

IOWA ANALYSIS

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EXPLORATORY DATA ANALYSIS

We define the candidates of interest to be those who received more than 10% of the vote in the Iowa caucus. Of all campaigns - i.e. including candidates who may have run for president more than once - that entered the Iowa primaries from 1980 to 2016 (**197**), we remove **152** campaigns¹. This leaves the following campaigns for our Iowa model.

Table 1: Candidates included in analysis

Election year	Party	Candidate	Percent won in Iowa
1980	Democratic	Edward M. Kennedy	31
	Democratic	Jimmy Carter	59
	Republican	George Bush	32
	Republican	Howard Baker	15
	Republican	Ronald Reagan	30
1984	Democratic	Gary Hart	16
	Democratic	George S. McGovern	10
	Democratic	Walter F. Mondale	49
1988	Democratic	Michael S. Dukakis	22
	Democratic	Paul M. Simon	27
	Democratic	Richard A. Gephardt	31
	Republican	Bob Dole	37
	Republican	George Bush	19
	Republican	Pat Robertson	25
	Democratic	Tom Harkin	77
1992	Republican	Bob Dole	26
	Republican	Lamar Alexander	18
	Republican	Patrick J. Buchanan	23
	Republican	Steve Forbes	10
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¹Including some who went on to be quite successful later on in the election e.g. Bill Clinton.

Table 1: Candidates included in analysis (*continued*)

Election year	Party	Candidate	Percent won in Iowa
2000	Democratic	Al Gore	63
	Democratic	Bill Bradley	37
	Republican	Alan Keyes	14
	Republican	George W. Bush	41
	Republican	Steve Forbes	31
2004	Democratic	Howard Dean	18
	Democratic	John Edwards	33
	Democratic	John Kerry	38
	Democratic	Richard A. Gephardt	11
2008	Democratic	Barack Obama	38
	Democratic	Hillary Rodham Clinton	30
	Democratic	John Edwards	31
	Republican	Fred Thompson	13
	Republican	John McCain	13
	Republican	Mike Huckabee	34
2012	Republican	Mitt Romney	25
	Republican	Mitt Romney	25
	Republican	Newt Gingrich	13
	Republican	Rick Perry	10
	Republican	Rick Santorum	25
	Republican	Ron Paul	21
2016	Democratic	Bernard Sanders	50
	Democratic	Hillary Rodham Clinton	50
	Republican	Donald Trump	24
	Republican	Marco Rubio	23
	Republican	Ted Cruz	28

Those who were removed from the analysis are noted in the Appendix. Viable candidates in this group - candidates who receive more than 15% of the national vote share - are shown below:

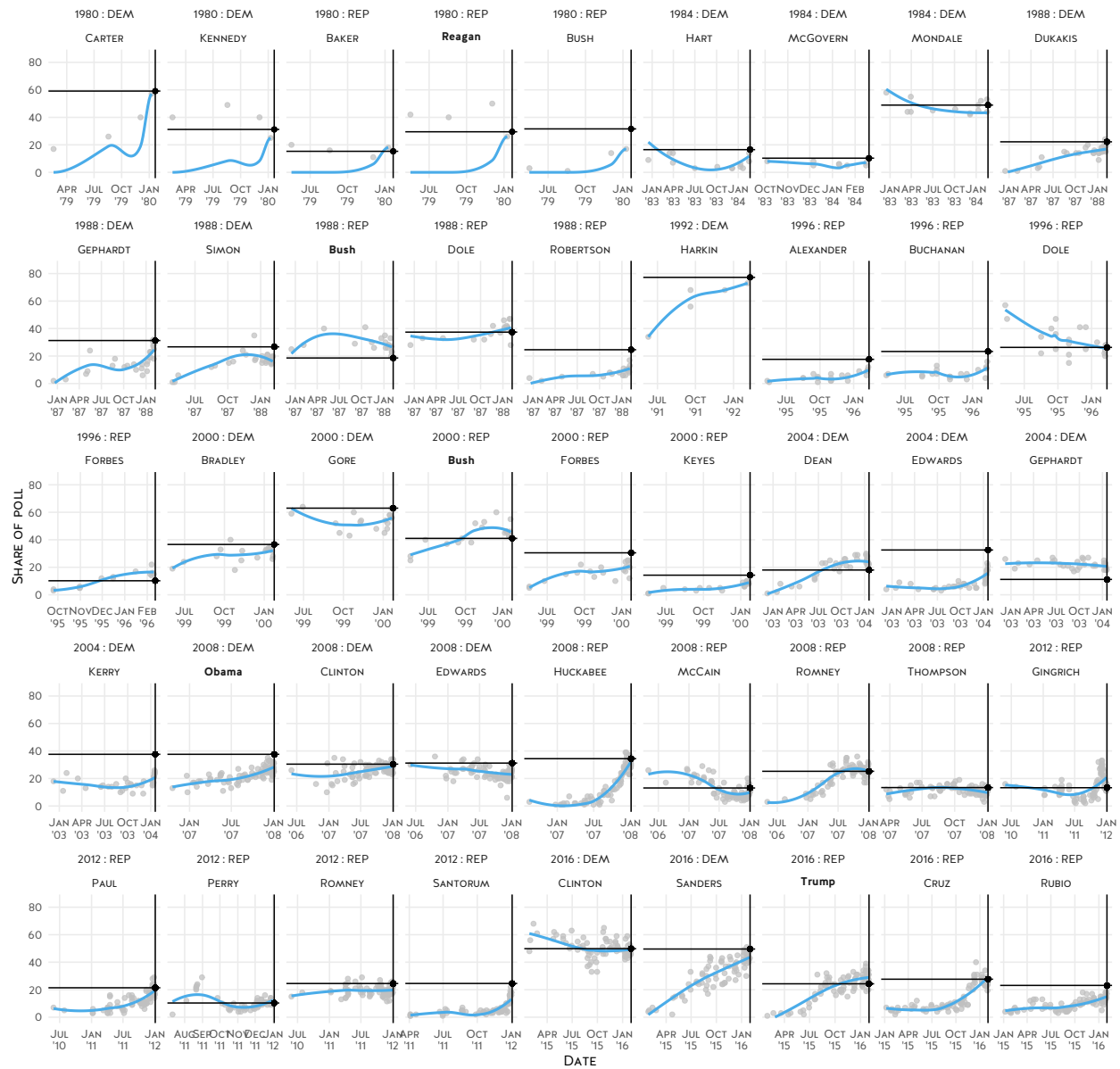
Table 2: Viable candidates removed from analysis

Election year	Party	Candidate	National vote %
1984	Democratic	Jesse Jackson	18
1988	Democratic	Jesse Jackson	29
1992	Democratic	Jerry Brown	20
1992	Democratic	Bill Clinton	52
1992	Democratic	Paul E. Tsongas	18
2000	Republican	John McCain	33

While the Iowa caucus might not be an accurate predictor in terms of who actually wins the presidential election, it is an effective filter for candidates who are not performing particularly well.

For each campaign, we graph time to Iowa caucuses by share of polls.

THE CROSSHAIRS SHOW THE DATE OF THE IOWA CAUCUS BY THE AMOUNT THE CANDIDATE WON.
WINNING PRESIDENTIAL CANDIDATES ARE IN BOLD.



The difference between the loess model and the actual result is presented in the following table:

Table 3: Difference between actual result in Iowa and the loess model

Candidate	Election year	Party	Loess	Actual	Absolute difference
Edwards	2004	Democratic	15.65	32.57	16.9
Kerry	2004	Democratic	20.66	37.60	16.9
Bush	1980	Republican	17.00	31.60	14.6
Robertson	1988	Republican	10.93	24.60	13.7

Table 3: Difference between actual result in Iowa and the loess model (*continued*)

Candidate	Election year	Party	Loess	Actual	Absolute difference
Buchanan	1996	Republican	11.38	23.33	11.9
Santorum	2012	Republican	13.07	24.54	11.5
Simon	1988	Democratic	16.15	26.70	10.5
Forbes	2000	Republican	20.68	30.51	9.8
Gephardt	2004	Democratic	20.62	11.17	9.4
Obama	2008	Democratic	28.28	37.60	9.3
Edwards	2008	Democratic	22.97	31.20	8.2
Rubio	2016	Republican	14.94	23.12	8.2
Bush	1988	Republican	26.63	18.60	8.0
Alexander	1996	Republican	9.71	17.62	7.9
Gingrich	2012	Republican	20.75	13.29	7.5
Gore	2000	Democratic	55.84	63.00	7.2
Gephardt	1988	Democratic	24.66	31.30	6.6
Forbes	1996	Republican	16.52	10.19	6.3
Kennedy	1980	Democratic	25.00	31.20	6.2
Sanders	2016	Democratic	43.57	49.59	6.0
Dean	2004	Democratic	23.91	18.00	5.9
Mondale	1984	Democratic	43.33	48.90	5.6
Keyes	2000	Republican	8.87	14.25	5.4
Dukakis	1988	Democratic	16.89	22.20	5.3
Hart	1984	Democratic	11.75	16.50	4.7
Romney	2012	Republican	19.76	24.51	4.7
Bush	2000	Republican	45.61	41.01	4.6
Trump	2016	Republican	28.92	24.30	4.6
Bradley	2000	Democratic	32.16	36.60	4.4
Harkin	1992	Democratic	73.00	77.24	4.2
Thompson	2008	Republican	9.70	13.40	3.7
Reagan	1980	Republican	26.00	29.50	3.5
McGovern	1984	Democratic	7.00	10.30	3.3
McCain	2008	Republican	9.85	13.11	3.3
Dole	1988	Republican	40.54	37.40	3.1

Table 3: Difference between actual result in Iowa and the loess model (*continued*)

Candidate	Election year	Party	Loess	Actual	Absolute difference
Baker	1980	Republican	18.00	15.30	2.7
Huckabee	2008	Republican	32.24	34.41	2.2
Carter	1980	Democratic	57.00	59.10	2.1
Perry	2012	Republican	12.39	10.33	2.1
Paul	2012	Republican	19.45	21.41	2.0
Clinton	2008	Democratic	28.85	30.43	1.6
Cruz	2016	Republican	28.86	27.64	1.2
Dole	1996	Republican	25.38	26.31	0.9
Clinton	2016	Democratic	49.30	49.84	0.5
Romney	2008	Republican	25.20	25.23	0.0

PREDICTIVE MODEL

APPENDIX

Table 4: Candidates removed from analysis

Election year	Party	Candidate	Percent won in Iowa
1980	Republican	Bob Dole	2
	Republican	John Anderson	4
	Republican	John Connally	9
	Republican	Philip Crane	7
1984	Democratic	Alan Cranston	7
	Democratic	Ernest F. Hollings	0
	Democratic	Jesse Jackson	2
	Democratic	John Glenn	4
	Democratic	Reubin Askew	2
1988	Democratic	Al Gore	0
	Democratic	Bruce Babbitt	6
	Democratic	Gary Hart	0
	Democratic	Jesse Jackson	9
	Republican	Alexander M. Haig Jr.	0
1992	Republican	Pete du Pont	7
	Democratic	Bill Clinton	3
	Democratic	Bob Kerrey	2
	Democratic	Jerry Brown	2
	Democratic	Paul E. Tsongas	4
1996	Republican	Alan Keyes	7
	Republican	Morry Taylor	1
	Republican	Phil Gramm	9
	Republican	Richard G. Lugar	4
	Republican	Robert K. Dornan	0
2000	Republican	Gary L. Bauer	9
	Republican	John McCain	5
	Republican	Orrin G. Hatch	1
	Democratic	Al Sharpton Jr.	0
	Democratic	Dennis J. Kucinich	1
	Democratic	Joseph I. Lieberman	0

Table 4: Candidates removed from analysis (*continued*)

2004

Election year	Party	Candidate	Percent won in Iowa
	Democratic	Wesley Clark	0
	Democratic	Bill Richardson	2
2008	Democratic	Christopher J. Dodd	0
	Democratic	Joseph R. Biden Jr.	1
	Republican	Duncan Hunter	0
	Republican	Ron Paul	10
	Republican	Rudolph W. Giuliani	3
	Republican	Tom Tancredo	0
	Republican	Buddy Roemer	0
	Republican	Fred Karger	0
2012	Republican	Gary E. Johnson	0
	Republican	Herman Cain	0
	Republican	Jon M. Huntsman Jr.	1
	Republican	Michele Bachmann	5
	Republican	Benjamin S. Carson	9
	Republican	Carly Fiorina	2
2016	Republican	Chris Christie	2
	Republican	Jeb Bush	3
	Republican	John Richard Kasich	2
	Republican	Mike Huckabee	2
	Republican	Rand Paul	5
	Republican	Rick Santorum	1

