl increase travel time, raise mobility costs, and restrict access to employment and education (Nurrokhman et al., 2026). Taken together, these studies suggest that accessibility is not simply a physical attribute of distance or infrastructure provision, but a relational mechanism through which urban residents convert spatial proximity into actual opportunity. This interpretation is consistent with recent international scholarship emphasizing that unequal mobility systems can reproduce deprivation even under conditions of aggregate economic growth (Calafiore et al., 2022).

A second major pattern relates to infrastructure, public services, and the built environment as structuring forces of urban inequality. Studies from Jakarta and Nigerian cities show that uneven provision of education, healthcare, and utilities reproduces territorial disadvantage, particularly in peripheral and underserved neighbourhoods (Olabamiji & Ajala, 2024; Ramadhanis et al., 2025). At the same time, research from China and Indonesia indicates that higher-quality and functionally mixed urban environments can improve resilience, mobility, and access to economic opportunities (Chao et al., 2024; Irwan et al., 2025). Infrastructure should therefore be understood not as a neutral technical system, but as an institutionalized spatial resource that distributes inclusion and exclusion unevenly

across the city. This perspective further emphasizes the importance of urban form and service geography in shaping contemporary poverty dynamics.

A third recurring finding concerns the persistence of spatial clustering and neighbourhood effects. Spatial econometric studies using Moran's I, hotspot analysis, and related methods in Iran, Indonesia, and Sub-Saharan Africa show that poverty clusters often remain durable over time, particularly in informal settlements and peripheral urban zones (Nikpour et al., 2022; Agyabeng et al., 2022; Khoir et al., 2025). These areas frequently function simultaneously as survival spaces and poverty traps: they provide affordable shelter and informal livelihoods, yet also expose residents to insecure tenure, weak services, and limited upward mobility. Such patterns highlight how neighbouring disadvantage, weak connectivity, and historical neglect cumulatively reinforce territorial inequality over time.

The review also highlights important differences between urban contexts, particularly between cities of the Global North and Global South. In many higher-income contexts, deprivation often appears through housing stress, segregation, ageing infrastructure, and unequal service accessibility. In rapidly urbanizing cities of the Global South, poverty is more strongly associated with informal urbanisation, infrastructural deficits, regulatory exclusion, and environmental exposure. Although the spatial expression of poverty differs across contexts, the underlying mechanism remains the uneven distribution of urban resources, opportunities, and environmental risks.

Importantly, the findings also caution against overly deterministic interpretations. Improved accessibility or new infrastructure does not automatically reduce poverty where governance capacity is weak, housing remains unaffordable, or labor markets are highly informal. This helps explain why similar interventions produce uneven outcomes across cities. In some contexts, transport expansion substantially improves welfare; in others, benefits are captured unevenly or offset by rising land values and displacement pressures. Urban poverty is therefore best understood as the outcome of interacting spatial, institutional, and economic processes rather than any single variable.

The review further indicates that locally embedded redistributive mechanisms—including zakat-based, CSR, and community-oriented initiatives—can contribute to poverty reduction when aligned with territorial needs and local governance capacity (Salim et al., 2024; Jalil et al., 2024; Bindarto et al., 2024; Aisyah, 2025; Deffinika et al., 2025). Their effectiveness appears strongest when integrated with broader place-based strategies such as service upgrading, neighborhood investment, and mobility improvement, rather than when treated as stand-alone transfer mechanisms. Accordingly, institutional responses appear most effective when embedded within locally specific socio-spatial conditions.

Methodologically, the literature has advanced through GIS, remote sensing, spatial econometrics, and composite poverty indices, which improve the identification of deprivation hotspots and enable more targeted interventions (Wang et al., 2023; Malaker & Meng, 2024). Nevertheless, important limitations remain. Many studies are cross-sectional, concentrated in single cities, or reliant on inconsistent spatial scales, which constrains comparative and longitudinal understanding. Future research would benefit from multi-city comparative designs, neighbourhood-scale panel data, participatory approaches, and integrated modelling that links mobility, housing, governance, and environmental exposure.

Overall, the evidence indicates that urban poverty is shaped through interconnected socio-spatial processes that concentrate and reproduce disadvantage across urban territories. Conceptualizing poverty as a socio-spatial production process provides a stronger analytical basis for understanding how unequal urban life chances are reproduced across territories. For policy, this implies that effective poverty reduction requires territorially targeted and context-sensitive strategies that combine infrastructure provision, accessible mobility systems, inclusive planning, institutional reform, and environmental risk mitigation. The principal contribution of this study lies in integrating spatial organization, socio-spatial determinants, and human–environment interactions into a unified explanatory framework that can be applied comparatively across diverse urban contexts. In doing so, the paper moves beyond descriptive mapping toward a more theoretically grounded interpretation of contemporary urban poverty.

Conclusion

Urban poverty is not randomly distributed or solely driven by income; it is territorially generated and structurally embedded. The analysis demonstrates that informal settlements, marginal areas, and underserved urban neighborhoods consistently serve as persistent poverty hotspots, where spatial clustering, locational disadvantage, and unequal access to infrastructure reinforce multidimensional deprivation. Accessibility, infrastructure, land use, mobility, governance, and environmental vulnerability interact dynamically, producing and sustaining these socio-spatial inequalities, highlighting that urban poverty is the product of systemic mechanisms rather than isolated household deficits.

These findings contribute at the conceptual, analytical, and practical levels. At the conceptual level, this article shifts the focus from specific socioeconomic deficits to a socio-spatial production process, emphasizing the co-production of poverty through accessibility, infrastructure, land use, governance, and environmental conditions. At the analytical level, this study develops a unified explanatory framework integrating spatial organization, socio-spatial determinants, and human–environment interactions, demonstrating how multiple mechanisms interact across urban contexts. At the practical level, the findings show that territorially targeted, context-sensitive, and evidence-based interventions including strategic transport connectivity, inclusive planning, service provision, and adaptive redistribution mechanisms such as zakat are likely to be more effective than city-wide approaches alone.

Urban poverty should therefore be understood as a socio-spatial production process through which disadvantage is created, concentrated and reproduced across urban territories. The principal contribution of this study lies in integrating spatial organization, socio-spatial determinants, and human–environment interactions into a unified explanatory framework applicable across diverse urban contexts. This framework advances both theoretical debate and policy practice by supporting territorially targeted, context-sensitive, and evidence-based strategies for inclusive urban development.

Limitations and Future Research

This study highlights the multidimensional and socio-spatial nature of urban poverty by emphasizing the interdependence of infrastructure, accessibility, social processes, and institutional arrangements. However, as a literature-based synthesis, the study is limited by the absence of primary data as well as variations in methodology, spatial scale, temporal

coverage, and the representation of informal local interventions across the reviewed studies. Future research should therefore employ high-resolution spatial data, longitudinal and participatory approaches, and emerging technologies such as GIS, remote sensing, and big data to better capture local socio-spatial dynamics and enable comparative analysis across cities and countries. Further investigation is also needed to evaluate the effectiveness of local and place-based interventions, particularly in informal settlements, in order to support more context-sensitive and effective urban planning and poverty reduction strategies.

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