A Hands on Guide to Google Data

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Three Google tools for social science research

Google Correlate Shows the queries that are most correlated with cross-section (state) or time series (weekly/monthly) data.

Google Trends Shows an index of activity for specific queries or categories of queries.

Google Consumer Survey Lightweight, quick and inexpensive surveys of internet users.
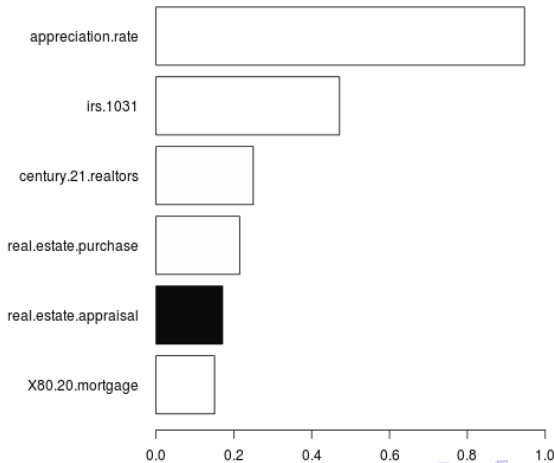
Correlate: predict house sales over time

- Go to FRED
- Download "New One Family Houses Sold" from 2004 to present
- Clean up CSV file, upload to Google Correlate
- Examine plots
- Export data from Correlate as CSV file
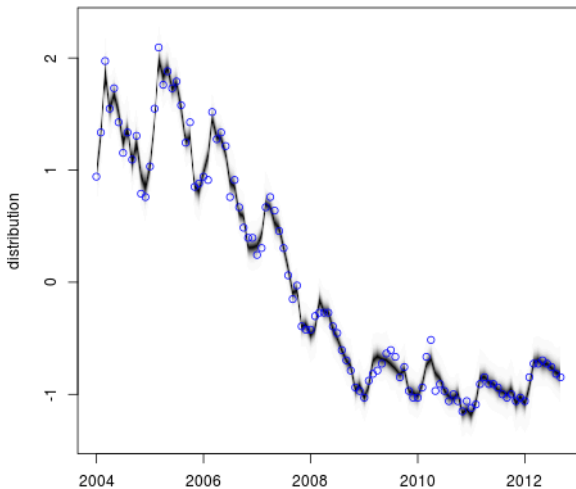
Google Correlate screenshot
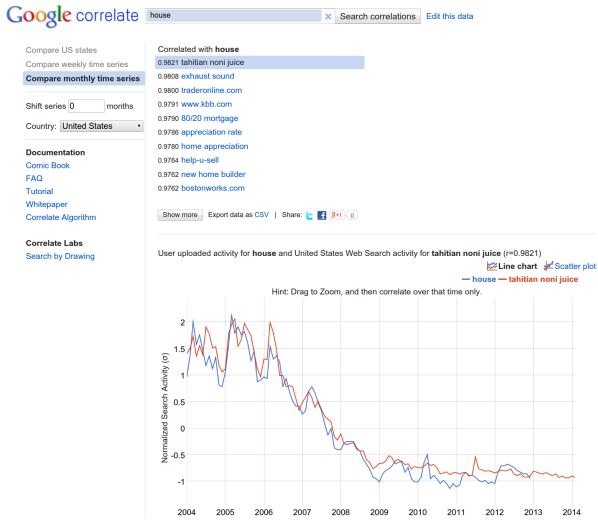
Find best predictors using BSTS

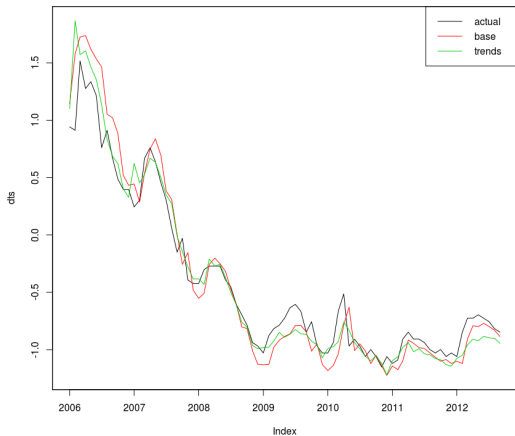White: positive   Black: negative

In-sample fit with BSTS

Circles: actual   Black: predicted

Out-of-sample prediction using regression

- AR1 regression with contemporaneous query data
  $y_t = y_{t-1} + x_t + e_t$ one-step ahead prediction
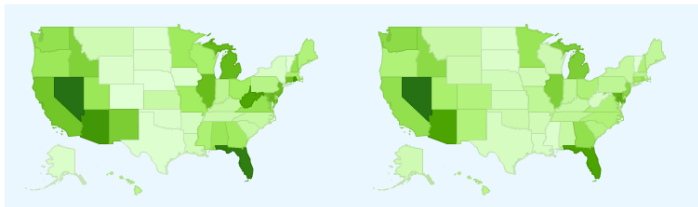- Get 23% improvement in MAPE compared to pure AR1 model

House price declines by state (cross section)

- Use Google Correlate as before, but now by state
- Here is comparison of price declines and query [short sale process]

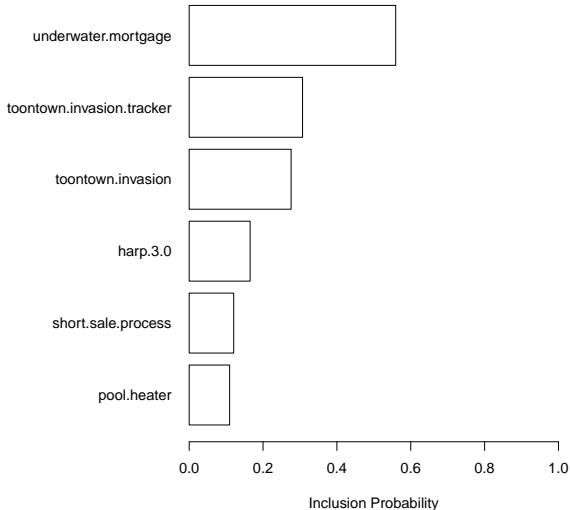User uploaded activity for **housing-decline** and United States Web Search activity for **short sale process** (r=0.7888)

Find predictors using spike-slab
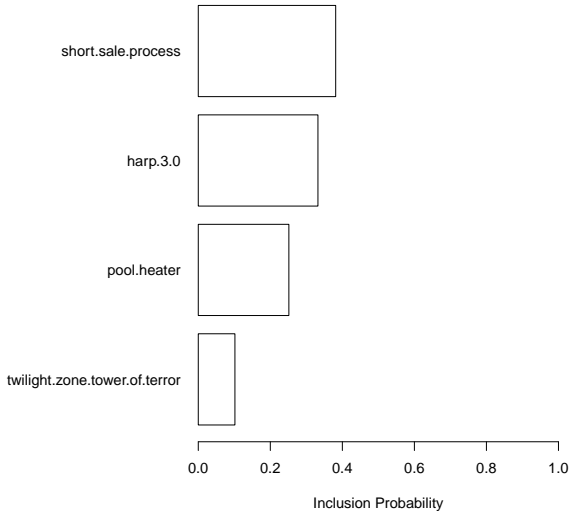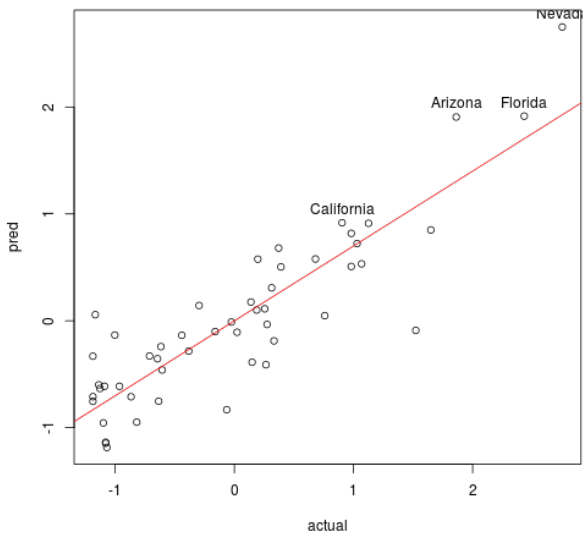

Inclusion Probability

Apply some judgment

Compare actual to fitted across states

What queries are predictive of short lifespan?

negative life expectancy - Google Correlate

negative life expectancy | Search correlations | Edit this data

Compare US states
Compare weekly time series
Compare monthly time series

Documentation
Comic Book
FAQ
Tutorial
Whitepaper
Correlate Algorithm

Correlate Labs
Search by Drawing

Correlated with **negative life expectancy**

|	
0.9092	blood pressure medicine
0.8985	obama a
0.8978	major payne
0.8975	against obama
0.8936	king james bible online
0.8935	about obama
0.8928	prescription medicine
0.8920	40 caliber
0.8919	.38 revolver
0.8916	reprobate
0.8911	performance track
0.8910	lost books of the bible
0.8905	glock 40 cal
0.8898	lost books
0.8896	the mark of the beast
0.8892	obama says
0.8891	obama said
0.8882	sodom and
0.8882	the antichrist
0.8865	globe life
0.8858	the judge
0.8834	hair pics
0.8833	medicine side effects
0.8829	momma
0.8828	james david
0.8823	flexeril

life expectancy vs [blood pressure medication]

User uploaded activity for **negative life expectancy** and United States Web Search activity for **blood pressure medicine** (r=0.9092)

State maps   Scatter plot
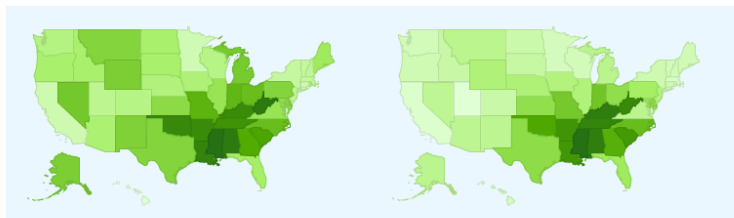
Predictors of short lifespan?
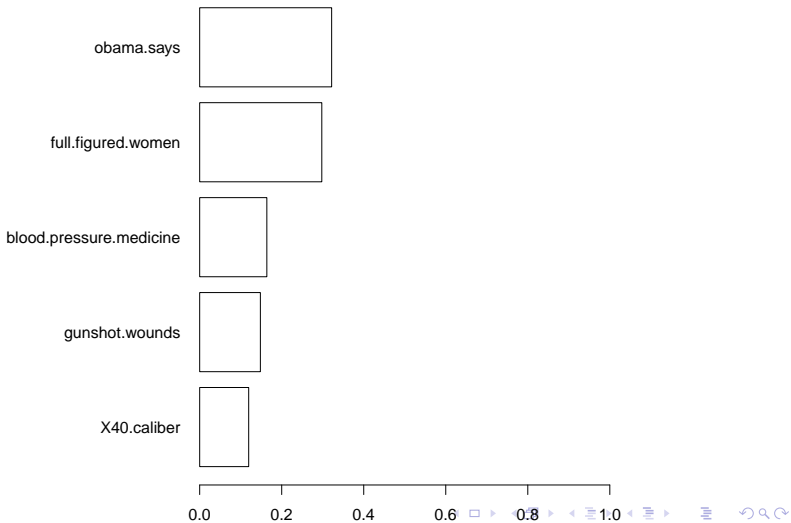
Question about hangovers

What day of the week has the most queries for [hangover]?

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Google Trends: queries for [hangover]
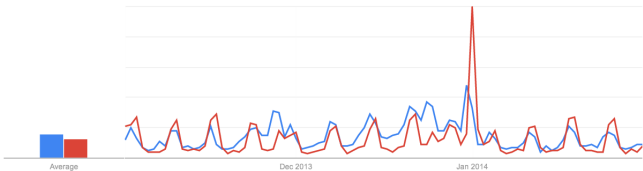
Initial claims for Unemployment Benefits

- One-week ahead forecast using query [filing for unemployment]
- Baseline is AR(1) model
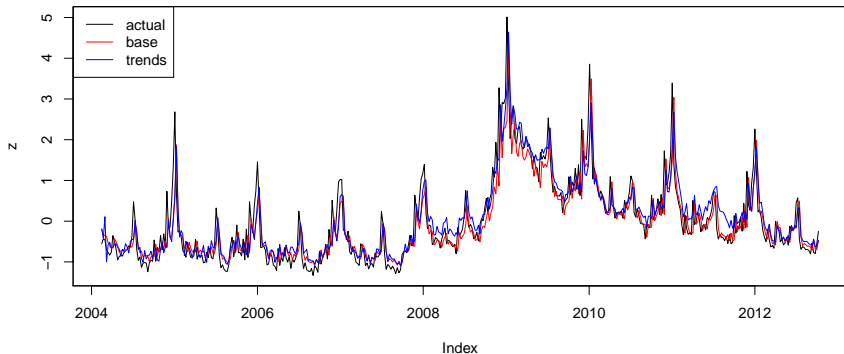
How does unemployment insurance affect job search?

- Scott Baker and Andrey Fradkin, SSRN 2251548
- Measure job search intensity using Google searches for [jobs -steve]
- Individuals on UI search 30% less than unemployed not on UI
- Searches close to UI exhaustion search twice as much as those with 30 weeks remaining
- Decrease in job search due to UI extensions had were small

How many votes did Obama lose due to racism?

- Looks at Democratic votes in 2004 compared to 2008
- Looks at racist queries by location using Google Trends
- "The higher the racially charged search rate in an area, the worse Mr. Obama did."
- Racism cost Obama about 4 percentage points of popular vote

Google Consumer Surveys

Global Economics	Companies & Industries	Politics & Policy	Technology	Markets & Finance	Innovation & Design	Lifest

Data Mining: The Big Dig

Posted on June 11, 2000   0 Comments

More from Businessweek

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HP Investors Face a Lonelier Road Ahead

Frontier: Instant Expert

Data Mining: The Big Dig

Your databases and Web sites hold vast stores of information on customer buying habits and market trends--if you know how to analyze the patterns. Some entrepreneurs are intimidated by technical issues or price: Hiring a pro for sophis...

Answer a question to continue reading this page

question 2 of 2:
Have you ever purchased anything from (check all that apply):

Check all answers that apply

☐ An email newsletter or ad

☐ A YouTube video

☐ An ad on your mobile phone

☐ An ad on your tablet

☐ None of the above

Submit answer(s)

Show me another question

Example surveys

- If you were asked to use one of these commonly used names for social classes, which would you say you belong in?
- Do you support Obama or Romney in the upcoming election?
- I prefer to buy products that are assembled in America. [Agree or disagree]
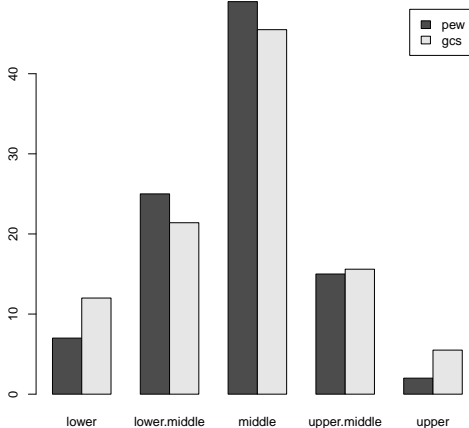
Social class Pew Foundation and GCS

Figure : Comparing Pew and GCS answers to social class question.

Survey amplification

1. Run a GCS asking "Do you support Obama in the upcoming election?"
2. Associate each (yes,no) response in the survey data to the city associated with the respondent.
3. Build a predictive model for the responses using the Trends category data described above.
4. The resulting regression can be used to extrapolate survey responses to any other geographic region using the Google Trends categories associated with that city.
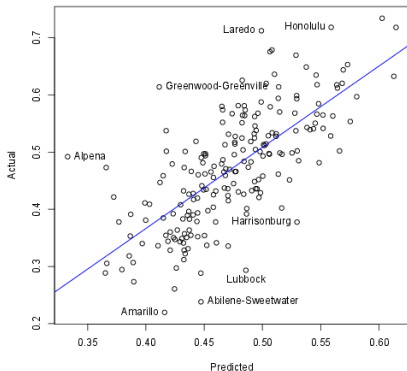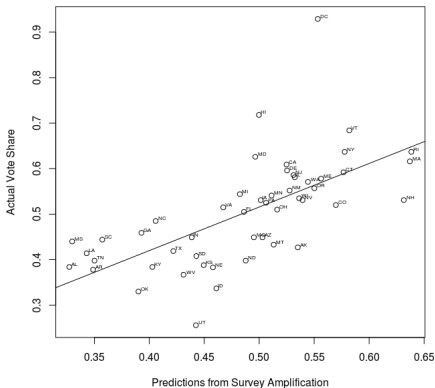
Predictors for Obama support
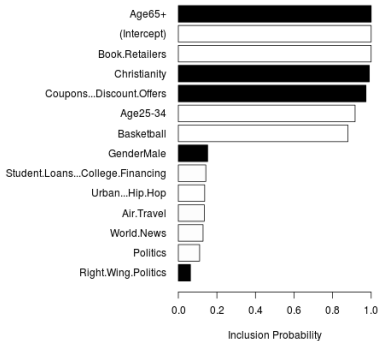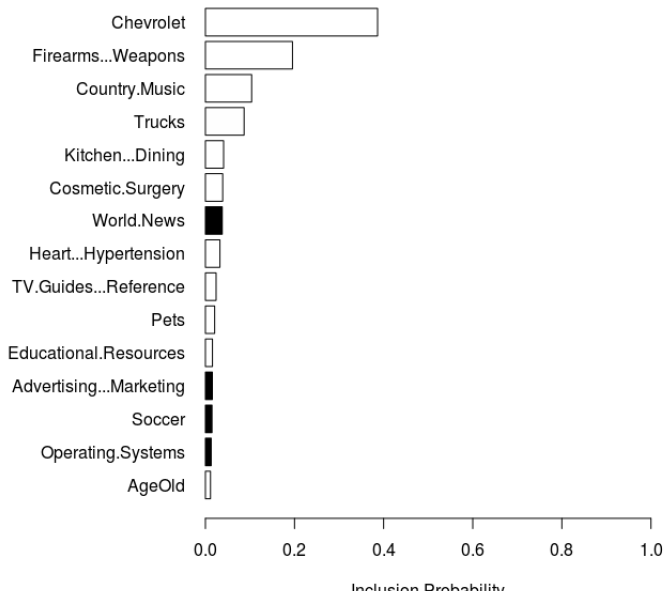
Election outcome by state and DMA

Predicted and Actual Vote Share

Survey Amplification: Obama Support

"I prefer to buy products that are assembled in America"

Where is this message predicted to resonate?

Most in favor   Kernshaw, SC; Summersville, WV; Grundy, VA;
                Chesnee, SC; Duffield, VA; Norton, VA; Jonesville,
                VA; Walnut Cove, NC; Weston, WV; Ennice, NC . . .

Least in favor Calipatria, CA; Fremont, CA; Mountain View, CA;
                San Jose, CA; Berkeley, CA; Redmond, WA;
                Glendale, CA; Cupertino, CA; Palo Alto, CA;
                Daggett, CA . . .