

G10 Socio-Spatial Inequalities and Polarisation: Segregation, Migration, Gender, Discrimination and Social Exclusion

For Ordinary Sessions (O-)

Title: How Do Spatial and Structural Determinants Influence Unmet Healthcare Needs? Evidence from Busan, South Korea

Abstract

This study aims to explain the spatial differences in Unmet Healthcare Needs (UHN) observed at the si-gun-gu (local district) level. Rather than interpreting UHN as merely the result of individual choice, this research is grounded in a conceptual framework that understands UHN as an outcome of spatial, economic, and social structures. Specifically, it examines the roles of three structural constraints: (1) Geographic/Travel Accessibility, (2) Daily-life Constraints, and (3) Socioeconomic Structural Barriers. The analysis is based on annual UHN rates at the local district from 2010 to 2024.

Geographic/Travel Accessibility was measured using the Enhanced Two-Step Floating Catchment Area (E2SFCA) method. This approach captures the level of opportunity to access healthcare services in spatial terms by comprehensively considering hospital service capacity (e.g., number of beds and hospital size), diversity in the supply structure, and spatial equity. The model incorporates actual travel time calculated from the road network, distance-decay effects, and competition for medical resources from surrounding populations. The final accessibility scores were normalized to a 0–1 scale to indicate the relative advantage or disadvantage in healthcare access across regions.

Daily-life Constraints were assessed through the Daily-life Constraints Index. This composite index consists of three components: time constraints arising from occupational structure, caregiving burdens within households, and constraints related to healthcare facility operating hours. Each indicator was standardized and aggregated to measure the extent to which structural conditions of everyday life limit healthcare utilization at the regional level, even when medical needs exist.

Socioeconomic Structural Barriers were measured using a composite index reflecting the structural socioeconomic vulnerability of each region. The index includes three components: income (affordability), education (human-capital), and occupational risk, defined as employment instability and high opportunity-cost job structures. Each component was standardized using z-scores and averaged to create the overall index. Higher values indicate greater structural constraints on healthcare access at the regional level.

Empirical analysis was conducted using a Two-Way Fixed Effects panel regression model to estimate the effects of the three structural constraints on UHN rates. This approach controls for unobserved regional characteristics and time-specific effects. The findings are expected to identify which structural constraints primarily drive UHN in different regions and to provide empirical evidence for designing place-based healthcare policies aimed at reducing spatial inequalities in healthcare access.

Keywords: Unmet Healthcare Needs, Spatial Inequality, Geographic Accessibility, Structural Constraints

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