

**Quantifying the Colbert Bump in Political Campaign
Donations: A Fixed Effects Approach**

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ABSTRACT:

This paper uses an econometric model to quantify the relationship between appearing on The Colbert Report and increases in political campaign donations. Using a fixed effects approach on a data set of 64 political candidates who appeared on the Colbert Report, the model developed in this paper predicts the expected percent increase in campaign donations in the 28 day period in which a candidate appears on the show. The conclusions drawn in this study have statistical and economic significance. The argument made, which is supported by empirical data, is that shows such as The Colbert Report, while aimed at entertainment, are extremely relevant in today's political process. The findings of this study imply that these types of "comedy" programs should be taken seriously by political strategists as variables that have real influence over a candidate's level of campaign donations.

I. Introduction

Over the past decade, TV shows such as John Stewart's *The Daily Show* and Stephen Colbert's *The Colbert Report* have skyrocketed in popularity. In 2010, the number of *Colbert Report* viewers rose 9% from 2009 to roughly 1.5 million.¹ While these "soft news" shows are aimed to entertain rather than to present unbiased news, a 2009 Rasmussen Reports National Telephone survey showed that 32% of adults between the age of 30 and 39 and 30% of adults 18-29 believe that these satirical news shows are capable of replacing traditional news outlets as sources of their news.² With the upward trend in popularity of these shows and their political nature, just how these shows influence the political sphere is becoming more of an interest in the fields of political science and strategy.

From a political strategist's perspective, these types of satirical news shows are somewhat of a double-edged sword. It is easy to imagine how exposure to an audience of millions could be beneficial to a politician's popularity. Colbert, himself, coined the term "Colbert Bump" to describe the significant popularity boost that any person gains by appearing on his show. This phenomenon extends to authors, products, and most notably politicians. However, what if the politician is unable to hold up to the lampooning of Colbert or Stewart? There is a common perception among politicians that appearing on these shows is too risky politically. Through data-analysis, I will provide evidence that can determine the validity of this belief.

The analysis of this paper will work primarily with the *Colbert Report* with hopes of developing a model that may be generalized to encompass other entertainment news

¹"09.08.10 | Summer Ratings Release | Comedy Central Press Release."

²"Young Americans See Colbert, Stewart Replacing Traditional News Outlets: Poll."

shows (this will require the support of future research). I have chosen the Colbert Report for a number of reasons: 1) Colbert has a regular stream of political figures on his show. 2) Colbert's TV persona seems to be aimed at entertainment of his audience rather than furthering a political agenda. While in character, he is an uncompromising conservative who is quick to dismiss any alternative ideologies to his own or any cause that may not be in his interests. While Colbert does lay jabs that may perhaps reflect his true political feelings, he does lampoon both sides of the political spectrum indiscriminately throughout his show. This contrasts other comedy news shows, such as John Stewart's *The Daily Show*, in that he often makes his true political feelings well known to his audience. This likely deters Republicans from appearing on his show and could possibly skew any kind of popularity increases to favor democratic guests. 3) Colbert's rise to fame and often-controversial dedication to maintaining his persona has drawn the attention of U.S. politicians. In 2006, Nancy Pelosi (then Speaker of the House) said that she would not recommend that any democratic members of congress appear on the show. In 2007 Rahm Emanuel reinforced the sentiment that appearing on the Colbert Report was too risky by advising all freshman congressmen to steer clear of the show's "Better Know a District" section.³ This is a particularly interesting point, as I will use data analysis to determine if the risk of humiliation is worth the potential reward of going on this segment of the show. Also, I will attempt to infer whether merely appearing on the show grants just anyone a "Colbert Bump" or if certain demographics experience a

³ Kaplan, Jonathan E. (2007-03-13). "Emanuel tells freshmen to avoid Stephen Colbert". The Hill. <http://thehill.com/leading-the-news/emanuel-tells-freshmen-to-avoid-stephen-colbert-2007-03-14.html>.

greater bump. While performance will be a challenging variable to gauge, I hope to be able infer the age-old question of whether any press is good press.

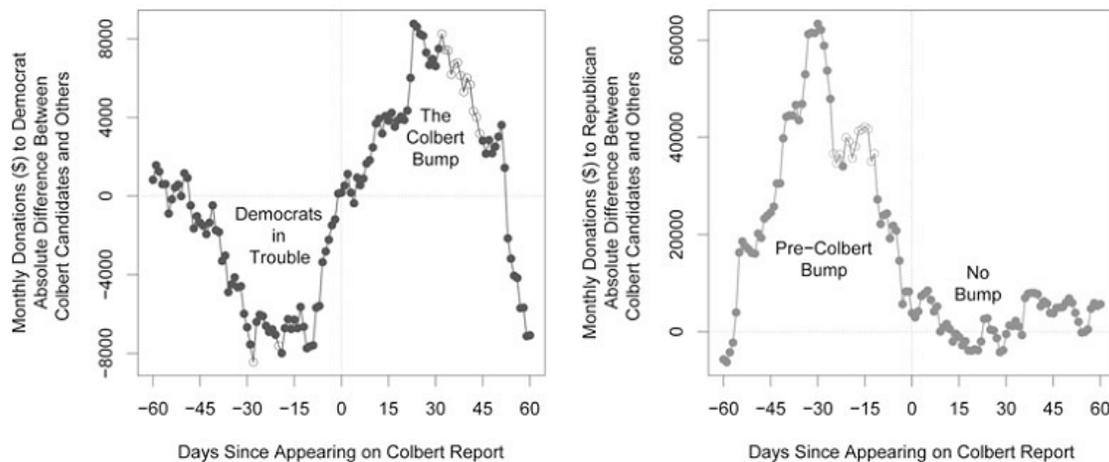
II. Literature Review

Previous literature that uses statistical methods to analyze the “Colbert Bump” is fairly limited. James H. Fowler, an associate professor of political science at the University of California, San Diego, wrote a paper titled *The Colbert Bump in Campaign Donations: More Truthful than Truthy*.⁴ In this paper, Fowler uses changes in political campaign donations following Colbert Report appearances as a measure of any alleged “Colbert Bump”. One key obstacle in determining if this sort of effect exists is how guests are selected to appear on the show. Ideally, all politicians would be invited at random, however, it is possible that it is the politicians who are on an upswing or becoming more popular anyway that are asked to come on the show. If this is the case, a popularity boost that would appear to be the result of a “Colbert Bump” may actually be happening regardless of appearing on the show. In order to account for this, Fowler takes all of the politicians who appear on the “Better Know a District” segment of the Colbert Report and pairs each candidate with a similar candidate who did not appear on the Colbert Report. Creating a control group experiment in this way also accounts for the fact that certain candidates expect to bring in much more money into their campaigns than others.

This study compares these two groups of Representatives to support the existence of a real “Colbert Bump”. Fowler diagrams the absolute difference in campaign donations of the two groups during a period of 60 days before and 60 days after the appearance on the Colbert Report. His findings show that there is some statistical significance in the differences in donation amounts between the two groups and there is a

⁴ Fowler, James H. "The Colbert Bump in Campaign Contributions."

different observed effect for democrats and republicans. His data shows that leading up to an appearance on the show, democrats tend to fall behind in number and dollar amount of donations compared to their counterpart in the control group. Following their appearances, democrats experience a relative increase in campaign donations. The data for republicans shows a different picture. In the days leading up to their Colbert appearances, republicans tend to be doing well relative to those who did not appear on the show. Following their appearance, however, they have no observable significant difference compared to their counterparts, suggesting perhaps a “Colbert Bust”. Fowler only had eight republicans in his sample that had appeared on the Colbert Report so these findings are subject to scrutiny due to the small size of the sample.



Fowler uses Wilcoxon signed ranked tests to determine if the differences in donation (\$) for matched candidates are statistically significant for the 60 day periods leading up to and following an appearance on the Colbert Report. These charts show that there are distinctly different trends for democrats and republicans in the data set. The open circles indicate statistical significance at the 90% level. While only a handful of these data points are statistically significant, these findings do carry economic significance by providing evidence that a Colbert bump exists and perhaps shedding some light as to how the bump

behaves for different types of candidates. This study will look to expand on these findings through panel data regression analysis.

Fowler's data suggest a number of possibilities. While it is difficult to determine causality, it could be that Colbert targets struggling democrats to bring onto the show in order to help them with their campaign while targeting republicans that are more successful in an attempt to derail them. Another possibility is that struggling democrats are more willing to take a risk by appearing on the Colbert Report while republicans are only willing when they feel they are ahead by a comfortable margin. Also, Fowler's data only paints a small piece of a much greater strategic puzzle since boosts in popularity will not only come from the Colbert Report, but also any other media appearances or public relations maneuvering around the time of appearance.

It is important to note the size of the Colbert Report's viewership which is around 1.5 million⁵, which is relatively small compared with many traditional news outlets. Fowler claims that the "Colbert Bump" is not just the result of people seeing candidates on the show, but rather it causes a ripple effect. Fowler has said, "When someone goes on his show, the fact that someone went on his show becomes news. A single appearance turns into an incident that is reported to 30-50 million people. His show is very influential among those who influence others."⁶

Other works relevant to this study include a 2006 article written by the Journal of Broadcasting and Electronic Media titled *Candidate Appearances on Soft News Shows and Public Knowledge about Primary Campaigns* which conducted a telephone survey

⁵ "09.08.10 | Summer Ratings Release | Comedy Central Press Release."

⁶ Thompson, Andrea. "Science Confirms 'The Colbert Bump' - Technology & Science - Science - LiveScience - Msnbc.com." *Msnbc.com - Breaking News, Science and Tech News, World News, US News, Local News- Msnbc.com*. Web. 27 Apr. 2011.

that aimed to determine where people gained knowledge of the candidates in the 2004 democratic primary. The study showed that 1 in 10 people specifically remembered seeing a candidate on a “late night” or soft news program.⁷ While this number is not staggering, it is certainly enough to be of interest. The study concluded that while these people were watching such shows for amusement, knowledge of the 2004 democratic primary was inadvertently gained through watching soft news programs. This does not prove by any means that these programs were able to shape the primary in any way, but it does suggest that the potential exists for these shows incorporation into a political strategy.

A paper written in 2008 by the same authors found that one in four Americans taken in a sample of over 1,500 people reported either regularly or sometimes learning of the 2004 Democratic primary from either Saturday Night Live or John Stewart’s The Daily Show. The analysis of this survey is outlined in a paper titled *Political Comedy Shows and Public Participation in Politics*.⁸ The data gathered in the surveys measures nine areas: political participation, exposure to political comedy shows, political interest, political knowledge, exposure to traditional news sources, exposure to online news sources, exposure to late-night shows, partisanship, and demographic variables. All of the results were self reported and quantified using indices created by the authors.

Applying a probit model to the data showed that there is a positive relationship between exposure to political comedy shows and the probability that a person is

⁷ Brewer, Paul R., and Xiaoxia Cao. "Candidate Appearances on Soft News Shows and Public Knowledge About Primary Campaigns." *Journal of Broadcasting & Electronic Media* 50.1 (2006). Print.

⁸ Cao, Xiaoxia, and Paul R. Brewer. "Political Comedy Shows And Public Participation in Politics." *International Journal of Public Opinions* 20.1 (2008): 90-99. *Oxford Journals*. Oxford University Press. Web.

politically active.⁹ This is an interesting point as it challenges the assertion that exposure to “fake news” shows such as the Daily show and Colbert Report is degrading democracy. On the contrary, there appears to be a positive correlation with watching these shows and democratic participation.

Colbert, himself, demonstrated his political prowess in 2007 when he announced on his show that he was running for president. He declared he was only going to run in his home state of South Carolina and hoped to run as both a democrat and as a republican as South Carolina’s favorite son.¹⁰ After officially filing papers to run for the South Carolina Democratic primary, Public Opinion Strategies¹¹ performed a national poll of 1,000 likely 2008 voters that included Colbert in both the Democratic and Republican primaries. The study took place between October 18 and October 21, 2007 and projected that Colbert would take 2.3% of the Democratic primary vote. This ranked him fifth behind Hillary Clinton (40%), Barack Obama (19%), John Edwards (12%), and Joe Biden (2.7%). Colbert was not as popular among republicans, however, as he was projected to take less than 1% of the vote in the Republican primary and was behind even some candidates to be considered “long shots”.¹²

Not only do the results of the Public Opinion Strategies poll suggest that Colbert has significant political stature, but also that his satirical conservative persona resonates

⁹ This is measured by whether a person has attended a campaign event (coefficient=.27) or joined a political organization (.25), both have $p < .10$.

¹⁰ Steinberg, Jacques. "Stephen Colbert - Presidential Campaign - TV - New York Times." *The New York Times - Breaking News, World News & Multimedia*. 27 Apr. 2011. Web. 27 Apr. 2011. <<http://www.nytimes.com/2007/10/18/arts/television/18colb.html>>.

¹¹ Public Opinion Strategies is a national political and public affairs research firm.

¹² "The Fix - Poll Tries to Measure Colbert Effect." *Blogs & Columns, Blog Directory - The Washington Post*. Web. 27 Apr. 2011. <<http://voices.washingtonpost.com/thefix/eye-on-2008/the-colbert-effect.html>>.

strongly among democrats. This evidence would support the case made from Fowler's findings that perhaps the Colbert audience tends to identify with democratic candidates.

The previous literature on this subject is generally in consensus that the landscape of news media is radically changing. Soft news and political comedy shows appear to be more relevant than ever before as sources of real information on politicians and campaigns. A paper written in 2000 by Thomas E. Patterson expresses concern that this perceived shift away from traditional news outlets will degrade the quality of America's democracy.¹³ He argues that the audiences of traditional news outlets is shrinking and is threatening America's news media. A key component of a consolidated democracy is a free and open press that provides transparency in politics. Patterson makes this assertion and jumps to make the claim "what is good for the press is good for democracy". While the purposes of this paper is not to assess the validity of this statement, this case study of the Colbert Report's influence over political campaign donations will provide evidence to go along with other aforementioned findings that political comedy shows are in fact relevant in the political arena from a campaign strategy standpoint—for better or worse.

¹³ Patterson, Thomas E., *Doing Well and Doing Good* (December 2000). KSG Working Paper No. 01-001. Available at SSRN: <http://ssrn.com/abstract=257395> or doi:10.2139/ssrn.257395 (pg 15)

III. Data and Methods

In my general model, I will set up a regression using campaign donations as my dependant variable and indicator of popularity. I have chosen campaign donations just as Fowler did since they are accessible and also since it is the amount of money that candidates receive that often drives political campaigns. Also, this is an apt method of calculating the Colbert bump since Colbert, being the fervent capitalist that he is, would want the scope of his influence to be defined by the actions of the free market. While the dollar amount of contributions is not a perfect indicator of popularity, it is more reliable and consistent than polling numbers. The conclusions that are drawn from this data operate under the assumption that there is a correlation between changes in political campaign donations and changes in popularity. Campaign contribution data for each candidate will be taken directly from the Federal Elections Committee website.¹⁴

Before I look into campaign donation data, however, I must first determine which candidates to include in my model. After going through all of the political interviews on the Colbert website, I decided to include data for all senators, congressmen, and presidential candidates that have appeared on the show. Using campaign contribution data from the Federal Election Commission website, a panel data set for 64 different political candidates has been created with time broken down into four week periods leading up to each candidate's election date. Campaign contributions are summed for each period. Also in the data set are dummy variables for race (1=white, 0=non-white), political affiliation (1=conservative, 0= liberal)¹⁵, type of election (dummies for

¹⁴ <http://www.fec.gov/finance/disclosure/norcansha.shtml>

¹⁵ Ideally, I would like to control for whether a candidate is a Democrat or a Republican, however, there were a few candidates who were running under a different party or as

presidential and senatorial), whether or not a candidate was on “better know a district”, period of appearance, and if a candidate appeared on the show for a second time during a period.

The summary statistics for my data set are as follows:

Variable	Obs #	Mean	Std Deviation	Min	Max
Ln(period contribution)	4918	9.211525	1.684412	5.298317	14.56312
period contributions	4918	39647.67	115621.9	200	2111936
period until election	4918	13.17975	11.01897	0	75
period squared	4918	4815.351	5332.373	0	32041
appearance period	4918	0.010167	0.1003266	0	1
2nd appearance period	4918	0.000813	0.0285104	0	1
bkd & appearance	4918	0.00732	0.0852522	0	1
conservative & appearance	4918	0.002033	0.0450514	0	1
senator & appearance	4918	0.001017	0.0318723	0	1
presidential & appearance	4918	0.000813	0.0285104	0	1
Caucasian & appearance	4918	0.008947	0.0941726	0	1
longer period & appearance	4918	0.001627	0.0403034	0	1

As I determine each candidate’s expected campaign donations, I will attempt to assess the predictive power of such demographic variables as race, political party, and

independents. In these instances, I identified which half of the political spectrum the candidate/party affiliated themselves with. Ex: Bob Barr=1 due to the political ideology of the Libertarian party that identifies with more conservative values. While this is not a perfect way of measuring candidates’ political affiliations since there are varying levels of conservatism and liberalism, it is important to understand the logic behind this method. If it is possible to capture at least a rough idea of candidates’ political inclinations, it can be seen whether or not this plays a role in persuading the viewers of the Colbert Report to make political contributions.

what office the candidate is running for. For some of these variables, however, there are only low amounts of variation in my sample. Another factor that is necessary to consider is the cyclical nature of campaign donations. Since I will be observing politicians who are both very close to and very far away elections or primaries, it is important to understand exactly how expected campaign donations are correlated with time. Intuitively, it would make sense that campaign contributions should increase as an election draws closer. However, this data needs to be observed across many candidates in order to clarify any relationship between time and contributions that should be accounted for. Knowing that there is a much longer time period between presidential and senatorial elections than there is for congressional elections, I have created a “longer horizon” dummy variable to account for this. Including this variable will capture the difference in variation that is the result of candidates being at different points in their election cycles.¹⁶

Performance is another important issue to address in my model. The perception among politicians is that going on the Colbert Report is too risky because he may potentially make a fool of you, thus making you worse off than had the show just been avoided. It is unproven however, if performance is a significant factor in whether or not a candidate receives a “Colbert Bump”. Colbert typically does two types of interviews on his show: one at the end of every episode with a journalist, author, politician, or any other kind of famous person, and one in a segment titled “Better Know a District”. These interviews are distinct from each other in that the “Better Know a District Segment” is much more of a mockery of the representative than would be his normal interview at the

¹⁶ Though I will ultimately use a fixed effects approach so that candidates may have their own specific time trends, it is important that my model accounts for different candidates having longer election cycles or the time trend that my model uses will be skewed.

end of each show. While he remains in his persona for both types of interviews, the “Better Know a District” segment is perceived to be much more politically risky.¹⁷ It is this segment that has drawn the attention of the likes of Nancy Pelosi and Rahm Emanuel. I plan to distinguish between these two types of interviews in my model in hopes to grasp some performance factor, or at least see if how the audience perceives a candidate matters. If I find no significant difference between the two different types of interviews and both are receiving equal bumps, I can infer that the theory of any press is good press holds true, at least as far as the Colbert Report is concerned.

Once I have accounted for these issues, my goal is to better understand the size and nature of the “Colbert Bump”. In Fowler’s study, evidence was provided to support the existence of a bump. Through an econometric model, I hope to better quantify this bump and determine some of the specific variables that influence it. Fowler was able to show that there appears to be distinctly different bumps for democrats and republicans. I will test this in my model and attempt to show exactly what demographic characteristics are significant in determining the magnitude and direction of a bump. Fowler also only used candidates who appeared on the “Better Know a District” segment of the show so I plan to expand on his observations.

¹⁷ Note: This paper only examines risk as it is implied by coefficients that predict negative returns to campaign donations correlated with appearance. Future research should consider the variance of these returns to explicitly define risk.

IV. Developing My Model

The panel data that I have compiled contains a relatively small number of candidates (N=64), however, I have many observation periods for each of the candidates. For this reason, a fixed effects regression model is the most logical method to analyze the data. Fixed effects will also account for the problem of differences in expected period contribution amounts among candidates since this method only uses variation *within* the data for individual candidates and does not include variation *across* candidates. This property of fixed effects analysis allows for each candidate's contribution trend over time leading up to an election to be different since my model will be looking at whether or not appearing on the Colbert report causes a significant change in contributions after accounting for each candidate's specific donation time trend.

One can think of a fixed effects regression to be the same as a normal OLS regression with dummy variables for each individual candidate. To understand how a fixed effects model works, suppose:

$$y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + a_i + u_{it}$$

where a_i represents some unobservable factor specific to the candidate that influences campaign donations y_{it} (in my model it would be size of a candidate's state/district, amount of fund raising effort, prominence of the candidate, etc.). If a_i is correlated with one of the x values (say, the level of fame of a candidate determines whether they choose to appear on the Colbert report) then the coefficient of that x variable will be skewed.

Fixed effects takes advantage of the fact that:

$$\bar{y}_i = \beta_0 + \beta_1 \bar{x}_{1i} + \beta_2 \bar{x}_{2i} + \beta_3 \bar{x}_{3i} + a_i + \bar{u}_i$$

Subtracting the mean from each time period yields:

$$y_{it} - \bar{y}_i = \beta_1(x_{1it} - \bar{x}_{1i}) + \beta_2(x_{2it} - \bar{x}_{2i}) + \beta_3(x_{3it} - \bar{x}_{3i}) + (u_{it} - \bar{u}_i)$$

Manipulating the regression equation this way allows the candidate-specific factor to fall out of the equation. The model can be written more simply as:

$$\dot{y}_{it} = \beta_0 + \beta_1\dot{x}_{1it} + \beta_2\dot{x}_{2it} + \beta_3\dot{x}_{3it} + \dot{u}_{it}$$

where \dot{u}_{it} is uncorrelated with all \dot{x} variables for all time periods.¹⁸ Subtracting the mean from each time period will give us measurements that reflect how changes in my independent variables cause changes in the amount of campaign contributions in a period.

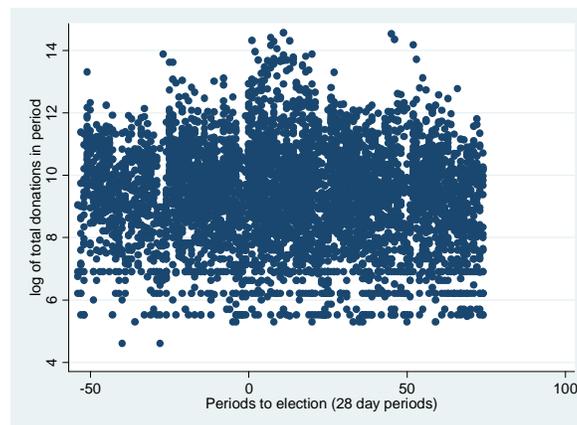
To use a fixed effects regression, there must be variation in all of the independent variables in my model. This is a consequence of only using variation within candidates to predict campaign contributions—if a candidate is a Caucasian, there is no way to determine how that changes campaign contributions in a period since that person has always been Caucasian and there is no variation between periods. While this disallows my model to predict how variables such as race, sex, and political party influence campaign contributions over time, I can use interaction terms to determine how being Caucasian and appearing on the Colbert Report in a period effects campaign contributions in that period.

When referring to the Colbert bump, I am talking about a percentage change correlated with appearing on the *Colbert Report*. This requires that I use the natural log of contributions in a period as my dependent variable. This allows for the coefficients of the independent variables to be interpreted as the percent change in the level of campaign donations correlated with a level amount change in each of the independent variables.

¹⁸ Wooldridge, Jeffrey M. *Introductory Econometrics a Modern Approach*. [London [u.a.]]: Cengage Learning. Print. (pgs 482-488)

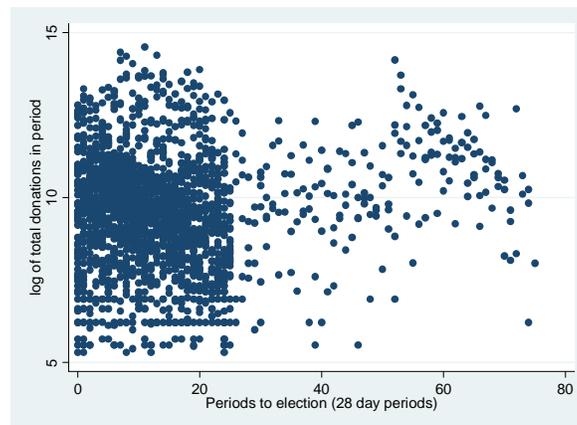
Understanding how campaign contributions should change over time for each of the candidates is important in creating an accurate model. If campaign donations have a non-linear relationship with time, then the functional form of the model must compensate so that the best fit regression line can reflect that relationship. Analyzing scatter plots for the candidates on both individually and on the aggregate level shows that there is a general relationship such that as periods until an election become small, the amount of contributions a candidate receives grows exponentially. Following an election, campaign contributions drop sharply and remain at moderate levels (relative to individual candidates) until the next election becomes sufficiently close.

$\ln(\text{total donations in a period})$ vs. Time (28 day periods)



Looking at the $\ln(\text{Contributions in a Period})$ vs. Periods to Election scatter plot, it is very difficult to determine a trend at all. There are three reasons for this: (1) Each type of candidate, presidential, senatorial, and congressional, has a different number of periods between elections (two, four, or six years), thus plotting all of the candidates together will make the trend over multiple election periods look distorted. (2) The magnitude of donations is going to be different for each type of candidate. (3) There are many more congressional candidates than non-congressional, causing the plot to skew specifically

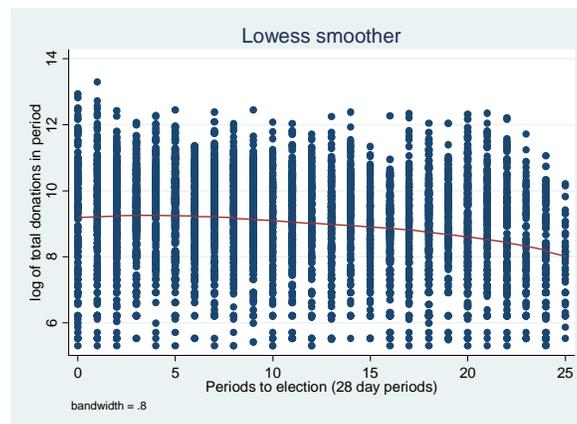
towards the trend of congressional candidates. To allow this picture to more clearly show the time trend of campaign contributions, it makes sense to treat each election cycle separately (that is, have multiple countdowns to 0=election day). Doing this as well as reducing the observations on the scatter to N=30 shows:



Understanding the behavior of candidate's campaign donations over time becomes even clearer when looking at the three different types of candidates separately:

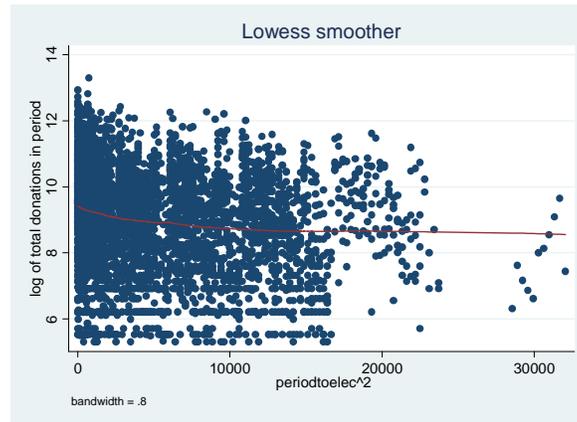
Congressional Candidates:

$\ln(\text{total period donations})$ vs. Period Until Election¹⁹



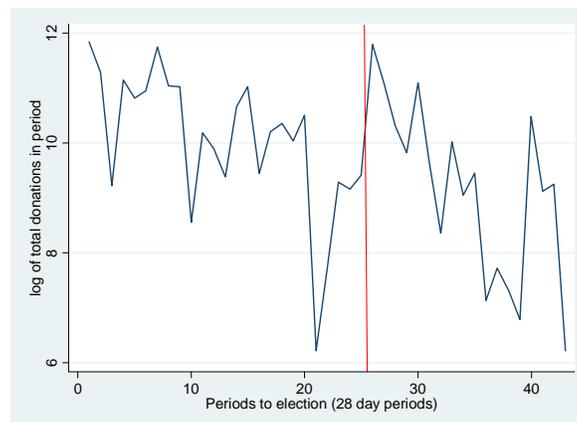
¹⁹ All scatter plots with a fitted trend line used from this point forward will be from the STATA command "lowess". EX: lowess lnperiodcontrib periodtoelec

ln(total period donations) vs. Period Until Election Squared

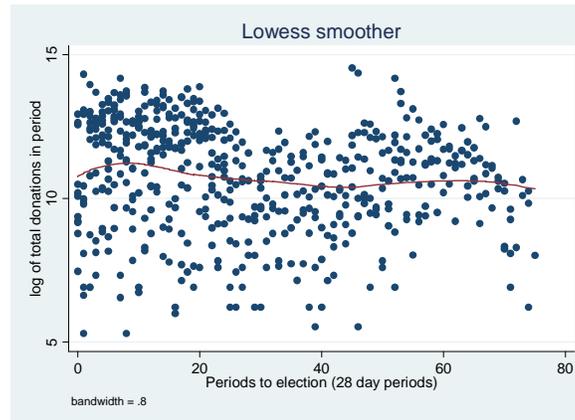


Congressional candidates have 25 periods between elections. Looking at the first scatter, the trend line appears fairly constant and slightly positive. Looking at $\ln(\text{contributions})$ vs. time squared, there is a more observable exponential growth as time periods approach period 0. An individual example will illustrate a typical congressional candidate most clearly (red line= previous election):

Representative Jason Altmire (PA-4)

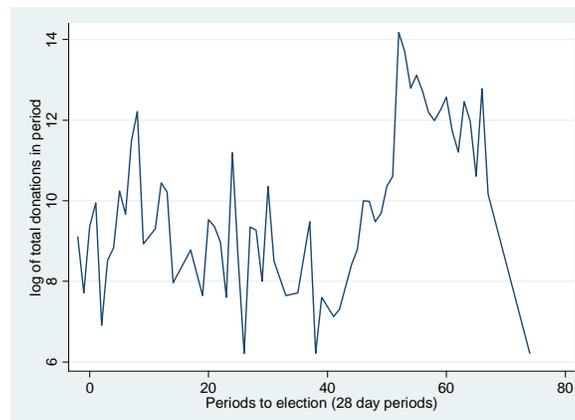


Senatorial Candidates

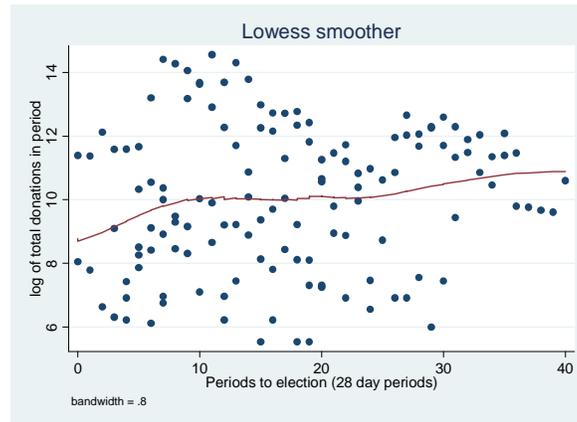


US Senators serve for terms of six years, so there are approximately 75 periods between elections. Unfortunately, this data set does not contain multiple election periods for senators like it does for congressmen. This scatter plot shows the initial level of donations decrease slightly, followed by an upward trend that is characteristic in campaign contributions as an election approaches. An illustration of a typical senator's contribution trend shows that if the curve was smoothed out to best fit the data points it would look like a "half pipe":

Senator Clair McCaskill (D-Missouri)



Presidential Candidates



Figuring out a trend line for presidential campaign contributions is difficult with the limited observations of this data set. Since none of the presidential candidates who appeared on the Colbert Report had a legitimate chance at winning, it cannot be assumed that these candidates share a common trend line with a presidential frontrunner. Also, it is unclear how a candidate's perceived chances of winning effects people's willingness to donate money to them. From looking at the scatter plot, the data points from the four presidential candidates suggest that there is a slight decrease in campaign contributions until about ten periods before the election when it tapers off. This is likely due to the fact that presidential candidates who run without the backing of a major party often do so to get their message out. Once the frontrunners of the presidential race separate themselves from the field, these smaller candidates fall out of the picture. This probably occurs a little before the presidential primaries.

Since campaign contributions are not perfectly linear over time, the model used in this study should include a term for the square of periods to election so that the regression line may reflect the exponential increases and decreases of contributions before and after an election period.

Taking into account the aforementioned assertions that have been made about this model, it takes the form:

$$\begin{aligned}
 & {}^{20}\text{Ln}(\text{period contributions})= \\
 & \beta_0 + \beta_1 \text{Period} + \beta_2 \text{Period}^2 + \beta_3 \text{Appearance Period} + \beta_4 \text{Second Appearance Period} + \\
 & \beta_5 \text{"Better Know a District" \& Appearance Period} + \beta_6 \text{Conservative \& Appearance} \\
 & \text{Period} + \beta_7 \text{Senator \& Appearance Period} + \beta_8 \text{Presidential \& Appearance Period} + \beta_9 \\
 & \text{Caucasian \& Appearance Period}
 \end{aligned}$$

²⁰ Appearance Period= 1 for ANY case where periods from appearance until election=period until election, regardless if it is the first time appearance or not. Second Appearance Period=1 only if it is not the first appearance.

V. Results

Regressing my model with all of the above listed variables yields:

ln(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.0188765	0.0021794	-8.66	0
Periods Squared	-0.0000283	4.18E-06	-6.76	0
Period of Appearance	0.6951601	0.6871964	1.01	0.312
Period of Second Appearance	0.163576	0.7311924	0.22	0.823
"BKD" & Appearance	-0.8811382	0.6096134	-1.45	0.148
Conservative & Appearance	0.0772155	0.5359492	0.14	0.885
Senator & Appearance	-0.9351127	0.8312213	-1.12	0.261
Presidential & Appearance	-0.8488868	0.9275744	-0.92	0.36
Caucasian & Appearance	0.160088	0.5742121	0.28	0.78
_cons	9.595669	0.0380549	252.15	0
id	F(63,	4845) =	34.467	0
R- Squared	0.3262			

Indicated by the weak P-values, there is no statistical significance in the coefficients for the independent variables (other than time). This is likely due to small numbers of observations for certain variables. For instance, only six of the candidates in the sample appeared on the Colbert Report more than once. While it is quite possible that a second appearance on the Colbert Report gives a bump in campaign donations to a candidate, the scope of my data is too narrow to make that assertion with statistical confidence. There is, however, economical significance in these results. This model implies that candidates receive almost the exact same bump from a second appearance as they do a first. Also economically significant are the implications of the coefficients of the interaction terms. Candidates who go on “Better Know a District” are predicted to have a net bump (or bust) of roughly -30%. This strongly implies that there is a significant relationship with how candidates are perceived on the show and the bump they receive from appearing on

the show. While it is not statistically significant, one can argue the economic significance of the relationship.

To improve the previously outlined model, one must either increase the sample size, or remove the variables for which low numbers of observations may be an issue. A few aspects of the regression that seem unsound include the coefficients for senators and presidential candidates appearing on Colbert, as well as the coefficient for being conservative and being on Colbert. Aside from having a less than ideal number of observations for the two groups, senators and presidential candidates have longer periods between elections. Creating a variable that controls for this “longer election horizon” will allow the model to more accurately track the trend in donations over time.

Also, assuming that Colbert’s audience is more liberal in its political views (according to Nielsen IAG data, the Colbert Report had the highest engagement rating of any cable TV program among self proclaimed democrats²¹), one would expect that viewers would more frequently identify with liberal candidates and would thus be more likely to contribute to their campaigns. This would be in agreement with the suggestions from Fowler’s study; however, this model is suggesting that conservative candidates receive a greater bump relative to their liberal counterparts. It may be the case that conservative candidates do actually have more of a bump than liberal candidates; however, a greater sample size is needed to determine the correlation with greater confidence.

²¹ Nielsen Wire, http://blog.nielsen.com/nielsenwire/media_entertainment/do-dems-and-gopers-respond-to-tv-shows-differently/

Simplifying the model by dropping the interaction terms with less than fifteen observations and creating a “longer horizon” dummy variable for senators and presidential candidates yields:

In(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.0188238	0.002177	-8.65	0
Periods Squared	-0.0000283	4.18E-06	-6.76	0
Period of Appearance	0.988133	0.58535	1.69	0.091
"BKD" & Appearance	-1.023345	0.630514	-1.62	0.105
"Longer Horizon"	-1.085722	0.772559	-1.41	0.16
_cons	9.59488	0.038019	252.37	0
id	F(63,	4849) =	34.605	0
R-Squared	0.3262			

With the exception of the Period of Appearance coefficient, these results still are not statistically significant at the 90% confidence level. However, the P-values for the coefficients are much improved from the previous regression. The coefficients for Period of Appearance and whether or not the candidate was on the “Better Know a District” segment show even stronger relationships than the first regression indicated by the larger coefficients. The data in this regression still includes all sixty-four candidates in the original sample, however, all of the interaction terms have been removed except for Period of Appearance, “Better Know a District”, and the “Longer Horizon” variable which captures the effect of having an election cycle longer than two years and appearing on the Colbert Report in a period.

An aspect of the data that may be contributing to the statistical insignificance of some of the coefficients is that there are relatively few observations for senatorial and presidential candidates, N=4 presidential and N=8 senatorial. While the model that has been developed thus far allows for different candidates to have different trends for

campaign contributions over time, it is possible that there are not enough non-congressional candidates in the sample to accurately capture the effect of appearing on the Colbert Report. Dropping the twelve non-congressional observations yields:

In(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.0409476	0.0029135	-14.05	0
Periods Squared	-0.0000335	4.14E-06	-8.09	0
Period of Appearance	0.9052528	0.554409	1.63	0.103
"BKD" & Appearance	-0.9753323	0.5971682	-1.63	0.102
_cons	9.617762	0.0416239	231.06	0
id	F(50,	4201) =	22.204	0
R-Squared	0.2526			

These results suggest that the non-congressional observations may not have necessarily been skewing the data. Accounting for the “longer horizon” of senators and presidential candidates appears to have been effective in allowing the model to track the expected time trend of campaign contributions over time since removing these observations has two effects: (1) it reduces the statistical significance of the Period of Appearance coefficient. This is likely because the model is no longer able to predict with statistical certainty (although the p-values are close to the 10% significance level) that the variation observed in periods in which candidates appeared on the Colbert Report was non-random or by pure chance. (2) The R-squared value of the regression drops from 0.3262 to 0.2526. It is to be expected that these regressions have relatively low R-squared values due to the fact that, in practice, there is a great number of variables that affect campaign donations. This reduction of over 7% means that the variables in the previous regression accounted for over 7% more of the observed variation in campaign contributions than this current one. This suggests that this model is better served by including the observations for presidential candidates and senators.

One factor that may be affecting the results for campaign contributions over time is the possibility of serial autocorrelation. It is quite possible, even likely, that the amount of campaign contributions received in a period will have some impact on the amount of contributions that will be received in the next period. If a candidate surges in popularity and campaign contributions increase, that candidate will then have more access to the media and will be able to spend more money campaigning which will most likely have further positive returns to campaign contributions. Allowing the model to relax the assumption that there is no correlation within a candidate's campaign contributions between consecutive periods yields the following results:

ln(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.01882	0.009155		-2.06 0.044
Periods Squared	-2.8E-05	7.28E-06		-3.88 0
Period of Appearance	0.988133	0.488702		2.02 0.047
"BKD" & Appearance	-1.02335	0.521557		-1.96 0.054
"Longer Horizon"	-1.08572	0.702965		-1.54 0.127
_cons	9.59488	0.125165		76.66 0
sigma_u	1.159026			
sigma_e	1.3923			
rho	0.409325	(fraction of variance due to u_i)		
R-Squared	0.0294			

Using the cluster option for a fixed effects regression in STATA affects the standard errors and variance-covariance matrix of the estimators but not the estimated coefficients. When accounting for serial autocorrelation, the regression is able to predict the effect of appearing on the Colbert Report during a period and the effect of appearing on "Better Know a District with statistical significance at the 90% level. The "longer horizon" dummy variable, while economically significant, still does not have statistical significance. Once again dropping the twelve non-congressional observations and

accounting for serial autocorrelation in campaign contributions between periods, the regression analysis yields:

ln(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.0409476	0.006014		-6.81 0
Periods Squared	-0.0000335	6.60E-06		-5.07 0
Period of Appearance	0.9052528	0.4618794		1.96 0.056
"BKD" & Appearance	-0.9753323	0.4956367		-1.97 0.055
_cons	9.617762	0.0625744		153.7 0 0.000
sigma_u	0.80443569			
sigma_e	1.3186015			
rho	0.27123376		(fraction of variance due to u_i)	
R-Squared	0.0669			

These results strongly suggest that there is a correlation between campaign contributions in period_i and period_{i+1}. Also, while the data for senators and presidential candidates is useful in allowing the model to account for the total variance in campaign contributions as measured by the R-squared values, these most recent results suggest that the small number of “longer horizon” candidates is to blame for the lack of statistical significance of the coefficient.

VI. Analysis

From the data on fifty-two congressmen that have appeared on the Colbert Report, the econometric model used in this paper can predict at the 90% confidence level that a congressman who appears on the Colbert Report will expect to have a 90.5% increase in campaign contributions over the 28 day period in which he/she appears on the show.²² Simply appearing on the show, however, does not automatically deliver the Colbert bump. If a candidate appears on the “Better Know a District” segment of the show, he/she is expected to have a net decrease in campaign contributions of 7% over the 28 day period in which an appearance on the show was made.²³ This is a very significant finding since, until this point, the perceived risk/reward of appearing on the Colbert Report has been almost entirely based on speculation.

Before Colbert gets too excited that these results prove the existence of his bump, it should be considered that there could be a potential endogeneity problem at play here. That is to say those candidates who are being asked to appear on the show are not selected randomly, but rather because Colbert sees that they are on a political “upswing” where there will be a “bump” regardless of whether or not a candidate appears on the show. The fact that the model now allows for serial autocorrelation may compound this problem. If this is the case, the model will credit this bump in contributions to appearing on the Colbert Report rather than to whatever omitted variable that was correlated with

²² While the model predicts that appearing on the Colbert Report yields a 90.5% gain in campaign donations in that period, the observed increase will actually be larger. Due to the property of the derivative of natural logs, measuring a percent change in campaign contributions should be calculated as $\text{Exp}(\Delta \ln) - 1$. $\rightarrow \text{Exp}(.9052528) - 1 = 1.47$. Thus, the actual expected increase in campaign donations in a period that a candidate appears on the Colbert Report is 147%.

²³ This actually comes out to a decrease of 18% after making the above-mentioned calculation.

going on the show (presumably, this omitted variable is also leading to positive serial correlation) which caused campaign donations to rise. Since the “Better Know a District” candidates are a part of a segment where Colbert is seeking to interview every US Congressman, it is doubtful that there is endogeneity in the selection methods there. It is, however, possible that the expected contribution gains from appearing on the regular interview are skewed because of endogeneity. Running separate regressions for the two groups shows:

“Better Know a District” Only

ln(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.0396124	0.0063672	-6.22	0
Periods Squared	-0.0000326	6.94E-06	-4.69	0
Appearance Period	-0.0659064	0.1852671	-0.36	0.724
_cons	9.617614	0.0672923	142.9	2 0.000
sigma_u	0.77209352			
sigma_e	1.3221304			
rho	0.25430392	(fraction of variance due to u_i)		
R-Squared	0.0622			

Normal Interviews Only

ln(Period Contributions)	Coef.	Std. Err.	t	P>t
Periods Until Election	-0.05691	0.01934	-2.94	0.026
Appearance Period	0.915362	0.445298	2.06	0.086
_cons	9.434208	0.196926	47.91	0
sigma_u	1.08219			
sigma_e	1.298632			
rho	0.409834	(fraction of variance due to u_i)		
R-Squared	0.095			

(Periods Squared dropped due to high p-value)

Examining results for the two different groups of congressmen shows that there is undoubtedly a bump for those candidates who appear on the normal Colbert Report interviews, however, it is inconclusive as to whether or not endogeneity is to blame or if a true “Colbert Bump” is being observed.

While this model is not able to extend its application to the presidential and senatorial candidates in the data, it almost certainly could if there was a large enough sample of each category that has appeared on the Colbert Report. Since such a sample does not exist, analysis on how the Colbert bump applies to presidential and senatorial campaign contributions will have to rely on the economical rather than the statistical significance of including this data in the model.

Making statistically significant findings is certainly important in validating the predictive power of this model, but the economic significance of these findings is also noteworthy. The results of my regression only including the data for congressional candidates showed an R-squared value of 0.0669, which is pretty low. The fraction of the variance due to the error term being correlated with that from a previous period was calculated to be 0.27. This can be interpreted to say that the values of campaign contributions in period_{*i*-1} account for 27% of the variation in campaign contributions in period_{*i*}. This means that a candidate’s campaign contributions are subject to some amounts of “snowballing” where building momentum in one period will have a positive impact on contribution levels in the next period. There are many factors that affect a candidate’s campaign contribution level that are missing from my model. While employing a fixed effects model allows for person-specific factors to vary without

causing bias, it is important to understand that this model only captures a very specific aspect of the greater equation that defines campaign contributions.

Including all of the interaction variables in the original regression resulted in a higher R-squared value of .3262. This is interesting since it implies that, while the coefficients have much less certainty in their ability to predict changes in campaign donations, the variables in the model explain more of the variation in changes in campaign donations. Also, the original regression results suggested that candidates affiliated with conservative political parties are expected to receive a higher bump. This is an interesting observation that goes against the previous findings of Fowler. The coefficient in my model has very small statistical significance due to the small number of conservative politicians that have appeared on the Colbert Report. This is a problem of Fowler's study as well, and future research will depend on expanding this portion of the sample. Though definite conclusions cannot be drawn here, it is possible to argue that Colbert identifies with both sides of the political spectrum and political ideology has very little real effect. This is an example of economic significance of my findings rather than statistical.

If future research were to build on the current data set and add more candidates who have appeared on the Colbert Report, it is possible that interaction terms for demographic variables would prove to be statistically significant. For example, if the sample included more observations of conservative candidates, it would undoubtedly allow for firmer conclusions to be drawn as to how being conservative affects the bump. Also, if the data set were to grow to include more observations of presidential and

senatorial candidates, the model would be able to provide a better understanding of how candidate type affects the Colbert bump.

VII. Conclusions

Employing a fixed effects regression method on campaign contribution data for 54 congressmen who appeared on the Colbert Report showed that appearing on the show's normal interview segment more than doubles the expected level of campaign contributions for the four week period in which the appearance occurred. The results of the regression also proved the existence of a "Colbert Bust", suggesting that perhaps not everything Colbert touches turns to gold. Candidates who appear on the "Better Know a District" segment are expected to have an 18% decrease in the level of expected campaign contributions for the period in which they appear on the show. These findings have huge implications for political strategists. "Fake" news shows such as the Colbert Report are becoming an increasingly popular genre of cable programming. Recent studies support that people do retain politically relevant information from soft news programs, even if they are watching these shows purely for entertainment. The idea that Stephen Colbert and other soft news hosts have real influence over how audiences donate to political figures is no longer a thought that should be taken lightly. This reflects a change in the American political news media that, for better or worse, is becoming more and more apparent. The model developed in this study supports the existence of the Colbert bump in campaign contributions.

Future research on the Colbert bump, or bumps from any shows for that matter, should hinge on expanding the size of the data set. A larger sample will allow for more accurate measures of the variables that effect campaign contributions and will also likely allow for the inclusion of more variables in the model. Also, the model outlined in this paper could easily use a different dependant variable as an indicator of candidate

popularity (polling data, for example). It would be interesting to see if the Colbert Bump behaved similarly for polling numbers as it does for campaign contributions. This, however, would require extensive data gathering to ensure that polling data is consistent across all candidates.

Additionally, future work should attempt to control for appearances on other news shows that could potentially prompt an invitation onto the Colbert Report. This study was unable to identify an efficient and uniform method of determining any other shows that candidates had appeared on in the time leading up to a Colbert Report appearance. Attempts have been made to contact Comedy Central in order to determine: (1) How candidates are selected to appear on the show and (2) How far in advance candidates are scheduled to appear on the show. Determining either of these two things would provide valuable insight as to what factors are correlated with a candidate's appearance. If candidates are booked months in advance, it would suggest that any observed "bump" is truly a "Colbert Bump" whereas if it were determined that the Colbert Report seeks out "up and coming" politicians, then it would imply that the observed bump in the period of appearance would have occurred regardless of the appearance and the model is just reading it as such. In reality, there is likely to be a combination of these processes that land candidates on the Colbert Report, however, determining how candidates are selected is beyond the scope of this model.

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