Zipf's Law and City Size Distribution in China

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ABSTRACT

China's experience with high economic growth has undergone dramatic change following the reforms initiated in 1978, which not only introduced economic incentives, but also encouraged urbanization. Due to the rapid urbanization that has taken place, it is particularly worth investigating the size distribution of Chinese cities. This study is thus an attempt to examine the size distribution of China's cities over the 1984–2008 period. The results indicate that the size distribution of Chinese cities is more equal than would be predicted by Zipf's law. We also find that the size distribution of cities is more even for larger cities than for smaller ones. According to our results, a possible explanation for the more even distribution of large cities relative to the smaller ones is related to China's government expenditures and industrial structure. Finally, we find that economic growth promotes population concentration, and that lower transportation costs will promote population concentration.

Key Words: city size distribution, Zipf's law, Pareto exponent, China

中國城市人口分布與 Zipf 法則

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摘　　要

　　中國自 1978 年實施經濟改革後，經濟便開始快速成長，然而經濟改革不只爲中國經濟帶來快速的發展，亦帶來了都市化現象。由於經濟改革造成快速的都市化，因此中國的都市規模分配之演進值得我們深入探討。本研究將透過中國 1984 年至 2008 年的都市人口探討其都市規模分配的變化。研究結果顯示中國都市的規模分配較 Zipf 法則下更爲平均。本研究亦發現大都市的都市規模分配較小都市的都市規模分配更爲平均，而造成此現象的主要因素爲政府支出及產業結構的改變。本研究亦發現，隨著經濟的發展及較低的運輸成本，促使人口變得較爲集中。

關鍵字：都市分配、Zipf 法則、Pareto 指數、中國