ABSTRACT

This study aims to analyze the spatial spillover effects of growth centers and the impact of regional expansion on economic growth dynamics in East Kalimantan and North Kalimantan Provinces. Regional expansion has the potential to alter the structure of growth centers, patterns of interregional interaction, and the characteristics of spatial spillovers. Therefore, this study focuses on identifying growth centers before and after regional expansion and examining the factors influencing regional economic growth from a spatial perspective.

The study employs panel data from 14 regencies/municipalities covering the period 2010–2023. Growth centers are identified using the scalogram method, centrality index, and gravity model. Spatial dependence is analyzed using Global Moran's I and Local Indicators of Spatial Association (LISA). Furthermore, the effects of economic factors on regional economic growth are examined using spatial panel econometric models, namely the Spatial Autoregressive Model (SAR) and Spatial Error Model (SEM), with a non-binary inverse distance spatial weight matrix.

The results indicate that regional expansion transformed the structure of growth centers from a relatively centralized pattern into a more polycentric one. Prior to the expansion, Samarinda City, Balikpapan City, and Kutai Kartanegara Regency served as the primary growth centers, whereas after the expansion, Tarakan City and Bulungan Regency emerged as new growth centers in North Kalimantan. The gravity analysis reveals that interregional economic interactions remain strongly influenced by geographical proximity, consistent with Tobler's First Law of Geography. The results of Moran's I and LISA indicate differences in the characteristics of spatial autocorrelation between East Kalimantan and North Kalimantan. The estimation results show that the Fixed Effects Spatial Error Model (SEM) is the most appropriate model. Gross fixed capital formation, human capital, labor force participation rate, population growth, and a mining-based economic structure are found to significantly influence regional economic growth.

The contribution of this study lies in the development of spatial spillover analysis within the context of regional expansion through the application of a non-binary distance-based spatial weight matrix and the introduction of the border effect concept in border regions. The findings confirm that regional expansion generates new growth centers while simultaneously creating distinct patterns of interaction and spatial spillovers. Therefore, regional development policies should consider spatial interdependence and strengthen interregional connectivity to promote more balanced, inclusive, and sustainable economic growth.

Keywords: spatial spillover, growth centers, regional expansion, border effect, regional economic growth, Moran's I, LISA, Spatial Error Model (SEM).