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ACCEPTED MANUSCRIPT

Power Laws in Real Estate Prices? Some Evidence

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Highlights

- We assess the goodness-of-fit of multiple possible distributions to real estate price data from Charleston County, South Carolina.
- We find that the best fit distribution lies somewhere between the lognormal and power law distributions.
- We find that some evidence that distributional information is correlated with the presence of a price "bubble" in the real estate market.

Abstract

Power law distributions have previously been observed in data like city-size distributions (Zipf's Law), income distributions, and financial asset prices. In this paper, we explore the distribution of real estate prices in Charleston County, South Carolina. We fit power law, lognormal and exponential distributions to the data and compare the goodness of fit among the distributions. We find that the best fit distribution lies somewhere between the lognormal and power law distributions. We estimate how the power law exponent changes over time and find a potential relationship between the shape of the power law distribution and the bursting of the real estate bubble in 2007.

JEL Classifications: R10 General Regional Economics, R31 Housing Supply and Markets

Keywords: Real Estate, Power law, Pareto distribution, Complexity

1 Introduction

Zipf's Law has been one of the most robust findings in all of the social sciences. The law, which states that the proportion of cities in a given political or geographic entity greater than size S is proportionate to the inverse of S, has been found to hold in numerous instances. Zipf's law is an example of a more general type of distribution, that of a power law. Variables whose cumulative density function is proportionate to the variable raised to some power:

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