

Spatio-temporal Relationships between Economic Growth and Urban Expansion in the Pear River Delta Region, China: 1992-2001 *

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Abstract

This research aims to investigate the relationships between economic growth and urban expansion in the Pearl River Delta (PRD) region of China using a combination of remote sensing, geographical information systems (GIS), and spatial analysis techniques. Results show that positive correlation exists between economic growth and urban built-up area for the selected investigation year 1992, 1998, and 2001 at scale of county-level, except for Shenzhen and Guangzhou. Shenzhen and Guangzhou are identified as outliers from this linear relationship, implying that economic growth of these two cities mainly comes from improvement on land-use efficiency. For the other cities, economic growth mainly comes from expansion of urban built-up areas. Regarding temporal change, the linearity has strengthened, and the land-use efficiency improved, though not as rapidly as the economic growth, during last decade.

Keywords: Urban expansion, economic growth, spatial-temporal relationship, Landsat TM/ETM+ imagery, spatial analysis, Pearl River Delta region

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