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Detection on Resources Consumption Drag of Urbanization in China

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ABSTRACT

A unique model of resources consumption drag of urbanization is developed by employing the neo-classical production model and the urbanization relation model. By using this model, it is viable to estimate the resources consumption drag, measured as the reduced speed of urbanization from resources consumption and environmental services. In terms of reduced urbanization process, the aggregated and disaggregated effects from some crucial resources, such as energy, land and water, are calculated and presented. The results show that the drags from energy consumption, land and water in process of China ' s urbanization are 0.1061, 0.0036 and 0.1914 percent point respectively and the aggregate drag arrives 0.3010 percent point. With the increasing population and the developing urbanization process in China, the constraints of resources, water and energy in particular cannot be eliminated and the drags will be enhanced and hence the pressure of further urbanization process is still a relatively serious problem.

KEYWORDS

Urbanization, Rresources Consumption Drag, Economic Growth Model, Urbanization Relation Model

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References

[1] R. M. Solow, "A Contribution to the Theory of Economic Growth," Quarterly of Journal of Economics, Vol. 70, No. 1, 1956, pp. 65-94.

[2] T. R. Malthus, "An Essay on the Principle of Population," Oxford University Press, New York, 1797, pp. 21-42.

[3] D. Romer, "Advanced Macroeconomics (Second Edition)," The McGraw-Hill Companies Inc, New York, 1996, pp. 37-42.

[4] A. Bruvoll, S. Glomsrod and H. Vennemo, "Enviromental Drag: Evidence from Norway," Ecological Economic, Vol. 30, No. 2, 1999, pp. 235-249.

[5] P. Dasgupta and G. Heal, "The Optimal Depletion of Exhaustible Resources," The Review of Economic Studies, Vol. 41, 1974, pp. 3-28.

[6] W. D. Nordhaus, "Lethal Model 2: The Limits to Growth Revisited," Brookings Papers on Economic Activity, Vol. 2, 1992, pp. 1-58.

[7] O. Tahvonen and J. Kuuluvainen, "Economic Growth, Pollution and Renewable Resources," Journal of Environmental Economics and Management, Vol. 24, No. 2, 1993, pp. 101-118.

[8] J. B. Xue, Z. Wang, J. W. Zhu and B. Wu, "An Analysis of Drag of China ' s Economic Growth," Journal of Finance and Economics, Vol. 30, No. 9, 2004, pp. 5-14.

[9] S. L. Xie, Z. Wang and J. B. Xie, "Drag of China,s Economic Growth on Water and Land," Management World, No. 7, 2005, pp. 22-25.

[10] B. L. II. Turner, W. C. Clark, R. W. Kates, J. F. Richards, J. T. Mathews and W. B. Meyer, "The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the Past 300 Years," Cambridge University Press, Cambridge, 1990.

[11] C. Weber and A. Puissant, "Urbanization Pressure and Modeling of Urban Growth: Example of the Tunis Metropolitan Area," Remote Sensing of Environment, Vol. 86, No. 3, 2003, pp. 341-352.

[12] L. Shen, S. H. Cheng, A. J. Gunson and H. Wan, "Urbanization, Sustainability and the Utilization of Energy and Mineral Resources in China," Cities, Vol. 22, No. 4, 2005, pp. 287-302.

[13] C. Bao and C. L. Fang, "Water Resources Constraint Force on Urbanization in Water Deficient Regions: A Case Study of the Hexi Corridor, Arid Area of NW China," Ecological Economics, Vol. 62, No. 3-4, 2007, pp. 508-517.

[14] Z. H. Zhang, B. X. Chen, Z. K. Chen and X. Y. Xu, "Challenges and Opportunities for Development of China Water Resources in the 21st-Century," Water International, Vol. 17, No. 5, 1992, pp. 21-27.

[15] J. K. Zhou, "Influence on Urban Water Cycle by Urbanization," Southwest Water and Wastewater, Vol. 26, No. 6, 2004, pp. 4-7.

[16] E. A. Z. Andrews and W. K. Donald, "Further Evidence on the Great Crash, the Oil-Price Shock and the Unit Root Hypothesis," Journal of Business and Economic Statistics, Vol. 10, No. 3, 1992, pp. 251-270.

[17] W. W. Ren, Y. Zhong, J. Meligrana, B. Anderson, W. E. Watt, J. K. Chen and H. L. Leung, "Urbanization, Land Use, and Water Quality in Shanghai 1947-1996," Environment International, Vol. 29, No. 5, 2003, pp. 649-659.

[18] H. Kondo, "Multiple Growth and Urbanization Patterns in an Endogenous Growth Model with Spatial Agglomeration," Journal of Development Economics, Vol. 75, No. 1, 2004, pp. 167-199.

[19] J. R. Harris and M. Todaro, "Migration, Unemployment and Development: A Two Sectors Analysis," American Economic Review, Vol. 40, 1970, pp. 126-142.

[20] J. S. Liang, "A Theoretical Analysis of Statistical Relationship between Urbanization and Economic Development," Journal of Natural Resources, Vol. 14, No. 4, 1999, pp. 351-354.

[21] The National Statistics Bureau of China, "China Statistical Yearbook 2009," China Statistics Press, Beijing, 2009.

[22] The National Statistics Bureau of China, "Statistical Issue of New China during Fifty Years," China Statistics Press, Beijing, 1999.

[23] State Environmental Protection Administration, "Key Po- Llutant Discharges Keep Rising," 2006, pp. 1-4. http:// www.chinadaily.com.cn/china/2006-08/30/content_677238. html

[24] Energy Information Agency, 2006, "Country Analysis Briefs: China," 2008. http://www.eia.doc.gov/emeu/tabs/ china.html

[25] G. S. Maddala and I. M. Kim, "Unit Roots, Cointegration, and Structural Change," Cambridge