

Conceptualizing and Measuring Early Campaign Fundraising in U.S. House 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 hope to reinvigorate scholarly discussion on the measurement of money in politics.

Keywords: campaign finance; measurement validity; elections; campaigns

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In contemporary U.S. elections, few would question the influence of money. Recent studies have reaffirmed the relationship between fundraising and success by demonstrating that the more a candidate fundraises, the more likely she is to win her election (e.g., Jacobson 2015; Bonica 2017; Schuster 2020; Ferguson et al. 2022; Thomsen 2022).¹ These empirical accounts match descriptive trends: according to OpenSecrets (2022), nearly 90% of U.S. congressional elections since the turn of the century were won by the candidate who spent the most money.

A variety of individual-level and contextual factors can affect a candidate's fundraising success (e.g., Cho and Gimpel 2007; Fouirnaies and Hall 2014; Grumbach and Sahn 2020), among them is a candidate's ability to raise money early. Political consultants and candidates agree that the timing of contributions is critical to their impact, and funds received well before the election are the most valuable. This is, in part, because raising money early is instrumental to building a strong campaign organization (Box-Steffensmeier et al., 2005). As Jacobson (1992) notes: "early money is seed money for the entire campaign effort; it is needed to organize, plan, and raise more money" (p. 78-79). Early money also bolsters later fundraising because it acts as a signal for campaign viability, where strong fundraising early on produces more favorable campaign perceptions. This positive feedback loop between fundraising and viability gives front-runners a sustained advantage (e.g., Krasno et al. 1994; Adkins and Dowdle 2005; Feigenbaum and Shelton 2012; Anderson et al. 2023) and can put women and racial minorities—who may face unequal access to campaign receipts—at an electoral disadvantage (e.g., Francia 2001; Bell et al. 2009; Sorensen and Chen 2022). Accounts tying fundraising to perceived campaign viability track with candidate behavior; extant work demonstrates that cross-candidate disparities in early fundraising can influence challengers' emergence and dropout decisions (e.g., Epstein and Zemsky 1995; Box-Steffensmeier 1996; Goodliffe 2001; Norrander 2000; Bonica 2017; Thomsen 2023).

As this discussion illustrates, early fundraising is at the heart of important questions related to declining electoral competition, inequalities in the path to representation, and the influence

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). More recent studies find that the effect of fundraising on success for incumbents and challengers is both similar in magnitude and substantively important (e.g., Erikson and Palfrey 2000; Fouirnaies and Hall 2014; Bonica 2017; Schuster 2020; Thomsen 2022).

of moneyed interests in politics. Scholars’ ability to address these kinds of important questions, however, has been inhibited by a lack of clarity regarding the best practices for measuring early campaign fundraising. A survey of the literature reveals nearly a dozen unique approaches for measuring early money. In the analyses to follow, we demonstrate that these differing measurement approaches produce substantially different estimates for candidates’ early receipts. This variability is particularly concerning for two reasons. First, extant work has not adjudicated what kinds of measures are most appropriate for addressing which kinds of research questions. For instance, are certain measures more successful at capturing early money as a relative indicator of campaign performance versus a raw measure of early “seed” fundraising? Second, the extent to which existing measures reflect definitional aspects of early money has not been tested. For example, there is consensus in the literature that, for campaign contributions to be considered “early,” they should be received well before the election (see Biersack et al. 1993). Our assessment, though, reveals that many early money measures capture funds raised by a candidate mere days before her election.

Responding to this absence of theoretical justification and empirical validation across existing strategies for measurement, we offer a reexamination of what it means for money to be “early.” We begin by classifying extant early money measures as centered on either a candidate’s own fundraising performance (candidate-centered) or her fundraising performance relative to her electoral competitors (election-centered). We go on to argue that these approaches capture conceptually distinct attributes of early fundraising, and implore scholars to leverage these differences to better align their empirical measurement with their theoretical motivations. We suggest that a candidate-centered measure capturing dollars raised in the initial days of the campaign is best suited for addressing research questions about the qualities or quantity of a candidate’s early fundraising. For example, what kinds of political influencers are providing financial support to candidates in the “invisible” or “money” primary? Is the amount of early dollars raised by a candidate predictive of future fundraising success? An election-centered measure that expresses a candidate’s early receipts relative to her competitors’ at a fixed point in time is best suited for research questions that assess the interplay between campaign fundraising and electoral 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?

After defining a theoretical framework for early money measurement, we offer empirical guidance on scope conditions for the operationalization of early fundraising using candidate-centered and election-centered approaches. We specifically address the following questions: (1) what best defines the start/end of a candidate's early fundraising window, (2) how long before a candidate's election must money be raised by to be considered early, and (3) what units of measurement are most suitable for expressing early fundraising estimates. These analyses inform our creation of off-the-shelf measures for election-centered and candidate-centered early fundraising. We go on to evaluate whether our proposed early money measures exert independent effects on campaign success in U.S. House elections from 2010 to 2020. In estimating models that include *both* our candidate-centered and election-centered measures, we find that each is associated with greater future fundraising dividends and a higher likelihood of primary election victory. These results provide evidence for our argument that candidate-centered and election-centered measurement strategies produce estimates for early fundraising that are conceptually distinct.

In this paper, we demonstrate that measuring early fundraising is not straightforward, and that the measurement choices scholars make can have important implications on inference. These challenges, though, should not restrain research. By producing off-the-shelf measures for early campaign fundraising, we seek to provide scholars with an accessible metric for early money in congressional elections. We hope that scholars whose questions of interest may not be well-encapsulated by our proposed measures refer to the empirical guidance we present here to help inform their own specific measurement tasks. 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 kinds of electoral contexts; many of the same measurement complexities evident here are present in U.S. elections held at the local- and state-level. We are hopeful that our work will help to reinvigorate scholarly discussion on the measurement of money in politics and push scholars to place greater emphasis on the role of money in explaining political outcomes.

Extant Work on Early Fundraising in Elections

Studies of early fundraising generally employ one of two measurement strategies: they either use the electoral calendar to define early campaign receipts, or they use a candidate's own fundraising behavior. In the text to follow, we briefly review the attributes that differentiate these election-centered and calendar-centered measurement approaches. Key points from this review of the literature are summarized in Table 1. In Table 1, we also include a sampling of literature that employs each family of measures. Greater detail regarding each cited work's unique operationalization of early fundraising, as well as other citing literature, can be found in Appendix Table 1.

In our classification of existing early money measures, we define a first group of strategies as election-centered. These approaches operationalize early money based on a fixed date in time and consider to all funds raised before that date to be early. Some election-centered measures base their fundraising end-dates on the number of months that have elapsed within an election's cycle. For instance, Green and Krasno (1988) consider money to be early if it was raised before December 31st in the year prior to the election.² Other election-centered measures base their fundraising end-dates on contest-level electoral timing. Leal (2003), for example, considers funds raised by U.S. Senate candidates nine months before the primary to be early.³

Rather than considering all money raised before a certain date to be early, candidate-centered measures define a candidate's early fundraising window as lasting some span of time after a particular date. The start-date that defines a candidate's early fundraising window is unique to each candidate because it is based on a candidate's own electoral behavior. Candidate-centered measures vary considerably in the kinds of behaviors they use to define the start of early fundraising. Bonica (2017, 2020) defines a candidate's fundraising start-point as the date she officially registers her campaign with the Federal Election Commission (FEC). An individual seeking nomination for

²Fundraising end-dates based on the number of months that have elapsed in an election cycle usually fall on March 31st, June 30th, October 31st, and December 31st; these cut-offs dates align with reporting deadlines for quarterly campaign receipts and expenditure totals to the Federal Election Commission.

³Congressional primary elections are held across an eight-month period with the earliest occurring in February of the election year and the latest being held in September. By tying measurement to primary election dates, Leal (2003) accounts for state-level variation in the timing of congressional elections.

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); Adkins and Dowdle (2005); Leal (2003); Smidt and Christenson (2012); Thomsen (2023)</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>

election, or reelection, to a federal office must register her campaign with the FEC once she receives contributions or makes expenditures that exceed \$5,000.⁴ Alternatively, Porter and Steelman (2023) and Bonica and Grumbach (2022) use the date that a candidate receives her first itemized campaign contribution to define the start of her early fundraising window. Biersack et al. (1993) and Thomsen (2023) also rely on the timing of initial contributions to define the start of a candidate's early fundraising window, considering all receipts reported in a candidate's first filed FEC quarterly report to be "early."

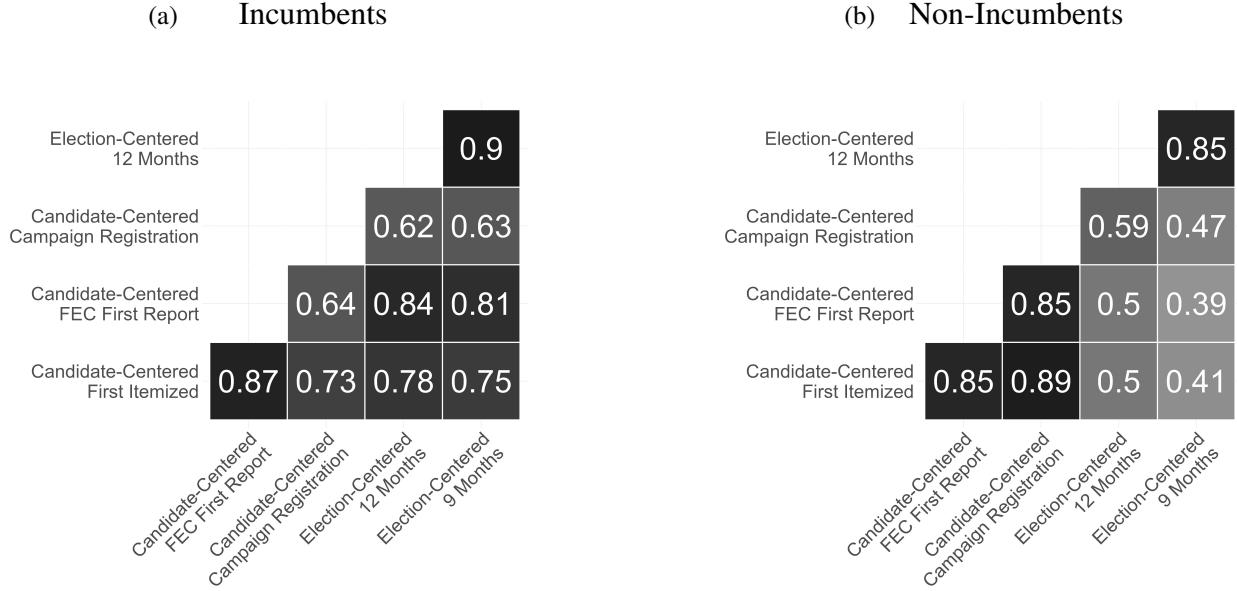
Assessing Variability in Early Money Estimates

The preceding discussion demonstrates that researchers employ numerous approaches to measure early campaign fundraising; however, to our knowledge, no empirical validation has been conducted to assess if and how early money estimates vary across extant measures. To that end, Figure 1 presents average cross-measure correlations for early fundraising among candidates who ran in elections for the U.S. House of Representatives from 2010 to 2020 ($N = 6,001$).⁵ Fig-

⁴This \$5,000 threshold originates from 11 CFR § 100.3, as issued to implement the Federal Election Campaign Act of 1971. For an exception to this rule, see the discussion of "testing the waters" in Section A of the Appendix.

⁵Units 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 prior to their primary election).

Figure 1: Average Pairwise Correlations for Popular Early Money Measures

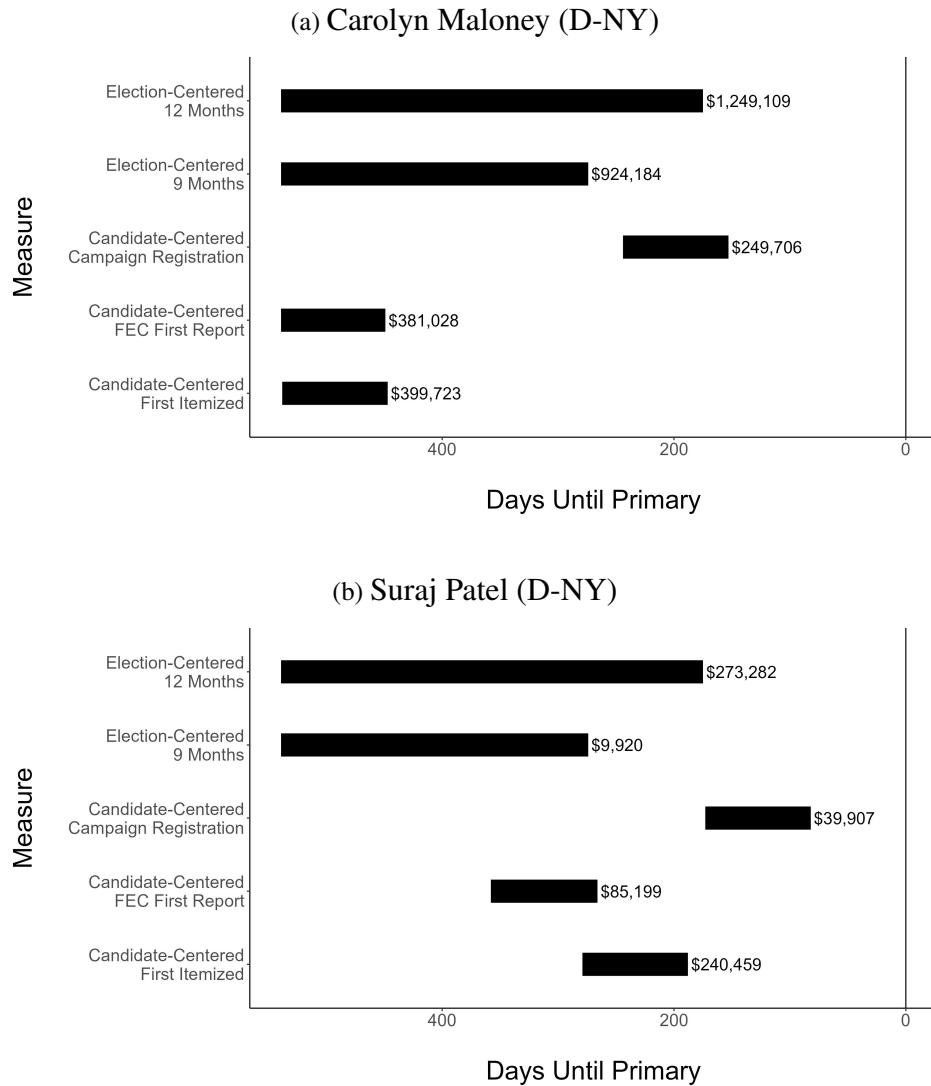


Note: Standard errors for pairwise correlations present in Figure 1 are available in Appendix Tables 2 and 3.

ure 1a includes cross-measure correlations for all incumbent members of Congress who ran for reelection; Figure 1b includes cross-measure correlations for non-incumbent challengers. For ease of presentation, we restrict Figure 1 to include several commonly employed election- and candidate-centered measures for early fundraising. Election-centered measures in Figure 1 include funds raised by a candidate in the first twelve months of the election cycle (Election-Centered, 12 Months) and funds raised by a candidate nine months prior to her primary election (Election-Centered, 9 Months). Candidate-centered measures in Figure 1 include funds raised by a candidate in the 90 days following the receipt of her first itemized campaign contribution (Candidate-Centered, First Itemized), funds raised in the 90 days following her campaign's registration with the FEC (Candidate-Centered, Campaign Registration), and funds reported in a candidate's first filed FEC Quarterly Report (Candidate-Centered, First Report).

Average pair-wise correlations in Figures 1a and 1b are consistently higher among early money measures for incumbents than for challengers. Notably, though, pair-wise correlations in both Figures 1a and 1b show significant variation *across* measurement typologies; pair-wise correlations between candidate-centered measures and election-centered measures are modest, ranging from

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 following measures (top to bottom by plot): funds raised in the first twelve months of the election cycle, funds raised nine months before the primary, funds raised 90 days following the candidate's registration with the FEC, funds reported in the candidate's first filed FEC Quarterly Report, and funds raised 90 days following receipt of the candidates first itemized campaign contribution.

0.62 to 0.84 among incumbents, and from 0.39 to 0.59 among challengers. We trace this observed variability, in part, to conceptual differences in election- and candidate-centered measurement approaches, particularly the way that these strategies differ in their definition of candidates' early fundraising windows. To illustrate this, 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), who both ran in the Democratic primary for New York’s 12th congressional district in 2020. The primary election for New York’s 12th was a closely contested race with Maloney—the district’s incumbent—besting Patel 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 those same measures present in Figure 1. Fundraising totals for each measure are included to the right of each horizontal bar.

Turning first to Figure 2a, most election- and candidate-centered measures for early money capture similar periods of the election cycle and produce similar estimates for Carolyn Maloney’s fundraising. Incumbents like Maloney tend to start raising money early in the election season;⁶ as a result, measures tied to the election calendar (election-centered) and candidate fundraising behavior (candidate-centered) produce similar estimates for early fundraising.⁷ Challengers are less consistent with respect 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 perfectly align. The fundraising windows for Patel’s candidate-centered measures, though, fall much later in the election cycle than Maloney’s because Patel did not begin fundraising until September of 2019. As a consequence, election- and candidate-centered measurement approaches produce disparate estimates for Patel’s early fundraising.

The example cases presented here are indicative of broader patterns in candidates’ fundraising windows across election- and candidate-centered measurement approaches. Appendix Figure 1 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 all candidate-centered measures fall within the windows for election-centered measures; variation across measurement typologies is

⁶From 2010 to 2020, 98.6% of incumbents running for reelection received an itemized contribution in the first 90 days of the election cycle.

⁷The exception here is Carolyn Maloney’s “Candidate Centered, Campaign Registration” measure, which we will discussed in more detail later in the paper.

rooted in the length of fundraising windows (e.g., 90 days versus 12 months). For non-incumbent candidates, there is substantial variation in fundraising window overlap for election-centered and candidate-centered measures. For example, the measures “Candidate-Centered, First Report” and “Election-Centered, 9 Months” overlap perfectly. Conversely, there is no overlap between “Election-Centered, 12 Months” and “Candidate-Centered, Campaign Registration.” In the aggregate, these differences in fundraising window timing and length produce the modest cross-typology correlations for estimates of candidates’ early fundraising present in Figure 1.

Connecting Theoretical Motivations to Measurement

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 analysis indicates that this ambivalence is a threat to inference; in many cases, election-centered and candidate-centered measures produce fundamentally different estimates for early campaign fundraising. We argue that scholars should not only be cognizant of definitional variation across measurement strategies, they should *leverage* these conceptual differences to better align their theoretical motivations with empirical measurement.

Many research questions about the role of money in politics involve measuring the qualities or quantity of a candidate’s early fundraising. For instance, Bonica and Grumbach (2022) use early campaign contributions to show that the “selectorate” of donors providing seed funding to candidates skews 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 certain kinds of contributors is especially predictive of future fundraising success. We posit that a candidate-centered measure is well-suited to address these kinds of research questions because this measurement approach centers on the initial financial backing received by a candidate. Recall, candidate-centered measures use the start of a candidate’s own 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 stands in contrast to an election-centered strategy that defines candidate fundraising windows based on the election calendar, which may fail to capture a candidate’s initial fundraising—as is evident with Patel’s election-centered early fundraising estimates in Figure 2b.

Another stream of research investigates the interplay between early campaign fundraising and 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. In a similar vein, 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. We posit that an election-centered measure is well-suited to address these kinds of research questions because it holds the fundraising window constant for all candidates running in the same election, allowing for contemporaneous comparisons across competitors’ fundraising. In this way, an election-centered approach well-encapsulates the dynamic of a candidate tailoring her behavior to her competitors’ performance. This stands in contrast to a candidate-centered strategy where there is no guarantee that early fundraising estimates reflect funds raised at a fixed point in the election cycle for all candidates in the same race. This kind of mismatch in same-party competitors’ fundraising windows is evident in Figure 2 for Patel and Maloney’s candidate-centered measures.

Guidance for Measuring Early Campaign Fundraising

Once a candidate-centered or election-centered measurement strategy is selected, other important operationalization choices must be made in order to estimate candidates’ early fundraising. These decisions have important downstream consequences on measurement, as is evident in Figure 1 when assessing within-typology correlations in estimates for candidates’ early fundraising.⁸ In the sections that follow, we offer empirical guidance on best practices for making these measurement determinations. To do so, we employ publicly-available data on itemized campaign contributions for U.S. House candidates running from 2010 to 2020. A contribution from a donor to

⁸For incumbents, correlations within candidate-centered measures range from 0.64 to 0.87; election-centered measures correlate at 0.90. For non-incumbents, correlations within candidate-centered measures and election-centered measures hover around 0.85.

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 data includes exact transaction dates, which allows us to calculate candidates' early contribution totals flexibly for different fundraising window specifications (i.e., varying start/end-dates or fundraising window lengths). We use itemized contributions to generate the candidate fundraising totals employed in all subsequent analyses.⁹ When possible, we also incorporate data from FEC filings on unitemized contributions into our fundraising calculations.¹⁰ For more information on steps taken for data preparation, see Section A of our Supplementary Materials. We discuss considerations regarding scope conditions for early money's operationalization separately for candidate- and election-centered strategies because our guidance is conditional on measurement approach.

Candidate-Centered Measurement

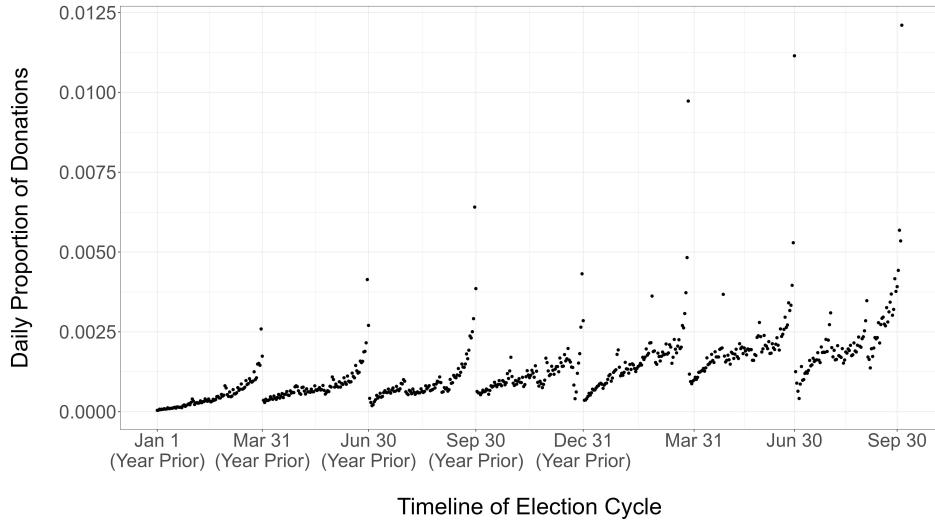
Quantity of Interest

We argue that a candidate-centered measure for early fundraising is best suited for addressing research questions about the qualities or quantity of a candidate's first donations. By capturing initial donations, a candidate-centered measure should well-reflect the "seed" funding that helps to get a candidate's campaign off the ground (Jacobson, 1992). 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 potential 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." Because a candidate-centered measure of early money seeks to assess the initial contributions a candidate receives and the sources for this funding, the quantity of interest is raw dollars raised by a candidate.

⁹To calculate early fundraising totals across FEC quarterly reporting periods, we also use data on candidates' itemized campaign contributions. We do not rely on the fundraising totals reported in candidates' actual FEC quarterly reports. This ensures that any differences identified across modes for early money measurement are attributable to definitional variation in measures and are not artifacts of reporting errors made by campaign committee treasurers when preparing reports.

¹⁰When employing line item totals for unitemized contributions across fundraising windows that do not perfectly align with the timing of FEC quarters, we follow Bonica's (2020) interpolation approach. For more information, see Section A of the Supplementary Materials.

Figure 3: 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).

Fundraising Window Length

For a candidate-centered measure to aptly capture a candidate's initial receipts, it should include only include 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 largely 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 3 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 end (right). The y-axis reports a proportion for the number 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 3, there is a gradual increase in the daily proportion of donations that candidates receive as the election cycle progresses. Perhaps more notably, Figure 3 also shows that daily

donations increase exponentially in about 90 day increments. These punctuated increases line up with deadlines for reporting campaign financial activity to the FEC.¹¹ Our finding for a relationship between House candidate fundraising and FEC reporting deadlines aligns with work by Smidt and Christenson (2012), who show a similar pattern in presidential candidates' fundraising.

Candidates are mindful of the vital role fundraising plays in shaping perceptions of campaign viability and tailor their behavior accordingly. Existing work demonstrates that communications from candidates regularly include fundraising appeals (Adkins and Dowdle, 2005; Goff, 2004; Kim, 2021). In particular, reporting deadlines to the FEC are often used by politicians as motivation for donors to give; Nancy Pelosi exemplified this tactic in a 2017 e-newsletter, stating that:

Tonight's fundraising deadline is at midnight and we're falling behind at the worst possible moment when Republicans want to destroy the key protections for 130 million people with pre-existing conditions. If that happens, we won't be on track to hit our critical FEC end-of-quarter goal. If each of you chipped in \$3 or more, we can meet our goal before tonight's midnight deadline.

FEC reporting deadlines are clearly influential on the data generation process for campaign receipts. Because of their importance, a natural conclusion could be to use the contribution totals reported in a candidate's first filed FEC quarterly report to measure candidate-centered early fundraising. Using the itemized and unitemized contribution totals found in quarterly reports obviates the processing of wrangling hundreds of thousands of data points on campaign receipts to calculate fundraising totals by hand. 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).

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

¹¹FEC reporting deadlines fall on the last day in the months of March, June, September, and December. Recall, a candidate is required to register her campaign and must begin filing reports quarterly with the FEC once she (1) begins campaigning for office, and (2) exceeds \$5,000 in campaign receipts and/or disbursements.

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 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.¹² 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.”¹³ Once campaign activity begins candidates must report all pre-campaign contributions, which results in a longer coverage period.

For a candidate-centered measure of early fundraising to be comparable across candidates, fundraising window lengths must be equivalent. Based on our analysis, we suggest that researchers specify a 90 day fundraising window length so to capture a full FEC reporting period in their measurement. Importantly, though, we demonstrate that the period of time covered in a candidate’s first filed FEC quarterly report is not consistent across candidates. Therefore, we suggest that researchers generate their early fundraising estimates using data from itemized contribution rather than relying on aggregate totals reported quarterly by candidates’ campaigns to the FEC.

Start of Fundraising Window

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 foun-

¹²The full distribution of effective FEC fundraising window lengths are available in Appendix Figure 2. 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.

¹³A 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).

dational 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 2, we present the proportion of candidates whose first itemized campaign receipt occurred within fundraising windows specified using a variety of start-dates.¹⁴ The left column defines a candidate’s fundraising window as beginning on the date she files paperwork to register her campaign with the FEC. The middle column defines a candidate’s fundraising window as beginning on the coverage start-date recorded in her first filed FEC quarterly report. The right column defines a candidate’s fundraising window as beginning on the date her first itemized contributions is received. We specify a 90 day fundraising window for the “FEC Registration” and “First Itemized Donation” early money measures in Table 2. As our preceding analysis demonstrates, the effective fundraising window length captured in “First FEC Report” varies by 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 2 demonstrate that “FEC Registration” systematically fails to capture first receipts raised. This is, in part, 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 prior to that point will be excluded from her early fundraising total. The total amount of receipts raised prior to campaign registration may even *exceed* \$5,000 if

¹⁴Unitemized contributions are reported as a bulk sum in quarterly reports; while some candidate elect to itemized all campaign receipts—including small donation—we do not have systematic data on these contribution for all candidates. Because we lack consistent data on receipt dates for unitemized contributions across all candidates, we follow the guidance put forth by Alvarez et al. (2020) and exclude such contributions from this analysis.

Table 2: 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, defined as beginning on: the date that a candidate registered her campaign with the FEC (left column), the date that a candidate's campaign began reporting financial activity—as recorded in her first filed FEC quarterly report (middle column), and the date of receipt for a candidate's first itemized donation (right column). The denominator in this analysis includes all candidates considered active by the FEC (i.e., raised more than \$5,000 during the election cycle) prior to their primary.

a candidate “tests the waters” and fundraises extensively before beginning to actively campaign. Additionally, a “FEC Registration” measure may fail to capture the initial receipts for candidates who do not file their campaign registration paperwork punctually.¹⁵ 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.¹⁶ Candidates 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 2, “First FEC Report” captures the initial itemized receipt for a vast majority of candidates. Instances where a candidate’s first receipt was not captured in her first filed quarterly report are principally attributable to cases where a candidate reported fundraising activity to the FEC, but this activity did not include garnering itemized contributions. According to the FEC, the coverage period for a candidate’s first filed report should

¹⁵When 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 date of registration until this paperwork is complete.

¹⁶Once 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 henceforth subject to FEC reporting requirements. We consider a candidate to be delinquent if she had not submitted her candidacy paperwork by the time she began filing quarterly reports with the FEC (i.e., regarded herself as an “active” candidate). For an example of what this timing looks like, see Figure 2 as both Carolyn Maloney and Suraj Patel filed delinquently.

reflect the beginning of that candidate’s financial activity. If a candidate’s initial campaign activity was a disbursement or an unitemized contribution, then her first filed quarterly report may fail to capture her first itemized receipt. 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 2, we find that the “First Itemized Donation” measure perfectly captures the initial itemized receipt a candidate fundraises. This is to be expected given that “First Itemized Donation” bases the start of a candidate’s fundraising window on the date a candidate garners her first itemized receipt. Accordingly, we recommend that researchers use this kind of campaign behavior to specify the beginning of a candidate-centered measure for early fundraising.

Early Fundraising Cutoff

Following the analogy employed by Biersack et al. (1993), for early money to serve as a “seed” that generates growth it must be raised with ample time to “germinate” fundraising dividends. However, a sizable portion of congressional candidates begin fundraising only a short time before their election: 11% of all non-incumbent candidates began fundraising within 90 days of their primary. For these candidates, a 90 day fundraising window would include the date of the primary—a point at which donations should no longer be considered “early.” Virtually all incumbents began fundraising at least a full year before their primary. The timing of first itemized contributions for these and other kinds of candidates are presented in Appendix Figure 3 .

Existing candidate-centered strategies for measuring early money in elections have failed to account for the fundraising behavior of those candidates who begin garnering receipts proximate to their primary election (for an exception, see Porter and Steelman 2023). It is surely the case that receipts garnered months before the primary versus mere days before the election have differentiated impacts on future campaign success. Accordingly, we suggest that a “cutoff” date be imposed on candidate-centered measures of early money; candidates who begin raising receipts after this date cannot be said to have funded “early.” In Appendix Table 4, we present an analysis demonstrating that there is no leveling-off point that viable candidates tend to begin fundraising

before; in other words, we find no obvious, empirical-motivated cutoff for early fundraising. For this reason, we turn to a theoretically-motivated justification.

We put forward state-level filing deadlines as a potential cutoff date for candidates' early fundraising. All states require candidates to submit paperwork by a specific date to appear on the ballot. Although these dates vary across states, they generally fall two to three months before the primary. Once a state's filing deadline passes, the ballot is set and no more candidates can enter the race; thus, a candidate-centered measure employing a filing deadline cutoff will not systematically exclude any ballot-eligible candidates. Moreover, the vast majority of viable candidates who are mounting credible campaigns for office begin fundraising on or before their state's filing deadline. Over 95% of non-incumbent general election winners received their first itemized contribution on or before their state's filing deadline. Similarly, 94% of quality candidates received at least one itemized contribution prior to their state's filing deadline.¹⁷ Following standard practices for measurement operationalization, we suggest researchers ensure that their results are robust to slight changes in their specified date for an early fundraising cutoff.

Election-Centered Measurement

Quantity of Interest

We argue that an election-centered measure for early fundraising is best suited for addressing research questions about the dynamics of electoral competition. By holding fundraising windows constant at the contest-level, an election-centered measure captures the total receipts raised for all candidates running in the same race at a fixed point in time. In this way, an election-centered measure should reflect the dynamic of a candidate comparing her own fundraising to her competitors' and tailoring her strategic campaign behavior accordingly. Similarly, an election-centered measure should capture the same kinds of fundraising data that journalists, pollsters, and voters use when making cross-candidate comparisons in order to glean who is "ahead" or "behind" in a race (Raja, 2007; Anderson et al., 2023). Given that an election-centered measure of early money is interested in a candidate's comparative fundraising performance, our quantity of interest here is not raw dol-

¹⁷For a breakdown of proportions for more candidate types, see Appendix Table 4.

lars raised but, rather, *relative* fundraising. The method a researcher uses to express fundraising as relative should depend on her question of interest. Several example approaches can be found in extant work. To assess a candidate's fundraising against other competitors in her race, Bonica (2020) calculates a normalized fundraising share relative to contest-level averages.¹⁸ To compare a candidate's fundraising to a single competitor, Thomsen (2023) reports candidate receipts as a proportion relative to the contest's leading fundraiser.¹⁹ Other work assesses the relative change in a candidate's early fundraising share across time (Krasno et al., 1994) or the relative size of an incumbent candidate's war chest (Box-Steffensmeier, 1996; Goodliffe, 2001).

Fundraising Window End-Date

The date a researcher chooses to define as the end of election-centered early fundraising should be tied to her question of interest. For example, following Epstein and Zemsky (1995), if we seek to understand how the size of an incumbent's campaign war chest deters challenger entry, we should specify a fundraising end-date that is relatively early in the election season. 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). Accordingly, in the text below, we offer points of consideration—rather than strict guidance—for scholars to keep in mind when selecting an end-date for their measurement of election-centered early fundraising.

When choosing an early fundraising end-date, it is important to be cognizant of state-level variability in the timing of elections. Congressional primaries are held across an eight-month period with the earliest occurring in February of the election year and the latest being held in September.²⁰ Specifying a single, fixed fundraising end-date for all contests will fail to adequately account for this variability in election timing.²¹ To illustrate, an early fundraising end-date of December 31st,

¹⁸For the formal equation, see Section D of the Supplemental Materials.

¹⁹For the formal equation, see Section D of the Supplemental Materials. This approach is also used by Bonica (2017).

²⁰In Appendix Figure 4, we plot the distribution of primary elections by month.

²¹This approach is principally employed in work examining the fundraising dynamics of presidential elections—in this context, a single fixed fundraising end-date does not present the same obstacles for measurement because all presidential candidates run on the same election calendar. However, a handful of congressional studies do employ a fixed end-date strategy to measure election-centered early fundraising in House and Senate elections (e.g., Goldenberg et al. 1988; Squire 1991; Bell et al. 2009; Thomsen 2022).

2019 fell just 31 days before February 1st primaries in the 2020 election but over 240 days before any September primaries. In prior analyses (see Figure 3), we demonstrate that fundraising dynamics change over the course of the election cycle; this finding is supported by a bevy of other literature (e.g., Krasno et al. 1994; Box-Steffensmeier and Lin 1996; Smidt and Christenson 2012). If an election-centered measure captures different phases of the campaign for candidates running in different contests across the country, then resulting measures will fail to capture a consistent relationship for candidates' relative fundraising. Building off the aforementioned example, we find that the relative fundraising for candidates running in February and September primaries for the 2020 election diverged substantially: while 98% of congressional candidates whose primary election was held in February began fundraising by December 31st of 2019, only 73% of September primary election candidates had begun fundraising by this date.

To circumvent this timing obstacle, researchers should elect to use a fundraising end-date that is tied to candidates' contest-level electoral timing. An as example, Leal (2003) considers receipts to be early if they are raised nine months before a candidate's primary. By tying measurement to primary election dates, Leal (2003) accounts for state-level variation in the timing of congressional elections.²² When choosing a fundraising end date that is specified to be some number of months before a candidate's primary, though, researchers should also remember that different kinds of candidates begin fundraising at different points in the election cycle. For instance, as we demonstrate previously in Figure 2 of this manuscript and Appendix Figure 3, incumbents tend to begin fundraising far in advance of challengers. Setting a fundraising end-date that is too far from the primary will systematically exclude certain kinds of candidates. On the other hand, receipts raised too close to the primary may no longer constitute an "early" signal for campaign viability.

To assess candidate inclusion across different specifications for fundraising end-dates, Table 3 reports the proportion of incumbents running for reelection (left column), non-incumbent general election winners (middle column), and quality candidates (right column) who began fundraising a

²²This 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 of 2020.

Table 3: Proportion of Candidates Included in Election-Centered Measures, Conditional on Fundraising End Date

Months Prior to Primary	Incumbents	Non-Incumbent General Election Winners	Quality Challengers
12 months	0.99	0.35	0.24
9 months	0.99	0.51	0.44
6 months	1.00	0.71	0.64
3 months	1.00	0.92	0.89
1 month	1.00	1.00	0.97

Note: Proportions reflect the number of general election winners (left column), non-incumbent general election winner (middle column), and quality challengers (right column) whose fundraised on or before the specified fundraising end date. Units of analysis include all general election winners (left column), non-incumbent general election winner (middle column), and quality challengers (right column) who raised more than \$5,000 during the election cycle.

set number of months prior to their primary.²³ We specifically evaluate the inclusion of these candidate types because they are generally regarded as the kinds of strategic politicians who mount serious runs for office (see Jacobson and Kernell 1983). Given the demonstrated relationship between early fundraising and candidate success (e.g., Biersack et al. 1993; Bonica 2017; Thomsen 2022; Porter and Steelman 2023), a valid election-centered measure should capture these aforementioned candidates' early fundraising (Adcock and Collier, 2001). Per Table 3, while virtually all incumbents had begun fundraising nine months in advance of their primary, only about half of non-incumbent general election winners and less than half of quality candidates had generated itemized campaign contributions at this point in the campaign. Conversely, the overwhelming majority of each candidate type present in Table 3 had begun fundraising at least three months in advance of their primary.

Following our analysis here, we stress that researchers should take care in their selection of an end-point for election-centered early fundraising. We caution researchers against setting a single, fixed end-date that is held constant across all contests; early fundraising end-dates should be tied to a candidate's contest-level electoral timing. Furthermore, we advise against specifying an end-date for election-centered early fundraising that falls earlier than six months prior to a candidate's primary; an end-date any earlier than this will exclude candidates of interest. For most research

²³An extended table of candidate proportions for other fundraising end-dates can be found in Appendix Table 4.

questions assessing relative early fundraising, we recommend specifying an election-centered end-date that falls 3 months prior to a candidate’s primary election. This recommendation follows our preceding discussion of cutoff dates for candidate-centered early fundraising. Similar to our guidance above, we suggest researchers ensure that their results are robust to slight changes in their specification for an early fundraising end-date.

Early Fundraising & Campaign Success

In this paper, we propose that early campaign fundraising can be expressed as two conceptually-district quantities. Consequently, we posit that our proposed election-centered and candidate-centered early fundraising measures should be independently predictive of campaign success. A candidate-centered measurement approach partially 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 be predictive of a candidate’s future fundraising dividends and her likelihood of electoral success. 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 more likely 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). In this way, an election-centered measure *should also* be predictive of future fundraising and electoral success because it captures different theoretical mechanisms than a candidate-centered measure.

The relationship between early fundraising and electoral success is well-established (e.g., Epstein and Zemsky 1995; Leal 2003; Bonica 2017; Thomsen 2022; Porter and Steelman 2023).

Additionally, a host of studies show that candidates who fundraise early tend to garner a greater volume of contributions as the campaign progresses (e.g., Herrnson 1992; Biersack et al. 1993; Francia 2001; Leal 2003; Bonica 2020). Extant work, however, has not simultaneously assessed the independent relationship that both a candidate-centered measure and election-centered measure have with these outcomes of interest. In Table 4, we present regression outputs for two models investigating the relationship between early fundraising and campaign success. Units of analysis include all candidates who ran in partisan primary elections for the U.S. House of Representatives from 2010 to 2020. Following Bonica (2017, 2020) and Porter and Steelman (2023), we restrict our analysis to candidates running in open seats (i.e., contests where no incumbent ran for reelection). The model in the left column of Table 4 is an OLS regression; the dependent variable is a continuous measure for all pre-primary campaign contributions (in thousands of dollars), minus early receipts. The model in the right column of Table 4 is a logit; the dependent variable is a binary indicator for whether a candidate won or lost her primary.

The main independent variables for both models present in Table 4 relate to candidates' early fundraising. To produce our estimates for candidate-centered and election-centered early fundraising, we follow the guidance put forward in preceding sections. Our candidate-centered measure reflects raw dollars raised by candidates in the 90 days following the receipt of their first itemized contribution. Additionally, we use state-level filing deadlines as a early fundraising cutoff—contributions raised after these dates are not considered early for our purposes. Our election-centered measure reflects a candidate's early fundraising relative to contest-level averages (i.e., a normalized fundraising share). For our election-centered measure, we again use state-level filing deadlines as our end-date for early fundraising. These measures for early fundraising are made available in the Supplementary Materials for this manuscript. We include other control variables in our models, including indicators for candidate partisanship, prior political experience (i.e., quality), primary type, district seat safety, and the number of competitors in the race.

As expected, Table 4 demonstrates that both our candidate-centered and election-centered measures for early fundraising exert a statistically significant, independent effect on both a candidate's

Table 4: Early Fundraising & Campaign Success in Open Seat Contests for the U.S. House of Representatives, 2010-2020

<i>Dependent Variable:</i>	Pre-Primary Contributions (Continuous)	Won Primary Election (Binary)
Early Contributions: Election-Centered	24.983* (3.511)	0.562* (0.060)
Early Contributions: Candidate Centered (in thousands of dollars)	0.500* (0.032)	0.002* (0.001)
Candidate Party: Republican	-36.409* (10.670)	-0.336* (0.160)
Seat Safety: Same Party	13.314 (17.045)	-0.112 (0.262)
Seat Safety: Competitive	26.352* (10.493)	-0.194 (0.161)
Number of Quality Candidates	-1.892 (3.404)	-0.508* (0.060)
Primary Type: Open	-3.552 (10.522)	-0.093 (0.163)
Primary Type: Closed	-4.278 (14.333)	0.086 (0.222)
Female	29.577* (9.957)	0.227 (0.166)
Quality Candidate	38.001* (9.160)	0.823* (0.162)
Constant	4.608 (16.630)	0.044 (0.256)
Fixed Effect: Year	✓	✓
Random Effects: Candidate	✓	✓
Observations	1,322	1,322

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. *p<0.01

future fundraising potential and likelihood of electoral success. Turning first to the left column of Table 4, moving from the 25th to 75th percentile of election-centered early fundraising increases a candidate's predicted pre-primary fundraising dollars by \$42,000.²⁴ Moving from the 25th to 75th percentile of candidate-centered early fundraising increases a candidate's predicted pre-primary fundraising dollars by \$63,000.²⁵ To provide a point of comparison, possessing previous elected experience increases a candidate's predicted pre-primary fundraising dollars by \$38,000. Candidates with a prior elected background are regarded as especially proficient fundraisers in congressional elections (Herrnson, 1992; Bonica, 2020); as such, our election-centered and candidate-centered results constitute both a statistically significant and substantively important finding.

Turning next to the right column of Table 4, moving from the 25th to 75th percentile of election-centered early fundraising increases a candidate's predicted probability of primary election success by fifteen percentage-points. Moving from the 25th to 75th percentile of candidate-centered early fundraising increases a candidate's predicted probability of primary election success by four percentage-points. For comparison, possessing previous elected experience—widely considered in the literature as the most consistent predictor of electoral success outside of incumbency (Jacobson, 1989)—increases a candidate's likelihood of winning her primary election by thirteen percentage-points. This point of comparison underscores how raw and relative measures for early fundraising have differential relationships with candidate success.

Conclusion

In this article, we discuss the lack of theoretical justification and empirical validation among existing approaches for measuring early campaign contributions in elections. We begin by demonstrating that extant approaches for the measurement of early fundraising produce substantially different estimates for candidates' early campaign receipts. We attribute this variability, in part, to definitional variation in the way early money is measured. Indeed, we demonstrate that extant approaches

²⁴The 25th percentile of election-centered early fundraising for U.S. House candidates running from 2010 to 2020 was a normalized fundraising share of 0.2; the 75th percentile of normalized election-centered fundraising was 1.9.

²⁵The 25th percentile of candidate-centered early fundraising for U.S. House candidates running from 2010 to 2020 was \$7,900; the 75th percentile pf candidate-centered early fundraising was \$133,000.

reflect two conceptually distinct strategies for measuring early money. It is our recommendation that researchers leverage differences across approaches to better connect their theoretical quantity of interest with their empirical measurement of early fundraising. Accordingly, we put forward a theoretical and empirical framework for measuring early money in elections. We suggest that 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 candidate early fundraising. To capture a candidate's earliest 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. So to not reflect a protracted period of the campaign, the fundraising window should reflect a full FEC reporting quarter (about 90 days). Finally, to not include contributions raised proximate to the election, we recommend researchers specify an early fundraising "cutoff" based on state-level filing deadlines for ballot access. We suggest that an election-centered measure that expresses a candidate's early receipts relative to her competitors' is best suited for research questions that access the interplay between campaign fundraising and electoral competition. When choosing date to mark the conclusion of candidates' early fundraising, researchers should base their chosen end-date on candidates' contest-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. The extant literature, though, is ill-equipped to provide scholars with the resources needed to adequately engage with early fundraising in elections, both as a key predictor of interest and important control variable for consideration. The theoretical and empirical guidance we present here provides an important introduction to the resources and considerations researchers must engage with to properly conceptualize and measure early fundraising in their own work.

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Strategies for Measuring Early Fundraising in U.S. Elections

Online Appendix & Supplementary Materials

A 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.²⁶ 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).

²⁶Many 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.

B Supplemental Tables

Table 1: 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); Goodliffe (2001, 2004)
	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 (2012); 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)
Candidate-Centered	All Funds Raised Prior to Primary	Damore (1997); Hannagan et al. (2010)
	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)

Table 2: Standard Errors for Average Pairwise Correlations, Incumbents

	FEC First Report	Campaign Registration	12 Months	9 Months
12 Months				0.0001
Campaign Registration			0.0003	0.0003
FEC First Report		0.0003	0.0001	0.0002
First Itemized	0.0001	0.0002	0.0002	0.0002

Table 3: Standard Errors for Average Pairwise Correlations, Non-Incumbents

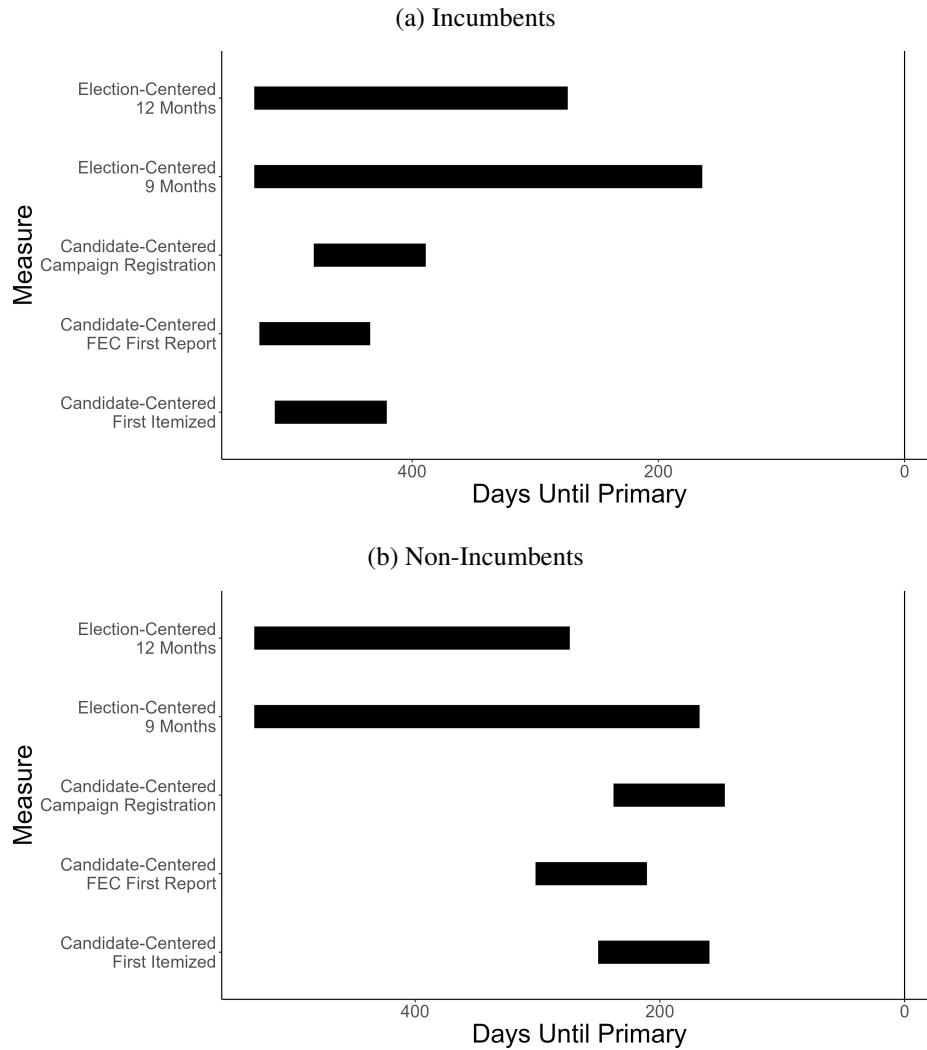
	FEC First Report	Campaign Registration	12 Months	9 Months
12 Months				0.0001
Campaign Registration			0.0002	0.0002
FEC First Report		0.0001	0.0002	0.0002
First Itemized	0.0001	0.0001	0.0002	0.0002

Table 4: 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

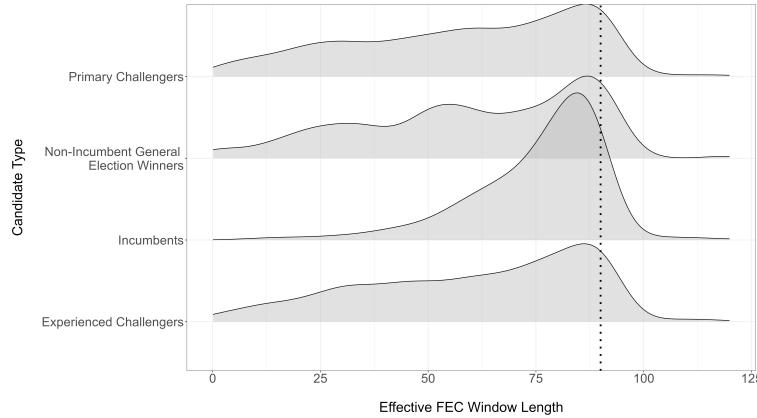
C Supplemental Plots

Figure 1: Average Timing of Fundraising Windows Across Modes for Measurement



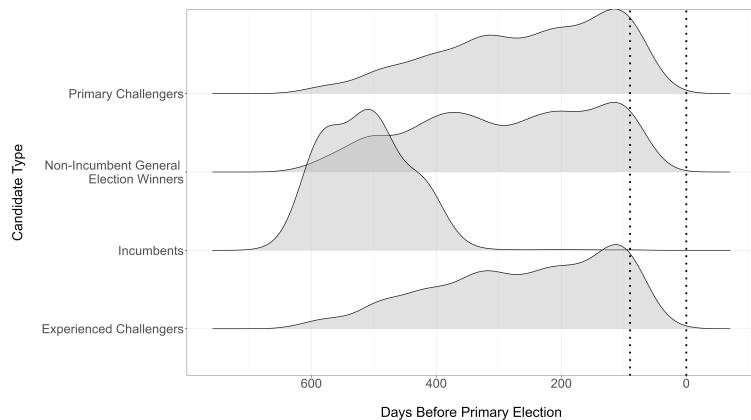
Note: Figure depicts the average start- and end-date of early fundraising for Incumbent Candidates (top) and Non-Incumbent Candidates (bottom) from 2010 to 2020 for the following measures (top to bottom): funds raised in the first twelve months of the election cycle, funds raised nine months before the primary, funds raised 90 days following the candidate's registration with the FEC, funds reported in the candidate's first filed FEC Quarterly Report, and funds raised 90 days following receipt of the candidates first itemized campaign contribution.

Figure 2: Effective Window Length of Candidates' First Filed FEC Quarterly Report



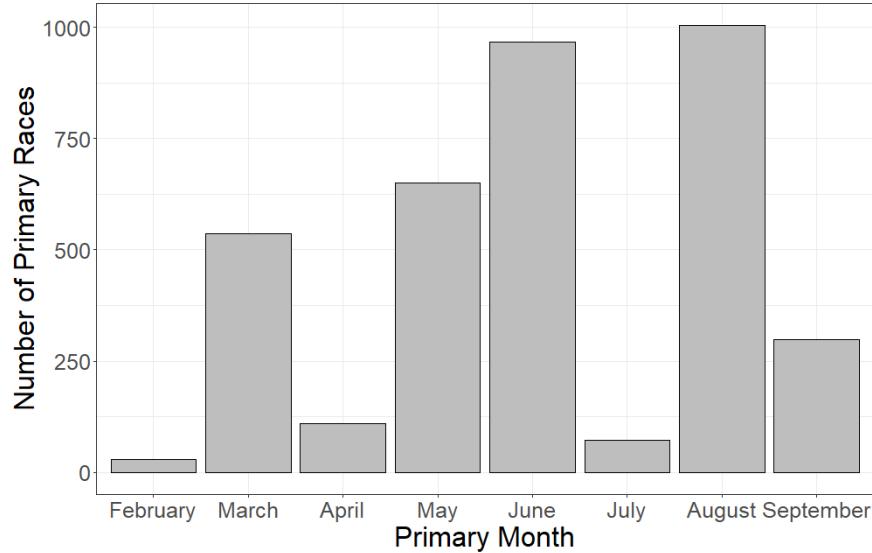
Note: Units of analysis include all candidates considered active by the FEC (i.e., campaigned during the election cycle and exceeded the \$5,000 reporting threshold). Candidates whose first quarterly report reflected no itemized receipts are excluded from this plot. The x-axis denotes the number of fundraising days covered in each candidate's first filed report. 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. The y-axis in Figure 2 measures the number of U.S. House candidates who ran in elections from 2010 to 2020 who had a given FEC window length. To provide a point of reference, the vertical dotted line indicates a 90 day coverage window.

Figure 3: 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 4: Congressional Primary Election Dates by Month



D Equations

D.1 Bonica (2020) Fundraising Normalization

$$\text{Normalized Fundraising} = \frac{f_{ij}}{(\sum \frac{f_j}{n_j})}$$

Let i = candidate

Let j = primary contest

Let f_{ij} = a candidate's fundraising total during the primaries

Let n_j = the number of candidates competing in the primary contest

D.2 Thomsen (2023) Fundraising Share

$$\text{Fundraising Share} = \frac{f_{ij}}{n_j}$$

Let i = candidate

Let j = primary contest

Let f_{ij} = a candidate's fundraising total in her first filed quarterly report

Let m_j = the fundraising total for the primary contest's lead fundraiser