

# Professionalism in the age of Trump

Iowa Actuaries Club

February 20, 2018 Education Day

Drake University Campus, Olmsted Building

10:30AM Session #2a

# Verisk Policy Statement

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“It isn't polls or public opinion at the moment that counts. It is right and wrong and leadership – men with fortitude, honesty, and a belief in the right – that makes epochs in the history of the world.” – Harry Truman

**FIRED UP, READY TO GO**

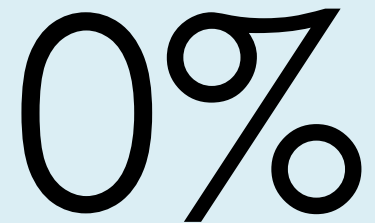
# Political Agenda

- Predictable Joy and Heartbreak
- Questionable Data
- Volume and Homogeneity
- Assumptions and Shocks
- Introspection on 'Getting It Right'

Please visit **[PolEv.com/jimweiss730](https://PolEv.com/jimweiss730)**  
in your smartphone web browser  
in order to respond to survey questions that  
may be posed throughout today's discussion

# Sample 2016 Predictions

- Chances of Trump victory
  - 1% -- Princeton Election Consortium 11/1
  - 9% -- CNN Political Prediction Market 11/8
  - 10% -- Reuters/Ipsos 11/7
  - 15% -- NY Times Upshot 11/7
  - 19% -- Betfair 11/8
  - 30% -- FiveThirtyEight 11/7
- Chances of Brexit
  - 25% -- Paddy Power 6/23
  - 25% -- Number Cruncher Politics 6/23
  - 26% -- Ipsos 6/23



chance of  
Trump victory  
-- University of  
Illinois Election  
Analytics 10/10

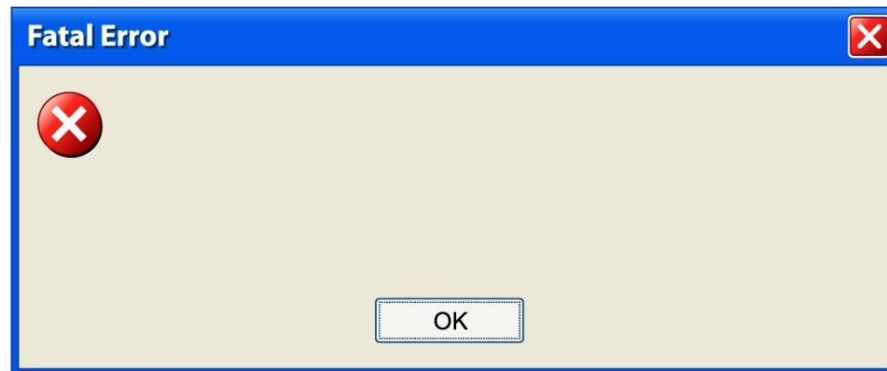
# What Went Wrong

## Popular Election Theories

- Everything
- Corrupt data
- Insufficient volume
- Flawed assumptions
- Shock events
- Nothing

## Potential Guidance

- ASOP 23. Data Quality
- ASOP 25. Credibility
- ASOP 13. Trending
- ASOP Draft: Assumptions
- ASOP 39. Catastrophe
- ASOP 41. Communication



# Survey Question # 1

What percentage of statewide rate level indications would you estimate reverse themselves by the next rate level review, assuming reviews are conducted at least biennially?

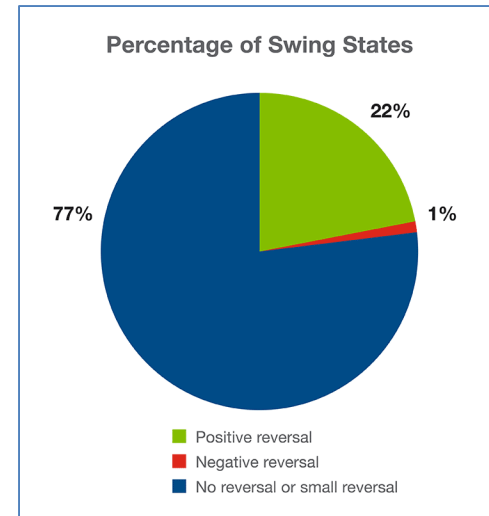
- a. 0 – 20%
- b. 21– 40%
- c. 41 – 60%
- d. 61 – 80%
- e. 81 – 100%

Please enter your answer at [PollEv.com/jimweiss730](https://www.poll-ev.com/jimweiss730)

# Unpredictable

- '[Election] probability is too stochastic to be probability'
- 'When variance of a probability is v[ery] high it converges to 50%'
- 'An event that is 50/50 cannot possibly be a black swan event.'
- 'The mainstream media is a presumptuous club ... with ... a lack of understanding of complex systems.'

Nassim Nicholas Taleb



Sources:

<https://yhoo.it/2fp11Ox> <http://bit.ly/2egaOqI> <http://vrsk.co/2xAVONw>



“Polls were off in a way that we have not seen in previous election years.” – Sam Wang, Princeton Election Consortium

## **ALTERNATIVE FACTS**

# Survey Question #2

Who do you expect to be president of the United States at the immediate conclusion of this presentation?

- a. Angela Merkel
- b. Barack Obama
- c. Donald Trump
- d. Jeb Bush
- e. Justin Trudeau

Please enter your answer at [PollEv.com/jimweiss730](https://www.poll-ev.com/jimweiss730)

# Sample Data Quality Issues

## Pollsters

- Respondent (dis)honesty
- Collection technologies
- Framing questions
- Feedback contamination

## Actuaries

- Underwriting fraud
- Legacy systems
- Discount hunting
- Usage basis



# Excerpts from ASOP No. 23

## Data Quality

- 3.4 Use of data ... the actuary should make a professional judgment about which of the following are applicable
  - a. data are of acceptable **quality** to perform the analysis
  - b. data require enhancements before the analysis can be performed, and it is practical to **obtain** additional or corrected data
  - c. if ... use of the data ... may cause the results to be highly uncertain or contain a significant bias, ... the actuary may **compensate** ... by adjusting the results
  - d. if ... data are likely to contain significant defects ... **arrange** for ... a [more extensive] review
  - e. if ... data are so inadequate that the data cannot be used to satisfy the purpose ... **decline** to complete

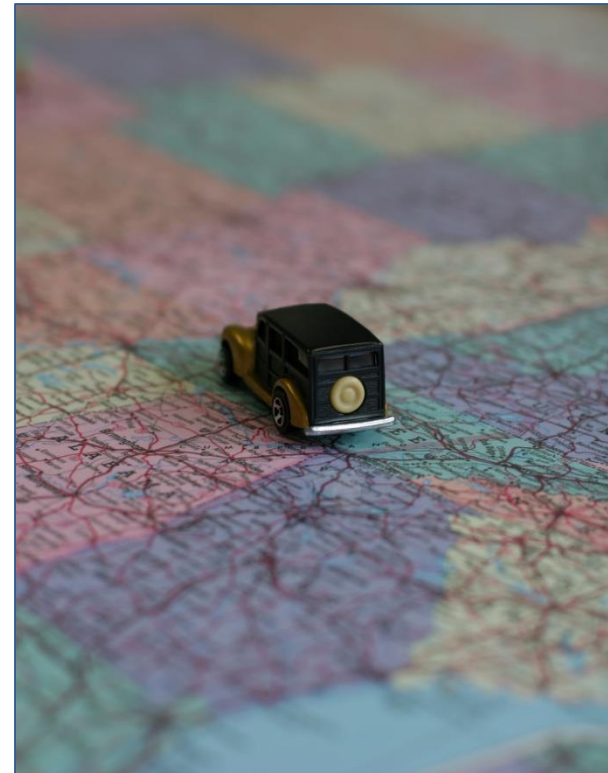
# Excerpts from ASOP No. 23

## Data Quality

- 3.2.b Select the data for the analysis with consideration of the following:
  1. appropriate, ... sufficiently current
  2. ... internal consistency
  3. ... relevant external information...
  4. ... sufficient
  5. ... significant limitations ...
  6. ... availability of additional or alternative data ...
  7. sampling methods, if used ...

# Potential Mileage Sources

- Self-reporting
  - Guesstimate
  - Imagery
- Audits
- Sensors
  - In-vehicle
  - Plug-in
- Third parties
  - Automotive services
  - Digital recognition
- Estimation



“The average poll has a sample size of 1,000 adults. This means that only one person in 200,000 will be included in any one national or state poll. To put it another way, it would take 200,000 polls with samples of 1,000 for pollsters to get around to all Americans -- and this assumes no one is called twice.”  
– National Council on Public Polls

## **THINKING BIGLY**

# Survey Question #3

Have you been contacted during the past 365 days regarding whether or not you are in compliance with actuarial continuing education requirements?

- a. Yes, and I am subject to the requirements
- b. Yes, but I am not subject to the requirements
- c. No, and I am subject to the requirements
- d. No, and I am not subject to the requirements

Please enter your answer at [PollEv.com/jimweiss730](https://www.pollEv.com/jimweiss730)



# Potential polling method

- Select geographic mix
- Source associated area codes
- Randomly generate remaining digits
- Call phone numbers and ask questions
  - Cell phones may require live interviews
  - Potentially license info to improve targets
  - Skilled interviewers may obtain better data
- Reweight to resemble larger population
  - Ages, demographics, etc.
  - Political affiliation



# Excerpts from S. of P. Regarding P&C Ratemaking

- Credibility is a **measure** of predictive value that the actuary attaches to a particular body of data
- Credibility is increased by making groupings more **homogeneous** or by increasing the size of the group analyzed
- A group should be **large** enough to be statistically reliable
- Obtaining homogeneous groupings requires **refinement** and partitioning of the data.
- There is a point at which **partitioning** data divides into groups too small to provide credible patterns.
- Each situation requires **balancing** homogeneity and volume.

# Excerpts from ASOP No. 25

## Credibility Procedures

- 2.3 Full Credibility – the level at which the subject experience is assigned full predictive value, often based on a selected confidence interval
- 2.4 Relevant Experience -- sets of data, that include data other than the subject experience, that, in the actuary's judgment, are predictive of the parameter under study
- 2.7 Subject Experience – a specific set of data drawn from the experience under consideration
- 3.5 Homogeneity of Data – ... there may be segments that are not representative of the experience set as a whole. The predictive value can sometimes be enhanced by separate treatment of these segments ...

# Sample Volume-Related Issues

## Pollsters

- Margin of error
- Oversampling
- Polls of polls
- Polls plus

## Actuaries

- p-values
- Bootstrapping
- Industry data
- External data



# Scale Parameter in GLMs

- Impacts error statistics, not coefficients
- Multiplies by standard errors
- Estimation methods include:
  - Pearson
  - Deviance
  - MLE
- Pearson method generally yields larger estimates
- In lower volume scenarios, may yield conflicting characterizations of significance

“The notion that this was some big failure of data doesn’t really match with the evidence. It’s a giant, enormous, gaping failing for conventional wisdom” – Nate Silver

## **THE PURSUIT OF TRUTHINESS**

# Survey Question #4

How often are the assumptions (e.g. inputs, procedures, selection criteria) underlying loss trend for a particular line of business typically re-evaluated and/or modified?

- a. During the past year
- b. More than one year ago, but less than two years
- c. More than two years ago, but less than five years
- d. More than five years ago
- e. Don't know

Please enter your answer at [PollEv.com/jimweiss730](https://www.pollEv.com/jimweiss730)

# Sample Assumptions

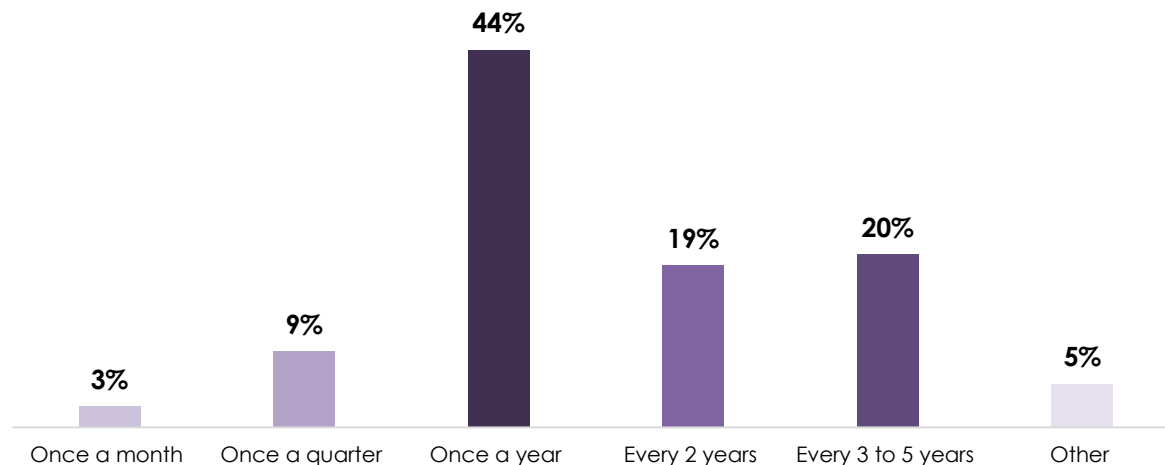
## Pollsters

- Geo-demographic mix
- Likelihood to vote
- Mathematical relationships

## Actuaries

- Trend
- Development
- Model specifications

How often do you re-estimate and rebuild your models on average?



Source: 2017 ISO-Earnix Predictive Modeling Survey (n=79)



# Excerpts from ASOP No. 13

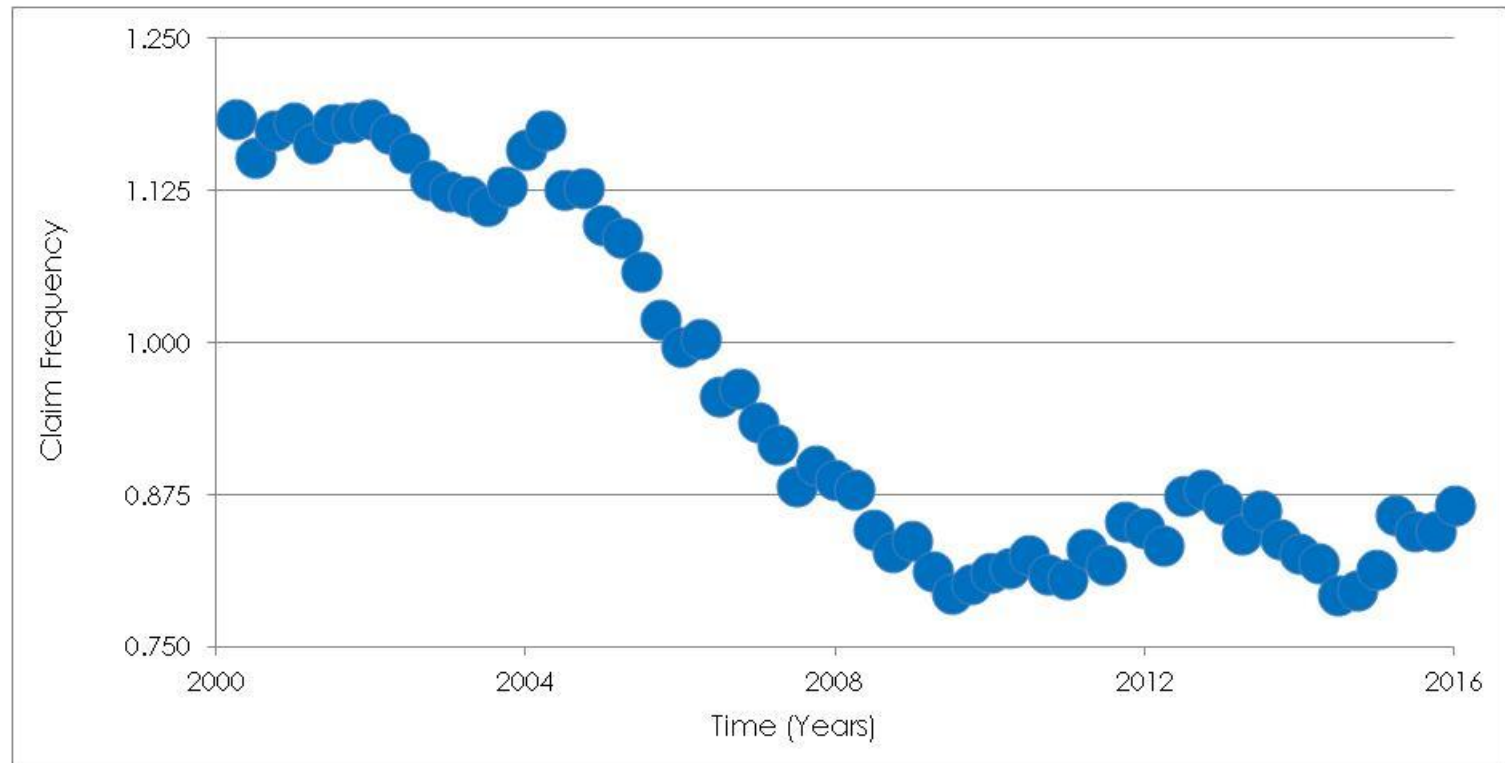
## Trending Procedures in P&C

- 3.2.d ... [consider] the effect of known biases or distortions ...
  - catastrophic influences
  - seasonality
  - coverage changes
  - nonrecurring events
  - claim practices
  - distributional changes
- 3.3 ... consider economic and social influences ...
- ... In addition, ... consider the timing of the various influences
- 3.4 ... In selecting the procedures the actuary may consider ...
  - a. ... Precedent or common usage ...
  - d. The context in which the trend estimate is used ...

# Excerpts from ASOP Exp. Draft Setting Assumptions

- 3.1.1 General Considerations
  - a. Nature of assignment
  - b. Available and relevant data
  - c. Other available and relevant information
  - d. Reasons to expect future experience will differ ... from past
  
- 3.1.3 Reasonableness of Assumptions
  - a. ... each component of the methodology used, ... the reasonableness, ... a known tendency to significantly underestimate or overestimate ...
  - b. ... reasonable in the aggregate ...
  - c. ... not set for the purpose of counteracting the ... law
  - d. ... reasonably consistent ...
  - e. ... consistency with similar assumptions used ...

# Hypothetical Trend Line



# Excerpts from ASOP No. 39

## Treatment of Catastrophe Losses

- 2.1 Catastrophe --a relatively **unusual** event or phenomenon that produces unusually large aggregate losses.
- 3.1 Identification of Catastrophe Perils or Events – These perils or events have at least one of the following characteristics:
  - a. Potential to display **contagion**
  - b. **Infrequent** occurrence
- 3.3.1.f Consistent Definition of a Catastrophe -- ... areas to consider are ... **thresholds** ... and ... specific catastrophes
- 3.3.2 Use of Non-insurance Data and Models -- ... if ... available historical data do not sufficiently represent the **exposure** to catastrophe losses ...

# Shock or Not

Are these shock events for actuaries and/or pollsters?

- Hurricane Sandy
- Rainy Election Day
- Nation State Hacking
- Youth Movement
- Judicial Intervention
- Laptop Discovery



“Headlines such as ‘273 votes ...’ and ‘80 percent ...’ are consistent with the facts, yet they paint different pictures in readers’ minds and could drive different actions by registered voters. They are headlines with consequences in the real world. ... Actuaries write headlines about risk.”  
– Stephen Mildenhall

**YES WE DID, YES WE CAN**

# Survey Question #5

Which one of the following choices do you feel most usefully synthesizes the results of a hypothetical rate level review?

- a. The review indicates a mean average change of 0% is warranted with a standard deviation of 5%
- b. The review indicates a 2/3 chance a 5% increase is warranted and a 1/3 chance a 10% decrease is warranted
- c. The review indicates a 0% chance the change is between -4.9% and +4.9% of the mean average change

Please enter your answer at [Pollevo.com/jimweiss730](https://www.pollevo.com/jimweiss730)

# Margin of error

- +/- N% margin indicates that there is a 95% chance that the result will be within N% of the true population value
- Typically survey margins of error
  - 250 – 6%
  - 1,000 – 3%
  - 4,000 – 1.5%
- Typically applies to analysis as a whole not subgroups
- Factors influencing margin of error include
  - Volume
  - ‘Design effect’
  - Immeasurables (e.g. ‘surly’ respondents)
  - Transience
  - Analysis – four pollsters, 867 responses, four predictions



# Excerpts from ASOP No. 41 Actuarial Communications

- 3.1 Requirements for actuarial communications
  - Scope of requested work
  - Methods
  - Procedures
  - Assumptions
  - Data
- 3.4 Disclosures within an actuarial report
  1. Uncertainty or risk
  2. Conflict of interest
  3. Reliance on other sources for data and other information
  4. Responsibility for assumptions and methods
  5. Information date of report
  6. Subsequent events

# Who apparently got it “right” ... and what actuaries can learn

- USC/LA Times – Complex weighting algorithm
- Brandseye -- Social media sentiment analysis
- Predata – Engagement with online campaign artifacts
- Allan Lichtman -- Thirteen true/false questions
- Helmut Norpoth -- Primary and electoral cycle data
- Michael Moore -- Five qualitative criteria
- Nate Silver – Characterized Trump as within one error



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