

Appendix:

Table 1: Incumbents and Winners in the U.S. election (1992-2016)

	Election Year	Incumbent President	Incumbent Party	Winner	Winner Party
1	1,992	George H.W. Bush	Republican	Bill Clinton	Democratic
2	1,996	Bill Clinton	Democratic	Bill Clinton	Democratic
3	2,000	Bill Clinton	Democratic	George W. Bush	Republican
4	2,004	George W. Bush	Republican	George W. Bush	Republican
5	2,008	George W. Bush	Republican	Barack Obama	Democratic
6	2,012	Barack Obama	Democratic	Barack Obama	Democratic
7	2,016	Barack Obama	Democratic	Donald Trump	Republican

Table 2: Step I Variables: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
rep.share	18,663	0.57	0.14	0.07	0.97
repshare.lag	18,662	0.56	0.13	0.07	0.95
rep_incumb	18,672	0.50	0.50	0	1
unemp_gro	18,672	0.02	0.20	-0.67	2.36
rural_percent	18,672	58.49	31.44	0.00	100.00
white.percent	18,329	0.65	0.11	0.08	0.84
Pop	18,363	92,431.41	299,329.00	55	9,970,436

Table 3: Step III Variables: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
resid	3,045	0.04	0.05	-0.19	0.24
rep.share	3,045	0.67	0.16	0.04	0.97
repshare.lag	3,045	0.61	0.15	0.07	0.97
pred_repshare	3,045	0.63	0.15	0.10	0.99
is.rep.2012	3,045	0.78	0.41	0	1
is.rep.2016	3,045	0.85	0.36	0	1
pop	3,059	103,670.00	332,792.50	112	10,170,292
unemp_gro	3,059	-0.28	0.13	-0.70	1.00
manu_share_gro	2,640	0.01	0.17	-0.82	1.96
lfpr_male_gro	3,059	-0.98	3.46	-26.50	26.30
av_wage_gro	3,053	0.05	0.12	-1.01	1.49
gini_gro	3,059	0.01	0.02	-0.15	0.13
uneduc	3,059	0.09	0.04	0.01	0.31

Table 4: Number of counties that turned Republican from Democrat between 2012 and 2016 and were underpredicted

	State	Counties D to R	Counties Underpredicted
1	AL	2	2
2	AR	1	1
3	CO	5	4
4	CT	1	1
5	DE	1	1
6	FL	4	4
7	GA	6	6
8	IA	33	33
9	IL	10	10
10	IN	5	5
11	KY	2	2
12	MD	1	1
13	ME	8	8
14	MI	12	12
15	MN	19	19
16	MS	4	3
17	MT	3	3
18	NC	7	4
19	ND	4	4
20	NE	1	1
21	NH	3	2
22	NJ	2	2
23	NM	3	3
24	NY	20	20
25	OH	10	10
26	OR	2	2
27	PA	3	3
28	RI	1	1
29	SC	6	6
30	SD	5	5
31	TN	1	1
32	TX	1	
33	VA	6	5
34	VT	1	1
35	WA	5	4
36	WI	23	23

Table 5: Number of counties that stayed Republican between 2012 and 2016 and were underpredicted

	State	Counties R to R	Counties underpredicted
1	AL	52	42
2	AR	66	63
3	AZ	11	4
4	CA	25	7
5	CO	37	31
6	CT	1	1
7	DE	1	1
8	FL	54	42
9	GA	122	94
10	IA	60	58
11	ID	42	27
12	IL	66	62
13	IN	83	74
14	KS	103	71
15	KY	116	107
16	LA	54	46
17	MD	16	12
18	ME	1	1
19	MI	63	57
20	MN	59	57
21	MO	111	109
22	MS	51	43
23	MT	47	38
24	NC	69	51
25	ND	47	47
26	NE	90	84
27	NH	3	2
28	NJ	7	5
29	NM	16	13
30	NV	15	14
31	NY	26	25
32	OH	70	65
33	OK	77	69
34	OR	26	20
35	PA	53	49
36	SC	25	16
37	SD	56	53
38	TN	91	88
39	TX	226	126
40	UT	27	3
41	VA	60	50
42	WA	22	13
43	WI	37	34
44	WV	55	54
45	WY	22	17

Alternate analysis for Step III:

Testing Rival Theories for 2016 using the difference in 2015 economic variables against 2014 economic variables

Table 6: Testing Rival Theories for 2016 Residuals using OLS Estimate

	All counties	resid Swing-state counties	Rust-belt counties
	(1)	(2)	(3)
manu_share_gro	0.003 (0.01)	-0.005 (0.03)	0.03 (0.03)
av_wage_gro	-0.16*** (0.02)	-0.11* (0.06)	-0.19*** (0.04)
lfpr_male_gro	0.0004 (0.001)	-0.001 (0.002)	-0.001 (0.002)
gini_gro	-0.02 (0.09)	-0.01 (0.23)	-0.14 (0.20)
uneduc	0.39*** (0.01)	0.52*** (0.03)	0.99*** (0.03)
Observations	2,670	617	673
R ²	0.34	0.38	0.71
Adjusted R ²	0.33	0.37	0.71
Residual Std. Error	0.05 (df = 2665)	0.06 (df = 612)	0.05 (df = 668)
F Statistic	269.86*** (df = 5; 2665)	74.27*** (df = 5; 612)	333.83*** (df = 5; 668)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 7: Swing States and their Counties

	State	Number of counties
1	CO	64
2	FL	67
3	IA	99
4	NC	100
5	NH	10
6	NV	17
7	OH	88
8	PA	67
9	VA	81
10	WI	72

Source: https://en.wikipedia.org/wiki/Swing_state

Table 8: Rust-belt States and their Counties

	State	Number of counties
1	IA	99
2	IL	102
3	IN	92
4	MI	83
5	NY	62
6	OH	88
7	PA	67
8	WI	72
9	WV	55

Source: https://en.wikipedia.org/wiki/Rust_Belt

Hausman Test for Step I:

Hausman Test

data: rep.share ~ unemp_gro + repshare.lag + log(Pop) + white.percent + ... chisq = 2448.9, df = 7,
p-value < 2.2e-16 alternative hypothesis: one model is inconsistent

Time-Fixed Effects Test for Step I:

Lagrange Multiplier Test - time effects (Breusch-Pagan) for
unbalanced panels

data: rep.share ~ unemp_gro + repshare.lag + log(Pop) + white.percent + ... chisq = 3803100, df = 1,
p-value < 2.2e-16 alternative hypothesis: significant effects