What Virginia's Presidential Primaries Mean for November

A report by

John J. McGlennon, Professor of Government

And

Jakob A. Deel, Class of 2016 (B.A. in Government and Public Policy)

College of William & Mary

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I. Executive Summary

On March 1, Virginia voters went to the polls as part of the Super Tuesday Presidential Primaries and selected their preferences for the Democratic and Republican party nominations for the November General Election. While primaries are not necessarily predictive of the outcomes of general elections, the patterns and trends in participation and support may offer clues as to the potential appeal of the Presidential candidates.

With Virginia likely to be a highly contested state in November 2016, we provide an analysis of the city and county votes for each party. We demonstrate the relationships between candidate support and factors such as region of the state, minority share of the population, income levels, and residents in college. Our findings include:

Key Points

Turnout

1. Participation by Virginians in the 2016 Presidential primary surpassed all previous levels for the Commonwealth. More than one-third (34.32%) of Virginia's voters completed a ballot for the March 1 vote. The previous record was 31.77%, set in 2008.
2. GOP turnout was 19.43% of registered voters, up 8.92 points from 2008 and breaking the previous record set in 2000. Democratic turnout was 14.89%, which was down from 2008's record of 21.42%.
3. Republican turnout increases were biggest in rural areas and the Washington and Richmond suburbs. Democrats lost turnout the most in Hampton Roads and Southwest but held steadier in college towns and the Northern suburbs (Tables 1 and 2 at end of Executive Summary section).

4. Republican turnout was negatively correlated with African-American, Hispanic, and student population and was positively correlated with median income. Democratic turnout was positively correlated with all those characteristics. Most of these correlations were stronger this year than in 2008 (Table 3).

Democratic Results

1. Hillary Clinton won overall with 64.29% of the vote to Bernie Sanders' 35.20%. Clinton won by large margins in most areas of the state except in college towns and the white, rural Southwest (Table 1).
2. Support for Clinton was positively correlated with African-American population and negatively correlated with student population and median income (Table 4). However, Clinton performed better in some key college towns than she did in 2008.

Republican Results

1. Donald Trump won with 34.80% of the vote to Marco Rubio's 31.98%, Ted Cruz's 16.69%, and John Kasich's 9.54%. Trump did best in whiter, more rural areas, dominating in the Southwest and beating his overall average in the Shenandoah Valley. Ted Cruz's performance was very similar to Trump's, and he did especially well in the Valley. Rubio and Kasich fared best in suburbs and college towns (Table 2), and they actually took first and third, respectively, in Northern Virginia.
2. Marco Rubio and John Kasich both performed better in localities with higher median incomes, larger Hispanic populations, and higher shares of the population in college. Support for Donald Trump and Ted Cruz had negative correlations with those characteristics (Table 4).

Implications for the General Election

Democrats

Hillary Clinton's support from low-income and African-American voters imply that she would do well with these key demographics for Democrats. She also fared well in the Washington and D.C. suburbs, which, along with Hampton Roads, were the areas with the highest Democratic primary turnout. These results imply her ability to turn out the Democratic base and perform well in Virginia if she is the eventual Democratic nominee.

Clinton is not without weaknesses, though. In particular, her lack of support among young people may suggest an inability to inspire these key voters to get to the polls in November. However, she actually performed better in college towns like Williamsburg and Charlottesville than when she ran against Barack Obama in 2008's primary. This improvement urges confidence in Clinton's ability to win over young voters. Additionally, given the poor performance of both Donald Trump and Ted Cruz with college students in the Republican primary, either of them winning the nomination may inspire young people to turn out to vote against them, further improving Hillary's chances. Clinton's poor performance in rural areas like Southwest and the Valley are likely not to be major factors given the fact that no Democratic nominee is likely to win those regions anyway, as evidenced by the lack of interest in the Democratic Party, demonstrated by low turnout.

Bernie Sanders' strengths and weaknesses are the exact opposite of Clinton's. He has lots of support among young voters, which could inspire their turnout for the general election, but he did not perform as well in some huge college towns as did Barack Obama in 2008. His greatest support came from white rural voters in Southwest and the Valley, areas with the lowest turnout for the Democratic primaries and therefore areas where the Democratic Party is likely to be

uncompetitive no matter what. Most importantly, his weaknesses in Richmond, in the central and northern suburbs, and in Hampton Roads are major problems because these areas represent the Democratic base, lots of voters, and the keys to a win in November.

Because of her higher support with the Democratic base in more populous regions of Virginia, Hillary Clinton would be the stronger candidate here in the November general election.

Republicans

While Hillary Clinton's advantage is convincing, it is far more difficult to conclusively determine the GOP contenders' chances in November. The coalitions assembled by each candidate suggest strength in very different facets of a general election. Essentially, Donald Trump or Ted Cruz would be more likely to generate turnout among rural whites while John Kasich could more easily reach out to other demographics.

Donald Trump's and Ted Cruz's support was in areas of high Republican primary turnout, implying that either of these candidates would excite rural white voters that have recently already been in the GOP's coalition. Both Donald Trump and Ted Cruz performed very well in white and rural areas, mostly the Southwest and Shenandoah Valley areas. Also, Trump's support was highly correlated with lower median income, though Cruz's interestingly did not follow that pattern. Indeed, despite claims from himself and others that he would draw new voters into the Republican Party, Donald Trump's support in Virginia was largely positively correlated with Mitt Romney's 2012 general election performance (0.39), and there was almost no relationship between support for Trump and a locality's increase in turnout since 2008.

The other two candidates, Marco Rubio and John Kasich, would probably be less likely to inspire rural white turnout but more likely to reach out to new voters. They had support that was mostly concentrated in Richmond, the suburbs there and around D.C., and in college towns. Unlike Cruz and Trump, the performances of Rubio and Kasich were positively correlated with Hispanic population, student population, and rising local median income. Overall, support for both of those candidates was negatively correlated with Mitt Romney's 2012 general election performance.

Assuming Kasich's coalition would absorb many of those who voted for Rubio, which is likely given the strong relationship between support for each, his candidacy and chances in Virginia would be drastically different than that of Trump or Cruz. Governor Kasich could compete with the Democratic candidate in vote-rich areas like Northern Virginia and the Richmond suburbs and with groups like Hispanics and young people. However, these are areas and demographics that had comparatively low turnout for the Republican primary this year, and so one wonders whether the GOP has a low potential support ceiling here. Trump or Cruz would instead effectively forfeit new demographic groups and more populated localities but could potentially overcome this deficit by generating lots of turnout in Republican-leaning areas. However, these are rural areas with lower populations and so fewer potential votes, and Hillary Clinton's unpopularity even among Democrats in these localities may suggest that she could generate turnout against her there regardless of the Republican nominee.

Because of the drastically different dynamics each would produce in a general election, it is unclear who of the remaining GOP contenders would be the stronger nominee in Virginia.

Table 1: Turnout, Candidate Support, and Difference from Statewide Support in Selected Localities for Virginia 2016 Democratic Presidential Primary

			Clinton		Sanders	
	Democratic Turnout	Change since 2008	Support	Difference	Support	Difference
Virginia Overall	14.53%	-6.53	64.29%	---	35.20%	---
Northern						
Arlington	24.66%	-8.39	66.85%	+2.56	32.80%	-2.40
Alexandria	24.30%	-5.42	69.49%	+5.20	29.91%	-5.29
Fairfax	19.47%	-5.40	63.04%	-1.25	36.43%	+1.23
Loudon	17.06%	-4.85	61.09%	-3.20	37.99%	+2.79
Richmond and Suburbs						
Richmond City	27.19%	-7.08	60.63%	-3.66	39.13%	+3.93
Henrico	19.15%	-6.81	69.79%	+5.50	29.67%	-5.53
Chesterfield	15.30%	-4.57	66.07%	+1.78	33.54%	-1.66
Hampton Roads						
Hampton	19.52%	-12.82	77.94%	+13.65	21.68%	-13.52
Norfolk	20.03%	-7.62	69.23%	+4.94	30.44%	-4.76
Newport News	14.90%	-9.25	72.98%	+8.69	26.61%	-8.59
Southwest						
Buchanan	4.66%	-10.49	70.15%	+5.86	28.49%	-6.71
Tazewell	4.38%	-8.20	57.69%	-6.60	40.20%	+5.00
Dickenson	5.38%	-9.85	59.97%	-4.32	38.65%	+3.45
Floyd	12.70%	-0.80	29.66%	-34.63	70.04%	+34.84
Smyth	4.71%	-6.10	58.64%	-5.65	40.25%	+5.05
Grayson	5.19%	-6.75	49.26%	-15.03	50.00%	+14.80
Valley						
Rockbridge	11.31%	-6.56	57.05%	-7.24	42.76%	+7.56
Shenandoah	7.03%	-5.16	50.47%	-13.82	48.89%	+13.69
Warren	8.25%	-5.83	48.01%	-16.28	51.38%	+16.18
University Towns						
Williamsburg	22.10%	-5.75	49.07%	-15.22	50.68%	+15.48
Harrisonburg	16.94%	+0.39	33.61%	-30.68	66.05%	+30.85
Charlottesville	26.02%	-5.62	46.36%	-17.93	53.34%	+18.14
Lynchburg	9.60%	-8.32	61.64%	-2.65	38.13%	+2.93

Source: Virginia Department of Elections

Table 2: Turnout, Candidate Support, and Difference from Statewide Support in Selected Localities for Virginia 2016 GOP Presidential Primary

			Trump		Rubio		Cruz		Kasich	
	GOP Turnout	Change since 2008	Support	Difference	Support	Difference	Support	Difference	Support	Difference
Virginia Overall	19.20%	+8.98	34.80%	---	31.98%	---	16.69%	---	9.54%	---
Northern										
Arlington	14.21%	+7.18	16.78%	-18.02	49.67%	+17.69	7.87%	-8.82	22.56%	+13.02
Alexandria	14.04%	+6.59	18.81%	-15.99	46.83%	+14.85	7.65%	-9.04	23.29%	+13.75
Fairfax	18.44%	+9.11	25.08%	-9.72	40.02%	+8.04	12.93%	-3.76	17.51%	+7.97
Loudon	14.20%	+12.87	19.89%	-14.91	44.16%	+12.18	9.12%	-7.57	19.89%	+10.35
Richmond and Suburbs										
Richmond City	10.19%	+4.31	20.60%	-14.20	46.88%	+14.90	11.15%	-5.54	15.85%	+6.31
Henrico	20.12%	+8.53	30.48%	-4.32	38.98%	+7.00	15.57%	-1.12	9.31%	-0.23
Chesterfield	23.99%	+12.01	33.55%	-1.25	34.87%	+2.89	18.50%	+1.81	7.05%	-2.49
Hampton Roads										
Hampton	10.71%	+1.26	40.70%	+5.90	30.74%	-1.24	13.15%	-3.54	6.45%	-3.09
Norfolk	10.99%	+3.38	36.47%	+1.67	34.18%	+2.20	11.83%	-4.86	8.90%	-0.64
Newport News	12.25%	+2.52	36.90%	+2.10	33.49%	+1.51	13.52%	-3.17	7.26%	-2.28
Southwest										
Buchanan	14.40%	+10.27	69.68%	+34.88	13.75%	-18.23	11.69%	-5.00%	2.07%	-7.47
Tazewell	21.83%	+13.59	57.91%	+23.11	15.12%	-16.86	16.39%	-0.30%	3.62%	-5.92
Dickenson	14.06%	+8.63	60.45%	+25.65	15.46%	-16.52	14.47%	-2.22%	2.19%	-7.35
Floyd	23.11%	+11.70	42.03%	+7.23	19.84%	-12.14	25.57%	+8.88	4.03%	-5.51
Smyth	17.58%	+9.53	52.04%	+17.24	20.98%	-11.00	16.50%	-0.19	3.52%	-6.02
Grayson	17.88%	+8.36	51.75%	+16.95	17.75%	-14.23	18.24%	1.55	3.29%	-6.25
Valley										
Rockbridge	23.31%	+10.07	35.53%	+0.73	28.79%	-3.19	16.19%	-0.50	11.02%	+1.48
Shenandoah	23.14%	+10.58	38.43%	+3.63	24.77%	-7.21	19.68%	+2.99	5.94%	-3.60
Warren	21.79%	+10.92	39.47%	+4.67	22.84%	-9.14	25.74%	+9.05	5.14%	-4.40
University Towns										
Williamsburg	14.46%	+2.46	21.73%	-13.07	40.75%	+8.77	9.57%	-7.12	22.25%	+12.71
Harrisonburg	15.18%	+7.27	25.03%	-9.77	39.48%	+7.50	17.79%	+1.10	9.36%	-0.18
Charlottesville	8.77%	+4.06	17.30%	-17.50	47.54%	+15.56	11.35%	-5.34	18.61%	+9.07
Lynchburg	19.62%	+6.34	22.69%	-12.11	30.35%	-1.63	28.91%	+12.22	6.25%	-3.29

Source: Virginia Department of Elections

Table 3: Correlations between 2016 Primary Turnout and Locality Characteristics in Virginia

Characteristic	Democrats		Republicans	
	2008	2016	2008	2016
African-American Share of Population	0.57	0.4	-0.33	-0.53
Hispanic Share of Population	0.24	0.4	-0.15	-0.14
Share of Population in College	0.31	0.4	-0.13	-0.21
Median Income	0.31	0.41	0.34	0.41

Sources: Author's calculations based on data from Virginia Department of Elections, U.S. Census Bureau, and Weldon Cooper Center for Public Service

Table 4: Correlations between 2016 Primary Support for Candidates and Locality Characteristics in Virginia

	African-American Share of Population	Hispanic Share of Population	Share of Population in College	Median Income
Hillary Clinton	0.81	-0.13	-0.26	-0.13
Bernie Sanders	-0.8	0.13	0.26	0.14
Donald Trump	0.07	-0.43	-0.5	-0.55
Marco Rubio	0.1	0.44	0.52	0.53
Ted Cruz	-0.26	-0.15	-0.22	-0.03
John Kasich	-0.1	0.43	0.45	0.52

Sources: Author's calculations based on data from Virginia Department of Elections, U.S. Census Bureau, and Weldon Cooper Center for Public Service

II. Turnout

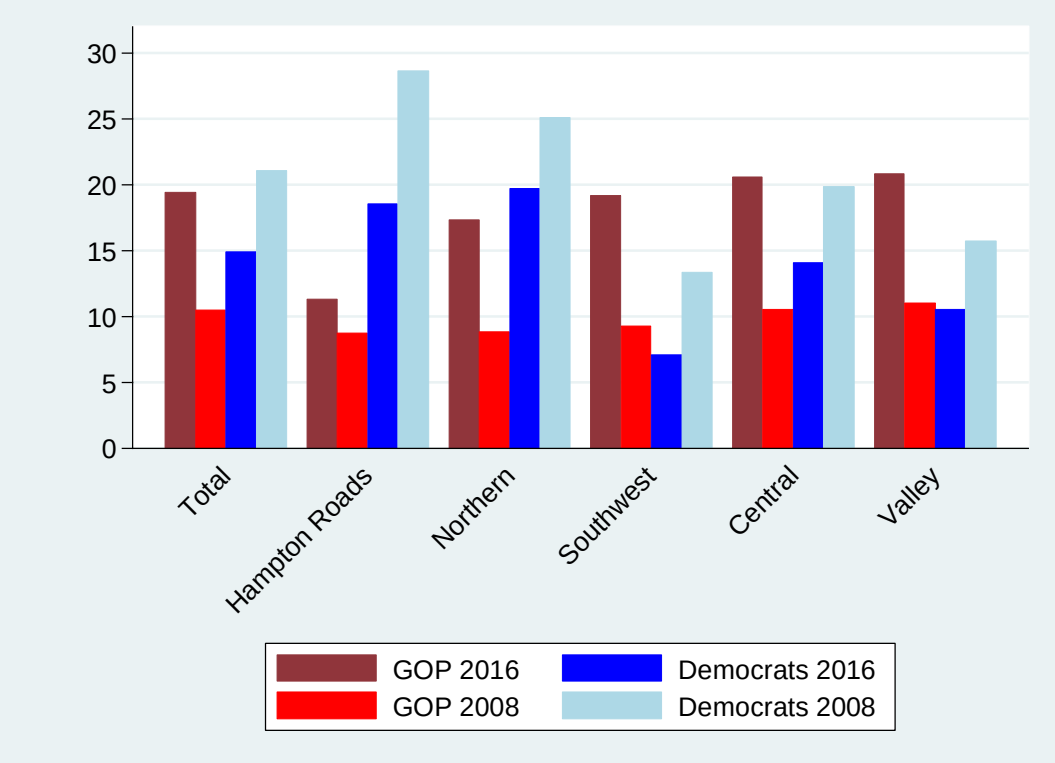
On March 1st, perhaps more important than who won was just how many people voted. Turnout for the Republican primary in Virginia was 19.43% of registered voters statewide. This was the highest ever and broke the previous record of 17.22%, set in 2000. The 2016 turnout was 8.92% higher than the turnout in the last truly competitive Virginia GOP presidential primary in 2008. On the Democratic side, the statewide turnout was 14.89%, down 6.53 points from 2008's 21.42% turnout, the Democratic record.

The dynamics of turnout in this race were not uniform across the state, and regional differences are presented in Figure 1. Differences in selected localities across the state are listed in Table 5. Republicans saw a surge to the polls in both rural parts of the state like the

Southwest, Central, and Shenandoah Valley regions and suburbs around Washington, D.C., and Richmond. They saw much smaller turnout increases in cities, areas with high minority populations like Hampton Roads, and university towns.

Democratic turnout was lower than 2008 in most parts of the state but declined more in the Southwest and Hampton Roads while holding steadier in college towns (except for Lynchburg, an unconventional "college town"[1]) and suburbs, especially those around D.C.

Figure 1: Turnout by Region in Virginia Presidential Primaries, 2016 and 2008



[1] Lynchburg is home to Liberty University, the institution founded by the Rev. Jerry Falwell as an evangelical higher education facility. Though the current University President, Rev. Jerry Falwell, Jr., is one of Donald Trump's leading evangelical supporters, the precinct including Liberty gave him a scant 8 percent of the GOP vote in the primary.

Table 5: Turnout in Selected Localities in Virginia Presidential Primaries, 2008 and 2016

	Democrats			Republicans		
	2008	2016	Change	2008	2016	Change
Virginia Overall	21.42%	14.89%	-6.53	10.54%	19.46%	+8.92
Northern						
Arlington	33.05%	24.66%	-8.39	7.03%	14.21%	+7.18
Alexandria	29.72%	24.30%	-5.42	7.45%	14.04%	+6.59
Loudon	21.91%	17.06%	-4.85	1.33%	14.20%	+12.87
Richmond and Suburbs						
Richmond City	34.27%	27.19%	-7.08	5.88%	10.19%	+4.31
Henrico	25.97%	19.15%	-6.81	11.59%	20.12%	+8.53
Chesterfield	19.87%	15.30%	-4.57	11.98%	23.99%	+12.01
Hampton Roads						
Hampton	32.34%	19.52%	-12.82	9.45%	10.71%	+1.26
Norfolk	27.65%	20.03%	-7.62	7.61%	10.99%	+3.38
Fairfax	24.86%	19.47%	-5.40	9.33%	18.44%	+9.11%
Southwest						
Buchanan	15.15%	4.66%	-10.49	4.13%	14.40%	+10.27
Smyth	10.81%	4.71%	-6.10	8.05%	17.58%	+9.53
Grayson	11.94%	5.19%	-6.75	9.52%	17.88%	+8.36
Valley						
Rockbridge	17.89%	11.31%	-6.56	13.24%	23.31%	+10.07
Shenandoah	12.19%	7.03%	-5.16	12.56%	23.14%	+10.58
Warren	14.08%	8.25%	-5.83	10.87%	21.79%	+10.92
University Towns						
Williamsburg	27.85%	22.10%	-5.75	12.01%	14.46%	+2.46%
Harrisonburg	16.55%	16.94%	+0.39	7.92%	15.18%	+7.27%
Charlottesville	31.64%	26.02%	-5.62	4.71%	8.77%	+4.06%
Lynchburg	17.93%	9.60%	-8.33	13.28%	19.64%	+6.36%

Source: Virginia Department of Elections

What accounts for these turnout changes? Donald Trump's claim that his "insurgent" or "outsider" campaign is drawing new voters into the political process is not supported by locality data. The correlation between the increase in turnout from 2008 and support for Donald Trump is very weak at only 0.05. It could be that the hypercompetitive nature of this year's primary is driving turnout as each candidate tries to get out their vote, especially if large numbers of voters are very motivated to either support or combat Trump. Finally, the higher Republican turnout

and relatively depressed Democratic vote in Virginia may be at least partially due to a less closely contested primary, with independents and some Democrats taking advantage of Virginia's lack of party registration to cross over to vote for or against Trump in the GOP primary.[2]

We illustrate relationships between some characteristics of localities and turnout in those areas in Table 6. For Republicans, turnout in 2016 was more negatively correlated with both African-American population and college student population than in 2008, as these voters may have found the GOP to lack appeal this year. On the other hand, Republican turnout was more positively correlated with the area's median income, climbing relative to 2012 in more affluent areas.

Democratic turnout was less positively correlated with African-American population, a predictable outcome given the lack of the motivation black voters felt compared to Obama's historic 2008 run. However, Democratic turnout this year was more correlated with Hispanic population, student population, and income, which suggests that Democrats may be generating excitement among these key demographics.

Table 6: Correlations between 2016 Presidential Primary Turnout and Locality Characteristics

Characteristic	Democrats		Republicans	
	2008	2016	2008	2016
African-American Share of Population	0.57	0.40	-0.33	-0.53
Hispanic Share of Population	0.24	0.40	-0.15	-0.14
Share of Population in College	0.31	0.40	-0.13	-0.21
Median Income	0.31	0.41	0.34	0.41

Sources: Virginia Department of Elections, U.S. Census Bureau, Weldon Cooper Center for Public Service

[2] Norman Leahy and Paul Goldman, "Virginia for the Win: Non-GOP voters face a Trump dilemma," *Washington Post*, Feb. 29, 2016, http://www.washingtonpost.com (accessed 3/14/2016).

III. Results

A. Democrats

Hillary Clinton won the Democratic primary in Virginia by a statewide total of 64.29% to Senator Bernie Sanders' 35.20%. A regional breakdown is given in Figure 2. Secretary Clinton won by very large margins in Hampton Roads and Northern Virginia, but the race was closer in the racially and ethnically less-diverse rural areas. Senator Sanders also bested Clinton in the Shenandoah Valley region. Table 7 shows the differences in Clinton's support by region using some selected localities and comparing her 2016 performance to her showing in 2008. Clinton performed much better in areas with a strong African-American presence and in the suburbs of Northern Virginia, while doing far worse in the overwhelmingly white and rural Southwest corner of the state. Interestingly, despite the supposed zeal for Sen. Sanders among young voters, Hillary Clinton actually fared dramatically better in some of Virginia's college towns than she did in 2008, and she held steady in a few others.

Figure 2: 2016 Democratic Primary in Virginia by Selected Regions

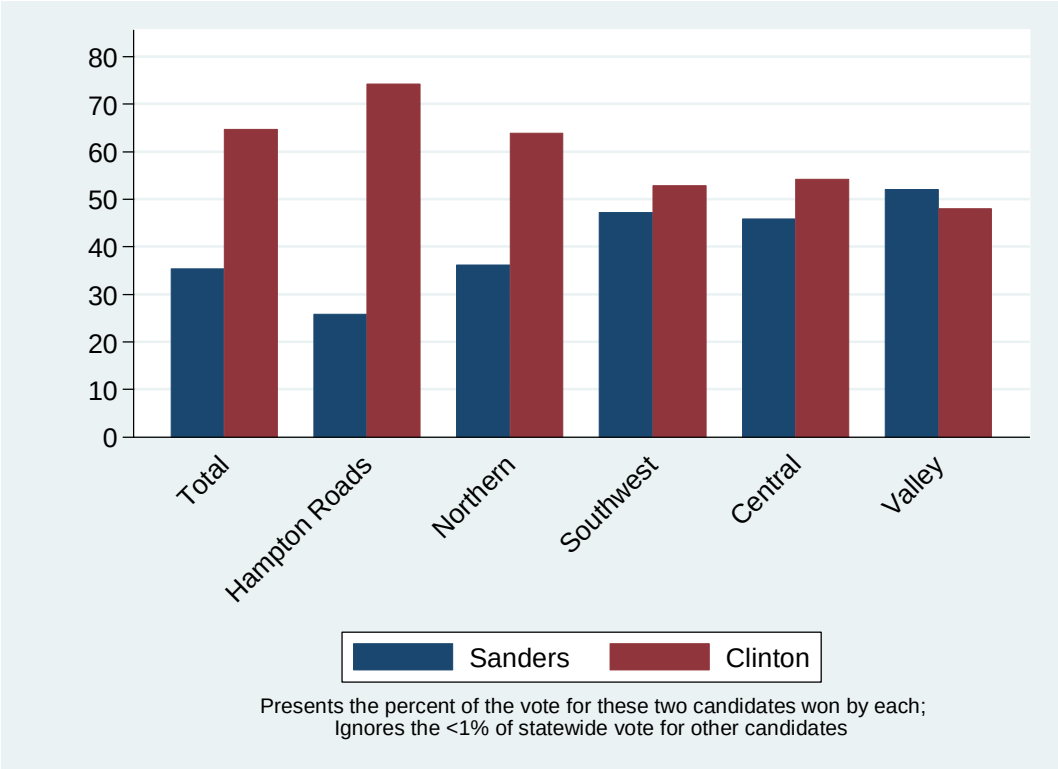


Table 7: Hillary Clinton's Support in 2016 and 2008 Virginia Presidential Primaries by Region

Localities	Percent Support 2008	2016	Change
Virginia Overall	35.47%	64.30%	+28.84%
Strongly African-American Areas			
Petersburg	14.72%	85.38%	+70.66%
Portsmouth	22.42%	78.47%	+56.05%
Richmond City	20.59%	60.63%	+40.03%
Hampton	20.39%	77.94%	+57.55%
Norfolk	27.72%	69.23%	+41.51%
Newport News	24.48%	72.98%	+48.51%
Northern			
Arlington	36.54%	66.85%	+30.31%
Alexandria	34.74%	69.49%	+34.75%
Fairfax	40.10%	63.04%	+22.94%
Falls Church	37.00%	61.16%	+24.16%
Southwest			
Buchanan	89.91%	70.15%	-19.76%
Tazewell	78.32%	57.69%	-20.64%
Dickenson	85.10%	59.97%	-25.14%
Floyd	47.96%	29.66%	-18.30%
Smyth	74.95%	58.64%	-16.31%
Grayson	69.44%	49.26%	-20.18%
University Towns			
Williamsburg	29.67%	49.07%	+19.40%
Harrisonburg	30.29%	33.61%	+3.31%
Charlottesville	24.34%	46.36%	+22.01%
Radford	41.86%	41.59%	-0.27%

Source: Virginia Department of Elections

The following Figures (3-6) and Table 8 track Clinton's support by certain characteristics of localities. As predicted, Secretary Clinton outperformed Sanders through most of the South, winning widely among African-American voters. In the Old Dominion, there was almost a 20-point swing in her support between the counties in the highest and lowest quartile of African-American proportion of the population, and her support was correlated with black population by 0.81. On the other hand, her support was negatively correlated with Hispanic population, student population, and localities' median income. Scatterplots and bar graphs for all those

characteristics mirror those for income, so they are not presented. Bernie Sanders' support was, predictably, the inverse of Hillary Clinton's.

Figure 3: 2016 Democratic Primary in Virginia by African-American Population, bar chart

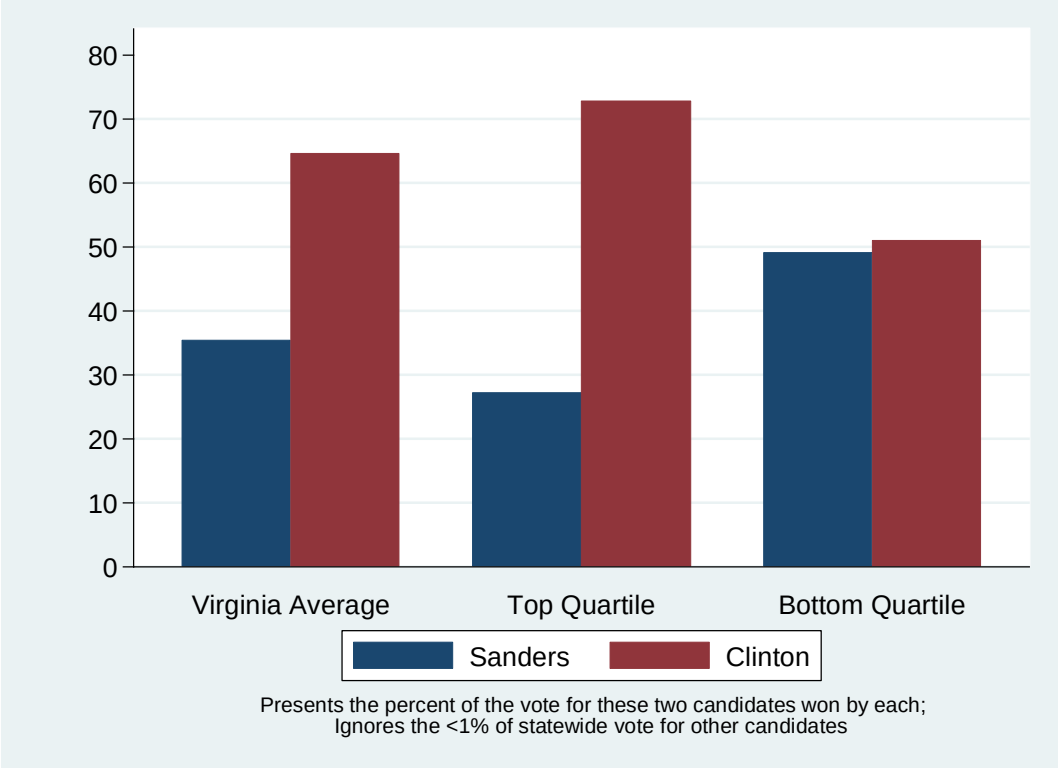


Figure 4: 2016 Democratic Primary in Virginia by African-American Population, scatterplot

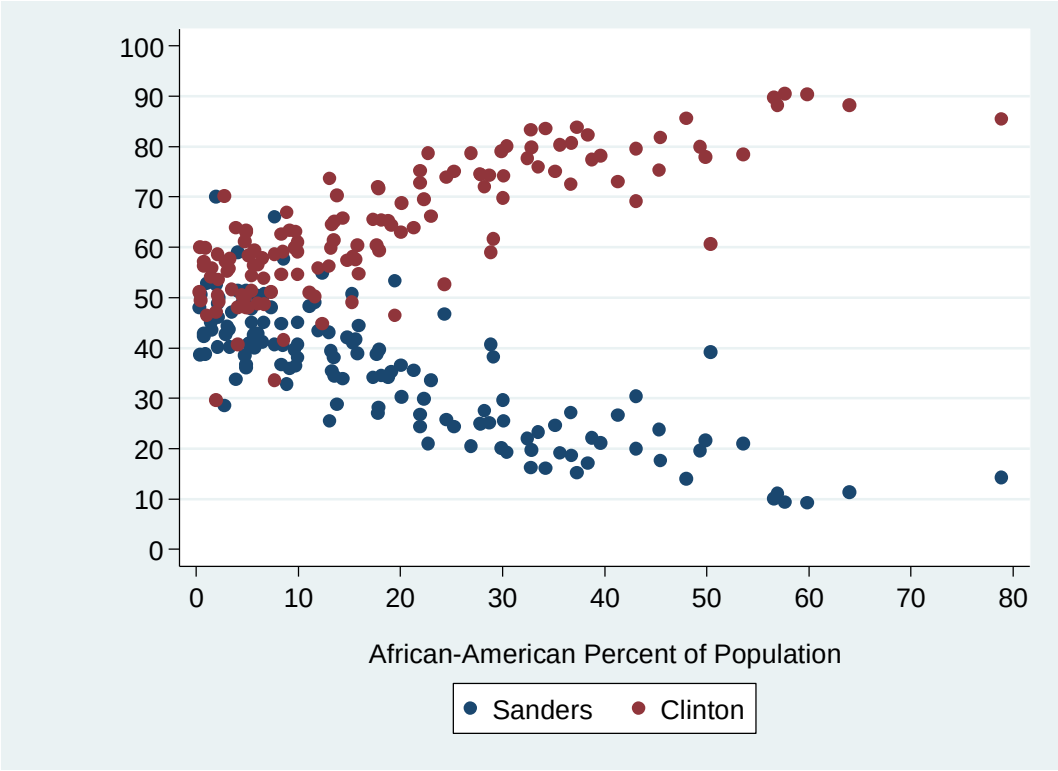


Figure 5: 2016 Democratic Primary in Virginia by Income, bar chart

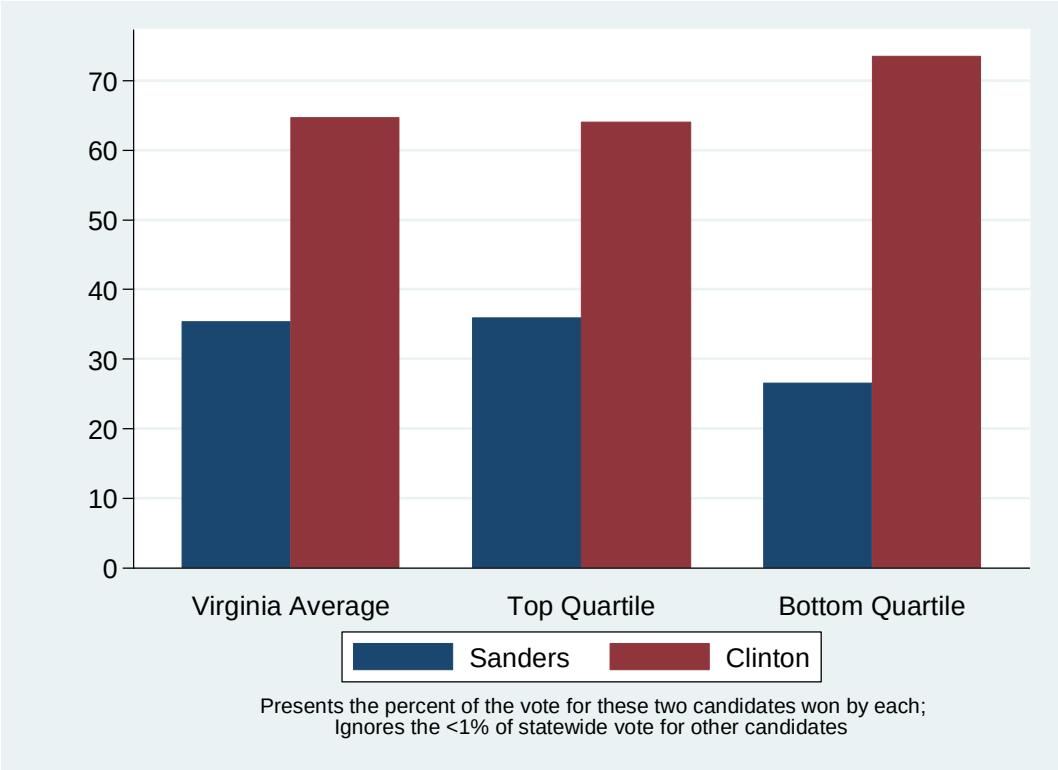


Figure 6: 2016 Democratic Primary in Virginia by Income, scatterplot

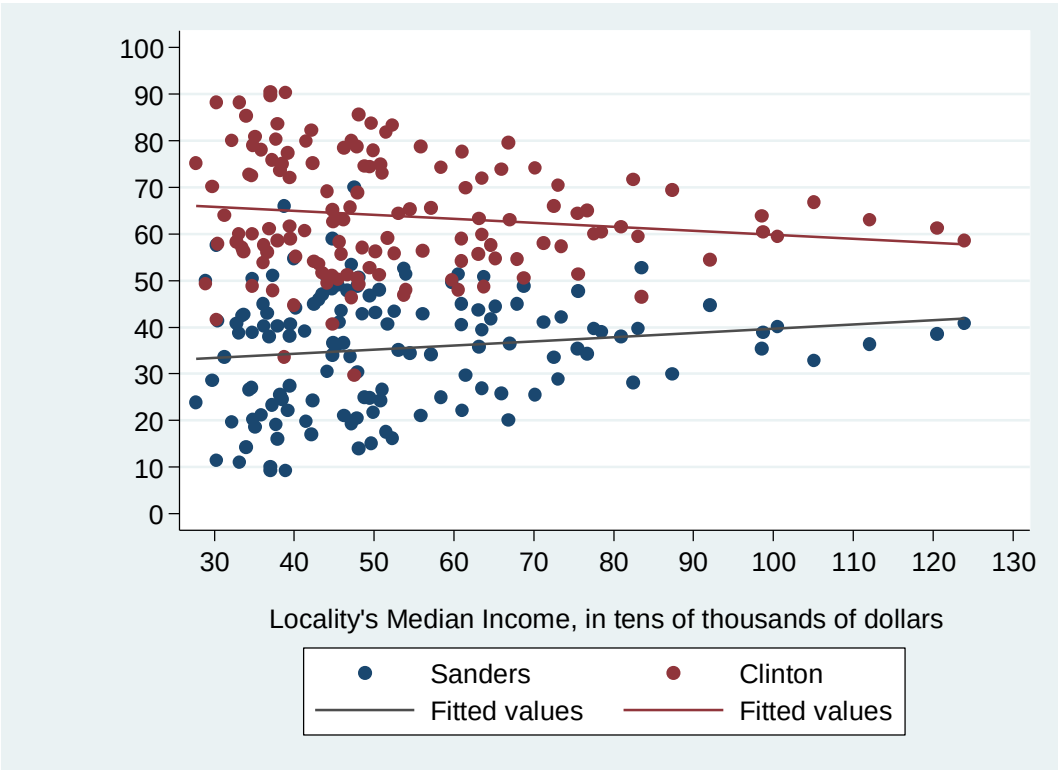


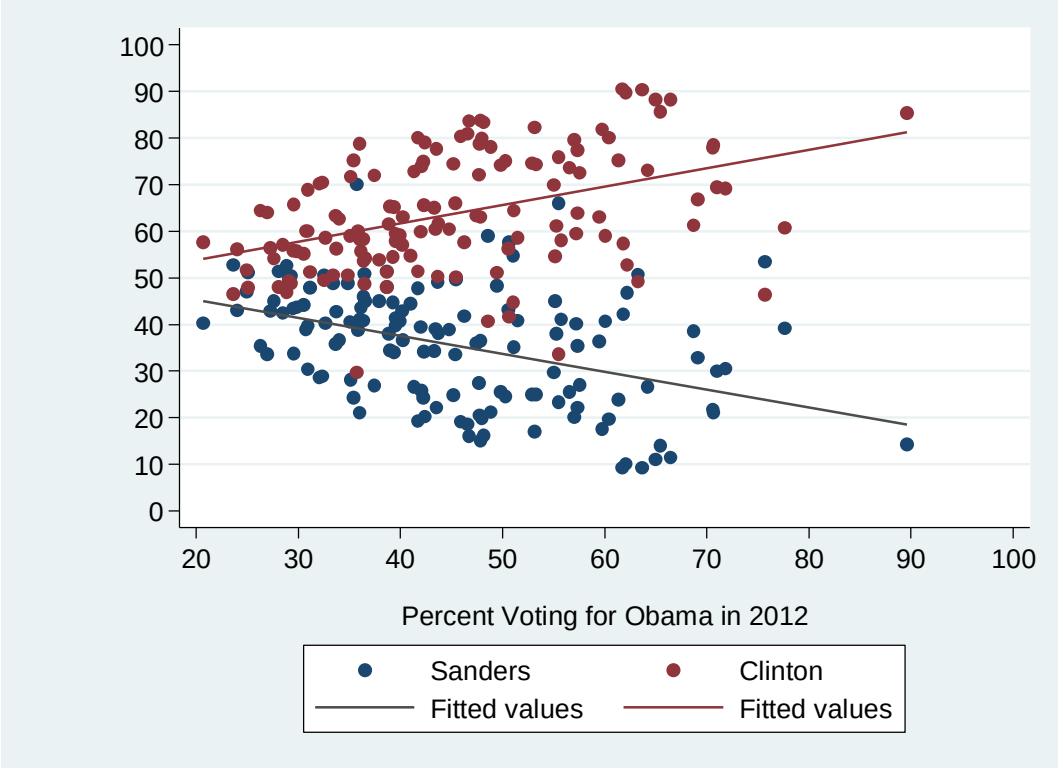
Table 8: Correlations between Support for Candidates in the 2016 Virginia Democratic Primary and Selected Locality Characteristics

	Clinton	Sanders
African-American Population	0.81	-0.8
Hispanic Population	-0.13	0.13
Student Population	-0.26	0.26
Median Income	-0.13	0.14

Source: Authors' calculations based on data from Virginia Department of Elections, U.S. Census Bureau, and Weldon Cooper Center for Public Service

Overall, support for Hillary Clinton was associated with low-income population and African-American population. These are key demographics for Democrats, and Clinton indeed is playing better with the Democratic base in Virginia than is Senator Sanders, as her percentage of the vote this year is positively associated with Obama's general election performance in 2012 (with a correlation of 0.42) while Sanders' is negatively correlated with Obama's performance by around the same amount. A scatterplot of both candidates' support compared with Obama's 2012 performance is given in Figure 7 below.

Figure 7: 2016 Democratic Primary in Virginia by Obama's 2012 General Election Performance



B. Republicans

In the Republican primary, Donald Trump narrowly edged out Senator Marco Rubio, 34.80% to 31.98%. Ted Cruz followed with 16.69%, John Kasich finished fourth with 9.54% of the vote and Ben Carson rounded out the field with 5.87%. The regional differences in election results are given in Figure 8 and Table 9. Trump's lead was the widest in Southwest Virginia and was larger than in the state overall in Hampton Roads and the Valley. Cruz's support followed a similar pattern to Trump's in rural areas like Southwest and the Valley. There was a dramatic reversal in the Northern Virginia suburbs, where Marco Rubio beat Trump by a wide margin and John Kasich actually surpassed Ted Cruz.

Figure 8: 2016 GOP Primary in Virginia by Selected Regions

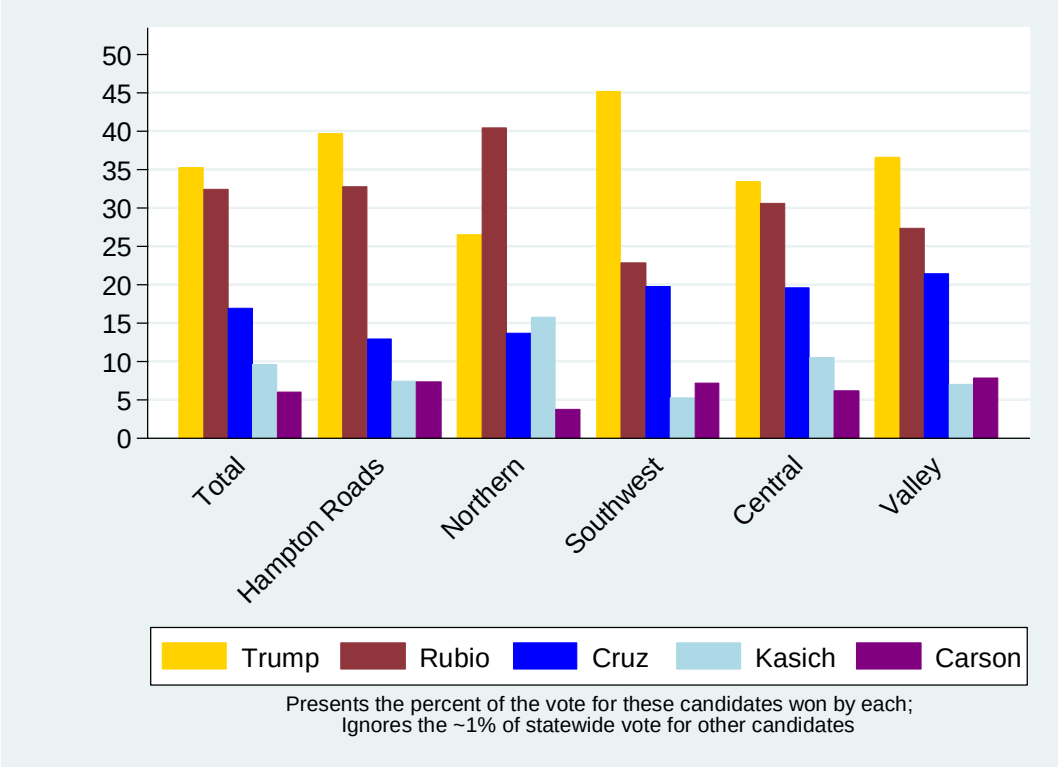


Table 9: 2016 Primary Support for Remaining GOP Candidates in Selected Virginia Localities and Difference from Support in State Overall

	Trump		Cruz		Kasich	
	Support	Difference	Support	Difference	Support	Difference
Virginia Overall	34.80%	--	16.69%	--	9.54%	--
Northern						
Arlington	16.78%	-18.02	7.87%	-8.82	22.56%	+13.02
Alexandria	18.81%	-15.99	7.65%	-9.04	23.29%	+13.75
Loudon	19.89%	-14.91	9.12%	-7.57	19.89%	+10.35
Richmond and Suburbs						
Richmond City	20.60%	-14.20	11.15%	-5.54	15.85%	+6.31
Henrico	30.48%	-4.32	15.57%	-1.12	9.31%	-0.23
Chesterfield	33.55%	-1.25	18.50%	+1.81	7.05%	-2.49
Hampton Roads						
Hampton	40.70%	+5.90	13.15%	-3.54	6.45%	-3.09
Norfolk	36.47%	+1.67	11.83%	-4.86	8.90%	-0.64
Newport News	36.90%	+2.10	13.52%	-3.17	7.26%	-2.28
Southwest						
Buchanan	69.68%	+34.88	11.69%	-5.00%	2.07%	-7.47
Smyth	52.04%	+17.24	16.50%	-0.19	3.52%	-6.02
Grayson	51.75%	+16.95	18.24%	1.55	3.29%	-6.25
Valley						
Rockbridge	35.53%	+0.73	16.19%	-0.50	11.02%	+1.48
Shenandoah	38.43%	+3.63	19.68%	+2.99	5.94%	-3.60
Warren	39.47%	+4.67	25.74%	+9.05	5.14%	-4.40
University Towns						
Williamsburg	21.73%	-13.07	9.57%	-7.12	22.25%	+12.71
Harrisonburg	25.03%	-9.77	17.79%	+1.10	9.36%	-0.18
Charlottesville	17.30%	-17.50	11.35%	-5.34	18.61%	+9.07
Lynchburg	22.69%	-12.11	28.91%	+12.22	6.25%	-3.29

Source: Virginia Department of Elections

There were large and similar trends in support for each candidate based on income, Hispanic population, and student population. These differences are shown in Figures 9-14 below this paragraph. The scatterplots demonstrate that support for Marco Rubio and John Kasich increased with rising median incomes, Hispanic percent of the population, and student percent of the population. On the other hand, support for Trump (and Cruz, to a lesser extent) was negatively associated with all those characteristics. An exception would be income, which seemed to have very little effect on Ted Cruz's performance.

The bar graphs describing support for each candidate by quartile of income and Hispanic population look almost identical, with Trump doing far better and Rubio and Kasich doing far worse in the lowest quartile in each demographic. The same is true with student population, as Rubio actually beat Trump in the localities with the highest population of college students. Interestingly, in both cases the highest quartile results are very similar to the average, implying that it may just be that Rubio and Kasich *lost* a lot to Trump in areas that were older and not diverse while not *gaining* much in younger, more diverse places. The correlations between candidate support and characteristics presented in Table 10 confirm that the performances of Rubio and Kasich were positively correlated with income and student and Hispanic population while the performances of Trump and Cruz were negatively correlated.

Figure 9: 2016 GOP Primary in Virginia by Income, scatterplot

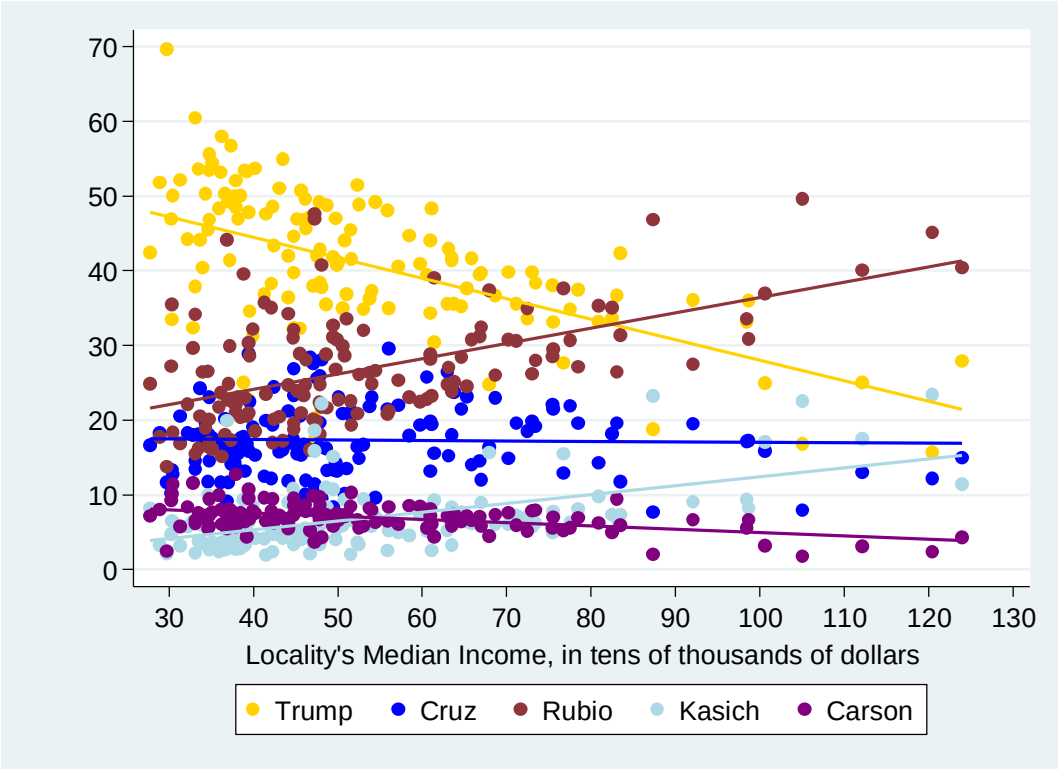


Figure 10: 2016 GOP Primary in Virginia by Income, bar graph

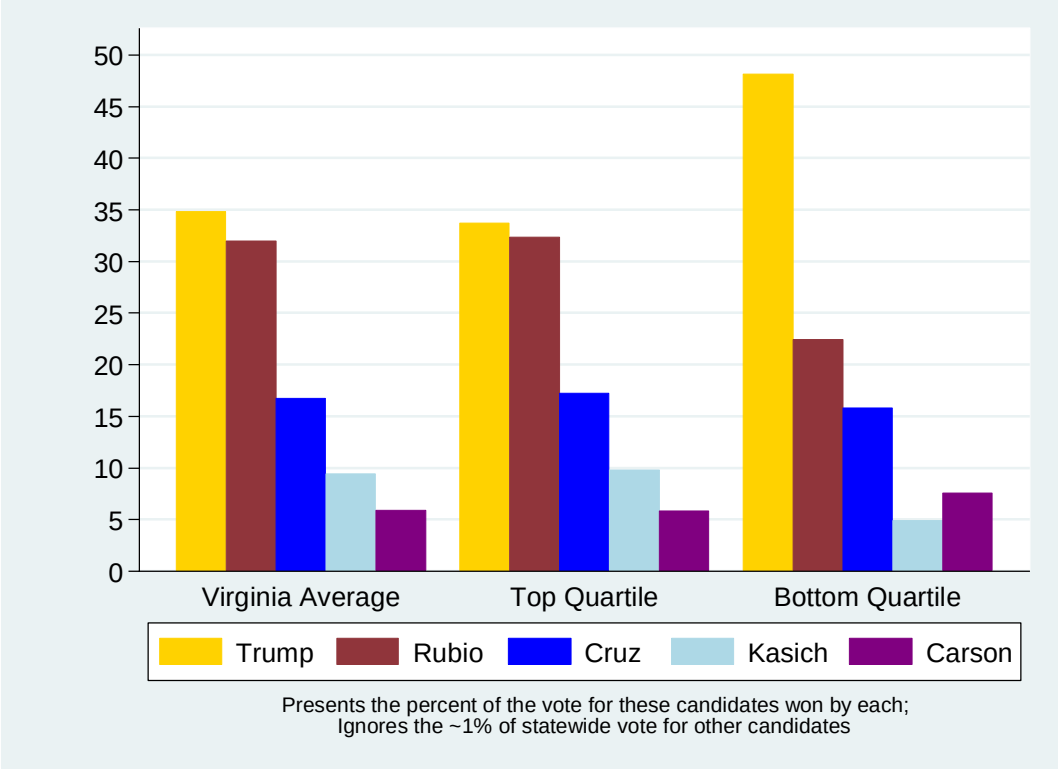


Figure 11: 2016 GOP Primary in Virginia by Hispanic Population, scatterplot

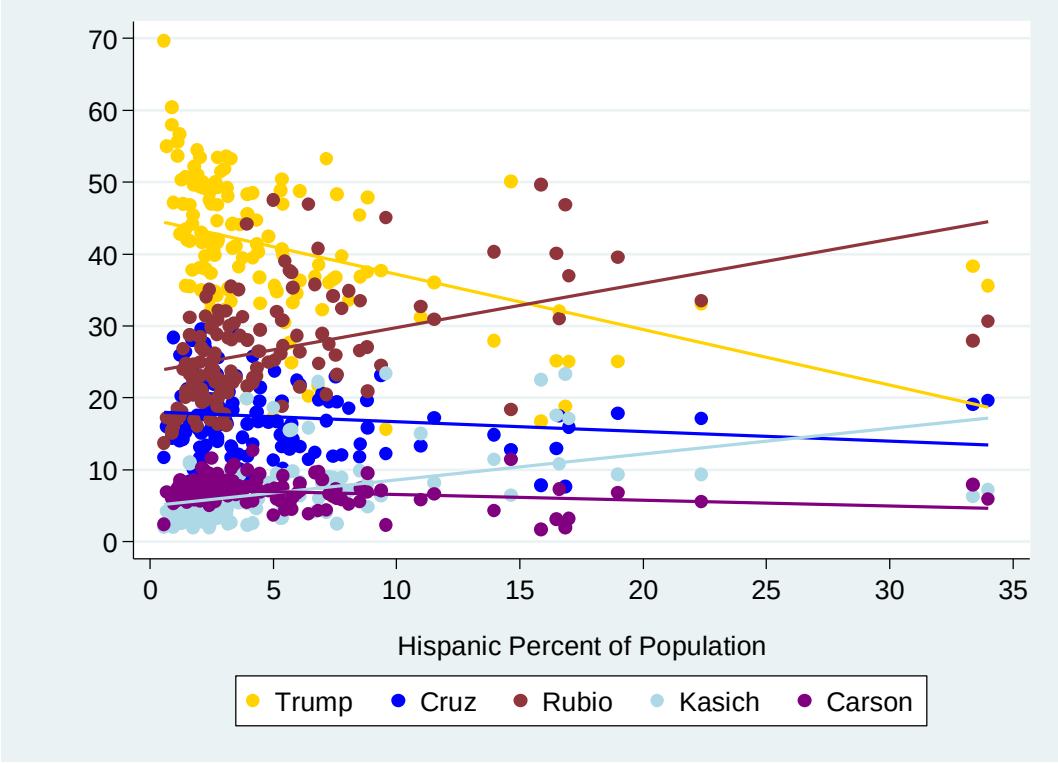


Figure 12: 2016 GOP Primary in Virginia by Hispanic Population, bar graph

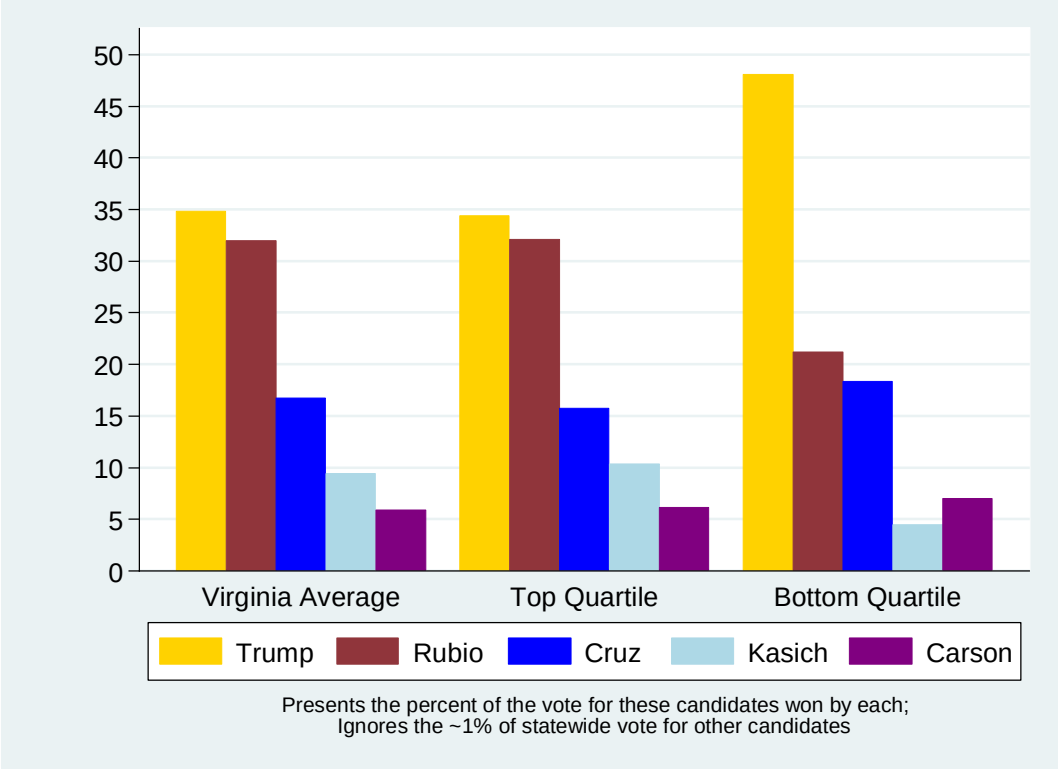


Figure 13: 2016 GOP Primary in Virginia by Student Population, scatterplot

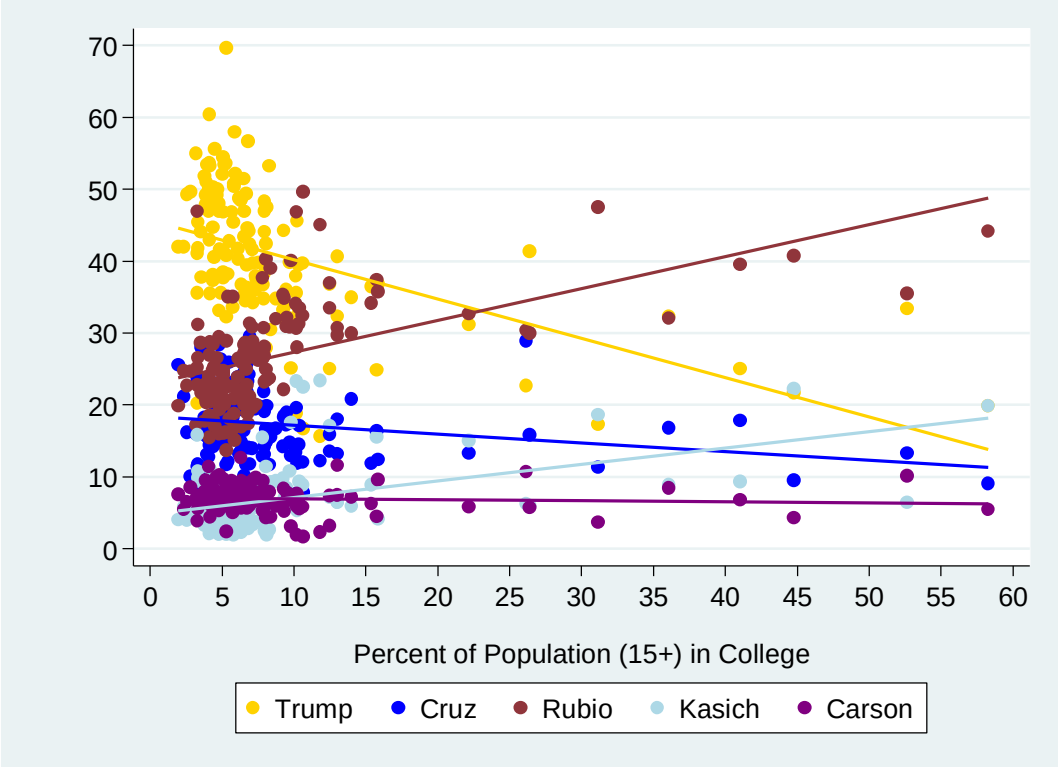


Figure 14: 2016 GOP Primary in Virginia by Student Population, bar graph

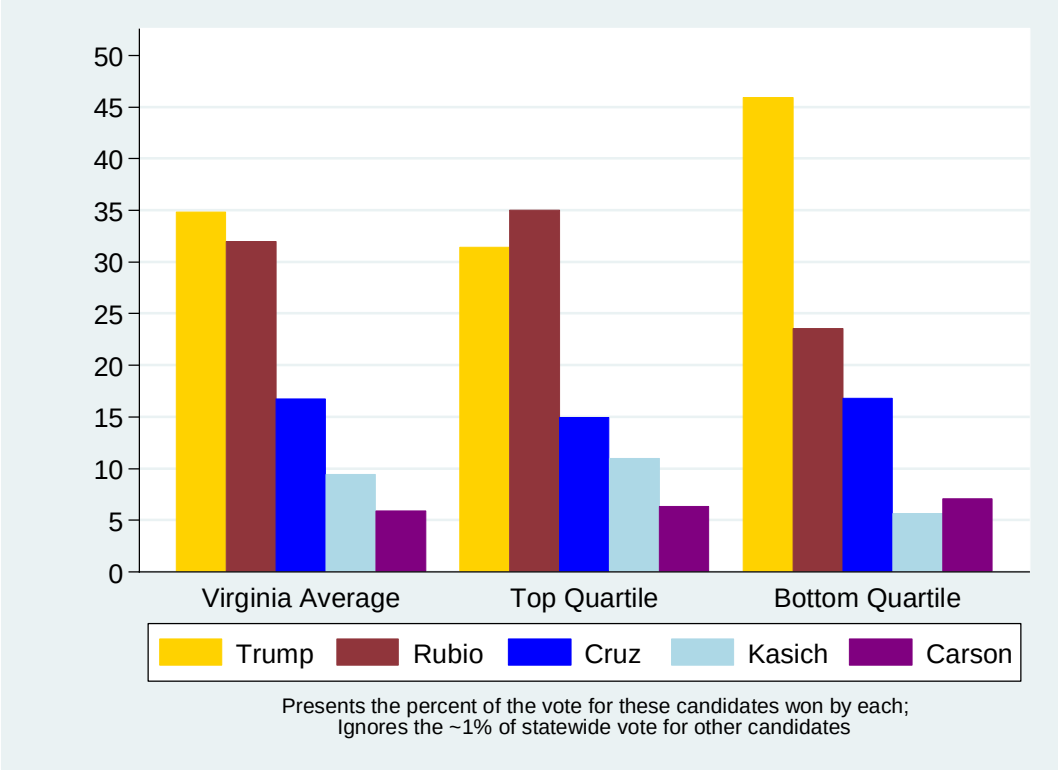


Table 10: Correlations between Support in 2016 Virginia GOP Primary for Each Candidate and Selected Locality Characteristics

	Median Income	Hispanic Population	Student Population
Trump	-0.55	-0.43	-0.50
Rubio	0.53	0.44	0.52
Cruz	-0.03	-0.15	-0.22
Kasich	0.52	0.43	0.45
Carson	-0.46	-0.23	-0.07

Sources: Author's calculations based on data from Virginia Department of Elections, U.S. Census Bureau, and Weldon Cooper Center for Public Service

The GOP candidates in this primary showed fundamental differences in their relationships to the Republican base. On one hand, Donald Trump seems to be resonating with groups traditionally in the Republican camp, and especially may be able to generate turnout and support from rural, lower-income whites. In fact, Figure 15 below compares each candidate's support in each locality to Mitt Romney's general election support there in 2012 and shows that Trump (and Cruz) had stronger support in areas with more Republican voters. Also, Table 11 presents the correlations between support for each candidate and Romney's support in 2012. Rubio and Kasich both had vote percentages that were negatively correlated with Romney's success while support for Trump and Cruz was well correlated.

Figure 15: 2016 GOP Presidential Primary in Virginia by Romney's 2012 General Election Performance

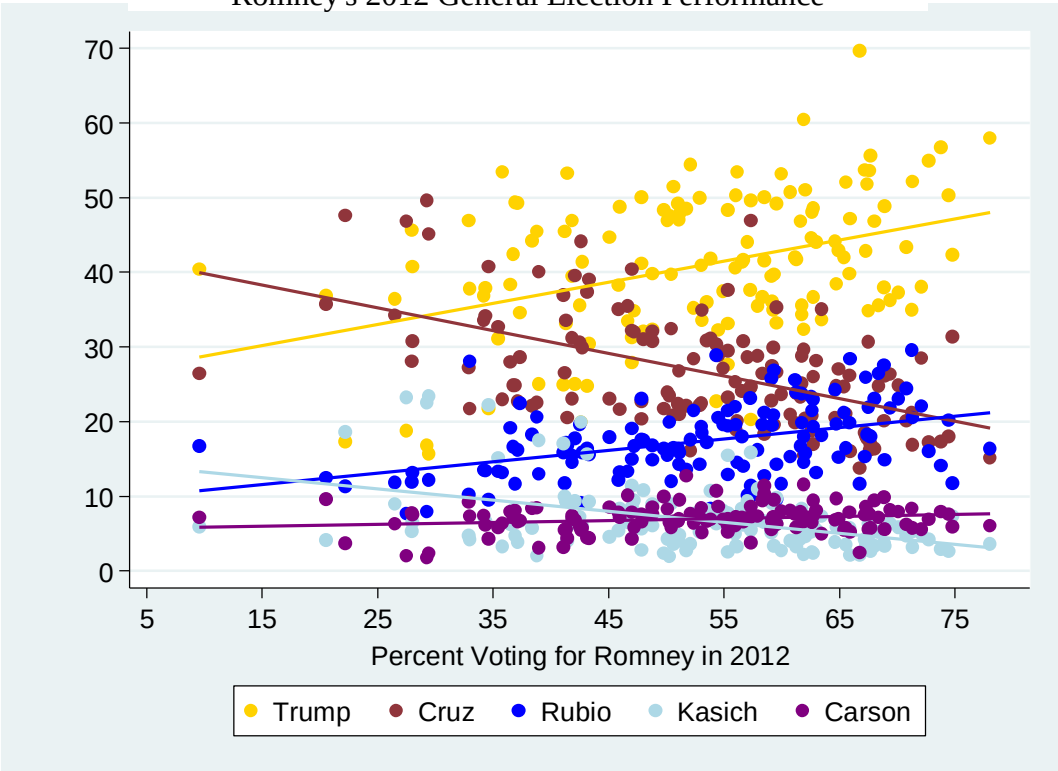


Table 11: Correlation between Support for GOP Candidates in 2016 Presidential Primary in Virginia and Support for Mitt Romney in 2012 General Election

Trump	0.39
Rubio	-0.54
Cruz	0.43
Kasich	-0.44
Carson	0.19

Source: Virginia Department of Elections

One strength of Donald Trump's candidacy has been his supposed ability to draw new voters into the political process. This may be true, but the relationship between turnout and support for each candidate in Virginia's localities casts doubt on that assertion. For example, Figure 16 graphs support for each candidate against the increase in GOP primary turnout between 2008 and 2016. There seems to be little relationship at all between turnout increases and support for Donald Trump. However, there is a strong positive relationship between turnout

increases and support for Ted Cruz, and both Marco Rubio and John Kasich lost support in districts with the highest turnout bumps. Table 12 presents the correlations between the increase in Republican turnout since 2008 and support for each candidate this year and confirms that Cruz benefitted the most from turnout increases, Rubio and Kasich were hurt by it, and Trump was barely affected.

Figure 16: 2016 GOP Primary in Virginia by Increase in Primary Turnout since 2008

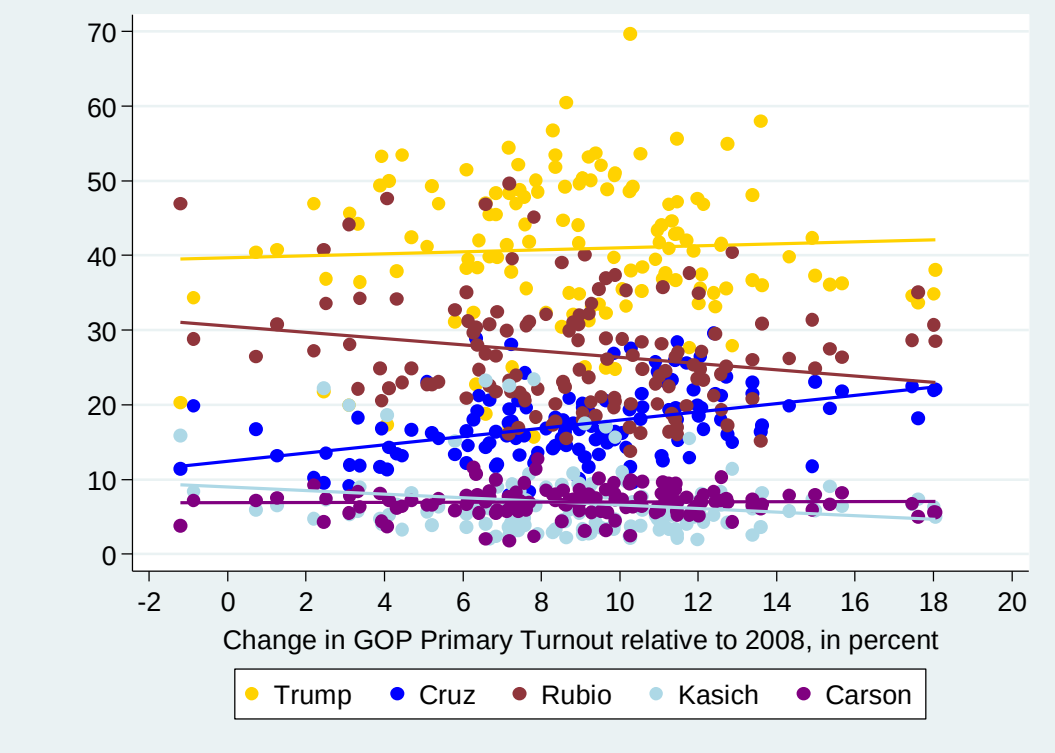


Table 12: Correlations between Change in GOP Primary Turnout since 2008 and Support for Each Candidate in 2016 GOP Primary in Virginia

Trump	0.05
Rubio	-0.2
Cruz	0.42
Kasich	-0.19
Carson	0.02

Source: Author's calculations based on data from Virginia Department of Elections

IV. Implications for November

A. Democrats

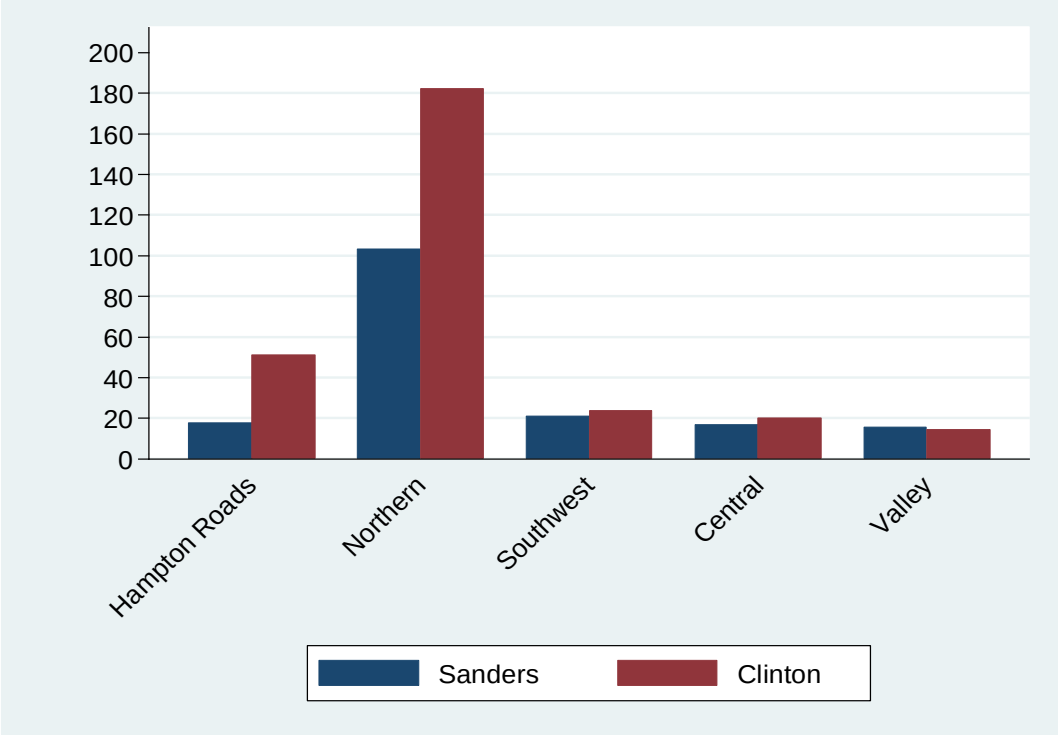
Overall, the results of the 2016 Democratic primary in Virginia should give confidence to Hillary Clinton. She has support from key Democratic demographics, including overwhelming popularity among African-American voters and some *cachet* with lower-income voters. Indeed, she proved more popular in localities in Virginia that were in the Democratic coalition in 2012. In addition, as shown in Figure 17 below the next few paragraphs, she performed very well in vote-rich areas with high Democratic turnout like the suburbs of Northern Virginia and around Richmond and Hampton Roads.

Clinton's loss in the white, rural Southwest may be of concern, given her primary strength there against Obama in 2008. However, this area has undergone a dramatic realignment to the GOP since 2008 and is therefore unlikely to be winnable in any case by Democrats, who have demonstrated that they can carry the Commonwealth without these voters. A more serious consideration is college towns. Although Clinton did far better or at least as well in some important Virginia college towns than she did in 2008, the correlation between her support and student population was -0.26 (worse than -0.17 in 2008), and she did lose major student hubs like Williamsburg, Harrisonburg, and Charlottesville to Senator Sanders. These same university towns had smaller turnouts for the Democratic primary this year than in 2008. These omens imply that Mrs. Clinton will need to work hard to generate youth turnout for herself in November, but her better performance with those voters relative to 2008 suggests that she can.

Considering the nature of a two-person race, it is unsurprising that Bernie Sanders' support was mostly the complement of Hillary Clinton's. He did well with young people, his support improved slightly with rising local median incomes, and he ran slightly better in places with higher Hispanic populations. Sanders' major weakness was the areas in which his support

was concentrated. His best counties were white and rural, two characteristics that also implied localities with low Democratic turnout and low populations. Figure 16 demonstrates how his wins here were not nearly as important to his vote total as were Clinton's wins in high-population areas.

Figure 17: 2016 Democratic Primary in Virginia by Selected Regions



This problem would likely replicate itself in November, as Democrats traditionally depend on strong turnout in areas with large populations to win statewide elections. To illustrate this, Figure 18 below graphs the vote totals for each candidate in a group of localities including Hampton Roads, Northern Virginia, Richmond and its suburbs versus every other locality in the state. Figure 19 demonstrates how important this can be in a general election by showing Barack Obama's vote totals compared to Mitt Romney's in these three regions compared to the rest of the state. Obama was able to carry the state simply by winning these dense areas despite losing the rest of the state.

Figure 18: 2016 Democratic Primary in Virginia in High-Population Areas vs. Everywhere Else

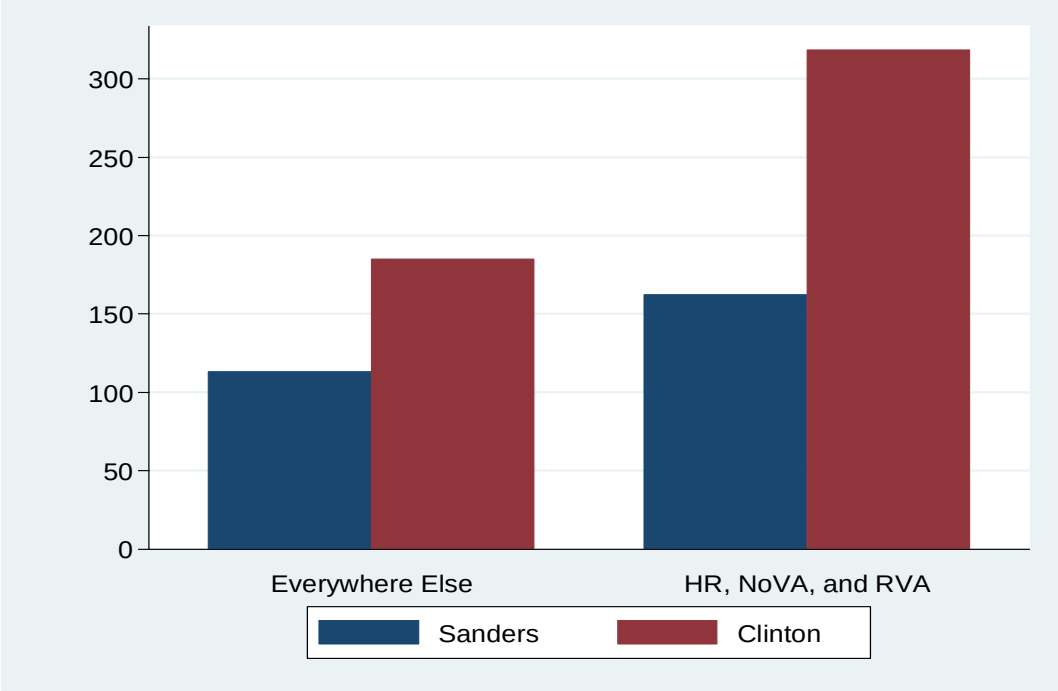
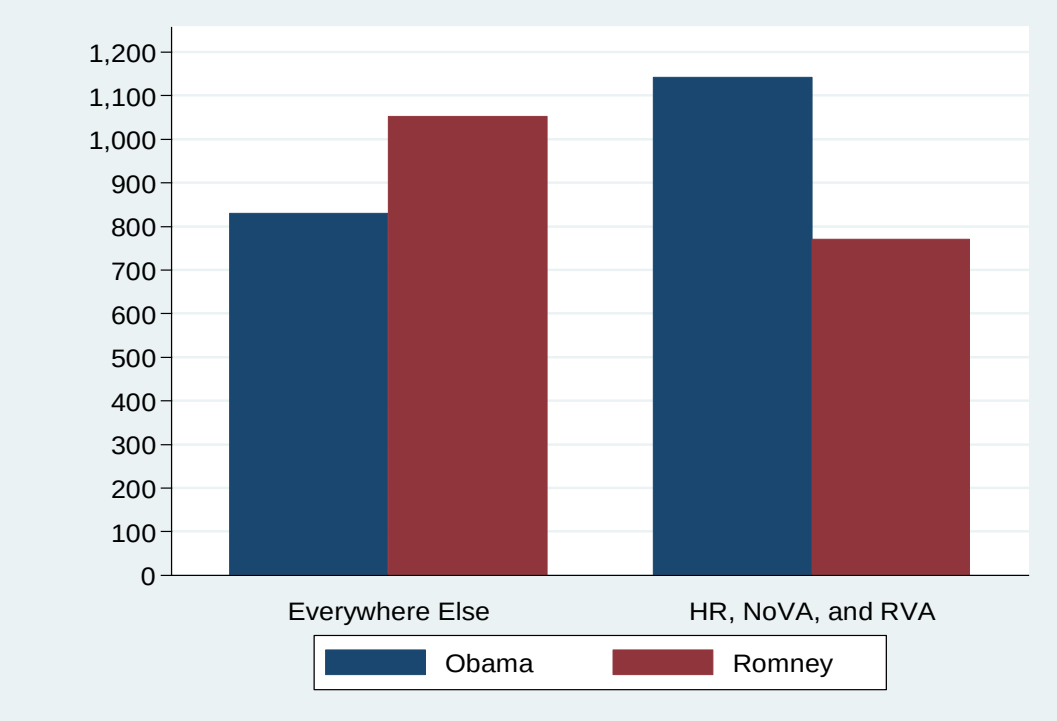


Figure 19: 2012 Presidential General Election in Virginia in High-Population Areas vs. Everywhere Else



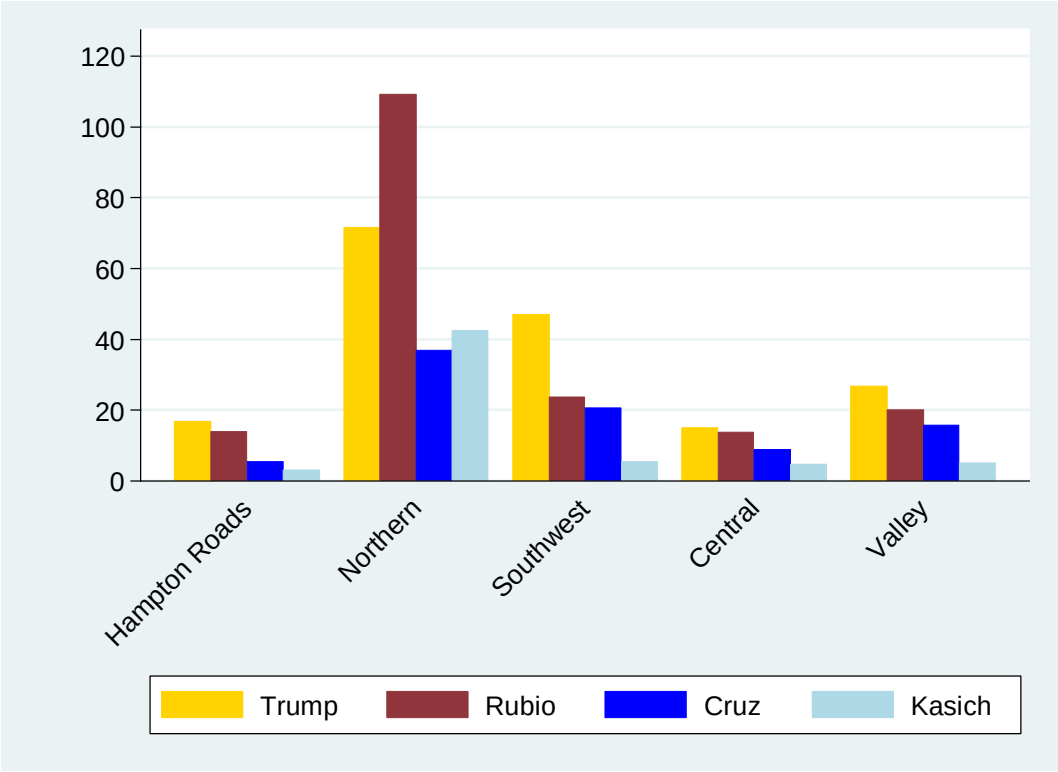
With Sanders' weakness and Hillary Clinton's strength in high-poulation, Democrat-friendly areas and demographics, she appears better situated to win Virginia in November.

B. Republicans

Determining the strongest candidate for Virginia of the remaining three GOP candidates is very difficult because their support pattern from the primary suggests each would produce a very different race here. John Kasich would be reaching out to newer groups, such as Hispanics and college students, and would also be trying to make inroads into the populous Washington and Richmond suburbs to combat the Democratic candidate there. Donald Trump or Ted Cruz, on the other hand, would have a strategy focused on exciting rural white turnout and effectively ignoring the task of expanding the party.

John Kasich's areas of strength in the Virginia primary were college towns and the counties and cities around Washington, D.C. Indeed, he topped Cruz to take over third place in Williamsburg, Charlottesville, and Northern Virginia as a region. These areas present both a challenge and an opportunity for the GOP. Lots of voters live here, but not many are interested in the Republican Party, as demonstrated by these areas having some of the lowest turnouts for the GOP primary. Still, the sheer population numbers here mean that small changes make a big difference. Figure 20 shows the vote totals for the top four candidates in selected localities. Kasich and Rubio together netted almost 150 thousand votes in Northern Virginia alone, which was very nearly equal to all the votes received by Trump in Hampton Roads, Southwest and Central Virginia, and the Shenandoah Valley.

Figure 20: 2016 GOP Primary in Virginia by Selected Regions



Kasich's primary weakness in Virginia is also visible in Figure 20; he performed poorly in many regions of the state, particularly those that were more rural, less-diverse, and with lower median incomes. Those were the areas of the state in which a large portion of voters actually turned out for the GOP primary, and Kasich's fourth-place finish overall reveals how easily that overcame his support in Northern Virginia. Also, his strengths rely heavily on his ability to capture the voters that had been in Rubio's coalition, especially in the Richmond suburbs where Kasich ran right at his statewide average but Rubio attracted lots of support. This would be a reasonable goal given that the correlation between each of their support by locality was 0.83, but it is a goal and not a guarantee.

Donald Trump as nominee would be the anti-Kasich. He ran very poorly in the D.C. suburbs and college towns, underperforming his statewide average by almost twenty points in both Arlington County and Charlottesville. However, as Table 13 shows, his performance was

strongest in lower-income, less-diverse rural counties. This was enough to overcome Rubio and Kasich's suburb appeal to win the primary, but it may be a problem in a general election. Referring back to Figure 20, Trump depended on winning in four different regions of the state just to match Rubio and Kasich in Northern Virginia. It is problematic for a nominee to begin with such weak support in the most populous, diverse areas. Also, Trump did win Virginia only with a plurality (around 35% of the vote) and would need to consolidate his party's voters, starting with Cruz backers. While support for the two did have a strong relationship and they both ran well in areas with more GOP strength, Trump is a different enough candidate that former Cruz voters (to say nothing of Rubio and Kasich voters) may find it easy to stay home on November 8th.

Is Ted Cruz is the compromise candidate between Donald Trump and John Kasich? His support resembles Trump's far more than the Ohio governor's. Figure 20 shows that he ran strongly mostly where Trump did, and he performed similarly well with the GOP base. The correlations in Table 13 suggest poor prospects with Hispanic population and student population, just not to the same magnitude as Trump's.

A striking difference, though, is with regard to income. While Trump performed better in localities with lower median incomes, there seemed to be almost no similar effect with Cruz. This could show potential for support across income levels, including in the suburbs. Cruz actually slightly outperformed his statewide percentage result in Chesterfield County, but there is again the issue of low support in Northern Virginia. If Cruz can motivate turnout from both the rural Trump supporters and Rubio-Kasich suburbanites, he may provide a balanced strategy for November. Of course, "a balanced strategy" could also mean failing to earn the commitment of

either group, and lukewarm support from both. Our data can't answer that question, but raises the essential challenge for a Cruz campaign.

Table 13: Correlations between Locality Characteristics and Support for each Candidate in Virginia 2016 GOP Presidential Primary

	Support for . . .				
	Trump	Rubio	Cruz	Kasich	Carson
African-American Share of Population	0.07	-0.26	0.1	-0.1	0.09
Hispanic Share of Population	-0.43	0.44	-0.15	0.43	-0.23
Share of Population in College	-0.5	0.52	-0.22	0.45	-0.07
Median Income	-0.55	0.53	-0.03	0.52	-0.46

Source: Author's calculations based on data from Virginia Department of Elections, U.S. Census Bureau, and Weldon Cooper Center for Public Service

Kasich could contest the Northern suburbs, Trump would generate rural white turnout, and Cruz may do both or neither effectively, but it cannot be said which would be the stronger strategy for the general election in Virginia.

V. Data and Methods Explanation

For this report, we collected data on election results and registration statistics from the Virginia Department of Elections and data on some locality characteristics and demographics from both the Weldon Cooper Center for Public Service at the University of Virginia and the United States Census Bureau. 2016 election data is compared against demographic data from 2014, the latest year for which sufficient data are available, and 2008 election data is compared against demographic data from 2010, the year for which the most comprehensive data is available from the decennial census. Tables were constructed using Microsoft® Excel® 2013, and figures were constructed and correlations were calculated using Stata® 14.

Explanations of particular measures:

- Income, used throughout the report, refers to a locality's median household income expressed in either 2010 or 2014 inflation-adjusted dollars.
- Percent of population African-American or Hispanic uses data produced by the U.S. Census. The Census relies on self-reporting and classifies Hispanic origin differently from race, meaning that those identifying as Hispanic can be of any race.
- Percent of population in college refers to the percent of the population aged 15 or above enrolled in college or graduate school.
- The regions used were defined based on the authors' judgement. The localities included are as follows:
    - Central – Charlottesville city and Louisa, Culpeper, Nelson, Orange, Madison, Fluvanna, Greene, and Albemarle counties
    - Hampton Roads – Newport News, Hampton, Norfolk, and Portsmouth cities

  - Northern – Falls Church, Alexandria, Fairfax, Manassas, and Manassas Park cities and Arlington, Loudon, Prince William, and Fairfax counties
  - Southwest – Roanoke, Radford, Salem, Bristol, Norton, and Franklin cities and Wise, Smyth, Tazewell, Lee, Dickenson, Washington, Bland, Roanoke, Floyd, Giles, Radford, Wythe, Craig, Scott, Patrick, Buchanan, Russell, Grayson, Norton, Montgomery, Pulaski, and Carroll counties
- The region used in the latter part of the paper to compare high-population areas to the rest of the state defines Hampton Roads, Northern Virginia, and the Richmond area to include: Chesapeake, Norfolk, Virginia Beach, Newport News, Portsmouth, Hampton, Richmond city, Richmond county, Chesterfield, Henrico, Manassas, Falls Church, Alexandria, Fairfax city, Fairfax county, Manassas Park, Arlington, and Loudon.

VI. Data Sources

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[3] This URL leads to the official results, but the unofficial results were used in this report. The results were certified by the Virginia Board of Elections on March 15, 2016.

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[4] This URL leads to the official results, but the unofficial results were used in this report. The results were certified by the Virginia Board of Elections on March 15, 2016.

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* This URL travels to the American FactFinder on the Census Bureau's website. That tool can be used to construct the table of statistics used in this report. A table already created is available on request from the authors.

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