**Google Trends and Stock Market Data**

**Do our web search trends influence the stock market or does the stock market influence our web search trends?**

**Overview:** This case study examines the associations among Google search trends and Dow Jones Industrial average each day for years 2008 and 2009.

**Driving Challenges:**

* The unemployment rate was 9.3 in 2009. This is up from the 2008 rate of 5.8, the largest jump since the Great Depression era. Do the Google trends data show increases in searches for unemployment and jobs?
* What happens to rental and mortgage searches between 2008-2009?
* Which search trends are most predictive of changes in Dow Jones Industrial averages?

**Meta Data – Borrowed from SOCR** (<http://wiki.socr.umich.edu/index.php/SOCR_Data_GoogleTrends_2005_2011>)

[Google-Trends](http://www.google.com/finance/domestic_trends) tracks Internet search traffic across specific sectors of the economy using the Google Search Engine. Alterations in the search volume of a given sector may provide unique economic insights to the public perception and real economic trends in the US. Each trend-index measures relative query volume compared to the total number of searches on google.com, hence a decreasing index implies that the relative frequency of this search topic is lower (not necessarily that the total number of searches is decreasing).

**Source**: [Google-Trends](http://www.google.com/finance/domestic_trends) and [Google Finance](http://finance.yahoo.com/q/hp?s=%5EDJI+Historical+Prices)

**Rows**: Each row represents one day. The data is from 01/01/2008-12/31/2009.

**Google Trends Common Columns:**

* Index: Time Index of the Observation
* Date: Date of the observation (Format: Month/Day/Year)

**Raw Data Columns (Taken verbatim from SOCR – see link above)**

* Unemployment: The [Google Unemployment Index](http://www.google.com/finance?q=GOOGLEINDEX_US:UNEMPL) tracks queries related to "unemployment, social, social security, unemployment benefits" and so on.
* Rental: The [Google Rental Index](http://www.google.com/finance?q=GOOGLEINDEX_US:RENTAL) tracks queries related to "rent, apartments, for rent, rentals", etc.
* RealEstate: The [Google Real Estate Index](http://www.google.com/finance?q=GOOGLEINDEX_US:RLEST) tracks queries related to "real estate, mortgage, rent, apartments" and so on.
* Mortgage: [The Google Mortgage Index](http://www.google.com/finance?q=GOOGLEINDEX_US:MTGE) tracks queries related to "mortgage, calculator, mortgage calculator, mortgage rates".
* Jobs: [The Google Jobs Index](http://www.google.com/finance?q=GOOGLEINDEX_US:JOBS) tracks queries related to "jobs, city, job, resume, career, monster" and so forth.
* Investing: [The Google Investing Index](http://www.google.com/finance?q=GOOGLEINDEX_US:INVEST) tracks queries related to "stock, finance, captial, yahoo finance, stocks", etc.
* DJI\_Index: [The Dow Jones Industrial (DJI) index](http://www.google.com/finance?q=INDEXDJX:.DJI). These data are interpolated from 5 records per week (Dow Jones stocks are traded on week-days only) to 7 days per week to match the constant 7-day records of the Google-Trends data.
* StdDJI: The standardized-DJI Index computed by: StdDJI = 3+(DJI-mean)/sd, where m= approximate mean and sd= standard-deviation of the DJI for the period (2008-2009).

**30-Day Moving Average Data Columns**: The 8 variables below are the 30-day moving averages of the 8 corresponding (raw) variables above.

*Unemployment30MA, Rental30MA, RealEstate30MA, Mortgage30MA, Jobs30MA, Investing30MA, DJI\_Index30MA, StdDJI\_30MA*

**180-Day Moving Average Data Columns**: The 8 variables below are the 180-day moving averages of the 8 corresponding (raw) variables.

*Unemployment180MA, Rental180MA, RealEstate180MA, Mortgage180MA, Jobs180MA, Investing180MA, DJI\_Index180MA, StdDJI\_180MA*

**Data:** An excerpt (2008-2009) of this dataset, labeled as “Google\_Trends.csv” can be found on the Canvas-files partition. For the complete dataset (2005-2011) see: (http://wiki.socr.umich.edu/index.php/SOCR\_Data\_GoogleTrends\_2005\_2011)

**Provenance:** This case study uses data from Google Trends, compiled in a table format in SOCR. R was used to adjust Standard DJI data to represent years 2008-2009.