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Research Article

From Depopulation to Social Exclusion: Spatial Reconfiguration and Institutional Responses in Shrinking Post-Industrial Cities

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Abstract

This research seeks to explore the mechanisms through which demographic decline results in social exclusion in post-industrial cities characterized by population decline through spatial mechanisms. A proposed spatial mediation model is presented to better illustrate the mechanisms of spatial mechanisms in the relationship between demographic decline and social exclusion. Three mechanisms are proposed: selective out-migration as a factor for human capital decline, infrastructural withdrawal as a factor for differential service access, and territorial stigmatization as a factor for place attachment decline. Quantitatively, the findings reveal that 17.2% of the unemployed face an intensification of their social exclusion, while 12.7% face a substantial increase in their social exclusion in vulnerable social groups. The analysis of multi-level governance reveals the coordination failures between the national growth paradigm and the local shrinkage reality, thereby perpetuating ineffectiveness in institutional responses. The current study contributes to the field of urban sociology by conceptualizing social exclusion as a spatial, as opposed to a demographic, phenomenon. The policy implications suggest that it is necessary to go beyond reactive recovery strategies and towards a more proactive approach to smart shrinkage, which also includes elements of participatory governance and community resilience-building. The future research avenues may also consider international differences and longitudinal methodologies to examine the exclusion effects in different contexts of shrinking cities.

Keywords

Shrinking cities, Social exclusion, Spatial reconfiguration, Multi-level, Governance, Post-industrial cities

1. Introduction

The new urban landscape that exists in post-industrial regions is characterized by an unprecedented transformation that brings about complex patterns of social exclusion through the interplay of demographic decline and significant spatial change. In the recent past, a quarter of cities in developed economies have been characterized by persistent population decline (Yuan & Hwang, 2025). This phenomenon has been particularly prevalent in post-industrial cities in which the economic restructuring process has profoundly changed the relationship between people and place. The process of population decline to social exclusion entails a major shift from quantitative changes in population to qualitative changes in social exclusion with spatial change as major mediators in the process (Sisson, 2021).

However, recent empirical evidence suggests that shrinking cities exhibit paradoxical patterns of development, where cities continue to expand in terms of space while experiencing severe decline in terms of population (Wang et al., 2025). This paradoxical situation suggests that theories do not adequately deal with the issue of how decline results in social exclusion in space. The post-industrial city is challenged in addressing the problem of aging populations, as well as a lack of economic opportunities, which results in cumulative disadvantage that is spatially concentrated (Zhao et al., 2025). The process of transformation is achieved in various interconnected paths, including the pattern of selective out-migration, the process of infrastructure withdrawal, as well as the process of territorial stigmatization (Klaassen & De Block, 2025).

This is particularly evident in post-industrial societies, where historical legacies of industrialization have created new forms of urban marginality due to demographic changes (Brüll et al., 2026). However, it is evident that the present institutional response to these complex processes of spatial-demographic changes is not effective. The existing approaches, which focus on urban growth, have not managed to address the problems of shrinkage, thus necessitating new approaches that focus on the idea of decline as a strategy for development (Marjanović et al., 2025). This research addresses a significant knowledge gap with regard to the specific mechanisms by which demographic decline leads to social exclusion, particularly within shrinking post-industrial cities. The aim of this article is to propose an analytical framework that seeks to conceptualize spatial reconfiguration as a mediator between demographic change and social exclusion, particularly with regard to its function as a cause and effect of social exclusion. The article makes a contribution to urban sociology theory, particularly with regard to its theorization of spatial aspects of post-industrial urbanism.

2. Theoretical Framework: The Spatial Mediation of Demographic Change

To understand this movement from demographic decline to social exclusion, it is essential to

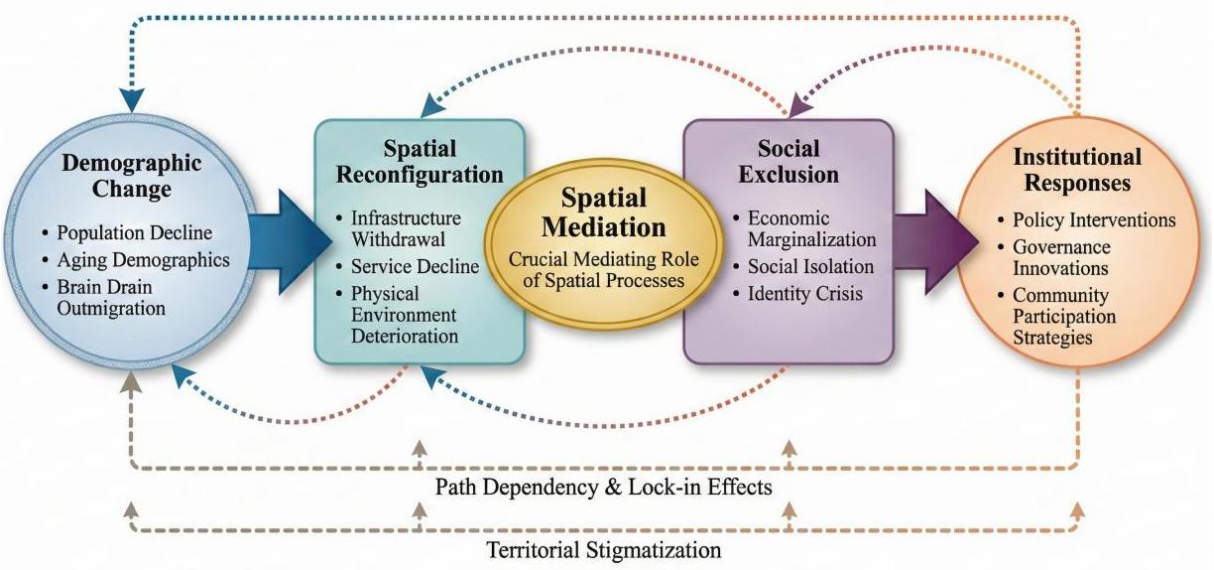
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conceptualize space not just as a 'passive container' but also as an 'active mediator' of social processes. The theory of post-industrial urban decline illustrates how economic change can have cascading effects on demographic, spatial, and social factors (Xu et al., 2025). The demographic-spatial-social nexus can be conceptualized as involving feedback loops, with demographic decline resulting in spatial change, which in turn results in social change. Path dependency and lock-in effects maintain existing trajectories of decline. In addition, inertial forces may arise from existing historical infrastructures and institutional arrangements, potentially hindering adaptive capacity (Ortiz-Moya & Sieloff, 2025). Shrinking cities may fall into negative spirals due to inertial forces, potentially resulting in exclusion through demographic and spatial changes. Cultural interventions could be a strategy to counter negative spirals, but this depends on specific contexts (Pomesano & Falanga, 2025).

The key process in the framework is territorial stigmatization, and it is focused on the stigmatization of particular locations. All the processes take place through the application of symbolic representations that carry negative meanings. The disadvantage accumulation framework presents the process of disadvantage that arises as a result of accumulated disadvantages. This approach, as depicted in Figure 1, views the spatial reconfiguration process as the main intermediary between demographic changes and social exclusion, while institutional responses are viewed as necessary interventions to address the spatially mediated exclusion processes in shrinking post-industrial cities.

Figure 1

From Depopulation to Social Exclusion: A Spatial Mediation Framework



3. From Depopulation to Spatial Reconfiguration

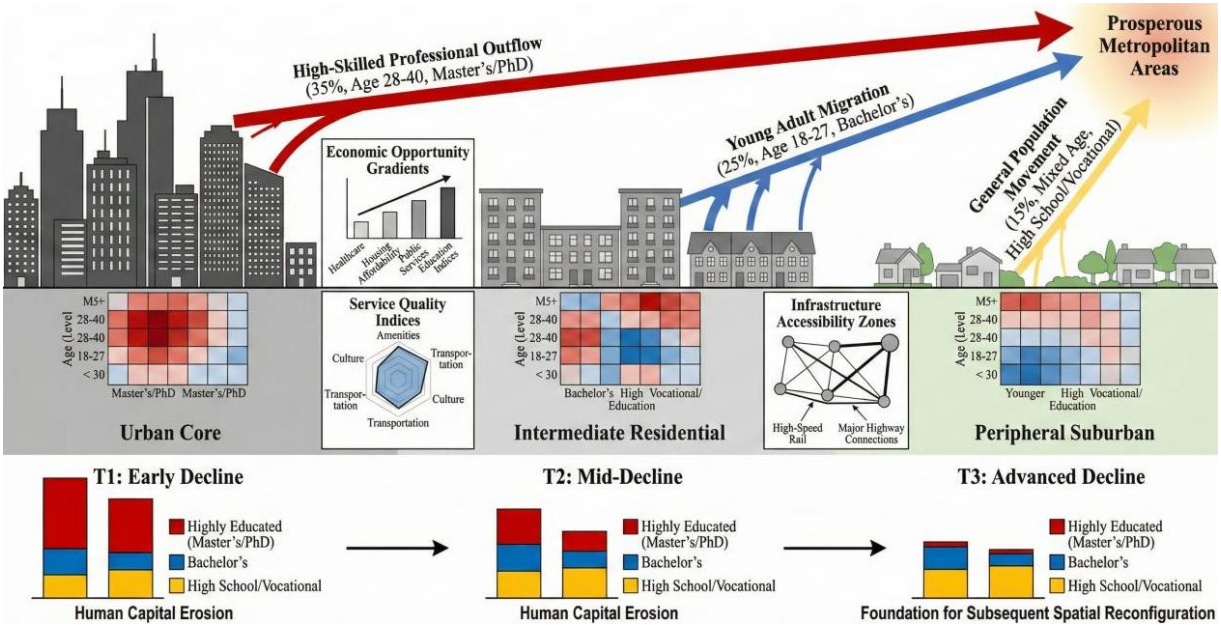
3.1. Selective Out-Migration and Spatial Triggers

The demographic changes observed within post-industrial cities reveal that there is selectivity,

whereby the out-migration rates observed among the highly educated population are much higher when compared to other population groups, with a higher tendency among adults who are college-educated to out-migrate with the objective of advancing their careers. The demographic changes observed within Northeast China reveal that there has been a steady decline in population, with a brain drain effect being observed since the year 2000. The economic opportunities continue to represent the major driving force behind selective migration, where individuals aim to maximize their return on investment in human capital in metropolitan centers that are thriving. From the analysis, it is evident that urban amenities, quality of public services, and housing affordability represent crucial factors for talent retention within urban centers. As depicted in Figure 2, the cumulative effects of selective out-migration weaken the demographic foundations for sustainable urban development, creating preconditions for subsequent spatial reconfigurations.

Figure 2

Selective Out-Migration Patterns and Spatial Demographic Restructuring in Post-Industrial Cities



3.2. Infrastructure Withdrawal and Service Decline

This results in a chain of effects on the viability of infrastructure systems, which causes the systematic withdrawal of vital services in shrinking cities. Research has proven that 43% of US cities that are experiencing population decline struggle to provide vital services such as transportation systems, water services, and electrical services. The financial constraints and understaffing in the management of water services and wastewater are issues that need to be addressed. In addition, the population of 70% is willing to pay more for improved service through alternatives like retooling options. Privatization and liberalization of infrastructure services lead to service withdrawal due to the need to achieve profit maximization. As depicted in Table 1, there is an identifiable spatial pattern in

infrastructure withdrawals that systematically undermines urban functionality and results in differential access patterns in socioeconomic neighborhoods.

Table 1

Infrastructure Withdrawal Patterns and Service Decline Indicators in Shrinking Cities

Infrastructure Category	Service Withdrawal Rate	Primary Causes	Spatial Distribution Pattern	Population Impact
Public Transportation	35-45% reduction	Fiscal constraints, low ridership	Core-to-periphery gradual withdrawal	2.1 million residents affected
Water/Wastewater Systems	25-30% capacity underutilization	Aging infrastructure, maintenance costs	Selective neighborhood abandonment	850,000 households impacted
Electricity Grid	20% efficiency decline	Oversized infrastructure, reduced demand	Network rationalization required	1.5 million consumers affected
Healthcare Facilities	40% closure rate	Professional brain drain, operating deficits	Rural and low-income area concentration	750,000 residents underserved
Educational Services	30% school consolidation	Enrollment decline, budget reductions	District-wide restructuring patterns	450,000 students displaced

3.3. Physical Environment Deterioration

This deterioration of infrastructure happens at a quicker pace in shrinking cities due to lower density, as seen in the case of Detroit, where 19,000 structures were demolished between 2014-2020 in addition to the 100,000 vacant lots. The Blight Removal Task Force determined that 50% of the vacant structures had to be demolished, unveiling strategies to address more than 80,000 derelict homes. There are direct correlations between the number of homes that are vacant and the crime rates, as violent crime increases by 19% once a home has been foreclosed. There are also issues of deterioration due to the environmental contamination, as it has been found that the vacant lots have a high level of lead. Studies suggest that those areas with the highest numbers of less educated people in their population are 9.01 times more likely to experience higher rates of vacancy; hence, the deteriorated landscape will further increase the process of stigmatization.

4. From Spatial Reconfiguration to Social Exclusion

4.1. Socio-Economic Spatial Polarization

The processes of spatial reconfiguration display high levels of socio-economic polarization, which has significant effects on restructuring the social geography of cities and leads to high levels of spatial segregation of socio-economic groups, which is closely related to social exclusion and fragmentation. In the process of urban revitalization, there exists an “uncoupling” phenomenon, whereby economic activities are concentrated in specific areas while excluding others, leading to high levels of economic and racial inequality. Research has indicated that occupational structures in global cities tend to be professionalizing, with a rising percentage of high-income workers who tend to appreciate living in inner cities, hence the need for central urban areas with the poor living in the periphery.

The contemporary economy also contributes to urban inequality through the acceleration of bifurcation of the labor force, inter-urban inequality through the different rates of growth and decline, and the reinvigoration of the central cities that has become increasingly exclusive. Consequently, there are spatial opportunities that are created through which inequalities are sustained through differential access to means of improving economic performance. The analysis demonstrates that there is evidence for polarized life paths in housing, and that the aggregation of housing decisions made at different stages of life results in multiscale polarization effects, which are enhanced by intergenerational transfers and inequalities in space. The result has been bifurcated geographic spaces marked by the juxtaposition of inordinate wealth and associated social power, and deprivation, exclusion, and decline. In short, the structural basis of systematic social exclusion has now been constructed.

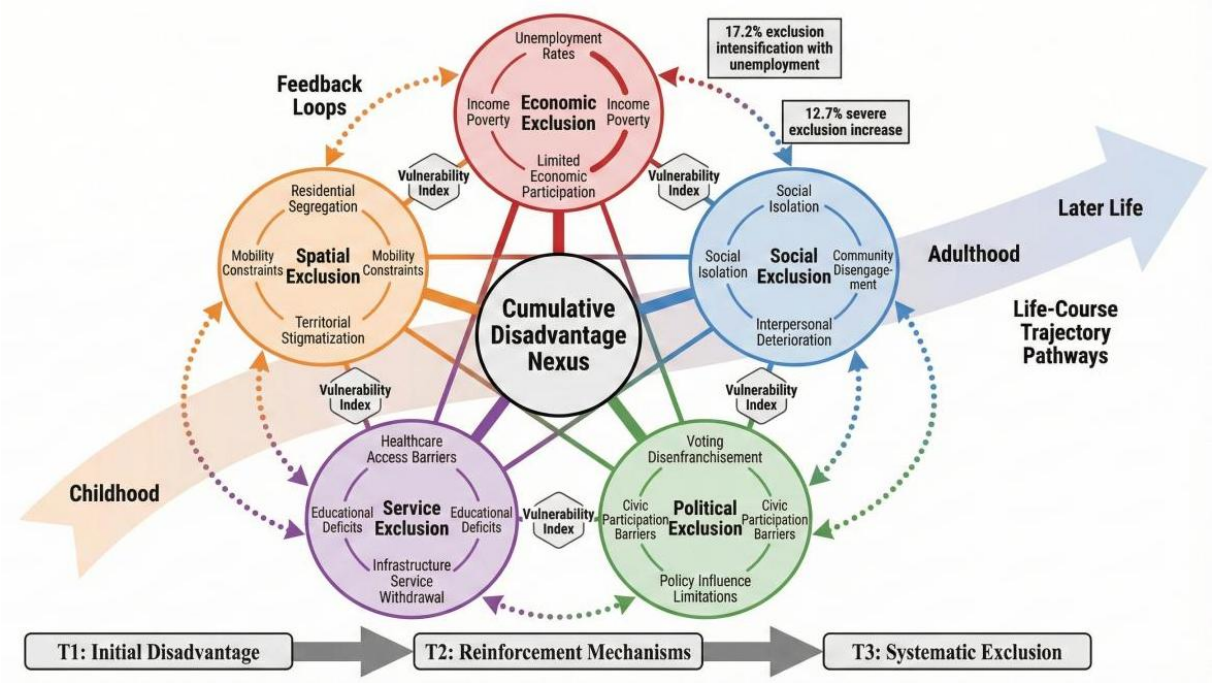
4.2. Multi-Dimensional Exclusion and Cumulative Disadvantage

In this way, social exclusion can be said to emerge as a multidimensional construct where exclusion processes are implicated across several areas, such as economic participation in society, citizenship, and social relationships, which eventually lead to isolation and/or conflictual interpersonal relationships. It appears that inequalities affect various areas of life; for instance, childhood exposure to neighborhood deprivation has a cumulative adverse effect. Multidimensional measurement has shown that social exclusion is marked by non-material dimensions such as access to health services, livable environments, and political participation, thus requiring methodologies to measure it comprehensively while incorporating territorial considerations instead of individual ones. As depicted in Figure 3 below, these dimensions of exclusion interact each other to produce the phenomenon of cumulative disadvantage. The analysis of shrinking cities has revealed that, from a multidimensional point of view, observation perspectives of economy, society, and space can identify how vulnerable social groups simultaneously experience exclusion. The empirical results indicate that, for social groups with unemployment characteristics, the degree of social exclusion increases by 17.2 percentage points, while the degree of severe exclusion increases by 12.7 percentage points.

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Figure 3

Multi-Dimensional Social Exclusion Framework and Cumulative Disadvantage Mechanisms in Shrinking Cities



4.3. Symbolic Space Degradation and Identity Crisis

Territorial stigmatization is a crucial and damaging form of social action in social representation that is linked with place, which creates a triadic relationship between symbolic space, social space, and physical space degradation, which profoundly affects social identity, social strategy, and social structure. The stigmatization process is concerned with symptoms, as opposed to causes, of economic and social problems, such as degradation of the urban space and commercial vacancy, which obscures links between place degradation in the local context and processes of globalization and liberalization. Studies have established that territorial stigmatization has acquired national renown and disrepute, hence resulting in the emergence of a new circuit of symbolic production where not only policy elites but also the citizenry shun infamous urban territories. Sociosymbolic practices of compliance and resistance are nurtured as coping strategies for dealing with territorial denigration, with some groups developing discourses of "green neighborhood identity" as a way of countering negative constructions of self and territory. As depicted in Table 2, the symptoms of identity crisis vary across different demographic groups and territorial contexts. The process of stigmatization has been independent, nationally focused, and democratized; it has been compared to the process of social disintegration and has been selectively racialized. This has further fueled negative reactions and resulted in corrective actions. However, the process of stigmatization of place attachment and identity construction has been used to prevent social cohesion and mobilization, thereby leading to the process of exclusion and marginalization in shrinking cities.

Table 2

Symbolic Space Degradation Indicators and Identity Crisis Manifestations in Shrinking Post-Industrial Cities

Identity Crisis Dimension	Manifestation Indicators	Affected Demographics	Spatial Context	Response Strategies
Place Attachment Erosion	Reduced community belonging	Young adults 18-35	Former industrial districts	Residential mobility strategies
Territorial Stigmatization	Media negative representation	All age groups	Core urban areas	Counter-narrative construction
Social Identity Fragmentation	Increased residential shame	Working-class families	Peripheral housing estates	Focused avoidance behaviors
Collective Memory Disruption	Historical identity disconnection	Elderly residents 65+	Traditional neighborhoods	Heritage preservation efforts
Symbolic Capital Devaluation	Economic transaction penalties	Ethnic minorities	Segregated communities	Community organizing responses

5. Institutional Responses and Policy Interventions

5.1. Reactive versus Proactive Strategies

Research carried out in contemporary times shows that shrinking cities use reactive strategies, which are characterized by short-term strategies that help mitigate the negative impacts of city shrinkage, such as demolishing social rental housing of poor quality. The strategies used by shrinking cities are mostly reactive, with recovery and adaptation being the main strategies used to respond to city shrinkage. Previous reactive approaches have recorded poor results in managing urban shrinkage. Empirical evidence suggests that adaptation and recovery to existing policy frameworks have been achieved, but initiatives that go against policy principles are minimal. Recent proactive approaches have demonstrated that urban decline and smart shrinkage can be achieved. The well-thought-out decline strategy can be used as a tool to build resilience and mitigate negative impacts in a context with scarce resources, which is a paradigmatic shift in adaptive planning strategies. The cases from Europe show that to be successful, it is essential to understand that market forces, which work elsewhere, do not work in shrinking contexts, which calls for new policy instruments that embrace decline, instead of trying to revive growth.

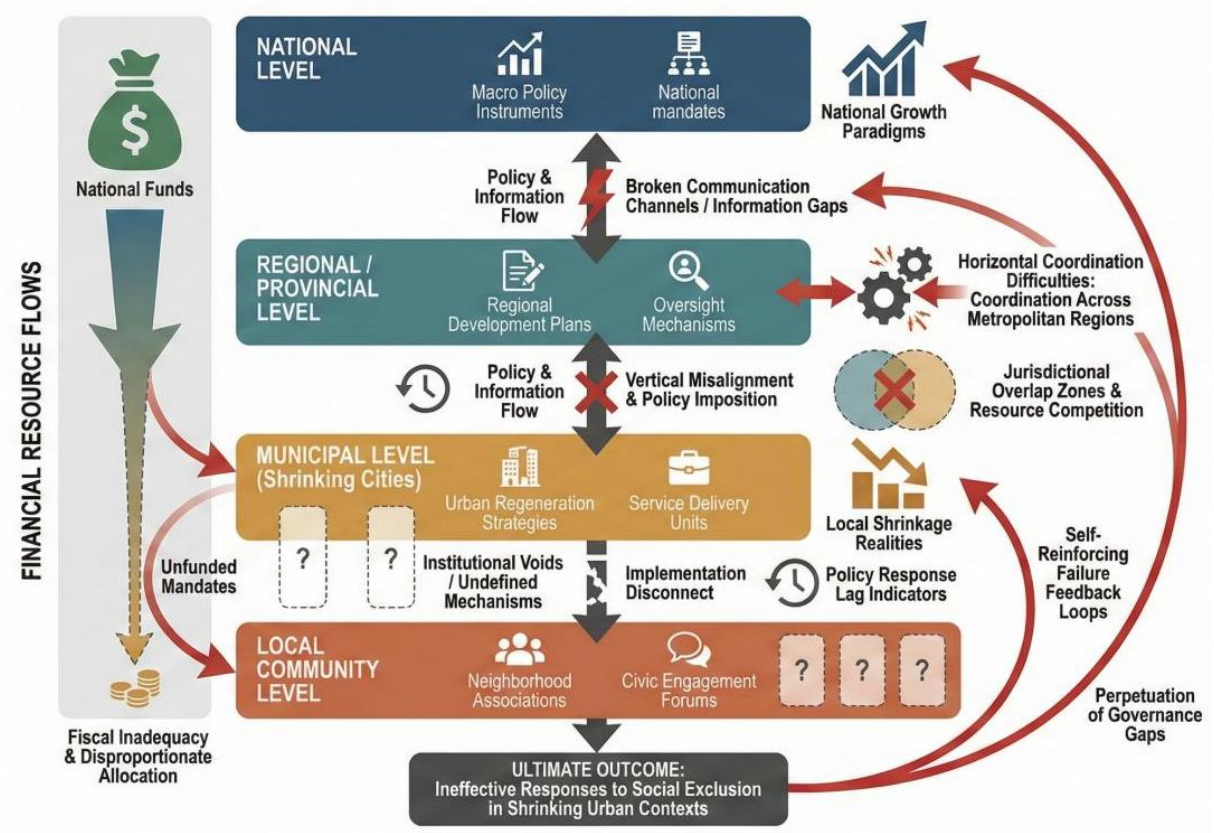
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5.2. Multi-Level Governance Challenges

The multi-level governance structure that has been established within these shrinking cities has systemic coordination failures at various levels within this structure. For example, there are critical information deficiencies regarding the specific needs that must be fulfilled so that adequate assistance can be delivered, along with coordination failures that allow adequate resources to reach specific targets. Furthermore, there are issues with the intergovernmental financial transfers that do not scale up with the rising needs and challenges. As shown in Figure 4, coordination problems in the vertical dimension are represented by trade-offs in national growth objectives and local contraction challenges. Horizontal coordination impediments are represented by spillovers from core cities and smaller cities, coordination problems in metropolitan regions, and negative externalities that create regional equity problems. Research indicates that it is essential to adopt a multi-level governance system to deal with urban shrinkage. However, it is clear that the current system has not developed effective instruments to integrate policies. Secondly, there have been problems of siloing and fragmentation, which have presented challenges to the central coordination system. There is, therefore, a governance gap, and it is not clear which level of government is responsible for dealing with issues related to social exclusion.

Figure 4

Multi-Level Governance Failures and Policy Coordination Gaps in Shrinking Cities



5.3. Innovative Inclusion Approaches

The new strategies of inclusion emphasize the significance of participatory governance and community-based development of resilience as substitutes to traditional strategies of inclusion. Community participation creates a sense of ownership and responsibility in the community, and this guarantees commitment to the implementation of the program and policy. On the other hand, the significance of participatory governance, which involves the participation of the people in the process of decision-making, is critical in the development of resilient communities. The social integration programs, as well as the place-based social integration initiatives, demonstrate their potentials in various mechanisms such as community ownership, sharing of resources, and application of community knowledge in environmental governance. The contemporary approaches have utilized the potentials of digital technology in allowing citizens to interact more openly, inclusively, and substantively with government actors. However, there are challenges that need to be addressed for implementation, such as resource and institutional constraints. Studies have shown that the prospects for developing cooperation among multi-stakeholders, social innovation, and capacity building for building resilience through participatory approaches are high, but this will depend on the management of issues of power and the inclusiveness of the process of engagement, especially in diverse and marginalized societies, and developing institutional capacity for collaborative governance.

6. Conclusion

The aim of this research is to identify the mechanisms through which depopulation and exclusion relate in post-industrial cities in decline, hence showing how depopulation leads to spatial reconfiguration resulting in multidimensional exclusion. It shows how spatial reconfiguration happens through three forms: selective demographic and human capital loss, differential accessibility and quality of infrastructures, and territorial stigmatization and attachment loss. The mechanisms mentioned above result in a process of cumulative disadvantage in economic, social, political, spatial, and service exclusion. Quantification indicates that 17.2% exclusion intensification exists among the unemployed, while 12.7% severe exclusion increases are reported among vulnerable groups.

From the analysis of multi-level governance, there is evidence of coordination failures regarding national growth paradigms and local realities of shrinkage. This leads to implementation gaps and creates exclusion cycles. The theoretical contribution is the concept of social exclusion as a spatial rather than a demographic process and the demonstration of the impact of institutional fragmentation on social exclusion. The implications for policy indicate a shift from reactive approaches to recovery to more proactive approaches to smart shrinkage, focusing on participatory governance and resilience-building in cities. There is a need for future research to emphasize differences in governance approaches across nations, to develop methodologies for measuring change in exclusion over time,

and to evaluate the effectiveness of new policy interventions for different types of shrinking cities.

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The author declares that there is no conflict of interest.

Ethics approval

Not applicable.

Consent to participate

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Consent for publication

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