Mixed Modes of Data Collection and Administration and New Sources of Samples in the US 2020 Election. How Did They Fare?

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Outline

+ Do polls using mixed mode perform differently and better than other polls?
  + On average?
  + In trends?

+ Analysis:
  + Estimates of trends: local regression
  + Statistical validation: multilevel analysis

+ In-depth focus on poll performance: last 10 days
  + Mixed modes and new sampling sources

+ A revised model.

+ Conclusion

Modes and estimates

✣ Modes of administration may differ
  ✣ Because of the social context in which surveys are conducted
  ✣ Because of the sampling frame or source that differ according to modes.

✣ Durand & Johnson (2021) conclude to an impact of mode that varies with election, not always in the same direction.
  ✣ In 15 elections and referendums, in 4 countries.

✣ Clinton et al. (2021) AAPOR Task Force... conclude to the absence of substantial mode effects while...

✣ Silver (2021) concludes that "The best polls... use a various and sundry mix of methods (online, IVR, text messaging)".

Literature on the 2020 US election polls

✣ Before the election:
  ✣ McKinney, Azem & Smith (2020) focus on Spiral of silence & Granite State polls;
  ✣ Dropp & al. (2020) focus on Shy Trump (Morning Consult).

✣ After the election:
  ✣ Cohn (2020) focus on Siena Polls; hypothesizes that turnout of different groups is badly estimated.
  ✣ Keeter et al. (2020). Weighting for 2016 vote recall did not work.
  ✣ Smalley & Wolfe (2021) do not include IVR polls;
  ✣ Shino, Martinez & Binder (2022) experiment using dual-mode in Florida. Survey mode significant.
  ✣ Guzman Castillo & al. (2020). Summary of multiple post-mortem.

Data

✛ 222 polls conducted from September 1st 2020 to election day, by 51 pollsters.

Main Mode and Mixed Mode use – Sept. 1st – Nov. 2				
	Pollsters		Polls	
	N	%	N	%
IVR	2	4	11	5
Web Opt-in	26	51	131	59
Live Phone	13	25	33	15
Other (Web prob, mobile, Mturk, RDE)	10	20	47	21
Mixed-mode use	10	20	36	16
Total	51	100	222	100

✛ Average of 4.3 polls by pollster
   ✛ Web Opt-in pollsters: 5.0
   ✛ Live phone pollsters: 2.5
   ✛ IVR pollsters: 5.5

Methodological features of polls & pollsters

✢ Polls:
- ✢ Period when the poll was conducted
- ✢ No. days in the field
- ✢ Margin of error/ credibility interval
- ✢ *Use of a likely voter model*

✢ Pollsters:
- ✢ No. Surveys conducted during the campaign ~ pollster experience
- ✢ Use of Mixed mode
- ✢ Use of Web Opt-in Panel as main mode.
- ✢ *538 pollster ratings, average error and expected error*

Analysis

✢Dependent variable: At the national level Difference bw Estimates and Election results: Biden/(Biden+Trump)

✢1. Visualize the trends according to use of mixed mode: *local regression*

✢2. Validate differences between trends statistically: *multilevel analysis* with polls nested within pollsters
  ✢ Controlling for relevant methodological features
    ✢ At the poll level
    ✢ At the pollster level

✢3. More in-depth: the last 10 days.

✢4. Revised model: multilevel analysis

Are trends similar according to mixe mode use?
No

Proportional support for Biden (on 2-candidate share) from September 1st, 2020 - according to the use of mixed mode
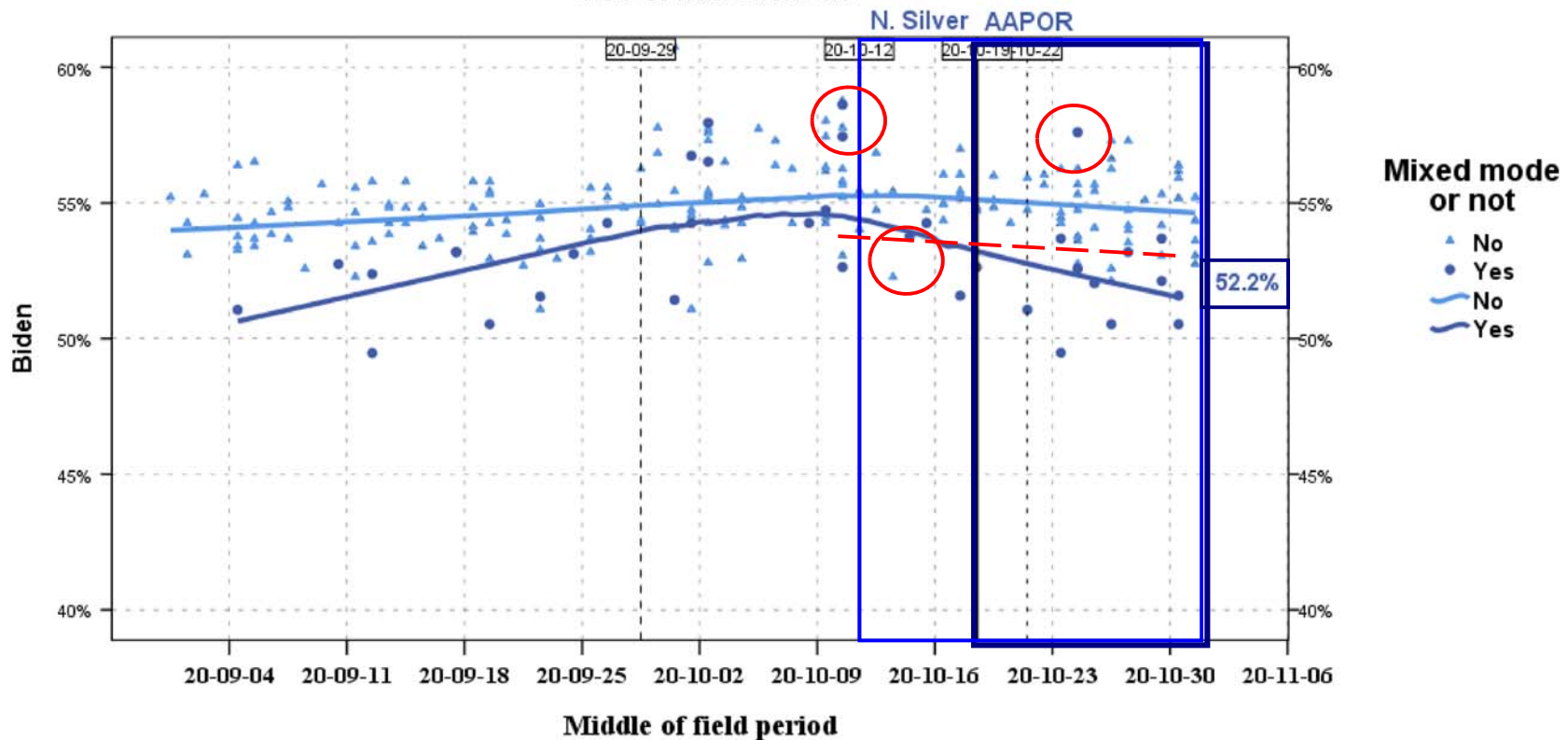
Explaining variance between polls

Table 1. Basic Models

	Model 0	Model 0 longit.	Poll level	Pollster level	Polls&pollsters	Interaction	Parsimonious Mixed
Intercept	2.469 ***	2.690 ***	1.928 ***	2.876 ***	1.957 **	1.866 *	2.711 ***
Poll level							
Time centered		0.045 ***	0.047 ***	0.045 ***	0.047 ***	0.041 ***	0.046 ***
- Mixed						0.037	
Time centered^2 (*100)		0.098 *	-0.092 *	-0.100 *	-0.094 *	-0.053	-0.056
- Mixed						0.002 **	-0.002 *
Time centered^3 (*1000)		-0.043 ***	-0.043 ***	-0.043 ***	-0.044 ***	-0.033	-0.043 ***
- Mixed						-0.054	
Nbdays in field			0.051 ‡		0.057 ‡	0.051	
Moe Biden			0.295		0.329	0.334 ‡	
Likely voter			-0.387		-0.401	-0.482 ‡	
Pollsters level							
Nb polls since sept				-0.014	0.002	0.005	
Mixte				-0.824	-0.901	-0.242	-0.161
Web Opt-in				0.117	0.084	0.079	
Variance Poll level	1.491	1.261	1.261	1.269	1.271	1.183	1.197
Variance Pollster level	1.837	1.776	1.587	1.599	1.391	1.426	1.637
Part of var. at pollster level	55.2%	58.5%	55.7%	55.8%	52.3%	54.7%	57.7%
Compared with model 0 long.							
Explained var at poll level		15.4% comp. 0	0.0%	-0.6%	-0.8%	6.2%	5.0%
Deviance	797.478	765.335	761.138	762.447	757.628	745.192	752.717
Nb parameters	3	6	9	9	12	15	8

Results

- Model 0 without predictors:
  - 55% of the variance in polls occurs between pollsters.
- Time components -- linear, quadratic & cubic --explains are all significant. They explain
  - 15% of the between poll variance
- None of the other predictors at the poll or pollster level is significant.
  - No. days poll was in the field (marginally sig.), MOE, likely voter)
  - No. polls conducted, Mixed, Web Opt-in

Final Model

Adding interaction between use of mixed mode and time components

✢ A) The impact of mixed mode use **on the time components**
  ✢ **Is significant for the quadratic trend**
  ✢ Compared with the model with time components only,
    ✢ explained variance at the poll level: 6%

✢ B) Parsimonious model
  ✢ **Only the impact of the use of mixed mode on the quadratic trend is kept in the model**
    ✢ Explained variance at poll level: 5%
  ✢ No significant difference bw models B and C.

Which means

✢ Multilevel analysis, controlling for the dependency of polls on pollsters...

✢ ... Confirms that the main difference between polls using mixed mode and other polls is:

✢ ... A different estimation of change over time:

  ✢ Almost no change during the campaign for non mixed polls

  ✢ A quadratic trend -- support for Biden increases until mid-campaign and then decreases -- for polls using mixed mode .

  ✢ **Which can be visualized by the following graph.**

Error in support for Biden according to the use of mixed mode

Focus on the last 10 days

Main mode	Pollsters	Polls	Within MOE	Mixed mode	Within 1 point	Mixed mode	Outside MOE	Mixed mode
Web	22	35	22	3	10	3	13	1
Live phone	8	8	5	2	2	2	3	0
IVR	2	3	3	3	1	1	0	0
Total	32	46	30	8	13	6	16	1
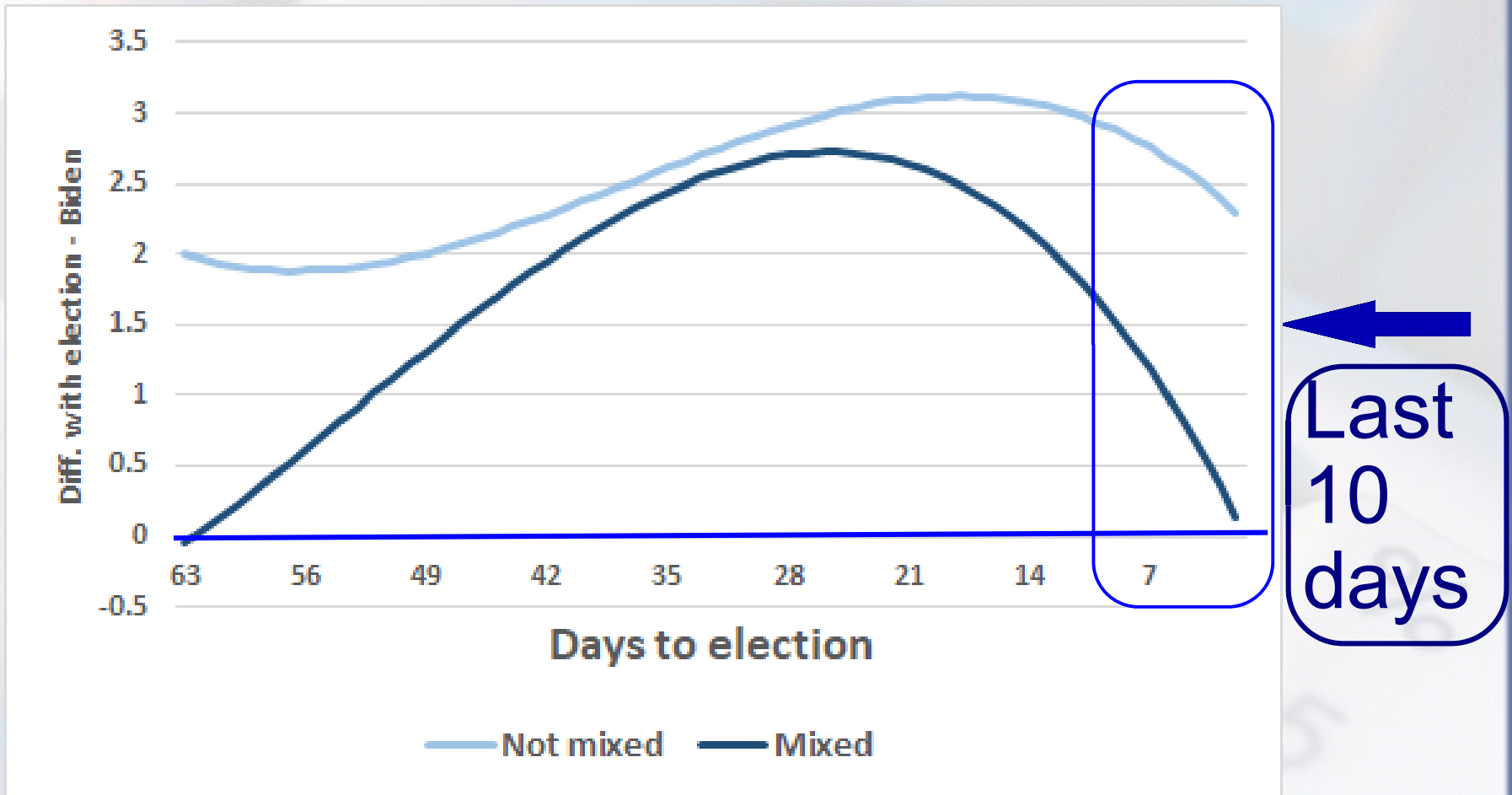
Pollsters and Polls - last 10 days

Note: 27% of within MOE polls use mixed mode compared to 6% of outside MOE polls

✢Among the 46 poll estimates,
  ✢30 are within the MOE of end results, 8 (27%) of them are mixed mode
  ✢**Of the 13 estimates** within 1 point difference of the end results, **half (6)** are mixed mode.
  ✢One estimate outside the MOE is mixed mode

Last 10 days: within MOE & within 1 point of final results

538		Start date	End date	Sample size	Estimate Biden/ (Trump+ Biden)	Difference with final results	Mixed mode?	2nd mode	Comment
	Table 2. Most precise predictions - last 10 days - for Biden (52.2%) within MOE & less than one point difference								
	IVR polls (1 out of 3 polls)								
B	**Gravis**	27-oct	29-oct	1281	53.2	1.0	Yes	Web (?%)	
	Telephone polls (2 out of 8 polls)								
A+	**IBD/TIPP**	27-oct	31-oct	1072	52.1	-0.1	Yes	Web (37%)	tracking
A+	**IBD/TIPP**	28-oct	01-nov	1072	51.6	-0.6	Yes	Web (37%)	tracking
	Web polls (10 out of 35 polls)								
B-	**RMG Research**[1]	23-oct	24-oct	1842	52.1	-0.1	Yes	IVR (10%)	RDE
B-	**RMG Research**[1]	29-oct	31-oct	1200	52.6	0.4	Yes	IVR (10%)	RDE
A-	**Emerson College**	25-oct	26-oct	1121	52.0	-0.2	Yes	IVR (36%)	mult. sources
x A/B	**Winston**	23-oct	26-oct	1000	52.8	0.6	No		
x C	**Swayable**	23-oct	26-oct	11714	52.6	0.4	No		RDE similar
x C	**Swayable**	29-oct	31-oct	3115	53.1	0.9	No		RDE similar
x C	**Swayable**	01-nov	01-nov	5174	53.1	0.9	No		RDE similar
x B+	**Harris**	25-oct	28-oct	2093	52.1	-0.1	No		Propensity score
A	**Atlas Intel**	26-oct	28-oct	1726	52.6	0.4	No		Propensity score
B-	**Zogby**	01-nov	01-nov	1008	52.8	0.5	No		
	1: Hypothesis of high participation by Republicans								

✛6 are mixed mode, all of IVR & live phone

✛Among web polls, 3 are mixed mode and half do not use a Web Opt-in panel.

Last 10 days: within MOE but more than 1 point diff. of final results

538	Table 3. Best predictions - last 10 days - for Biden (52.2%) within MOE, more than one point difference								
		Start date	End date	Sample size	Estimate Biden/ (Trump+ Biden)	Difference with final results	Mixed mode?	2nd mode	Comment
	IVR polls (+2 out of 3 polls)								
B	**Pulse Opinion Research**	26-oct	28-oct	1500	50.5	-1.7	**Yes**	Web (?%)	
B	**Pulse Opinion Research**	28-oct	01-nov	1500	50.5	-1.7	**Yes**	Web (?%)	
	Telephone polls (+3 out of 8 polls)								
B+	**Suffolk University**	23-oct	27-oct	1000	53.8	1.6	No		
B/C	**Beacon**	27-oct	29-oct	1246	54.2	2.0	No		
B+	**NBC/WSJ (Hart)**	29-oct	31-oct	833	55.3	3.1	No		
	Web polls (+12 out of 35 polls)								
C	**Swayable**	27-oct	28-oct	2386	53.5	1.3	No		RDE similar
B-	**Lucid (Tufts U)**	25-oct	25-oct	837	53.6	1.4	No		Mult. Sources
B-	**Ipsos**	31-oct	02-nov	914	53.6	1.4	No		Mult. Sources
B-	**Ipsos**	23-oct	27-oct	825	55.3	3.1	No		Mult. Sources
B+	**HarrisX**	27-oct	28-oct	2093	54.0	1.8	No		Propensity scores
B+	**Angus Reid Global**	23-oct	28-oct	2231	54.1	1.9	No		Web Opt-in
A	**Survey USA**	29-oct	31-oct	1265	54.2	2.0	No		WT voter recall
B-	**Change Research**	23-oct	24-oct	1125	54.3	2.1	No		WT voter recall
B/C	**Léger**	29-oct	01-nov	1000	54.3	2.1	No		Web Opt-in
B/C	**Léger**	23-oct	25-oct	834	54.4	2.2	No		Web Opt-in
B-	**Research Co**	31-oct	02-nov	1100	54.3	2.1	No		
B/C	**AYTM**	30-oct	31-oct	700	55.2	3.0	No		

÷2 are mixed mode, all IVR polls

÷Among web & live phone, none are mixed mode, one use RDE (Random Device Engagement) or similar sampling, 3 multiple sources, 2 weight by voter recall

Last 10 days: outside MOE

538	Table 4. Predictions outside MOE - last 10 days - for Biden (52.2%)							
		Start date	End date	Sample size	Estimate Biden/ (Trump+ Biden)	Difference with final results	Mixed mode?	2nd mode	Comment
	IVR polls (0 out of 3 polls)								
	Telephone polls (+3 out of 8 polls)								
B/C	**Global Marketing Research**	23-oct	27-oct	1006	57.6	5.4	Yes	Web	
A-	**Quinnipiac University**	28-oct	01-nov	1516	56.2	4.0	No		
C	**SSRS**	23-oct	26-oct	886	56.2	4.0	No		
	Web polls (+13 out of 35 polls)								
C	**Data for Progress**	28-oct	29-oct	1403	55.1	2.9	No		WT voter recall
B/C	**J.L. Partners**	26-oct	28-oct	844	57.3	5.1	No		WT voter recall
B	**Morning Consult**	24-oct	26-oct	12000	55.3	3.1	No		WT voter recall
B	**Morning Consult**	27-oct	29-oct	12000	54.7	2.5	No		WT voter recall
B/C	**Opinium**	26-oct	29-oct	1451	57.3	5.1	No		WT voter recall
B/C	**Qriously Brandwatch**	29-oct	01-nov	3505	55.9	3.7	No		WT voter recall
B/C	**Redfield and Wilton Strategies**	25-oct	26-oct	4790	55.4	3.2	No		WT voter recall
B/C	**Redfield and Wilton Strategies**	30-oct	01-nov	8765	56.4	4.2	No		WT voter recall
C	**Survey Monkey**	26-oct	27-oct	1573	56.6	4.4	No		WT voter recall
B+	**YouGov**	23-oct	25-oct	1350	56.2	4.0	No		Web Opt-in
B+	**YouGov**	25-oct	27-oct	1365	55.7	3.5	No		Web Opt-in
B+	**YouGov**	30-oct	01-nov	1360	55.2	3.0	No		Web Opt-in
B+	**YouGov**	31-oct	02-nov	1363	55.2	3.0	No		Web Opt-in

✜1 live phone poll is mixed mode

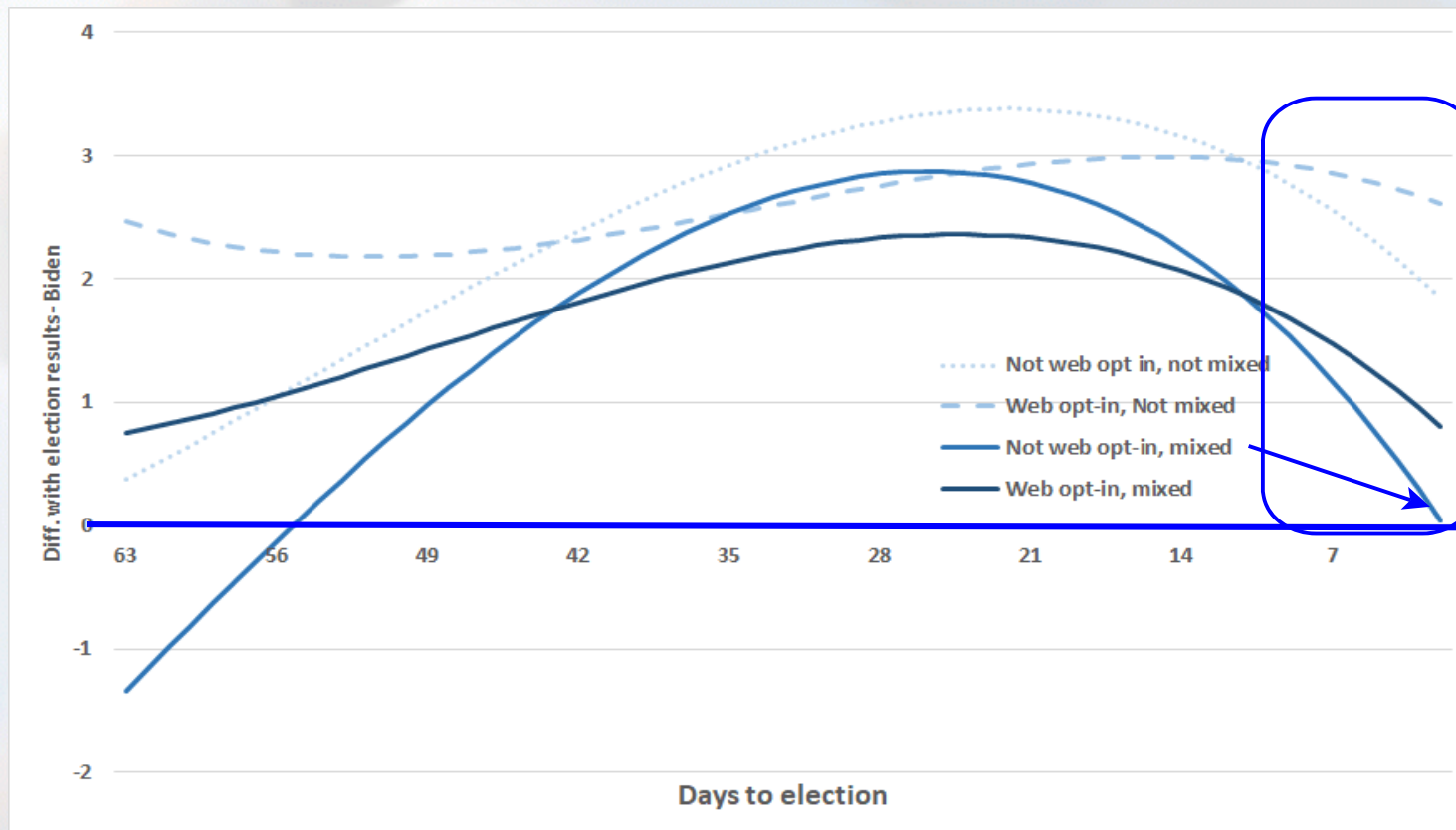✜Most web polls use Web opt-in panels as their unique mode; most adjust using voter recall.

This leads to a revised model

Table 5. Revised Models	Parsimonious Mixed	Revised Web Opt in only	Revised Mixed+Web Opt-in
Intercept	2.711 ***	2.938 ***	3.045 ***
Poll level			
Time centered	0.046 ***	0.043 ***	0.057 ***
- *Mixed*			
Time centered^2 (*100)	-0.056	-0.002 ***	-0.002
- *Mixed*	-0.002 *		-0.001 *
- *Web Opt-In*		0.002 ***	0.002 ***
Time centered^3 (*1000)	-0.043 ***	0.000 **	-0.033 *
- *Mixed*			
Pollsters level			
Mixed	-0.161		-0.386
Web Opt-in		-0.365	-0.449
Variance Poll level	1.197	1.171	1.110
Variance Pollster level	1.637	1.739	1.668
Part of var. at pollster level	57.7%	59.8%	60.0%
Compared with model 0 long.			
Explained var at poll level	5.0%	7.1%	12.0%
Deviance	752.717	751.033	739.524
Nb parameters	8	8	11

✢ The best model (difference in deviance of 13,2 with 3 df with parsimonious) is a model adding:
  ✢ Absence of use of Web Opt-in as main mode on estimates.

✢ Explained variance:
  ✢ 12% at poll level.

Support for Biden according to the use of mixed mode and of Web Opt-in

Not Mixed mode

Mixed mode

Legend:
- Not web opt in, not mixed
- Web opt-in, Not mixed
- Not web opt-in, mixed
- Web opt-in, mixed

Y-axis: Diff. with election results - Biden
X-axis: Days to election (63, 56, 49, 42, 35, 28, 21, 14, 7)

Mixed mode always performs best, even more when no use of Web Opt-in panels

Limitations

✛ The small number of 51 pollsters limits the possibilities of analysis.

✛ It is quite difficult in many cases to find all the relevant methodological information.

✛ Pollsters use all kinds of "modelling" and weighting strategies that we don't know of and that may impact their performance, for instance,...

   ✛ Related to turnout in different groups:
      ✛ White non college-educated
      ✛ Blacks and Latinos,
      ✛ Defined by partisan id.

Conclusion

✢ Two-thirds of the poll estimates of the last 10 days (30/46, 65%) were within MOE.

✢ Mixed mode polls trace a different trend of support and lead to a better forecast of the end results.

✢ Among the best performing polls, new practices in sampling or weighting have appeared in Web polls:
  ✢ Multiple sampling sources, Random Device Engagement (RDE), Use of propensity scores,...

✢ We will need to examine these practices closely to understand why they tend to perform better.

Recommendation to AAPOR, and other interested parties...

- Propose a task force to look into new ways of collecting samples in web surveys

- Work with media and pollsters to agree on a "template" for methodological reporting suggesting
  - *which methodological information should be provided and*
  - *how to present it to the public*

- In order to better inform the public and
- allow for a much easier monitoring and analysis of methodological innovation