Supplementary Material for "Attitudes toward Voting Technology, 2012–2019"

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Supplemental Materials

SM Table 1. Preferences for voting technology (%) (Data plotted in Figure 1.)

	2012	2013	2016	2018	2019
Paper ballot counted by hand	7.4	9.6	8.0	13.1	14.0
Paper ballot scanned and counted by a computer	25.1	32.9	33.1	33.2	36.1
Electronic voting machine with a touch screen	56.4	49.0	49.4	43.2	36.5
I don't know	11.1	8.5	9.5	10.5	13.4
N	1,999	1,000	1,500	1,000	1,000

Source: CCES, MIT module, 2012, 2013, 2016, 2018, and 2019.

SM Table 2. Opinions about voting equipment usability (Data plotted in Figure 2.)

(Statement: It would be easy for me to use a system like this.)

Optically scanned paper	Disagree or Strongly disagree	Neither	Agree or Strongly agree	Don't know	N
2013	6.5%	16.4%	64.7%	12.4%	999
2016	3.7%	10.2%	76.1%	10.0%	1,500
2018	3.3%	11.6%	72.5%	12.6%	1,000
2019	4.3%	13.1%	69.8%	12.8%	1,000

DREs	Strongly disagree	Neither	Agree	Don't know	N
2013	5.3%	11.1%	72.4%	11.2%	998
2016	2.5%	6.7%	83.0%	7.7%	1,500
2018	4.8%	10.8%	74.0%	10.5%	1,000
2019	6.2%	10.1%	71.9%	11.9%	1,000

Hand-counted paper	Strongly disagree	Neither	Agree	Don't know	N
2013	9.5%	19.5%	61.2%	9.9%	998
2016	7.8%	16.4%	63.5%	9.1%	1,500
2018	9.2%	16.4%	62.5%	11.9%	1,000
2019	8.6%	15.6%	64.0%	11.7%	1,000

Source: CCES, MIT module, 2013, 2016, 2018, and 2019.

SM Table 3. Opinions about voting equipment security. (Data plotted in Figure 3.)

a. Statement: This system makes it easy for dishonest people to steal votes. (%)

Optically scanned paper	Disagree or Strongly disagree	Neither	Agree or Strongly agree	Don't know	N
2013	28.5	19.1	35.8	16.5	999
2016	30.9	19.0	34.8	15.3	1,499
2018	26.6	21.2	30.4	18.7	1,000
2019	30.6	17.0	35.3	17.1	1,000
DREs	Disagree or Strongly disagree	Neither	Agree or Strongly agree	Don't know	N
2013	32.7	18.6	29.4	19.4	998
2016	30.0	17.2	34.5	18.3	1,500
2018	28.3	20.6	31.5	19.8	1,000
2019	25.1	15.7	38.3	21.1	1,000
Hand-counted paper	Disagree or Strongly disagree	Neither	Agree or Strongly agree	Don't know	N
2013	12.4	12.0	64.1	11.6	999
2016	17.8	12.6	55.8	13.8	1,500
2018	23.5	12.3	48.8	15.4	1,000
2019	24.2	12.7	51.3	11.8	1,000

b. Statement: I would trust a system like this to accurately record votes as cast.

Optically scanned paper	Disagree or Strongly disagree	Neither	Agree or Strongly agree	Don't know	N
2013	18.3	21.6	47.6	13.5	999
2016	14.2	16.4	57.3	12.1	1,499
2018	9.8	18.9	56.7	14.5	999
2019	17.5	19.2	46.8	16.5	999
DREs	Disagree or Strongly disagree	Neither	Agree	Don't know	N
2013	18.6	19.9	48.4	13.2	998
2016	16.2	15.5	54.9	13.5	1,500
2018	17.3	17.0	50.1	15.7	1,000
2019	27.8	16.4	37.7	18.1	999
Hand-counted paper	Disagree or Strongly disagree	Neither	Agree	Don't know	N
2013	42.8	20.6	25.7	11.0	997
2016	44.7	16.1	28.2	11.1	1,500
2018	32.9	20.8	35.2	11.2	1,000
2019	35.1	17.9	32.1	14.9	998

Source: CCES, MIT module, 2013, 2016, 2018, and 2019.

SM Table 4. Confidence that one's vote was counted as intended.

Question: "How confident are you that your vote in the General Election was counted as you intended?"

a. All voters

	2012	2014	2016	2018
Very confident	51.2	54.4	58.9	60.9
Somewhat confident	33.1	34.3	28.3	29.4
Not too confident	7.2	4.6	7.3	5.7
Not at all confident	6.7	2.5	2.7	2.0
Don't know	1.9	4.1	2.9	2.0
N	754	628	1,008	710

b. In-person voters

	2012	2014	2016	2018
Very confident	55.1	58.1	58.4	61.4
Somewhat confident	29.8	29.5	27.4	29.0
Not too confident	6.7	4.4	8.3	6.5
Not at all confident	6.7	2.5	2.7	1.5
Don't know	1.6	5.5	3.2	1.6
N	572	469	779	530

Source: CCES, MIT module, 2012, 2014, 2016, and 2018.

SM Table 5. Voting technology attitudes by voting technology experience, in-person voters only

a. Comparative preferences for voting technologies (pct. of respondents favoring technology type)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2012	8.1%	30.0%	49.9%	5.0%	12.6%	74.0%	-3.1	-17.4	24.1
2016	9.5%	40.2%	42.3%	5.1%	15.9%	67.4%	-4.4	-24.3	25.1
2018	15.0%	37.3%	36.3%	8.9%	23.2%	59.0%	-6.1	-14.1	22.7

b. Ease of use (pct. of respondents agreeing or strongly agreeing that technology is easy to use)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	68.2%	85.6%	83.4%	61.5%	69.5%	90.0%	-6.7	-16.1	6.6
2018	72.4%	82.4%	77.4%	63.7%	71.0%	80.5%	-8.7	-11.4	3.1

c. Ease of vote stealing (pct. of respondents agreeing or strongly agreeing that it would be easy for a dishonest person to steal votes.)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	50.2%	28.8%	32.4%	63.1%	46.2%	30.1%	12.9	17.4	-2.3
2018	49.3%	25.2%	38.1%	57.5%	36.3%	30.7%	8.2	11.1	-7.4

d. Accuracy (pct. of respondents agreeing or strongly agreeing that they would trust the system to accurately record votes)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	32.2%	68.0%	54.9%	19.3%	49.2%	64.3%	-12.9	-18.8	9.4
2018	35.8%	69.7%	43.7%	27.4%	48.6%	49.7%	-8.4	-21.1	6.0

Source: CCES, MIT module, 2012, 2016, and 2018.

SM Table 6. Voting technology attitudes by voting technology experience, non-in-person voters only

a. Comparative preferences for voting technologies (pct. of respondents favoring technology type)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2012	7.6%	24.7%	49.0%	8.0%	15.2%	63.9%	0.4	-9.5	14.9
2016	10.8%	33.2%	45.3%	8.8%	19.5%	57.2%	-2.0	-13.7	11.9
2018	13.0%	27.5%	43.8%	6.3%	24.3%	60.1%	-6.7	-3.2	16.3

b. Ease of use (pct. of respondents agreeing or strongly agreeing that technology is easy to use)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	60.5%	73.2%	79.0%	59.2%	71.2%	78.0%	-1.3	-2.0	-1.0
2018	63.9%	71.3%	71.3%	47.2%	63.4%	69.9%	-16.7	-7.9	-1.4

c. Ease of vote stealing (pct. of respondents agreeing or strongly agreeing that it would be easy for a dishonest person to steal votes.)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	53.4%	35.7%	34.9%	58.6%	34.0%	29.3%	5.2	-1.7	-5.6
2018	51.8%	28.7%	30.8%	47.2%	33.3%	25.0%	-4.6	4.6	-5.8

d. Accuracy (pct. of respondents agreeing or strongly agreeing that they would trust the system to accurately record votes)

	Technology Used in R's County								
	Opscan			DRE			DRE – Opscan users		
Year	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE	Hand-counted paper	Scanned paper	DRE
2016	30.2%	53.8%	54.2%	27.8%	51.3%	64.4%	-2.4	-2.5	10.2
2018	34.6%	53.9%	51.0%	29.3%	50.4%	56.1%	-5.3	-3.5	5.1

Source: CCES, MIT module, 2012, 2016, and 2018.

SM Table 7. Regression predicting voter confidence using year, DRE usage, and partisanship as independent variables. Standard errors clustered at the state level.

Variable	Coeff. (s.e.)
Direct effects	
DRE used in county	-0.06
	(0.04)
Party ID	0.086
	(0.026)**
Year (2012 = excluded category)	
2014	-0.03
	(0.03)
2016	0.01
	(0.03)
2018	0.04
	(0.03)
Interactions with year dummy variable	
DRE used in county, 2014	0.09
	(0.06)
DRE used in county, 2016	0.01
	(0.03)
DRE used in county, 2018	0.04
	(0.03)
Party ID, 2014	-0.068
	(0.029)*
Party ID, 2016	-0.11
	(0.03)**
Party ID, 2018	-0.13
	(0.03)**
Constant	0.58
	(0.02)**
R^2	.01
N	2,834

* $p < .05$
** $p < .01$

Source: CCES, MIT module, 2012, 2014, 2016, and 2018. Voting technology data from data provided by Election Data Services and the Verified Voting website.

SM Table 8. Comparative preferences for voting technologies, 2013 and 2019.

	Voting technology		
	Hand-counted paper	Scanned paper	DRE
Direct effects			
Year = 2019	0.078	-0.034	-0.039
	(0.04)	(0.067)	(0.070)
Party ID (1 = Dem., 0 = Ind., -1 = Rep.)	0.022	-0.069	0.18
	(0.042)	(0.060)	(0.06)**
News interest (1 = follows news closely, 0 otherwise)	0.12	0.019	0.067
	(0.05)*	(0.078)	(0.081)
Interactions			
Year = 2019 x Party ID	-0.092	0.10	-0.047
	(0.056)	(0.08)	(0.083)
Year = 2019 x News interest	-0.078	0.12	-0.066
	(0.076)	(0.11)	(0.113)
Party ID x News interest	-0.088	0.14	-0.17
	(0.062)	(0.09)	(0.09)
Year = 2019 x Party ID x News interest	0.21	-0.09	-0.05
	(0.09)*	(0.12)	(0.013)
Constant	0.060	0.30	0.40
	(0.036)	(.05)**	(0.05)**
N	1,266	1,266	1,266
R^2	.03	.03	.05

Note: The dependent variable in each case was coded to equal 1 if the respondent most preferred the indicated voting technology, zero otherwise. The estimation technique is three-stage least squares.

* $p < .05$
** $p < .01$

Source: CCES, MIT module, 2013 and 2019.

SM Table 9. Prospective usability of voting technologies, 2013 and 2019.

	Voting technology		
	Hand-counted paper	Scanned paper	DRE
Direct effects			
Year = 2019	-0.22	-0.03	0.03
	(0.07)**	(0.07)	(0.06)
Party ID (1 = Dem., 0 = Ind., -1 = Rep.)	-0.04	0.12	0.13
	(0.06)	(0.06)*	(0.06)*
News interest (1 = follows news closely, 0 otherwise)	0.12	0.22	0.23
	(0.08)	(0.08)**	(0.07)**
Interactions			
Year = 2019 x Party ID	0.30	0.03	0.03
	(0.08)**	(0.08)	(0.07)
Year = 2019 x News interest	0.30	0.07	-0.04
	(0.11)**	(0.11)	(0.10)
Party ID x News interest	0.03	-0.15	-0.12
	(0.09)	(0.09)	(0.08)
Year = 2019 x Party ID x News interest	-0.29	0.08	-0.02
	(0.13)*	(0.12)	(0.12)
Constant	0.57	0.52	0.56
	(0.05)**	(0.05)	(0.05)**
N	1,262	1,262	1,262
R^2	.07	.06	.03

Note: The dependent variable in each case was coded to equal 1 if the respondent most preferred the indicated voting technology, zero otherwise. The estimation technique is three-stage least squares.

* $p < .05$
** $p < .01$

Source: CCES, MIT module, 2013 and 2019.

SM Table 10. Attitudes about stealing votes from voting technologies, 2013 and 2019.

	Voting technology		
	Hand-counted paper	Scanned paper	DRE
Direct effects			
Year = 2019	-0.03	0.12	0.05
	(0.07)	(0.07)	(0.07)
Party ID (1 = Dem., 0 = Ind., -1 = Rep.)	0.12	0.11	-0.01
	(0.06)	(0.06)	(0.06)
News interest (1 = follows news closely, 0 otherwise)	0.22	0.34	0.22
	(0.08)**	(0.08)**	(0.08)**
Interactions			
Year = 2019 x Party ID	-0.05	-0.06	0.03
	(0.08)	(0.08)	(0.08)
Year = 2019 x News interest	-0.25	-0.38	0.03
	(0.12)*	(0.11)**	(0.11)
Party ID x News interest	-0.24	-0.39	-0.15
	(0.09)*	(0.09)**	(0.09)
Year = 2019 x Party ID x News interest	0.16	0.20	0.04
	(0.13)	(0.12)	(0.12)
Constant	0.49	0.25	0.22
	(0.05**	(0.05)**	(0.05)
N	1,261	1,261	1,261
R^2	.03	.04	.04

Note: The dependent variable in each case was coded to equal 1 if the respondent most preferred the indicated voting technology, zero otherwise. The estimation technique is three-stage least squares.

* $p < .05$
** $p < .01$

Source: CCES, MIT module, 2013 and 2019.

SM Table 11. Attitudes about voting technology accuracy, 2013 and 2019.

	Voting technology		
	Hand-counted paper	Scanned paper	DRE
Direct effects			
Year = 2019	-0.09	-0.02	0.09
	(0.06)	(0.07)	(0.07)
Party ID (1 = Dem., 0 = Ind., -1 = Rep.)	0.05	0.08	0.10
	(0.06)	(0.06)	(0.06)
News interest (1 = follows news closely, 0 otherwise)	0.16	0.02	-0.10
	(0.08)*	(0.08)	(0.08)
Interactions			
Year = 2019 x Party ID	0.05	-0.06	-0.07
	(0.08)	(0.08)	(0.08)
Year = 2019 x News interest	0.23	0.19	0.00
	(0.10)*	(0.11)	(0.11)
Party ID x News interest	-0.15	0.13	0.25
	(0.09)	(0.09)	(0.09)**
Year = 2019 x Party ID x News interest	0.00	-0.10	-0.31
	(0.12)	(0.13)	(0.13)*
Constant	0.23	0.37	0.36
	(0.05)**	(0.05)**	(0.05)*
N	1,261	1,261	1,261
R^2	.06	.04	.04

Note: The dependent variable in each case was coded to equal 1 if the respondent most preferred the indicated voting technology, zero otherwise. The estimation technique is three-stage least squares.

* $p < .05$
** $p < .01$

Source: CCES, MIT module, 2013 and 2019.