Spatial Analysis based on ESDA-GIS for Evolvement of Economic Disparities in the Economic Belt along Lan-Xin Railway

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Abstract

Based on the index of per capita GDP, spatial-time distribution pattern and spatial interaction types of economic disparities in the economic belt along Lan-Xin Railway during 2000 to 2009 have been examined by the method of combination with spatial autocorrelation analysis and traditional statistic analysis. The conclusions are as follows: the absolute disparity of per capita GDP for administrative counties is increasing constantly, while the economic concentration of those research units fluctuate towards decline and the economic disparities along the Gansu part of Lan-Xin Railway accounts for the largest part of the whole economic belt along Lan-Xin Railway, where the disparities of intra-Gansu grows bigger and that of the inter-regions is getting smaller. The higher level developed counties mainly locate in northern slope of TianShan Mountain, and the western part of Hexi Corridor which covers from Zhangye to Jiayuguan along the Lan-Xin Railway, and those high level counties cluster at intervals; while, the lower level developed counties mainly concentrates in the central part of Gansu province, the eastern part of Hexi Corridor and the eastern part of Qinghai province, and it is obvious to find the trend to agglomerate beside the TianShan Mountain as to the rapid growth counties. The spatial interaction within research units is weak, while the northern slope economic belt and southern slope industries belt of TianShan Mountain which takes the Urumqi as the core city keep great economic growth condition; the central part of Gansu province and the eastern part of Qinghai province is not developed very well and that of the polar cities which are Lanzhou and Xining respectively have a little radiation effect to lead and foster the neighboring counties economic.

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Spatial Analysis based on ESDA-GIS for Evolvement of Economic Disparities in the Economic Belt along Lan-Xin Railway

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Key words: regional economic disparity; ESDA; spatial interaction; the economic belt along Lan-Xin Railway

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Introduction

Interregional disparities in China's economic development have attracted considerable political and scholarly attention [1]. Although in a country of such a vast size as China, large disparities seem to be an unavoidable fact of nature, there is the additional impact here of distorting policy interventions and spatially divergent institutional change, which renders the topic analytically very difficult and politically sensitive[2,3]. In recent years, a host of studies have been devoted to this topic, with an increasing degree of analytical sophistication. The most important methodological insights of these contributions are described as follows:

• On the spatial dimension, there are studies which take the research units as the whole nation, the east-middle-west inter-regions [4, 5], provincial border-regions [6, 7], administrative cities and counties [8-10] in different research objects.

• On the methodology, traditionally the standard deviation, variation coefficient, weighted variation coefficient, Gini coefficient, and Theil coefficient [5] are the important statistic methods to measure the economic disparities. However, those traditional methods have limits in emancipating the spatial characteristics and reasons of regional disparities, which ignore the effects of