Spatio-temporal patterns of urban property crime in Malaysia: towards safer, inclusive cities (SDGs 11 and 16)

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Abstract

Urban property crime impedes sustainable development, yet its spatial and temporal dynamics remain poorly understood in Malaysian cities. To address this gap, the spatial and temporal clustering of property crime across Selangor, Kuala Lumpur, and Putrajaya was analyzed for 2015–2020. Police-reported incidents were geocoded to precinct boundaries and examined using GIS-based spatial statistics: Global Moran's I measured overall spatial autocorrelation and Getis–Ord Gi* identified local crime hotspots. Results show significant positive spatial autocorrelation each year (Moran's $I = 0.114–0.297$; $Z = 5.33–13.22$; $p < 0.001$), indicating pronounced clustering. Hotspot analysis revealed persistent high-risk clusters: notably, the Jinjang and Tun H.S. Lee precincts of Kuala Lumpur were hotspots every year, and areas like Jalan Tun Razak had Gi* Z-scores up to ≈5.6 ($p \ll 0.01$). These clusters accounted for a large share of incidents (e.g. Ampang 2018, $Z \approx 5.62$), underscoring strong spatial concentration of crime. The spatial evidence supports targeted, evidence-based policing and aligns with SDG 16 and SDG 11 by guiding strategic crime reduction for

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