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Follow the Money?
**Analyzing the impact of fundraising on candidate withdrawal
in the 2020 Democratic presidential primary**

Scotland Ross Kraker

Macalester College
Political Science Honors Thesis

Advisor: Professor Julie Dolan, Political Science

April 28, 2021

Abstract:

The 2020 Democratic presidential primary had the largest field in modern history. Twenty eight major candidates sought the nomination, yet after March 19th that historic field had been winnowed down to only two. This paper seeks to explain part of that winnowing process and expand on the literature explaining why candidates withdraw in presidential primaries. I trace the impact of fundraising on candidate withdrawal during the 2020 primary using an event history model, to compare cash on hand, a traditional indicator of financial success with a new indicator which takes into account a candidate's relative position in the field. My results find that both variables are correlated with candidate exit among all candidates. However, my results also suggest that daily relative position is statistically significant across relevant candidate subgroups and is perhaps better equipped to deal with fundraising outliers.

Acknowledgements and Dedication

I would like to thank first of all my thesis advisor, Professor Julie Dolan for her advice, expertise, and most of all her support throughout this thesis process. I would also like to thank Professor Lisa Mueller and Professor Julia Chadaga for agreeing to be a part of my panel. I would be remiss if not to thank Professor Paul Dosh and my fellow honors colloquium members for their support over numerous Monday night zoom meetings. Next, I would like to thank my friends Lily Irvin and Kaitie Brown who were always there to help me when I had questions on data collection, coding and data analysis. Finally, I would like to thank my family, especially my parents for their love and support.

I dedicate this thesis to my grandmother, Eleanor Kraker, a teacher from Duluth, Minnesota who supported me throughout all my academic pursuits, and my grandfather Bob Carmack, a college librarian who helped instill in me a lifelong love of reading, both of whom passed away this past winter. Both knew I was undertaking this project, but were not able to see its completion, and I know this dedication would mean the world to them both.

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Introduction:

The 2020 Democratic presidential primary was one of the most competitive in recent memory, and for many it seemed like the Democratic Party was facing another crossroads. According to longtime Democratic operative Simon Rosenberg, “The era of Clinton and Obama is ending and ceding to a new set of dynamics. A new Democratic Party is being forged in front of our eyes”.¹ Just under thirty major candidates threw their hat in the ring to take on President Donald Trump, and though there was an early and substantial polling lead for former Vice President Joe Biden many candidates saw potential paths to the nomination. However as the campaign wore on and those paths began to dwindle, candidates started dropping out of the race.

As this winnowing process continued it became clear that one roadblock for some candidates was a lack of funds. New Jersey Senator Cory Booker wrote an email to his supporters saying that a lack of money was part of why he chose to exit the race, while California Senator Kamala Harris made the link between fundraising and suspending her campaign explicit: writing “My campaign for president simply doesn’t have the financial resources we need to continue”.² The media reinforced this narrative, penning articles such as “Beto O’Rourke’s Fund-Raising Falters as 2020 Democrats Announce Fundraising” in which candidate’s quarterly hauls were regarded as omens of their future success or

¹ Molly Ball and Phillip Elliott, “The 2020 Democratic Primary Will Be Unlike Any Before It,” *Time Magazine*, February 21, 2019.

² Brian Naylor, “Cory Booker Drops Out Of Presidential Race,” *NPR*, January 13, 2020. Abigail Hess, “Kamala Harris suspends campaign, says: 'I'm not a billionaire. I can't fund my own campaign',” *CNBC.com*, December 3, 2019.

failure.³ Many senators, governors and representatives entered the race full of hope but failed to raise enough money to sustain a long-lasting, competitive campaign.

For other candidates fundraising seemed not to matter, or at least to matter less. Former New York City mayor and billionaire-CEO Michael Bloomberg and hedge fund manager Tom Steyer funneled hundreds of millions into their unsuccessful campaigns. Their massive war chests insulated them from the fundraising pressures faced by their opponents. Bloomberg entered the race late and sought to make up for lost time with an aggressive nationwide ad campaign—no matter the cost. Other candidates, such as Colorado Senator Michael Bennett and businessman Andrew Yang, soldiered on to compete in early electoral contests despite far lower fundraising numbers than the frontrunners. Notably, the last three Democratic candidates standing were not Joe Biden, Bernie Sanders, and Elizabeth Warren, (the candidates with the highest vote totals) but Biden, Sanders, and Hawaii Representative Tulsi Gabbard—who raised a little over a tenth of Warren’s final campaign haul. So while it is clear that money factored heavily into the decision making of some candidates, it may not have been true across all campaigns. This thesis seeks to add to the literature on the relationship between different fundraising indicators and the length of a candidate’s campaign.

The political science literature on presidential primaries has long focused on trying to identify, explain, and predict which factors cause some candidates to succeed while others fail in the nomination process. Different topics explored by researchers have included policy proposals, candidate viability or electability, campaign organization, fundraising, media attention, poll standings, early results in Iowa and New Hampshire,

³ Shane Goldmacher, “Beto O’Rourke’s Fund-Raising Falters as 2020 Democrats Announce Finances,” *New York Times*, July 15, 2019.

race, gender and more. Because these factors are all in play in any given primary it can be difficult to extricate the impact of any one variable. When looking at fundraising, scholars have posited that candidates often decide to suspend their campaign when the financial cost of continuing outweighs their probability of winning.⁴ Measures like daily receipts and cash on hand are also the subject of much public discourse, including in the media, the public, and within campaigns themselves.⁵ This thesis seeks to expand the literature specifically on fundraising during primaries. Nearly all political scientists studying presidential primaries agree that money matters, however there is a broad range of disagreement about how much it matters, how best to measure its impact, and how it is affected by and affects other variables. In short, the “money problem” in presidential primaries is very much still an open question.

This paper explores the connection between a candidate’s fundraising and when they decide to drop out of the race. There is a substantial amount of literature on the factors that cause candidates to drop out of primary contests (sometimes called the attrition game or the money primary).⁶ There has also been much written about the connection between a candidate’s viability and their fundraising ability.⁷ Some scholarship has attempted to bring these two strands together by looking at when the costs of remaining in the race outweighs

⁴ Barbara Norrander, "The attrition game: Initial resources, initial contests and the exit of candidates during the US presidential primary season." *British Journal of Political Science* (2006): 487-507.

⁵ Sean McMinn and Alyson Hurt, “Tracking The Money Race Behind The Presidential Primary Campaign,” *NPR*, April 20, 2020.

⁶ Audrey A. Haynes et al., "The calculus of concession: Media coverage and the dynamics of winnowing in presidential nominations." *American Politics Research* 32, no. 3 (2004): 310-337.

⁷ See especially Hinckley and Green, “Fundraising in presidential nomination campaigns...: 1996, Damore, “A dynamic model of candidate fundraising...” 1997, Adkins and Dowdle, “The Money Primary...” 2002, Shelton and Feigenbaum, “The vicious cycle...”, 2013, and Swearingen, “Laying the foundation for a successful presidential campaign...” 2019.

the probability a candidate believes they will win the nomination.⁸ However, there is no uniform or agreed upon way to best measure fundraising success. This paper will compare two different measures of a campaign's financial success: a traditional measure of cash on hand, with a new measure of relative position from the fundraising leader against the length of a candidate's campaign using an event history model. Consistent with prior analyses, I expect the relationship between fundraising and campaign length will not be constant among all candidates, and so I conduct a classification of the candidates for the 2020 Democratic primary. In that classification I differentiate between candidate types such as traditional and nontraditional and bigshots and longshots. I hypothesize that while measures of a campaign's average daily cash on hand may be predictive of campaign withdrawal, that the relative position of a campaign's finances in comparison with the frontrunner will be more significant. Candidates who raise almost as much as the leading fundraiser will be more likely to continue than those that fall further behind and see their chance of closing the gap shrink. However I also predict that this measure may not be equal among all candidates, as longshot or nontraditional candidates will be able to stay in longer with less money than some of their bigshot, traditional counterparts due to them spending less overall.⁹

Chapter 1 consists of a literature review on the scholarship regarding presidential primaries, campaign fundraising, and candidate attrition, or winnowing. Chapter 2 delves deeper into the ways political scientists classify presidential candidates and why classification matters. It also includes a comprehensive classification of the 2020 field.

⁸ See Norrande, "The attrition game..." 2006, and Dowdle, Adkins, Steger, "The viability primary...", 2009.

⁹ Norrande, "The Attrition Game".

Chapter 3 lays out my hypotheses, research design, and method, which uses an event history model to test the relationship between the length of a candidate's campaign and my fundraising variables. Chapter 4 contains analysis of my results, in which I find evidence that while both cash on hand and daily relative position have a relationship with candidate exit, daily relative position may be more consistent and resistant to outliers in the data. It also details the differences in my data between all candidate subgroups. Finally, I conclude the paper and discuss the implications of these findings on the presidential nomination literature, suggesting areas for future research. Scholars have used many different indicators when studying the relationship between fundraising and campaign success but have not settled on one that is most effective. I compare cash on hand with the relative position of candidates to the frontrunner in order to see which is most significant. The purpose of this paper is to add to the literature by comparing different measures of fundraising success (or lack thereof) and determine which is the most predictive of candidate withdrawal, therefore helping guide future literature in better predicting and explaining the fascinating phenomena associated with presidential primaries.

Chapter 1:

Fundraising in Presidential Nomination Campaigns

Reform in the Nominating Process

In response to the tumultuous events that occurred in and around the 1968 Democratic National Convention in Chicago, the Democratic National Committee formed a Commission on Party Structure and Delegate Selection, commonly known as the McGovern-Fraser Commission. The commission set new rules for the selection of presidential candidates and ushered in the system of binding primaries and caucuses that is still in effect today.¹⁰ The conventional view of the pre-reform nomination process was that it was an undemocratic operation in which party bosses bestowed the nomination upon whoever they thought was the most deserving (usually ensuring a nominee that was well within the bounds of party establishment thinking).¹¹ The weakness of this system was laid bare in 1968, when the Democratic party nominated Hubert H. Humphrey even though he had not run in a single statewide primary contest.¹² In response to the massive amount of disunity in the party as well as Humphrey's monumental electoral failure against Richard Nixon, the McGovern-Fraser commission was created, and many of its proposals were adopted by the Democratic Party for the 1972 election with the Republican party soon after following suit and adopting a more democratic nominating process.

The McGovern-Fraser Commission started what scholars call the post-reform era of presidential nominations, and much ink has been spilled trying to explain how and why

¹⁰The McGovern-Fraser Commission Report, Congressional Record, 92nd Congress, First Session, Volume 117, Part 25 Washington D.C.: United States Government Printing Office, 1971, 32909-32910.

¹¹ Barbara Norrande, "The End Game in Post-Reform Presidential Nominations." *Journal of Politics* 62, no. 4 (2000): 999-1013.

¹² Olivia Waxman, "Inside 1968's Chicago Democratic National Convention Protest," *Time*, August 8, 2018.

the current process works the way it does. Scholars such as Wayne Steger contend that the reforms carried out by the parties after 1968 has made the nomination process more democratic in terms of allowing citizens rather than party elites to choose the nominee, and more open in terms of allowing a broader range of candidates to vie for the nomination—though establishment candidates still retained many advantages.¹³ In the decades following reform, political scientists started asking basic questions about how the process works, and testing their hypotheses with each subsequent nomination contest. Louis Bartels posits that voters in presidential primaries choose who to vote for based on their expected utility—namely whether or not they think their candidate will be able to defeat the opposing party in the general election.¹⁴ Much of the scholarship has stemmed from this conception of voter choice, and therefore scholars have then sought to figure out why certain candidates are perceived as being more electable than others.

Broadly, the early scholarship on presidential primary campaigns could be summarized as a quest to answer the question “who wins primaries, and why?” The two dominant mechanisms for winning primary campaigns are the frontrunner effect and momentum. Under Bartels’ theory voters will often vote for who they think is the most electable. Oftentimes this is based on multiple factors such as name recognition, media coverage, early polling and more.¹⁵ Whoever has the largest advantage in these early indicators is the frontrunner. Many longitudinal studies find that more often than not, the candidate that is the frontrunner in the national polling prior to the first contests often

¹³ Wayne P. Steger, "Do primary voters draw from a stacked deck? Presidential nominations in an era of candidate-centered campaigns." *Presidential Studies Quarterly* 30, no. 4 (2000): 727-753.

¹⁴ Larry M. Bartels, "Candidate choice and the dynamics of the presidential nominating process." *American Journal of Political Science* (1987): 1-30.

¹⁵ Bartels, "Candidate choice and the dynamics...".

secures the nomination.¹⁶ Even in recent years, the frontrunner effect finds supporting evidence in the nominations of Hillary Clinton in 2016, Mitt Romney in 2012, and Joe Biden in 2020. Frontrunners, who are almost always party insiders, usually garner positive media attention, early fundraising leads, and key endorsements which then build a narrative of success that voters bring to the voting booth.¹⁷ In short, Bartel's theory argues that voters will line up behind the frontrunner (as established by the public, the media and the party establishment) because they want to choose the "most-formidable Democrat opponent" to take on the Republican in November.¹⁸

But if the frontrunner effect is so strong then why would anyone other than the frontrunner even bother contesting the nomination? The second way Bartels argues candidates win nominations is through the momentum effect. An early victory in the Iowa caucuses or the New Hampshire primary can demonstrate to voters that a candidate is electable, and outperforming the supposed "frontrunner" is one of the surest ways to ensure that they lose that status.¹⁹ Barack Obama's 2008 run against one of the biggest names in Democratic politics, Hillary Clinton, is a classic example of momentum delivering the nomination. Obama's upset victory in Iowa gave him a boost in fundraising and enthusiasm that he would carry all the way to the nomination.²⁰ Furthermore, candidates can gain

¹⁶ David Dodenhoff and Ken Goldstein. "Resources, racehorses, and rules: Nominations in the 1990s." *The parties respond*, 3d ed., edited by L. Sandy Maisel (1998): 170-201.

¹⁷ See Steger, "Do primary voters...", 2000, Adkins and Dowdle, "How important are Iowa and New Hampshire...", 2001, and Summary, "The endorsement effect..." 2010.

¹⁸ Bartels, "Candidate choice and the dynamics...", 23.

¹⁹ For a more in-depth analysis of the impact of early contests like Iowa and New Hampshire, see Wayne P. Steger, Andrew J. Dowdle, and Randall E. Adkins. "The New Hampshire effect in presidential nominations." *Political Research Quarterly* 57, no. 3 (2004): 375-390.

²⁰ David P Redlawsk., Caroline J. Tolbert, and Todd Donovan. "Why Iowa? How Caucuses and Sequential Elections Improve the Presidential Nominating Process." United Kingdom: University of Chicago Press, 2011.

momentum by receiving more media attention than their opponents.²¹ Some argue that media momentum helped propel Donald Trump to the front of an incredibly crowded 2016 primary field, giving him the legitimacy and public visibility needed to secure him the nomination.²² Therefore, even though the frontrunner has many institutional advantages at their disposal, victory is not assured meaning that the study of presidential primaries can seek to answer questions about how candidates who defeat frontrunners differ from those who languish in obscurity.

Frontloading and the Pre-Primary Period

Since the 1990s individual states have been moving their primaries and caucuses to be earlier in the calendar year, which has increased the importance of the pre-primary period, also known as the invisible primary. Large electoral contests like Super Tuesday, in which multiple states have primaries on the same day, have been around since the 1980s and by the 2000s approximately one-third of all delegates were decided by late February or early March.²³ Scholars have argued that one major effect of this shift, called “frontloading,” is that there is less of an opportunity for candidates to gain momentum and overthrow the frontrunner during the actual primary season.²⁴ In an increasingly frontloaded schedule candidates compete for support in pre-primary polls, for media attention, and for donations as early as a full year before the first contest in Iowa. The importance of this pre-primary period means that many candidates now drop out of the

²¹ Joshua Stewart. "The Pre-Emptive Election: How the Mass Media Determine Winners and Losers in Presidential Primaries, 1988-2012." (2014).

²² Chris Wells et al. "How Trump drove coverage to the nomination: Hybrid media campaigning." *Political Communication* 33.4 (2016): 669-676.

²³ Lonna Rae Atkeson, and Cherie Maestas. "Racing to the front: The effect of frontloading on presidential primary turnout." In *State Politics and Policy Conference, Akron, OH*. 2004.

²⁴ Randall E. Adkins, and Andrew J. Dowdle. "The Money Primary: What Influences the Outcome of Pre-Primary Presidential Nomination Fundraising?." *Presidential Studies Quarterly* 32, no. 2 (2002): 256-275.

nomination race before any votes are cast.²⁵ Because of this shift, political scientists have also had to shift the focus of their studies to this pre-primary period. Different scholars have called the time period before any votes are cast the invisible primary, the viability primary, or the exhibition period but for simplicity's sake I will simply refer to it as the pre-primary period.

The increasing importance of the pre-primary period has not only shifted political scientists' temporal focus, but it has also exacerbated a shift towards other factors such as polling, endorsements, media attention and money. Because there are no votes to be cast or delegates to be won, candidates often are competing for the hearts and minds (and wallets) of potential voters during the pre-primary period. Pre-primary polling is one common way candidates demonstrate their electability in the pre-primary period.²⁶ In the past, this tended to be a fairly successful measure given that between 1936 and 1968, the leader in the Gallup poll prior to the first primary almost always won the party's nomination.²⁷ However, other scholars argue that pre-primary polling is simply a reflection of other outside factors. Audrey Haynes and Paul-Henri Gurian have focused their scholarship on the impact of media attention on candidates' competitiveness.²⁸ Others have looked to endorsements as a way in which the party elites are still able to tip the scales before votes are cast.²⁹ Finally, a huge portion of the literature on presidential nomination

²⁵Barbara Norrander, "The attrition game: Initial resources, initial contests and the exit of candidates during the US presidential primary season." *British Journal of Political Science* (2006): 487-507.

²⁶ Andrew J. Dowdle, Randall E. Adkins, and Wayne P. Steger. "The viability primary: Modeling candidate support before the primaries." *Political Research Quarterly* 62, no. 1 (2009): 77-91.

²⁷ Norrander, "The attrition game...".

²⁸ See Haynes, Gurian, Crespin, Zorn, "The calculus of concession...", 2004, and Haynes, Flowers, Gurian, "Getting the Message Out...", 2002.

²⁹ See Steger, "Do primary voters..." 2000, Steger "Who wins primaries and why?" 2007, and Summary, "The endorsement effect", 2010.

contests has focused on money and fundraising as a major way candidates demonstrate their viability.³⁰ It should be noted that although none of these variables are separate from one another, political scientists have spent much of the last couple decades trying to parse out which of these factors have the biggest influence on the nomination process.

Overall, political scientists have found that money matters but where they differ is on how much it matters. Harkening back to Louis Bartels' hypothesis that voters want to vote for the candidate they think has the best chance of winning in the general, scholars have found that most voters want to give money to a candidate they think has the best chance of winning the nomination.³¹ In his paper "A Dynamic Model of Candidate Fundraising," David Damore developed a model to begin to understand the relationship between money and success, and found evidence supporting his thesis that electoral success has a subsequent positive effect on fundraising.³² However, as frontloading became more common and the importance of the pre-primary period grew, money became one of the easiest indicators for the media to look at to determine how competitive a candidate was. This focus on fundraising has been known as the "money primary" which many scholars have emphasized as being a predictor of success once the voting starts.³³ In their paper, Adkins and Dowdle argue that fundraising during the pre-primary period is incredibly important, and that votes cast in primary contests are actually of secondary importance to fundraising. They build a model that shows that national poll results, changes in viability, and fundraising expenditures help decide who wins the money primary.

³⁰ For a comprehensive account see Michael J. Goff, *The money primary: The new politics of the early presidential nomination process*. Rowman & Littlefield, 2005.

³¹ See Diana Mutz, "The effect of horse-race coverage...", 1995 and Hinckley & Green, "Fund-raising in presidential primaries...", 1996.

³² Damore, "A dynamic model of candidate fundraising".

³³ Adkins, and Dowdle. "The Money Primary...".

The money primary is not only something focused on by scholars, both the campaigns themselves and media reporting also have focused more and more on fundraising as an indicator of a candidate's electability. Scholars Feigenbaum and Shelton attempt to provide empirical evidence of a "vicious cycle" in presidential primary politics between fundraising and perceived candidate viability.³⁴ The vicious cycle refers to candidates who fail to build momentum during the pre-primary period both in national polls and fundraising. These candidates, exemplified by the authors using Mike Huckabee's 2012 failed bid, may have name recognition or a national platform, but who fail to rise in national polls or raise large sums of money early in the pre-primary period. Other prominent recent examples could be Jeb Bush's 2016 bid, or even Joe Biden's 2008 run. Shelton and Feigenbaum consider this a "classic chicken and the egg" problem, and argue the two failures are mutually reinforcing. They find a dynamic positive feedback loop between the two variables, proving that money matters in presidential primaries. They find that not only are increases in fundraising followed by increases in perceived viability, but that a candidate's increased viability can be leveraged into more campaign contributions. Conversely this cycle can become vicious when a lack of donations reinforces a perceived lack of viability.

Fundraising and Candidate Attrition

However, fundraising is not only a predictor of success in the presidential nomination contest, it also can help predict how long a candidate is able to stay in the race and when they will be forced to drop out. Barbara Norrander's research on presidential primaries focuses on a theory of candidate attrition (also called winnowing). Norrander

³⁴ James J. Feigenbaum, and Cameron A. Shelton. "The vicious cycle: Fundraising and perceived viability in US presidential primaries." *Quarterly Journal of Political Science* 8, no. 1 (2013): 1-40.

builds upon literature that portrays presidential primary campaigns as resource-scarce environments; as candidates compete for a limited pool of resources, those that draw the short straw tend to exit more quickly than those at the top of the pack.³⁵ Norrander looks at multiple factors that may cause candidates to drop out from 1980-2004.³⁶ She finds that money shaped the length of candidacies in a curvilinear pattern (meaning winning candidates tend to raise the most, but longshots prolong their campaigns by spending less). Her study builds upon other literature in the field which groups candidates into subcategories such as establishment or long shot in order to reflect the reality of a broad range of post-reform candidacies.

Norrander and other scholars have attempted to flip the traditional question of “who wins nominations and why?” into “who loses nominations and why?” The literature of candidate attrition in many ways parallels the literature about primary electability and success. Some have focused on the role of the media in the rise and fall of pre-primary candidacies, others have looked to more basic factors such as endorsements, name recognition, or previous government experience.³⁷ Many have again looked to money as one of the primary drivers of candidate attrition, arguing that most candidates exit the race when they either run out of money, or the cost of continuing is much greater than their odds for success.³⁸

Although there are many studies which take into account campaign fundraising and money as a primary driver of candidate attrition, there is shockingly little consensus about

³⁵ Norrander, "The End Game in Post-Reform...".

³⁶ Norrander, "The Attrition Game...".

³⁷ See Dowdle, Adkins & Steger, "The viability primary..." 2009, Damore, Hansford and Bargothi, "Explaining the decision to withdraw...", 2010, and Goldman, "The Dynamics of Compression...", 2015.

³⁸ Norrander, "The attrition game...".

what the best way to measure success or lack of success in fundraising is measured by. Specifically, there appears to be no academic consensus about the best measure of fundraising success, or which measure has the largest impact on the length of a candidacy. Total money raised, daily contributions, cash on hand, and campaign spending have all been used as stand-ins for the money primary in various papers with no study so far attempting to decipher which of these measures are more effective than others. My paper will seek to fill in this gap in the literature and determine the effectiveness of these varying, though not disconnected, measures through a case study of the 2020 Democratic presidential primary. However, before looking at the campaign's fundraising efforts one must first grapple with a question that has factored into many of the papers mentioned above: should scholars assume all presidential campaigns rely on fundraising to the same degree or magnitude?

Chapter 2:

Candidate Classification and the 2020 Field.

When it comes to presidential primary contests, expectations matter. In April of 2015 Senator Bernie Sanders announced his candidacy for president as a Democrat, challenging the already established frontrunner Hillary Clinton. The *New York Times* wrote “his bid is considered a long shot” and he was dubbed a “dark-horse” candidate.³⁹ Less than four years later Sanders announced he was running for president again; this time no longer a long shot, but as a frontrunner. The *Washington Post* called him a “force that reshaped the Democratic Party” and the *Times* acknowledged he “is among the best-known Democrats in a crowded field.”⁴⁰ In both 2016 and 2020 Sanders won the New Hampshire primary, but the expectation on his candidacy had changed. His victory in 2016 was lauded as “a stunning win over Hillary Clinton that will send shockwaves through her campaign”.⁴¹ In 2020, Sander’s win was simply him “cementing his status as a front-runner,” in other words, it was expected.⁴² In the study of presidential primaries, how candidates are classified matters, because different campaigns have different goals, expectations, strategies and costs that affect how they campaign.

³⁹ Alan Rappoport. “Bernie Sanders, Long-Serving Independent, Enters Presidential Race as a Democrat,” *New York Times* April 29, 2015. Dan Merica, “Bernie Sanders announces his presidential run,” *CNN*, April 30, 2015.

⁴⁰ Dave Weigel. “Sen. Bernie Sanders will seek the Democratic presidential nomination in 2020,” *Washington Post*, February 19, 2019. Sydney Ember. “Bernie Sanders, Once the Progressive Outlier, Joins a Crowded Presidential Field,” *New York Times*, February 19, 2019.

⁴¹ Dan Roberts and Lauren Gambino. “Bernie Sanders secures decisive win over Hillary Clinton in New Hampshire,” *The Guardian*, February 10, 2016.

⁴² Jonathan Martin and Alexander Burns. “Bernie Sanders Scores Narrow Victory in New Hampshire Primary,” *New York Times*, February 11, 2020.

The differences between types of candidates

While even long-shot candidates often say publicly that they are “in it to win it,” candidates who are not front-runners know they face an uphill battle and often have additional goals for their candidacy other than securing the nomination. Damore, Hansford, and Barghothi argue that there is another benefit to running in a presidential primary—profile elevation.⁴³ While frontrunners only have the goal of winning, other candidates may stay in the race longer to raise their national profile. Therefore even an “unsuccessful” run at office can give a candidate political capital they can leverage for a position in the nominee’s cabinet, another elected role, or a future run. Kamala Harris, Joe Biden, John Edwards all initially vied for a chance at the top of the ticket before being chosen for the V.P. spot. While Bernie Sanders, Hillary Clinton, Mitt Romney and John McCain are all examples of candidates who benefited from a prior unsuccessful run that raised their national profile and put them in a better position to run again.

However, some other candidates, especially non-politicians, may not care as much as their own personal profile. They may have the goal of influencing the party platform or convincing the public of a specific policy proposal.⁴⁴ For example, in the 2000 Republican primaries, former Ambassador Alan Keyes campaigned for the elimination of the federal income tax. Keyes continued to stay in the race even as he fell further and further behind frontrunners Gov. Bush and Sen. McCain because he continued to receive media coverage for his policy proposals. Many issue candidates realize that they will not secure the

⁴³ Damore, Hansford & Barghothi, “Explaining the decision to withdraw...”.

⁴⁴ Sean P. McKinley "Run for your life: Spectacle primaries and the success of ‘failed’ primary candidates." (2013).

nomination, but will continue to campaign in order to influence the national policy conversation.⁴⁵

Frontrunners often have higher expectations placed on them, getting constant coverage and facing heightened scrutiny from the media. In contrast, less established candidates may fight for media attention from networks that dismiss their chance at the nomination as impossible. Diana Mutz explores the effect of horse-race media coverage in presidential primaries and finds this dynamic in full effect.⁴⁶ Mutz argues that how a candidate is covered by the media can affect the success of their fundraising, and that the spin of media coverage is highly dependent on the expectations placed by the media on those candidates. David Damore explores the relationship between expectations, electoral success, and fundraising among candidates.⁴⁷ He notes that candidates have different expectations put on them by the public and the media and finds that their fundraising is affected by those expectations. He finds that frontrunners are expected to do well and therefore must continually prove their viability by performing well electorally in order to continue raising significant amounts of money.

In contrast, longshots have low expectations, but may possess a loyal recurring donor base that can sustain them despite low poll numbers. These longshots often have minimal national following prior to running, and therefore can benefit much more from the profile-raising aspect of a run at the presidency.⁴⁸ Longshots often remain on the periphery,

⁴⁵ The case of Donald Trump also opens the possibility that a candidate may run for office not to promote an issue or policy, but simply to enrich their own personal brand or may join the race seeking to make money or profit. According to his personal lawyer, Michael Cohen, Trump “never expected to win the general election. The campaign for him was always a marketing opportunity.” Nancy Gibbs, “How Donald Trump Lost by Winning,” *Time Magazine*, March 1, 2019.

⁴⁶ Mutz, “The effect of horse-race coverage...”

⁴⁷ Damore, “A dynamic model of candidate fundraising...”

⁴⁸ McKinley, “Run for your life...”

hoping that a strong debate performance or the winnowing of the field helps them rise to the top. In 2016 John Kasich sought the Republican nomination and though he was unable to win, he did benefit from the winnowing of the field. As other establishment candidates left the race, Kasich remained to provide an alternative to Trump, outlasting all 7 other governors who initially entered the race, as well as bigger national names like Marco Rubio and Rand Paul. Longshots can attempt to leverage early upset wins to raise large amounts of money and try to build momentum, as Barack Obama did in 2008.⁴⁹ Therefore it is clear that the differing expectations faced by different types of candidates has real implications for how they raise money.

Different types of candidates also have different strategies for their candidacies which affects how much money they spend. Acknowledging that candidates have different goals, Barbara Norrander argues they implement different strategies in order to remain in the race.⁵⁰ Under theory of attrition, all candidates other than the frontrunner try to develop a campaign strategy that maximizes their resources so they can stay in the race longer. More traditional candidates who are not frontrunners often see their path as being heavily dependent on a victory in Iowa or New Hampshire and therefore put most of their money into competing in those early states in the hopes that victories there will stimulate their candidacies and lead to more donations down the line.⁵¹ On the other hand, nontraditional or longshot candidates will prolong their candidacy with “low-budget campaign tactics”.⁵² These candidates can remain on the campaign trail for a longer period of time than

⁴⁹ Damore, “A dynamic model of candidate fundraising...”.

⁵⁰ Norrander, “The Attrition Game...”.

⁵¹ Adkins & Dowdle, “The Money Primary...”.

⁵² Norrander, “The Attrition Game...”, 491.

traditional candidates by running smaller operations and relying on free media coverage. As discussed earlier, they may choose to do this because they have different goals from other candidates such as raising awareness for a specific policy proposal. Because these differing strategies have a direct effect on how much money a campaign needs to continue it is vital that any analysis of the relationship between campaign finance and length of campaign take into account these differences in order to make meaningful distinctions between how different types of campaigns value money when deciding to drop out.

Other Scholars' classifications.

Classifying candidates with labels such as “frontrunner” or “longshot” may seem simple, and many in the media use these labels quite loosely, but in the political science scholarship creating a taxonomy of candidates requires precision. Throughout the literature, various methods have been used to differentiate between types of candidates. Many early scholars gravitated towards differentiating candidates in terms of their competitiveness and relationship to the frontrunner. In his 1997 analysis of fundraising and electoral success, David Damore breaks candidates into two main categories in much the same way the media does: established candidates and longshots.⁵³ However, Damore’s measure of frontrunner status is heavily dependent on electoral outcomes and was conducted before much of the primary calendar was frontloaded. Therefore Damore’s classification doesn’t translate well to analysis of the modern pre-primary period. Similarly outdated is Barbara Norrander’s 2006 analysis which classifies candidates as establishment or traditional if they have held past high elective office or took primary matching funds.⁵⁴

⁵³ Damore, “A dynamic model of candidate fundraising...”. For a more detailed view of the media’s role in establishing frontrunners and longshots see Mutz, “The effects of horse-race coverage...” 1995

⁵⁴ Norrander, “The Attrition Game...”, 491.

Scholars	Classification	Measure
Damore (1997), Mutz (1995)	Established vs. Long-Shots	Based on electoral outcomes during the primary season.
Norrander (2006)	Traditional vs. non-traditional	Held past high electoral office (V.P, Gov., Sen., Rep.) OR qualified for matching funds.
Steger, Adkins, and Dowdle (2004)	Office-Seekers or Careerists vs. Policy Seekers or Advocates	Review of descriptions of candidates in <i>The New York Times</i> .
Haynes and Gurian (2004)	Big Shots vs. Long Shots	Based on the perception of their candidacies prior to the first contests.

Table 1

Since 2006 the use of federal matching funds has all but disappeared. In 2008 Barack Obama notably rejected public funds for both the primary and the general election and since then the only major-party primary candidate to take funds was Democratic Governor of Maryland Martin O'Malley in 2016.⁵⁵ While these past taxonomies are instructive to what types of factors may be relevant in classifying presidential primary candidates they are not applicable to a full analysis of the 2020 primary cycle.

One other possible classification discussed in the literature is based on type of candidacy, not competitiveness. One of the oldest relevant candidate taxonomies is done by Joseph A. Schlesinger in his book *Ambition and Politics: Political Careers in the United States*.⁵⁶ Haynes et. al summarize this classification as dividing candidates into two categories: "office seekers, who are interested in winning office and advancing their political careers, and policy seekers, who are interested in setting the substantive agenda

⁵⁵ Libby Watson. "Why did only 1 presidential candidate take public financing?," *Sunlight Foundation*, January 27, 2016.

⁵⁶ Joseph A. Schlesinger. "Ambition and politics: political careers in the United States." *Chicago: Rand McNally* (1966).

and promoting particular policy outcomes”.⁵⁷ This type of organization allows for a more nuanced analysis of the full range of candidates that compete in presidential primaries. In their 2004 paper, Steger, Dowdle and Adkins devise a way to differentiate office seekers from policy seekers.⁵⁸ They do so using a review of qualitative descriptions of candidates in *the Congressional Quarterly Weekly Report* and *The New York Times*, coding candidates as issue advocates if they are mostly described as running to raise a certain issue. As discussed above, issue advocates often spend money in a much different way than established candidates.

In Haynes et al.’s paper “The Calculus of Concession: Media Coverage and the Dynamics of Winnowing in Presidential Nominations”, Schlesinger’s distinction between office and policy seekers is broken down even further into “bigshots” and “longshots” (their analysis acknowledges, but sets aside policy seekers).⁵⁹ This categorization is based on “the perception of their candidacies prior to September [of the year prior to the election]” evaluated against candidates financial resources, media coverage, and poll standing.⁶⁰ This distinction between bigshots and longshots results in an important distinction that is lost in past analysis. For example, where Norrander would classify the 2000 campaigns of Senators McCain and Hatch the same because both were sitting senators (a.k.a traditional campaigns), Haynes et. al classify McCain as an office-seeking bigshot due to his higher poll numbers, while Hatch would be an office-seeking longshot. Again returning to the 2016 Republican primary, this categorization allows us to break down the field more precisely: while Ted Cruz would be a clear bigshot, his fellow senators Lindsay

⁵⁷ Haynes et al. “The Calculus of Concession...”.

⁵⁸ Steger, Adkins & Dowdle. “The New Hampshire Effect in Presidential Nominations”.

⁵⁹ Haynes et al. “The Calculus of Concession...”.

⁶⁰ Haynes et al. “The Calculus of Concession...”, 335.

Graham and Rick Santorum would be considered longshots, and therefore one may reasonably expect that Cruz's campaign would last longer, and require more consistent fundraising than that of Graham or Santorum. This type of distinction between candidates who hold the same or similar offices becomes even more important in the context of the crowded 2020 Democratic presidential primary. Building upon the work of other scholars (summarized in Table 1), especially the distinctions made by Schlesinger and Haynes et al. I create a candidate taxonomy that takes into account the vast range of factors that distinguish one type of candidate from another.

A comprehensive classification of 2020 candidates

Even a cursory glance at Table 1 reveals that a classification of the 2020 Democratic presidential primary field is no simple task. The 2020 field included nine sitting or former senators, ten sitting or former representatives and four governors—all of differing levels of competitiveness. Political newcomers like South Bend Indiana Mayor Pete Buttigieg shared a stage with, and sometimes surpassed in the polls, beltway insiders like former Vice President Joe Biden and three-term Minnesota Senator Amy Klobuchar. Candidates like Tom Steyer and Michael Bloomberg upended traditional notions of fundraising in primaries, while non-politicians like businessman Andrew Yang and self-help author Marianne Williamson amassed passionate, if limited, fanbases. The sheer number and variety of the twenty eight candidates who ran makes this project harder than it has been in past contests (with the perhaps notable exception of the aforementioned 2016 Republican primary).

Established vs. Longshots

First it becomes clear that Damore and Mutz's division of candidates into established candidates and longshots does not adequately describe the depth of the 2020 race. Damore, writing in the late 90s, was describing a much different primary process than exists today. As discussed above, the frontloading of the primary schedule has meant that much of the competition between candidates takes place before any votes have been cast—in the pre-primary period.⁶¹ Damore's differentiation is heavily reliant on the electoral outcomes of the field, as he measures established candidates as those with a 20+ point lead in polls or those who have one 4 electoral contests.⁶² By his measure the only established candidates in 2020 would be Bernie Sanders, and Joe Biden, and while it is true that those two candidates both possessed some degree of frontrunner status, neither ever led the field by over 20 points, and therefore according to Damore they both would have only cemented their status as an established candidate after the Super Tuesday contests.

Furthermore, Damore's analysis lumps all 26 other candidates in the category of longshot which treats candidates like Massachusetts Senator Elizabeth Warren, who consistently pulled double-digit poll numbers, the exact same as candidates like Joe Sestak, the former representative for Pennsylvania who never polled above 1%. Overall, while Damore's conception of frontrunners and longshots is useful shorthand for the roles that the media and the electorate judge candidates by, it is not robust enough to be useful for a complex analysis of the diverse 2020 field.

⁶¹ Damore, "A dynamic model of candidate fundraising...".

⁶² Damore, "A dynamic model of candidate fundraising...", 351.

Table 2

Established	Biden, Sanders (following Super Tuesday)
Longshots	Bennet, Bloomberg, Booker, Bullock, Buttigieg, Castro, de Blasio, Delaney, Gabbard, Gillibrand, Gravel, Harris, Hickenlooper, Inslee, Klobuchar, Messam, Moulton, O'Rourke, Patrick, Ryan, Sestak, Steyer, Swalwell, Warren, Williamson, Yang

Traditional vs. Nontraditional candidates

By building upon classifications based on electoral outcomes, Barbara Norrander's classification of candidates as traditional or nontraditional based on their reputation or status may move us closer to a nuanced classification of the field. For Norrander candidates are traditional if they have held "high elected office," defined as the Vice Presidency, member of the House or Senate, or as a state's Governor.⁶³ Norrander argues that these candidates are treated more seriously by both voters and the media, and care more about their reputation within the party than nontraditional candidates. Therefore, a failing traditional candidate may drop out of the race earlier if it becomes clear they do not have a path to the nomination. This classification scheme is useful in 2020 as it may explain why candidates like Tom Steyer, Pete Buttigieg, and Andrew Yang remained in the race longer than "traditional candidates" such as New York Senator Kirsten Gillibrand and Washington Governor Jay Inslee.

The 2020 Democratic field, like most presidential contests, was dominated by traditional candidates. According to Norrander's definition 20 candidates, or over 70%, were traditional candidates. One gray area between traditional and nontraditional exists in

⁶³ Norrander, "The Attrition Game...", 492.

the two New York City mayors who entered the race—Michael Bloomberg and Bill de Blasio, however I have decided to keep them in the non-traditional category in part to adhere to Norrander’s original definition, and in part because other aspects of Michael Bloomberg's campaign (its self-financed nature, his late entry, as well as his strategy of skipping the first two contests) aligns him more closely with the nontraditional category. Though Norrander’s classification of candidates is more descriptive than Damore’s it is not without its weaknesses. Norrander’s definition does not take into account the competitiveness of various traditional candidates, putting Ohio Representative Tim Ryan in the same category as former Vice President Joe Biden. Therefore it seems necessary to add some measure of competitiveness in order to truly categorize these candidates in a meaningful way.

Table 3

<p>Traditional Held past high elective office (V.P, Governor, Senator or Representative)</p>	<p>Bennet, Biden, Booker, Bullock, Delaney, Gabbard, Gillibrand, Gravel, Harris, Hickenlooper, Inslee, Klobuchar, Moulton, O’Rourke, Patrick, Ryan, Sanders, Sestak, Swalwell, Warren</p>
<p>Nontraditional Has not held past high elective office</p>	<p>Bloomberg, Buttigieg, Castro, de Blasio, Messam, Steyer, Williamson, Yang</p>

Bigshots vs. Longshots

As discussed above, scholars Audrey Haynes and Paul-Henri Gurian differentiate amongst traditional (or as they call them, office-seeking candidates) with a further breakdown into bigshots and longshots.⁶⁴ In their study, which looks only at the 2000 Republican presidential primary, they classify candidates as bigshot or longshot based on

⁶⁴ Haynes et al. “The Calculus of Concession...”.

“perceptions of their candidacies prior to September 1999”.⁶⁵ As discussed earlier with Damore, frontloading has also made a strict adherence to Haynes and Gurian’s definitions obsolete, as many candidates actually already dropped out of the 2020 primary prior to September of 2019. In addition, Haynes and Gurian tested their classification against media coverage, poll standings, positive news mentions, and financial resources which given the research and time constraints this project was under was simply not possible. Instead I have set an admittedly arbitrary cutoff between bigshots and longshots where a bigshot is defined as any candidate who reached 10% or higher in national polling at any point in the primary. Under this definition, Biden, Sanders, Warren, Bloomberg, Buttigieg, Klobuchar, Harris, and O’Rourke all qualify as bigshot candidates.

Table 4

<p>Bigshots Reached 10% or higher in national polling</p>	<p>Biden, Bloomberg, Buttigieg, Harris, Klobuchar, O’Rourke, Sanders, Warren</p>
<p>Longshots Did not reach 10% or higher in national polling</p>	<p>Bennet, Booker, Bullock, Castro, de Blasio, Delaney, Gabbard, Gillibrand, Gravel, Hickenlooper, Inslee, Messam, Moulton, Patrick, Ryan, Sestak, Steyer, Swalwell, Williamson, Yang</p>

One weakness of this classification is that it does not account for when or why some candidates rise into or fall out of this category throughout the course of the primary. In their paper Haynes and Gurian acknowledge that while it is possible for candidates to move from one to the other,” in reality it rarely happens”.⁶⁶ Perhaps due to the lack of a clear frontrunner, or the size of the field in 2020, this did happen multiple times. Pete Buttigieg

⁶⁵ Haynes et al. “The Calculus of Concession...” 335.

⁶⁶ Haynes et al. “The Calculus of Concession...”.

and Amy Klobuchar rose from the long-shot category late in 2019 and early in 2020, while Kamala Harris and Beto O'Rourke saw glimpses of double-digit growth during 2019 that faded quickly and pushed them out of the race. Further research should explore how these shifts in competitiveness can be explained and whether a third category should be created for those candidates that at different times fall into both categories.

Though in their analysis Haynes and Gurian set aside nontraditional candidates, I believe their classification can be combined with Norrander's dichotomy of traditional and nontraditional candidates. Combining these two creates four different classifications: traditional bigshots, traditional longshots, nontraditional bigshots and nontraditional longshots, the outcome of which is displayed below. This combination of Norrander and Haynes and Gurian's distinctions is more detailed than any previous candidate categorization I came across in the literature, and I believe that when faced with such a large field, these distinctions become even more important to discover how money affects some campaigns differently than others. It also aligns more or less with media perceptions of the 2020 candidates, and therefore has applicability to analyses that look at how other factors such as endorsements, media attention or polling affect candidate exit among these same subgroups.

Table 5

	Traditional Candidates	Nontraditional Candidates
Bigshots	Biden, Harris, Klobuchar, O'Rourke, Sanders, Warren	Bloomberg, Buttigieg
Longshots	Bennet, Booker, Bullock, Delaney, Gabbard, Gillibrand, Gravel, Hickenlooper, Inslee, Moulton, Patrick, Sestak, Swalwell, Ryan	Castro, de Blasio, Messam, Steyer, Williamson, Yang

By building upon the classification strategies of past scholars one can come to a fuller understanding of the expectations, goals, and challenges faced by the largest Democratic presidential field in history. Terms like frontrunner and longshot, though often used without thought by the media, are important to political scientists who seek to explain phenomenon relating to presidential primaries. These definitions need to be uniformly applied and replicable, and hopefully will stand the test of time. Combining the approaches of scholars like Barbara Norrander, David Damore and Haynes and Gurian gives us a comprehensive categorization of the field. This categorization is useful because it helps us make informed hypotheses about these campaigns' relationship to resources such as money, media attention, endorsements, and more. Bigshot traditional campaigns like Joe Biden and Bernie Sanders not only have far different expectations when it comes to campaign fundraising, but they also spend that money differently than a longshot nontraditional campaign such as Andrew Yang's UBI crusade. In addition, this type of categorization can be similarly applied to other fields with large amounts of candidates, something discussed more in the conclusion to this paper. Making these types of categorical distinctions is crucial to making good, targeted hypotheses and will be useful to any scholars who wish to continue further study into the 2020 Democratic presidential primary.

Chapter 3:

Research Design, Methods, and Hypotheses.

When studying the impact of various factors on candidate exit in primaries, when in time a data point occurs can be as important as the data point itself. Following his unsuccessful, but highly publicized, run for Ted Cruz's Texas senate seat, Representative Beto O'Rourke's campaign announcement led to historically high single-day fundraising numbers. In his first day on the campaign trail O'Rourke raised over 6 million dollars, beating Vermont Senator and frontrunner Bernie Sanders' first-day fundraising haul of 5.9 million and blowing California Senator Kamala Harris' 1.5 million out of the water.⁶⁷ However, his campaign was not able to sustain that burst of enthusiasm. O'Rourke ended his campaign quicker, and with less money raised than both Sanders and Harris. In a message to the press O'Rourke made it clear that a lack of funds was a major reason for his withdrawal, writing "It is clear to me now that this campaign does not have the means to move forward successfully".⁶⁸ This example illustrates how timing matters: money raised early in the campaign may generate positive media attention and even bolster electability arguments, but in the end campaigns need to have a deep and consistent fundraising pool to survive the long and grueling modern campaign cycle—which now often lasts over a year.⁶⁹

⁶⁷ Jonathan Martin, "Beto O'Rourke Raised \$6.1 Million Online in First 24 Hours of Campaign," *New York Times*, March 18, 2019.

⁶⁸ Beto O'Rourke, "Read: Beto O'Rourke's full statement on dropping out of the 2020 race," *CNN*, November 1, 2019.

⁶⁹ Feigenbaum, and Shelton. "The vicious cycle...".

Event History Models

Because time plays such a key role in the winnowing of the field of presidential primaries, scholars can use event history analysis to create models of candidate behavior in primaries that look at the relationship between variables and the length of a candidate's campaign. Event history analysis is a type of statistical analysis which studies the duration and timing of events. In their article "Time Is of the Essence: Event History Models in Political Science", scholars Janet M. Box-Steffensmeier and Bradford S. Jones explore the use of event history models in multiple different political contexts.⁷⁰ Writing in 1997, they argue that the vast majority of political science up to that point has been too focused on static relationships (i.e. cross-sectional studies) with not enough attention paid to the timing of political change. Political science research often looks at variables that change over time. Whether that is the partisan makeup of a legislature over time or the amount of money a candidate has in their war chest—these processes are dynamic, and therefore need a dynamic model. For Steffensmeier and Jones, event history models provide a new way to answer questions that are based "on some implicit assumption that *when* some event occurs is as important as *if* some event occurs".⁷¹

As illustrated above, in the study of presidential primaries timing matters when it comes to different events: whether that is an endorsement, a bump in fundraising, or a candidate's exit from the race. In past scholarship on candidate exit, winnowing and the attrition game, researchers have used event history models to test hypotheses about the impact of different variables on a candidate's exit. In their 2004 article, Audrey Haynes

⁷⁰Janet M. Box-Steffensmeier, and Bradford S. Jones. "Time is of the essence: Event history models in political science." *American Journal of Political Science* (1997): 1414-1461.

⁷¹ Box-Steffensmeier and Jones. "Time is of the essence...", 1414.

and her colleagues use a Weibull model of candidate exit in order to create what they call the “calculus of concession,” and Barbara Norrander uses a similar model in her 2006 paper, “The Attrition Game.”⁷² While both these papers acknowledge the importance of money in candidate exit, the Haynes paper focuses on the tilt of media coverage while Norrander assesses a broader range of factors. However, both these experiments were instrumental in the design of this thesis because they show how one can use duration models to learn more about the relationship between different variables and the probability of candidate exit using a dynamic model.

Event history models, also called duration models, are used to model the duration of social processes. This is preferable to cross-sectional analysis because cross sectional research “implicitly makes the unlikely assumption that the process... is in equilibrium”.⁷³ Event history models are able to take into account how variables change, therefore giving us a more robust understanding of different social science processes. Duration models consist of three basic concepts, the survivor function, the occurrence of an event, and the hazard rate. The survivor function shows the probability that the duration (here the candidate’s campaign) has survived, or not ended, by a certain time. Steffensmeier and Jones express the survivor function as follows:

$$S(t) = P(T \geq t)$$

In this function, P is defined as being the probability of survival, T being the duration and t being any specific time. So in the study of the duration of presidential campaigns, each candidate still in the race at any time (t) would be a “survivor.” The next concept crucial

⁷² Haynes et al, “The Calculus of Concession..”, and Norrander, “The Attrition Game...”.

⁷³ Nancy Brandon Tuma. *Social dynamics models and methods*. Elsevier, 1984.

to event history models is the occurrence in time of the event—which in this case is the exit of a candidate. This is modeled using the following probability density function:

$$f(t) = \lim_{\Delta t \rightarrow 0} \frac{P(t + \Delta t > T \geq t)}{\Delta t}$$

wherein $f(t)$ represents the duration density, or the probability of the occurrence of an event (T) at a time (t).

Finally, the third and perhaps most important concept to understanding event history analysis is the hazard function, or the hazard rate. The hazard rate shows us the rate at which a duration ends in the interval $(t, t + \Delta t)$ given that the duration has not ended prior to the start of the interval.

$$h(t) = \lim_{\Delta t \rightarrow 0} \frac{P(t + \Delta t > T \geq t \mid T \geq t)}{\Delta t}$$

Put more simply by Box-Steffensmeier and Jones, “One may interpret the hazard rate as reflecting the risk an object incurs at any given moment in time, given an event has not occurred yet”.⁷⁴ In terms of this analysis, the hazard rate can be thought of as the risk that a campaign ends at any given point given that it has not already been terminated. When defined as the cumulative hazard function, it can show us the summation of hazard rates from the beginning of the time set until a specific time (t). In their paper, Box-Steffensmeier and Jones show how those three concepts are mathematical functions of each other, and prove how knowing the hazard rate $h(t)$ can allow us to derive the survivor function $S(t)$ and the occurrence of the event $f(t)$:

$$S(t) = \frac{f(t)}{h(t)}$$

⁷⁴ Box-Steffensmeier and Jones. “Time is of the essence...”, 1419.

Presidential primary campaigns are classified as continuous-time processes because candidate exit can occur at any time, therefore the “the dependent variable is most often thought of as a continuous random variable and is measured as some metric of time”.⁷⁵ Specifically, I use a Weibull model which has been used by presidential primary attrition scholars like Audrey Haynes.⁷⁶ The Weibull model is a certain type of event history model which uses a probability distribution that assumes time dependence of the dependent variable when creating the hazard function.⁷⁷

When using event history models one must clearly define both the beginning and end of the process modeled, called the “observation period.” Event history models track units (in this case campaigns) over a prespecified period until they experience the event (campaign ending), or the observation period ends. If campaigns begin before the observation period they are left-censored, and if they end after the observation period is over they are right-censored. In their article, Box-Steffensmeier and Jones warn against left-censoring when using duration models, so therefore I have decided to use the first campaign announcement as the unofficial beginning of the preprimary period.⁷⁸ In this case that means the July 28th, 2017 announcement of long-shot Maryland Rep. John Delaney. Though his and Andrew Yang’s November 2017 announcements are clear outliers in terms of when their campaigns started, I believe using their full campaign lengths is important because it illustrates how longshot campaigns can survive longer despite raising less money. The end of my observation period is much more straightforward as it is marked by the concession of the final remaining challenger for the nomination, which in this case is

⁷⁵ Box-Steffensmeier and Jones. “Time is of the essence...”, 1426.

⁷⁶ Haynes et al, “The Calculus of Concession..”.

⁷⁷ Box-Steffensmeier and Jones. “Time is of the essence...”, 1414.

⁷⁸ Box-Steffensmeier and Jones. “Time is of the essence...”, 1423.

April 8, 2020, the day Senator Bernie Sanders announced the suspension of his candidacy. Therefore the only right-censored data is that of the eventual nominee-Joe Biden. This is typical of past analysis of the decision making of presidential primaries which focus more on the candidates that drop out rather than the reasons why one candidate ultimately wins.⁷⁹

Dependent Variable

When using event history models to research primary campaign exit, the dependent variable is simply formulated using the length of time a candidate competed before dropping out. As mentioned above, the earliest candidates to enter the race were John Delaney and Andrew Yang who announced their campaigns in 2017, though the vast majority of candidates entered the race in the first quarter of 2019. The final candidates to enter the race were former Massachusetts Governor Deval Patrick and CEO Michael Bloomberg who entered the race in November of 2019 after many candidates had left the race and many in the establishment lane of the primary felt centrist candidates like Biden would not defeat the much more progressive Bernie Sanders.⁸⁰ The first candidate to drop out of the race was California Representative Eric Swalwell on July 8th of 2019, and the last was Bernie Sanders in April of 2020. Unsurprisingly, the longest campaigns in our sample are Delaney and Yang's at 908 and 828 days respectively, with the next longest campaign being the eventual nominee, Joe Biden, at 483 days. Two campaigns, those of Patrick and Swalwell, lasted less than 100 days, giving an incredibly broad range of campaign lengths. While on average a campaign for the Democratic nomination in 2020 lasted 295 days, that average drops to 251 days if Yang and Delaney are excluded. Each

⁷⁹ Norrander, "The Attrition Game...".

⁸⁰ Sally Goldenberg, "Michael Bloomberg launches campaign for president," *Politico*, November 24, 2019.

candidate's entry, exit, and length of campaign are included in Table 1 in the appendix to this paper.

Independent Variables

This paper focuses on comparing the likelihood of candidate exit with two different financial indicators: average daily cash on hand and average daily relative position. Originally, I had wanted to test the impact of multiple different indicators, but as my project progressed and I delved more into the complexities of event history models I narrowed my scope to focus on the two variables mentioned earlier. Cash on hand is a standard measure used by political scientists when studying campaign fundraising, and has been used specifically in the subfield of primary contests. However, some studies have found these traditional measures, like cash on hand or daily receipts to have little to no effect on candidate exit.⁸¹ Therefore I created a new variable which measures a campaign's position relative to the fundraising frontrunner, to test whether that was more or less likely to predict a candidate's exit from the race.

All data collected was from the Federal Election Committee's (FEC) candidate filings database.⁸² FEC data is standard for studies of this kind, including those using event history models. According to federal law all presidential campaigns are required to submit itemized receipts of any donation to their campaign over \$200, however many campaigns report individual contributions lower than that amount as well.⁸³ They also must report donations from other committees or PACs, loans received, transfers from other federal committees (such as a candidate's Senate or House reelection committee) and contributions

⁸¹ Damore, Hansford, and Barghothi. "Explaining the decision to withdraw....".

⁸² Federal Elections Commission (FEC), "Browse Data - FEC," *fec.gov*.

⁸³ Haynes et al. "The Calculus of Concession..".

from the candidates themselves. Our data also includes unitemized data for individual contributions less than \$200, added onto the final itemized total and then divided by the number of days a candidate was in the race. Candidates must also record itemized disbursements of how they spend their money and when. Most often this takes the form of “operating expenditures” which includes the vast range of things campaigns buy—from office supplies and travel expenses all the way to consulting fees and multi-million dollar advertising purchases. They also record the amount of money that is donated to other authorized committees, and money that is refunded back to donors which often happens after a candidate has exited the race.

Like many real-world sources of data, FEC filings are not a perfect measure of a campaign's fundraising as there is the potential for duplication through amended filings, as well as both under and over counting money. After downloading all the data available on the FEC website for the 2020 Democratic presidential primary candidates, I cross-referenced the amounts pulled by my model with the ultimate FEC totals. Then, by going into the original FEC spreadsheets I attempted to identify and eliminate duplicates in both candidates spent and raised totals, bringing both closer in line with reality. However, there is still a small amount of discrepancy between the actual raised and spent totals and the values that were pulled from the FEC database, which means that the results are subject to some error between the measured totals and the real-world amounts. By compiling these records for each of the twenty eight Democratic primary candidates I am able to get a better picture of how much money is available to a campaign on any given day.⁸⁴

⁸⁴ Haynes et al, “*The Calculus of Concession..*” (2004).

Average Daily Cash on Hand

I began by creating the first measure of financial status, that of average daily cash on hand. In order to create this I had to first find out how much each campaign raised and spent on an average day. Using FEC data for itemized contributions, I compiled how much money each candidate raised for each day their campaign was active. Daily receipts are commonly used in analysis of campaign fundraising of all types including presidential primary fundraising. Next, using the same FEC database, I compiled the total daily disbursements, or amount spent for all campaigns.

Daily cash on hand was calculated by subtracting the amount spent by the campaign from the amount raised. This was then averaged over the length of the candidate's campaign as a whole, giving us the daily average cash on hand measure summarized in Table 2 in the appendix. This means that for some campaigns, their average cash on hand can be negative if the campaign went into debt, or settled those deficits after they ended their campaign. I hypothesize that the higher a candidate's average daily cash on hand, the less likely they will be to exit the race because those campaigns who raise more than they spend realize that they can continue contesting the nomination. Campaigns that on average spend more than they raise will end their campaigns quicker unless they are able to effectively use that money to raise more, otherwise I believe they will fall into the vicious cycle described above by Shelton and Feigenbaum.⁸⁵ However, I do not believe that this measure will be equal amongst all types of campaigns: longshot and nontraditional campaigns may be more likely to continue despite lower levels of cash on hand for some of the reasons outlined in chapter 2.

⁸⁵Feigenbaum and Shelton. "The vicious cycle...".

Daily Relative Position

Next, I created a measure of each candidate's average daily relative position in the field. By creating this measure this paper goes beyond past analyses of fundraising on campaign exit to test whether the position of a candidate *in relation* to the fundraising frontrunner has an impact on their decision to exit the race. Some prior literature has used polling in a similar way and found evidence to support that the more crowded a field is the more likely it is that candidates will exit, and so I seek to test whether this concept applies to fundraising as well.⁸⁶ This measure is one created especially for this paper, and is not one I have seen applied to any analyses of past presidential nomination contests.

I created a measure of daily relative position by first going back to the data of each campaign's cash on hand. Starting with day one, any excess money not spent by a candidate was then rolled over to the next, giving a relatively accurate accounting of how much money was available to all the campaigns on any given day as their campaign progressed. Whichever candidate had the most money after the total amount spent was deducted was then designated as the fundraising frontrunner for that day. Then, the cash on hand for all other candidates who were in the race on that day is then compared to the frontrunner. A measure of relative position was created by taking 1 minus the candidate's amount raised divided by the amount raised by the frontrunner ($1 - (C/F)$). So if for example, on a certain day Candidate X raised \$10,000, the most of any candidate, candidate Y raised \$8,000, and Candidate Z raised \$500. The relative position of X would be 0, and the relative position of Y would be 0.2, and Z would be .95. Therefore, a lower number means that on any given day, this candidate was closer than to the frontrunner. Those values were found for all

⁸⁶ See Haynes et. al. "The calculus of concession...".

candidates on all days and then averaged over the length of the campaign. I hypothesize that candidates with a lower average daily relative position will be more likely to remain in the race, because they are closer to the fundraising frontrunner and therefore have more of an opportunity to close that gap. Again, I do not believe that this will be consistent among all candidates. As discussed in Chapter 2, many longshots may remain in the race for a longer period of time regardless of how far they fall behind the frontrunner, and I expect that will also be the case for some longshot candidates in 2020. By running these two variables through an event history model, I come to a better understanding about the impact of fundraising and campaign finance on a candidate's hazard rate of exit.

Billionaire Bias?

It seems somewhat ironic that the two most expensive self-funded candidacies both came from a post-Citizens United Democratic Party. In the aftermath of Trump, some Democrats thought the only way to defeat a Republican party so closely tied to the corporate sector was to use their own personal wealth to fund the opposition. The candidacies of Michael Bloomberg and Tom Steyer were unique in many respects. However the self-funded nature of the campaigns, the sheer amount of money they spent, and Bloomberg's late entrance into the race have severe implications for the results of this paper.

Both Michael Bloomberg and hedge-fund manager Tom Steyer pumped millions of dollars into their campaigns. Bloomberg's final total ended up being north of 1 billion dollars of his own personal wealth spent on an ultimately unsuccessful run. This amount of money is unprecedented in the history of presidential primaries, Bloomberg and Steyer

spent much more than previous self-funded candidates like Ross Perot and Steve Forbes.⁸⁷ This massive amount of money helped insulate them from the normal pressures of finances on candidate exit. The evidence for this is in the simple course of events, wherein both Bloomberg and Steyer remained in the race until delegate counts made it clear neither would be the nominee. This means Bloomberg's (and to a lesser extent Steyer's) campaign finance data has the potential to skew the data. While an argument could certainly be made for excluding them entirely from an analysis of the 2020 race, I believe that would end up doing more harm than good, especially because other candidates were operating in a space including Bloomberg and Steyer, and to remove them from the data set would not fully represent the full range of campaigns influencing the 2020 race. Therefore, I ultimately decided to include them in my analysis.

⁸⁷ Julie Bykowicz. "Bloomberg Joins Eclectic List of Self-Funding Presidential Candidates," *Wall Street Journal*, November 30, 2019.

Chapter 4:

Results and Analysis

After compiling campaign finance information from all twenty eight presidential hopefuls, the data is then run through a Weibull accelerated time regression in R. The results are then translated into multiple different forms. According to Steffensmeier and Jones, Weibull estimates are usually presented in one of two parameterizations, accelerated failure time or relative hazard. My analysis uses an accelerated failure time parameterization, which “presents coefficients in terms of their relationship to expected failure times”.⁸⁸ Unfortunately when using event history models, the coefficients, specifically the magnitudes given, are not directly interpretable like they would be in a more standard linear regression model. This is because it is difficult to disentangle the coefficient’s effect on the concepts described in Chapter 3 such as hazard rate and survival function.⁸⁹

Instead, we can look at the direction and p-values of these coefficients to better understand the relationship between our fundraising variables and duration of a campaign, and create graphs that plot the survival probability. When using an accelerated failure time parameterization, a negative coefficient sign implies that the duration is shortened by the value per unit change in the variable, so a campaign is expected to end sooner rather than later. It is important to also note that a negative sign indicates that the hazard rate, or the likelihood that a campaign ends at a given time, actually increases. If the sign of the coefficient is positive, it is interpreted as a decrease in the hazard rate, and a longer

⁸⁸ Box-Steffensmeier and Jones. "Time is of the essence..." 1441.

⁸⁹ In explaining the impact of the coefficients in a Weibull model and the interpretation of them specifically in the context of the survival of presidential primary campaigns, I leaned heavily on the analysis undertaken by Haynes et al. in their paper “The Calculus of Concession..”.

duration. Using our function and data from the Weibull regression I can then plot the predicted survival rates based on the coefficients for all independent variables.

Results for all 2020 Candidates

As shown in Table 6, I initially find both average daily cash on hand and average daily relative position to have a statistically significant impact on the dependent variable of candidate exit. The coefficient for average daily cash on hand is both negative and statistically significant with a coefficient of $-1.64e-08$ and p-value of $3.1e-09$. Here the negative coefficient sign indicates that a higher daily average cash on hand is actually correlated with shorter campaign durations, and a higher hazard rate. While this is contrary to my initial hypothesis, it is not entirely inconsistent with the presidential primary literature. As stated earlier, there is disagreement among scholars as to how much cash on hand matters, especially among longshot or nontraditional campaigns that prolong their candidacies by engaging in “low-budget campaign tactics” that focus on media attention and raising money from a small but dedicated donor base.⁹⁰ By going back into the data, summarized in Table 2 in the appendix, I find that some nontraditional and longshot campaigns had on average less cash on hand than bigshots or traditional candidates but ran longer campaigns—specifically the two candidates with the longest campaign length John Delaney and Andrew Yang. Because this model doesn’t control for other outside factors, the model may be interpreting those candidacies as surviving longer *because* of their low cash on hand instead of despite it. I also look at the outlier status of Bloomberg, and to a lesser extent Steyer, as a possible cause for this negative sign for average daily cash on hand.

⁹⁰ Norrander, “The Attrition Game...”.

Table 6

	All Candidates	No Billionaires
Average Daily Cash on Hand	-1.64e-08** (2.77e-09) p = 3.1e-09	-3.39e-08 (2.30e-08) p = 0.089
Average Daily Relative Position	-2.26** (0.379) p = 2.3e-09	-2.50** (0.571) p = 1.2e-05

Note: DV is candidate exit, IVs are average daily cash on hand and average daily relative position. Coefficient values are coefficients taken from the Weibull model, with standard error values in parentheses.

* $p < .05$, ** $p < .01$

Incorporating Bloomberg and Steyer into our model of candidate exit does produce the possibility of these outliers skewing the data and obscuring trends among the vast non-billionaire class of candidates. For some perspective, Steyer raised 70% more than the next highest fundraiser, Bernie Sanders, and Bloomberg raised almost 3 times more than Steyer. For these candidates, money was never going to be a barrier to them staying in the race. In fact, Bloomberg even seemed to brag about this fact, he “frequently made allusions to his vast personal fortune and presented himself to Democratic voters as the candidate with “the record and the resources” to win the general election”.⁹¹ In addition Bloomberg has an additional complicating factor due to his campaign length. His campaign, at 102 days, is much shorter than the average campaign length of 295 days. Bloomberg, who didn’t enter the race until November of 2019, has a shorter campaign length than almost every candidate measured despite the fact his campaign “survived” until the Super Tuesday contests. His late entry coupled with his high levels of fundraising, and especially high

⁹¹ Alexander Burns, “Bloomberg Drops Out of 2020 Race, Ending Brief and Costly Campaign,” *New York Times*, March 4, 2020.

levels of cash on hand (which averaged over 1 million dollars per day), means that our event history model may be associating those high levels of funds with a shorter campaign.

This could help explain why, when running an analysis of all twenty eight candidates, cash on hand has a negative value and is associated with a shorter campaign duration. When the two self-funded candidates are excluded, while I still find a negative sign for average daily cash on hand, this result loses its statistical significance with a new p-value of 0.89. Therefore while Bloomberg may be pushing this indicator to be negative, his candidacy does not account for the negative sign fully. I believe this negative sign may be a result of a small data set, with outliers such as Delaney, Yang and Bloomberg potentially contributing to the model's prediction that more cash on hand would correlate with shorter campaigns, and less cash on hand correlates with longer campaigns. This may be part of the reason why cash on hand is found to be a significant factor in candidate exit in some studies, but not in others. However, now I turn my attention to the measure of daily relative position to see whether it is a better predictor of candidate exit.

My new measure of a candidate's daily relative position in relation to the frontrunner achieves statistical significance in both the all candidate and no billionaire models, indicating that it is correlated with candidate exit. Among all candidates average daily relative position has a value of -2.26 with a p-value of $2.3e-09$, and when Bloomberg and Steyer are removed this value changes slightly to -2.50 with a p-value of $1.2e-05$. Again, the negative value means that the duration of a candidacy is shortened by a change in the variable. Remembering back to how daily relative position was calculated in Chapter 3, a smaller daily relative position means a campaign is closer to the fundraising frontrunner. Therefore the results from both models confirm the hypothesis that candidates

with a lower relative position will survive longer than those with a higher relative position, therefore the hazard rate increases the further a candidate gets from the fundraising frontrunner. The measure of daily relative position simply treats the fundraising frontrunner as the benchmark for fundraising, whether that is Bernie Sanders or Michael Bloomberg, meaning it is less likely to be thrown off by outliers.

My results for average daily relative position are consistent both with our expectations about the importance of fundraising and the reality of how the 2020 race played out. Candidates with low daily relative positions like Bernie Sanders and Elizabeth Warren had longer campaigns. In Warren's campaign consistent large fundraising hauls, her daily relative position was 0.43 compared to Sander's 0.29, allowing her to wage a competitive campaign while remaining in the "progressive lane" with Bernie Sanders. Even after an unimpressive fifth place finish in the South Carolina primary, Warren's impressive fundraising numbers caused her campaign manager to (perhaps prematurely) declare that she would "compete in every state and territory and ultimately prevail at the national convention in Milwaukee".⁹² Candidates like Mike Gravel, Wayne Messam, and Joe Sestak all had campaign durations shorter than the average, and all had daily relative positions of .90 or above. Eric Swalwell, the first candidate to exit the race, cited low polling and fundraising numbers when he dropped out of the race. In early July of 2019 he stated, "being honest with ourselves, we had to look at how much money we were raising, where we were in the polls".⁹³ Here we see qualitative evidence to back up our quantitative

⁹² Gregory Kieg. "Elizabeth Warren's campaign announces big February fundraising haul and predicts an unsettled race going forward" *CNN*, March 1, 2020.

⁹³ Carla Marinucci and White, Jeremy B. "Eric Swalwell ends White House bid, citing low polling, fundraising" *Politico*, July 8, 2019.

observation that campaigns look at how much money they are raising when deciding when to exit the primary.

Again, here a clear outlier stands out in Michael Bloomberg who after entering the race was almost always the fundraising frontrunner with an overall daily relative position of .04, but had a short campaign length. After removing the billionaires from the analysis, daily relative position remains significant, and the new fundraising frontrunner becomes Bernie Sanders. Without Bloomberg and Steyer the coefficient for daily cash on hand loses its significance. This provides evidence that daily relative position may be a slightly better predictor of candidate exit than the traditional measure of cash on hand, and should be studied more to see if these results are consistent over multiple cycles in both political parties.

Results by Campaign Type

I then proceeded to run my model on those subgroups I mentioned earlier, and got a variety of different results, summarized in Table 7 below. It is important to note at the outset that throughout all these subgroups, the sign of the coefficients for both average daily cash on hand and average daily relative position stayed negative. This means that at the very least, all campaigns in the 2020 race seemed to adhere to a similar pattern where the duration of their campaign is shortened by changes in both variables, though not all these values were statistically significant. Again, here a negative sign for cash on hand means that a smaller amount of cash on hand is correlated with a longer campaign. For daily relative position a negative sign means that as the value drops, and a campaign gets closer to the fundraising frontrunner, the campaign gets longer.

Table 7

	Traditional	Nontraditional	Bigshots	Longshots
Average Daily Cash on Hand	-9.59e-10 (2.29e-08) p = 0.9666	-1.80e-08** (2.33e-09) p = 1.2e-14	-1.28e-08** (3.12e-09) p = 3.8e-05	-7.21e-09 (5.11e-08) p = 0.8878
Average Daily Relative Position	-1.91** (0.619) p = 0.0021	-2.38** (0.442) p = 6.7e-08	-1.33 (0.762) p = 0.08	-2.34** (0.718) p = 0.0011

Note: DV is candidate exit, IVs are average daily cash on hand and average daily relative position. Coefficient values are coefficients taken from the Weibull model, with standard error values in parentheses.

* $p < .05$, ** $p < .01$

Again with cash on hand, the coefficient is in the opposite direction I predicted telling us that in this cycle larger average daily cash on hand totals were actually an indicator of a shorter campaign. This is true in categories both with and without Bloomberg, but only achieves statistical significance in the nontraditional and bigshot categories, both of which include Bloomberg. While this does support the conclusion that Bloomberg is an outlier, it also shows how cash on hand is not necessarily a great way to predict candidate campaign length even if campaigns are divided by type. This is further complicated by the longer campaigns of John Delaney and Andrew Yang, despite both of them having lower values for cash on hand than the eventual winner, Joe Biden. Therefore these mixed results, perhaps due to the small sample sizes of the 2020 field, should be taken with a grain of salt. More research should be done into whether the significance of cash on hand varies substantially for different types of primary campaigns.

Average daily relative position achieved statistical significance among all candidate subgroups except bigshots. This is consistent with our hypothesis that a smaller value for daily relative position, which means closer to the frontrunner, lengthens a campaign. This does indicate that further research into relative position may provide

fruitful results. According to the p-values given by my model, daily relative position was least predictive amongst the bigshot category, which makes some sense given that this subgroup of candidates is likely to be closer to the fundraising frontrunner as a result of their higher status. All bigshots, with the exceptions of Kamala Harris and Beto O'Rourke, stayed in the race until the first voting contests. The Buttigieg campaign "spent nearly all of its funds to deliver its virtual tie for first place in Iowa and a narrow second-place finish behind Mr. Sanders in New Hampshire" and had to come to terms with "evaporating funds" due to their high-spending strategy.⁹⁴ However, when it came to exiting the race, many pundits speculated that it wasn't the money that played the most important role—it was his lack of delegates and Buttigieg's desire that the party "needed to field "the right kind of nominee" against Mr. Trump".⁹⁵ This is a good reminder of the ways in which other indicators of success such as media attention, polling numbers, and national status (as well as less quantifiable factors like party orthodoxy and policy) can have an impact on a candidate's exit perhaps more so than relative position especially for those that survive to the official primary season.

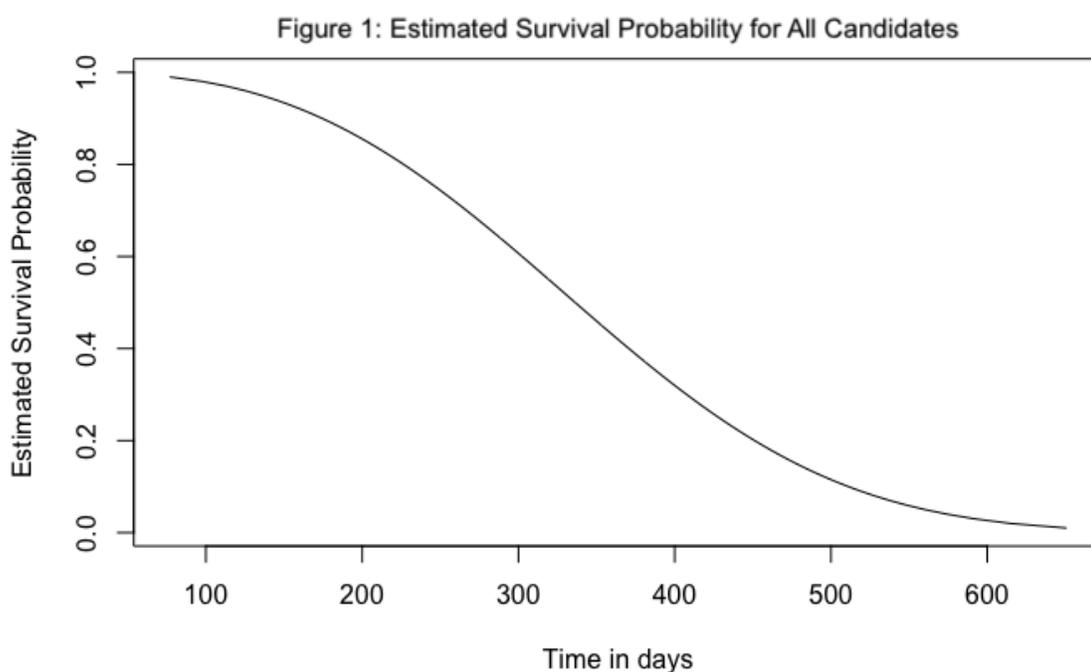
Overall it seems as though daily relative position was more predictive than daily cash on hand, suggesting either that it matters more to candidates' how well they are doing in comparison the field, or that perhaps that there was such a range of cash on hand totals and campaign durations amongst candidates that in the end it ends up not being as predictive. Ultimately, while the conclusions generated by this case study are very limited, it does show both the potential weaknesses of traditional measures like cash on hand, as

⁹⁴ Reid J. Epstein and Gabriel, Trip. "Pete Buttigieg Drops Out of Democratic Presidential Race" *New York Times*, March 1, 2020.

⁹⁵ Epstein and Trip "Pete Buttigieg Drops Out...".

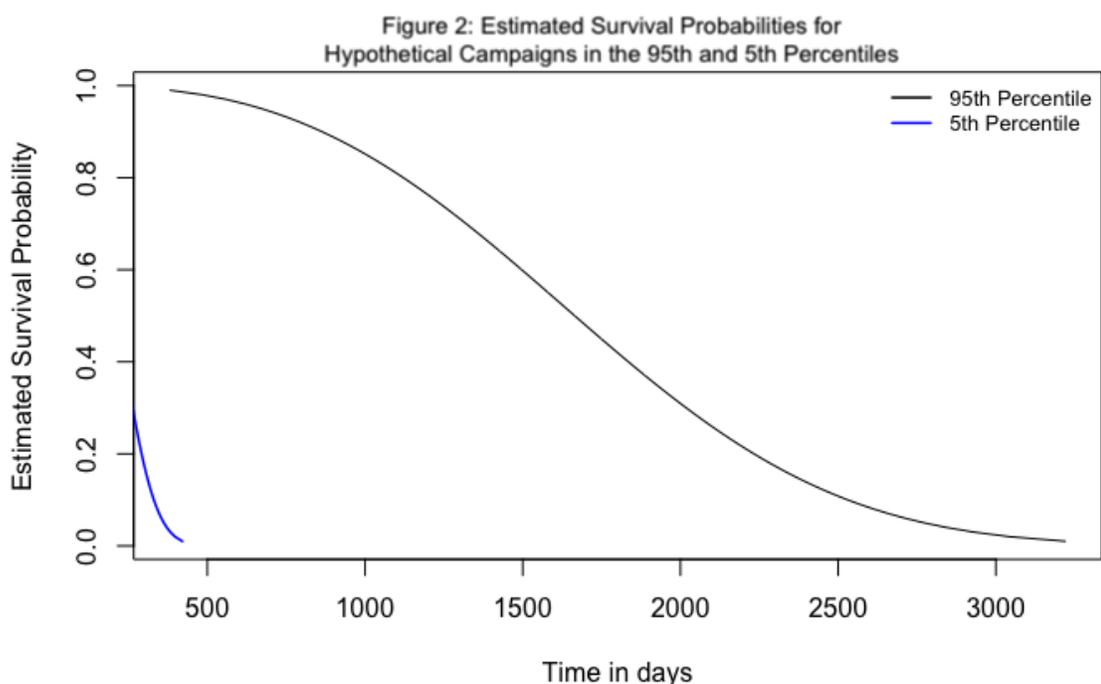
well as the potential for predicting candidate exit by using a candidate's relative financial position in the field.

Turning now to the graphs produced by my data, I use both average daily cash on hand and average daily relative position to help us understand the estimated survival probabilities of candidates in the 2020 campaign. Using data from the same Weibull regression I plot a graph of estimated survival probabilities for all candidates based on these two measures shown in Figure 1. As time passes, candidates' estimated survival probability decreases. This graph shows that the estimated survival of campaigns starts out incredibly high—the probability of surviving past day 100 is almost 100%, which indeed almost all campaigns did except that of Deval Patrick and Eric Swalwell. Then gradually declines, dipping below a 30% probability of survival once you get past the 400 day threshold. The last three candidates to drop out of the race, Warren, Gabbard and Sanders, all survived around that many days. After that the graph extends longer due mostly to the



outlier lengths of Yang and Delaney, however the low estimated survival probability tells us that the longer the campaign goes after around 550 days, changes in cash on hand and relative position have little effect on the length of those candidate's campaigns. This curve, which uses data from all twenty eight candidates can then be used as a sort of baseline to see how average cash on hand and daily relative position change the survival of different subgroups of candidates.

In order to get a sense of how much of an impact these fundraising indicators have on the dependent variable, which is campaign length, I attempted to plot the estimated survival probabilities of hypothetical candidates in both the 95th and 5th percentiles of daily average cash on hand and daily average relative position. The resulting graph, labeled as Figure 2 showed an incredible range in the estimated survival time of a candidate in the 95th and 5th percentiles. One reason for this is the lack of other control variables in this model, without those other variables the differences in survival probability are solely



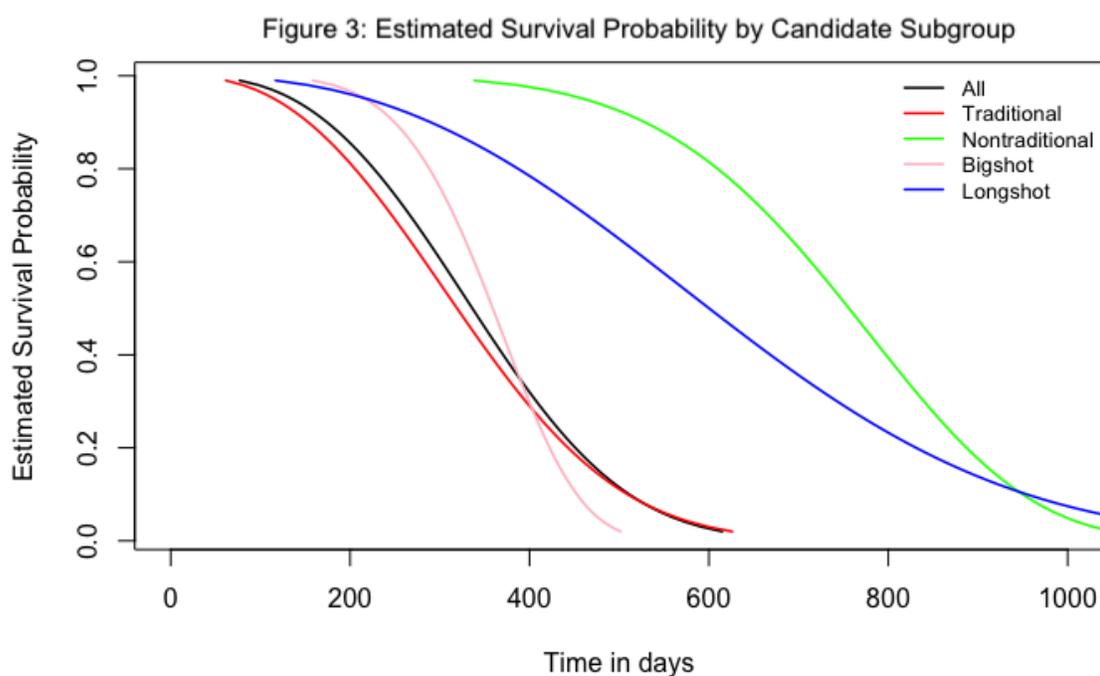
attributed to these fundraising measures. The results of Figure 2 indicates that campaigns raising the most money can survive much longer, and that candidates in the 5th percentile last less time. However, because of the inclusion of Michael Bloomberg, the 95th percentile for this data set is still incredibly high, and therefore the estimated survival times of thousands of days aren't incredibly useful to this analysis because modern presidential primary campaigns are not run over those extremely long periods. To get a better sense of how fundraising affects different campaigns, I next turn to the candidate subgroups I detailed in Chapter 2 in order to compare the effects of cash on hand and daily relative position on campaign length. In Figure 3, I add in the curves based on data for the traditional, nontraditional, bigshot, and longshot subgroups. It is important to note that the only variables that affect these curves are the ones created for this experiment, and no control variables were added, so the difference between these curves is solely attributed to the differences in fundraising data supplied to the model.

When comparing the overall model to these subgroups the overall model matches the traditional subgroup the best. This makes sense given the fact that twenty out of the twenty eight campaigns were classified as traditional, and that traditional campaigns are thought of as more sensitive to fundraising pressures.⁹⁶ Here we can look to the example of John Hickenlooper, the former Colorado Governor and traditional candidate who felt the pressures of the high cost campaign clearly. Hickenlooper's campaign lasted 165 days and the campaign's daily relative position was 0.99. He exited after his own campaign staff urged him to withdraw because low fundraising numbers meant the campaign would

⁹⁶ Norrander, "The Attrition Game...".

“likely run out of money completely in about a month”.⁹⁷ The curve for bigshots is similar though their estimated survival probabilities don’t start to dip until later. Again this makes sense given the fact that most bigshots are able to put up competitive fundraising numbers not only in terms of cash on hand but also relative to the frontrunner. This example helps illustrate why that curve is so steep as traditional campaigns rely heavily on fundraising to keep them competitive.

In contrast to the traditional and bigshot curves, the longshot and nontraditional curves are much longer, and start later in time. This provides us with evidence that these campaigns can survive longer based solely on these financial variables. As discussed earlier, longshot campaigns have lower expectations placed on them than their bigshot counterparts, and may adopt low budget campaign tactics to stay in the race longer. This strategy was adopted by John Hickenlooper's fellow Coloradan, Senator Michael Bennet.



⁹⁷ Alex Thompson and McCaskill, Nolan D. “Hickenlooper Campaign In Shambles,” *Politico*, July 2, 2019.

Bennet, who never raised above a couple percentage points in national polling, continued to stay in the race until the Iowa caucuses. His campaign's survival was partially “fueled by the feeling that they can run an inexpensive and focused campaign without the kind of money other candidates have in the bank”.⁹⁸ This shows that campaigns, specifically those in the longshot category, use different tactics than those in the lead, and that those strategies may be explicitly guided by the idea that they care less about their fundraising in relation to what “kind of money other candidates have in the bank.” This supports my hypothesis that longshot and nontraditional campaigns will care less about their relative position when compared to traditional and bigshot campaigns.

As discussed in the literature review, some nontraditional campaigns may run for the nomination for different reasons such as to promote a certain issue or policy. Both Andrew Yang and Marianne Williamson survived longer than many traditional politicians even though they often didn't have as much money. A fierce advocate for Universal Basic Income or UBI, Yang said that he exited when he felt “the message of this campaign will not be strengthened by my staying in this race any longer,” indicating that his main goal wasn't winning but instead pursuing a certain issue.⁹⁹ When Williamson finally dropped out in January of 2020 she wrote that she “ran for president to help forge another direction for our country. I wanted to discuss things I felt needed to be discussed that otherwise were not. I feel that we have done that”.¹⁰⁰ These examples give us insight into why the estimated survival probability of nontraditional candidates is less affected by financial indicators like

⁹⁸ Dan Merica, “Michael Bennet raises \$2.1 million in 3rd quarter, pledges to stay in until New Hampshire” *CNN*, October 10, 2019.

⁹⁹ Dan Merica and Kate Sullivan. “Andrew Yang ends 2020 presidential campaign,” *CNN*, February 12, 2020.

¹⁰⁰ Briana Stewart, “Marianne Williamson announces she is suspending her presidential campaign” *ABC News*, January 10, 2020.

daily relative position—Williamson and Yang may not have cared how far behind their opponents they lagged as long as they could continue to have a platform with which to easily speak to the broader public. These examples indicate that not all campaigns weigh fundraising success the same when deciding whether to soldier on.

Overall, these graphs reflect what one might expect to see in terms of how fundraising affects the survival probability of presidential primary campaigns. Bigshot campaigns respond more quickly to changes in fundraising and more commonly compare their fundraising success to the frontrunner when assessing their position. Traditional candidates operate in much the same way and appear closest to the normal curve of survival probability for all 2020 candidates. Some longshot candidates may adopt a strategy informed by the reality that they will not raise as much as their bigshot counterparts, and nontraditional candidates often survive longer despite lower fundraising numbers, perhaps because they have different priorities such as pushing a certain issue or policy. However, more robust, and long-term analysis should be conducted to determine whether or not these variables behave similarly over multiple cycles and in different parties or if they are simply due to the unique circumstances surrounding the 2020 race.

Conclusion

The literature on presidential primary literature is ever evolving and changing, however scholars have found certain trends that seem to outlast any given cycle. Since the primary reforms of the late 60s and early 70s scholars have been able to look at who wins primaries and why through a more quantitative lens. Scholars have argued that there is a myriad of factors that are at play in each primary cycle: fundraising, media attention, endorsements, polling numbers, national profile, policy sets, race, gender, sexuality and much more have an impact on who ultimately wins the nomination. But what about the vast majority of candidates that don't win? Scholars such as Barbara Norrande and Audrey Haynes and Paul Henri-Gurian have argued that scholars can look to those same factors to explain the winnowing process of presidential primaries: the process by which a large number of candidates, in this case twenty eight, gets winnowed down to just one.

The scholarship on money's impact on presidential primaries and candidate exit shows us that money matters, but scholars disagree on how much, or how to best measure it. Traditional indicators of financial success used by both politicians, scholars, and the media have a checkered history when it comes to predicting candidate withdrawal. Some argue measures like cash on hand are predictive of candidate exit, but the broad range of types of campaigns mean this likely isn't true among all candidates. Norrande and others argue that longshot and non-traditional campaigns often can survive longer despite "worse" financial situations. This is of course due partly to the fact that other parts of the primary, such as media attention or actual vote counts, may have a larger impact on some candidates than finances. However, this study seeks to add to the literature specifically on fundraising

by using the 2020 primary as a case study for a new measure of fundraising success-daily relative position.

Because all campaigns have different goals, expectations, and strategies it becomes necessary to break campaigns down into smaller subgroups based on type. An analysis of all twenty eight campaigns, while interesting, doesn't allow one to differentiate meaningfully between candidates as disparate as former Vice President Joe Biden and spiritual leader and author Marianne Williamson. By conducting a typology of the 2020 candidates I create a more nuanced way to look at how money impacts campaigns differently. I build on and apply previous scholarship to the 2020 field to create different categories of candidates both based on their backgrounds (traditional vs. nontraditional campaigns) and based on their competitiveness (bigshots vs. longshots). Whatever the significance of my eventual quantitative findings, I believe that this synthesis and application of the classification of candidates is useful especially when primaries have incredibly large fields, and could be useful to future scholars studying both the 2020 primary and potentially other large primaries such as the 2016 Republican presidential primary. If large, competitive and diverse fields become the rule rather than the exception when it comes to primaries I believe scholars should continue to go beyond binary conceptions of campaigns as either traditional or nontraditional.

Using a Weibull event history model I add to our understanding of how candidates exit in the 2020 Democratic presidential primary was impacted by average daily cash on hand and average daily relative position. When looking at all twenty eight candidates I find evidence that both cash on hand and relative position impacted the length of a candidate's campaign. Candidates with a lower daily relative position—meaning they were closer to the

fundraising frontrunner—were more likely to survive longer than those further away. In this 2020 case study, larger amounts of cash on hand actually correlated to shorter campaign lengths, and a higher probability of candidate exit. This is likely due to a confluence of circumstances unique to the 2020 cycle. As consistent with the literature, some longshot candidates were able to sustain extremely long campaigns, but had lower levels of cash on hand than their bigshot counterparts. Additionally the curious case of Michael Bloomberg shows how much outliers can affect our event history model. Both Bloomberg's massive amounts of cash on hand, and shorter than average campaign length push the cash on hand variable to have a shortening effect on campaign duration, though this effect is still present with him removed from the data set.

When looking at the candidate subgroups, I find evidence that average daily relative position is more predictive than average daily cash on hand, and that it may be more resistant to outliers like Bloomberg. Throughout all 4 subgroups a lower relative position is correlated with longer campaigns as predicted. On its face this may seem to cut against our hypothesis that this measure will not be equal among all campaigns. However by graphing survival probabilities for all subgroups based on the Weibull regression the results are consistent with past literature that finds that nontraditional and longshot campaigns can survive longer even when at a financial disadvantage. I also find evidence that traditional and bigshot campaigns have a smaller range of time they are likely to last, as many of these campaigns either realize they will not win the nomination and drop out, or continue to contest the primary into the early part of the election year. Additionally, because unlike cash on hand, the sign and significance of daily relative position stays more or less constant among all subgroups, daily relative position appears to be more predictive over all

candidate types, and less likely to be swayed by outliers like Bloomberg. This is attributed to the way the measure is calculated, in which campaigns are not directly compared to the amount of money Bloomberg raised but instead are measured on a scale based on the candidate with the highest cash on hand that day, whether it be Bloomberg, or Sanders, or someone else.

While the results of this thesis do indicate that further research and application of a daily relative position indicator may be fruitful, scholars should proceed with caution. Every presidential primary cycle is different from the last, and more work should be done across cycles, and throughout both parties to see if this indicator is truly a sign of candidate exit. The sample size of twenty eight candidates, while much larger than most presidential primary contests, is still subject to the outsized influence of outliers, and should be taken not as fact but as a jumping off point for future work. This experiment, due in large part to time constraints and other unforeseen circumstances, didn't include any control variables with which to compare the results. If possible, I would have liked to include a control at the very least for a candidate's polling numbers as well as the fundraising variables I included. This would have allowed me to make stronger claims about the impact of fundraising on candidate exit and to see whether it was similar to polling measures.

Additionally, this measure should be incorporated into larger candidate exit models that take into account other, non-fundraising factors, such as endorsements, media attention and more. Scholars should also look at the impact of the Democratic National Committee's rules for debate qualification and whether those rules had an outsized effect on candidate winnowing in the 2020 race. While no candidates objected to the rules when announced, many later began to blame the DNC for their harsh rules when they found themselves

outside the qualifying group of candidates. Because fundraising does not happen in a vacuum, it is undeniable that these other factors have an impact on fundraising, and therefore indirectly on both cash on hand and daily relative position. Future research should also take into consideration other non-campaign reasons for candidate exit such as illness, family reasons, political scandals, etc. The decision to exit the presidential race is often not an easy one for most campaigns to make and therefore the work of quantifying the impact of any one or even number of variables is susceptible to misinterpretation and over exaggeration. These results should not be misinterpreted to claim that relative position is the only factor that determines candidate exit, that it is the most important, or even that it is a strong predictor.

Ultimately, as future presidential primary campaigns unfold and scholars continue exploring the factors which impact victory, winnowing, and candidate exit, they will have to continue to test both new hypotheses and retest old ones. Because primaries happen every four years, and usually for only one party at a time, scholars cannot simply assume that the same trends from the past hold true and that the same variables are important. This thesis seeks to build on the past literature which posits that money matters to a candidate's decision to exit, but that it may matter more or less based on candidate type. My results back up this historical trend and seek to expand the literature on what financial variables impact candidate exit. These results serve to compare the traditional measure of cash on hand with a new measure of daily relative position in the case of the 2020 presidential primary, attempting to provide the literature with a new way to conceptualize fundraising success into a framework of presidential primary candidate exit which will hopefully be useful even when analyzing future primaries.

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Appendix:

Table 1:

Candidate	Date Entered	Date Exited	Duration of Campaign in Days
Joe Biden	4/25/19	8/19/20	483
Bernie Sanders	2/19/19	4/8/20	415
Tulsi Gabbard	1/11/19	3/19/20	434
Elizabeth Warren	2/9/19	3/5/20	391
Michael Bloomberg	11/24/19	3/4/20	102
Amy Klobuchar	2/10/19	3/2/20	387
Pete Buttigieg	4/14/19	3/1/20	323
Tom Steyer	7/9/19	2/29/20	236
Deval Patrick	11/14/19	2/12/20	91
Andrew Yang	11/6/17	2/11/20	828
Michael Bennet	5/2/19	2/11/20	286
John Delaney	7/28/17	1/21/20	908
Cory Booker	2/1/19	1/13/20	347
Marianne Williamson	1/28/19	1/10/20	348
Julian Castro	1/12/19	1/2/20	356
Kamala Harris	1/21/19	12/3/19	317
Steve Bullock	5/14/19	12/2/19	203
Joe Sestak	6/23/19	12/1/19	162
Wayne Messam	3/28/19	11/19/19	237
Beto O'Rourke	3/14/19	11/1/19	233
Tim Ryan	4/4/19	10/24/19	204
Bill de Blasio	5/16/19	9/20/19	128
Kirsten Gillibrand	3/17/19	8/28/19	165
Seth Moulton	4/22/19	8/23/19	124
Jay Inslee	3/1/19	8/21/19	174
John Hickenlooper	3/4/19	8/15/19	165
Mike Gravel	4/2/19	8/6/19	127
Eric Swalwell	4/8/19	7/8/19	92

Table 2:

Candidate	Average Daily Received	Average Daily Spent	Average Daily Cash On Hand
Amy Klobuchar	\$165,868.57	\$147,656.85	\$18,211.73
Andrew Yang	\$65,610.47	\$67,604.23	-\$1,993.76
Bernie Sanders	\$521,378.54	\$515,374.03	\$6,004.52
Beto O'Rourke	\$79,537.97	\$69,334.36	\$10,203.61
Bill de Blasio	\$20,201.39	\$19,139.65	\$1,061.73
Cory Booker	\$36,022.42	\$35,004.00	\$1,018.42
Deval Patrick	\$27,825.15	\$27,016.27	\$808.89
Elizabeth Warren	\$333,024.06	\$308,305.36	\$24,718.69
Eric Swalwell	\$28,940.37	\$25,817.88	\$3,122.49
Jay Inslee	\$28,707.37	\$31,130.42	-\$2,423.05
Joe Biden	\$371,967.89	\$301,034.99	\$70,932.91
Joe Sestak	\$3,096.96	\$3,079.95	\$17.01
John Delaney	\$52,127.06	\$42,467.38	\$9,659.68
John Hickenlooper	\$23,601.52	\$23,446.19	\$155.33
Julian Castro	\$31,324.79	\$30,285.34	\$1,039.45
Kamala Harris	\$127,743.47	\$126,615.18	\$1,128.29
Kirsten Gillibrand	\$101,424.82	\$88,761.82	\$12,663.00
Marianne Williamson	\$15,065.92	\$17,517.14	-\$2,451.22
Michael Bennet	\$31,215.34	\$31,139.96	\$75.38
Michael Bloomberg	\$5,436,911.89	\$4,082,329.27	\$1,354,582.61
Mike Gravel	\$4,025.12	\$2,488.26	\$1,536.86
Pete Buttigieg	\$310,562.86	\$306,785.17	\$3,777.69
Seth Moulton	\$10,843.68	\$11,302.87	-\$459.19
Steve Bullock	\$28,898.43	\$24,813.45	\$4,084.98
Tim Ryan	\$7,896.49	\$7,653.44	\$243.05
Tom Steyer	\$1,618,901.27	\$1,586,275.16	\$32,626.11
Tulsi Gabbard	\$35,526.69	\$35,062.45	\$464.24
Wayne Messam	\$1,604.49	\$1,184.67	\$419.82

Table 3:

Candidate	Average Daily Relative Position	Candidate	Average Daily Relative Position
Amy Klobuchar	0.67937457	Julian Castro	0.95613524
Andrew Yang	0.47581472	Kamala Harris	0.72178237
Bernie Sanders	0.29433764	Kirsten Gillibrand	0.84813059
Beto O'Rourke	0.91189795	Marianne Williamson	0.87825226
Bill de Blasio	0.98980333	Michael Bennet	0.97530824
Cory Booker	0.48435933	Michael Bloomberg	0.04980757
Deval Patrick	0.98368712	Mike Gravel	0.98972796
Elizabeth Warren	0.43087743	Pete Buttigieg	0.77761328
Eric Swalwell	0.98326653	Seth Moulton	0.93302068
Jay Inslee	0.97856576	Steve Bullock	0.97257582
Joe Biden	0.60160277	Tim Ryan	0.98656111
Joe Sestak	0.99770432	Tom Steyer	0.87994131
John Delaney	0.34593412	Tulsi Gabbard	0.93056874
John Hickenlooper	0.96076012	Wayne Messam	0.99810697