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Analyzing the Effects of Preprimary Broadcast Media on Presidential Nominations from 1980-2016

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Abstract

This study attempts to discover if broadcast media released during the preprimary period has an effect on the Presidential nomination process, and if so in what way? Several OLS regression models, based on Randall Adkins and Andrew Dowdle's Presidential nomination forecasting models, were created as an attempt to not only find a statistically significant effect between broadcast media and aggregate vote percentage, but also in an effort to create more effective forecasts. I have drawn my sample from every open nomination race dating back to 1980, and used both cable and network broadcasting sources. I have covered not only the effects of broadcast media on forecasting, but its effects on the preprimary and primary process as a whole.

Acknowledgements

I would first like to acknowledge and thank Dr. Joshua Mitchell, who agreed to serve on this committee and helped me on my quantitative short comings. Second, I want to send a special thanks and acknowledge Dr. Pearl Dowe, who not only served on this thesis committee, but who's door was always open when I needed it. I also would like to extend a very special thank you to Dr. Andrew Dowdle, who served not only as my thesis director, but as my mentor and friend during my time here at the University of Arkansas.

Dedication

To the loving memory of my father, Ermilo “Milo” Cuellar.

Those we love don’t go away, they walk beside us every day, unseen, unheard, but always near, still loved, still missed, and very dear.

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I. Introduction

In recent years scholars have garnered the ability to forecast presidential nominees using regression analysis and a mix of several types of variables. This mix has been different for each of the four well known models, with Mayer (1996) relying on poll standings and funds raised; Adkins & Dowdle (2001) testing poll standings and cash on hand; $Steger_1$ using elite endorsements and party interaction, and $Steger_2$ (Steger et al. 2012) testing elite endorsements and competitiveness (Steger et al. 2012). These models were successful in determining the outcome of the primaries until the outcome of the 2004, 2008 Democrat and Republican nominations were incorrectly forecasted (Steger et al. 2012). It was at this point that momentum models were created, which accounted for the outcomes of the Iowa Caucuses and the New Hampshire Primary. This modified model caused the Steger models to only incorrectly forecast an Obama loss, and the Adkins & Dowdle model to do the same plus Clinton in 1992 (Cuellar 2016).

While a reworking of the model to include for momentum has appeared to fill the holes with regards to which factors are most impactful early on, one important variable has remained unaccounted for in all three of these models, broadcast media. After the implementation of McGovern-Fraser print was the primary form of dispersing political information, it remained so until 1985 (Kendall 2000). Once broadcast media surpassed print it made the presidential primaries more important in the eyes of the American people (Wattenberg 1985; Cuellar 2016). Even though America is beginning to see the rise of social media and internet journalism, the rise of Donald Trump through broadcast media may prove that it is as relevant as ever. Ultimately, if the consensus was that primaries became more important due to broadcast media it is plausible to argue that pre-primary broadcast media has a significant impact on the aggregate primary vote

percentage. In this thesis I will attempt to discover whether this is the case, and by using every open primary from 1980 to 2016 as my sample I should gain the ability to discover whether broadcast media is a significant predictor of aggregate vote percentage for presidential nominations. However, not only will the introduction of broadcast media into forecasting models provide greater forecast accuracy, but will present a greater understanding of the US presidential nomination process.

II. Literature Review

A. Background

As I described above, certain political scientists practice presidential nomination forecasting, notably Andrew Dowdle,, Randall Adkins, Wayne Steger, and William Mayer. Earlier work from Adkins and Dowdle (2001) attempted to answer the question as to whether the preprimary season is increasing in importance by creating a preprimary forecast model and a post-New Hampshire model and drawing comparisons from previous models. Their findings prove that as time progressed the preprimary season has gained prominence in the eyes of the voters. This being shown through several preprimary variables that gained significance, and a larger adjusted R-squared.

Adkins and Dowdle (2001) illuminated the growing importance of the preprimary season with their forecasting models, however some of variables used in their model are not used in models today. It appears as though there are a certain set of variables that have become prototypical to forecast models; them being Gallup Poll results, cash on hand, cash spent, elite endorsements, Iowa Caucus results, and New Hampshire Primary results (Adkins and Dowdle 2001; Adkins and Dowdle 2005; Steger 2009; Steger et al. 2012; Dowdle et al. 2016). When momentum variables (Iowa and New Hampshire) are excluded, literature has found Gallup Poll

results to be the most stable predictor of the aggregate primary vote, as it consistently reaches statistical significance. A momentum model, which included the results of Iowa and New Hampshire, shows these variables to be the strongest predictors. Dowdle et al. (2016) shows that the inclusion of Iowa and New Hampshire have also caused cash on hand to reach statistical significance, showing those candidates who do not need to spend in the preprimary season are more competitive heading into the primaries.

It has been argued by Cohen et al. (2008) that, despite nomination reforms, elites still control the outcomes of the primaries. Their argument rests on the premise that the people rely on the endorsement heuristic when heading to the polls, thus allowing the elites to still be the deciders. An example being when Bill Clinton garnered a larger amount of endorsements than any other Democrat proving him to be the most viable candidate. The authors also state that parties have a veto power through elite endorsements as well as party donations to end the campaigns of candidates that they do not approve of.

While Cohen et al. connote the most with elites controlling nomination outcomes, others have introduced elite endorsement variables into their models as well. Wayne Steger (2008; Steger et al. 2012) joined Cohen et al. using elite endorsements as a primary independent variable. The logic behind Steger and Cohen et al.'s models being that the "attentive public" will be swayed by the cues provided by these powerful political insider (2012).

This proved to be sound logic, with Steger's model yielded not only statistically significant results, but a positive beta value. With elite endorsements as one of his primary independent variables Steger (2008) garnered the ability, with his momentum model, to correctly forecast 10 of 11 open nomination contests from 1980-2008, and 11 of 11 if one counts Hillary Clinton as winner as of the primary vote.

With this type of success, the *Adkins-Dowdle* model was updated to include for the potential impact of elite endorsements on the aggregate vote percentage (Dowdle et al. 2016). This study followed the status quo, finding the elites to continue to be players in the nomination process. This is especially insightful given, Donald Trump did not receive any elite endorsements during the preprimary period.

What set Donald Trump apart in this most recent nomination cycle was his standing in preference polls (Dowdle et al. 2016). With a general definition of preference polling being the use of survey data to measure a candidate's standing in an election (Niemi et al. 2011). Preference polls have proven to be one of the best measurements of candidate strength in electoral politics, and modern history has shown Gallup to be the most reliable preference poll for presidential races.

Polling data was first used in a forecasting model when Mayer (1996) created the first modern presidential nomination forecasting models. Mayer (1996; 2003) argued that using only two variables, with Gallup polls being one, was sufficient when it came to forecasting, given the pre-primary favorite is greatly advantaged heading into the primary season. He goes on to justify (2003) his reasoning of using Gallup polls even further by stating that "7 of the last 10" preprimary poll leaders went on to become the nominees.

When they began to create forecasting models, Randall Adkins and Andrew Dowdle also made the conscious decision to include poll standings (Adkins & Dowdle 2001). When replicating Mayer's (1996) method, they were able to capture support for a candidate communicated through poll results (Steger et al. 2012; Adkins & Dowdle 2001). They too made the discovery, contrary to Mayer's findings, that there are differences among the parties when it comes to how poll standings effect forecasting. The Republican party has been significantly

affected by preprimary standings, while it only has had a minor effect on the Democrats. Nevertheless, in every model created to date (Mayer 1996; Adkins & Dowdle 2001; Mayer 2003; Steger 2008; Dowdle et al. 2016) with poll standings as a variable, it has yielded statistical significance and proven to be a rather strong predictor of the aggregate primary vote.

Yet, it has remained unclear as to the effect preprimary campaign spending has on the aggregate vote percentage. Candidate spending is associated with a successful campaign, however when Adkins and Dowdle placed spending into their forecasting model (2005; Steger 2008; Dowdle 2016) results never reached statistical significance. Haynes, Gurian, and Nichols (1997) asserted that candidates who spend more "relative" to their fellow competitors will receive a larger share of the primary vote. When looking back at Haynes 1993 article it appears that spending is not as clear-cut as the latter assertion makes it appear.

Spending is highly different when looking across the spectrum of candidates, as front runners have the freedom to focus strictly on winning delegates, while others must focus their spending on simply getting the public's attention (Haynes 1993). Regardless Haynes et al. (1997) is justified in their assertion given, their study did not look at the preprimary but the sequential process as a whole.

When attempting to discover what makes for viable candidate Dowdle et al. (2008) tested for spending, among several other variables, only to again find it lacking statistical significance. In their study, Dowdle et al. (2008) tested spending in a variety of ways, such as whether an increase or decrease from one quarter to another has an effect and if outspending opponents has an effect, however neither were shown to statistically increase or decrease viability. When Dowdle et al. (2016) performed their most recent forecast they too received an insignificant spending coefficient, but this time their momentum model yielded a negative coefficient. Dowdle

et al. (2016) went on to remind readers that spending may not be the best predictor, and the best example is most likely 1996's Phil Gramm.

On hand cash heading into the primary season, however, has greater clarity in terms of predictive power. As I previously stated, Mayer began the nomination forecasting trend with his 1996 model that included Gallup poll standings and funds raised. Adkins and Dowdle (2000) decided to adjust this model by exchanging funds raised for the amount of cash a candidate has heading into the primaries. They argue that while it may be important to observe strength through funds raised, one must remember that much of this is spent during the preprimary on staff and strategy. When Adkins and Dowdle place cash on hand into a model, it not only yields statistical significance, but a positive beta coefficient. Which is contrary to the results of their funds raised variable. [1]

More in depth research into these results began to show that the premise behind having funds raised as a primary independent variable was highly flawed. A candidate can receive mass sums in donations, but can also spend this money as a means to remain or become a viable candidate (Steger et al. 2012). Cash on hand provides much more insight, as it allows one to not only to see the amount of monetary support a candidate is receiving from partisans, but it provides the power to observe which are the strongest candidates (2012). Stronger candidates being viewed as those who are able to garner a comfortable lead in the preprimary and by doing so have the luxury of spending less, and therefore able to head into the primaries with large war chests.

[1] This Adkins and Dowdle added several new variables to this model which also have attributed to the results

Recent forecasts have continued to find cash on hand to be a statistically significant predictor, including the most recent forecast performed by Dowdle et al. (2016). This recent study produced results that showed cash on hand to be a statistically significant predictor when included in a momentum model.

Prior to the creation of these momentum models, forecasting did not include for the effects of Iowa or New Hampshire (Mayer 1996; 2003; Adkins & Dowdle 2001; Steger 2004). However, momentum variables slowly became part of traditional forecasting using various New Hampshire variables (Askins & Dowdle 2001; Steger 2008; Steger et al. 2012). However, it was the 2004 primaries that caused Iowa variables to be introduced (Steger 2008; Steger et al. 2012). That year sparked a change due to Howard Dean being forecasted to win the primary in all established models, none of which accounted for the Hawkeye state (Steger et al. 2012).

Redlawsk et al. (2011) and Christopher Hull (2008) make the argument that Iowa's role in momentum building essentially revolves around media. As the preprimary comes to a close, the fourth quarter poll and fund raising leaders are expected by the voters to do well in Iowa due to the high expectations set down by the pundits (Redlawsk et al. 2011). Redlawsk et al. continue on with the assertion that those who win the Caucuses, or do better than the media expects them to, receive a bump in coverage. Hull's (2008) argument rests in the fact that Iowa receives vastly more media coverage than any other contest during the primary season, and given this media attention Iowa has the power not only bump the winners poll numbers, but winnow the field as a whole.

While still believing that Iowa is a momentous state, forecasters have found evidence showing the state to only be rewarding for winners. Adkins and Dowdle dispute Redlawsk et al.'s (2011) notion that Iowa can have beneficial effects for candidates who do not win the state.

While their original look (2001) into the significance of Iowa on the primary vote showed the Caucus to not be too impactful on the aggregate vote, more updated studies by Adkins and Dowdle (Steger 2009; Steger et al. 2012; Dowdle et al. 2016**)** have found Iowa to yield significant results. However, when placing a binary dummy for winners and losers into an OLS regression along with a variable for percentage of vote won, only the dummy variable yielded statistically significant results. Steger (2008) finds comparable results to that of Adkins and Dowdle, with his *Party Interaction* with momentum accounted for, only finding the dummy to be significant at the .05 level.

New Hampshire, also, has been found to be significant the dummy (Adkins & Dowdle 2001; Steger et al. 2004; Steger et al. 2008; Steger et al. 2012; Dowdle et al. 2016). Historically, chances of winning the nomination rise dramatically if one wins the Granite State, given the winners of the nomination have usually been New Hampshire winners (Adkins & Dowdle 2001). While this is not always the case, as with Clinton in 1992, and Obama in 2008, there is a pattern of success that accompanies the winners of New Hampshire (2001).

Unlike with the Iowa Caucuses, the share of the vote earned in New Hampshire has yielded significant results in previous forecasting models (Adkins & Dowdle 2001; Steger et al. 2004; Steger et al. 2008; Steger et al. 2012; Dowdle et al. 2016). Forecasters for years had believed New Hampshire to be the more impactful of the bellwether contests, and therefore included it in their models as a tool for better ordinal forecasts (Adkins & Dowdle 2001). However, it can be more than a tool for better ordinal measures, as its statistical significance tells political scientists that how one performs in New Hampshire can have an effect on their potential nomination. Bill Clinton's label as "The Comeback kid" came as a result of his second place

finish in the primary, which the media portrayed as a victory for the Clinton Camp (Redlawsk et al. 2011).

Ultimately these momentum variables allow for two different types of models. The first being a model solely made of preprimary variables which allows for an earlier forecast. The second being a more accurate model which includes for the effects of Iowa and New Hampshire. The addition of variables provides greater insight into the predictive power of the preprimary variables, as in many studies statistically insignificant variables reach significance once these momentum variables are included (Steger et al. 2012).

When turning to the effect of media, I must media viewed prior to the primary season would have a significant outcome on the aggregate vote. My argument is rooted in the minimal effects model (Katz & Lazarsfeld 1964), which asserts that campaigns have relatively little effects on vote choice, and that media only reinforces the underlying beliefs of voters (Finkel 1993). The premise being that this model does not take into account the preprimary/primary phase of the presidential election cycle. Candidates in the primaries all come from one party, share essentially the same ideology, and are relatively unknown to the voters (Steger et al. 2012). With this being said, the campaign does matter during the primaries, but so does media.

The argument made by Martin Wattenberg (1985) that once broadcast media surpassed print it made the presidential primaries more important in the eyes of the American people, cannot be stressed enough. As time went on, it was shown that when media treats primaries as large events they create discourse and cause the primary season to take on greater significance in the eyes of the American voter (Kendall 2000). Media's power to help the American people pay greater attention to primaries has, by diffusion, not only made the primary season more important, but the preprimary season more important as well.

Studies regarding media effect on electoral politics is nothing new. Previous studies have indicated that attention to media via broadcast increases voter turnout (Prior 2005), and this is not secluded to just general elections. This is a result of the greater political knowledge that those who watch broadcast media have versus those who do not (2005). Prior (2005) also asserts that in a "high choice" environment there is greater electoral participation, and when thought of in context of broadcast, this means that once cable news emerged, more voters began to turnout.

This high choice broadcast media environment means the most to viewers when selecting a presidential nominee (Farnsworth & Lichter 2012). Media becomes a type of crutch for voters who must decide amongst candidates which they know little to nothing about. However, it is argued by many researchers (2012) that media is "misdirected" in their coverage of the candidates, due to their lack of policy coverage and greater focus on the horserace. Free media can, however, have a reverse effect for candidates who are not doing well in the polls during the preprimary, raising their poll numbers and helping with the money primary (2012).

Another common complaint by political communication researchers is that coverage has decreased over the years (Farnsworth & Lichter 2011). This is not necessarily without reason, given an incumbent or a vice president had run in every presidential race from 1952-2008 (2011), with coverage spiking dramatically in 2008 when this was not the case. With this being said, nomination contests in the pre-2008 years may not have been as salient, but this cannot discount the potential effect it plays in decision making.

Broadcast media as the agenda setter in the political world carries over to the nomination process. Candidates for nomination must receive free media coverage to stay alive, however the media is not the lone decider (Steger 2015). Yet, despite not being the lone decider the argument that it is a necessity for a candidate's survival causes researchers to wonder what the predictive

power of broadcast media may be when placed in a forecasting model. Tone generally does not have to matter when receiving coverage (Farnsworth and Lichter 2008), as it appears through the research that any press comes across as good press. With these findings regarding tone, it allows present day researchers, such as myself, to exclude the tone of broadcasters from their studies.

The significance of broadcast media is reinforced by findings which show that those who are tuning in without a college degree have a higher chance of turning out to vote. This being so given, broadcast media provides them with the political information that they would not receive elsewhere (Prior 2007).

Research also tells us that voters often rely on cues or heuristics when heading to the polls. The key heuristic is party affiliation during general elections, and many have found that it is endorsements when it comes to nominations (Cohen et al. 2008). However, broadcast coverage provides a sense of notoriety and visibility like no other, in which candidates can become practical competitors by gaining the support of those watching from their living rooms (Dowdle et al. 2008). Thus, broadcast media from the pre-primary should cause a heuristic amongst its viewers which should impact their vote choice.

A lead in coverage heading into the two most influential competitions can deliver a large advantage (Redlawsk et al. 2011). With the command of the airwaves, the ears, and the eyes of the voters the media has the ability to frame the preprimary season to portray a once viable candidate as a no longer feasible option (2011). By doing so, a candidate generates momentum heading into the primaries through the power of broadcast media, and as a residual effect receives the momentum from the first-in-the-nation states.

A reverse effect can occur in certain circumstances when a candidate controls the airwaves. The most prominent circumstance being scandal (Farnsworth & Lichter 2011). When

scandals arise during races, broadcast media has a trend of skewing their coverage which can lead to the death of a campaign (2011). While this is not always the case, such as with Bill Clinton and allegations of an affair with Gennifer Flowers in the 1992 race, but it is seen quite often when scandals arise.

Ultimately it should become clear that the minimal effects model does not play well with nomination races. Broadcast provides the tools for voters to learn about candidates in ways that nothing else has the capability of doing. Elite endorsements may provide the most powerful heuristic during the primary season, but all information regarding candidates is released via media.

B. Critical Review

While these works have set the groundwork for the addition of a media variable in future forecasting models, each have their own strengths and weaknesses. In this section I will provide a critical evaluation of the literature.

Beginning with forecasting, it is evident that forecasting models have changed over time, specifically Adkins and Dowdle's work. In their earlier forecasting work, it was evident that Adkins and Dowdle were testing which variables would be constant predictors of the aggregate primary vote percentage. I argue Adkins and Dowdle (2001) furthered forecasting accuracy with their continued use of Mayer's 1996 method of OLS regression as a tool for forecasting. This methodology has continued to be a tool used by Adkins and Dowdle to correctly forecast the 2016 nominees.

While political scientists have not introduced media into a forecasting model, Dowdle et.al (2008) made a great contribution to advancing the understanding the role of preprimary media in the nomination process. Dowdle et al.'s discovery that preprimary media coverage is

highly influential in gaining support as a candidate, brought new light to the power of preprimary media. With this discovery it became evident that media in the preprimary must be included in future forecasting models. Unfortunately, Dowdle et.al did not go this route when they chose to forecast the 2016 primaries, which may have been influenced more by media than any other modern presidential primary.

When it does come to those who focus on media, the biggest names, Farnsworth and Lichter, provided a compelling study of the institutional effect on the electoral process (2007). They provide key arguments and empirical evidence in favor of the influence of preprimary media, through actual case studies done at the Center for Media and Public Affairs at the University of Virgina. I must, however, disagree with Farnsworth and Lichter when they make the claim early on stating that media is continuing to cover politics less and less. This may be so on local and network news, but Farnsworth and Lichter must remember we live in a world of 24-hour cable news, and almost all of this cable news coverage is regarding politics.

Prior (2007) would state that this 24-hour coverage had the potential to engage and teach the uninformed/uneducated voter. Although I argue that in this day in time many who are not partial to politics will not be inclined to watch political news, I agree this never ending news cycle does captivate its audience of educated voters. Despite being informed/educated, these voters still use broadcast media as a cue during the primaries to a larger extent, due to the lack of partisan cues and diversity among ideological stances.

Starting in the preprimary, candidates begin campaigns to persuade the voters who will make up the aggregate primary vote (Kendall 2000). Kendall and Wattenberg (1985) hit on how broadcast media revolutionized the primaries, by making them exciting through the power of agenda setting. These points are particularly relevant to the most recent primaries, as print media

could not have done what cable television did for Donald Trump. Fox News set Trump up to be the non-establishment frontrunner, and this cue stuck with many people. Kendall also was correct when she stated that media has the power to make primaries significant, such as they did with the 2008 Democratic primaries. I do disagree with Wattenberg (1991) when he states that divisive primaries can hurt a party. Looking back again to the 2008 Democratic primaries, the competition between Hillary Clinton and Barack Obama may be labeled as divisive, yet Barack Obama won the presidency with the backing of Clinton and she went on to become Secretary of State in his administration.

I agree, control of the airwaves heading into the first-in-the-nation states provides a great advantage (Redlawsk et al. 2011). Gaining this control begins in the preprimary season, and carries over into January of the election year. Redlawsk et al.'s discussion of control over the eyes and ears of the voters paints a powerful picture of what preprimary media coverage can do for a candidate, and gives backing to Wattenberg's claim that broadcast media makes primaries exciting.

I have provided much evidence in favor of broadcast media being a contributing factor in aggregate primary vote, but there are some noteworthy political scientists who believe the elites still decide it all (Cohen et al. 2008). Cohen et.al argued the power to nominate still lies in the hands of the elites. Dowdle et al. (2016) has shown that elites do play a significant role in the decision process, however it is widely held that they are no longer the make or break deciders. It became evident when Donald Trump was forecasted to be, and went on to win the GOP nomination with zero elite endorsements during the preprimary. I therefore argue two points. First, media holds a large amount of power in the decision making process. Second, the power of the media has been under researched and must be looked into in greater depth.

III. Research Design

With this realization that elites no longer hold all the power and broadcast media may be a source of excitement (Wattenberg 1985), I posit the theory that coverage during the preprimary is a statistically significant predictor of aggregate vote percentage. The literature I have laid out above has hinted at this hypothesis, yet no empirical testing has been put forward to discover if this is so. I therefore put forward my key hypothesis:

H_1

The greater the percentage of pre-primary broadcast media a candidate earns during the pre-primary, the greater their share of the aggregate primary vote percentage will be

I argue that broadcast media is the major agenda setter of electoral politics, and presidential candidates cannot survive without the coverage it provides (Steger 2015). While media has expanded out to multiple mediums, broadcast allows for candidate visibility like none other (Dowdle et al. 2008). This type of visibility, ultimately should create cues among broadcast viewers, which impact vote choice.

I will be including several other independent variables familiar to the Adkins & Dowdle forecasting models in my own explanatory models. First of which being elite endorsements, which has been a consistent predictor of aggregate vote percentage. This being so due to the heuristic that is traditionally provided by party leaders giving their support in an intraparty competition (Steger et al. 2012; Cohen et al. 2008). For endorsements I posit that:

H_2

The greater the percentage of elite endorsements a candidate earns, in relation to his/her fellow candidates, the greater their share of the aggregate primary vote percentage will be

It must be noted elite endorsements have had more influence in Republican competitions in the past, given the GOP tendency to provide more endorsements during the preprimary period (Dowdle et al. 2008). Nevertheless, it continues to hold in models as a significant predictor.

Fourth quarter Gallup Poll data has consistently been the best preprimary predictor of aggregate vote percentage for Adkins and Dowdle (Dowdle et al. 2008). With this being historically so, I put forward the following:

H_3

The higher a candidate is polling at the end of the last quarter of the pre-primary, the greater their share of the aggregate primary vote percentage will be

Fourth quarter data allows primary voters to decide which candidates are viable heading into the first-in-the-nation contests. Front runners are seen to be more viable than others with the help of constant horserace coverage in the media (2008).

Contrary to widespread belief spending in the preprimary has not been found have a significant effect on vote percentage (Dowdle et al. 2016). Given these past findings I argue:

H_4

The more a candidate spends in the pre-primary, in relation to his/her fellow candidates, the less their share of the aggregate primary vote percentage will be

Spending has been found to be associated with candidates which are not faring well during the pre-primary and therefore have a tendency to spend the most as an act to keep their campaigns afloat, which results in a decrease in viability. It has been shown that those who are polling well and garnering a fair amount of media exposure have the privilege of spending less during the pre-primary and preparing a larger war chest for the primary season (Steger et al. 2012).

As with the general election, candidates for their party's nomination must build up sizable cash reserves in order to be considered viable or competitive. Consistently Adkins and Dowdle (2001; 2005; Dowdle et al. 2016) have found cash reserves to be a statistically significant predictor in past forecast models. With this prior evidence I argue:

H_5

The greater the amount of unspent cash a candidate has at the end of the pre-primary, in relation to his/her fellow candidates, the higher their share of the aggregate primary vote percentage will be

Political scientists have begun to create two models when forecasting, a preprimary model and a momentum model. The prior is a regression made up of variables such as those I have mentioned above, which are all collected during the preprimary period. The momentum model uses the same methodology, yet contains variables from the first-in-the-nation contests.

The Iowa Caucuses make up the first contest in the sequential nomination cycle. It receives a large amount of broadcast coverage, and the winner is immediately proclaimed viable by media outlets (Redlawsk et al. 2011). Jimmy Carter was the first candidate to recognize the power of the Iowa Caucuses, and this relatively unknown southerner rode his momentum from Iowa all the way to the Democratic Convention. Therefore, the state of Iowa has the power to provide a type of momentum that one cannot attain during the pre-primary, which allows for the argument:

H_6

The larger the percentage of the vote a candidate receives in the Iowa Caucuses, the greater their aggregate primary vote percentage will be

Forecasters have not yet found statistical significance for the vote share of candidates in the Iowa Caucuses (Dowdle et al. 2016), however with the inclusion of broadcast media in this new study it is possible that statistical significance can be reached.

H_7

The winner of the Iowa Caucuses will receive a greater percentage of the aggregate primary vote.

Contrary to vote share, statistical significance has been reached for "winner of Iowa" every time it has been included in a forecast. I therefore, have no reason to assume broadcast media would change this outcome.

Along with Iowa, New Hampshire is considered key for momentum. New Hampshire receives a high amount of media coverage, giving the winner, or even a second place finisher the power to head into following primaries with viability (Redlawsk et al. 2011). It too has been shown in previous models that New Hampshire has a greater impact than Iowa, which tends to have a strong impact on momentum (Dowdle et al. 2016).

H_8

The larger the percentage of the vote a candidate receives in the New Hampshire Primary, the greater their aggregate primary vote percentage will be

New Hampshire vote share, unlike Iowa, has been found in past studies to be a stable predictor of aggregate vote percentage. Consistent with Iowa, past studies have found the winner of the primary to be a statistically significant predictor. Therefore, I offer this second argument:

H_9

The winner of the New Hampshire Primary will receive a greater percentage of the aggregate primary vote.

IV. Methodology

The variables included in past models have changed over the years, with the removal of variables, such as "Southern Democrat", (Adkins & Dowdle 2001; Steger 2009) and the addition of momentum variables. Nevertheless, the methods behind model creation have remained constant. These models have used open races dating back to 1980, with open defined as those in which a sitting president is not running for reelection. I have made the decision to use open primaries dating back to 1980 as my sample also, given these past models have yielded successful results to this point. While I have used OLS models, I have slightly deviated from the norm by using lag models for some of my analyses.

For my dependent variable I will be using the aggregate vote percentage each candidate received at the end of the nomination process. This is a noted method from past nomination forecasting models (Adkins & Dowdle 2005; Dowdle et al. 2016), which has allowed for successful predictions as well as attempts at ordinal forecasting. While I am not creating a forecast model, I argue maintaining this successful method will lead to more successful models.

My key independent variable, *broadcast coverage*, has been collected from the Vanderbilt Media Archives. I have operationalized television news coverage from CNN, Fox News, MSNBC, NBC, ABC, and CBS into a single percentage of total coverage each candidate receives in relative to the total field of candidates during the year of the preprimary. I have counted coverage as any mention of a candidate's name, however debates and town halls were excluded given they provide viewers with advanced knowledge of the coverage which will be provided. While computing percentages, I chose to use the natural log for Gary Hart in 1988, whose coverage revolved around scandal, and Wesley Clark whose coverage resulted from his

position as a CNN analyst until his campaign began. This decision should allow for a more accurate depiction of preprimary broadcast media influence on aggregate vote percentage.

All of my secondary independent variables have been collected from the most recent forecasting study which was conducted by Dowdle et al. (2016). Below I will describe how I have operationalized each of these tertiary variables.

Elite endorsements is represented as the total number of House, Senate and gubernatorial endorsements a candidate receives prior to the first quarter of the year of the general election. Like *broadcast,* it is operationalized as the percentage of endorsements one receives in relation to the total number of endorsements received by all candidates during the preprimary period.

I used Gallup Poll results from 1980-2012 to determine a candidate's support levels among self-declared partisans in preference polls during the fourth quarter of the year prior to the start of the nomination from 1980-2012. Gallup's traditional preprimary polling was discontinued after the 2012 cycle; I have therefore used CNN's preference poll for the 2016 nomination cycle.

Rather than use the percentage of funds spent in relation to competitors to determine spending, I have defined *spending* as the percentage of campaign funds that a candidate spends during the preprimary season relative to the total amount raised by all candidates in that competition.

I have coded *cash on hand* as the percentage of unspent capital candidate has in heading into the primaries. This provides a proper means to control for inflation over the period of 1980-2016.

I have included four momentum variables in my study, two identical variables from each of the first-in-the-nation competitions. Vote share defines the percentage of the vote a candidate

receives in these contests, while winner is a binary dummy with 0 representing those who lost the state and 1 representing those who won.

With this data I have run a Pearson's R correlation which then led to the creation of several explanatory models using, as mentioned above, both basic OLS regression analysis as well as lag models which have been created in STATA. All of these models provided a means to describe how preprimary media coverage along with other factors can directly affect the aggregate primary vote.

The use of a Pearson's correlation was based on the attempt at discovery of model fit for these variables. With such a test, I was given the ability to uncover whether it was truly accurate to place these variables, especially broadcast which has not been used previously in such a model, in my study.

My first OLS model is a replica of the more traditional model used by Dowdle et al (2016), as I used only independent variables collected during the preprimary period in an attempt to discover the significance of *broadcast coverage* without the great impacts that come with the Iowa Caucuses and the New Hampshire Primary. The same can be said of my second model, in which I include my Iowa and New Hampshire variables as a means to determine what effect preprimary coverage has once momentum is taken into account.

Differentiating from traditional forecasting models, I have made the decision to lag certain variables given the collection of many variables took place during the year prior to the collection of the dependent variable. The process of doing so includes lagging the dependent variable along with the broadcast variable. I have taken the time to create these lag models because the information broadcast television delivers in the preprimary period may have a

delayed effect, which causes it to have consequences throughout the sequential nomination process.

After my models continuously returned statistically insignificant results for my primary independent variable, I ran multicollinearity diagnostics which returned high VIFs. Media have a tendency to follow the horserace, therefore it would be redundant to include both in a single statistical model. As a result, I creating further models in hopes of eliminating this heavy multicollinearity.

In an attempt to create more parsimonious models in terms of the effect of broadcast media on aggregate vote percentage I account for multicollinearity. To do so with my third preprimary model I simply chose to exclude Gallup polling. This new momentum model focused solely on the influence of preprimary coverage and momentum on the aggregate vote percentage, which has allowed for an accurate depiction of how preprimary broadcast coverage plus momentum can affect nomination outcomes.

V. Results

In an effort to provide the clearest and most concise definitions of my results I have laid out my models in the order described in the previous section, and provided commentary after each as a means to describe what the results from each regression tell. I argue that while this appears tedious, it allows for a proper discussion of preprimary broadcast coverage's significance and effect on the aggregate vote percentage. I will be placing my correlation model as well all OLS and lag models in this section for explanation, this will first set up the argument in favor of my chosen variables followed by the arguments of why preprimary broadcast media coverage is or is not a significant predictor.

A. Descriptive Statistics

Before I delve into the models I will run through the descriptive statistics of each variable as a means to provide a more in depth look of what the variables in these models are and how they are distributed, beginning with the dependent variable. With this being a heavily quantitative study I will begin with the most basic of quantitative analysis, the mean. Looking to the mean of 14.2 would not be appropriate for this study for one primary reason, it is severely impacted by the extremes. In this study the extremes are those few candidates who manage to win a larger vote share, which drives the mean up from what would be a much smaller average to 14.2.

Looking to the standard deviation it holds greater than the mean, at 19.8 percent. At a higher standard deviation becomes easier to visualize the greater stray away from the mean.

I argue the median provides more insight into how candidates will fare with regards to the outcome of the nomination season. With the median showing fiftieth percentile of candidates garnering only 3.2 percent of the vote share, this allows for a much greater understanding of how vote share is truly allocated. This is especially true in this sequential system in which there is typically two contenders per party at best.

In many cases mode can prove to be the better statistic to look to as a means of frequency, however in this study I argue that is not the case. One can make the case that mode may be a better means to measure vote percentage with because one of the modes is under 1 percent which is what a plurality of the candidates won. However, this is not so, given it is multimodal and one of the other modes is zero. Therefore, I affirm the median as the best frequency to garner insight on vote share.

Lastly for the aggregate vote percentage, it can be seen using a Jarque-Bera test in STATA for skewness and kurtosis that this variable is not normally distributed, but kurtosis was not an issue. The right skew was to be expected given the heavy amount of candidates who achieved little success come the start of the primaries.

Shifting now to my primary independent variable, broadcast has 97 observations as well. I again make the argument that the arithmetic mean of 14. 0 would be inappropriate to use as an approximation of the amount of broadcast coverage candidates receive during the preprimary. It too allows for the same problems as *aggregate primary vote percentage*, as it is influenced too greatly by the front runners who receive a bulk of media attention.

The standard deviation, which stands at 14.6, is once again larger than the mean. For the average candidate the mean is a larger amount of broadcast coverage, yet a standard deviation larger than the mean provides a greater amount of deviation from the mean.

Mode was easily eliminated due to it being zero, which in no way was representative of the sample.

Finally, when testing for normality, I again use a Jarque-Bera test which discovers that the null hypothesis of normality cannot be rejected. I do further testing to discover that the skew is to the right, which again is to be expected with front runners receiving the bulk of coverage while those who trail fight for media attention. I also find that *broadcast* it also slightly leptokurtic, with it having a slightly more pronounced right tail and a kurtosis at 8.8, again due to the large gap between front runners and those who trail.

With this lack of normality, I argue that the median again is the best measure. The median for *broadcast* is 9.2, which up until the 2016 primary provides a proper measure of central tendency.

Like the previous two variables it is not in one's best interest to use the mean as the primary measure of central tendency for *Gallup*. This being due to, like *aggregate vote percentage* and *broadcast,* its lack of normality. With the Jarque-Bera test returning P values less than .05, I must reject the null hypothesis that *Gallup* lacks skewness or any excess kurtosis and as a result I am unable to use the mean of 11.5 as the primary central tendency.

Looking further into the skew and kurtosis, I tabulate further descriptive statistics on STATA. With this tabulation I find *Gallup*, like the previous variables, to have a right skew as a result of so few candidates heading into the primary season with higher poll numbers. There is a leptokurtic effect as well, however it is not as pronounced as it is with *broadcast*.

As a result of this lack of normality, one must use the median as the primary means of central tendency. The median holds at exactly 7 and is unaffected by the outlier numbers achieved by the frontrunners.

The mode is not a plausible measure in this situation for two reasons. First, the mode generally is used as a measure for nominal variables, and *Gallup* is ratio. Second, the mode of 2 represents the lower part of the n.

Lastly, when looking at the standard deviation of 13.7 for *Gallup* it becomes apparent once more that there is a large distribution of poll standings within the fourth quarter. This can be seen especially when comparing this number to the mean.

When looking to *endorsements*, I have first tested for normality as a means to discover which measure of central tendency is best. My Jarque-Bera test for skewness and kurtosis did not allow me to reject the null hypothesis that *endorsements* was distributed normally. With this being the case, I tested further to discover that this variable does have a right skew, being caused

by front runners and more viable candidates receiving the bulk of elite endorsements. This testing also reveals the distribution to be leptokurtic with a kurtosis statistic of 8.1.

With the discovery that *endorsement* lacks normality, it is logical to use the median as the central tendency by which to measure the sample. Sitting at 6.6 percent, the median allows for a favorable estimation of the typical candidate's share of endorsements during the preprimary season.

It is this lack of normality that sends the signal to disqualify the mean, which is affected by outliers. In this sample the mean sits at 14. 5 percent, which is unrealistic to expect from most candidates when one takes into consideration front runners have received 21-98 percent of endorsements in past contests.

One must also take into account the standard deviation of *endorsements*, which sits at 20.8. With a standard deviation that much larger than the mean, it becomes easier to understand how much the data is able to veer away from the mean.

Before turning to the next variable, I will mention that the mode for *endorsements* is zero, and while many fail to garner preprimary endorsements the mode remains inappropriate for a ratio variable.

Turning now to *spending*, it is immediately revealed in the test for normality that this sample does not fit neatly into a normal curve. With this being said, the test for skewness reveals opposite of what previous variables have shown, for *spending* there is a skew to the left. Which is very understandable, considering front runners have historically needed to spend less during the preprimary period. Given, the immediacy of front runner status this leftward skew is created. With regards to kurtosis, the Jarque-Bera test does yield statistically significant results signifying excess kurtosis, however it is very slight at a value of 4.6.

Given this lack of normality, it is unwise to use the mean of approximately 14 as the primary means of central tendency. Like the previously discussed variables it is affected too greatly by the extremes, however unlike the latter variables the outliers that affects it are not those caused by front runners. It is the candidates who trail by large amounts who pull the mean up with their excessive spending, which is used as a last resort to stay viable prior to the start of the primary season.

Spending is the one of the few variables to have a standard deviation smaller than that of the mean, which is worth discussing. With several of the prior variables, the mean was larger indicating that the data was distributed further away from the mean. With *spending* the standard deviation of 12.6, reveals that the data is clustered closer to the mean.

Yet, with the mean being affected by outliers, the best method of measuring central tendency once again falls to the median. *Spending* yields a median of 9.7, while this will not give one much knowledge of what a frontrunner or a failing candidate may be spending it provides better insight into what the average candidate spends during the preprimary season.

Although *spending* yields a mode which is not equal to zero, I reiterate that it would be inappropriate to use as a measure of central tendency. With this being due to the use of mode being employed primarily with nominal variables.

When observing the descriptive statistics for *cash on hand*, one can immediately see that they are very similar to that of *endorsement*. When first testing for normality the null that *cash on hand* is distributed normally is rejected with a P value of 0.00 for skew and 0.013 for kurtosis. Further testing into normality shows that there is a positive skew due to what I will from here on call the front runner effect. This front runner effect can also explain the excess kurtosis which sits at 5.6, and while this is not severe it is enough to create a leptokurtic curve.

With a non-normal distribution, it is best to not use the mean of 14.3 as the primary measure of central tendency. As with all prior variables *cash on hand*'s mean has been severely affected by the extremely large amount of cash front runners have when heading into the primary season. The lack of normality caused by the front runner effect requires the median to be called upon as the measure of central tendency.

The median sits at 5.9 percent, and unlike the mean, is unaffected by the front runner effect. Due to it being unnafected by the front runner effect, this measure provides a more accurate estimate of the cash a candidate can expect to have heading into the primaries.

Taking a quick look at the standard deviation of 20.8 also allows one to have a better understanding of just how greatly the data is spread away from the mean. With this being the case, the mean can be affirmed as not the best choice for the measure of central tendency.

Lastly the mode of zero, is once again not a contender as a measure of central tendency due to this also being measured as a ratio variable.[2]

I will now move on to my momentum variables, and for the sake of brevity and not wanting to sound too repetitious I have condensed some of the explanations of the descriptive statistics for these variables. Although binary variables typically differ from cardinal variables in the sense that the descriptive statistics are not as telling I have provided some explanation on tendency and normality for *Iowa win and New Hampshire win.*

Beginning with *Iowa win* variable, I have tested for normality using the Jarque-Bera test. The results signify both skewness and kurtosis are present in the sample. Given this is a binary variable, with only one candidate being able to win the caucuses each year, the positive skew is

[2] The argument could be made that cash cannot be a ratio variable given the ability to use credit during campaigns, however for the purpose of this study I have opted to make it ratio, given cash can technically reach zero, and have coded it as such.

to be expected. With a kurtosis statistic at 5.1 there is a more pronounced right tail due to the winners of the caucuses.

This lack of normality gives one cause to discount the mean of 0.14 as the measure of central tendency. The proper measure, despite it not being nominal, is the mode. The mode is viable, given it is based off of recurring tendencies, which is appropriate for wins and losses. Therefore, the mode of 0 provides an accurate estimate of how the average candidate will fare in Iowa.

Continuing with the Hawkeye State, I move to *Iowa vote share*. Which takes the form of a ratio variable that is positively skewed and leptokurtic. This being a result of larger amounts of the vote share going to a small share of candidates, which allows for the more pronounced tails. The curve is being pulled to the right creating a positive skew by a mean which is equal to approximately 14.0. This mean is creating the skew as a result the caucus' top finishers, these candidates who do far greater than their opponents are not representative of the sample as a whole and drive the mean to the right causing this positive skew.

Like with most of my variables, this causes the median to be the best measure of central tendency. At exactly 9 percent, the median allows for a much better depiction of what percentage of the vote candidate can expect to earn heading into Iowa.

Unlike with *Iowa win*, the mode is not appropriate, given this too is a ratio variable which cannot be looked at by measures of recurrence.

Taking a quick look at the standard deviation, which stands at 15.7, one has the ability to observe that the *Iowa vote share* data has room to stray rather liberally from the mean.

Moving now to *New Hampshire win*, I reiterate that I will only provide normality results as well as tendency preferences given its operationalization as a binary variable. With regards to

the former, the null of normality is rejected with the Jarques-Bera test. I test further to find there is a positive skew, as a result large amounts of losers and few winners. Kurtosis testing reveals a leptokurtic curve with a kurtosis statistic of 5.6.

With these issues, the mean is discounted as a method of central tendency. Therefore, it falls to either median or mode. As with *Iowa win*, this is a binary variable representing "wins and losses" therefore I argue the best method of measuring central tendency would be mode.

New Hampshire vote share might be imagined to be similar to *Iowa vote share*, however there are several significant differences, which prominently can be seen with normality. As, when initially testing for normality using the Jarqua-Bera test, skew is still detected, however kurtosis is not. As with all previous variables, except *spending*, the skew is positive due to the mean being pulled up by those who have fared better in the Granite State's primary.

Due to this skew it is best to turn to the median, 9 percent, to measure central tendency. This will provide a more accurate estimate of how an average candidate can expect to fare in the New Hampshire primary.

The standard deviation, like in most of these variables, is larger than the mean, which gives one the knowledge that the data points are more spread away from the mean.

B. Models

Those who I am basing my models after (Dowdle et al. 2016, Adkins & Dowdle 2005; Steger 2009) have set the foundation for my tertiary independent variables by placing them in OLS models, however my main independent variable has yet to be tested in such models. I therefore must first discover if it correlates properly with the dependent and other independent variables as a means to test for fit, therefore I have laid out Pearson's R bivariate correlations for each variable. Bivariate correlations without the *broadcast* variable have yielded statistically

significant correlations for each pairing, therefore, I use this updated model to discover if the addition of *broadcast* causes any two variables to fail to meet a P-value equal to, or less than .05. My finding show that the addition of *broadcast* does not have an effect on the statistical significance of any correlations as they all maintain statistical significance at the .001 level. Specifically looking to *Broadcast*, it too yields statistical significance at the .001 level, which provides the first step towards a successful linear model.

Next I look to see how strong these correlations are when *broadcast* is added. Looking to the above model it can be seen that all of the secondary independent variables hold positive values above .5, which depicts relatively strong correlations overall for these variables. With the strongest preprimary variable being *Gallup* and the strongest overall being the percentage a candidate wins in New Hampshire. *Broadcast* has a stronger value, being just slightly under *Gallup* providing additional evidence that it may be an accurate predictor when placed in an OLS model.

What does this mean about preprimary broadcast coverage and primary aggregate vote percentage other than it can be placed in an OLS model? For these variables when taken in the aggregate it means that they all have strong connections to the aggregate vote percentage, some more than others. For my dependent variable it ultimately it means there is a significant connection between broadcast and aggregate vote percentage, one that is rather strong. When one watches television during the preprimary period which gives coverage to candidates it does appear to be impactful on the voters, yet this model is unable to tell us if it can help predict the aggregate primary vote.

This bivariate model also allows me to identify potential multicollinearity. Multicollinearity is an issue derived from placing two highly correlated independent variables in

	Aggregate Vote Percentage	Broadcast	Endorsement	Gallup	Cash on Hand	Spending	Iowa Win	Iowa Vote Percent	New Hampshire Win	New Hampshire Vote Percent
Aggregate Vote Percentage	1.000	---	---	---	---	---	---	---	---	---
Broadcast	0.719	1.000	---	---	---	---	---	---	---	---
Endorsement	0.676	0.773	1.000	---	---	---	---	---	---	---
Gallup	0.758	0.834	0.737	1.000	---	---	---	---	---	---
Cash on Hand	0.672	0.719	0.747	0.759	1.000	---	---	---	---	---
Spending	0.588	0.728	0.668	0.702	0.674	1.000	---	---	---	---
IA Win	0.471	0.481	0.477	0.406	0.395	0.401	1.000	---	---	---
IA vtpct	0.527	0.571	0.507	0.646	0.446	0.646	0.694	1.000	---	---
NH Win	0.646	0.376	0.269	0.345	0.241	0.247	0.011	0.247	1.000	---
NH vtpct	0.823	0.657	0.502	0.660	0.540	0.680	0.325	0.517	0.665	1.000

Figure 1: Bivariate Correlation

a linear model, and by doing so the results can be dramatically affected. By looking at this bivariate correlation I am able to predict that there will be multicollinearity issues with *Gallup* and *broadcast* due to their correlation coefficient of .864, which signifies a very strong correlation between these two independent variables. VIF testing must be done to observe whether there truly will be multicollinearity issues with the models, and whether the exclusion of *Gallup* can fix them.

Nevertheless, with all the independent variables significantly correlating to the dependent variable it is safe to assume that the models I have chosen will be a good fit and move forward with them. The following model uses the approach put forward by Dowdle et al. (2016), by using OLS analyses on preprimary variables. What can initially be seen in this model is that the *endorsement* variable loses its statistical significance as a result of the *broadcast* inclusion, causing my H^2 to fall to the null. This may come as striking, given elite endorsements had continuously been a reliable predictor for prior forecast models, and Cohen et al. (2008) built a sound argument that elites remain in control of nomination outcomes due to their endorsement power. However, endorsements have been the variable which historically take into account the amount of knowledge passed on to the voters about the candidates in a competition where heuristics become key for success. In this study I have included broadcast media, which has been argued to give people greater ability to identify differences between candidates (Palfrey & Poole 1987; Prior 2005). With the inclusion of broadcast media, there is a variable which takes into account the possibility that voters may attain their knowledge of candidates in a method other than elite endorsements, and even use broadcast media as a source for which they ascertain information regarding endorsements, which may explain the lack of significance.

	Beta coefficient	Standard error	t-statistic
Broadcast	0.247	(0.183)	1.35
Endorsement	0.139	(0.109)	1.28
Gallup	0.598	(0.190)	3.16**
Cash on Hand	0.127	(0.107)	1.19
Spending	-0.034	(0.107)	-0.22
Constant	0.449	(1.957)	0.23

N=97
Adjusted R-squared= 0.598
P<.05

Model 1: Ordinary Least Squares Regression: Preprimary Variable Effects on Aggregate Vote Percentage

One may question this defense of the *broadcast* variable, given it too fails to reach statistical significance. However, the lack of significance for the primary independent variable is a result of several issues, the key being multicollinearity. I tested for multicollinearity prior to running this model, yet I felt there was importance in showing the effects of simply adding *broadcast* to an already existent, time tested model. I will address the multicollinearity in future models, which will provide a more accurate depiction of broadcast media's effect on the aggregate vote percentage. What I have done here is attempted to discover the results of including *broadcast* in an otherwise unchanged forecast model created by Dowdle et al. (2016).

In their 2001 studies Adkins and Dowdle found *cash on hand* to be statistically significant which allowed them to create successful ordinal forecasts, therefore the same variable's lack of statistical significance in this model may be called into question. I argue this would be a meaningless task, as Dowdle et al.'s (2016) successful forecasting study yielded opposite results with *cash on hand* not reaching statistical significance in their preprimary model.

Although it does not reach statistical significance, *spending* yielded a positive beta value. This is contrary to my H^3, implying that spending may increase one's share of the aggregate primary vote.

Consistent with nearly all forecasting models (Mayer 1996; 2003; Adkins & Dowdle 2001; 2005; Dowdle et al. 2016) *Gallup,* or preference polls is found to be a statistically significant predictor. Historically preference polls have been the most powerful predictor heading into the primary season, even giving Dowdle et al. (2016) the ability to forecast Trump with a similar model due to his mass appeal during the preprimary.

If this were the model that I advised future forecasters to use it would be highly flawed. It limits forecasters to the boundaries of fourth quarter polling, and while this occasionally can be

all one needs to forecast a winner it will not do so consistently. Donald Trump's early populist appeal mixed with a larger than normal candidate field provided him with the power to win the nomination with little cash reserves and zero preprimary endorsements. Only in unusual campaigns is it possible to disregard heuristics such as endorsements and broadcast media and be successful (Lau & Redlawsk 2001).

It must also be taken into account that an accurate forecast cannot be done using one variable given the differences in party dynamics (Steger et al. 2012). Past studies have found that certain variables affect Republicans greater than Democrats and vis versa due to their methods of delegate allocation. Republicans leave their method of delegate allocation up to the states after Super Tuesday, many of which choose the winner take all which causes for an early victor. This has historically caused voters to rely greater on preprimary endorsements (Dowdle et al. 2008) and cues from Gallup polling. Political scientists have found *cash on hand* to be the key predictor for Democrats, while Gallup polling was found to have a minimal effect on the vote as a result of their drawn out process which requires proportional distribution of delegates in every state. Therefore, this model may be somewhat suitable for certain Republican forecasts, but will be unsuccessful in a bulk of Democratic forecasts.

When putting this model to the test it was only able to accurately forecast eight of the past fourteen competitions correctly.[3] A bulk of the incorrect forecasts being Democratic contests, which was to be expected. Those which were Republican inaccuracies came after the 2004 cycle, which was the year the forecasting community began to employ momentum models for greater accuracy. Some of these inaccuracies can be attributed to a lack in statistical

[3] A 2008 Democratic win for Hillary Clinton is counted as accurate due to her winning more of the aggregate vote

significance for traditionally significant variables, which ultimately falls on my inclusion of *broadcast*, but they are also linked to lack of momentum variables.

The following model is a momentum model which came into greater effect after the widespread forecasts of Howard Dean in 2004 (Steger 2008). It is simply the latter preprimary model with the addition of Iowa Caucus and New Hampshire variables to account for momentum. The same issue of multicollinearity is present in this model, but again I argue it is important to show the effects of *broadcast* by first inserting it into a time tested model.

Immediately one can see that this is a much larger model, and it yields slightly different results than the model I have based it on (Dowdle et al. 2016) as a result of the *broadcast* variable. Also there are some preprimary variables that have garnered significance as a result of the momentum variables, which is to be expected and hoped for. *Endorsements* is the first variable which did not yield significant results, but achieves statistical significance in this model. With the addition of these new variables shedding new light on what may affect the aggregate vote percentage, the impact of the elites becomes reinforced. This second model does appear to back the argument Cohen et al. (2008) have built that elite endorsements are the single most powerful element of the preprimary period.

While one can argue that this first momentum model proves that preference polls are more powerful this is untrue. It is accurate that the *Gallup* variable has yielded the greatest beta coefficient of the preprimary variables, providing it with the greatest predictive power preprimary variables, polling is influenced by outside factors. Cohen et al. (2008) make the argument that endorsements help guide the polls.

	Beta coefficient	Standard error	t-statistic
Broadcast	-0.111	(0.115)	-0.97
Endorsement	0.173	(0.069)	2.53**
Gallup	0.372	(0.118)	3.15**
Cash on Hand	0.147	(0.649)	2.26**
Spending	-0.268	(0.124)	-2.16**
IA Win	12.460	(3.455)	3.61***
IA vt pct	-0.070	(0.862)	-0.81
NH Win	15.572	(3.546)	4.39***
NH vt pct	0.573	(0.107)	5.36***
Constant	-0.378	(1.215)	-0.31

N=97
Adjusted R-squared= 0.598
***P<.05*
****P<.01*

Model 2: Ordinary Least Squares Model: Preprimary and Momentum Variable Effects on Aggregate Vote Percentage

As in the case with endorsements, *cash on hand* switches in this model to become statistically significant. This, however, was not unexpected as the same happened in the Dowdle et al. (2016) study. This was simply a result of the addition of the momentum variables, which created a more telling model.

Contrary to several studies *spending* reached statistical significance and also yields a negative beta coefficient which confirms my H^3. This is quite telling given it is a natural assumption that those who spend during the preprimary will reap the rewards come the nomination cycle. Yet, these results depict the opposite. They provide evidence showing that candidates who dip too far into their war chests do so out of desperation, and this type of preprimary spending is a type of "hail mary" to gain the attention of voters prior to the start of the nomination season.

Although many of these preprimary variables garnered statistical significance in this second model, one can see that the *broadcast* variable did not. While the issue of multicollinearity remains a factor in why this is so, it is still intriguing to see with this model what effect *broadcast* would have had it reached statistical significance, which according to the beta coefficient would be negative, thus meaning the greater the amount of coverage one receives in preprimary the lower their share of the aggregate vote percentage would be. Despite this not being statistically significant, it remains counterintuitive, especially when momentum variables are added into the mix, given much of the preprimary coverage is about the viability of candidates heading into these two competitions (Redlawsk et.al 2011).

While political scientists would prefer to exclude momentum variables and have the power to predict winners within the preprimary time period, these two competitions have had a greater impact on nomination outcomes in recent years. Three of the four momentum variables

included in this study have traditionally held the greatest predictive power in forecasting models, with Iowa vote share never being able to reach statistical significance. This model I have put forth continues to show how large an impact these early competitions can have on the outcomes of presidential nominations.

When looking at the Iowa variables, one can immediately see a stark contrast in predictive power when compared to the preprimary variables. Those who win the caucuses greatly benefit, and receive a bump heading into Iowa (Redlawsk et al. 2011). However, only winners benefit from the Hawkeye State, as those who come in second and beyond do not benefit if they perform better than expected and are not harmed if they do not live up to expectations (Dowdle et al. 2016).

New Hampshire provides similar benefits with regards to providing a bump to the winner. What differentiates New Hampshire from Iowa is the amount of momentum power it provides not only winners, but those who simply win a higher percentage of the vote. This can be seen with the statistical significance of *New Hampshire vote percentage* which, when coupled with the lack of significance for Iowa's vote share provide further evidence to Dowdle et al.'s (2016) findings that New Hampshire proves, in general, to be the more impactful of the two bellwether contests. This gives mild weight to former Governor John Sununu's claim that Iowa picks corn while New Hampshire picks presidents.

I reiterate that this is an imperfect model, mostly due to the multicollinearity issue which as a result kicks out the *broadcast* variable. Without this problem this may be the most telling model one has created yet, due to the statistical significance of all the spending. However, when put to the test this model has roughly the same predictive power as the 2016 momentum model created by Dowdle et al. which had the ability to forecast 13 of the last 14 nominees, due greatly

in part by the overpowering predictive power of the 3 statistically significant momentum variables.[4]

Now that it has been shown how *broadcast* would suffice by plainly inserting it into models used by prior studies, it is appropriate to show how and why the variable should not be simply discounted as having no effect on the aggregate primary vote. I have attributed the lack of statistical significance in these prior models to issues of multicollinearity, and explained previously that this issue was due to a conflict regarding horserace coverage to which I have made the decision to exclude *Gallup* from future models. This should allow me to continue without further multicollinearity issues, and begin to see *broadcast* show a more prominent effect.

What I have done in this first model, which does not have an issue with multicollinearity, is chosen to lag several variables as a means to take a slightly different look at the effects broadcast can play on *aggregate vote percentage*. I will run through the changes step by step. First, I have removed *Gallup* from this model, which lowers the VIF scores to a number which depicts only moderate multicollinearity, making this an acceptable predictive model. Second I have lagged both the *aggregate vote percentage* and *broadcast* variables. The lag is an important step to gather not only a general ability to predict winners, but to gain the ability to learn when certain variables take effect. It must be noted as well, that a lag model has never been employed for any type of nomination forecast study.

When running through the results of this model the first thing to catch the eye is the lagged *broadcast* variable, as it has reached statistical significance at the 0.00 level. This is rather

[4] Tsongas was incorrectly forecast to win the 1992 nomination as a result of his win in New Hampshire

	Beta coefficient	Standard error	t-statistic
L.Broadcast	0.969	(0.102)	9.50***
Endorsement	-0.006	(0.165)	-0.05
Cash on Hand	0.046	(0.112)	0.41
Spending	-0.088	(0.165)	-0.53
Constant	1.235	(2.709)	0.46

N=96
Adjusted R-squared= 0.486
****P<0.01*

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Model 3: Lagged Ordinary Least Squares Model- Preprimary Variables' Effect on Aggregate Vote Percentage when Broadcast and Aggregate Vote is lagged at t-1

telling, given it reaches significance for the first time when *Gallup* is removed and when it has been lagged. With regards to *Gallup* being removed, *broadcast* garnering statistical significance at this point helps justify the exclusion of *Gallup* for multicollinearity reasons. In terms of being lagged, I have the ability to posit the following theory: broadcast media absorbed by voters during the preprimary can have a delayed effect on the aggregate vote percentage.

Looking strictly at the predictive power of *broadcast* in this model, it is rather strong with a beta coefficient of .97. This places the lagged *broadcast* first in an ordinal ranking of predictors if I were to exclude statistical significance.

While this model produces positive results for the lagged *broadcast* variable, it contradicts previous findings with two of the three remaining variables. *Endorsements* has consistently been a significant predictor when used in forecast models (Steger 2008; Steger et al. 2012; Dowdle et al. 2016), however when placed into this lag model it yields a P value of 0.96. This result most likely being due to the lag of the *aggregate vote percentage*, which is represented by t-1, while *endorsements* has remained a stationary variable.

The same can most likely be assumed for *cash on hand*, which has also been a steady predictor for Adkins and Dowdle through the years (2001; Steger 2008; Steger et al. 2012; Dowdle et al. 2016). *Cash on hand* has remained stationary in this model, and like *Endorsements* had its P-value increased by the lag on the dependent variable.

Spending wise, this variable was not greatly effect by the lag. It remains statistically insignificant, and yields a negative beta coefficient.

This model provides very telling results regarding the effect of *broadcast* media on the voters, it would be, however, a step backward in terms of accuracy for forecasters. Political scientists cannot rely on one variable, let alone *broadcast*, to forecast a presidential nomination.

This model is currently accurate in only 9 of 14 races, and yields an adjusted R squared of .48. Given, the standard, or goal, adjusted R squared for a forecasting model is above .90[5], there is strong justification for this model to be avoided when forecasting presidential nominations.

Despite the preprimary model yielding unsatisfactory results in terms of forecasting, it does provide insight into the predictive power of the media, which is shown to be statistically significant. Therefore, it is important that I still present a momentum lag model. It being very similar to the latter model, with the only changes being that the momentum variables have been included. All prior lags are still in effect.

Not much is different with the results of this lagged momentum model in terms of significance. The lagged *broadcast* variable reaches statistical significance at the 0.00 level, and yields a positive beta coefficient of .95, which is nearly identical to its counterpart in the preprimary lag model. This again justifies the removal of *Gallup*, and allows for the theory that *broadcast* has an effect on the voters, just one that may be delayed.

All other variables, like in the previous model, have remained stationary. This includes the momentum variables, which may be the primary reason that only *broadcast* reached statistical significance once again. The results of both of these models, while counter to previous forecast models, depict a powerful media which may lead the charge of candidate popularity. I will argue this point in further depth in the discussion section.

The final set of models I have put forward should be taken individually rather than in tandem, as the prior models have been laid out. The first is a non-lagged preprimary model with

[5] This number is traditionally associated with general election forecast models. Accurate nomination models have typical adjusted R squared coefficients between .80 and .90

	Beta coefficient	Standard error	t-statistic
L.Broadcast	0.949	(0.109)	8.73***
Endorsement	-0.025	(0.227)	-0.22
Cash on Hand	0.049	(0.111)	0.44
Spending	0.014	(0.227)	0.06
IA Win	7.885	(6.275)	1.26
IA vt pct	-0.074	(0.167)	-0.44
NH Win	-6.102	(6.462)	-0.94
NH vt pct	-0.093	(0.192)	-0.49
Constant	2.342	(2.759)	0.85

N=96
Adjusted R-squared= 0.502
****P<.01*

Model 4: Lagged Ordinary Least Squares Model- Preprimary and Momentum Variables' Effect on Aggregate Vote Percentage when Broadcast and Aggregate Vote is lagged at t-1

Gallup removed, which is used as a measure of broadcast's predictive power in forecast models once multicollinearity is accounted.

Looking at the results one can see that, when controlling for multicollinearity, *broadcast* becomes a statistically significant predictor of the *aggregate vote percentage*. It also holds the strongest predictive power of any significant variables, with a beta value of 0.54, thus giving weight to the argument that television media may not just correlate with candidate preference during the presidential primaries, but may also have a causal effect.

Cash on hand is the only other preprimary variable that joins *broadcast* as being a significant predictor of *aggregate vote percentage*, thus leaving out *spending* and *endorsements*. *Spending* was expected to be statistically insignificant, however *endorsements* has been a continuous predictor in non-lagged preprimary models. Nevertheless, with *cash on hand* this becomes a new type of preprimary forecasting model, one which relies on free media and *cash on hand*. A model such as this does not account for a great deal of the variance, with the adjusted R squared sitting at 0.56, however it still has the power to correctly forecast 9 of 14 races.

This last momentum model is significantly different from prior models. I have created such a model in order to focus strictly on the impact of pre-primary broadcast media and momentum, and their effects on the *aggregate vote percentage*. To do this I only used pre-primary broadcast coverage, New Hampshire win, New Hampshire vote percent, Iowa win, and Iowa vote percent as independent variables. This should give an accurate picture of how pre-primary broadcast media coverage provided during the pre-primary period, along with the first in the nation competitions affect the outcome of the primaries.

The results of this model show *broadcast* to indeed be a significant predictor of the *aggregate vote percentage*, with a beta value of 0.34. All momentum variables went as they have

	Beta coefficient	Standard error	t-statistic
Broadcast	0.535	(0.166)	3.22***
Endorsement	0.168	(0.114)	1.48
Cash on Hand	0.233	(0.106)	2.20**
Spending	0.029	(0.165)	0.17
Constant	0.518	(2.050)	0.25

N=97
Adjusted R-squared= 0.559
***P<0.05*
****P<0.01*

Model 5: Ordinary Least Squares Model- Preprimary Variables' Effect on Aggregate Vote Percentage without Gallup *causing for multicollinearity*

	Beta coefficient	Standard error	t-statistic
Broadcast	0.342	(0.092)	3.71***
IA Win	15.582	(3.837)	4.06***
IA vt pct	-0.133	(0.092)	-1.46
NH Win	16.413	(3.782)	4.34***
NH vt pct	0.583	(0.106)	5.49***
Constant	-1.351	(1.431)	-0.94

N=97
Adjusted R-squared= 0.791
****P<.01*

Model 6: Ordinary Least Squares Model- The Effect of Broadcast and Momentum on Aggregate Vote Percentage

in past studies (Dowdle et al. 2016) with all reaching statistical significance except *Iowa vote share*. *Iowa* and *New Hampshire win* both yielded beta coefficients greater than 15.5, with New Hampshire affirming itself as the competition of greater impact.

This last model yields an adjusted R squared of 0.79, which puts it within range of a proper nomination forecasting model. This particular model also has the accuracy to predict nearly every nomination contest dating back to 1980. The true power of this model, however, is its ability to depict the power of *broadcast* as the solo preprimary variable. In doing so, political scientists are able to come to the tentative conclusion that television media consumed during the preprimary period has an effect on the outcome of the nomination.

VI. Discussion

These models provide several conclusions regarding preprimary broadcast media effect on the results of presidential nominations. With regards to forecasting, preprimary broadcast media did not afford the greatest contribution to current models, especially the *Adkins-Dowdle* model that I was using as a template for this study. This has proven to already be a workable model and the addition of *broadcast* does not excel its accuracy any further. I made a noble attempt to create a more parsimonious model which could explain a greater amount of the variance, however this did not occur. In turn, when it came to forecasting, I created less accurate models plagued with multicollinearity issues, and when I adjusted for the multicollinearity the models still were simply unable to be as reliable as their predecessors. This does not mean, however, that preprimary broadcast consumption yields no effect on the nomination process, quite the opposite.

My ultimate goal in this study was not simply to create a better forecasting model with the insertion of some type of media variable, I truly wanted to observe and discover if there was

an effect of broadcast media absorbed within the preprimary on the outcome of presidential nominations. By looking at the latter four the models I have put forward in this study, it becomes clear that an effect between *broadcast* and *aggregate vote percentage* does take place. While an effect is obvious with these latter models, the lag models provide the most information regarding the effect of *broadcast* on the nomination process.

Going in more depth on this argument, a consistent and powerful preprimary predictor for Adkins and Dowdle has always been *Gallup* polling, which when placed into these new models caused complications relating to multicollinearity. I argued previously that the multicollinearity was a result of media tendency to simply report on the horserace, however after running these lag models I now argue that this may not be the case. *Gallup* has been a reliable predictor, given the candidates who head into the primary season with a fourth quarter lead have somehow garnered popularity among voters, yet how this mass appeal is earned has gone unaccounted for.

These polls are taken prior to the beginning of an election year, and provide an obvious depiction of frontrunner status that is easily maintained throughout the primaries. However, my lag models have shown that it may be the broadcast media that is pushing this early popularity in manner similar to that of how endorsements provide cues. While it has been well documented that media focuses too greatly on the "horserace," there are segments in which substance is presented to audiences. It is at these times that media becomes an institution which voters utilize as a learning tool for candidate choice.

This argument and these findings contrast the widely accepted minimal effects model, which, as I previously explained, states that campaigns have minuscule effects on voter choice, and that media can rarely influence vote choice. This study, however, provides evidence that the influence of broadcasted media is correlated, or perhaps even holds a somewhat causal effect,

with that of candidate popularity via preference polls, this meaning that the minimal effects model does not apply in to primary contests. While it has been argued by political scientists such as Steger, Adkins, Dowdle, and Mayer that primaries are different, and the campaigns within the preprimary phase do indeed matter, there has not been much of an in depth argument regarding the impact of media on nomination outcomes or voter choice.

I maintain their argument that primaries are indeed different from general elections and must be studied in different ways, and with this thesis I add onto their line of reasoning by making the argument that broadcast media is more powerful within the primary and the preprimary. Vavreck (2009) makes the argument that as long as the message in general election media regard the economy a candidate has potential for success. This cannot occur during the preprimary, as candidates simply cannot stick to one generic message year after year and expect garner attention, and these results show that there is much more to be won by garnering media attention during the preprimary than in the general election, given the cues media provides and popularity it can bring.

With media potentially being most useful to voters during the preprimary period the notion that tone is not a powerful predictor (Steger 2012) should be looked at again. The theory that any news is good news is sound in electoral politics, but when observing these results this theory may not be applicable early on in the preprimaries when the American voter is still getting to know the candidates. Only when voters have grasped who the candidates are and what their general platform is, can tone no longer remain as a factor making tone a much larger predictor than previously believed.

The theory that endorsements provide cues for the voters during the preprimary has been established rather well by political scientists and notable forecasters, but this theory that I have

put forth has not been. Future research must be done, to break further ground on my theory that preprimary media holds an effect on nomination outcomes. This more extensive research must include the other forms of media which include print, social, internet, twitter, etc. I argue such a study should be conducted in a similar manner, using forecasting models. Such a study will and must take a much greater amount of time for the collection of these different types of media variables. This future study should use the *New York Times* National Edition as the proxy for print, given the national edition is available to readers all across the nation. Social media is the hardest to collect given it is not only ever changing, but a trend media. The best way to collect such media would be to do a metadata search for postings relevant to the candidates and their campaigns within the preprimary period through major social media sites beginning with Facebook and Instagram.[6] I argue Twitter should be separated from social media because the 2016 primary contest has proved that it can provide a more direct impact, given candidates use Twitter to directly create media on their behalf. I argue the sample should be kept to the number of tweets and retweets of those influential to the nomination process such as candidates, elites, and media outlets[7]. As for online media, partisan bias must be accounted by using two sources known for having ideological biases, Huffington and Drudge, and one arguably centered source, the Associated Press. The operationalization of online media will be the same as broadcast, breaking it into percentage of coverage each candidate received in relation to the other candidates.

[6] Personal soundbites and online political arguments will not be included, however memes and political cartoons will be.

[7] Media outlets include the broadcast media sources used in this study: *CBS*, *NBC*, *ABC*, *CNN*, *MSNBC*, and *Fox News*. As well as print and online media sources such as the *New York Times, Washington Post, Huffington Post, and Drudge.*

This follow up study must continue using primary forecasting models as a methodological tool. I make this argument, given these models provide the most information regarding preprimaries and have a large adjusted R squared. By using forecasting models there is also the potential to do what I attempted to do in this study, create a more parsimonious forecasting model. Once such a study has been completed political scientists will have a better understanding of preprimary media influence on nominations. However, my research currently provides the best insight into how candidates can benefit from a single preprimary media source, by examining the most widely used media source for electoral politics of the past forty years.

VII. Conclusion

Forecasters have indeed come up with sound and accurate methods of predicting presidential nominees within the past twenty years, and as I have stated previously my attempt to add on to their accuracy failed. Despite holes within the current methodology of these forecasts from Adkins and Dowdle, and Steger with their exclusion of any type of media effect, my attempt to fill this hole with the introduction of *broadcast* has only caused problems in accuracy.

However, by using their forecasting methodology I did garner the ability to make an impactful contribution to the fields of electoral politics and political communication. My use of OLS lag modeling to make the discovery that broadcast media helps drive preprimary preference polling had not been seen prior to this study and has the ability to be used in future studies regarding the impact of media on voter choice in nominations. These future studies will focus around public opinion and preprimary media impact, which up to this point has had been scarcely researched.

I want to end with this point, media matters in Presidential nomination contests. Even if it was not a significant predictor of the *aggregate vote percentage* in the forecasting models, it has

shown to potentially impact the preference polls of candidates early on in the preprimary phase. It is therefore a learning tool for the American voter during campaigns, and must be respected and studied accordingly.

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