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Modeling the spatial relationship between urban ecological resources and the economy

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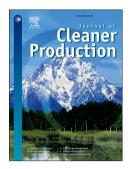
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1	Modeling the Spatial Relationship between Urban Ecological Resources and the Economy
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9	Abstract
10	The relationship between a city's economic development and the ecological resource cost of that
11	development is an important area of research, although the results vary between different study areas and with
12	methods of inquiry. Using spatial match degree and econometric methods, urban economic success, as indicated
13	by GDP and ecological resource base as indicated by vegetation cover (NVDI), for cities along the Beijing to
14	Guandong high-speed railway were compared. Then those samples were divided into four different terrain area
15	groups for a deeper analysis. Finally, a negative correlation between ecological resource and economy was
16	revealed. A few different detailed spatial characteristics of the environmental costs of economic development were
17	found in the different terrain areas. And, most cities consuming more environmental resources than they were
18	expected according to their economic scale, which was thought unsustainable.
19	Keywords
20	Ecological resources; NDVI; Urban economy; Modeling; Spatial relationship; Regression
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22	1. Introduction
23	Urbanization and economic development are coupled with environmental quality and ecological resources
24	(Peters et al. 2010, Lin et al. 2014). On the one hand, the scale of resource use expands with increases in urban
25	population, economic development, urban expansion and improvements in standard of living, resulting in massive

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natural resource consumption and the generation of different types of pollution (Cui et al. 2015, Yao et al. 2015). The speed and intensity of human disturbance have exceeded the speed of ecosystem recovery, leading to substantial cumulative and even irreversible environmental damage (MA 2005, Han et al. 2015). Eventually resource depletion and environmental deterioration will hamper economic growth. This decline will cause a vicious cycle of unsustainable urbanization. On the other hand, with increasing economic growth, environmental

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