

Conceptualizing and Measuring Early Campaign Fundraising in Congressional Elections

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Abstract

Political professionals and scholars maintain that raising money early in the election season is critical to a successful campaign, having downstream consequences on a candidate's future fundraising potential, the stiffness of competition she will face, and her likelihood of electoral victory. In spite of early money's perceived importance, there is no common operationalization for money as "early." Moreover, existing measures often fail to reflect definitional aspects of early money. In this paper, we first lay out a theoretical framework regarding the utility of early campaign fundraising for candidates. We argue that early fundraising can be expressed as two conceptually distinct quantities of interest centered on either a candidate's own fundraising performance (candidate-centered) or her fundraising performance relative to her electoral competitors (election-centered). We next lay out steps for operationalizing candidate- and election-centered measures of early fundraising. Lastly, we demonstrate that both our proposed measures for early campaign fundraising are predictive of a candidate's future fundraising and electoral success. By putting forward a set of best practices for early money measurement and, additionally, producing off-the-shelf measures for early fundraising in U.S. House elections, we fill an important gap in scholarly research on the measurement of money in politics.

Keywords: campaign finance; measurement validity; elections; campaigns

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Few would question the influence of money in contemporary U.S. elections. Recent studies affirm the relationship between fundraising and success by demonstrating that the more money a candidate raises, the more likely she is to win her election (e.g., Jacobson 2015; Bonica 2017; Schuster 2020; Ferguson et al. 2022).¹ Various individual-level and contextual factors influence a candidate's fundraising potential (e.g., Cho and Gimpel 2007; Fouirnaies and Hall 2014; Grumbach and Sahn 2020); chief among them is their ability to raise money early. Raising money well before the election is valuable to a candidate because "early money is seed money for the entire campaign effort; it is needed to organize, plan, and raise more money" (Jacobson 1992, p. 78-79). Early money bolsters later fundraising because it acts as a signal for campaign viability. Candidates who raise money early are thought to have more favorable electoral odds, leading them to raise even more money (e.g., Krasno et al. 1994; Adkins and Dowdle 2005; Feigenbaum and Shelton 2012; Magleby et al. 2018). Work tying early fundraising to a favorable campaign outlook tracks with candidate behavior. Extant work demonstrates that cross-candidate disparities in early fundraising influence challengers' emergence and dropout decisions (e.g., Epstein and Zemsky 1995; Box-Steffensmeier 1996; Goodliffe 2001; Norrander 2000; Bonica 2017; Thomsen 2023).

Early fundraising is at the heart of questions related to declining electoral competition, inequalities in the path to representation, and the influence of moneyed interests in politics (e.g., Snyder 1992; Thomsen 2022; Sorensen and Chen 2022). However, more clarity on the best practices for measuring early campaign fundraising is needed to assess these critical questions properly. Our survey of the literature reveals nearly a dozen unique measures of early money, and we demonstrate that these approaches produce substantially different estimates for early fundraising. This variability is concerning for two reasons. First, there is a lack of theoretical justification in extant work linking early money measures to quantities of interest. Second, the extent to which existing measures reflect definitional aspects of early money has yet to be empirically validated.

This article offers a theoretical and empirical roadmap to measuring early money. We propose that early money can be conceptualized in two ways: centered on a candidate's fundraising

¹Early work on money in politics produced mixed evidence on the relationship between fundraising and success for incumbents (see Jacobson 1978, 1990; Green and Krasno 1988, 1990).

behavior (candidate-centered) or her fundraising performance relative to her electoral competitors (election-centered). We argue that these approaches capture conceptually distinct attributes of early fundraising. A candidate-centered measure of dollars raised in the initial days of the campaign is best suited for questions about the qualities or quantity of a candidate’s early fundraising. For example, what political influencers financially support candidates in the “invisible” or “money” primary? Is the amount of early dollars a candidate raises predictive of future fundraising success? An election-centered measure of a candidate’s early fundraising relative to her competitors at a fixed time is best suited for questions that assess the interplay between fundraising and competition. For example, do early fundraising deficits motivate candidates to drop out of their election? Are parties and interest groups more likely to endorse front-runners or underdogs? We go on to offer guidance on scope conditions for election- and candidate-centered early money operationalization, specifically addressing (1) what best defines a candidate’s early fundraising window, (2) how long before a candidate’s election must money be raised to be considered early, and (3) what units of measurement are most suitable for expressing early money estimates.

We conclude by presenting empirical applications to demonstrate that candidate- and election-centered early money measures are conceptually-distinct quantities. Specifically, we assess how well candidate- and election-centered early money measures perform as predictors for a candidate’s future fundraising and likelihood of primary election victory in U.S. House elections held from 2010 to 2020. When included in the same model, we find that both a candidate-centered and an election-centered measure for early fundraising exert a statistically significant, independent effect on a candidate’s future fundraising and her electoral success. We find that our candidate-centered measure is the stronger fundraising predictor for total primary fundraising—which is a candidate-centered outcome. We also find that our election-centered measure is a stronger fundraising predictor for primary success—which is an election-centered outcome. In this way, our results align with our expectations regarding the theoretical mechanisms linked to each measurement strategy. Put different, these results also emphasize that candidate- and election-centered early money measures capture distinct quantities of interest, reasserting the importance of typing theory to measurement.

This paper seeks to reinvigorate scholarly discussion on the measurement of money in politics and pushes scholars to emphasize the role of money in explaining political outcomes. We demonstrate that measuring early fundraising is not straightforward and that scholars' measurement choices can have important implications for inference. These challenges, though, should not constrain research. We provide practical advice for measuring early fundraising and offer resources to aid scholars in their early money measurement. Though we center our analysis on campaign finance in U.S. House elections, this examination should serve as a jumping-off point for work assessing fundraising in other electoral contexts; many of the same measurement complexities evident here are present in U.S. elections held at the local and state levels.

Why Does Early Money Measurement Choice Matter?

Research on money in politics has conceptualized early fundraising in myriad ways. However, to our knowledge, work has yet to assess if and how estimates of early fundraising vary across these measurement strategies. This section introduces a new classification schema for existing early money measurement approaches. Next, we present modest correlations across these typologies. Finally, we demonstrate how statistical inferences shift depending on the type of measure used to operationalize early money.

Classifying Early Money Measures

In Table 1, we classify existing approaches for operationalizing early money into two groups of measures.² We identify a first group of “election-centered” measures that operationalize early fundraising based on an election-specific *end date*; all funds raised before that date are considered early. Some election-centered measures base their fundraising end date on months elapsed within an election cycle (e.g., Green and Krasno 1988).³ Other measures base their fundraising end date on contest-level electoral timing, for example ending some number of months before the primary

²Greater detail regarding each cited work's unique operationalization of early fundraising and other citing literature can be found in Appendix Table A1.

³This approach is less common for congressional contests as compared to presidential races, but is still employed in a number of notable examples. See Appendix Table A1 for a review.

Table 1: Summary of Existing Measures for Early Campaign Fundraising

Measures for Early Campaign Contributions	
Election-Centered	<p>Defining Attributes</p> <ul style="list-style-type: none"> • Considers money raised before a specified <i>end date</i> to be early • Uses the election calendar to define the fundraising <i>end date</i> (e.g. months elapsed in the election cycle, dates of primary elections) <p>Sample of Literature</p> <p>Green and Krasno (1988); Squire (1991); Burrell (1994); Goodliffe (2001); Leal (2003); Smidt and Christenson (2012); Bonica (2017); Magleby et al. (2018); Thomsen (2023); Porter and Treul (2024)</p>
Candidate-Centered	<p>Defining Attributes</p> <ul style="list-style-type: none"> • Considers money raised after a specified <i>start date</i> to be early • Uses candidate behavior to define the fundraising <i>start date</i> (e.g. date of first itemized contribution, amount reported on first filed FEC quarterly report) <p>Sample of Literature</p> <p>Biersack et al. (1993); Francia (2001); Bonica (2017); Babenko et al. (2022); Thomsen (2022); Bonica and Grumbach (2022); Porter and Steelman (2023)</p>

(e.g., Leal 2003).⁴ We identify a second group of “candidate-centered” measures that operationalize early fundraising based on a candidate-specific *start date*; all funds raised for a window after that date are considered early. The start date for early fundraising is unique to each candidate because it is based on that candidate’s fundraising behavior, such as the date she registers her campaign⁵ with the Federal Election Commission (FEC) (e.g., Bonica 2017, 2020) or the date she receives her first itemized donation⁶ (e.g., Porter and Steelman 2023; Bonica and Grumbach 2022). A candidate’s early fundraising window is often specified as lasting sixty or ninety days after this start date; alternatively, some other work considers all fundraising reported in a candidate’s first quarterly report filed with the FEC to be early (e.g., Biersack et al. 1993; Thomsen 2023).⁷

⁴Congressional primary elections are held across eight months. Leal (2003) considers money to be early if it is raised nine months before a candidate’s primary election.

⁵An individual seeking federal office must register her campaign with the FEC once she receives contributions or makes expenditures that exceed \$5,000. For an exception, see footnote 1 in Appendix Section C.

⁶A donor’s contribution to a candidate is itemized when it exceeds \$200 or aggregates to over \$200 when added to other contributions she has made to that same candidate. Small-dollar donations (i.e., unitemized contributions) are reported as a bulk sum in quarterly reports and, therefore, lack consistent data on receipt dates.

⁷The number of days in a candidate’s first quarterly report may be shorter or longer than a standard quarter (i.e., ninety days). For discussion, see Appendix Section E.

Variation in Early Fundraising Estimates Across Measures

In Figure 1, we assess to what extent estimates of early fundraising vary within and across election- and candidate-centered measurement typologies. Average cross-measure correlations for early fundraising include all candidates who ran in elections for the U.S. House of Representatives from 2010 to 2020 ($N = 6,001$).⁸ All measures are produced using itemized receipts provided by OpenSecrets and aggregate unitemized contribution totals drawn from FEC quarterly reports; for more detail on data preparation, see Appendix Section B. Figure 1a includes cross-measure correlations for incumbents who ran for reelection; Figure 1b includes cross-measure correlations for non-incumbent challengers. For ease of presentation, we restrict Figure 1 to include the most common early fundraising measures found in the extant literature, described in greater detail in Appendix Table A1.

Average pairwise correlations in Figures 1a and 1b are consistently stronger *within* measurement typology than *across* typologies.⁹ For instance, looking at candidate-centered approaches, the three measures presented (fundraising 90 days after a candidate registers with the FEC, fundraising 90 days after a candidate receives her first itemized contribution, and fundraising reported in a candidate's first FEC quarterly report) have an average correlation of 0.75 for incumbents and 0.86 for non-incumbents.¹⁰ Pairwise correlations *between* candidate-centered and election-centered measures are more modest ranging from 0.62 to 0.84 for incumbents and 0.39 to 0.59 for challengers.

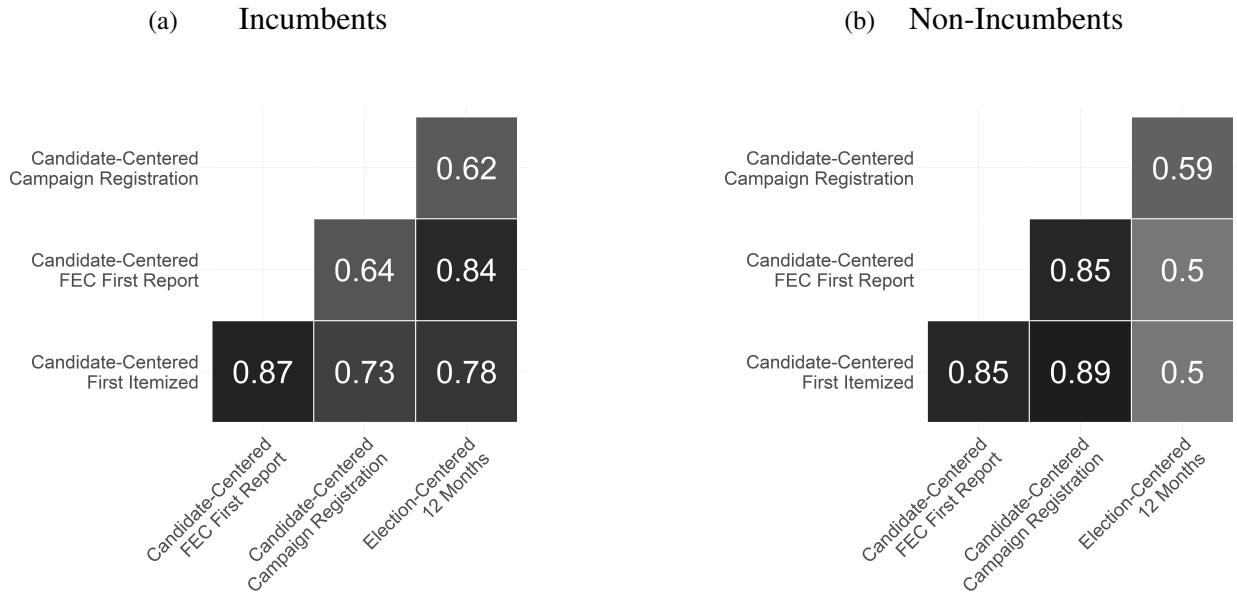
We trace these weak correlations to the conceptual differences between candidate- and election-centered measurement approaches, particularly how these strategies define the early fundraising window. To illustrate, Figure 2 depicts fundraising window lengths and early fundraising estimates across various early money measures for Carolyn Maloney (Figure 2a) and Suraj Patel (Figure 2b),

⁸Units of analysis in Figure 1 include only those congressional candidates who met the minimum fundraising threshold determined by the FEC to qualify as a candidate (i.e., raised \$5,000 before their primary election). For more detail on data preparation see Appendix Section B.

⁹This trend holds when examining correlations by district type (i.e., incumbent-held vs. open seat) rather than by candidate type. See Appendix Figure A1 for reference.

¹⁰These correlations are similarly high for election-centered measures. For instance, fundraising in the first 12 months of the election cycle and fundraising garnered 9 months before a candidate's primary correlate at 0.9 for incumbents and 0.85 for non-incumbents.

Figure 1: Average Pairwise Correlations for Popular Early Money Measures



Note: Standard errors for pairwise correlations present in Figure 1 are all < 0.001 .

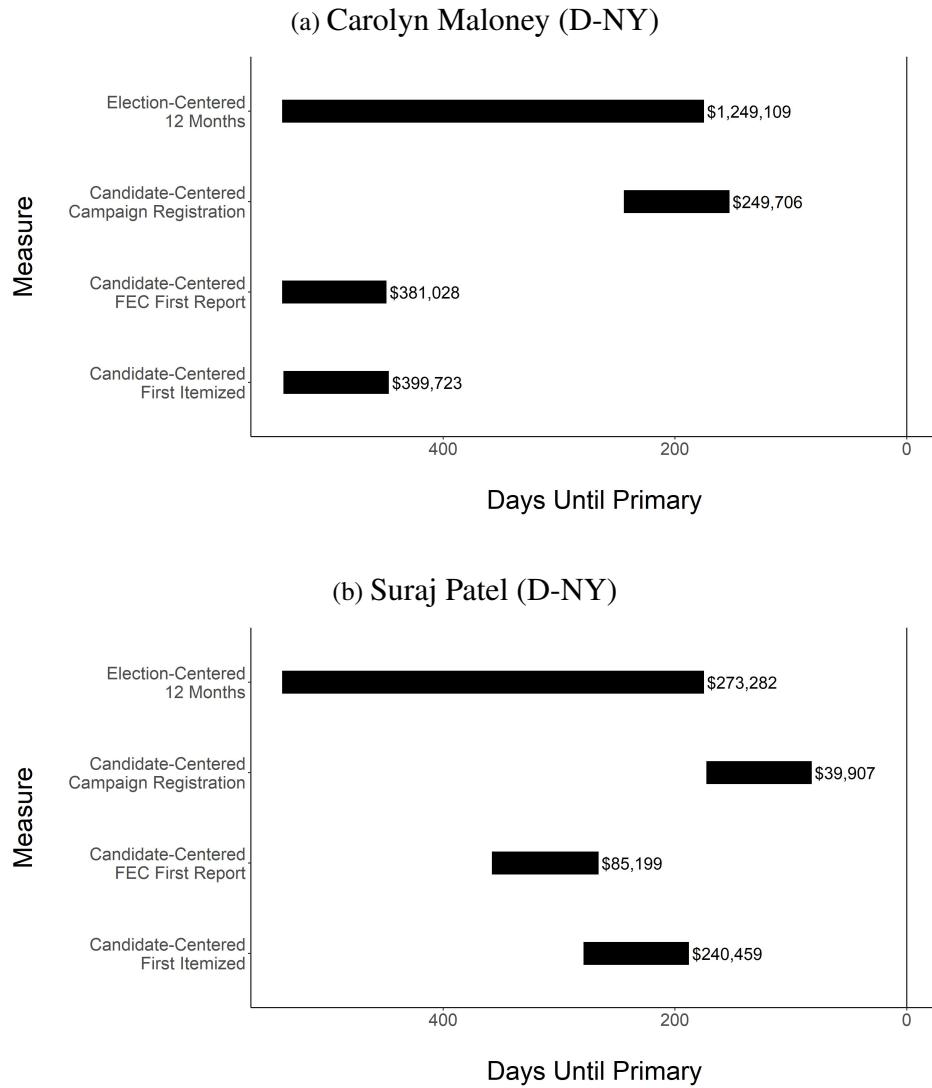
who both ran in the Democratic primary for New York’s 12th Congressional District in 2020. This primary was closely contested, with district incumbent Maloney besting Patel for the Democratic nomination by only 3.4 percentage points. The x-axis in Figure 2 is an election timeline expressing the number of days until New York’s Democratic primary election, which was held on June 23rd, 2020. Horizontal bars reflect the length of early fundraising windows across the same measures from Figure 1. Fundraising totals for each measure are included to the right of each horizontal bar.

Turning first to Figure 2a, election- and candidate-centered measures begin during similar periods of the election cycle—with the exception of the campaign registration-based measure.¹¹ This symmetry in start dates across fundraising measures aligns with expectations; incumbents consistently begin fundraising within the first few months of an election cycle.¹² Challengers are less consistent as to when they begin fundraising, as is evident in Figure 2b. Because Patel and Maloney ran in the same primary election contest, their election-centered fundraising windows span the same campaign period. However, the fundraising windows for Patel’s candidate-centered measures

¹¹We discuss this disparity in Appendix Section C in more detail.

¹²From 2010 to 2020, 98.6% of incumbents running for reelection received an itemized contribution in the first 90 days of the election cycle.

Figure 2: Timing of Fundraising Windows & Estimates for Early Fundraising Across Extant Measurement Strategies



Note: Figure depicts the start and end date of early fundraising for Carolyn Maloney (Figure 2a) and Suraj Patel (Figure 2b) in the NY-12 Democratic primary in 2020 for the early money measures present in Figure 1. All fundraising totals are produced using itemized fundraising data from OpenSecrets and unitemized fundraising totals reported in FEC quarterly reports. See Appendix Section B for greater details.

fall much later in the election cycle than Maloney's because Patel did not begin fundraising until September 2019. Consequently, election- and candidate-centered measurement approaches produce disparate estimates for Patel's early fundraising. Additionally, Patel and Maloney's fundraising windows cover fundamentally different windows of the election cycle, despite these two candidates appearing in the same race.

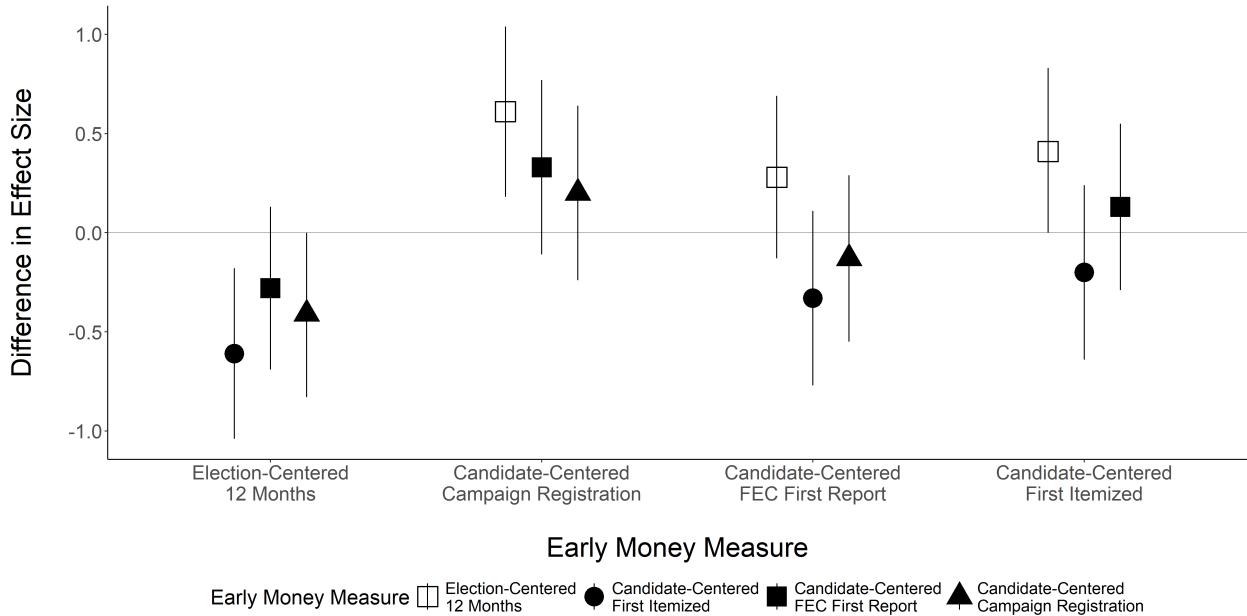
The examples presented here illustrate how differences in operationalization between election- and candidate-centered measurement approaches produce differing estimates of early fundraising. Appendix Figure A2 presents the average lengths and timing for fundraising windows across all incumbent and non-incumbent candidates who ran for the U.S. House of Representatives from 2010 through 2020. For incumbent candidates, average fundraising windows for candidate-centered measures fall within the windows of election-centered measures; variation across measurement typologies is primarily rooted in the length of fundraising windows (e.g., a 90 day candidate-centered window versus a 12 months election-centered window). For non-incumbent candidates, the fundraising windows for election-centered and candidate-centered measures do not consistently overlap as they do for incumbents. These differences produce the modest cross-typology fundraising correlations for non-incumbents found in Figure 1b.

How Measurement Choice Impacts Substantive Conclusions

Different approaches for measuring early fundraising can produce different conclusions about money's influence in elections. In Figure 3, we estimate a series of logistic regressions assessing candidate success in congressional primaries. Units of analysis include all candidates who ran in open seat, partisan primary elections for the U.S. House of Representatives from 2010 to 2020. We restrict our analysis to candidates running in open seats because the connection between fundraising and success is most pronounced in these contests, as no incumbent is running for reelection (Thomsen, 2023). Moreover, extant work about early fundraising focuses most often on these kinds of contests (e.g., Bonica 2017, 2020; Porter and Steelman 2023). Each model presented in Figure 3 employs a different estimation strategy for candidate-centered and election-centered early fundraising as a primary explanatory variable. We include other control variables in our models, including indicators for candidate partisanship, prior political experience, primary type, district seat safety, and the number of competitors in the race, as well as fixed effects by year and random effects by district partisan primary.

We aim to assess how statistical inferences about the relationship between early fundraising and primary election success change conditional on the choice of early money measure. Because

Figure 3: Marginal Differences in Pairwise Comparisons for Early Money Coefficient in Primary Election Success Models



Note: Estimated logistic regressions predict the effect of early fundraising on primary election success for U.S. House candidates running from 2010 to 2020. Each success model presented employs a different early money measure from Figure 1. The x-axis indicates the focal model used in pairwise model comparisons. The y-axis reflects the difference in effect size between the focal model and the comparison model.

estimates for total early fundraising take on different ranges of values across each mode for measurement, we standardize all early money measures used in our models to have a mean of zero and a standard deviation of 1. Additionally, we follow the guidance of Mize et al. (2019) to recover the covariance matrices for marginal differences to produce valid confidence intervals for these quantities. In this approach, we stack models using seemingly unrelated estimation (SUEST) to combine estimates from multiple models. We estimate a stacked model for each set of the pairwise model comparisons, producing a total of ten model outputs. The coefficients estimated in these stacked models are identical to those produced by individual models; standard errors vary between stacked and individual models.

The marginal differences in early money coefficients across model pairwise comparisons are presented in Figure 3 with 95% confidence intervals. The x-axis indicates the focal model used in

pairwise comparisons.¹³ The y-axis indicates the difference in effect sizes across pairwise model comparisons. Confidence intervals that do not intersect with the horizontal gray line indicate the differences across pairwise model comparisons (i.e., marginal differences) are statistically significant. Plotted coefficients denoted with outlined shapes are election-centered measures; plotted coefficients denoted with shaded shapes are candidate-centered measures.

We find statistically significant differences across five of the six unique pairwise comparisons made in Figure 3 between election and candidate-centered measures. To place differences between measures in substantive terms, we turn to predicted probabilities. When employing a candidate-centered measure of early money, such as all fundraising reported in a candidate's first FEC quarterly report, an increase from one standard deviation below the mean to one standard deviation above the mean increases the predicted probability of success from 0.08 to 0.56. Conversely, when employing an election-centered measure of early money, such as all fundraising garnered 9 months before a candidate's primary, an increase in fundraising from one standard deviation below the mean to one standard deviation above the mean increases the predicted probability of success from 0.14 to 0.43. The difference-in-difference between these two measures is 0.19.¹⁴

Scholars have traditionally treated early money measures as interchangeable, offering little theoretical rationale for their measurement choices under the assumption that extant strategies produce similar fundraising estimates. Our preceding analyses indicate that this ambivalence is a threat to inference. We demonstrate that election-centered and candidate-centered measurement approaches produce differing estimates of early fundraising. Moreover, we show that these measurement differences have downstream consequences, impacting the substantive conclusions drawn from statistical analyses. To address this disconnect, we argue that scholars should *leverage* conceptual differences between election- and candidate-centered approaches to better align their empirical measurement of early fundraising with their theoretical motivations.

¹³Note that this presentational approach produces duplicated points of contrast.

¹⁴Predicted probabilities are calculated by holding all other variables at their observed value and averaging across all observations.

Guidance for Early Money Measurement

In this section, we offer practical guidance for measuring early fundraising. We propose that candidate-centered measures of early fundraising are best suited for assessing a candidate's initial financial backing; therefore, the quantity of interest for this measurement approach is raw dollars raised. Election-centered measures of early fundraising are best suited for assessing the comparative fundraising performance of candidates at a fixed point in time; therefore, the quantity of interest for this measurement approach is relative fundraising. We additionally highlight other measurement-specific considerations for early fundraising estimation. We specifically offer guidance for selecting early fundraising start/end dates and discuss data considerations for constructing early money estimates. Last, we highlight a collection of resources we have produced to make early money measurement more straightforward for researchers.

Theoretical Motivations for Measuring Early Fundraising

A candidate-centered measure is well-suited to address research questions centered on the initial financial backing a candidate's campaign receives. Recall that this family of approaches uses the start of a candidate's fundraising campaign to define the beginning of her early fundraising window. As such, a candidate-centered approach should reflect those first receipts raised by a candidate. This approach stands in contrast to an election-centered strategy that defines a candidate's fundraising windows based on the election calendar, which may fail to capture a candidate's initial fundraising.¹⁵ By capturing initial donations, a candidate-centered measure should reflect the "seed" funding that helps to get a candidate's campaign off the ground (Jacobson, 1992; Biersack et al., 1993). The quicker a candidate can raise seed money, the sooner she can put these resources to use and make herself known to potential voters and donors. The political action committee EMILY's List embodies in its name the principle that early contributions have an outsized impact on future fundraising, affirming that "**Early Money Is Like Yeast**" because it "makes the dough rise." To that end, a body of research seeks to measure the qualities or quantity of a candidate's

¹⁵This circumstance was reflected in Suraj Patel's election-centered early fundraising estimates in Figure 2b.

early fundraising to identify the political influencers providing financial support to candidates in the “invisible” or “money” primary. For example, Bonica and Grumbach (2022) use early campaign contributions to show that the “selectorate” of donors providing seed funding to candidates skew older and ideologically conservative. Porter and Steelman (2023) similarly employ early money to assess the kinds of political influencers active in the “invisible primary” and demonstrate that early monetary support from out-of-district donors is especially predictive of future fundraising success.

An election-centered measure is well-suited to addressing research questions about the interplay between early campaign fundraising and electoral competition. Recall that this family of approaches holds the fundraising window constant for all candidates running in the same electoral contest, allowing for direct comparisons across competitor fundraising at a fixed point in time. In this way, an election-centered approach encapsulates the dynamic of a candidate tailoring her behavior to her competitors’ fundraising performance. This stands in contrast to a candidate-centered strategy where there is no guarantee that early fundraising estimates reflect funds raised at the same point in the election cycle for all candidates in a race.¹⁶ An election-centered measure should capture the kind of fundraising data that journalists, pollsters, and voters use when making cross-candidate comparisons to glean who is “ahead” or “behind” in a race (Raja, 2007; Anderson et al., 2023). This dynamic is the subject of research assessing how fundraising disparities influence electoral competition. Epstein and Zemsky (1995), for instance, argue that challenger entry decisions are, in part, a function of incumbents’ financial signaling—where a strong show in early incumbent fundraising will deter challenger entry. Similarly, Thomsen (2023) shows that congressional candidates today are increasingly likely to drop out of elections when they are at an early fundraising disadvantage relative to their primary election competitors.

¹⁶This kind of mismatch in same-party competitors’ fundraising windows is evident in Figure 2 for Patel and Maloney’s candidate-centered measures.

How to Measure Candidate-Centered Early Fundraising

Because a candidate-centered measure of early money seeks to measure the initial contributions a candidate receives, the quantity of interest is raw dollars raised by a candidate.¹⁷ Moreover, for a candidate-centered measure to aptly capture a candidate’s initial “seeds” of fundraising, it should not reflect a protracted period of her fundraising campaign. Based on empirical conclusions drawn from Appendix Sections C and D, we suggest that researchers define a fundraising window as beginning when a candidate’s first itemized contribution is received and set a window length of 90 days. This start date ensures a candidate’s earliest receipt is captured in early fundraising measurement.¹⁸ Additionally, using a 90 day fundraising window ensures that a candidate’s first FEC quarterly reporting deadline is included in candidate-centered early money measurement. As shown in Appendix Figure A6, deadlines for reporting fundraising to the FEC clearly influence the data generation process for campaign receipts. Extant work finds that candidates are mindful of the vital role fundraising plays in shaping perceptions of campaign viability and, accordingly, ratchet up their fundraising efforts proximate to FEC reporting deadlines (Smidt and Christenson, 2011; Magleby et al., 2018). Candidate-centered measures that do not capture a candidate’s first FEC reporting deadline will under-report early fundraising.

When employing a candidate-centered approach, researchers should impose a cutoff date for early money measurement such that funds raised after a specific date are no longer deemed early.¹⁹ A sizable minority of candidates begin fundraising only a short time before their election; over 10% of all non-incumbent candidates who ran for the U.S. House between 2010 and 2020 began fundraising within 90 days of their primary.²⁰ It is undoubtedly the case that campaign fundraising

¹⁷Some work applies a log transformation to dollars raised to account for the depreciating marginal returns of fundraising. We do not suggest log-transforming early money totals because, at this stage of the campaign, every dollar matters for campaign investment (Herrnson, 1992).

¹⁸In Appendix Table A3, we show using FEC registration as an early fundraising start date excludes the first receipts for 43% of all primary candidates and 44% of incumbents. Using FEC quarterly reports to measure early fundraising also excludes a candidate’s first receipts in a minority of instances.

¹⁹Existing candidate-centered strategies for measuring early money in elections have failed to account for the fundraising behavior of candidates who begin garnering receipts proximate to their primary election (for an exception, see Porter and Steelman 2023).

²⁰Virtually all House incumbents running for reelection began fundraising a full year before their primary. The timing of the first itemized contributions for these and other kinds of candidates are presented in Appendix Figure A3.

garnered months before the primary versus mere days before the election have differentiated impacts on campaign success. It is important to explicitly acknowledge, however, that imposing such a cutoff will result in some candidates possessing observed fundraising periods that include fewer than 90 days. For instance, if a candidate begins raising money a month prior to a selected cutoff date, their candidate-centered fundraising will only capture a 30 day period.

We propose using state-level filing deadlines to inform a cutoff for early fundraising. Filing deadlines fall at least two months before each state's primary elections. Over 95% of non-incumbent general election winners received their first itemized contribution on or before their state's filing deadline. Importantly, a cutoff specification employing filing deadlines accounts for state-level variability in primary election timing. Specifying a fixed fundraising cutoff across all elections will not account for this variability.²¹ To illustrate, in the context of congressional elections, primaries are held across eight months, the earliest occurring in February of the election year and the latest in September.²² Specifying an early fundraising cutoff of January 1st would fall only a month from February primaries but over 250 days from September primaries. An early money measure capturing these different campaign phases for February and September primaries will surely fail to measure candidate fundraising consistently. One potential limitation in employing state-level filing deadlines as an early fundraising cutoff is that these deadlines vary across states, inducing disparate fundraising window lengths. Importantly, though, we find no relationship between the number of days in the window of our proposed measure and the number of days before the election that filing deadlines occur. This provides empirical evidence that variation in the timing of state-level filing deadlines will have limited influence on cross-candidate comparisons. For reference, we graphically depict our proposed candidate-centered measure of early money in Appendix Figure A5 using the same motivating example as Figure 2.

²¹A single fixed date is appropriate for presidential contests because all candidates run on the same election calendar. However, this approach is also employed in a handful of congressional studies (e.g., Goldenberg et al. 1988; Squire 1991; Bell et al. 2009; Thomsen 2022).

²²In Appendix Figure A4, we plot the distribution of primary elections by month.

How to Measure Election-Centered Early Fundraising

Given that an election-centered measure of early money is interested in a candidate's comparative fundraising performance at a fixed point, our quantity of interest here is not raw dollars raised but, instead, *relative* fundraising. Research questions seeking to assess whether a candidate is over- or under-performing early fundraising expectations should rely on Bonica's (2020) approach for calculating normalized fundraising relative to contest-level averages. For candidate i in primary contest j at time t , let f_{ijt} be a candidate's fundraising total at a fixed point in the primary and n_{jt} be the number of candidates competing in the primary contest at that time, such that $\widehat{\text{Normalized Fundraising}} = \frac{f_{ijt}}{(\sum f_{jt})}$. Using this approach, a value of greater than one indicates that a candidate is raising more than the contest average in early fundraising; a value of less than one indicates that a candidate is raising less than the contest-level average. Research questions seeking to assess how a candidate's early money compares to a specific competitor should rely on Thomsen's (2023) approach for calculating a fundraising share. For candidate i in primary contest j at time t , let f_{ijt} be a candidate's fundraising total at a fixed point in the primary and m_{jt} be the fundraising total for the comparison candidate (e.g., lead fundraiser or incumbent) at the same fixed point, such that $\widehat{\text{Fundraising Share}} = \frac{f_{ijt}}{m_{jt}}$. A value of greater than one indicates that a candidate is raising more than the comparison candidate in early fundraising; a value of less than one indicates that a candidate is raising less than the comparison candidate.

The date a researcher defines as the end of election-centered early fundraising should be tied to her question of interest.²³ For example, following Epstein and Zemsky (1995), if seeking to understand how the size of an incumbent's campaign war chest deters challenger entry, a fundraising end date early in the election season should be specified. This same end date would not be suitable for examining a different kind of candidate-fundraising relationship, such as the dropout decisions of candidates who are poor fundraisers (Thomsen, 2023). When choosing an early fundraising end date, it is also important to be mindful of state-level variability in the timing of elections.

²³In Appendix Table A2, we demonstrate that there is no leveling-off point that viable candidates tend to begin fundraising before; in other words, we find no empirical-motivated end date for election-centered early fundraising.

Researchers should specify a fundraising end date tied to contest-level electoral conditions. For example, Leal (2003) considers receipts early if they are raised 9 months before the primary.²⁴ It is important to explicitly note that, unlike our candidate-centered approach proposed above, this approach uses the same observation period across candidates in the same race because it is based on election timing rather than candidate fundraising behavior.

For many applications, the filing deadline for a candidate's election is an appropriate end date for early fundraising. All federal, state, and local elections require candidates to submit paperwork by a specific date to appear on the ballot. Once a state's filing deadline passes, the ballot is set, and no more candidates can enter the race. A filing deadline early fundraising cutoff will, therefore, include all ballot-eligible candidates; this is desirable if a researcher seeks to use an election-centered measure to make cross-candidate fundraising comparisons in advance of the election. It is worth noting that while the filing deadline for some states is closer to the primary election than others, this is not problematic for an election-centered measure. Our election-centered measure is calculated as a share rather than raw totals. Therefore, the measure allows for valid comparisons across states given all candidates within a race are evaluated on the same criteria, and all election-centered measures reflect a comparable share of fundraising. For reference, we graphically depict our proposed election-centered measure of early money in Appendix Figure A5 using the same motivating example as Figure 2.

Data Considerations for Early Fundraising Measurement

Campaign contributions data are often reported in two formats: raw itemized contributions from bulk data files and aggregated totals from fundraising disclosure reports. Using each of these sources for data involves trade-offs. The benefit of employing raw contributions is that these data allow for the fine-grained measurement of early money. Because receipt dates are available for itemized contributions, fundraising windows can be precisely and flexibly specified to include contributions garnered across specific dates. The drawback of working with raw data files is that it is

²⁴This kind of approach would place the fundraising end date for candidates with a February 28th 2020 primary in June of 2019 and candidates with a September 31st primary in January 2020.

computationally intensive. Raw contributions data can be downloaded in bulk from the FEC website, or specific data requests can be queried to the FEC API. Resulting files often contain tens of millions of observations; processing these data and manually calculating candidates' contribution totals requires data-wrangling skills and knowledge of campaign finance reporting requirements. Additionally, consistent receipt dates are unavailable for unitemized contributions—even in a raw data format (Alvarez et al., 2020). If researchers wish to incorporate small-dollar donations into their early money estimates, they must still rely on aggregate totals provided in disclosure reports.²⁵

The benefit of employing contributions data from disclosure reports is tied to ease of use. Accessing disclosure reports (e.g., quarterly reports to the FEC) is straightforward, and pre-aggregated contribution totals are reported in disclosure reports—no manual calculations are required. Moreover, at the federal level, FEC quarterly reports include itemized and unitemized receipts, giving a complete picture of candidate fundraising across a consistent window. The drawback of employing these data is that fundraising totals are pre-aggregated across a fixed reporting period that may not align with a researcher's specified early fundraising window. Moreover, disclosure reports may not reflect a consistent campaign period (e.g., 90 days in FEC quarterly reports). For example, in Appendix Section E, we demonstrate that about 6% of U.S. House candidates who ran between 2010 and 2020 had a first FEC quarterly reporting period that spanned more than 90 days, and 21% had a first reporting period that spanned less than 45 days.

To aid researchers, we make several resources available to measure early money. First, we provide a new dataset of state filing deadlines for U.S. congressional elections between 2004 and 2020. Second, we produce and make available off-the-shelf measures for early fundraising in U.S. House elections. For our candidate-centered measure, we calculate early money raised 90 days after receipt of a candidate's first itemized contribution. We cut off a candidate's early fundraising window if it intersects with her state's filing election deadline. For our election-centered measure, we calculate early fundraising totals with an end date based on contest-level filing deadlines. Additionally, we calculate and make available election-centered early fundraising totals at the three-,

²⁵In Appendix Section B, we outline one potential method for disaggregating small-dollar donations.

six-, and nine-month marks from a candidate's primary election. All estimates are produced using raw data on itemized campaign receipts and aggregated unitemized receipt totals. For greater detail, see Appendix Section B. Estimates are created based on the recommendations outlined in our preceding discussion. For reference, our candidate-centered estimates correlate with extant candidate-centered measures from Figure 1 at 0.86 and the election-centered estimates correlate with extant election-centered measures at 0.93.

Application: Employing Multiple Early Money Measures

To demonstrate that candidate- and election-centered early money measures capture conceptually distinct quantities of interest, we turn to a series of empirical applications. We assess how well measures of early fundraising perform as predictors for (1) a candidate's future fundraising success and (2) their likelihood of primary election victory. We expect both measures will exert independent effects on our outcomes of interest. We also expect model performance to improve when both election- and candidate-centered early fundraising are accounted for in the model specification. Additionally, we expect the relationship between early money and outcomes will be conditional on measurement. A candidate-centered measurement approach captures the early funds a candidate has at her disposal in the initial days of her campaign. The more funds a candidate raises, the more she can spend on campaign infrastructure (e.g., staff, campaign offices, and advertising). These resources are vital to raising a candidate's profile in the district and making her known to a broader pool of donors (Jacobson, 1992; Herrnson, 1992; Box-Steffensmeier et al., 2005; Hassell and Monson, 2014). For these reasons, a candidate-centered measure of early fundraising should have a more substantial effect on a candidate's future fundraising dividends. Unlike a candidate-centered measure that reflects raw receipts, an election-centered measure captures a candidate's fundraising performance relative to her competitors at a fixed point in time. Existing research shows that political elites are likelier to donate to candidates who already enjoy a fundraising advantage (Box-Steffensmeier et al., 2005; Feigenbaum and Shelton, 2012). Journalists often use comparative fundraising to discern a candidate's likelihood of winning (Raja, 2007). Finally, voters tend to view strong fundraisers as more electable, and these judgments impact vote choice (Abramowitz,

1989; Anderson et al., 2023). For these reasons, an election-centered measure should have a more substantial effect on electoral success.

We run a series of regressions to test these expectations. Units of analysis include all candidates who ran in partisan primary elections for the U.S. House of Representatives from 2010 to 2020. We once again restrict our analyses to candidates running in open seats (i.e., contests where no incumbent ran for reelection) and include the same control variables employed in models specified in Figure 3. We also include fixed effects by year and random effects by partisan primary election. To measure candidate-centered fundraising, we calculate the total dollars raised by a candidate in the 90-day window following the receipt of her first itemized contribution. We do not consider fundraising to be early if it is garnered after the state filing deadline for a candidate's election. To measure election-centered fundraising, we calculate a candidate's normalized fundraising relative to her primary election competitors at her state's filing election deadline. These early fundraising measures reflect the guidance proposed in the preceding sections. Both measures of early fundraising employed in Table 2 are rescaled to have a mean 0 and a standard deviation of 1 to allow for cross-measure comparisons.

Results are presented in Table 2. We specify three models for each outcome variable. In our future fundraising linear regressions, the outcome variable is a candidate's total fundraising (in thousands of 2020 dollars) garnered between her contest-level filing deadline and the date of her primary. In our electoral success logistic regressions, the outcome variable is a dichotomous indicator for whether or not the candidate won her primary. For each of these outcome variables, we specify a regression that includes only our candidate-centered early fundraising measure (Table 2, models 1 and 4). We specify a second regression that includes only our election-centered early fundraising measure (Table 2, models 2 and 5). Finally, we specify a third regression that includes *both* election- and candidate-centered fundraising measures (Table 2, models 3 and 6).

Turning first to our future fundraising analyses (Table 2, models 1-3), we find results consistent with our expectation that both election- and candidate-centered early fundraising predict future pre-primary contributions. This is the case when we specify our models with our candidate-centered

or our election-centered measures, as well as when both are accounted for in the same model. Importantly, predictive performance improves when both measures of early fundraising are included in the model specification, as is made evident when comparing the Akaike Information Criterion (AIC) across models.²⁶ An ANOVA chi-squared test confirms that modeling performance significantly improves when accounting for both early money measures ($p\text{-value} < 0.01$).

Turning next to our electoral success analyses (Table 2, models 4-6), we again find that our election- and candidate-centered early fundraising measures exert independent effects when accounted for in the same model. As with our future fundraising analyses, the AIC estimator and ANOVA chi-squared test confirm that including both early fundraising measures in model specification improves performance ($p\text{-value} < 0.01$). Together, these results provide empirical support that candidate-centered and election-centered early money measures capture conceptually distinct quantities of interest important for explaining political outcomes.

Finally, we find support for our expectations regarding the relative strength of predictive effects for each of our early money measures. When comparing early fundraising coefficients in our future fundraising model, the effect for our candidate-centered measure is 149.71 ($se = 9.42$), and the effect for our election-centered measure is 65.55 ($se = 9.21$). A t-test confirms that candidate-centered early fundraising has a significantly greater effect on pre-primary contributions ($p\text{-value} < 0.05$). This finding supports our theoretical expectation that raw receipts garnered at the start of a candidate's campaign have a stronger relationship with future fundraising than an election-centered measure for relative fundraising. When comparing coefficients in our electoral success model, the effect for our election-centered measure is 1.48 ($se = 0.16$), and the effect for our candidate-centered measure is 0.67 ($se = 0.16$). A t-test confirms that election-centered early contributions have a significantly greater effect on a candidate's likelihood of primary election success ($p\text{-value} < 0.05$). This supports our expectation that a candidate's relative fundraising performance has a stronger relationship with electoral success than a candidate-centered measure of raw dollars.

²⁶Because our first three models include the same random effects but different fixed effects, we estimate them using maximum likelihood (ML) as opposed to restricted maximum likelihood (REML). This allows us to make accurate comparisons of the AIC across models. See Zuur et al. (2009) for a complete discussion.

Table 2: Early Fundraising & Campaign Success in Open Seat Contests for the U.S. House of Representatives, 2010-2020

<i>Dependent Variable:</i>	Pre-Primary Contributions (in thousands of 2020 dollars)			Won Primary Election (won/lost primary)		
	(1)	(2)	(3)	(4)	(5)	(6)
Early Contributions: Candidate Centered (Standardized)	179.375*		149.709*	1.293*		0.672*
	(8.544)		(9.422)	(0.148)		(0.155)
Early Contributions: Election-Centered (Standardized)		134.924***	65.553***		1.756***	1.481***
		(8.737)	(9.219)		(0.149)	(0.159)
Candidate Party: Republican	-34.140*	-40.959*	-35.744*	-0.276	-0.343*	-0.336*
	(10.322)	(12.319)	(10.337)	(0.154)	(0.158)	(0.160)
Seat Safety: Same Party	9.666	19.378	12.596	-0.093	-0.097	-0.112
	(16.390)	(19.810)	(16.461)	(0.252)	(0.259)	(0.262)
Seat Safety: Competitive	20.460*	42.236*	25.368*	-0.267	-0.125	-0.194
	(10.044)	(12.213)	(10.116)	(0.154)	(0.159)	(0.161)
Number of Quality Candidates	-2.963	-1.603	-2.203	-0.495*	-0.499*	-0.508*
	(3.255)	(3.984)	(3.277)	(0.059)	(0.059)	(0.060)
Primary Type: Open	3.774	-21.164	-2.808	0.071	-0.167	-0.093
	(10.031)	(12.268)	(10.131)	(0.155)	(0.160)	(0.163)
Primary Type: Closed	0.984	-16.225	-3.808	0.168	0.034	0.086
	(13.673)	(16.783)	(13.788)	(0.214)	(0.220)	(0.222)
Female	30.320*	28.674*	29.215*	0.232	0.218	0.227
	(10.116)	(10.697)	(9.917)	(0.158)	(0.164)	(0.166)
Quality Candidate	43.695*	45.358*	38.661*	0.855*	0.861*	0.823*
	(9.315)	(9.781)	(9.140)	(0.156)	(0.160)	(0.162)
Constant	98.098***	106.626***	102.166***	-0.146	-0.075	-0.085
	(18.289)	(21.917)	(18.337)	(0.277)	(0.283)	(0.286)
Year Fixed Effects	✓	✓	✓	✓	✓	✓
Primary Random Effects	✓	✓	✓	✓	✓	✓
Observations	1,322	1,322	1,322	1,322	1,322	1,322
AIC	17,070.640	17,247.580	17,023.270	1,371.826	1,295.292	1,277.087

Note: Units of analysis include candidate who ran in open seat primary elections (i.e., races without an incumbent) who raised at least \$5,000 prior to their primary election. We exclude non-partisan primaries held in California, Washington, and Louisiana. Both measures of early contributions have been scaled to have a mean of 0 and a standard deviation of 1 to allow for comparisons of effect sizes across measures. *p<0.05

Conclusion

In this article, we put forward a theoretical and empirical roadmap for choosing the appropriate measure for early fundraising. We classify extant early money measures into groups of “election-centered” and “candidate-centered” approaches and demonstrate that these strategies produce substantially different estimates for candidates’ early fundraising. We attribute this variability to conceptual differences in how early money is measured and argue that election-centered and candidate-centered approaches capture two distinct quantities of interest. We recommend that researchers leverage differences across approaches for early money measurement to better connect their empirical strategy with their theoretical quantity of interest. We propose a candidate-centered measure capturing dollars raised in the initial days of a candidate’s campaign is best suited for addressing research questions about the qualities or quantity of a candidate’s early fundraising. To capture early receipts, a candidate-centered measure should define the start of a candidate’s early fundraising window using the date of receipt for her first itemized contribution. This fundraising window should reflect a full FEC reporting quarter (about 90 days) and exclude funds raised proximate to the election. An election-centered measure expressing a candidate’s early receipts relative to her competitors is best suited for research questions that assess the interplay between campaign fundraising and electoral competition. When choosing a date to mark the conclusion of election-centered early fundraising, researchers account for state-level election timing.

Motivated by the growing influence of moneyed interests in politics, scholarship examining the relationship between early fundraising and political outcomes is experiencing a resurgence. We offer practical guidance and empirical tools to equip scholars with the resources needed to engage with research questions tied to early fundraising. The theoretical and empirical framework we present provides an essential introduction to the considerations researchers must engage with to properly conceptualize and measure early fundraising in their own work.

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Online Appendix for: Conceptualizing and Measuring Early Campaign Fundraising in Congressional Elections

Colin R. Case & Rachel Porter

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A Supplemental Tables & Figures

Table A1: Existing Measures for Early Campaign Fundraising

Type	Early Fundraising Definition	Citing Literature
Calendar-Centered	All Funds On Hand at the Beginning of the Election Cycle	Squire (1991); Box-Steffensmeier and Franklin (1995); Goodliffe (2001, 2004, 2007); Herrnson et al. (1998)
	All Funds Raised by June 30th in the Year Prior to the Election	Burrell (1994); Krasno et al. (1994); Bell et al. (2009)
	All Funds Raised in the Year Prior to the Election	Goldenberg et al. (1988); Krasno and Green (1988); Hersch and McDougall (1994); McCarty and Rothenberg (2000); Adkins and Dowdle (2005); Smidt and Christenson (2011, 2012); Magleby et al. (2018); Thomsen (2022)
	All Funds Raised 90, 180, and 360 Days Prior to Primary Election	Patterson Jr. (2020)
	All Funds Raised 8/9 Months Prior to Primary Election	Leal (2003)
	All Funds Raised Prior to Filing Deadline	Hogan (2001)
	All Funds Raised Prior to Primary	Damore (1997); Hannagan et al. (2010); Bonica (2017); Thomsen (2023); Porter and Treul (2024)
Candidate-Centered	Receipts in Candidate's first filed FEC Quarterly Report(s)	Biersack et al. (1993); Francia (2001); Thomsen (2023)
	30, 60, 90 or 180 days from filing of statement of candidacy	Bonica (2017, 2020)
	60 or 90 days from first itemized contribution on record with FEC	Porter and Steelman (2023)
	Earliest 20% of campaign receipts	Vonnahme (2014)
	Earliest 33% of campaign receipts	Babenko et al. (2022)
	First 50 Donations to a Candidate	Bonica and Grumbach (2022)

Figure A1: Pairwise Correlations for Popular Early Money Measures

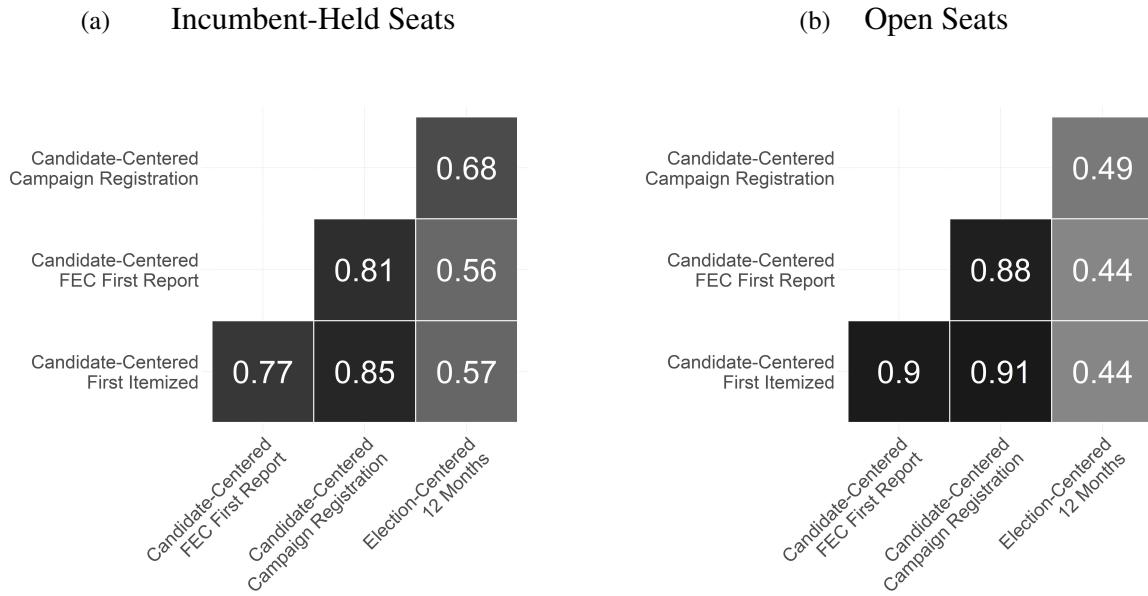


Table A2: Prop. of Candidates Who Garnered their First Itemized Receipt Relative the Primary

Months Prior to Primary	All GE Winners	Non-Incumbent GE Winners	Quality Challengers
12 months	0.879	0.346	0.243
11 months	0.894	0.413	0.304
10 months	0.906	0.481	0.376
9 months	0.913	0.514	0.440
8 months	0.924	0.576	0.501
7 months	0.936	0.646	0.571
6 months	0.948	0.708	0.637
5 months	0.960	0.775	0.712
4 months	0.973	0.848	0.799
3 months	0.986	0.922	0.894
2 months	0.999	0.992	0.981
1 month	1.000	0.997	0.996

Figure A2: Average Timing of Fundraising Windows Across Modes for Measurement

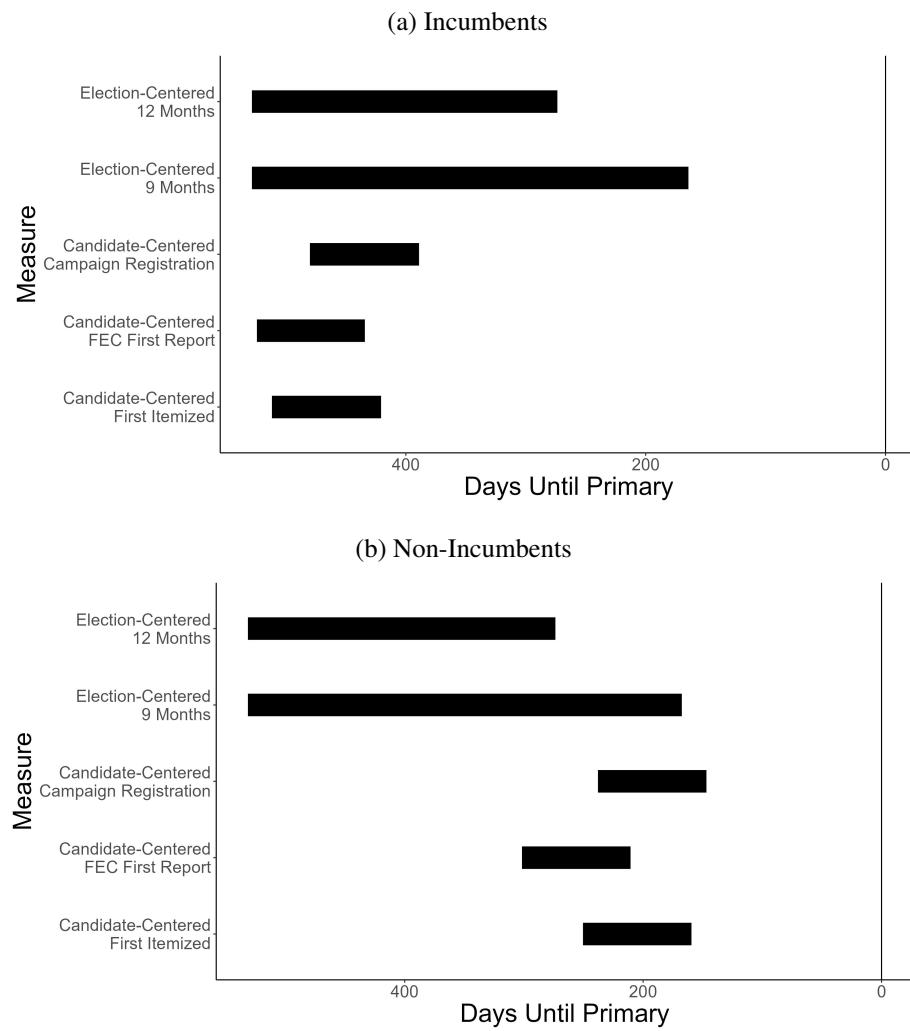
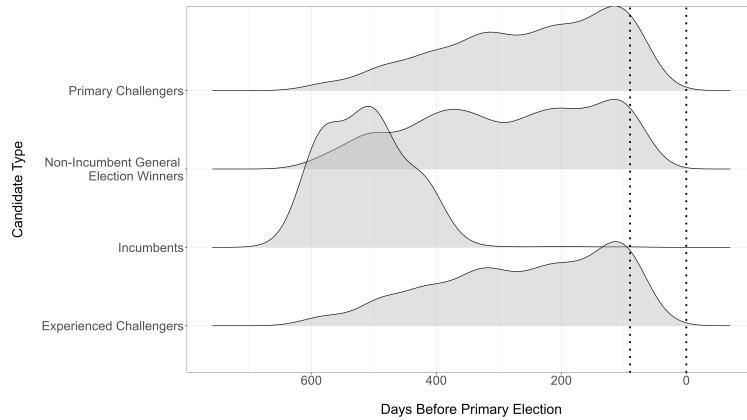


Figure A3: Timing of First Itemized Contribution (in Days) Relative to Primary Election



Note: Units of analysis include all candidates considered active by the FEC (i.e., campaigned during the election cycle and exceeded the \$5,000 reporting threshold). The x-axis reflects a standardized election timeline, from 675 days until the primary election (left) until the primary election date (right). The y-axis reports the density of candidates whose first itemized campaign contribution was received on a given day relative to the primary. Plots are presented by candidate type, given that certain kinds of candidates (i.e., those who are mounting a professional, viable campaign) will systematically begin fundraising sooner than long-shot candidates who have little chance at winning. To provide a point of reference, the vertical dotted lines indicate 90 days and 0 days until the primary election.

Figure A4: Congressional Primary Election Dates by Month

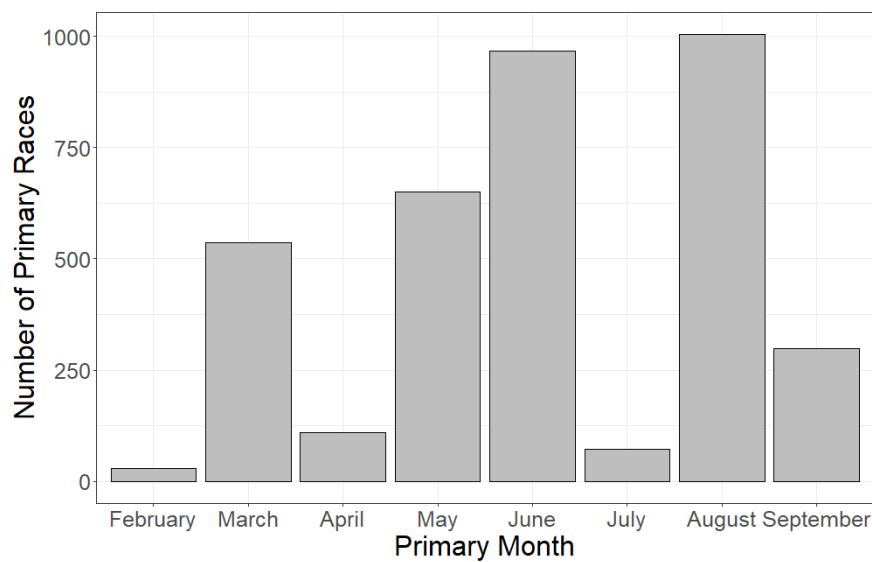
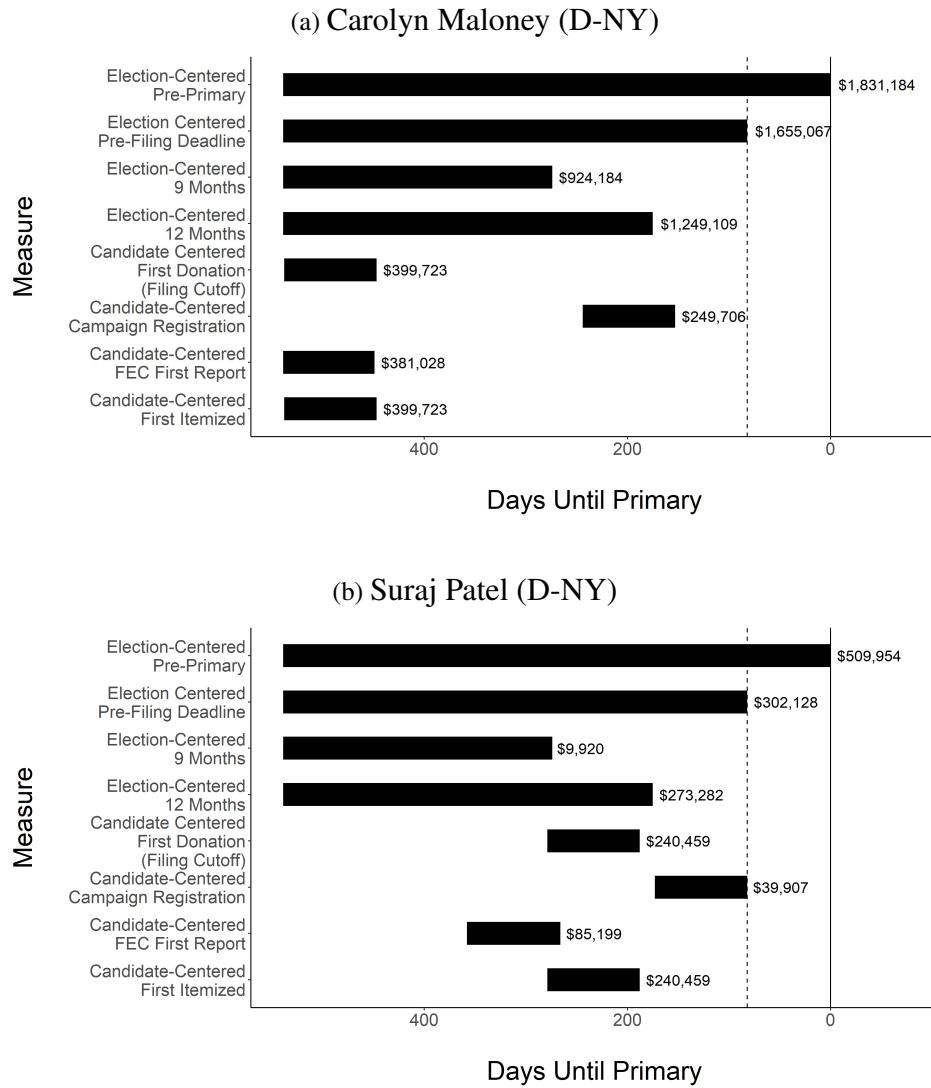


Figure A5: Timing of Fundraising Windows & Estimates for Early Fundraising Across Extant Measurement Strategies



Note: Figure depicts the start and end date of early fundraising for Carolyn Maloney (Figure A5a) and Suraj Patel (Figure A5b) in the NY-12 Democratic primary in 2020 for the early money measures present in Figure 1 and our proposed measures. The solid vertical line represents the date of the primary election and the dashed vertical line represents the date of the filing deadline. All fundraising totals are produced using itemized fundraising data from OpenSecrets and unitemized fundraising totals reported in FEC quarterly reports. See Appendix Section B for greater details.

B Data Cleaning & Preparation

To produce the analyses in this manuscript, we rely on data provided by OpenSecrets on U.S. House candidates' itemized contributions for elections occurring in 2010 through 2020. We elected to employ data from OpenSecrets on itemized contributions rather than raw data from the Federal Election Commission because it has been cleaned of double-counted contributions, candidate names are standardized across election years, and other important metadata are included. In pre-processing our data, we adopt the best practices proposed by OpenSecrets by excluding non-contributions, independent expenditures, and tribe contributions. We take several additional steps, dropping candidates whose total pre-primary contributions did not total to \$5,000 and excluding itemized contributions that were raised before the previous election for the subsequent cycle.

To calculate candidates' total early receipts totals, we summed itemized contributions received by candidates inclusively beginning on a candidate's fundraising window start-date and ending on their fundraising window end-date. A contribution from a donor to a candidate is itemized when it exceeds \$200 or aggregates over \$200 when added to other contributions received from that same donor during the election cycle. Itemized contribution amounts reported in OpenSecrets' data reflect amendments made by candidates and givers to the Federal Election Commission. In calculating fundraising totals, we follow FEC reporting procedures employed by candidates' campaign treasurers when generating quarterly reports (i.e., we report gross funds raised and exclude refunds). For greater detail on FEC reporting procedure, see: <https://www.fec.gov/help-candidates-and-committees/filing-reports/election-cycle-aggregation/>.

When generating candidates' early fundraising totals, we also incorporate data on smaller, *unitemized* campaign contributions. For most candidates, data on unitemized contributions are only available as aggregated totals reported in FEC quarterly reports. To employ these data across fundraising periods that do not perfectly align with the timing of quarterly reports, we follow Bonica's (2020) interpolation approach. We first calculate daily totals in unitemized fundraising by dividing aggregate totals from quarterly reports by the number of days in that quarter. It is important to note that the denominator in this calculation is not always 90 days (i.e. three months): a candidate's first fundraising quarter may be significantly longer or shorter than this number of days.¹ Based on the number of fundraising days a candidate had in their first quarterly report, daily unitemized fundraising totals are then multiplied by the number of days in a candidate's fundraising window. If a candidate has a fundraising window that falls over two different quarters, then unitemized receipt totals are multiplied by the number of days shared by the fundraising window and that particular quarter; these totals are then summed together. Although some candidates elect to provide the FEC with *all* campaign contributions in the form of itemized receipts, employing aggregate unitemized totals for some candidates and disaggregated receipts for others is fraught with issues (for more discussion, see Alvarez et al. 2020).

¹Many candidates running for Congress begin fundraising in the middle of a FEC reporting period; accordingly, these kinds of candidates will report a first fundraising quarter that is shorter than 90 days. Additionally, in every election cycle, a minority of candidates begin fundraising before they actively run for office, raising and spending money to assess campaign viability. During this so-called “testing the waters” period, candidates are not required to report fundraising to the FEC—even if their receipts total over \$5,000. Once a candidate decides to become “active” and officially registers their campaign with the FEC they must report all funds raised, including those generated when “testing the waters.” These kinds of candidates will report a first fundraising quarter that is longer than 90 days.

C Candidate-Centered Measurement: Start Date

There is consensus that, for contributions to be early, they should be among a candidate's first receipts. Capturing a candidate's earliest contributions in a measure for early fundraising is foundational to the conception that early funds are the "seeds" for campaign success. Similarly, to map the kinds of political influencers who are active in the "money" or "invisible" primary, an early money measure should reflect those first donors who backed a candidate's campaign from the start. Extant candidate-centered measures employ several kinds of campaign behaviors to mark the beginning of a candidate's early fundraising window. However, the extent to which these different fundraising window start-dates capture a candidate's first donations has not been examined.

In Table A3, we present the proportion of candidates whose first itemized campaign receipt occurred within fundraising windows specified using a variety of start dates.² The left column defines a candidate's fundraising window as beginning when she files paperwork to register her campaign with the FEC. The middle column defines a candidate's fundraising window as starting on the coverage start date recorded in her first filed FEC quarterly report. The right column defines a candidate's fundraising window beginning when she receives her first itemized contribution. We specify a 90-day fundraising window for the "FEC Registration" and "First Itemized Donation" early money measures in Table A3. As our analysis in Appendix Section E demonstrates, the effective fundraising window length captured in the "First FEC Report" measure varies by the candidate. Given that the timing of a candidate's fundraising may vary based on her personal characteristics or electoral context, we produce first-donation proportions for a variety of candidate types, including general election winners, incumbents running for reelection, non-incumbents, and quality candidates (i.e., non-incumbents who previously held publicly elected office).

The proportions reported in the left column of Table A3 demonstrate that the "FEC Registration" measure systematically fails to capture the first receipts raised. This is partly because candidates are not required to register their campaigns with the FEC until they exceed the \$5,000 candidate registration threshold. Accordingly, if a candidate waits to register her campaign until the threshold is met, all receipts garnered before that point will be excluded from her early fundraising total. The total amount of receipts raised before campaign registration may even *exceed* \$5,000 if a candidate "tests the waters" and fundraises extensively before beginning to campaign actively.³ Additionally, the "FEC Registration" measure may fail to capture the initial receipts for candidates who do not file their campaign registration paperwork punctually.⁴ We identified 1,091 or 18% of all candidates as "delinquent" statement filers—these individuals had met federal requirements that compelled them to register their candidacy with the FEC but failed to do so on time.⁵ Candi-

²Unitemized contributions are reported as a bulk sum in quarterly reports; while some candidates elect to itemize all campaign receipts—including small donations—we do not have systematic data on these contributions for all candidates. Because we lack consistent data on receipt dates for unitemized contributions across all candidates, we follow the guidance by Alvarez et al. (2020) and exclude such contributions from this analysis.

³A candidate is not considered active by the FEC until she engages in campaigning (e.g., refers to themselves as a candidate, takes steps to qualify for the ballot, or engages in advertising) at which point she becomes "active."

⁴When registering their campaign with the FEC, individual candidates must submit a Statement of Organization and a Statement of Candidacy. According to an interview conducted by the authors with a staff specialist at the Federal Election Commission, candidates often forget to file one of these two forms, thus leaving their official declaration of candidacy incomplete and setting back their registration date until this paperwork is complete.

⁵Once a candidate begins actively campaigning for office and reaches the FEC's \$5,000 financial threshold she is required to submit campaign paperwork and is subsequently subject to FEC reporting requirements. We would consider a candidate delinquent if she did not submit her candidacy paperwork when she began filing quarterly reports

Table A3: Proportion of Candidates Whose First Itemized Campaign Receipt Falls Within Fundraising Window

Type of Candidate	FEC Registration	First FEC Report	First Itemized Donation
General Election Winners	0.43	0.98	1.00
All Primary Candidates	0.43	0.88	1.00
Incumbents	0.44	0.99	1.00
Non-Incumbents	0.42	0.82	1.00
Quality Candidates	0.37	0.89	1.00

Note: Numerators in calculated proportions reflect the number of candidates whose first itemized campaign receipt was captured by extant candidate-centered measures of early fundraising. The denominator in this analysis includes all candidates considered active by the FEC prior to their primary.

dates who filed their statement of candidacy late were, on average, significantly delinquent—about a full reporting quarter behind schedule.

Turning next to the middle column of Table A3, the “First FEC Report” measure captures the initial itemized receipt for most candidates. Instances in which a candidate’s first quarterly report did not capture her first itemized receipt are attributable to cases where a candidate’s first report to the FEC included only unitemized contributions or disbursements. Additionally, a small number of candidates file quarterly reports when they are not “active” (i.e., have not met the threshold necessary for disclosing receipts and disbursements). These premature filers may report no itemized receipts in their first FEC report.

Per the right column of Table A3, we find that the “First Itemized Donation” measure perfectly captures the initial itemized receipt a candidate fundraises. This is to be expected given that the “First Itemized Donation” measure uses a candidate’s first itemized receipt as the basis for the start of her fundraising window.

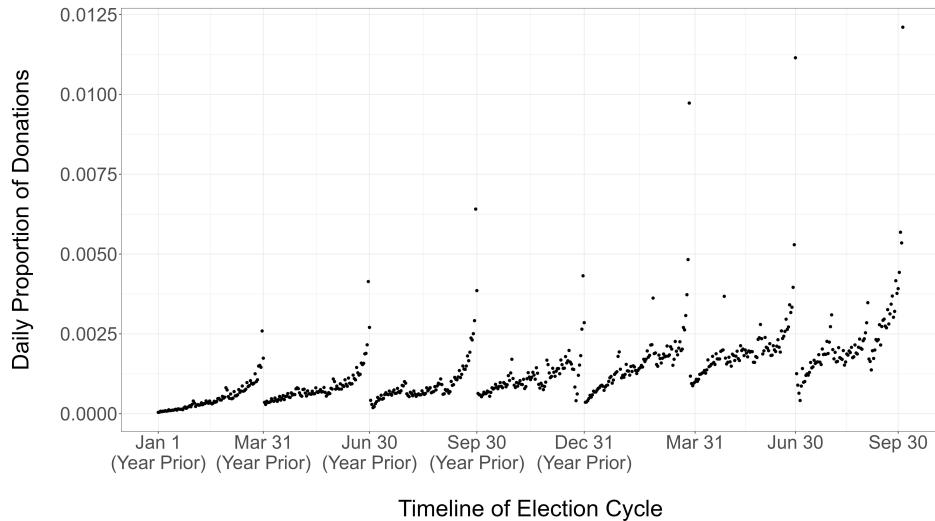
D Candidate-Centered Measurement: Window Length

For a candidate-centered measure to aptly capture a candidate’s initial receipts, it should include only the beginning “seeds” of fundraising success and not reflect a protracted period of a candidate’s fundraising campaign. Research on early fundraising has focused on money raised by candidates over windows spanning anywhere from 60 days to 180 days. The selection of fundraising window lengths in recent work has primarily been rooted in precedent from prior work, which lacks empirical substantiation (e.g., Biersack et al. 1993 and Porter and Steelman 2023).

To explore a data-driven rationale for determining fundraising window length, Figure A6 plots trends in the timing of campaign contributions received by U.S. House candidates. The x-axis reflects a standardized election timeline from the beginning of the cycle (left) to the end (right). The y-axis reports the proportion of donations made to candidates on a given day out of the total number of donations made to all candidates across U.S. House elections held from 2010 to 2020. Per Figure A6, there is a gradual increase in the daily proportion of donations that candidates receive as the election cycle progresses. Perhaps more notably, Figure A6 also shows that daily donations in-

with the FEC (i.e., she regarded herself as an “active” candidate). For an example of this timing, see Figure 2 as both Carolyn Maloney and Suraj Patel filed their registration paperwork delinquently.

Figure A6: Proportion of Campaign Contributions Received Daily By Candidates for the U.S. House of Representatives, 2010-2020



Note: Proportions on the y-axis reflect the number of donations made to candidates on a given date out of all donations made to all candidates running in elections for the U.S. House of Representatives from 2010 to 2020. The x-axis is a standardized election timeline, from the beginning of the cycle (left) to end (right).

crease exponentially in about 90-day increments. These punctuated increases align with deadlines for reporting campaign financial activity to the FEC.⁶ This relationship between House candidate fundraising and FEC reporting deadlines aligns with work by Smidt and Christenson (2012) and Magleby et al. (2018), who show a similar pattern in presidential campaign fundraising.

E Data Considerations: FEC Quarterly Reports

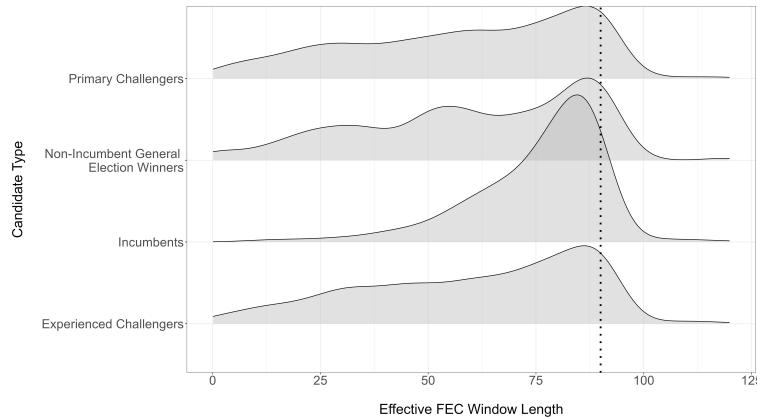
Using quarterly FEC reporting deadlines to define a candidate's early fundraising period has some notable advantages. The size and scale of itemized data on campaign receipts makes calculating custom fundraising totals for each candidate in each election computationally arduous;⁷ downloading and extracting fundraising totals from FEC Quarterly Reports is a more manageable task. It is for this reason that some studies rely on these line item totals as a measure for early fundraising (e.g., Biersack et al. 1993; Francia 2001; Thomsen 2023).

The use of FEC quarterly reports to measure early fundraising however, does have some important limitations, particularly for candidate-centered early fundraising. Given that quarterly reports align with FEC reporting periods, they should, in theory, reflect a consistent fundraising window. However, we find that the span of time captured in a candidate's first FEC quarterly report often exceeds or falls short of 90 days. The number of days covered in a first filed quarterly report will be shorter than a full quarter if a candidate does not begin fundraising on the first day of the reporting

⁶FEC reporting deadlines fall on the last day in March, June, September, and December. Recall that a candidate must register her campaign and file quarterly reports with the FEC once she (1) begins campaigning for office and (2) exceeds \$5,000 in campaign receipts and/or disbursements.

⁷For the authors to download bulk data from the FEC on itemized campaign receipts, query the FEC API for unitemized contribution totals, and loop over these data to calculate customized early fundraising totals for each candidate in our data set took approximately 48 hours, absent the writing of code.

Figure A7: Effective Window Length of Candidates' First Filed FEC Quarterly Report



Note: The x-axis denotes the number of fundraising days covered in each candidate's first filed report. The y-axis in Figure A7 measures the number of U.S. House candidates who ran in elections from 2010 to 2020 who had a given FEC window length. Per the FEC, the start of the coverage period for a candidate's first filed quarterly report dates to the beginning of that candidate's financial activity. The coverage period ends on the reporting deadline for the quarterly reporting period where she became an "active" candidate. To provide a point of reference, the vertical dotted line indicates a 90 day coverage window.

period. Recall from the NY-12 example shown in Figure 2b, Suraj Patel received his first itemized donation on September 18th, shortly before the FEC's reporting deadline for fall of 2019. Accordingly, the effective fundraising window length for Patel's first filed quarterly report was only 13 days. Like Patel, about 20% of candidates in our data began fundraising less than 45 days before their initial FEC reporting deadline. This trend is not isolated to hopeless candidates either—26% of non-incumbent general election winners started fundraising less than 45 days before their first FEC reporting deadline. The number of days covered in a first quarterly report will be longer than a full quarter if a candidate fundraises extensively before registering her campaign with the FEC. In our data, about 6% of candidates had a first quarterly report that covered more than the standard reporting period.⁸ Candidates who are "testing the waters" for a potential campaign are not required to report any fundraising to the FEC until their campaign becomes "active."⁹ Once campaign activity begins candidates must report all pre-campaign contributions, which results in a longer coverage period.

⁸The full distribution of effective FEC fundraising window lengths are available in Figure A7. As we show, there is variation in the fundraising window length across all subsets of candidates, including all primary challengers, non-incumbent general election winners, incumbents, and experienced challengers.

⁹A candidate is not considered active by the FEC until she engages in campaigning (e.g., refers to themselves as a candidate, takes steps to qualify for the ballot, or engages in advertising).