But when you call me Bayesian I know I'm not the only one

Andrew Gelman
Department of Statistics and Department of Political Science,
Columbia University

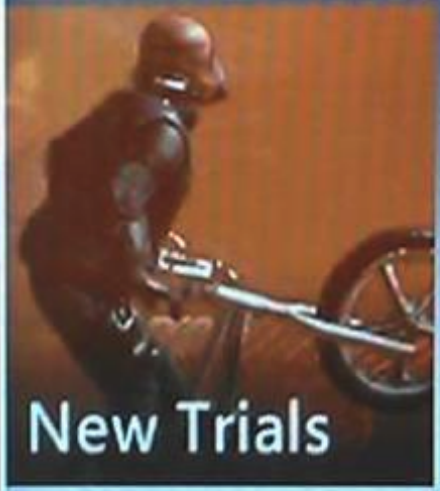
New York R conference, 25 Apr 2015

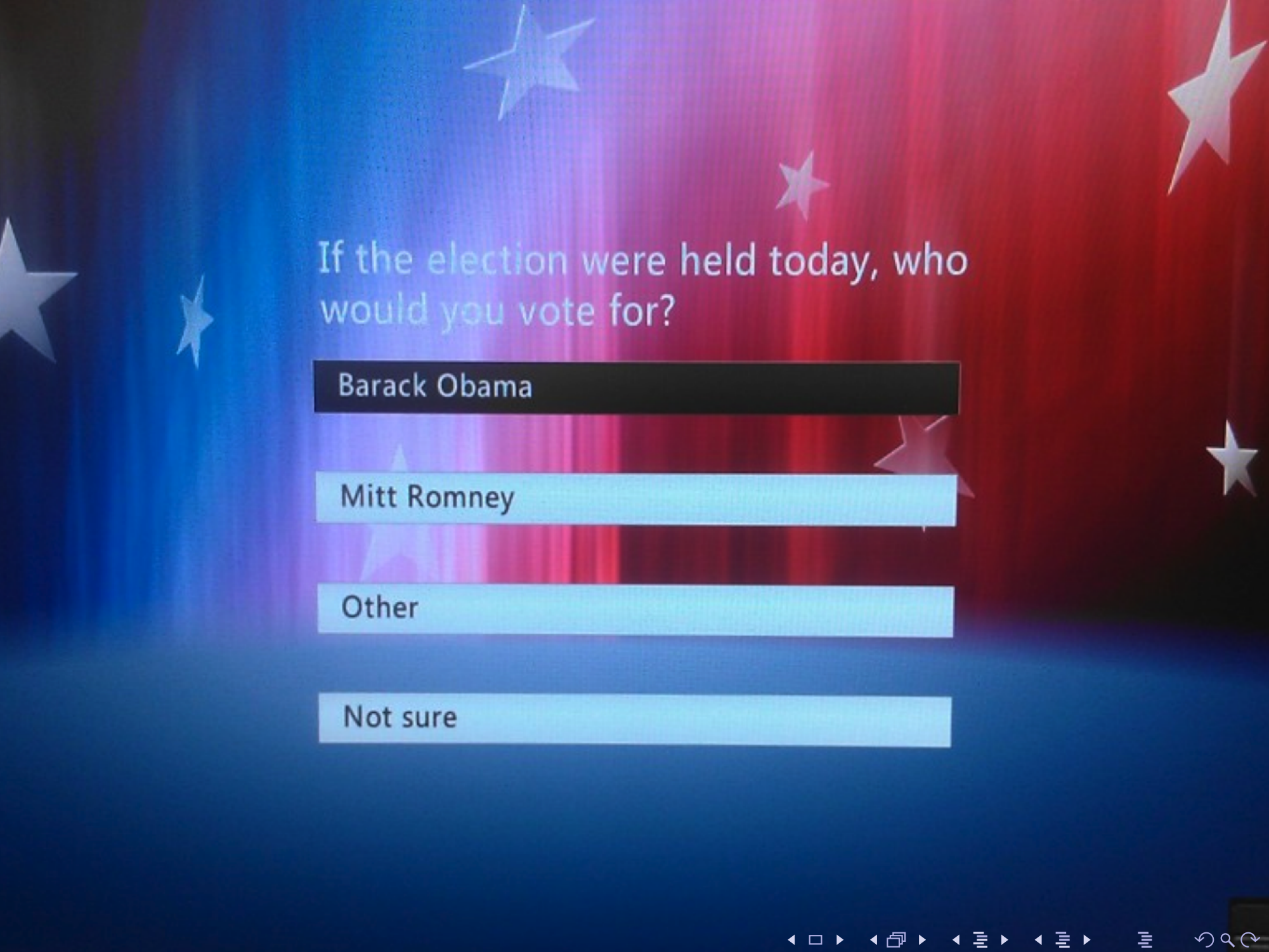
me social tv video games music apps

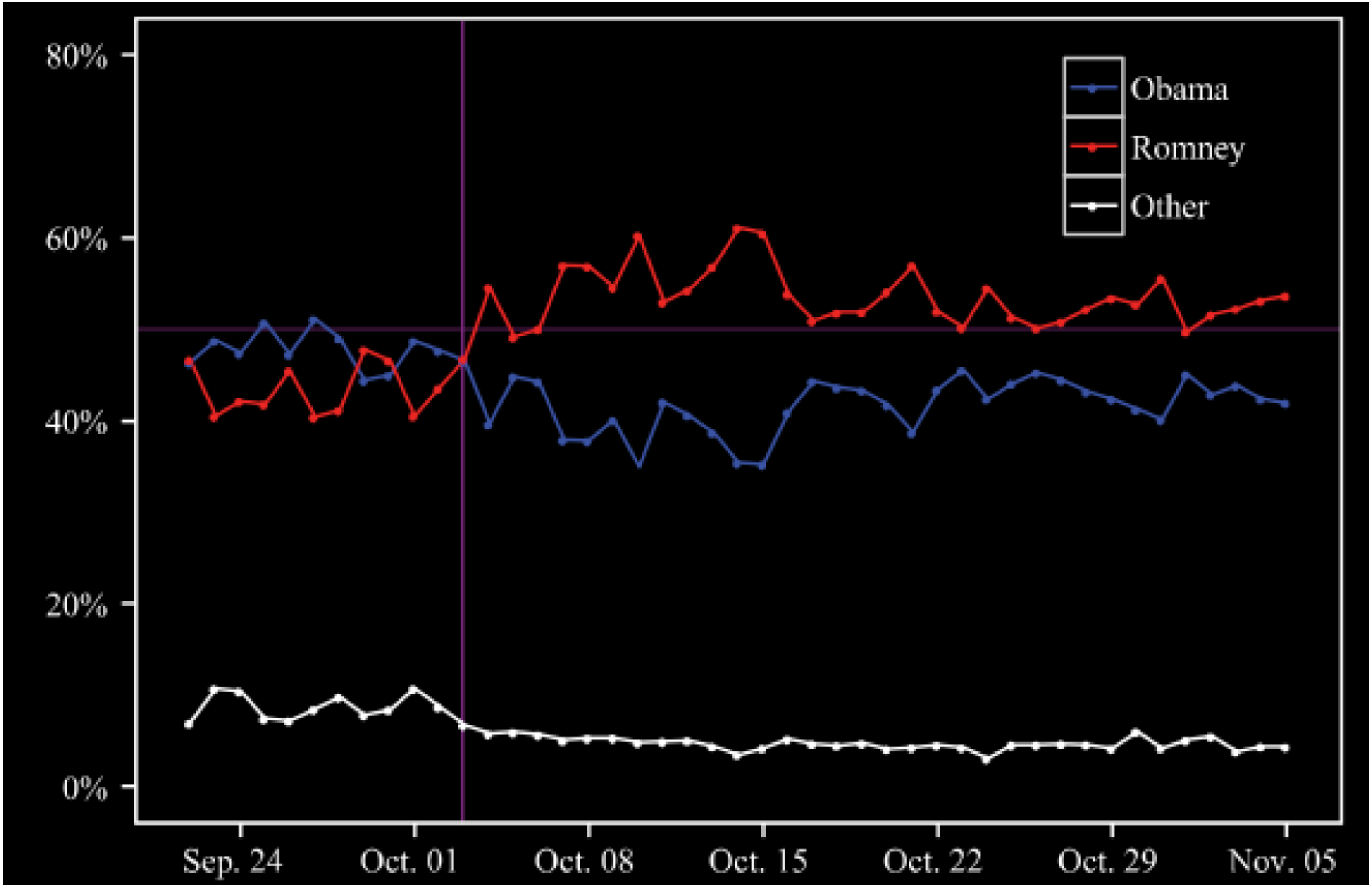
UFC 153

Press Conf

MLB.tv




If the election were held today, who would you vote for?
Barack Obama
Mitt Romney
Other
Not sure


80%
60%
40%
20%
0%
Obama
Romney
Other
Sep. 24
Oct. 01
Oct. 08
Oct. 15
Oct. 22
Oct. 29
Nov. 05

"This week, the New York Times and CBS News published a story using, in part, information from a non-probability, opt-in survey sparking concern among many in the polling community. In general, these methods have little grounding in theory and the results can vary widely based on the particular method used."
— Michael Link, President, American Association for ~~Buggy-Whip Manufacture~~ Public Opinion Research

Michael W. Link is Chief Methodologist for Research Methods at The Nielsen Company. base of experience in survey research, having worked in academia (University of South C 1999), not-for-profit research (RTI International, 1999-2004), government (Centers for Dis Prevention, 2004-2007), and the private sector (Nielsen, 2007-present). He received his Science from the University of South Carolina. Michael's research centers around develo methodologies for confronting some of the most pressing issues facing survey research, techniques for improving survey participation and data quality (use of address-based sam call screening technologies), methodological issues involving use of multiple modes in da mail, CATI, field, mobile, meters), and obtaining participation from hard-to-survey populat isolated, racial and ethnic groups). His numerous research articles have appeared in *Pu Quarterly* and other leading scientific journals.

An AAPOR member since 1993, Michael served as AAPOR Conference Chair in back-to & 2010), a member of both the Cell Phone and Online task forces, an instructor for an AA numerous short-courses, a reviewer for the student paper competition on several occasio regular reviewer for *Public Opinion Quarterly*. He is a member of SAPOR, serving from 2 President, Conference Chair, and Student Paper Competition Organizer and also a mem

In 2011 he, along with several research colleagues, received AAPOR's Warren J. Mitofsk Award for their work on address based sampling designs. His current research focuses o technologies, such as mobile and social platforms, as vehicles for measuring and unders attitudes and behaviors. He will be teaching a short course on "The Role of New Techno Augmenting, or Replacing Traditional Surveys" at the 2012 AAPOR conference.

Nielsen feels the heat of competition as it flubs its ratings of news broadcasts, putting ABC ahead of NBC

BY DON KAPLAN

In spite of the goof, its global president took time to slam rival Rentrak, which collects different kind of data from viewers

NEW YORK DAILY NEWS / Sunday, October 19, 2014, 2:00 AM

A A A

MEDIA

TV Ratings by Nielsen Had Errors for Months

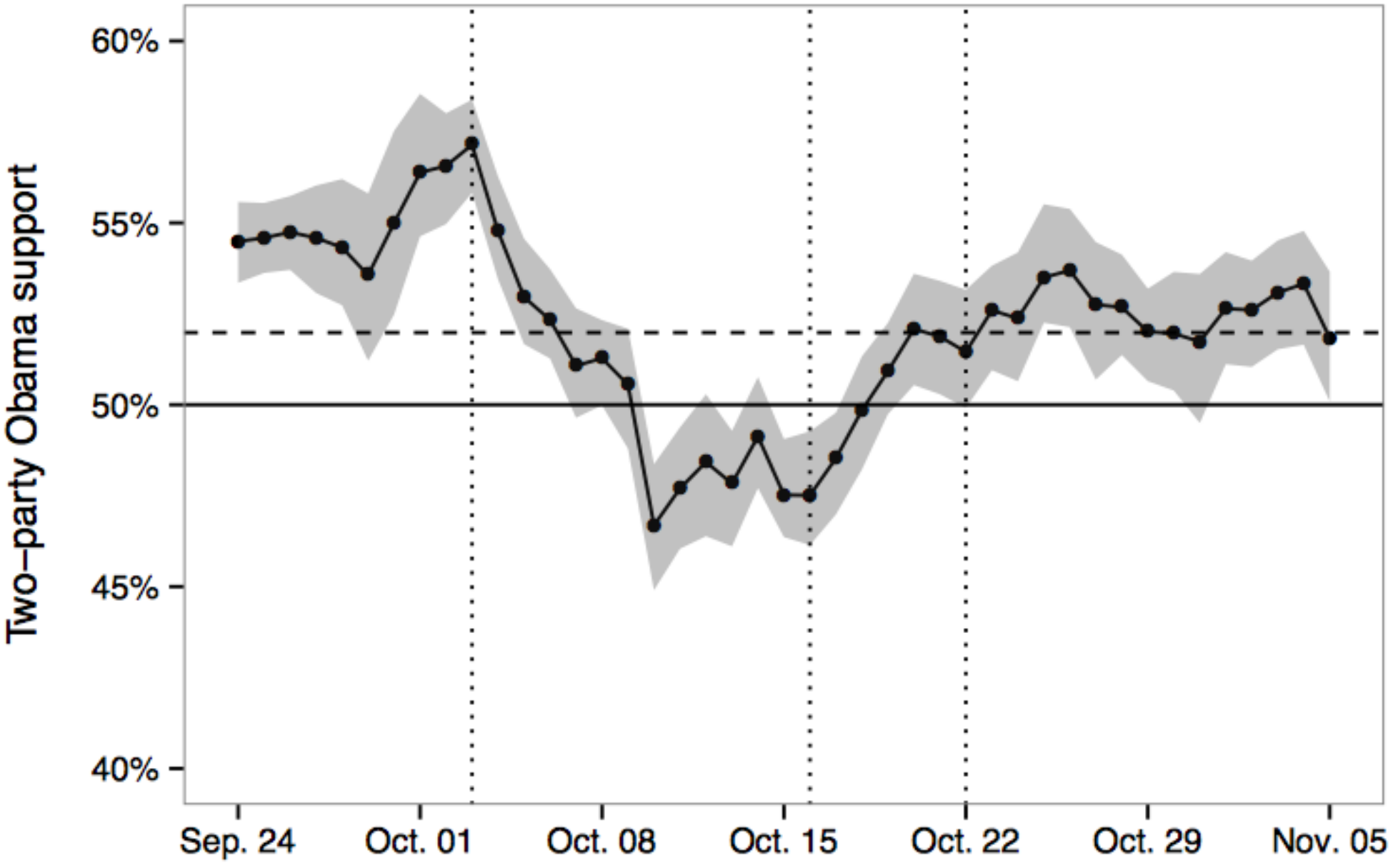
By **BILL CARTER** and **EMILY STEEL** OCT. 10, 2014

Email

Share

Nielsen, the television research firm, acknowledged on Friday that it had been reporting inaccurate ratings for the broadcast networks for the last seven months, a mistake that raises questions about the company's increasingly criticized system for measuring TV audiences.

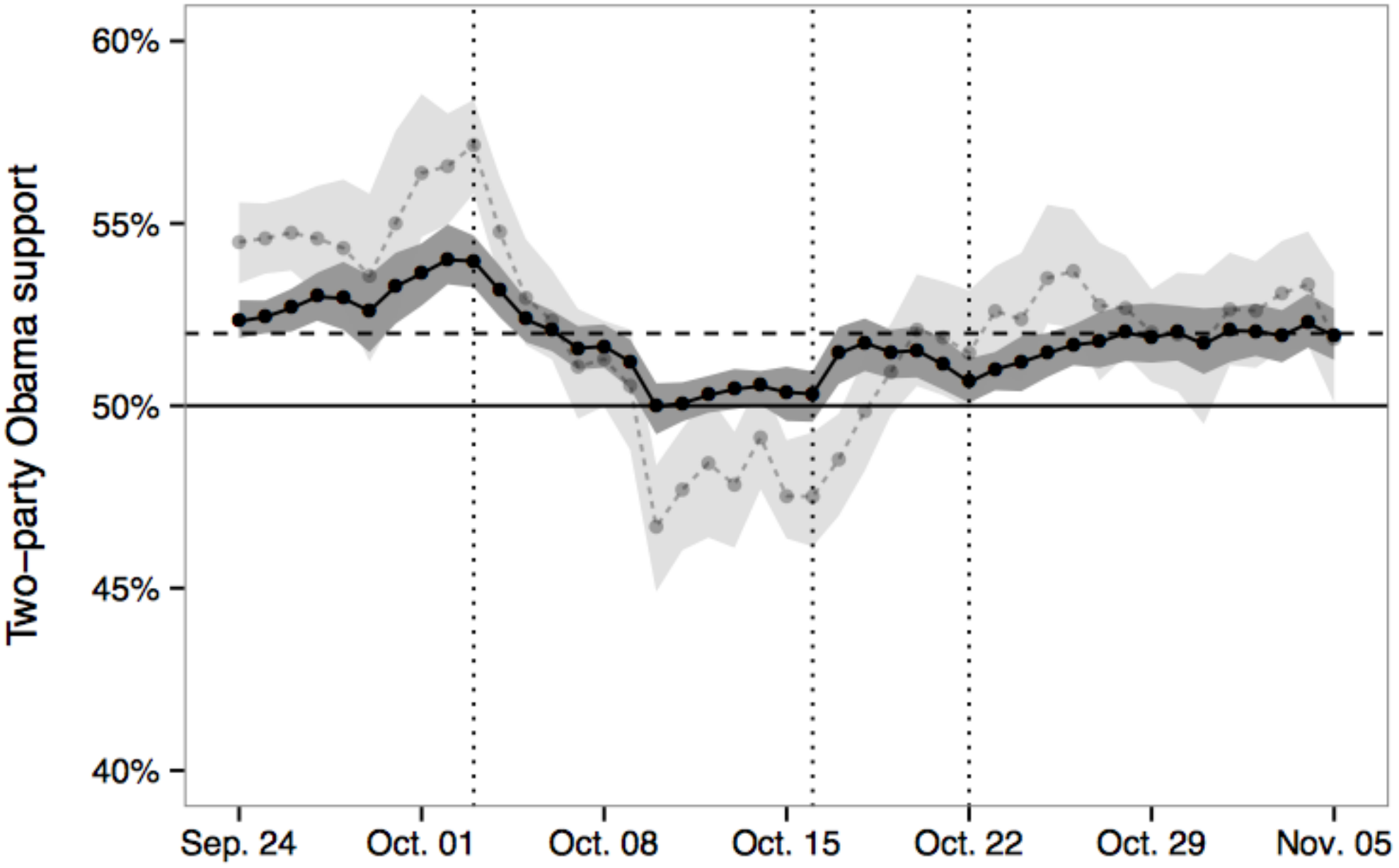
Xbox estimates, adjusting for demographics:



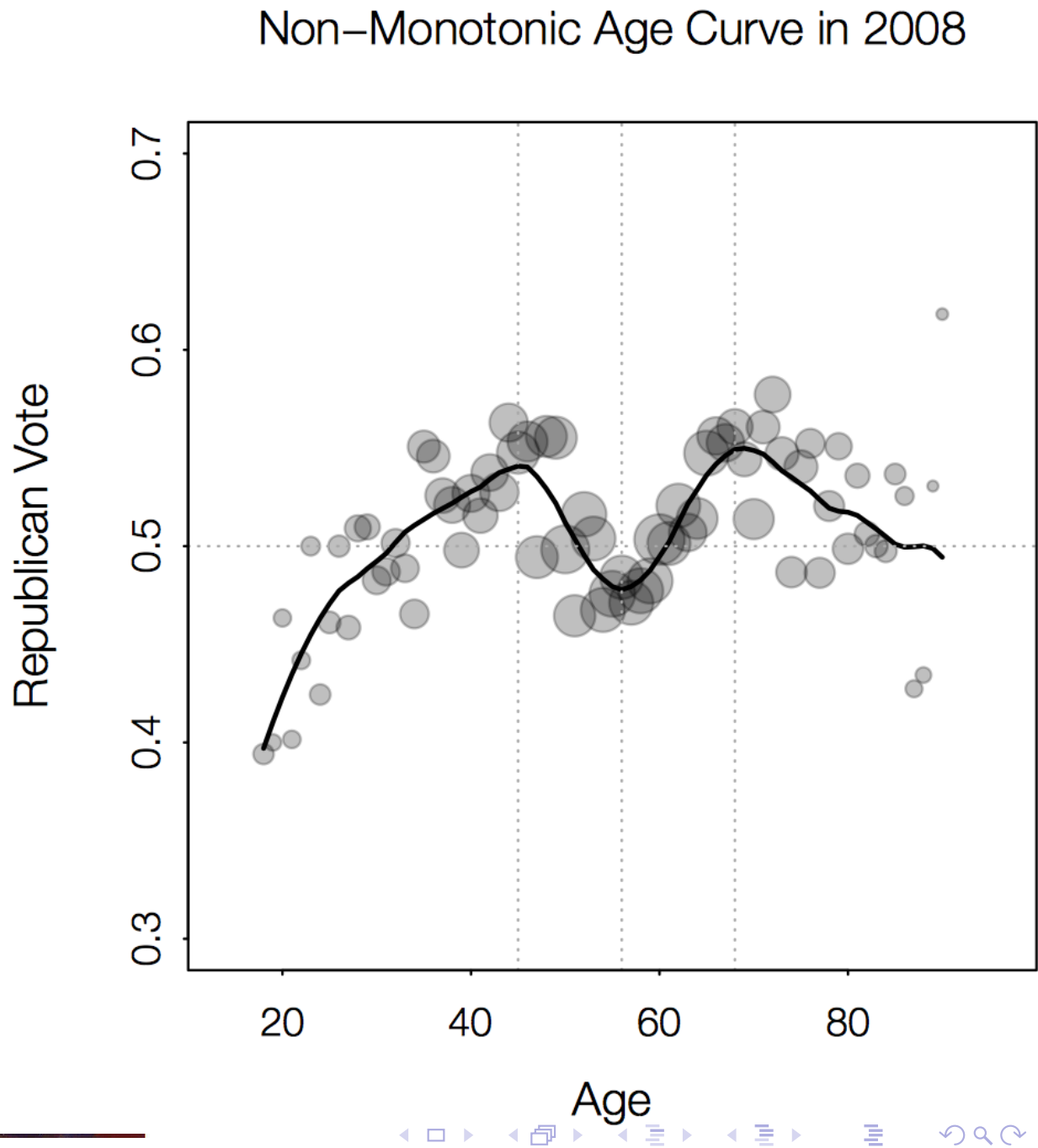

The Presidential
2012 DEBATES
#nbcpolitics

- Karl Rove, *Wall Street Journal*, 7 Oct: "Mr. Romney's bounce is significant."
- Nate Silver, *New York Times*, 6 Oct: "Mr. Romney has not only improved his own standing but also taken voters away from Mr. Obama's column."

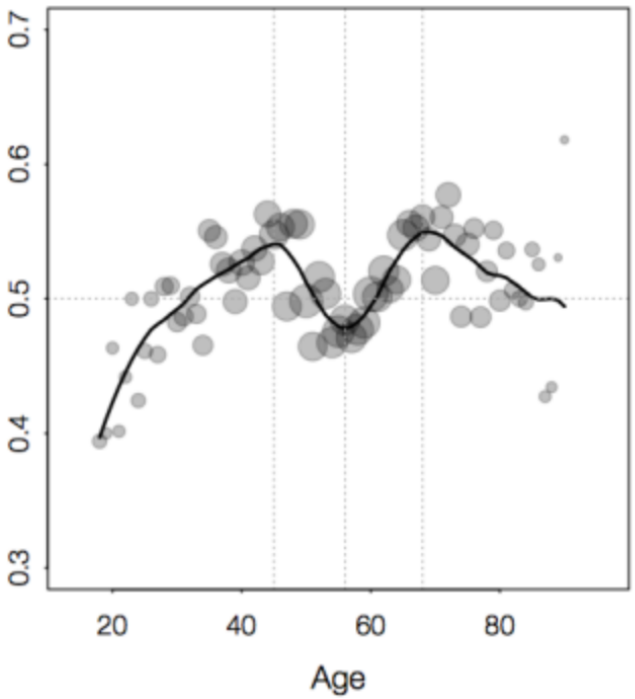
Xbox estimates, adjusting for demographics and partisanship:



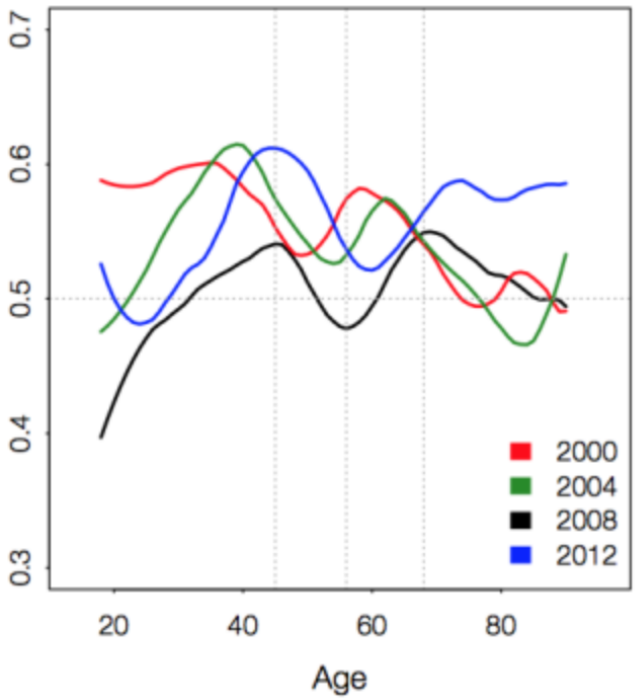
Jimmy Carter Republicans and George W. Bush Democrats:



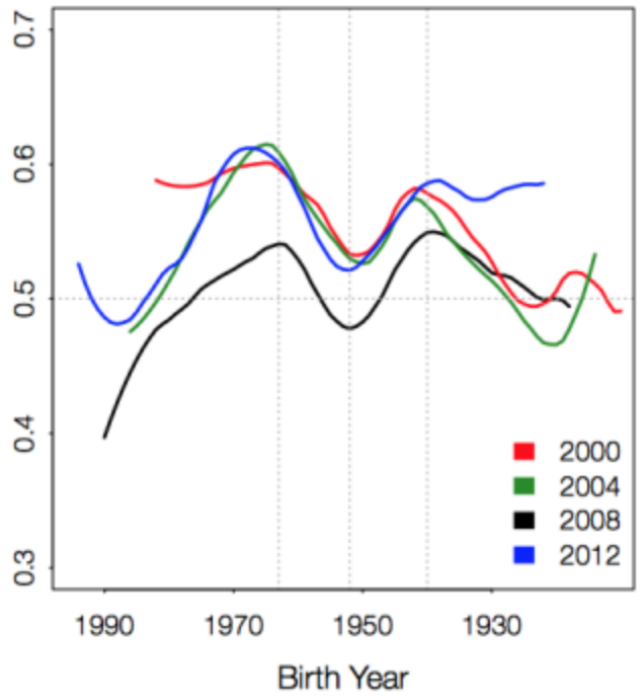
Non−Monotonic Age Curve in 2008



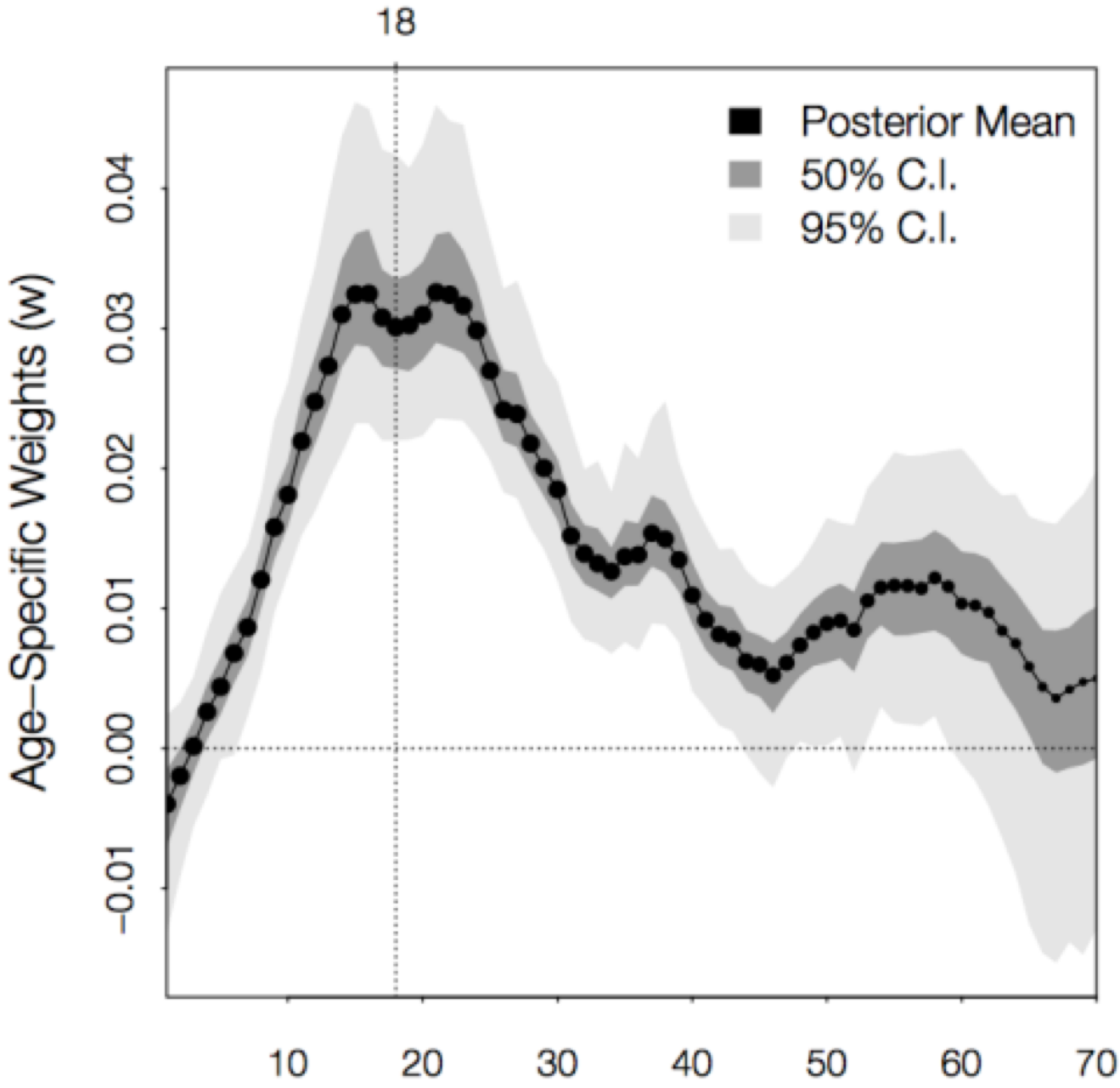
Non−Monotonicity in Other Elections



Lining up by Birth Year



The Formative Years



Stan

Stan is a probabilistic programming language implementing full Bayesian statistical inference with

- MCMC sampling (NUTS, HMC)

and penalized maximum likelihood estimation with

- Optimization (BFGS)

Stan is coded in C++ and runs on all major platforms (Linux, Mac, Windows).

Stan is freedom-respecting, open-source software (new BSD core, GPLv3 interfaces).

Interfaces

Download and getting started instructions, organized by interface:

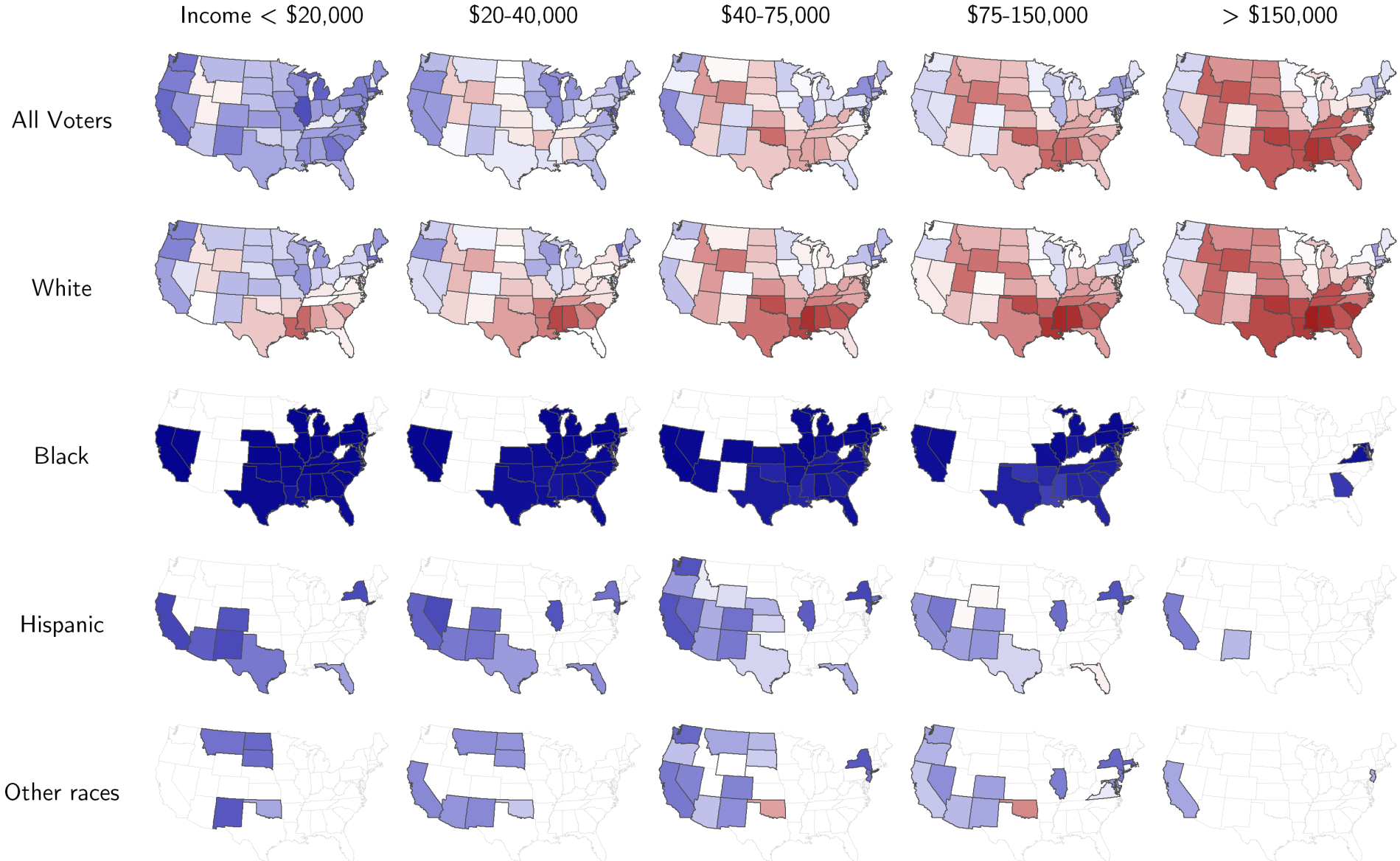
- RStan v2.5.0 (R)
- PyStan v2.5.0 (Python)
- CmdStan v2.5.0 (shell, command-line terminal)
- MatlabStan (MATLAB)
- Stan.jl (Julia)

Home
RStan
PyStan
CmdStan
MatlabStan
Stan.jl
Manual
Examples
Groups
Issues
Contribute
Source

Adjusting for known differences between sample and population:

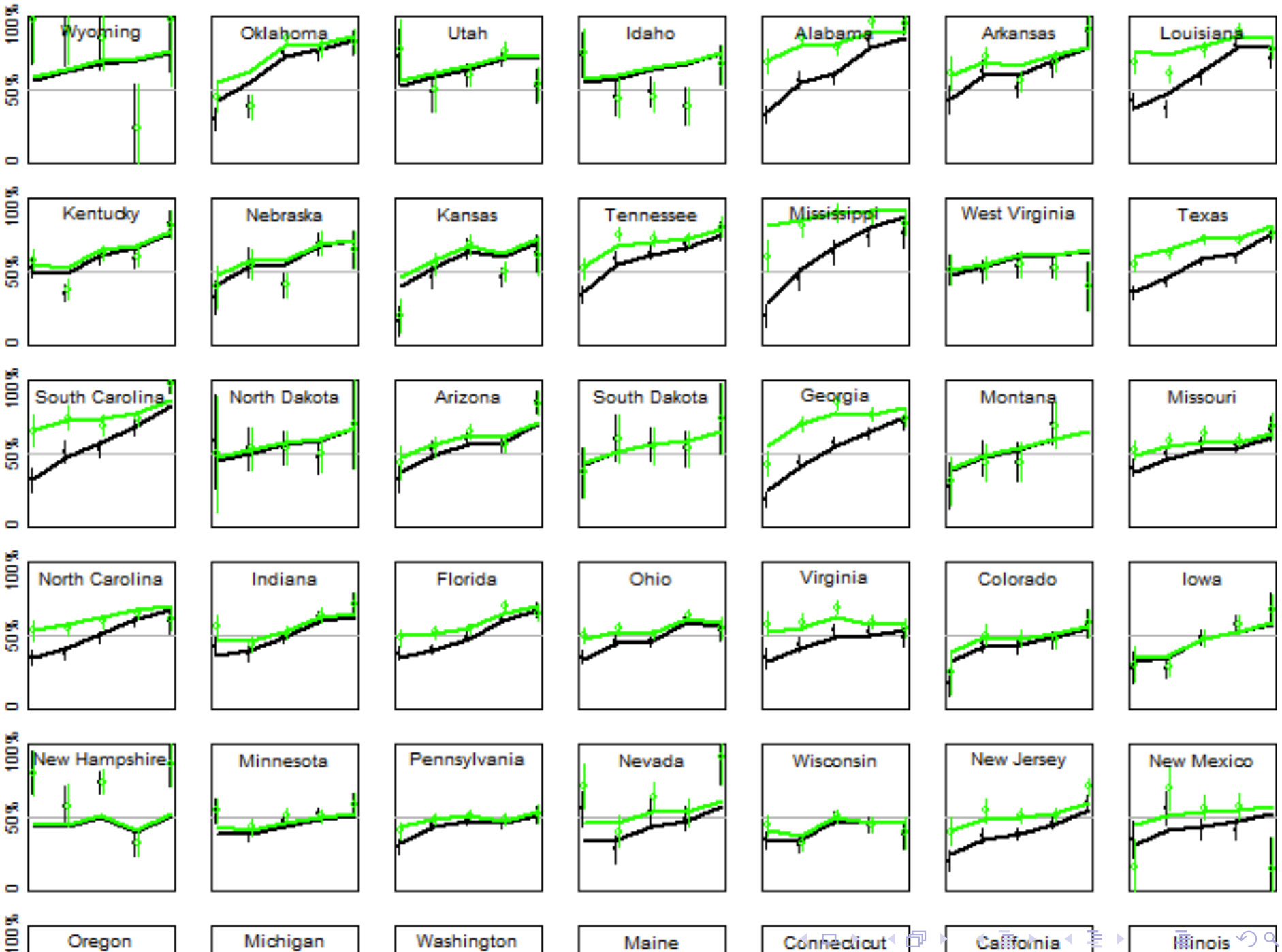
- Include more predictors
- Multilevel regression
- Poststratification

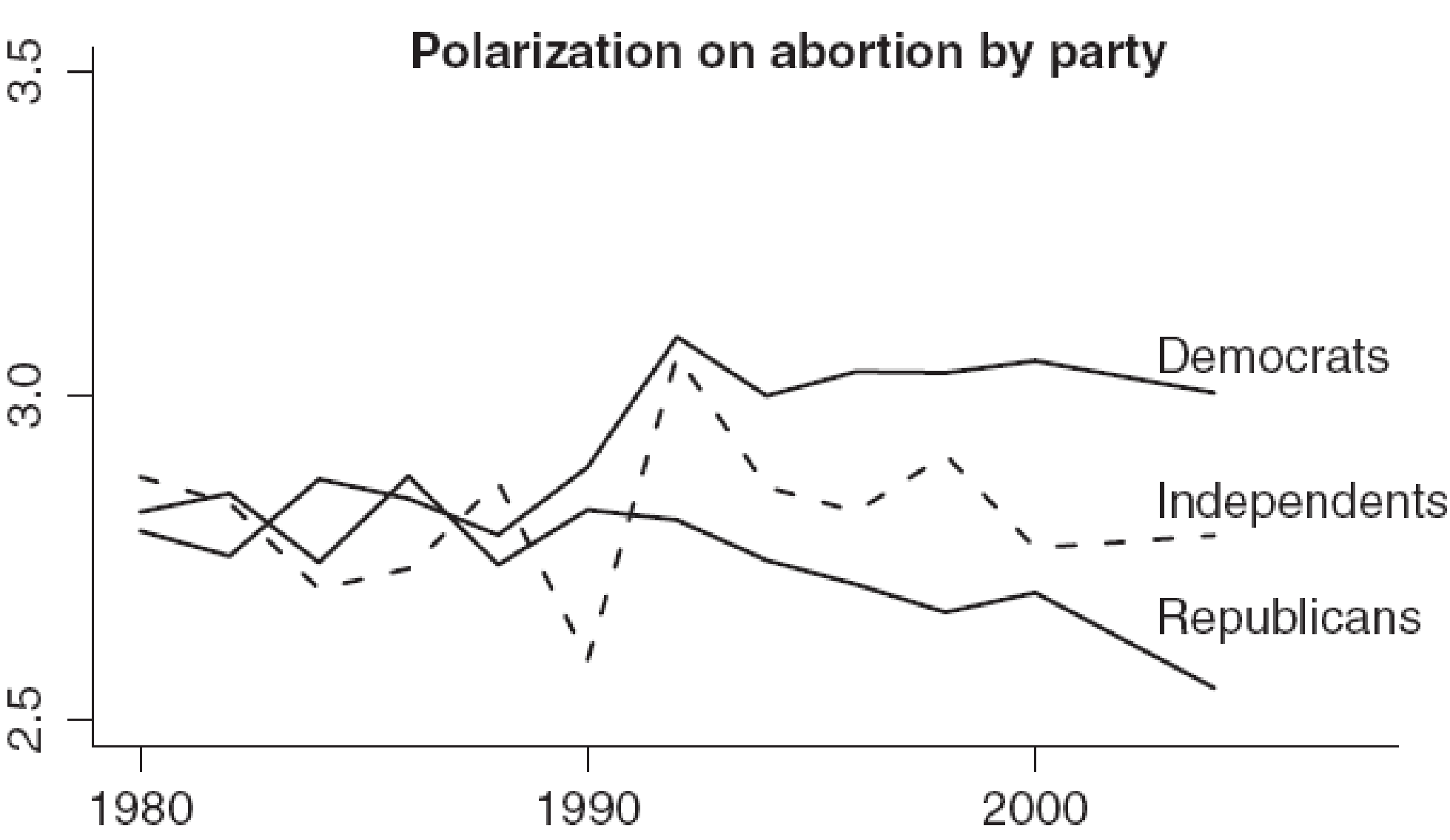
Did you vote for McCain in 2008?



When a category represents less than 1% of the voters in a state, the state is left blank

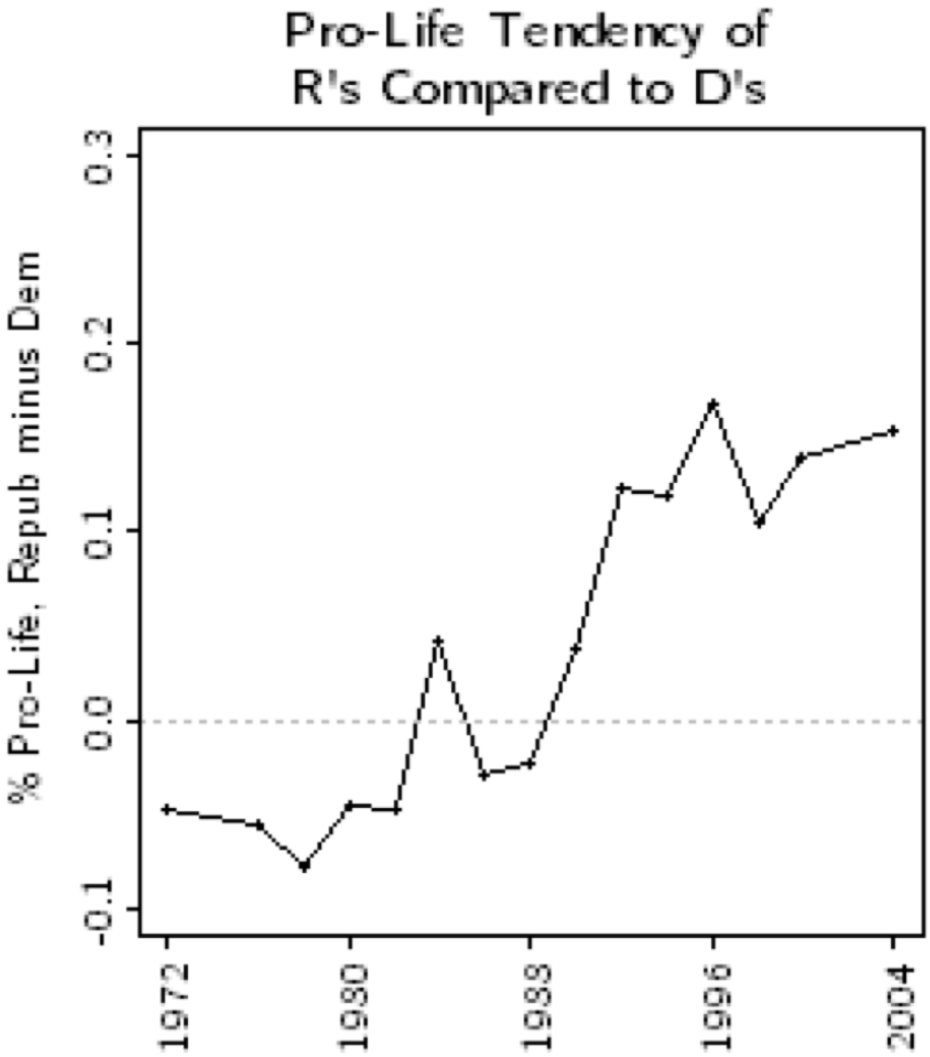
2008 election: McCain share of the two-party vote in each income category
within each state among all voters (black) and non-Hispanic whites (green)

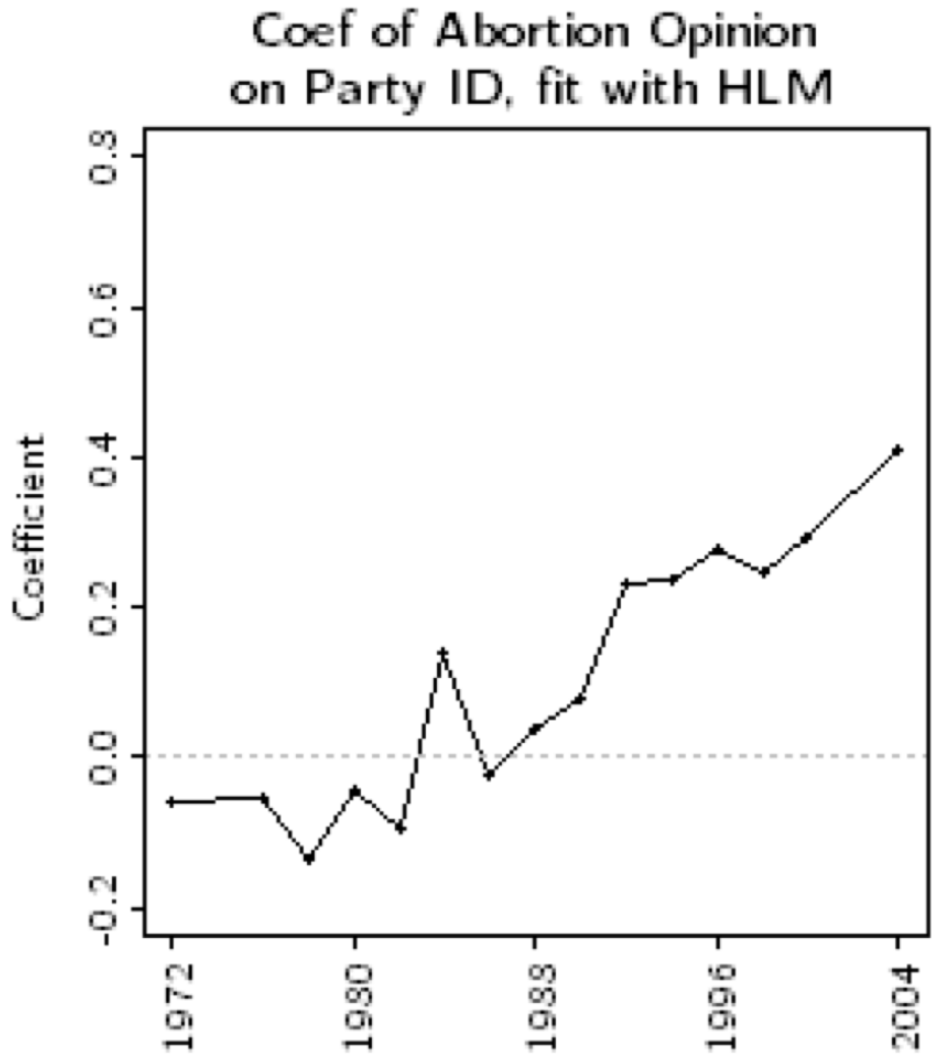


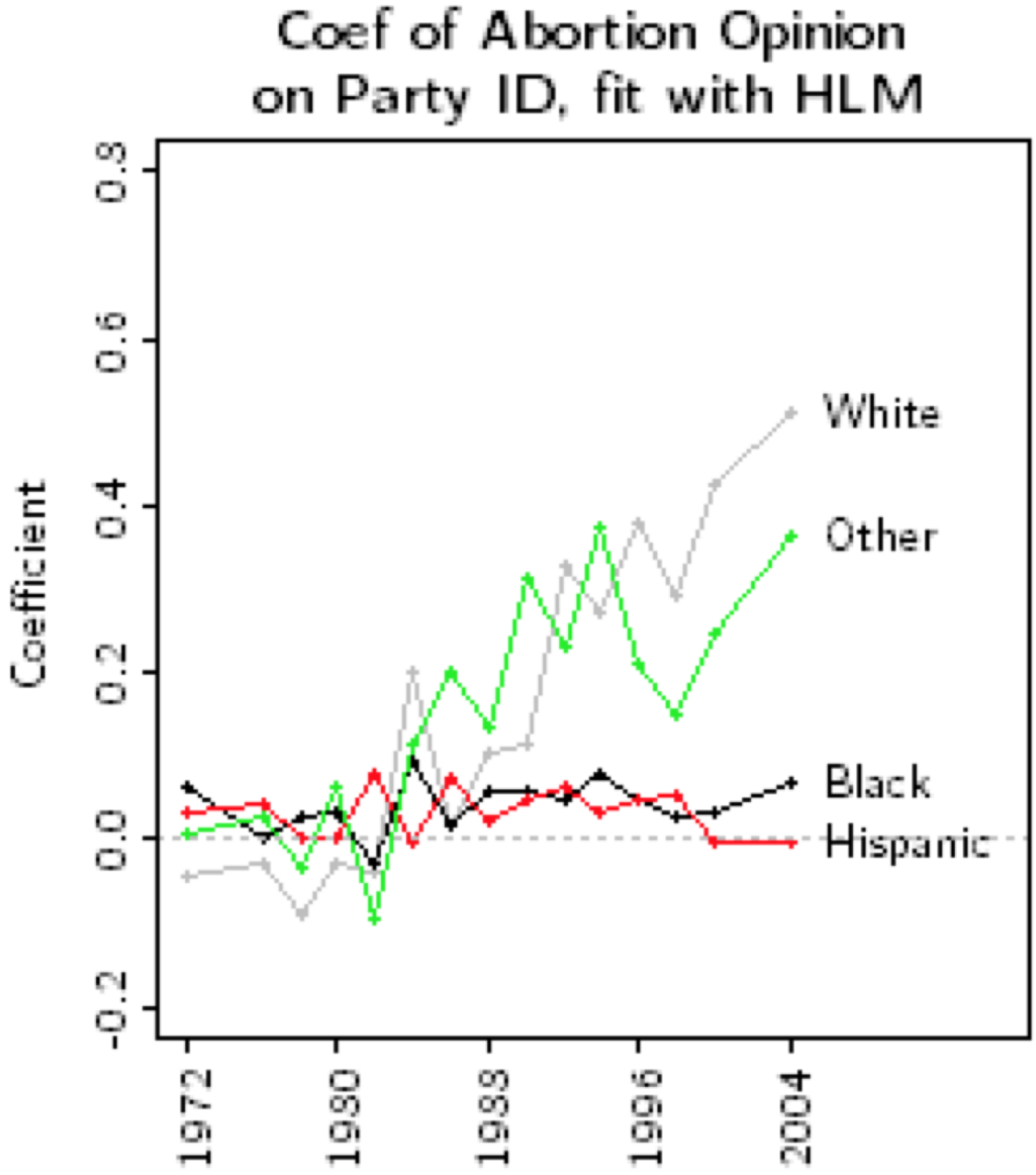

Polarization on abortion by party
3.5
3.0
2.5
1980
1990
2000
Democrats
Independents
Republicans

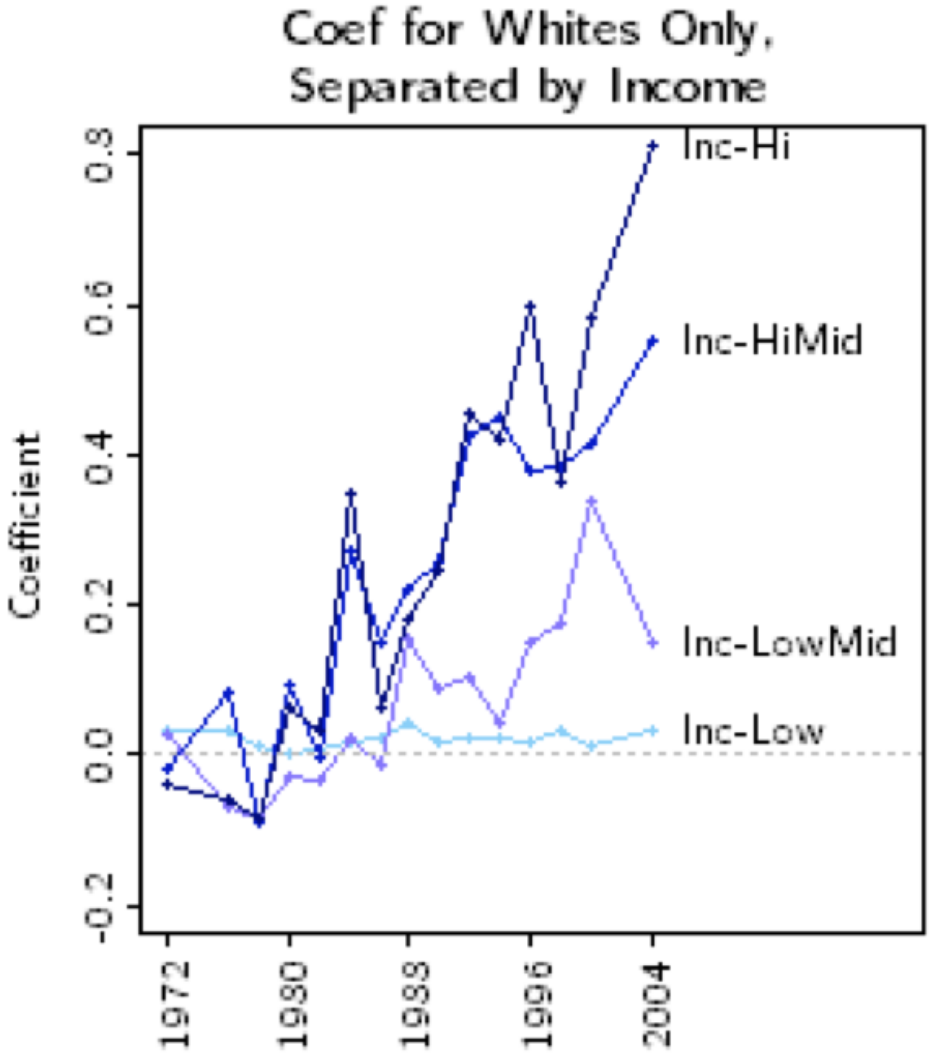
The New York Times

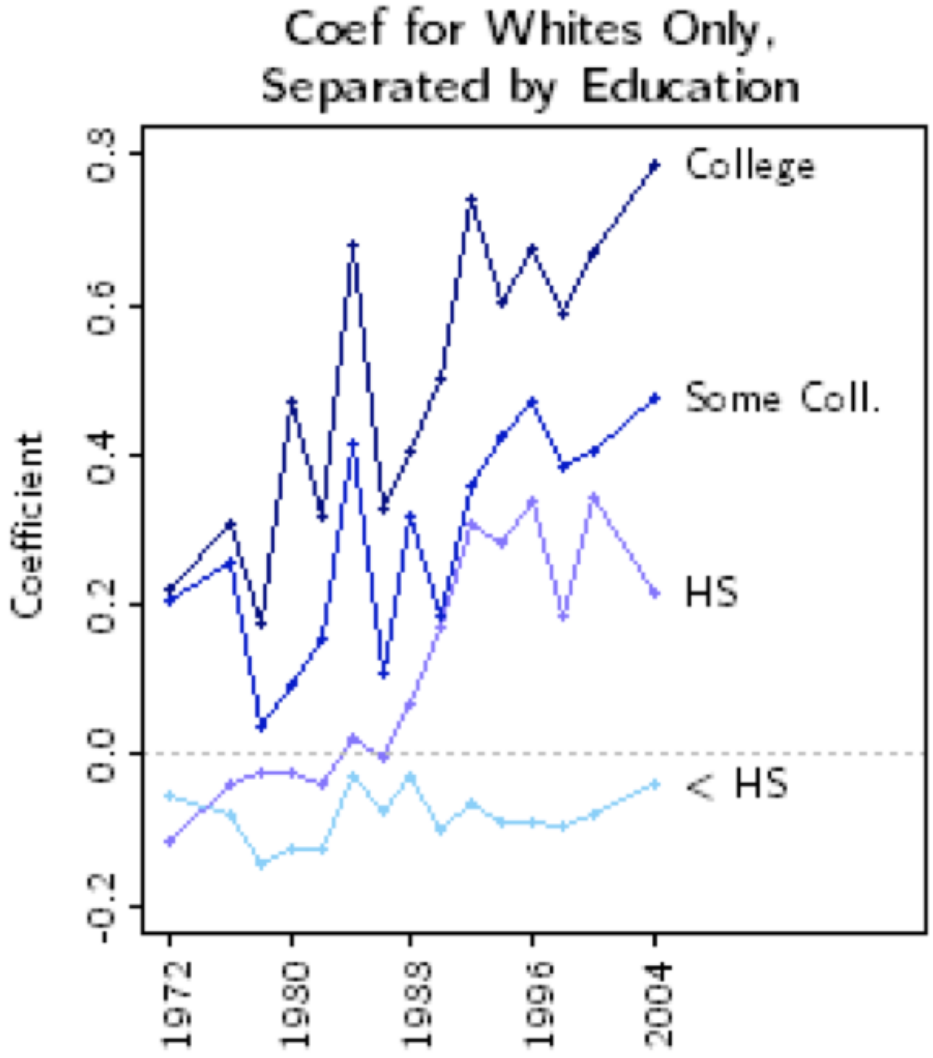
G.O.P. Pursues Hispanic Votes With Abortion Stance

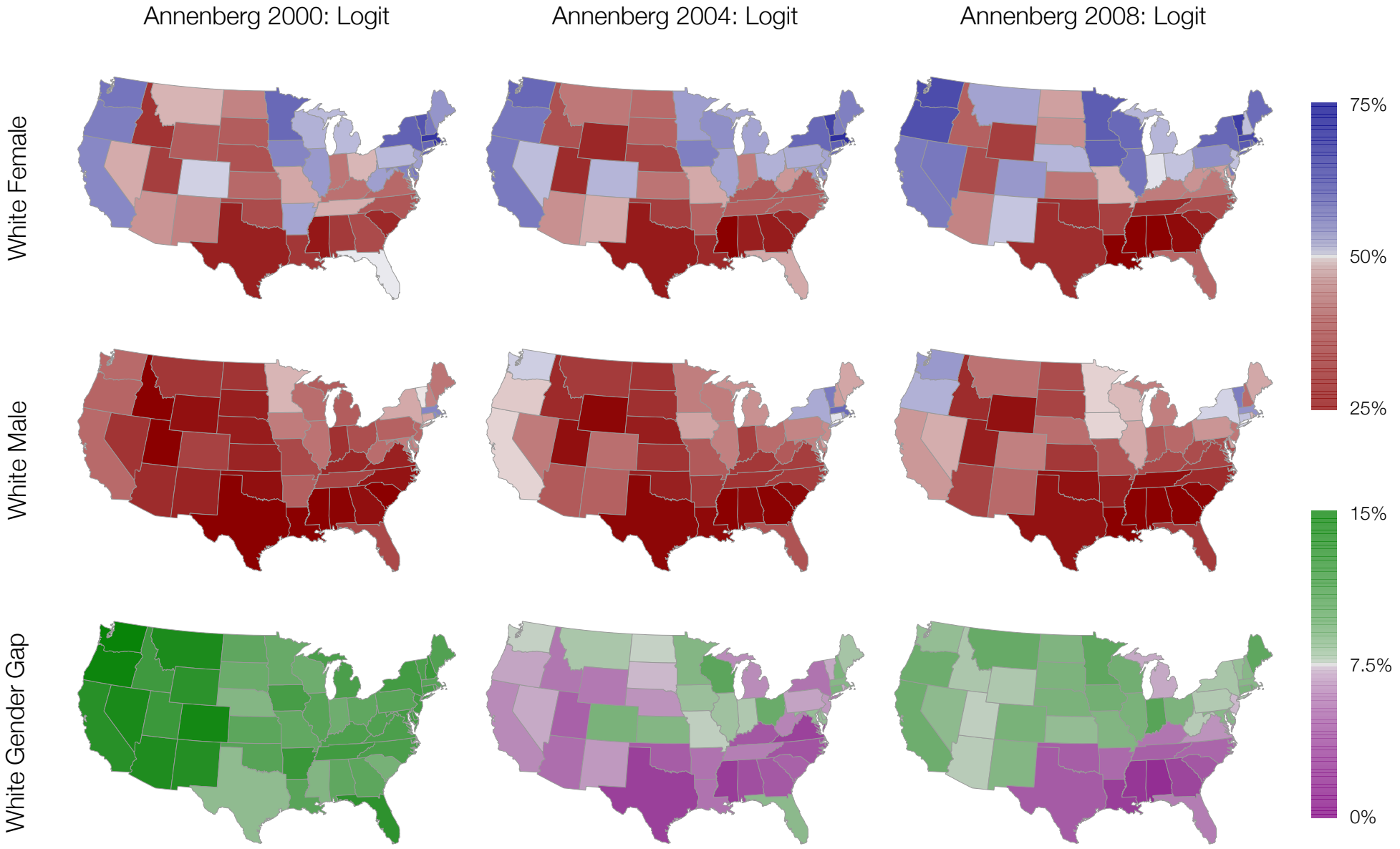

Pro-Life Tendency of
R's Compared to D's
% Pro-Life, Repub minus Dem
-0.1
0.0
0.1
0.2
0.3
1972
1980
1988
1996
2004

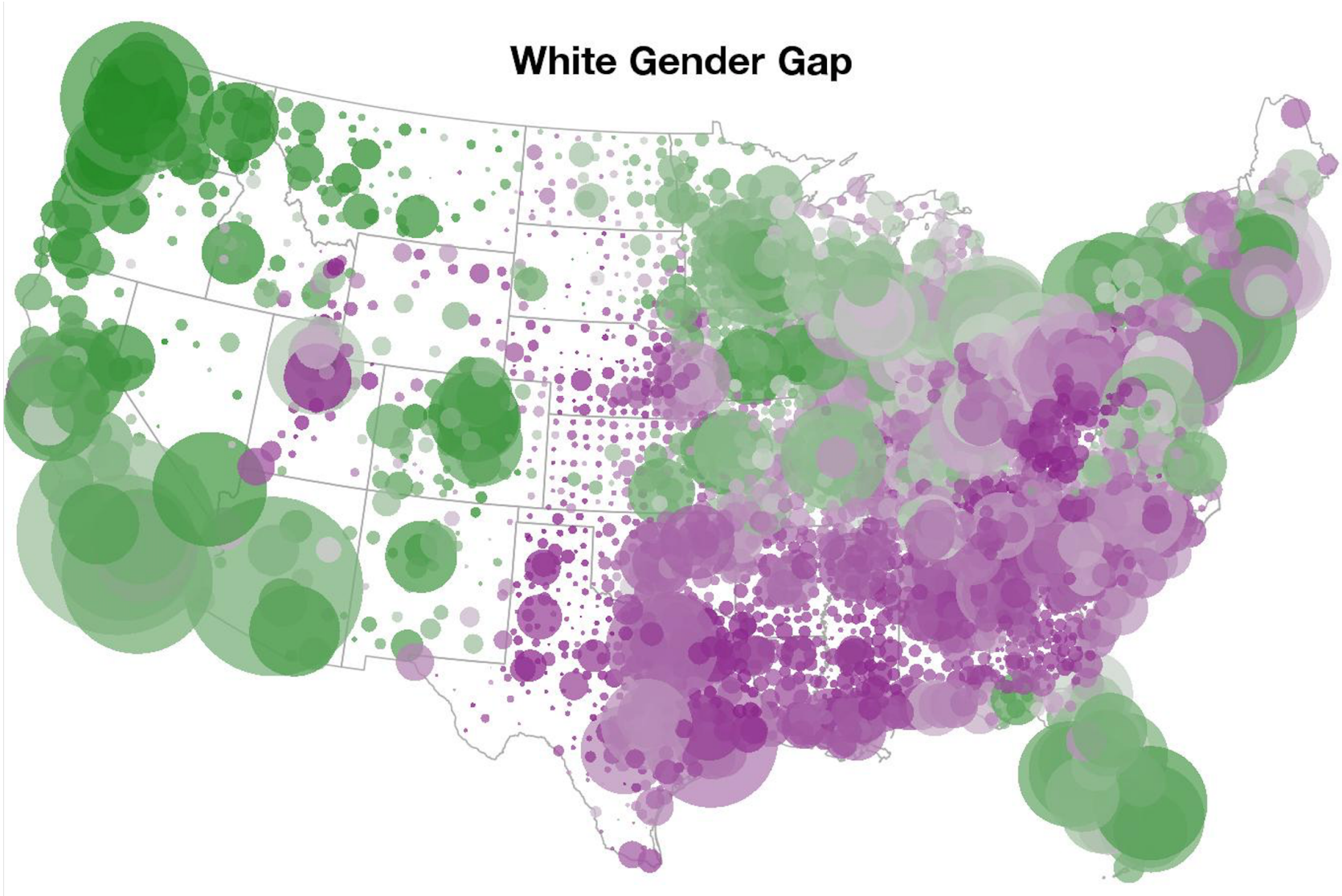

Coef of Abortion Opinion
on Party ID, fit with HLM
Coefficient
-0.2
0.0
0.2
0.4
0.6
0.8
1972
1980
1988
1996
2004


Coef of Abortion Opinion
on Party ID, fit with HLM
Coefficient
-0.2
0.0
0.2
0.4
0.6
0.8
1972
1980
1988
1996
2004
White
Other
Black
Hispanic


Coef for Whites Only,
Separated by Income
Coefficient
-0.2
0.0
0.2
0.4
0.6
0.8
1972
1980
1988
1996
2004
Inc-Hi
Inc-HiMid
Inc-LowMid
Inc-Low


Coef for Whites Only,
Separated by Education
Coefficient
-0.2
0.0
0.2
0.4
0.6
0.8
1972
1980
1988
1996
2004
College
Some Coll.
HS
< HS


Annenberg 2000: Logit
Annenberg 2004: Logit
Annenberg 2008: Logit
White Female
White Male
White Gender Gap
75%
50%
25%
15%
7.5%
0%


White Gender Gap

Birthdays: The beginning

Social Science & Medicine 73 (2011) 1246–1248

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Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Short report

Influence of Valentine's Day and Halloween on Birth Timing

Becca R. Levy*, Pil H. Chung, Martin D. Slade

Yale University, School of Public Health, Division of Social & Behavioral Sciences, 60 College Street, New Haven, CT 06520-8034, United States

ARTICLE INFO

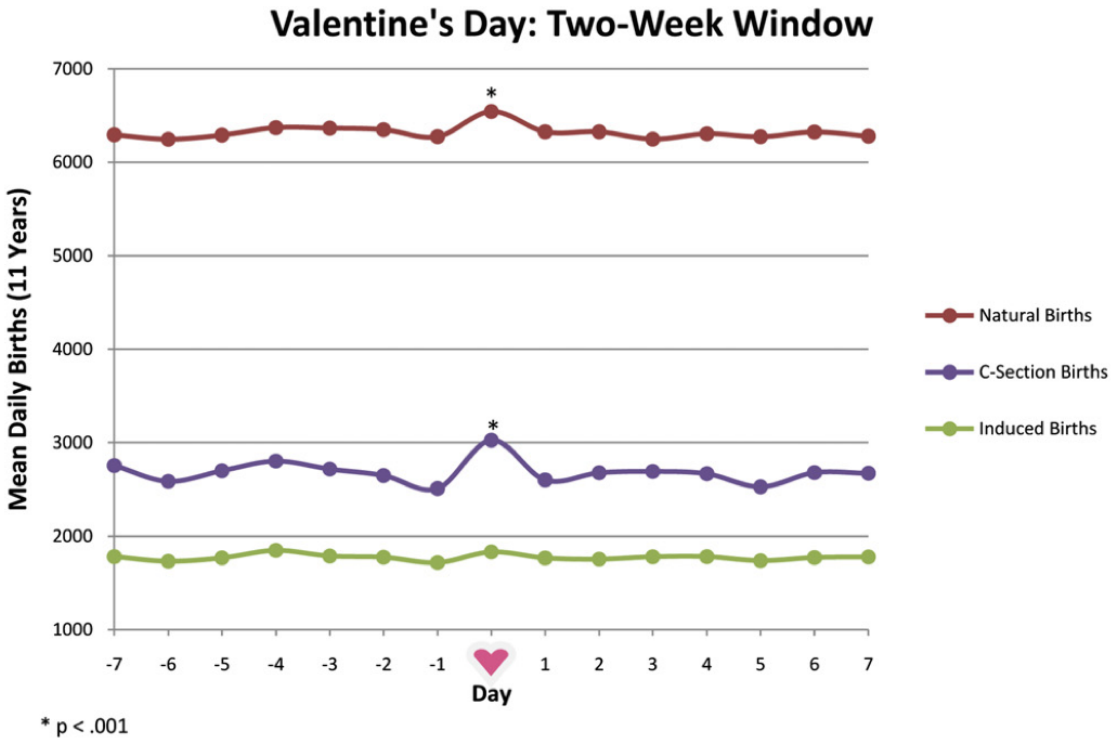
Article history:
Available online 28 July 2011

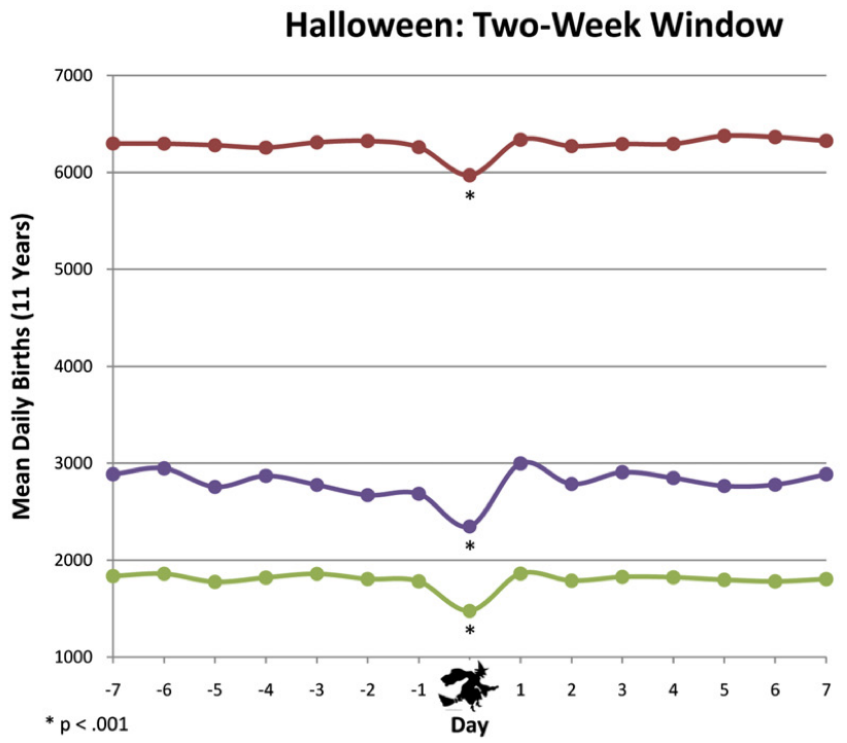
Keywords:
United States
Culture
Birth timing
Holidays
Pregnancy
Biocultural
Birth

ABSTRACT

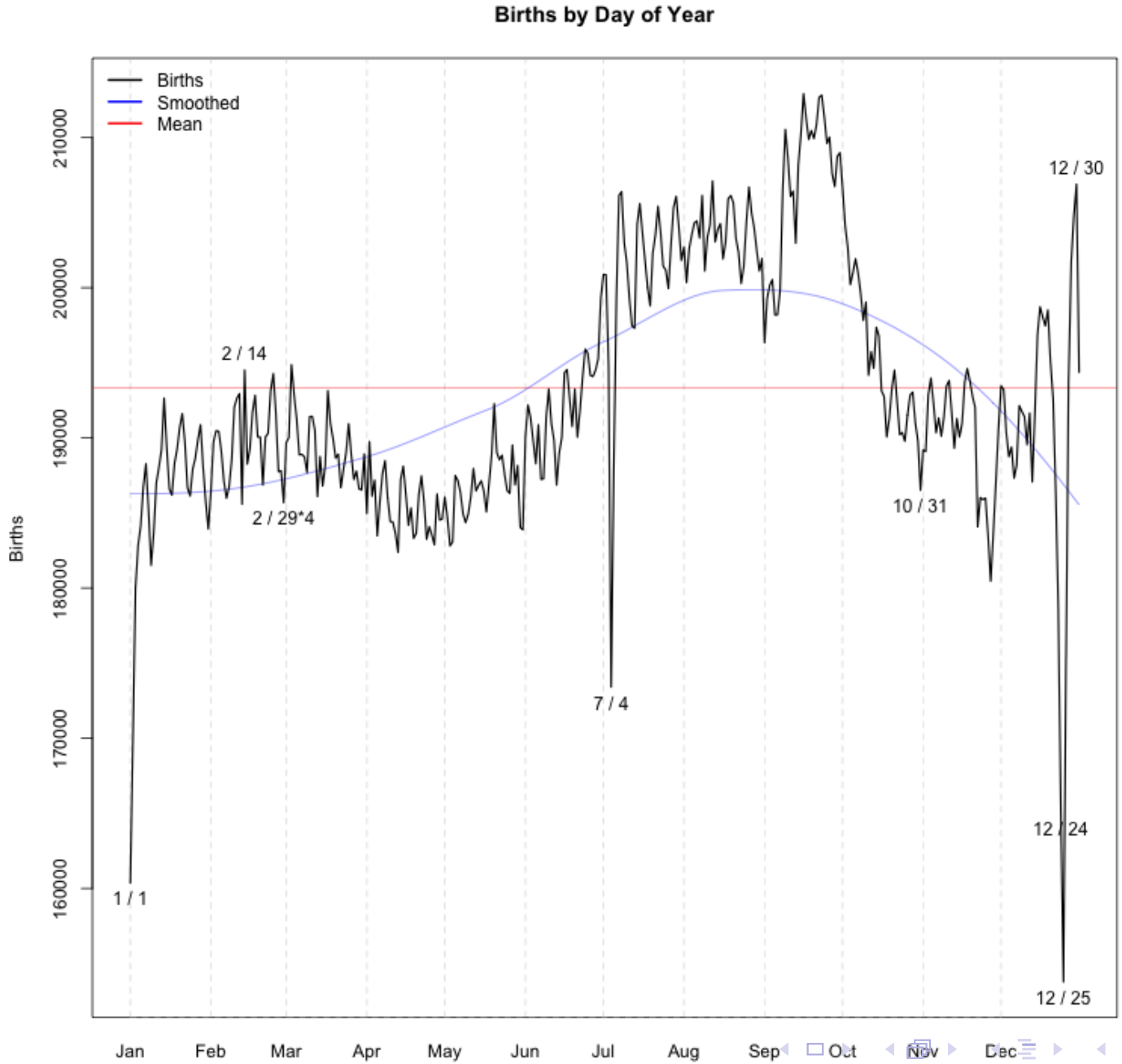
It is known that cultural representations, in the form of stereotypes, can influence functional health. We predicted that the influence of cultural representations, in the form of salient holidays, would extend to birth timing. On Valentine's Day, which conveys positive symbolism, there was a 3.6% increase in spontaneous births and a 12.1% increase in cesarean births. Whereas, on Halloween, which conveys negative symbolism, there was a 5.3% decrease in spontaneous births and a 16.9% decrease in cesarean births. These effects reached significance at $p < .0001$, after adjusting for year and day of the week. The sample was based on birth-certificate information for all births in the United States within one week on either side of each holiday across 11 years. The Valentine's-Day window included 1,676,217 births and the Halloween window included 1,809,304 births. Our findings raise the possibility that pregnant women may be able to control the timing of spontaneous births, in contrast to the traditional assumption, and that scheduled births are also influenced by the cultural representations of the two holidays.

The published graphs show data from 30 days in the year

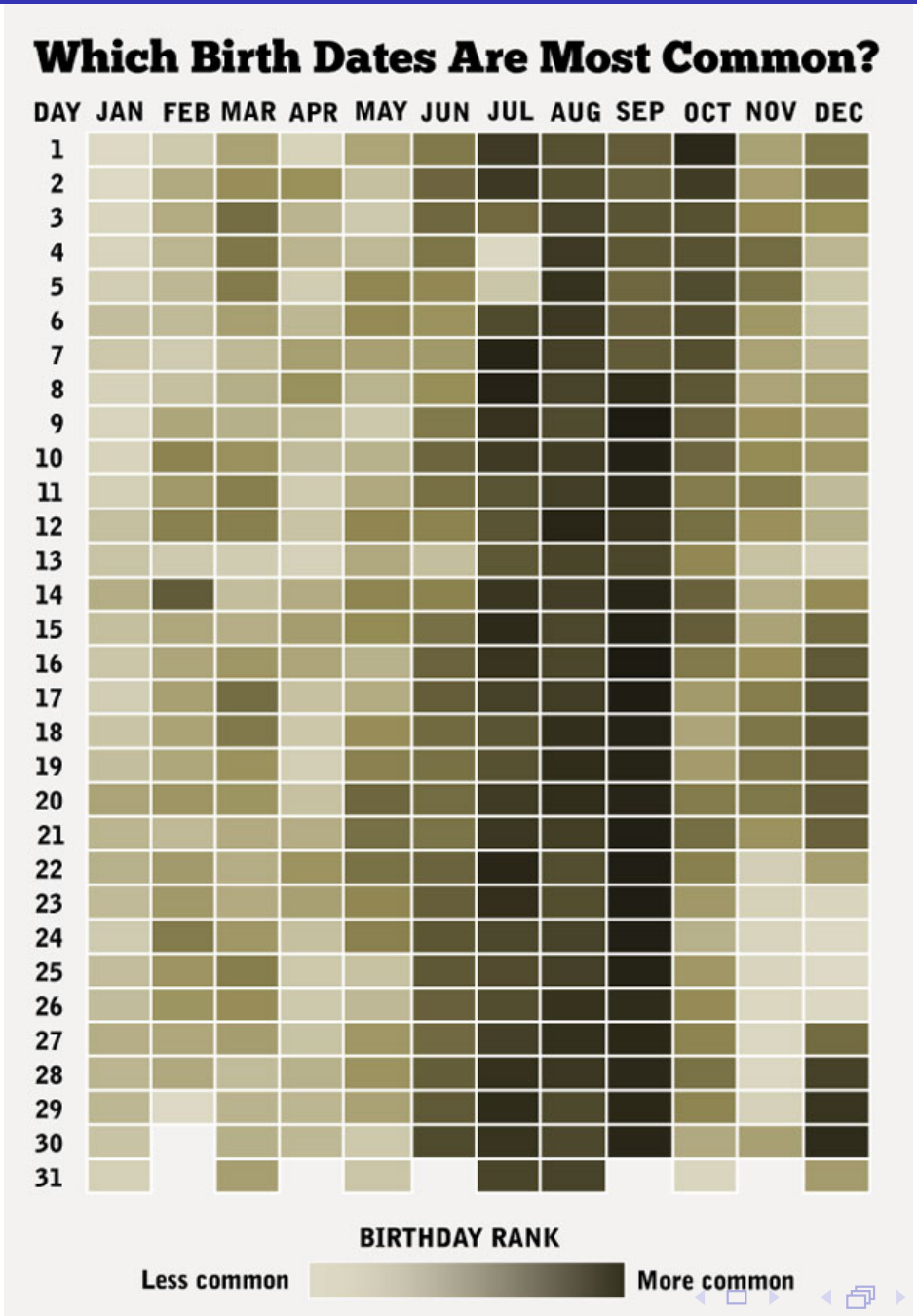




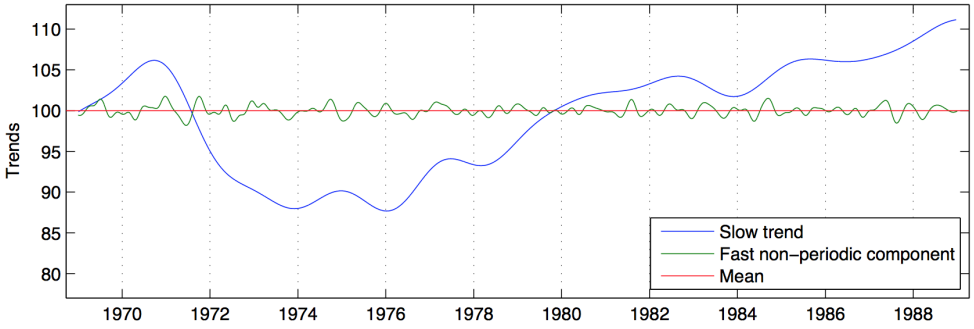
Chris Mulligan's data graph: all 366 days

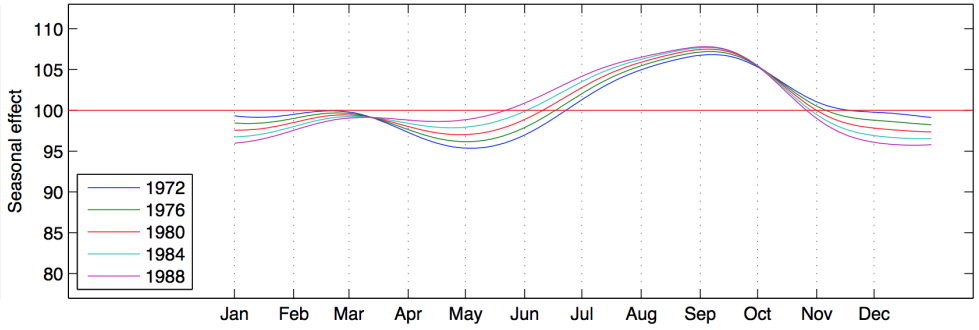


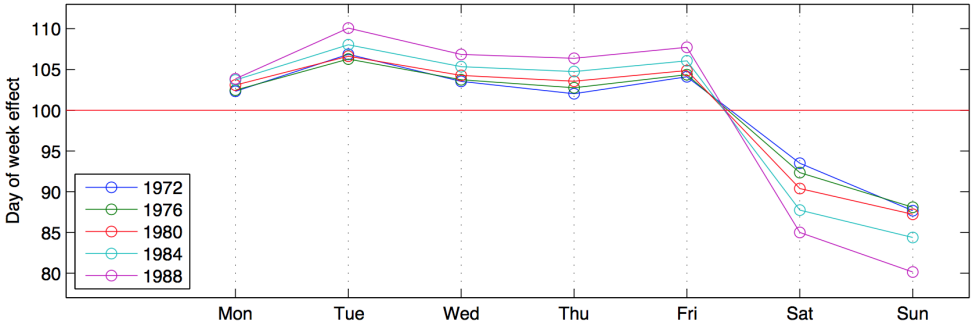
Matt Stiles's heatmap

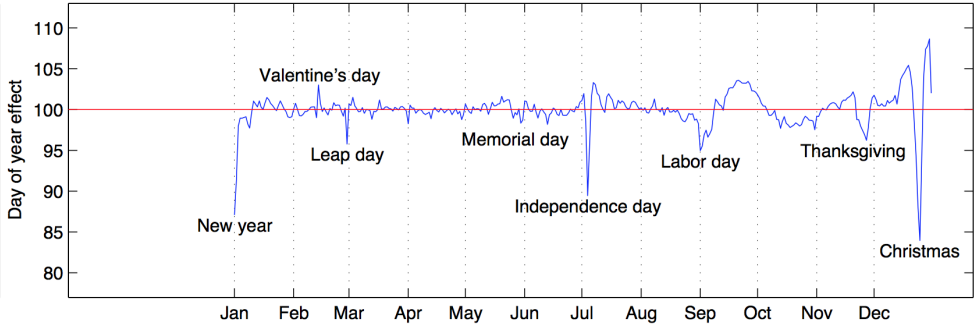


Aki Vehtari's decomposition



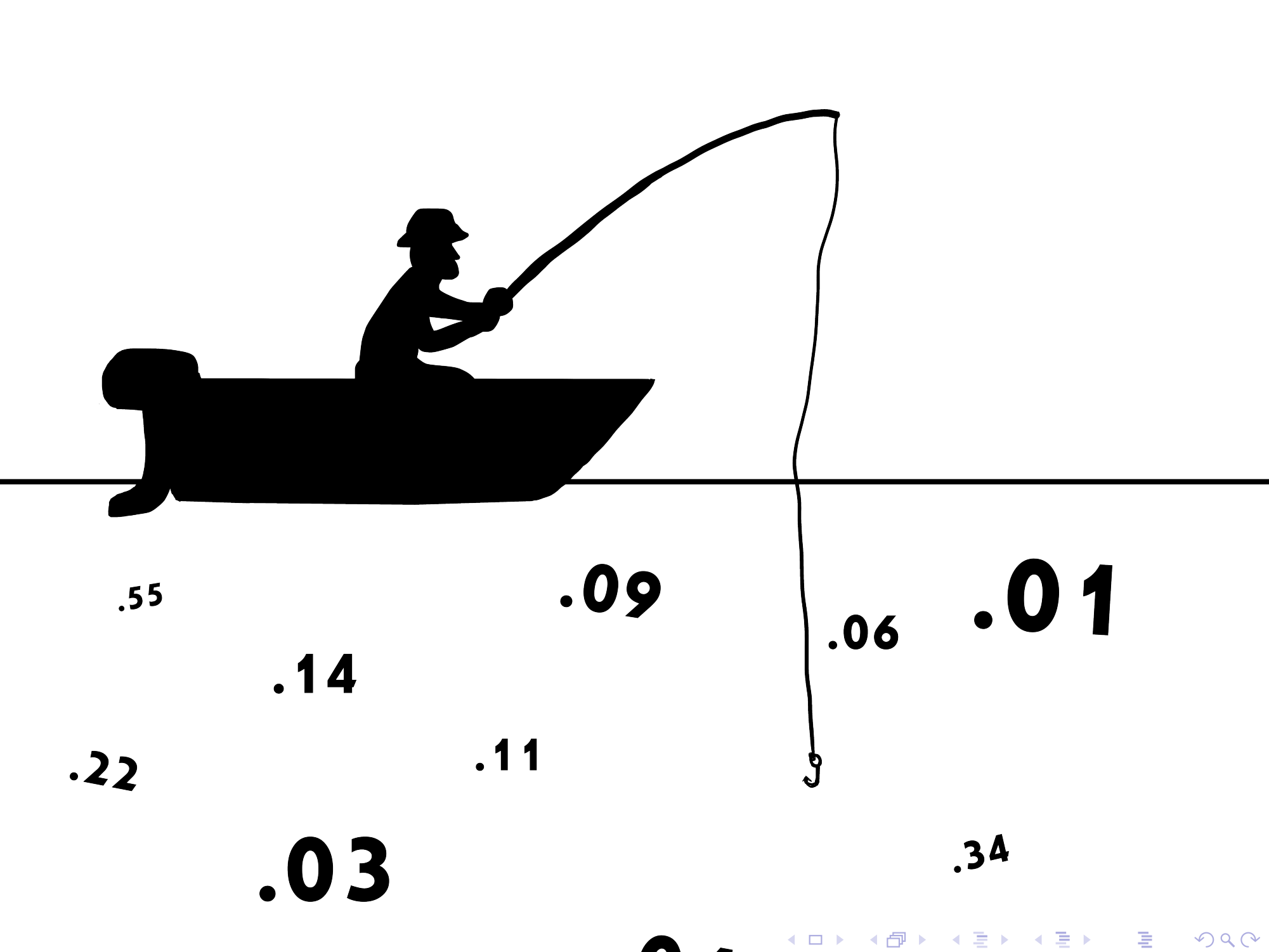






The blessing of dimensionality

- We learned by looking at 366 questions at once!
- Consider the alternative . . .


.55
.09
.01
.06
.14
.22
.11
.03
.34

The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

Kristina M. Durante[1], Ashley Rae[1], and Vladas Griskevicius[2]

[1]College of Business, University of Texas, San Antonio, and [2]Carlson School of Management, University of Minnesota

Abstract

Each month, many women experience an ovulatory cycle that regulates fertility. Although re
cycle influences women's mating preferences, we proposed that it might also change wome
views. Building on theory suggesting that political and religious orientation are linked to repr
how fertility influenced women's politics, religiosity, and voting in the 2012 U.S. presidentia
with large and diverse samples, ovulation had drastically different effects on single women a
relationships. Ovulation led single women to become more liberal, less religious, and more
Obama. In contrast, ovulation led women in committed relationships to become more con
and more likely to vote for Mitt Romney. In addition, ovulation-induced changes in polit
women's voting behavior. Overall, the ovulatory cycle not only influences women's politics
differently for single women than for women in relationships.

Summary

- Big data . . . messy data
- Clean up messy data . . . Big model
- Big model . . . Bayesian inference
- Bayesian inference . . . Stan
- Understanding big models . . . R!