

Predicting Congressional Bill Outcomes

	Logistic Regression	Naive Bayes	SMO	Decision Trees	Voted Perceptron
Correctly Classified	83.6977%	26.1208%	93.1827%	93.4791%	65.0241%
Incorrectly Classified	16.3023%	73.8792%	6.8173%	6.5209%	34.9759%
Precision	0.891	0.886	0.885	0.875	0.886
Recall	0.837	0.261	0.932	0.935	0.65
F- Measure	0.861	0.34	0.904	0.904	0.739
Confusion Matrix					

MOTIVATION

To learn more about what strategic tools that have the greatest marginal impact in Congress, and our starting hypothesis was that lobbying dollars spent in one direction would be the single most impactful factor.

FEATURES

- Amount of money spent supporting and opposing the bill per legislator
- Supporting organizations
- Opposing Organizations
- Supporting Industries and their dollar contribution
- Opposing Industries and their dollar contribution
- House passing Requirements i.e. how much of the house needs to vote yes for the bill to pass

DATA

The predictor is modeled on Congressional data from 1997 - 2010 from a wide range of sources. We evaluated our system based on whether or not we were able to predict the outcome of a particular bill correctly.

SOURCES

1. MapLight - MapLight U.S. Congress illuminates the connection between campaign contributions and legislative votes
2. GovTrack - Now in its 11th year, is one of the world's most visited government transparency websites

DATA EXPLORATION

Chi Squared Ranking

Attribute Evaluator (supervised, Class (nominal): 10862 OUTCOME):
Chi-squared Ranking Filter

Ranked attributes:

33.570184013462466	9998 Vic-Snyder
18.886084855699245	3752 Zach-Wamp
14.632207832540248	1643 Republican_Conservative
12.815258605387717	3483 Joe-Lieberman
11.777026763394396	6142 Debbie-Wasserman-Schultz
9.405618523710835	442 Neil-Abercrombie
8.542943392359586	3016 Adam-Putnam
8.093093437213518	2966 Gus-M_-Bilirakis
7.712717533420387	8711 Elderly-issues_Social-Security
7.161631929237281	317 John-Shadegg
6.805600810459134	4150 Mary-Fallin
6.753066266698523	934 Daniel-K_-Akaka
6.696859194276665	8246 Jo-Bonner
6.4009127640867485	8079 Pete-Hoekstra
6.388158264189893	2685 Jason-Chaffetz
6.276016818213286	3496 Erik-Paulsen
6.18283839802578	7097 Lynn-A_-Westmoreland
5.539263528460124	6113 Hilda-Solis
5.366657488400982	1077 Jim-Webb
4.331657888257931	4385 Artur-Davis
4.208828441478639	5651 Robert-Wexler
3.956115860443744	4397 Lincoln-Diaz-Balart
3.0365349939070665	10339 Patrick-Kennedy
2.9822468428743325	1870 John-Murtha
1.8202571058101944	7074 FreedomWorks
1.5017121122934092	1114 Sam-Brownback
1.1980429580532623	1664 Consumer-groups
1.0376709819499057	9330 Farm-bureaus
1.0335922540867941	8020 Public-official-(elected-or-appointed)

Principle Component Analysis

1	<input checked="" type="checkbox"/>	-0.061	Steny-H_-Hoyer-0.06	Jim-Clyburn-0.059	Steve-Is...
2	<input checked="" type="checkbox"/>	-0.081	Zack-Space-0.081	Lincoln-Davis-0.08	Stephanie-...
3	<input checked="" type="checkbox"/>	-0.07	Carol-Shea-Porter-0.065	Julia-Brownley-0.064	Do...
4	<input checked="" type="checkbox"/>	-0.093	Susan-M_-Collins-0.093	Dianne-Feinstein-0.092	...
5	<input checked="" type="checkbox"/>	0.09	National-Solid-Wastes-Management-Association+0.09	...	...
6	<input checked="" type="checkbox"/>	-0.131	United-Technologies-0.131	General-Mills-0.131	...
7	<input checked="" type="checkbox"/>	-0.141	Jim-Walsh-0.141	Vito-Fossella-0.141	Rahm-Ema...
8	<input checked="" type="checkbox"/>	-0.083	National-Association-for-Hispanic-Elderly-0.083	...	...
9	<input checked="" type="checkbox"/>	0.141	Norm-Coleman+0.14	Mel-Martinez+0.14	Gordon...
10	<input checked="" type="checkbox"/>	0.138	Academy-of-Nutrition-and-Dietetics+0.138	Nation...	...
11	<input checked="" type="checkbox"/>	0.103	IPNav-0.103	Genzyme-0.103	Milliken-_amp_-Com...
12	<input checked="" type="checkbox"/>	-0.131	Electronics-for-Imaging-0.131	Genzyme-0.131	Br...
13	<input checked="" type="checkbox"/>	0.118	National-Council-of-Women_s-Organizations+0.118	...	...
14	<input checked="" type="checkbox"/>	0.152	American-Nursery-_amp_-Landscape-Association...	...	...
15	<input checked="" type="checkbox"/>	-0.13	United-Cerebral-Palsy-0.12	National-Council-of-N...	...
16	<input checked="" type="checkbox"/>	0.165	American-College-of-Osteopathic-Surgeons+0.165	...	...
17	<input checked="" type="checkbox"/>	-0.14	National-Association-of-State-Directors-of-Special...	...	...
18	<input checked="" type="checkbox"/>	-0.102	National-Association-of-State-Directors-of-Speci...	...	...
19	<input checked="" type="checkbox"/>	0.113	American-Humane-Association+0.113	Citizen-Adv...	...
20	<input checked="" type="checkbox"/>	-0.148	American-Library-Association-0.137	Center-for-...	...
21	<input checked="" type="checkbox"/>	0.157	Latino-Elected-and-Appointed-Officials-National-...	...	...
22	<input checked="" type="checkbox"/>	-0.168	Pine-Chemicals-Association-0.168	Personal-Care...	...

H.R. 2454 - American Clean Energy and Security Act of 2009

Climate Change, Cap and Trade, ACES, Global Warming, Energy Bill - Environmental protection. 111th Congress (2009-2010) [View bill details](#)

Sponsor: Henry A. Waxman

Summary: To create clean energy jobs, achieve energy independence, reduce global warming pollution and transition to a clean energy economy. *(by CRS)*

Status: The bill was voted on in the House on June 26, 2009

Amendments: 1 proposed amendment. 1 rejected. [View amendments](#)

House Vote: On Passage
PASSED on June 26, 2009.
 1/2 required to pass
voted YES: 219 **voted NO: 212**
 3 voted present/not voting

Other Votes:
 All Votes

Total Contributions

Contributions by Vote

Timeline of Contributions

Total contributions given to House members from interest groups that...

✓ supported this bill

Building trades unions
Electric Power utilities
Industrial/commercial equipment & materials
Gas & Electric Utilities
Restaurants & drinking establishments
Manufacturing unions
Computer software
Medical Devices & Supplies
Chemicals
Venture capital
Major (multinational) oil & gas producers
Communications & hi-tech unions
Electronics manufacturing & services
Commercial service unions
Computer components & accessories
Automotive Manufacturing union
Auto manufacturers
Beverages (non-alcoholic)
Farm machinery & equipment
Computer manufacture & services
Health care products
Independent power generation & cogeneration
Textiles & fabrics
Household cleansers & chemicals
Military
Vendors
Manufacturing
Lodging & tourism
Confectionery processors & manufacturers
Shoes & leather products
Energy-related unions (non-mining)
Aluminum mining/processing
Human Rights
Environmental policy (split)
Mining (split)



\$54,018,308

\$23,714,642

[chart](#) [table](#)

○ opposed this bill

Real Estate developers & subdividers
Real estate agents
Republican/Conservative
Building operators and managers
Livestock
Coal mining
Oil & Gas
Wheat, corn, soybeans and cash grain
Builders associations
Small business associations
General business associations
Chambers of commerce
Labor, anti-union
Farm bureaus
Fiscal & tax policy
Consumer groups
Environmental policy (split)
Mining (split)

CONFUSION MATRICES

Logistic Regression

a	b	<-- classified as
44	131	a = SUCCESS
309	2215	b = FAIL

Naive Bayes

a	b	<-- classified as
141	34	a = SUCCESS
1960	564	b = FAIL

SMO

a	b	<-- classified as
2	173	a = SUCCESS
11	2513	b = FAIL

Voted Perceptron

a	b	<-- classified as
72	103	a = SUCCESS
841	1683	b = FAIL

Decision Trees

a	b	<-- classified as
0	175	a = SUCCESS
1	2523	b = FAIL

