On Reverse Coattails in the 2017 Virginia Election

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November 17, 2017

Here, I present some data on the question of a possible coattail effect in the 2017 Virginia elections. I devise counterfactual predictions of Northam performance based on HoD district demographics, electoral history, and a combined model including both demographic and political fundamentals. I find reason to express some skepticism of reverse coattails: Northam slightly overperformed in districts that had a challenger in 2017 but not in 2013, but overperformed to a higher degree in districts with no Dem Delegate on the ballot. This is in general agreement with other work suggesting red suburbs turned against Gillespie, but did so without the aid of a stellar HoD candidate.

These findings are strongly contrary to my own priors and to my normative hopes for the value of stellar local candidates. I include replication data and welcome scrutiny and feedback.

"Reverse coattails" refers to the possibility that a candidate at a lower level of the ballot influenced the performance of candidates higher on the ballot. A natural approach to modeling reverse coattails is to ask, "how would we expect Northam to perform at the HoD level if we didn't know anything about the HoD candidates - that is, if we assumed HoD candidate quality was uncorrelated with Northam performance?" Then, with an expectation for Northam's performance in mind based on some (hopefully) reasonable assumptions *besides* HoD candidate quality, we can look at Northam's over- or underperformance relative to our expectations at House district level and, from there, do some additional work to figure out if Northam's deviation from what we expect can be attributed to the House of Delegates candidate running in that district.

To construct the counterfactual I first ignore HoD candidate factors and use other reasonable measures to set up our expectations for Northam's performance. Using historical data, I devised three counterfactual scenarios against which I modeled the real 2017 outcomes. Those three counterfactual scenarios are based on worlds where we predict 2017 Democratic Gubernatorial performance using

1. *Political fundamentals matter most:* Presidential election data.
2. *Demographic fundamentals matter most:* The race, ethnicity, education, and income composition of the House districts.
3. *Both political and demographic fundamentals matter:* The whole kitchen sink.

For the purposes of brevity, I present the results of the third approach, and leave data available for others to tinker with. I did not find major differences between the three approaches. Here, I construct the counterfactual scenarios using the prior gubernatorial election (2013), and forecast the results over the 2017 gubernatorial election.

These three counterfactual scenarios are operationalized in the following three OLS models. In each model, the dependent variable of interest, V_{Dem}^{Gov}, is the Democratic two-party vote share in the Gubernatorial election, aggregated at the level of the Virginia House of Delegates.

1. $V_{Dem}^{Gov} \sim \beta_0 + \beta_1 V_{Dem}^{Pres} + \epsilon$
2. $V_{Dem}^{Gov} \sim \beta_0 + \beta_1 Black\% + \beta_2 Latino\% + \beta_3 HHincome + \beta_4 Bachelors\% + \epsilon$
3. $V_{Dem}^{Gov} \sim \beta_0 + \beta_1 V_{Dem}^{Pres} + \beta_3 Black\% + \beta_4 Latino\% + \beta_5 HHincome + \beta_6 Bachelors\% + \epsilon$

For each equation, the dependent variable is Northam two-party vote share at the House of Delegates district level. For the first equation, the independent variable is Presidential vote share in the nearst Presidential election to the state election, with Presidential election results aggregated at the House of Delegates district level. For the second equation, the independent variables are the House of Delegates districts' percent of the population that is black, the percent that is Latino, the district median household income in dollars, and the percent of the district aged twenty-five and over that has at least a bachelors' degree. Each of those variables are taken from the most recent American Community Survey to the gubernatorial election.

	Political fundamentals	Demographic fundamentals	Kitchen sink
Intercept	−0.01	0.10***	−0.07***
	(0.03)	(0.02)	(0.02)
Dem Presidential	1.02***		0.86***
	(0.06)		(0.05)
Dem House of Delegates	0.04		0.00
	(0.02)		(0.01)
Black %		0.83***	0.15***
		(0.03)	(0.04)
Latino %		0.91***	0.18***
		(0.08)	(0.05)
Household income		−0.00***	−0.00*
		(0.00)	(0.00)
Bachelors %		0.95***	0.38***
		(0.06)	(0.04)
R^2	0.93	0.93	0.99
Adj. R^2	0.93	0.93	0.99
Num. obs.	100	100	100
RMSE	0.05	0.05	0.02

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 1: 2013 models

The following table plots the results of the models built on 2013 American Community Survey data, 2013 gubernatorial election data, and 2012 Presidential election data. In the first model, a 1% increase in Democratic Presidential vote share in 2012 is associated with a 1.11% increase in 2013 Democratic gubernatorial vote share, while a 1% increase in Dem Pres vote share in 2012 is associated with a 0.87% Democratic gubernatorial vote share increase in the kitchen sink model. The demographic fundamentals behave in the direction one might expect: a higher black population percent and Latino population percent are both positively correlated with a higher Democratic gubernatorial vote share, while household income is negatively correlated with Democratic gubernatorial vote share and the percent of district 25+ population holding at least a bachelors degree is positively correlated with Democratic gubernatorial vote share.

Next, I forecast the 2017 election results using these models. I update the historical data on the righthand side of equations one, two, and three with 2016 Presidential election and 2015 American Community Survey data at the level of Virginia House of Delegates districts. The following chart plots predicted 2017 Northam two-party vote share by district vs. actual 2017 Northam two-party vote share, using the combined model. Values above the dotted gray line indicate districts where Northam *over*-performed the prediction from the model, and values below the dotted gray line indicate districts where Northam *under*-performed the prediction from the model.

I color each district by whether it had a Dem candidate on the HoD ballot in both, neither, or one or the cycles.

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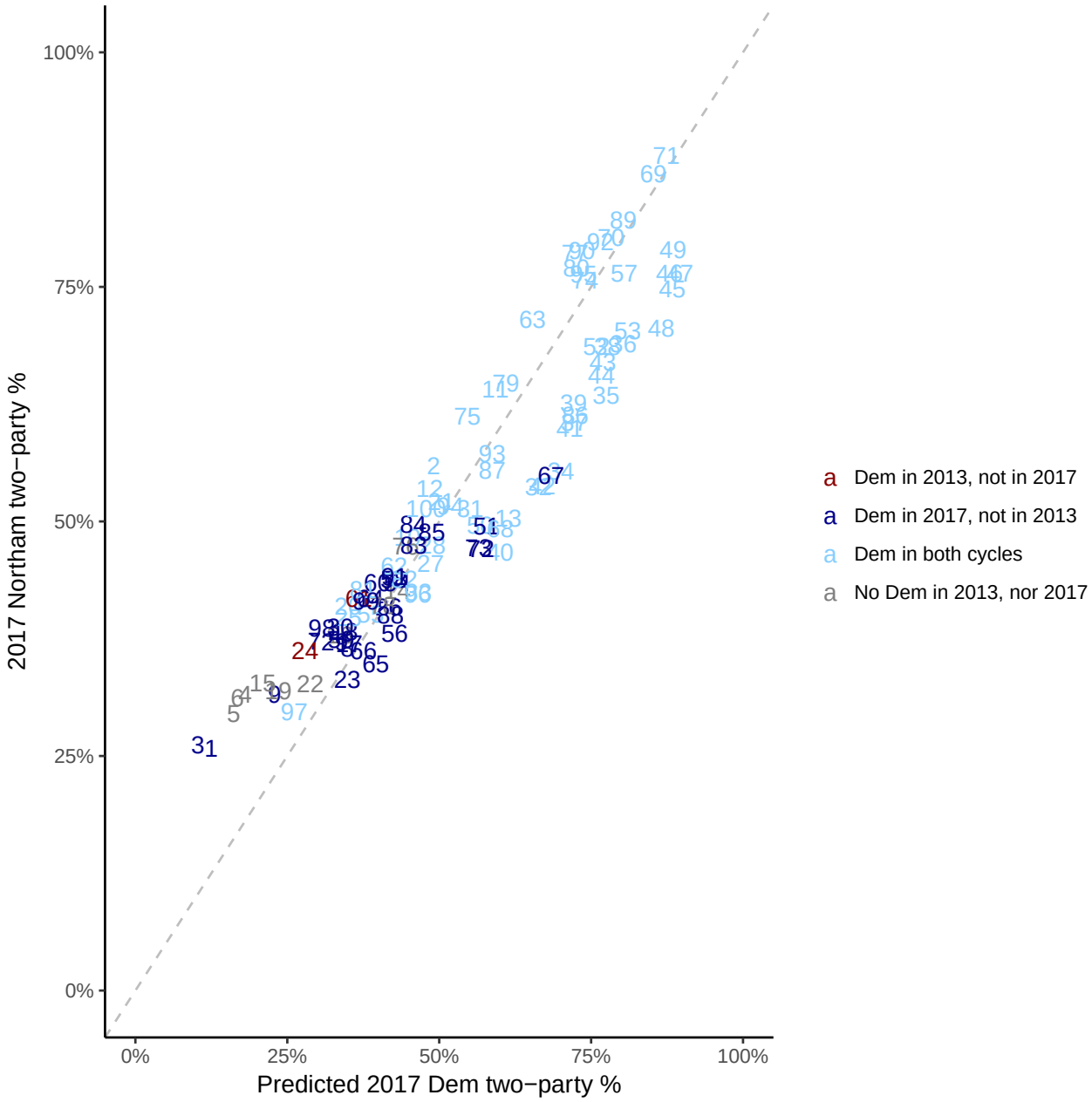


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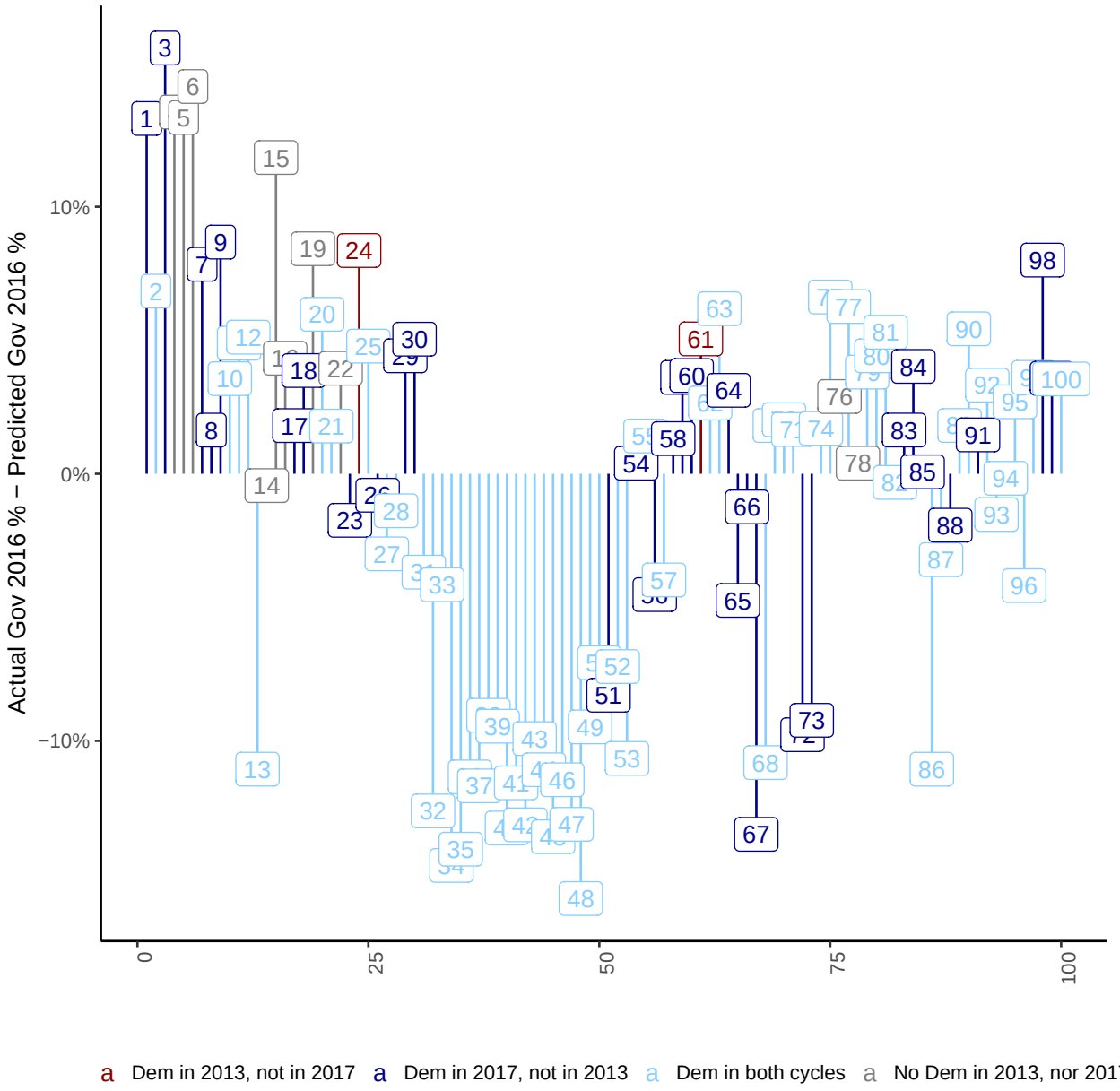
The following plot shows actual minus predicted Northam vote share for each district, for the combined model.

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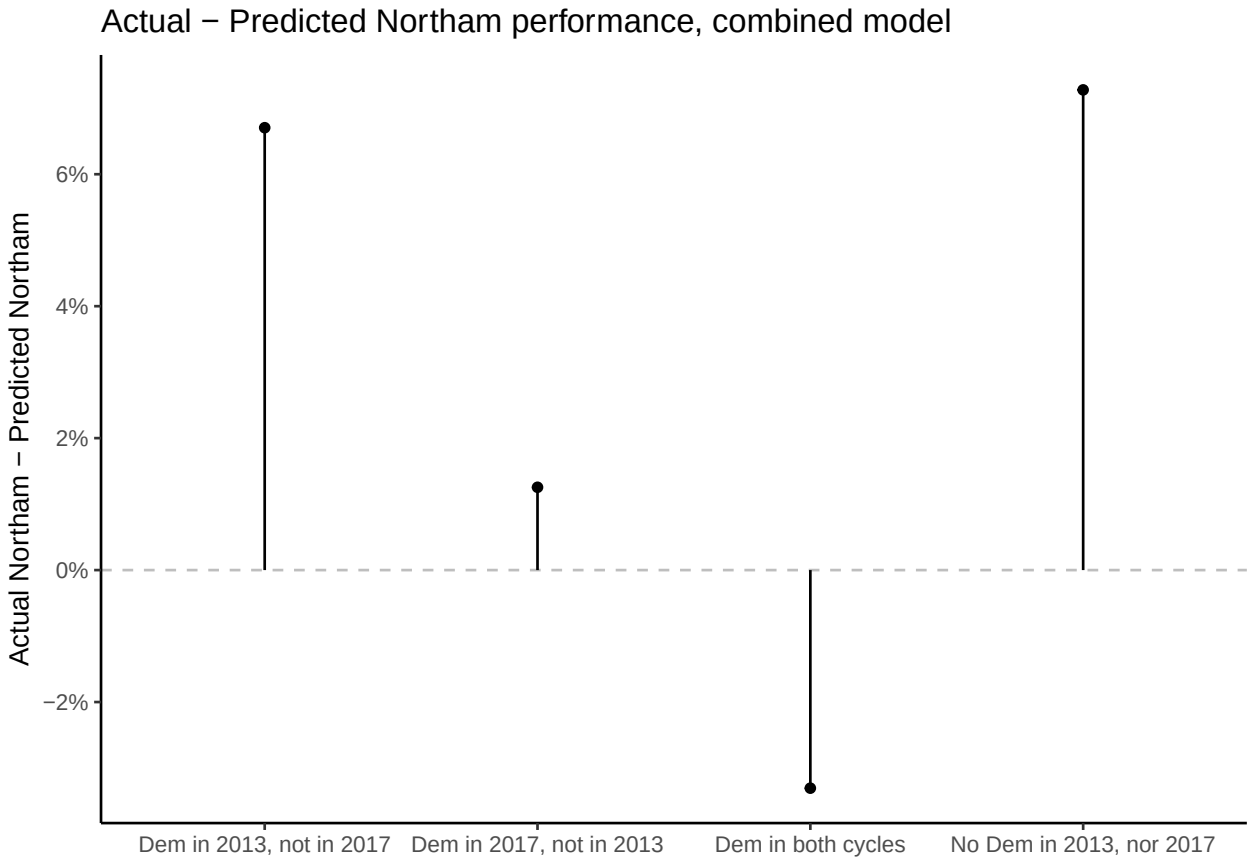
The following tables present the top ten districts where Northam overperformed the various models, according to each model individually.

Table 2: Northam overperformance districts according to (Presidential + Demographic) model

	District	Prediction	Actual	Difference
203	3	0.1029476	0.2623563	0.1594087
206	6	0.1678032	0.3128139	0.1450108
204	4	0.1806931	0.3161455	0.1354525
205	5	0.1618378	0.2952673	0.1334296
201	1	0.1251723	0.2582095	0.1330372
215	15	0.2095640	0.3279961	0.1184321
209	9	0.2289975	0.3157480	0.0867504

	District	Prediction	Actual	Difference
219	19	0.2351518	0.3194078	0.0842560
224	24	0.2791547	0.3627521	0.0835974
298	98	0.3070653	0.3870815	0.0800162

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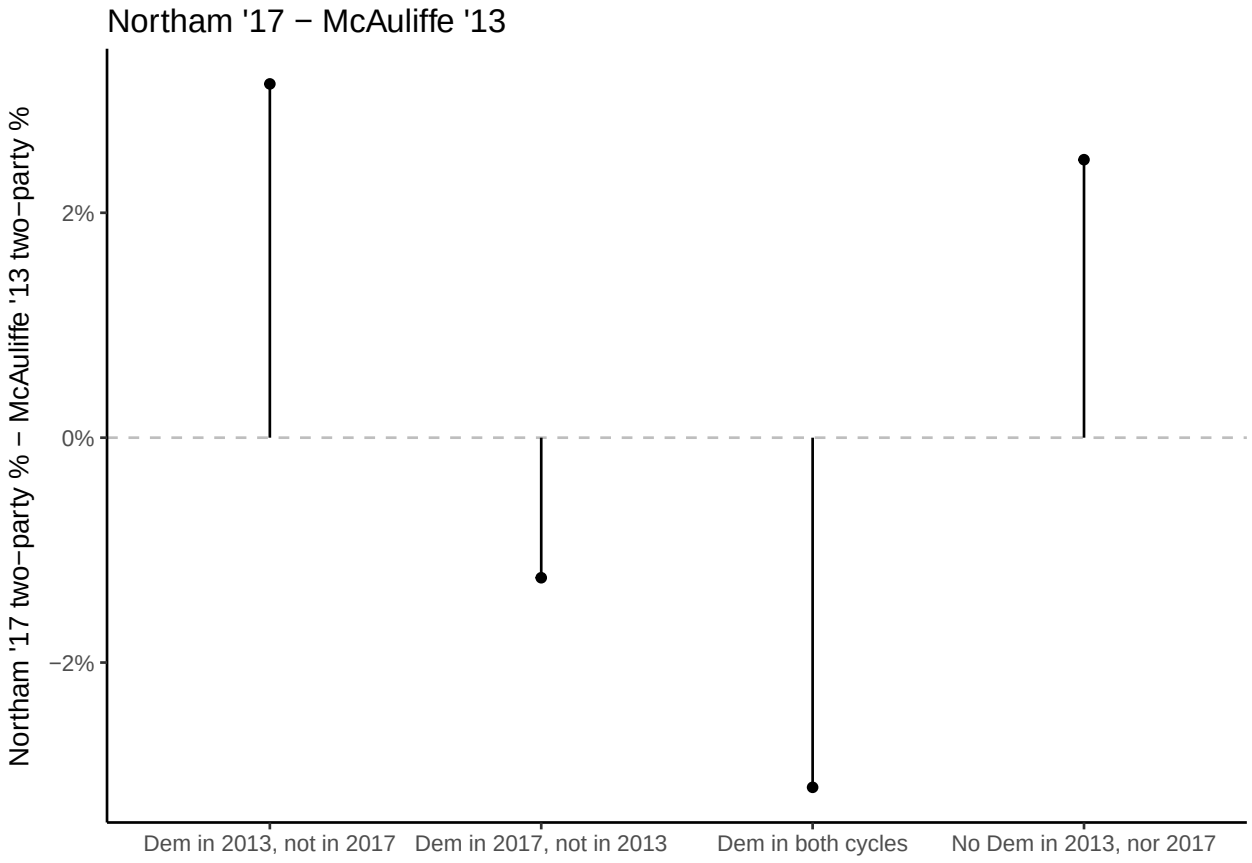


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Presented in this fashion, I am led by the data to report some skepticism of the reverse coattails effect. Foroemost in my mind is the fact that Danica Roem's district (VA-13) is not prominent according to the model as a standout showing for Northam above what one might predict from just knowing the fundamentals. In fact, in some of the top districts according to each model (1, 3, 4, 6), Northam drastically overperformed despite either a decisive loss by the House of Delegates candidate or the complete absence of a House of Delegates Democrat. In VA-2, Northam overperformed in a district where the Republican primary winner dropped out amid accusations he falsified his ballot signatures.

If one defines the coattails effect as a superstar HoD candidate elevating the Gubernatorial candidates, the results are mixed at best. In some districts, Northam appeared to overperform the prediction without any Democrat on the HoD ballot at all. In the HoD districts of Democratic superstars like Chris Hurst, Wendy Gooditis, and Danica Roem (10, 12, and 13), Northam slightly overperformed, slightly overperformed, and underperformed, respectively.

Here's the data I used for this project.

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kable(dat, col.names = c('Cycle', 'District', 'Governor R %', 'Governor D %', 'President D %', 'Preside
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Cycle	District	Governor R %	Governor D %	President D %	President R %	House of Delegates D %	House of
2013	1	0.7850000	0.2040000	0.2634639	0.7365361	0.0000000	
2013	2	0.3670000	0.6230000	0.5968258	0.4031742	0.4900000	
2013	3	0.8140000	0.1800000	0.2519223	0.7480777	0.0000000	
2013	4	0.7510000	0.2410000	0.3092691	0.6907309	0.0000000	
2013	5	0.7620000	0.2290000	0.3000437	0.6999563	0.0000000	
2013	6	0.7540000	0.2370000	0.3207132	0.6792868	0.0000000	
2013	7	0.6300000	0.3560000	0.3922286	0.6077714	0.0000000	

Cycle	District	Governor R %	Governor D %	President D %	President R %	House of Delegates D %	House of
2013	8	0.6140000	0.3710000	0.3772213	0.6227787	0.0000000	
2013	9	0.7050000	0.2840000	0.3528999	0.6471001	0.0000000	
2013	10	0.4480000	0.5410000	0.4815397	0.5184603	0.3800000	
2013	11	0.3280000	0.6580000	0.6550369	0.3449631	1.0000000	
2013	12	0.4470000	0.5340000	0.5211907	0.4788093	0.4200000	
2013	13	0.4150000	0.5710000	0.5560782	0.4439218	0.4400000	
2013	14	0.5510000	0.4420000	0.4982915	0.5017085	0.0000000	
2013	15	0.7110000	0.2780000	0.3458819	0.6541181	0.0000000	
2013	16	0.6240000	0.3680000	0.4363175	0.5636825	0.0000000	
2013	17	0.5950000	0.3920000	0.3938531	0.6061469	0.0000000	
2013	18	0.5980000	0.3900000	0.4092155	0.5907845	0.0000000	
2013	19	0.7120000	0.2790000	0.3595199	0.6404801	0.0000000	
2013	20	0.5740000	0.4090000	0.4213896	0.5786104	0.2400000	
2013	21	0.4240000	0.5630000	0.5260298	0.4739702	0.4300000	
2013	22	0.6610000	0.3300000	0.3818953	0.6181047	0.0000000	
2013	23	0.6260000	0.3620000	0.3447091	0.6552909	0.0000000	
2013	24	0.6530000	0.3370000	0.3775472	0.6224528	0.2900000	
2013	25	0.5740000	0.4140000	0.3830007	0.6169993	0.3400000	
2013	26	0.5280000	0.4570000	0.4397278	0.5602722	0.0000000	
2013	27	0.4760000	0.5090000	0.4591001	0.5408999	0.4100000	
2013	28	0.4780000	0.5080000	0.5004472	0.4995528	0.4000000	
2013	29	0.6070000	0.3810000	0.3937815	0.6062185	0.0000000	
2013	30	0.6100000	0.3790000	0.4324729	0.5675271	0.0000000	
2013	31	0.4270000	0.5640000	0.5375898	0.4624102	0.4700000	
2013	32	0.3700000	0.6190000	0.5282258	0.4717742	0.4700000	
2013	33	0.5400000	0.4470000	0.4255345	0.5744655	0.3750000	
2013	34	0.3930000	0.6000000	0.5023641	0.4976359	0.5000000	
2013	35	0.2930000	0.6970000	0.6058070	0.3941930	1.0000000	
2013	36	0.2530000	0.7360000	0.6488126	0.3511874	1.0000000	
2013	37	0.3050000	0.6830000	0.6127012	0.3872988	0.5700000	
2013	38	0.2630000	0.7280000	0.6724476	0.3275524	0.7500000	
2013	39	0.3020000	0.6910000	0.6262061	0.3737939	1.0000000	
2013	40	0.4440000	0.5470000	0.4806482	0.5193518	0.3500000	
2013	41	0.3310000	0.6590000	0.5887733	0.4112267	1.0000000	
2013	42	0.3870000	0.6060000	0.5329478	0.4670522	0.3700000	
2013	43	0.2660000	0.7240000	0.6601435	0.3398565	0.6547497	
2013	44	0.3000000	0.6920000	0.6558170	0.3441830	1.0000000	
2013	45	0.2220000	0.7690000	0.6874396	0.3125604	1.0000000	
2013	46	0.1970000	0.7950000	0.7458479	0.2541521	0.6715093	
2013	47	0.1930000	0.7960000	0.6938941	0.3061059	0.7800000	
2013	48	0.2570000	0.7350000	0.6408107	0.3591893	1.0000000	
2013	49	0.1700000	0.8200000	0.7605719	0.2394281	1.0000000	
2013	50	0.4120000	0.5760000	0.5481378	0.4518622	0.4100000	
2013	51	0.4360000	0.5530000	0.5192327	0.4807673	0.0000000	
2013	52	0.2330000	0.7570000	0.7334841	0.2665159	1.0000000	
2013	53	0.2420000	0.7460000	0.6752410	0.3247590	1.0000000	
2013	54	0.5270000	0.4610000	0.4665312	0.5334688	0.0000000	
2013	55	0.5800000	0.4050000	0.4055478	0.5944522	0.4000000	
2013	56	0.5800000	0.4090000	0.3789879	0.6210121	0.0000000	
2013	57	0.1970000	0.7920000	0.7135195	0.2864805	1.0000000	
2013	58	0.5490000	0.4390000	0.4184373	0.5815627	0.0000000	
2013	59	0.6300000	0.3600000	0.4071674	0.5928326	0.0000000	

Cycle	District	Governor R %	Governor D %	President D %	President R %	House of Delegates D %	House of
2013	60	0.5870000	0.4050000	0.4813328	0.5186672	0.0000000	
2013	61	0.6120000	0.3810000	0.4541555	0.5458445	0.2900000	
2013	62	0.4940000	0.4950000	0.4701012	0.5298988	0.4000000	
2013	63	0.3200000	0.6720000	0.7326630	0.2673370	1.0000000	
2013	64	0.5910000	0.3990000	0.4184796	0.5815204	0.0000000	
2013	65	0.6080000	0.3800000	0.3490581	0.6509419	0.0000000	
2013	66	0.5990000	0.3910000	0.3726368	0.6273632	0.0000000	
2013	67	0.3620000	0.6270000	0.5449948	0.4550052	0.0000000	
2013	68	0.4220000	0.5670000	0.4446740	0.5553260	0.3760762	
2013	69	0.1250000	0.8610000	0.8570439	0.1429561	1.0000000	
2013	70	0.1860000	0.8050000	0.7996929	0.2003071	1.0000000	
2013	71	0.1070000	0.8810000	0.8689599	0.1310401	0.8800000	
2013	72	0.4550000	0.5320000	0.4560534	0.5439466	0.0000000	
2013	73	0.4510000	0.5350000	0.4713095	0.5286905	0.0000000	
2013	74	0.2360000	0.7540000	0.7558539	0.2441461	0.7900000	
2013	75	0.4340000	0.5590000	0.6252865	0.3747135	1.0000000	
2013	76	0.4920000	0.4980000	0.4527978	0.5472022	0.0000000	
2013	77	0.2130000	0.7730000	0.7850857	0.2149143	1.0000000	
2013	78	0.5480000	0.4410000	0.3971628	0.6028372	0.0000000	
2013	79	0.3340000	0.6520000	0.6284307	0.3715693	1.0000000	
2013	80	0.2350000	0.7530000	0.7601968	0.2398032	1.0000000	
2013	81	0.5490000	0.4390000	0.4210187	0.5789813	0.3000000	
2013	82	0.5250000	0.4640000	0.4076888	0.5923112	0.3500000	
2013	83	0.4830000	0.5030000	0.4676518	0.5323482	0.0000000	
2013	84	0.4670000	0.5210000	0.4967881	0.5032119	0.0000000	
2013	85	0.4530000	0.5330000	0.4987171	0.5012829	0.0000000	
2013	86	0.3110000	0.6780000	0.6093758	0.3906242	0.5448680	
2013	87	0.3470000	0.6400000	0.5700970	0.4299030	0.4991473	
2013	88	0.5440000	0.4440000	0.4406363	0.5593637	0.0000000	
2013	89	0.1700000	0.8170000	0.8173166	0.1826834	1.0000000	
2013	90	0.1930000	0.7990000	0.7966277	0.2033723	1.0000000	
2013	91	0.5150000	0.4730000	0.4432418	0.5567582	0.0000000	
2013	92	0.1910000	0.8000000	0.8098063	0.1901937	1.0000000	
2013	93	0.3830000	0.6060000	0.5710676	0.4289324	0.5500000	
2013	94	0.4270000	0.5600000	0.5269299	0.4730701	0.4200000	
2013	95	0.2210000	0.7690000	0.7866111	0.2133889	0.7700000	
2013	96	0.5270000	0.4630000	0.4177444	0.5822556	0.3900000	
2013	97	0.6830000	0.3050000	0.3005164	0.6994836	0.2100000	
2013	98	0.6210000	0.3680000	0.3982831	0.6017169	0.0000000	
2013	99	0.5900000	0.4010000	0.4482346	0.5517654	0.0000000	
2013	100	0.4630000	0.5270000	0.5514780	0.4485220	0.4300000	
2017	1	0.7417905	0.2582095	0.1803360	0.8196640	0.2379779	
2017	2	0.4406443	0.5593557	0.6070901	0.3929099	0.6267454	
2017	3	0.7376437	0.2623563	0.1670200	0.8329800	0.2168466	
2017	4	0.6838545	0.3161455	0.2141093	0.7858907	0.0000000	
2017	5	0.7047327	0.2952673	0.2199027	0.7800973	0.0000000	
2017	6	0.6871861	0.3128139	0.2138534	0.7861466	0.0000000	
2017	7	0.6269483	0.3730517	0.3404795	0.6595205	0.3331274	
2017	8	0.6349137	0.3650863	0.3496414	0.6503586	0.3598430	
2017	9	0.6842520	0.3157480	0.2730920	0.7269080	0.2965059	
2017	10	0.5164896	0.4835104	0.5338450	0.4661550	0.5194925	
2017	11	0.3585554	0.6414446	0.6407080	0.3592920	1.0000000	

Cycle	District	Governor R %	Governor D %	President D %	President R %	House of Delegates D %	House of
2017	12	0.4644587	0.5355413	0.5159487	0.4840513	0.5359631	
2017	13	0.4965966	0.5034034	0.5783832	0.4216168	0.5461904	
2017	14	0.5732369	0.4267631	0.4580322	0.5419678	0.0000000	
2017	15	0.6720039	0.3279961	0.2604982	0.7395018	0.0000000	
2017	16	0.6205182	0.3794818	0.3791559	0.6208441	0.0000000	
2017	17	0.6300388	0.3699612	0.3685961	0.6314039	0.3935682	
2017	18	0.6170122	0.3829878	0.3695427	0.6304573	0.3622911	
2017	19	0.6805922	0.3194078	0.2673070	0.7326930	0.0000000	
2017	20	0.5903847	0.4096153	0.3909016	0.6090984	0.4383766	
2017	21	0.4783792	0.5216208	0.5240851	0.4759149	0.5287616	
2017	22	0.6726060	0.3273940	0.3331135	0.6668865	0.0000000	
2017	23	0.6685243	0.3314757	0.3440906	0.6559094	0.3451829	
2017	24	0.6372479	0.3627521	0.3225806	0.6774194	0.0000000	
2017	25	0.6016361	0.3983639	0.3907255	0.6092745	0.4194258	
2017	26	0.5911550	0.4088450	0.4580637	0.5419363	0.4539956	
2017	27	0.5441114	0.4558886	0.4875146	0.5124854	0.4974902	
2017	28	0.5249937	0.4750063	0.4941851	0.5058149	0.4977914	
2017	29	0.6278637	0.3721363	0.3528912	0.6471088	0.3563531	
2017	30	0.6122390	0.3877610	0.3710925	0.6289075	0.3780903	
2017	31	0.4856223	0.5143777	0.5541238	0.4458762	0.5456340	
2017	32	0.4627207	0.5372793	0.6108881	0.3891119	0.5854571	
2017	33	0.5755781	0.4244219	0.4292720	0.5707280	0.4515515	
2017	34	0.4461640	0.5538360	0.6140718	0.3859282	0.6094196	
2017	35	0.3655640	0.6344360	0.7086065	0.2913935	1.0000000	
2017	36	0.3103145	0.6896855	0.7362562	0.2637438	1.0000000	
2017	37	0.3940898	0.6059102	0.6995124	0.3004876	1.0000000	
2017	38	0.3132445	0.6867555	0.7434258	0.2565742	0.7368130	
2017	39	0.3731806	0.6268194	0.7098417	0.2901583	1.0000000	
2017	40	0.5321563	0.4678437	0.5588767	0.4411233	0.5031784	
2017	41	0.4006001	0.5993999	0.6738129	0.3261871	1.0000000	
2017	42	0.4616521	0.5383479	0.6219762	0.3780238	0.6101932	
2017	43	0.3297297	0.6702703	0.7354839	0.2645161	1.0000000	
2017	44	0.3436261	0.6563739	0.7298519	0.2701481	1.0000000	
2017	45	0.2520722	0.7479278	0.8042793	0.1957207	1.0000000	
2017	46	0.2352778	0.7647222	0.8158537	0.1841463	1.0000000	
2017	47	0.2347351	0.7652649	0.8178130	0.1821870	1.0000000	
2017	48	0.2934367	0.7065633	0.7649354	0.2350646	1.0000000	
2017	49	0.2098780	0.7901220	0.8401879	0.1598121	0.8147194	
2017	50	0.5031877	0.4968123	0.5742682	0.4257318	0.5455825	
2017	51	0.5048180	0.4951820	0.5474200	0.4525800	0.5298760	
2017	52	0.3130737	0.6869263	0.7592750	0.2407250	1.0000000	
2017	53	0.2961382	0.7038618	0.7616179	0.2383821	0.7520351	
2017	54	0.5650606	0.4349394	0.4427831	0.5572169	0.4200366	
2017	55	0.5986263	0.4013737	0.3921781	0.6078219	0.4000465	
2017	56	0.6183989	0.3816011	0.4053184	0.5946816	0.4041858	
2017	57	0.2350384	0.7649616	0.8009145	0.1990855	1.0000000	
2017	58	0.5611923	0.4388077	0.4215418	0.5784582	0.3873936	
2017	59	0.6251716	0.3748284	0.3585799	0.6414201	0.3590540	
2017	60	0.5649079	0.4350921	0.4302500	0.5697500	0.3805297	
2017	61	0.5818292	0.4181708	0.4038136	0.5961864	0.0000000	
2017	62	0.5476876	0.4523124	0.4725933	0.5274067	0.4819580	
2017	63	0.2845106	0.7154894	0.6904517	0.3095483	1.0000000	

Cycle	District	Governor R %	Governor D %	President D %	President R %	House of Delegates D %	House of
2017	64	0.5817589	0.4182411	0.3819700	0.6180300	0.3753332	
2017	65	0.6517488	0.3482512	0.3649233	0.6350767	0.3570251	
2017	66	0.6369848	0.3630152	0.3816827	0.6183173	0.3628985	
2017	67	0.4506470	0.5493530	0.6418973	0.3581027	0.5794599	
2017	68	0.5073517	0.4926483	0.5583410	0.4416590	0.5060760	
2017	69	0.1292644	0.8707356	0.8729872	0.1270128	1.0000000	
2017	70	0.1966566	0.8033434	0.8014329	0.1985671	1.0000000	
2017	71	0.1094512	0.8905488	0.8947110	0.1052890	1.0000000	
2017	72	0.5288598	0.4711402	0.5287342	0.4712658	0.5282737	
2017	73	0.5274160	0.4725840	0.5420146	0.4579854	0.5137897	
2017	74	0.2428350	0.7571650	0.7533096	0.2466904	0.9058089	
2017	75	0.3873402	0.6126598	0.5804923	0.4195077	1.0000000	
2017	76	0.5262882	0.4737118	0.4591791	0.5408209	0.0000000	
2017	77	0.2136959	0.7863041	0.7531718	0.2468282	0.8305655	
2017	78	0.5887637	0.4112363	0.4008478	0.5991522	0.0000000	
2017	79	0.3519655	0.6480345	0.6253109	0.3746891	1.0000000	
2017	80	0.2299294	0.7700706	0.7457564	0.2542436	1.0000000	
2017	81	0.5721118	0.4278882	0.3915742	0.6084258	0.4065079	
2017	82	0.5608833	0.4391167	0.4172214	0.5827786	0.4080378	
2017	83	0.5254175	0.4745825	0.4625783	0.5374217	0.4359748	
2017	84	0.5023765	0.4976235	0.4762950	0.5237050	0.4833561	
2017	85	0.5113062	0.4886938	0.4970956	0.5029044	0.5100926	
2017	86	0.3866593	0.6133407	0.6872779	0.3127221	0.6910076	
2017	87	0.4448942	0.5551058	0.6354319	0.3645681	0.6198163	
2017	88	0.5992534	0.4007466	0.4283717	0.5716283	0.4156708	
2017	89	0.1788139	0.8211861	0.8214065	0.1785935	0.8532996	
2017	90	0.2107192	0.7892808	0.7789031	0.2210969	1.0000000	
2017	91	0.5586052	0.4413948	0.4424278	0.5575722	0.4344670	
2017	92	0.2015800	0.7984200	0.7901864	0.2098136	1.0000000	
2017	93	0.4277867	0.5722133	0.6016352	0.3983648	0.6009252	
2017	94	0.4833580	0.5166420	0.5296560	0.4703440	0.4997412	
2017	95	0.2355191	0.7644809	0.7637759	0.2362241	1.0000000	
2017	96	0.5769709	0.4230291	0.4401430	0.5598570	0.4296560	
2017	97	0.7024544	0.2975456	0.2926891	0.7073109	0.2768310	
2017	98	0.6129185	0.3870815	0.3424552	0.6575448	0.3486258	
2017	99	0.5844891	0.4155109	0.4033342	0.5966658	0.3776814	
2017	100	0.4860747	0.5139253	0.5136195	0.4863805	0.4772190	