

## **A GIS-Based Visualization and Analysis of Healthcare Supply-Demand and Spatial Inequality in Korea: Public–Private Service Comparison**

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### **Abstract:**

The supply of medical services and healthcare personnel has become a critical policy issue in Korea. Prior studies have examined demand forecasting, workforce modeling, and accessibility using Geographic Information Systems (GIS). This study extends these efforts by analyzing the spatial distribution of healthcare supply and demand across 250 administrative regions, using GIS visualization, Lorenz curves, Gini coefficients, and correlation analysis. Findings show that physicians and dentists are highly concentrated in metropolitan areas and university hospital districts, while rural and island regions remain under-served. The distribution of medical personnel correlates more strongly with patient inflows and hospital visits than with population size, highlighting the central role of tertiary hospitals. General hospitals appear relatively evenly distributed, whereas clinics and dental practices show pronounced metropolitan clustering. By comparing public and private services, the study underscores the structural nature of healthcare inequality. Results suggest that disparities arise less from demographic variation than from institutional concentration. Policy implications include reinforcing regional hospital networks, expanding telemedicine, and addressing gaps in aging and underserved communities.

### **Keywords:**

Population, Economic Structure, Healthcare Demand, Geographic Information System (GIS), Spatial Visualization, Healthcare Service.