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Here's Looking at You: Public- Versus Elite-Driven Models of Presidential Primary Elections

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Objective. This study advances the presidential primary literature in two ways. First, since many studies in this literature advocate for more detailed theoretical development, we incorporate an interdisciplinary approach by utilizing social contagion theory from the field of sociology. Second, presidential primaries do not adequately explore what role the public plays during the invisible primary. We thus incorporate Google Trends data into presidential primary models to account for the relative amount of public attention for each presidential primary candidate. *Methods.* We use fixed effects regression to determine the impact of public attention on a candidate's share of the contested primary vote (CPV). *Results.* We find that increased public attention leads to higher levels of support for a candidate in the Iowa caucuses, New Hampshire primary, and CPV. *Conclusion.* These findings illustrate the extra-voting role the public plays in presidential primary elections and helps us further distinguish how party elites, voters, and candidates uniquely determine the selection of our executive.

The 2016 GOP presidential primary featured a record number of candidates, many of whom were considered strong. Current and former governors of large states, such as Rick Perry (TX), Jeb Bush (FL), Scott Walker (WI), John Kasich (OH), and Chris Christie (NJ), were supposed to be the standard bearers of the party. Young, minority candidates such as Ted Cruz (Senator, TX) and Marco Rubio (Senator, FL) were supposed to highlight the party's youth and diversity. Yet none of these candidates captured the same amount of attention as Donald Trump. Rick Perry and Scott Walker dropped out of the race well before any votes were cast. Jeb Bush, despite receiving over $120 million in SuperPAC contributions, left the race prior to Super Tuesday. Of the governors in the race, only John Kasich survived long enough to run in his home state. Ultimately, the candidate who secured the requisite number of delegates to clinch the nomination was the one who was not endorsed by any sitting member of Congress or governor at the time of the Iowa caucuses.

As Steger, Dowdle, and Adkins (2012) note, presidential primary voters do not rely on the typical factors used by voters in the general election, such as party identifica-tion, economic performance, and incumbency. This complicates our understanding of

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presidential primaries. We argue that by examining public attention, political science can not only better understand the 2016 GOP nomination, but all recent presidential primaries. Incorporating public attention into presidential primary models is more than simply adding a variable to an equation; it is a mechanism through which we can better understand public demand for information on potential presidential nominees. To make this argument, we first review the presidential primary literature, noting the absence of public attention in primary models. Next, we conceptualize public attention and review its growing use in social science literature. Third, we derive insights from social contagion theory that point to the expected impact of public attention on presidential primaries. Fourth, we analyze our statistical models, finding that public attention is both statistically and substantively significant in explaining presidential primary results even when controlling for a variety of other factors. Finally, we discuss how contagion theory and our measure of public attention can be used to further our understanding of presidential primaries.

Literature Review: Examining Presidential Nomination Battles

Scholars of presidential primaries tend to focus on one of two potential aspects: election results—particularly for the contested primary vote (CPV), the New Hampshire primary, and Iowa caucuses—and fundraising. Since our research question focuses on primary results, we address that element in the literature review. One of the key facets of the presidential primary literature focuses on the role played by elites in choosing party nominees, particularly during the invisible primary, or the time period leading up to voting. These studies focus on behind-the-scenes maneuvering as an attempt by candidates to separate themselves from the rest of the field.

In their seminal work *The Party Decides,* Cohen et al. (2008) argue that political party elite endorsements are a significant factor in the outcome of a nomination. These elites—members of Congress, governors, senators, and other political figures—signal their support for a candidate to the constituents and followers in their networks. As a result, a candidate who reaches a critical mass of elite endorsements is more likely to receive the nomination than those who receive little to no endorsements. Hillary Clinton in 2016 and Al Gore in 2000 best embody this thesis; for Republicans, it is George W. Bush in 2000 and Bob Dole in 1996. In these cases, party elites united behind these candidates well before the official start of the primary season. In other cases, such as the 2004 Democratic primary, party elites took their time and rallied around a candidate after the voting began. Despite some anomalous primary battles, some scholars find that these endorsements are a strong predictor of who wins a nomination (Steger, 2007; Cohen et al., 2008; Summary, 2010).

While this view of the invisible primary articulates a theoretically compelling argument, it is prone to weaknesses. There are times when the party has a difficult time deciding on which candidate to support. Steger (2015) argues that when party insiders lack cohesion during an invisible primary, outsiders play a larger role in determining the nominee. In one-third of the contested presidential primaries since 1980, elites waited until after the Iowa caucuses to coalesce behind a particular candidate. In 2008 many elites delayed their endorsement until the actual voting began, especially those Democratic superdelegates who are elected officials (Whitby, 2014). Indeed, Steger's (2013) analysis of nominations since 1980 demonstrates that, while endorsements can make an impact on who wins the CPV, races without a front-runner are influenced by the results of early caucus and primary states, particularly since elites are waiting longer to make an endorsement.

One alternative explanation focuses on whether "momentum" exists or if the invisible primary (the months preceding the Iowa caucuses) determines which candidate wins the nomination. Momentum, defined as "the consequences of winning or exceeding expectations in the early contests" (Gurian and Haynes, 1993:335; Aldrich, 1980), can be an important determinant of who wins a party's nomination. Most of the positive findings of momentum stem from winning New Hampshire. Steger (2008) argues that winning in the Granite State provides momentum for a candidate and allows him or her to significantly increase the candidate's share of the primary vote. While winning New Hampshire can increase a candidate's chances of winning his or her party's nomination, Steger (2007) also finds that this tends to help Democrats more than Republicans. Norpoth and Perkins (2011), in their examination of momentum in the 2008 primaries, note that both John McCain and Barack Obama were able to win an early state by focusing their messages on their position on the Iraq War, leading them to subsequent electoral success. Winning the Iowa caucuses, on the other hand, does not typically correlate with future success (Steger, 2007; Adkins and Dowdle, 2001; but see Donovan and Hunsaker, 2009).

Inasmuch as momentum can impact election results, its byproducts may also matter. As noted above, winning and fundraising are part of a dynamic feedback loop. Winning can lead to increased media attention, which can prolong a candidate's campaign (Fei Shen, 2008; but see Steger, 2000). This attention particularly matters for long-shot candidates who lack the key resources of money and poll support. As Haynes et al. (2004) argue, long-shot candidates make their decision to exit the race based on their ability to receive media attention. Reiterating this point, Donovan and Hunsaker (2009) find that candidates who experience an increase in media attention likewise see their vote share rise. Conversely, Christenson and Smidt (2012) argue that causality runs in the opposite direction: the media will cover candidates as their poll standing increases in the early primary states.

Other scholars focusing on the invisible primary explore the impact of more traditional campaign factors on election results, one of the most common of which is how a candidate fares in national polling. Numerous scholars find that a final pre-Iowa poll (usually Gallup) helps to predict the ultimate winner (Mayer, 2003; Summary, 2010; Adkins and Dowdle, 2005; Steger, 2007, 2008; Adkins and Dowdle, 2001). Poll standing can also determine when candidates drop out; those who have more ground to make up are more likely to drop out after poor results in the early primary states (Haynes et al., 2004). Money can be another determinant in winning a presidential primary, although it can be measured in different ways. Adkins and Dowdle (2005) split this variable into cash on hand and expenditures at the end of the year leading into the primary, finding that cash on hand is important for Democratic candidates, while expenditures are significant for Republicans. That said, multiple studies find that money does not impact the outcome of nomination contests when controlling for other factors (e.g., Mayer, 2003; Adkins and Dowdle, 2005). This is because a number of candidates have led their field in fundraising but not waged successful campaigns, such as John Connally in the 1980 GOP race, Phil Gramm in the 1996 GOP race, and Hillary Clinton in the 2008 Democratic race.

The research question posed by this study stems from the strategic considerations by campaigns and party elites and attempts to fill the empirical and theoretical gaps in these literatures. In particular, models of the presidential primary are elite driven; they focus on endorsements, media attention, and viability. Only one part of the equation—the polls—includes input from the public. In fact, the presidential primary literature does not generally include public attention as a key concept (but see Bartels, 1988). However, there is a growing body of research exploring the relationship between public attention and various political phenomena. In the public policy subfield, recent scholarship explores how

public attention impacts agenda setting (e.g., Ripberger, 2011; Scheitle, 2011; Mellon, 2013) and public health (e.g., Ginsberg et al., 2009; Brownstein, Freifeld, and Madoff, 2009). In American politics, public attention is used to explore voter roll-off data (Reilly, Richey, and Taylor, 2012) as well as Senate elections (Swearingen and Ripberger, 2014; Ellis, Ripberger, and Swearingen, 2011). We argue that presidential primary models should include a measure of public attention; by examining these primaries through the lens of public attention we can better understand how the public influences a key component of our government.

The Campaigns and Cognitive Engagement Literature

"Election campaigns are attempts by competing partisan elites to reach citizens with political communications and persuade them to a point of view" (Zaller, 1992). Moreover, persuasive political communication is a type of complex communication. Unlike simple communication (e.g., outcome of a sports contest or of a primary), where it is sufficient for a person to be exposed to the information once (Centola and Macy, 2007), complex communication (e.g., complying with norms or cultural practices, engaging in collective action, or communication with contentious content) requires reinforcement from multiple sources for adoption to take place. Romero, Meeder, and Kleinberg (2011) find evidence for political messages as complex communications and that different types of diffusion patterns are typical for complex and simple communications.

The success of social diffusion is measured as the fraction of the population that adopts the collective behavior (Centola, 2015). Because the level of political information in the population is quite low but also variable (Zaller, 1992), most people have small amounts of poorly to moderately integrated information with which to comprehend, adopt, or resist new political messages. There is some information decay as well, as people forget some of what they know, especially if they have not considered it recently. It follows that the information and political considerations they have been exposed to most recently come most easily to mind and thus are more accessible for use (Zaller, 1992). Zaller treats campaigns similar to other "ongoing campaigns to shape public opinions" (1992:216) wherein "citizens vary in their susceptibility to influence according to their general levels of political awareness and their [values-driven] predispositions to accept the campaign messages they receive" (1992:216).

Because many of the traditional cues that voters often use in general elections are absent in primary campaigns, another theory is needed to more fully explain how political messages are adopted. Social contagion theory, specifically a threshold model, provides the explanation. Within populations, people are organized into social networks (Granovetter, 1978) within which (and sometimes between which) memes, or units of information (Weng, Menczer, and Ahn, 2013), are transmitted. People are exposed to the information flows that Zaller spoke of based on their location in social networks. The diffusion of ideas and which individuals receive them depend on the configuration or structure of the social network in which the ideas are spread.

For example, Granovetter (1978, 1983) argued that adoption of ideas is more likely in low-density networks with many weak ties (acquaintances) as opposed to strong ties (close friends). However, weak ties are insufficient for communicating complex information since more than one exposure is required to adopt the behavior. Thus, strong ties and intranetwork clusters are more important in the transmission of a campaign (Centola and Macy, 2007).

A threshold model, which is based on social contagion theory, is particularly useful in an analysis of situations typical of those we find in primaries "where many actors behave in ways contingent on one another, where there are few institutionalized precedents and little preexisting structure" (Granovetter, 1978). In this model, each actor has her own threshold for action, which is a probability that she will engage in the collective behavior given her preferences and her estimation of the likelihood of action by others. Granovetter (1978) shows how a cascade of behavior can result from contingent activation of individual thresholds. At a certain point, a bandwagon effect may also mean that social pressure is exerted on actors to engage in behavior (see also DiMaggio and Garip, 2011). A threshold model can also be a solution to the collective action problem (Granovetter, 1978; Macy, 1990), which is relevant to voting (Downs, 1957) as a public good (Olson, 2003).

Granovetter (1978) is agnostic as to how individuals come to possess the thresholds that they do. Given what we know about public opinion from Zaller, however, we posit that political awareness, values, and information flows should all affect individual thresholds. Information flows in social networks, in turn, are affected by the social structure in which the networks operate. Most types of complex communications do not cascade (e.g., go viral) because they usually do not escape the dense boundaries of their clusters (Granovetter, 1978; Goel, Watts, and Goldstein, 2012; Weng, Menczer, and Ahn, 2013). Although transmission of campaign information may spread across networks that are connected by weak ties (Granovetter, 1973, 1983), campaign preference is unlikely to be adopted or changed unless the bridge is wide (has more than one connection) because adoption of complex transmission requires more than one contact. In other words, "[t]he structural weakness of long ties is that they form bridges that are too narrow for complex contagions to pass" (Centola and Macy, 2007). Although complex communication is less likely than simple communication to go viral, some types of complex communications do. Even for the largest cascades, however, most complex transmissions are only spread within one degree of a few dominant individuals (Goel, Watts, and Goldstein, 2012).

In addition, temporal dynamics come into play. Because people are more likely to access political considerations they have more recently considered (Zaller, 1992), recent engagement with considerations relevant to the campaigns figure more prominently. Thus, interest in and/or exposure to campaign messages occurring just prior to an election should increase the likelihood that a person will adopt the collective behavior (Centola and Macy, 2007), and vote for the candidate supported by that campaign.

Theory: Campaigns, Complex Communication, and Social Contagion

Public attention captures the aggregate level of campaign communication adoption as a result of social contagion processes. Since campaign support is a complex transmission requiring multiple sources, people generally will not be persuaded to vote for a candidate that no one they know is advocating. However, if a few "seeds"—or early adopters (Schelling, 2006)—support the candidate, then, depending on the distribution of thresholds in the population (distributions being set by variable levels of political awareness, values, and information flows) and the structure of network clusters (e.g., loose vs. tightly knit), support for the campaign can increase. Public attention levels increase as individual thresholds are reached by the requisite number of campaign communications and individuals signal their support to others in their network. However, since individuals' grasp on information decays over time, public attention levels can also decrease if they are not reinforced up to the time of the election.

Based on the campaign literature discussed above, we create models that test for the effects of polling numbers, political party, cash on hand, endorsements, and media attention on winning Iowa and New Hampshire. We also test for the effects of those control variables plus winning Iowa and New Hampshire on the CPV. In addition, we add the hypotheses regarding public attention:

H1: There is a positive relationship between a candidate's share of public attention and his or her share of the CPV.
H2: There is a positive relationship between a candidate's share of public attention and his or her Iowa caucus performance.
H3: There is a positive relationship between a candidate's share of public attention and his or her share of the New Hampshire primary vote.

Data and Methods

The unit of analysis for this study is each presidential primary candidate who filed paperwork with the FEC and was on the ballot for the Iowa caucus in 2004, 2008, 2012, and 2016, yielding a sample of 51 cases. We are limited to cases beginning in 2004 because that is when Google Trends data are first measured. Following previous literature, we use three separate dependent variables measuring primary success: a candidate's share of the CPV, Iowa caucus vote, and New Hampshire primary vote.[1] With a limited number of cases, our standard errors may be inflated. Because of this, we use fixed effects regression, controlling for year, for each of our models. Since the polling and media attention variables track closely across candidates (see Patterson, 1994), and are thus highly correlated ($r = 0.90$), we run separate media and polling models for each dependent variable before adding public attention. As publicly available polling has come under scrutiny after some high-profile election missteps (Israeli and Great Britain parliamentary elections, for instance), separating out these models can provide insight into predicting vote shares without having to account for polling.

The explanatory variable, public attention, is measured via Google Trends. Typically, scholars use proxies when attempting to measure public attention. For instance, some substitute media attention for public attention, arguing that issues/candidates that receive more media coverage will likewise receive more attention from the public (Iyengar and McGrady, 2007; McCombs and Shaw, 1972). Other researchers use name recognition as an indirect measure of public attention to political figures (Kiousis and McCombs, 2004). Each of these measures faces validity questions; media and public attention may be related, but they certainly are not synonymous (Ripberger, 2011), and name recognition can be caused by a variety of factors, including, but not limited to, public attention.

Instead of relying on indirect measures of public attention, we utilize one that focuses on the relative frequency with which individuals search for information about political candidates on the Internet. Such a measure has three key benefits. First, it more closely matches our conceptual definition of public attention as typing a candidate's name into a web browser is necessarily motivated by some degree of thought and a willingness to invest time. Another benefit is that this measure is dynamic—we can monitor attention to a number of candidates across a span of geographies relevant for studying presidential

[1]We use the CPV because the aggregate primary vote (APV) can inflate the vote share of the winning candidate. These data come from David Leip's Atlas of U.S. Presidential Elections ⟨https://uselectionatlas.org/⟩.

primaries (e.g., media market, state). Finally, these data are inexpensive and easily accessible, thus allowing for straightforward replication (Swearingen and Ripberger, 2014:884–85).

Following Ripberger (2011), Swearingen and Ripberger (2014), and Ellis, Ripberger, and Swearingen (2017), we enter the candidates' names (first, last) for each party by cycle. Since Google only allows for searches of up to five candidates at a time, we held one of the candidates as a constant and standardized all of the results based on his or her share of searches (Reuning and Dietrich, 2015). For our models, we use a candidate's share of national public attention the day of the Iowa caucuses, the week leading into Iowa, or the week heading into New Hampshire.

Our control variables follow previous research. Multiple scholars (e.g., Mayer, 2003; Summary, 2010; Adkins and Dowdle, 2005; Steger, 2007, 2008; Adkins and Dowdle, 2001) use a candidate's polling share as an explanatory variable for primary success. While some of these rely on the most recent gold-standard poll (i.e., Gallup, CBS), we use the national, Iowa, and New Hampshire RealClearPolitics (RCP) averages.[2] Using FEC data, we add a control for a candidate's share of the cash-on-hand funds at the end of the calendar year preceding the Iowa caucuses.[3] Next, we control for congressional and gubernatorial endorsements coded according to the scale set forth by Nate Silver from fivethirtyeight.com. Gubernatorial endorsements are worth 10 points, senatorial endorsements are worth 5 points, and house member endorsements are worth 1 point.[4] Endorsements were coded as a candidate's share of the endorsements on the day of the Iowa caucuses. Our media attention control variable is based on a candidate's share of television news mentions and comes from the Vanderbilt News Archive[5] for the fourth quarter of the invisible primary, or from October 1 through the date of the Iowa caucus in each race (see Cohen et al., 2008).[6] Data for a candidate's electability come from RCP general election averages.[7]

Findings

Similar to Steger, Dowdle, and Adkins (2004), we first run models based off of information available prior to the Iowa caucuses (Table 1). The results of both media and polling models indicate that endorsements are a key indicator in predicting the CPV as each

[2]The hyperlinks are as follows: 2008 Democrats ⟨https://www.realclearpolitics.com/epolls/2008/president/us/democratic_presidential_nomination-191.html⟩; 2008 Republicans ⟨https://www.realclearpolitics.com/epolls/2008/president/us/2008_republican_presidential_nomination-2741.html⟩; 2012 Republicans ⟨https://www.realclearpolitics.com/epolls/2012/president/us/republican_presidential_nomination-1452.html⟩; 2016 Republicans ⟨https://www.realclearpolitics.com/epolls/2016/president/us/2016_republican_presidential_nomination-3823.html⟩; 2016 Democrats ⟨https://www.realclearpolitics.com/epolls/2016/president/us/2016_democratic_presidential_nomination-3824.html⟩. The one exception to this was the 2004 Democratic primary, for which we used a CBS News poll.

[3]The following links show the data from the FEC: 2004; 2008; 2012; 2016. The presidential candidate portal for the FEC is ⟨https://www.fec.gov/data/candidates/president/?election_year=2020&cycle=2020&election_full=true⟩. Using the drop-down menu on the left, an individual can select the election cycle and then the candidate, his or her committee, and filing reports. Although we calculated each candidate's share of the total fundraising and total expenditures, these variables are not included because they did not substantively improve the model over the cash-on-hand variable.

[4]Endorsement data from 2004 come from Cohen et al. (2008); data for 2008 and 2012 come from George Washington University ⟨http://p2008.org/cands08/endorse08el.html⟩; data for 2016 come from Nate Silver ⟨https://web.archive.org/web/20160201085829/http:/projects.fivethirtyeight.com/2016-endorsement-primary/⟩.

[5]See ⟨https://tvnews.vanderbilt.edu/TVN-search.pl⟩.

[6]We calculated a similar variable based on newspaper coverage, available through LexisNexis. Because this variable is not significant in any model, we do not include it in the tables.

[7]Since we were unable to find the RCP general election averages at the time of the Iowa caucus, we used a Gallup poll ⟨https://news.gallup.com/poll/9331/clark-bolts-front-democratic-field.aspx⟩.

TABLE 1

Impact of Public Attention on a Candidate's Share of the Contested Primary Vote (CPV)

	Pre-Iowa and New Hampshire	Post-Iowa and New Hampshire		
	Media	Polling	Media	Polling
Elite-driven measures				
Share of endorsements	0.47***	0.50***	0.01	0.05
	(0.14)	(0.12)	(0.14)	(0.13)
Share of media attention	0.073	–	−0.29	–
	(0.26)		(0.20)	
Public-driven measures				
Share of public attention	0.70***	0.70***	0.05	0.02
	(0.13)	(0.12)	(0.11)	(0.11)
Poll standing	–	0.11	–	0.03
		(0.26)		(0.16)
Momentum measures				
Share of the Iowa caucus vote	–	–	0.26*	0.19
			(0.12)	(0.11)
Share of the New Hampshire primary vote	–	–	0.42**	0.38***
			(0.13)	(0.13)
Win Iowa	–	–	13.70***	14.88***
			(3.11)	(3.14)
Win New Hampshire	–	–	16.78***	17.25***
			(3.33)	(3.26)
Other				
Share of cash on hand	−0.20	−0.27*	−0.15*	−0.20**
	(0.13)	(0.13)	(0.07)	(0.08)
GOP candidate	−2.02	−1.97	−2.44	−1.18
	(3.56)	(3.24)	(2.13)	(1.80)
Media attention × GOP candidate	0.22	–	0.36*	–
	(0.22)		(0.18)	
Poll standing × GOP candidate	–	0.23	–	0.24
		(0.22)		(0.15)
Public attention × Endorsements	–	–	0.011*	0.007
			(0.005)	(0.004)
Constant	−0.58	−0.33	2.18	0.78
	(2.65)	(2.43)	(1.83)	(1.47)
Adjusted R^2	0.72	0.73	0.92	0.92
Wald Chi-square	154.2***	156.4***	618.6***	629.6***
n	51	51	51	51

NOTE: One-tailed test where hypothesized; fixed effects model.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

1 percent increase in a candidate's share of endorsements is expected to increase a candidate's vote share by about 0.5 percent. More importantly for this study, we see strong evidence that public attention helps candidates increase their share of the CPV. In each model, the coefficient for public attention is 0.70, indicating that a 1 percent increase in the share of public attention is expected to lead to a 0.70 percent increase in a candidate's vote share. Considering that the adjusted R^2 for both models is above 0.70, this demonstrates that public attention is a robust and substantive predictor of the CPV prior to any votes being cast.

Examining 2016 primary voting helps to demonstrate how public attention can help predict the CPV prior to the Iowa caucuses. Among Democrats, Bernie Sanders held a solid public attention lead nationally over Hillary Clinton heading into the Iowa caucuses, 64 percent to 36 percent. While he did not receive a similar share of the primary vote, it does point to the "Feel the Bern" phenomenon throughout the invisible primary and is certainly part of the reason he contested the nomination up through the final primary. Among Republicans, Donald Trump received over 63 percent of the national public attention heading into the Iowa caucuses, well ahead of his nearest competitor, Ted Cruz (13.89 percent). Trump's dominance was not all that surprising—his frequent controversial statements about Mexican immigrants, John McCain's war record, and Muslims were part of the national political discourse beginning with his campaign announcement speech in June 2015. The large gap in public attention in the GOP race suggests that he was successful in sucking the oxygen out of his rival campaigns: Jeb Bush received only 2.45 percent, Marco Rubio received 7.93 percent, and Ben Carson and Rand Paul tied with 3.27 percent. Thus, as public polling faces increasing skepticism (Enten, 2015), using multiple data sources, including our measure of public attention, can play an important role in understanding the state of a presidential nomination contest.

Once the primary voting begins, the models—both media and polling-based—change a bit. The additive impact of endorsements and public attention dissipates. While the coefficients for each are positive, neither variable reaches statistical significance. However, the public attention/endorsement interaction term is significant in the media-based post-New Hampshire model. This indicates that the nomination race is about more than voters piling on the bandwagon and that the invisible primary matters a bit. Still, this interaction term is not significant in the polling-based post-New Hampshire model, which leads us to interpret this finding cautiously.

The post-New Hampshire models display strong evidence of a bandwagon effect, even with the public attention/endorsement interaction term included. Winning the Iowa caucuses leads to an expected 13–15 percent increase in CPV, while winning New Hampshire adds an expected 16–17 percent. On top of that, there is a positive relationship between a candidate's share of the vote in the New Hampshire primary and his/her CPV, as each additional percent leads to about an expected additional 0.4 percent of the total vote. Given the 2004–2016 time frame of this study, these results make sense. In 2004, Senator John Kerry surged to early wins in Iowa and New Hampshire and ended up with 61 percent of the CPV. Barack Obama built on his Democratic Iowa caucus victory in 2008 to capture the nomination, narrowly defeating Hillary Clinton in the CPV (see Table 2).[8] While John McCain failed to win the 2008 GOP Iowa caucuses, he used a narrow victory in New Hampshire to propel his campaign to victory, receiving over 41 percent of the CPV. Evidence for momentum effects persists across all of the models as directionality and substantive strength are consistent, verifying results found by Steger (2007, 2008), Adkins and Dowdle (2001), and Steger, Dowdle, and Adkins (2004).

While fundraising is an instrumental part of presidential campaigns, money is generally detrimental to a candidate's share of the CPV. In three of the models, an increase of 1 percent in a candidate's share of the cash on hand at the end of the invisible primary leads to an expected decrease of roughly 0.2 percent in his or her CPV. This can be seen in the

[8]Hillary Clinton won the 2008 APV. Because Florida and Michigan moved up their primaries in the calendar, the DNC penalized each by eliminating their delegates from the convention. As such, Barack Obama did not have his name on the Michigan ballot, and even though both Clinton and Obama were on the Florida ballot, they did not actively compete in that state. Including these states would inflate Clinton's share of the vote.

TABLE 2

Predicted Top Three in CPV Versus Actual CPV Top Three

Year and Party	Actual	Pre-Iowa Media Predicted	Pre-Iowa Polls Predicted	Post-NH Media Predicted	Post-NH Polls Predicted
2004 Democrats					
John Kerry	53.98%	30.43%	30.01%	58.00%	57.11%
John Edwards	24.94	20.29	20.48	16.04	13.97
Howard Dean	6.78	21.79	20.57	10.53	11.17
2008 Democrats					
Barack Obama	48.26%	37.51%	37.27%	41.74%	41.32%
Hillary Clinton	48.11	38.60	38.60	40.95	40.76
John Edwards	2.73	10.17	10.01	11.92	12.94
2008 Republicans					
John McCain	41.54%	25.11%	25.53%	37.66%	38.57%
Mitt Romney	26.27	28.14	25.34	24.28	22.31
Mike Huckabee	22.27	23.93	23.13	30.71	30.82
2012 Republicans					
Mitt Romney	35.79%	33.53%	32.03%	42.34%	39.39%
Rick Santorum	29.94	23.61	15.76	25.99	25.06
Newt Gingrich	21.38	16.20	16.17	9.22	13.35
Ron Paul	11.20	27.22	28.88	14.64	13.87
2016 Democrats					
Hillary Clinton	56.48%	64.62%	65.01%	58.96%	60.07%
Bernie Sanders	44.35	38.31	37.60	44.24	44.72
2016 Republicans					
Donald Trump	40.37%	49.98%	51.43%	41.19%	43.84%
Ted Cruz	27.60	9.79	10.33	23.81	24.83
John Kasich	14.21	3.01	3.47	6.66	6.43
Marco Rubio	13.12	12.39	12.77	10.47	9.70

collapse of many fundraising front-runners as the primary battles raged on. Howard Dean, who raised 46.23 percent of the Democratic cash in 2004, slumped to a disappointing third-place finish; on the Republican side, Rudy Giuliani had a healthy fundraising lead in 2008 and ended up with just under 3 percent of the CPV. As Mayer (2003) points out, money does not typically help a candidate win the presidential nomination, even if it is necessary.

Table 2 explores the overall accuracy of our models by listing the top candidates in each cycle by political party, their CPV, and their predicted CPV by model. Each model generally does well predicting the winner of the CPV, although there was greater error in the pre-Iowa models. For example, in 2008, the pre-Iowa models predicted a narrow Hillary Clinton victory, although Barack Obama eventually won. The post-New Hampshire models, accounting for his Iowa caucus victory, pegged him as the eventual CPV winner. For the Republicans, 2008 was again the biggest problem for the pre-Iowa models, which predicted a tight three-way race between John McCain, Mitt Romney, and Mike Huckabee. Once McCain won New Hampshire, his predicted share of the CPV was close to 40 percent. Interestingly, the pre-Iowa models did a fairly good job in predicting the 2016 CPV. Each model correctly predicted a Clinton victory, although the post-New Hampshire models saw a narrower race. Among Republicans, each model correctly predicted Donald Trump's

TABLE 3

Factors Impacting a Candidate's Share of Iowa Caucus Vote

	Media (Base)	Polls (Base)	Media + PA	Polls + PA
Elite-driven measures				
Share of endorsements	−0.29***	−0.039	0.023	−0.005
	(0.087)	(0.029)	(0.073)	(0.033)
Share of media attention	0.98***	–	0.35**	–
	(0.12)		(0.12)	
Public-driven measures				
Share of public attention	–	–	0.54***	0.12*
			(0.078)	(0.061)
Poll standing	–	1.12***	–	0.96***
		(0.042)		(0.089)
Other				
Share of cash on hand	0.29***	0.024	0.067	0.011
	(0.10)	(0.039)	(0.072)	(0.038)
Constant	0.098	−0.66	0.21	−0.55
	(1.46)	(0.53)	(0.96)	(0.51)
Adjusted R^2	0.63	0.94	0.90	0.97
Wald Chi-square	144.7***	1,293***	378.2***	1,293***
n	41	41	41	41

NOTE: One-tailed test where hypothesized.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

victory, with shares ranging from 41.19 to 51.43 percent. Interestingly, the pre-Iowa models also predicted the lack of a GOP alternative to Trump; Marco Rubio was predicted to finish second with only 12–13 percent of the CPV.

We are not only interested in understanding who wins the CPV, but also want to determine the impact of public attention on vote shares in the early states. Table 3 uses a candidate's share of the Iowa caucus vote as the dependent variable, with polling, fundraising, media attention, endorsements, and public attention as explanatory variables (see Donovan and Hunsaker, 2009). Given the multicollinearity between polling and media attention, we run four models in order to better clarify the impact of public attention. These models include the 41 candidates from 2008 to 2016 because Google Trends data were not available for Iowa in January 2004.

Looking at the base models, polling and media attention are the main drivers of understanding Iowa caucus vote shares. Once public attention is added, we see evidence to support our hypotheses. In the media model, a 1 percent increase in public attention yields an expected 0.54 percent increase in the Iowa caucus vote. Candidates with a public attention advantage can certainly bolster their prospects of winning in Iowa. For instance, Barack Obama claimed 59.17 percent of the public attention in Iowa compared to Hillary Clinton's 24.3 percent and John Edwards's 16.5 percent. This means that Obama's share of the public attention was expected to add over 32 percent to his Iowa vote share compared to Clinton's 13 percent and Edwards's 9 percent. Given that Obama's victory margin was less than 4 percent, the substantive impact of public attention can be large. In the 2016 GOP Iowa caucuses, Donald Trump led the field in media attention with 35.8 percent followed by Ted Cruz (16.48) and Marco Rubio (10.03); it should come as no surprise that these were the top three finishers in the caucuses. In particular, past performances by Mike Huckabee and Rick Santorum in Iowa underscore Haynes et al.'s (2004) finding that some

TABLE 4

Factors Impacting a Candidate's Share of the New Hampshire Primary Vote

	Media (Base)	Polls (Base)	Media + PA	Polls + PA
Elite-driven measures				
Share of endorsements	−0.080	−0.061***	0.18*	−0.056*
	(0.11)	(0.014)	(0.09)	(0.024)
Share of media attention	0.35	–	0.21	–
	(0.23)		(0.13)	
Public-driven measures				
Share of public attention	–	–	0.53***	−0.01
			(0.06)	(0.027)
Poll standing	–	1.10***	–	1.10***
		(0.024)		(0.047)
Momentum measures				
Share of the Iowa vote	0.60**	-0.028	0.26*	−0.029
	(0.21)	(0.03)	(0.12)	(0.028)
Iowa win	−10.38*	−0.70	−5.78*	−0.57
	(4.56)	(0.63)	(2.80)	(0.71)
Other				
Share of cash on hand	0.19	0.013	0.056	0.013
	(0.12)	(0.016)	(0.070)	(0.016)
Public attention × Endorsements	–	–	−0.01*	−0.00
			(0.00)	(0.00)
Constant	-0.16	0.066	−1.36	0.069
	(1.61)	(0.20)	(1.03)	(0.21)
Adjusted R^2	0.77	0.99	0.91	0.99
Wald Chi-square	118.7***	8,899***	475.9***	8,441***
n	41	41	41	41

NOTE: One-tailed test where hypothesized.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

candidates who appeal to a niche group—in this case, evangelicals—can translate media attention into a more prolonged campaign. In the polling model, while poll standing still substantially impacts vote share, public attention also helps a candidate improve his or her performance. For each additional percent of public attention, a candidate is expected to increase his/her Iowa caucus share by 0.12 percent. Thus, even though we do not include both media attention and polling in the models, these results, including the increase in adjusted R^2s from one corresponding model to the other, give us confidence that public attention still plays a positive and significant role in explaining the Iowa caucus results.

We see somewhat similar results for the New Hampshire models (Table 4). Using the same approach as for Iowa, public attention is both statistically and substantively significant for the media-based model but not the polling-based model. In the media model, the coefficient of 0.53 indicates that a candidate is expected to add 1 percent to his or her New Hampshire vote share for every 2 percent added to the candidate's share of the public attention. In the 2016 Democratic primary, Bernie Sanders received 65.26 percent of the public attention and over 60 percent of the vote; Hillary Clinton received 34.74 percent of the public attention and almost 38 percent of the vote. Among Republicans there was a bit more error, but Donald Trump garnered 38 percent of the public attention and over 35 percent of the vote; Marco Rubio, Ted Cruz, and John Kasich were tightly clustered between 11.7 and 13.7 percent of the public attention and finished close to those percentages in vote shares.

We also see mixed evidence for momentum; winning Iowa outright is expected to decrease a candidate's New Hampshire vote share by 8.5 percent, but there is a positive relationship between a candidate's vote share in Iowa and his or her performance in New Hampshire. This makes sense when reviewing some of the Iowa caucus winners over the past few nomination contests. Barack Obama surprised many people by winning Iowa, but lost New Hampshire to Hillary Clinton by nearly double digits. Mike Huckabee in 2008 and Rick Santorum in 2012 used their conservative, evangelical Christian bona fides to win Iowa but their upstart campaigns were not suited for the more moderate New Hampshire electorate. Even in 2016, the Iowa caucus winners saw a significant drop off in performance in New Hampshire: Hillary Clinton narrowly won Iowa but lost New Hampshire by over 20 percent; Ted Cruz surged past Donald Trump in Iowa, but finished a distant third in New Hampshire. New Hampshire winners also tend to perform adequately in Iowa. In 2008, Hillary Clinton finished third in Iowa but received roughly 30 percent of the vote; she exceeded that share in New Hampshire. John McCain in 2008 and Mitt Romney in 2012 lost Iowa but performed adequately there prior to receiving well over 30 percent in New Hampshire.

The polling model contains two important ramifications for understanding the New Hampshire primary, even though public attention is not statistically significant. First, polling any primary is difficult and many pollsters have a hard time consistently getting the winner and order correct. For instance, Hillary Clinton was expected to lose the 2008 New Hampshire primary, but ended up winning it. Considering other data, particularly public attention, can bring clarity to this race. Because Google Trends is continually updated, scholars, pundits, and practitioners can use it to gauge where the candidates stand in Iowa without breathlessly waiting for the next poll.

A second ramification is that public attention clearly helps explain Donald Trump's New Hampshire victory, particularly when paired with media attention. He controlled a majority of the public attention of GOP candidates from the moment he entered the race. His dominance of public attention was also magnified by the amount of media attention given to his campaign. Cable news frequently televised his rallies from beginning to end, a benefit not given to other candidates, even the Democratic front-runner. If media and public attention are indeed the dominant nonpolling indicators of success in early primaries, we should not be surprised that Donald Trump was so successful.

Conclusion

We use insights derived from the social contagion literature and the threshold model to develop a theoretical explanation for how information flows affect public attention. Although we assume the connections between social contagion and public attention and do not test them, adding this theoretical explanation is nevertheless a contribution to the literature. It provides a theoretical rationale for how public attention is in part a product of social network dynamics and how public attention in turn affects campaign success in primary elections. Primary elections are a particularly apt arena in which to apply social contagion theory, and specifically the threshold model because of its utility in environments where traditional cues that may channel collective behavior (e.g. party identification) are not present (Steger, Dowdle, and Adkins, 2012). Future work should examine the effects of the threshold model on public attention. Additionally, campaigns and elections scholars should consider how widely social contagion theory may be usefully applied (e.g., nonpartisan elections, municipal elections, etc).

There is also a practical benefit to looking at public attention to help understand presidential primaries. Campaigns, pundits, and scholars can use Google Trends to gauge the state of the race at any time. It is a free resource, basically updated in real time, and predictive of the primary results. Instead of being at the mercy of public polling information, people can supplement these polls with public attention. We recommend caution, though, in looking to Google Trends as the be-all-end-all of primary predictors. Some candidates receive a much higher public attention score than their results warrant. Typically, this error arises for "outsider" candidates, such as Donald Trump, Ron Paul, and Bernie Sanders. For some reason, the public was interested in finding out more information about these candidates but did not vote for them. For instance, as the 2016 GOP field winnowed, Trump regularly received upward of 60–70 percent of the public attention but "just" 40–45 percent of the vote. This implies that something about his candidacy—negative statements, celebrity status, or entertainment value—was also driving public attention. The same held for Bernie Sanders, who won the public attention battle in states like Ohio and Illinois, but lost the popular vote.

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