HOMEWORK SET 1, DUE THURSDAY 12 FEB

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Of possible utility:

Slides of lectures 4 and 5 — see webpage link: "Slides used in Lectures 4-5."

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1. (a) Choose a country you care about (yours!) and make a Zipf population-rank plot for the largest N cities. Increase N until the plot is no more linear, and speculate why the plot ceases to be linear.

(b) Repeat for China, dividing data into two groups, before 2000 and the latest year you can find.

(c) Write down a simple hand-waving argument that produces the Zipf law of cities, and speculate why and when the Zipf law should fail.

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2. Choose your favorite five scientists whose publishing career began after the year 1950, Make five plots of citations vs. paper rank. Speculate why this plot is approximately linear. Use two different databases:

(a) BU's "Web of Science"

http://www.bu.edu/library/research/collections/databases/ (click the "w" tab at the top of the page).

(b) SCOPUS

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3. Find data on firm size (e.g., sales, employees, ...) and make a Zipf plot of number of firms vs. firm size.