Did Jon Stewart elect Donald Trump? Evidence from television ratings data

Ethan Porter[a], Thomas J. Wood[b],*

[a] George Washington University, USA
[b] The Ohio State University, USA

ABSTRACT

To identify the effects of televised political comedy on the 2016 presidential election, we leverage the change in hosts of two popular shows, *The Daily Show* and *The Colbert Report*, and both shows' subsequent ratings declines. By combining granular geographic ratings data with election results, we are able to isolate the shows' effects on the election. For *The Daily Show*, we find a strong positive effect on Jon Stewart's departure and Trump's vote share. By our estimate, the transition at *The Daily Show* spurred a 1.1% increase in Trump's county-level vote share. Further analysis suggests that the effect may be owed more to Stewart's effects on mobilization, not his effects on attitudes. We also find weaker evidence indicating that the end of *The Colbert Report* was associated with a decline in 2016 voter turnout. Our results make clear that late-night political comedy can have meaningful effects on presidential elections.

Can political television shows affect political outcomes? It is easy to be skeptical that this is possible. In an era of highly polarized political media (e.g., Prior, 2013; Sunstein, 2017), in which Americans are able to self-select into media tailored to their ideological partisan configurations, it seems unlikely that any show could leave a trace. Self-selection simply looms too large; the effects of any one show are probably too small. Yet some media transcend narrow political niches, attracting sizable audiences and becoming objects of national fascination. At least theoretically, unusually popular political media *may* be able to overcome the selection problem, and structure the political beliefs and behaviors of a large number of people.

So too might the removal of such media. If a show can affect politics at the height of its popularity, then that show's decline might also be politically consequential. In this paper, we examine the effects of two of the most well-known political television shows of recent years, *The Daily Show* and *The Colbert Report*. *The Daily Show*, which has aired on the cable channel Comedy Central since 1996, has been the subject of numerous previous investigations (e.g., Annenberg, 2004; Baumgartner and Morris, 2006). In contrast to those scholars, who studied the show at the height of its popularity, we exploit the replacement of its extraordinarily popular host, Jon Stewart, with a new host, Trevor Noah, and its subsequent drop in popularity. Leveraging the change in hosts and large drop in ratings that followed permits us to tease out the effects of *The Daily Show* on the 2016 presidential election. We do the same for Stephen Colbert's eponymous show. Around the same time that Noah replaced Stewart, Colbert was replaced by *The Nightly Show With Larry Wilmore*. Once again, this change in hosts precipitated a large drop in ratings. Again, we leverage the change in hosts and the subsequent decline in popularity—understood as audience size in the same time slot—to isolate the effects of the show's decline on the election.

We find that the drop in ratings that followed Jon Stewart's departure from *The Daily Show* had a significant positive effect on Donald Trump's vote share in the 2016 election at the county level, compared to Mitt Romney's vote share in those same counties in 2012. By our estimate, Trump's vote share at the county level increased 1.1% over the prior Republican nominee because of Stewart's departure. When we simulate counter-factual 2016 elections in which Trump's vote share did not increase at this rate, we observe Hillary Clinton winning the White House more than two-thirds of the time. For Colbert, we observe weaker, survey-based evidence that the end of his show may have been connected to a decline in voter turnout. However, in contrast to *The Daily Show*, we find no evidence that the end of *The Colbert Report* caused Republican vote share to rise. Stewart's influence over electoral outcomes appears to have been unique in this regard. And as we show, this effect was restricted to 2016. When we re-estimate our model on 2018 county-level Republican vote share, we find null effects, as indeed one would reasonably expect.

We must be clear, however, that our results should be approached with considerable caution. Despite our use of well-worn techniques to make causal inferences, and even though our results stand up to conventional statistical scrutiny, they should not be read as proof that *only* Stewart's departure caused Trump's election. Our claim is much more limited than that. Stewart's departure and the decline in ratings data, we contend, was one among many factors that possibly contributed to the surprising election result of 2016.

What form did Stewart's influence take? One possible explanation relates to policy attitudes. Perhaps, as a popular television host, he was able to push viewers to adopt more liberal policy positions; when he

went off the air and his audience followed, their positions became markedly more conservative. Using data from the 2016 Cooperative Congressional Election Study (CCES), we find that the decline in *Daily Show* ratings had virtually no effects on respondents' issue attitudes. However, further analysis of CCES indicates that *The Daily Show*'s ratings decline was negatively associated with voter turnout—suggesting that Stewart's role in the election is understood in relationship to mobilization, rather than persuasion.

1. Late-night comedy and political media effects

To understand why either show might have been capable of affecting the 2016 election, it is crucial to understand the structure of both shows as well as their ratings histories. While *The Daily Show* launched on Comedy Central in 1996, it was not until after Jon Stewart took over, in 1999, that the show began to achieve outsized political importance. A mixture of on-air interviews with celebrity personalities, including but not limited to politicians, taped segments, and Stewart's own riffing on the news of the day–often interspersed with short cuts of prominent politicians, edited to make the politicians look buffoonish–the show had an openly pro-Democratic bent (Smith, 2017). During the Bush Administration, for example, the show made Republicans the brunt of laughs at more than three times the rate of Democrats (Pew Research Center, 2008).

The show featured a number of "correspondents," comedians who interjected their own humorous and often Democratic-leaning take on current events. Among the most popular was Stephen Colbert. Colbert was eventually given his own show, *The Colbert Report*, which debuted in 2005. While Stewart mocked Republican politicians, Colbert took him one step further, and created the character of "Stephen Colbert," an outspoken Republican similar to Fox News's Bill O'Reilly (Franklin, 2005). At his peak, Stewart drew 4.3 million viewers to one show—a 2008 interview with then-presidential candidate Barack Obama (Steinberg and Kissell, 2015)—while Colbert would attract about half that (O'Connell, 2014).

Stewart finished his run as host in August 2015 and was replaced by Trevor Noah in late September of that year. Colbert, meanwhile, surrendered his show in December 2014, and instead of continuing *The Colbert Report* with a different host, Comedy Central started.

The Nightly Show with Larry Wilmore in Colbert's time slot a little over a month later. Fig. 1 displays the changes in hosts at both shows.

In Fig. 2, we present a time series of both shows' ratings, highlighting the discontinuity in hosts. The two replacements were much less popular. The transition from Stewart to Noah, and Colbert to Wilmore, was followed by a sharp drop in the number of people watching Comedy Central at those hours specifically. To this day, neither host has been able to match the popularity of his predecessor. Wilmore's show was canceled in August 2016, while Noah's *Daily Show* remains much less popular than Stewart's (Cuccinello, 2017).

While the political import of late night television comedy in general has been studied by many prior researchers (e.g., Baum, 2002; Young, 2004; Parkin, 2010; Brewer and McKnight., 2017), the popularity of *The Daily Show* has made it an especially rich target for researchers (e.g., Baym, 2005; Young, 2004). *The Colbert Show* has also attracted its share of academic interest (e.g., Baym, 2007; Brewer et al., 2013). Both shows, it has been argued, have exerted meaningful relationships with politically consequential attitudes and behaviors, includ-ing political knowledge (Brewer and McKnight., 2017), political engagement (Jones, 2010) and candidate evaluations (Baumgartner and Morris, 2006).

Researchers have even shown that *The Daily Show* can make a difference in a presidential election, when we think of partisan predispositions as exerting their firmest grip. For example, during the 2004 election, Morris (2009) shows that panel participants who reported watching *The Daily Show* during the Republican National Convention expressed markedly lower evaluations of the Republican ticket afterwards. Although exposure to David Letterman's show also appeared to be related to diminished evaluations of Bush, the size of the relationship between *Daily Show* exposure and feelings toward Bush was much greater. Morris and Baumgartner, meanwhile, (2006) present experimental results in which those assigned to watch *The Daily Show* rated Kerry less favorably. As the authors note however, this may have been tied up with an overall increase in political cynicism cultivated by the show; according to their data, the show caused a sharp decline in evaluation of *all* candidates, including Bush. Not all studies have found that televised political comedy affects candidate evaluations; for example, Young's (2004) account of the 2000 election and late night comedy does not detect such effects.

The Daily Show has also been found to be related to political knowledge. At the height of the show's popularity, viewer surveys portrayed a young, well-educated audience (Pew Research Center, 2007). Many scholars have observed that late-night comedy can increase political knowledge (e.g., Parkin, 2010; Brewer and McKnight., 2017). The relationship between political knowledge and political participation is difficult to overstate, with less knowledgeable voters being far less likely to participate in elections and vice versa (Delli Carpini and Keeter 1996). In addition, "soft" media like late-night comedy can have pronounced effects on voters who are otherwise less informed. In Baum (2005), for example, voters who were politically unaware during the 2000 election were found to be far more affected by soft "news" than the hard news they consumed (though not late-night comedy in particular). Parkin's study of Kerry's 2004 Letterman appearance (2010) corroborates this point: People who otherwise had little interest in politics were most affected by Kerry's appearance.

If this pattern generally holds—if the uniformed are most affected by political comedy— then the sharp decline in popularity of a late-night political comedy show could have meaningful consequences. In our case, if disengaged voters were among the most likely to be affected by exposure to *The Daily Show*, it stands to reason that the departure of
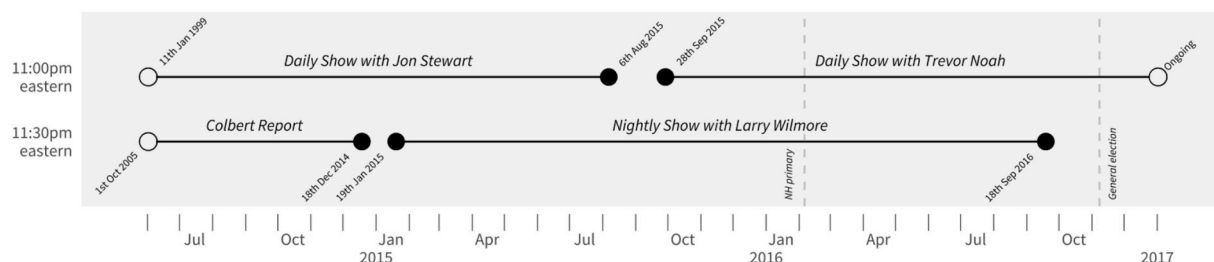
Fig. 1. Timeline of host transitions. The y-axis reports the programming on Comedy Central network at two different times: 11:00pm and 11:30pm, Eastern time. The x-axis depicts dates between May 2014 and January 2017. The lines depict the duration of Stewart and Noah hosting programming at the 11:00pm time (the top line), and Colbert and Wilmore hosting programming at the 11:30pm time (the bottom line). The breaks depict the period during the transition between hosts.
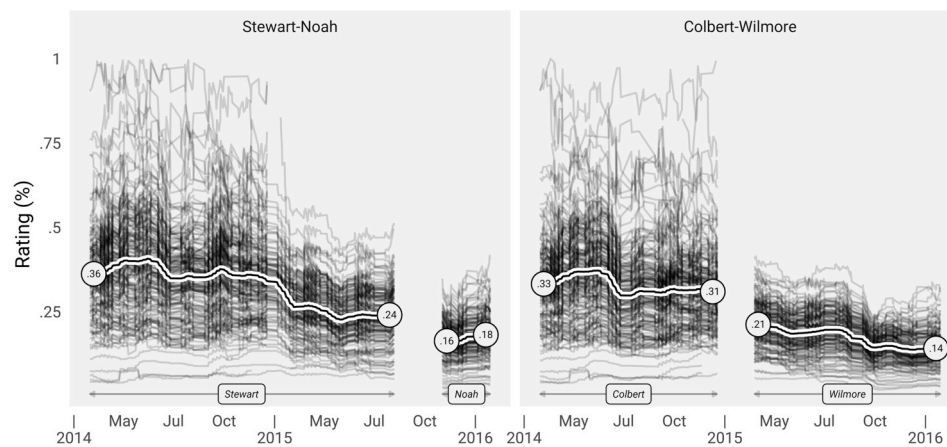
Fig. 2. Audience decline over time. Each line depicts a different Designated Market Area (DMA) state intersection. The left facet shows the ratings for Stewart Noah, while the right facet shows the depicts ratings for Colbert Wilmore. The red lines and points reflect the average rating by show (weighted by DMA*State populations).

the show from their viewing habits may have had a large effect on their political views and behaviors. Without the show, they were politically disengaged and uniformed; but when they saw it, they were affected by it, often in the direction of the Democrats. Without the show, they were simply disengaged. As Matthew Baum wrote regarding the influence of "soft news" on foreign policy attitudes:

> "Those who consider politics a waste of time are unlikely to pay attention to political information unless the time and effort required to do so … are extremely small … One means of minimizing the costs associated with paying attention to low-benefit political information might be to attach or 'piggyback' it to low-cost entertainment-oriented information" (Baum, 2002, pp. 96).

When *The Daily Show* was most popular, otherwise politically disengaged viewers may have consumed political information that they would not otherwise; though such viewers watched the show for its humor, they were nonetheless affected by its political content. Indeed, surveys of *Daily Show* viewers at the height of its popularity made clear that most viewers reported primarily tuning in for entertainment purposes (Pew Research Center, 2010). Counterintuitive thought it might first sound, this might actually have enhanced the ability of the show to affect politics. As Mutz (2015, pp. 205) notes, Stewart's presentation as an entertainer probably worked to his advantage.

All that having been said, does is make sense to attribute political consequences to late-night comedy shows? After all, political persuasion is exceedingly difficult, especially during campaign season. As recent work has made clear, most attempts to change people's minds about politics during an election fail (Kalla and Broockman, 2018). No less importantly, the political media landscape is highly polarized (Prior, 2003). On the other hand, existing research does give us reason to think that political comedy in particular might be effective, at least in the short-term, and at least on less engaged, less-informed voters. Generally, people less committed to their political beliefs are more readily capable of changing their minds (Zaller, 1992). The young, impressionable audience of the shows studied here (Pew Research Center, 2010) are often comprised of just such people.

The structure of the late-night shows studied here would seem to make them especially effective vehicles for persuasion. Both shows interspersed politics with comedy; and has been noted since Festinger and Maccoby (1964), the presence of distracting material can make people less eager to counter-argue with messages they receive. Counter-arguing requires cognitive effort that, by definition, distraction inhibits. Such distractions can make political messages in particular more persuasive (Petty et al., 1976). Moreover, as Baumgartner (2007) notes, people may be more receptive to persuasive messaging when they are in positive moods, (e.g., Kuiper et al., 1995) of exactly the sort that *The*

Daily Show aims to place people in. In line with these theoretical expectations, recent scholarship has illustrated the effects that humorous political messages can have on young adults' evaluations of presidential candidates (Baumgartner, 2007).

Yet any attitude changes occasioned among the otherwise least-informed are unlikely to last. Indeed, in between presidential campaigns, low-informed voters are much more likely than high-information voters to change parties (Zaller, 2004). This only underscores the possible consequences of both shows' ratings declines. When Stewart and Colbert hosted, they likely shaped those citizens who are otherwise disengaged—citizens who are more likely than others to shift allegiances in between presidential elections.

While most prior work on late-night has focused on the ability of soft news like *The Daily Show* to shape political attitudes (with Baum, 2005 serving as an important exception), we are mostly interested in voting effects. This puts our paper in conversation with a burgeoning literature that seeks to precisely identify the causal effects of mass media on voting patterns. That research, however, has largely looked at the world of hard cable news. Most prominently, DellaVigna and Kaplan (2007) leverage the gradual distribution of Fox News across U.S. cable networks to isolate the effects of the availability of Fox News on the 2000 election. Because those districts that had access to Fox News in 2000 were statistically indistinct from those that did not, based on pre-2000 voting and demographic data, they are able to conclude that the introduction of Fox News led to an increase of 0.4–0.7 percentage points in the 2000 election—or more than enough votes to swing what was an historically close contest. More recently, Martin and Yurukoglu (2017) find that Fox News increased Republican vote share by 0.3 percentage points among voters who watched just 2.5 additional minutes of the network a week because of its place on the proverbial cable dial.

There are, however, limits to the effects of television. After embedding various messages into daytime television soap operas, Paluck et al. (2015) are unable to uncover any long-lasting or substantively significant effects on behavior related to the messages (e.g., a message related to drunk driving did not reduce incidence of drunk driving). With all this in mind, whether televised political comedy can impact election results is an open question. On the one hand, political persuasion is uncommon, and the contemporary political media landscape may be too polarized for any content to break through and affect consumers. On the other hand, the shows' ability to attract audiences of otherwise disengaged individuals and expose them to political content in between bits of humor may have meant their declines were surprisingly consequential. By Baum's (2002) logic, when the shows were most popular, viewers were willing to pay the small cost of absorbing their political content, because doing so provided enjoyable humor. But

Table 1
DMAratingsdataavailabilityaroundbothtransitions.

		n	Before transition			Rating	n	After transition			Rating
			DMA	Earliest Obs	Last Obs			DMA	Earliest Obs	Last Obs	
Colbert Transition	*Key & Peele*	642	187	24 Sep 2014	10 Dec 2014	.33					
	South Park	1,847	194	24 Sep 2014	10 Dec 2014	.26					
	Colbert Report	7,937	194	18 Sep 2014	17 Dec 2014	.31					
	Daily Show with Jon Stewart	7,963	194	18 Sep 2014	17 Dec 2014	.36	5,401	159	20 Jan 2015	26 Mar 2015	.27
	Nightly Show with Larry Wilmore						5,401	159	20 Jan 2015	26 Mar 2015	.21
Daily Show Transition	*Inside Amy Schumer*	1,117	160	12 May 2015	7 Jul 2015	.18					
	Key & Peele	798	160	8 Jul 2015	5 Aug 2015	.19					
	South Park						1,263	160	30 Sep 2015	9 Dec 2015	.20
	Daily Show with Jon Stewart	6,395	160	6 May 2015	5 Aug 2015	.25	5,935	160	29 Sep 2015	17 Dec 2015	.17
	Daily Show with Trevor Noah										
	Nightly Show with Larry Wilmore	6,396	160	6 May 2015	5 Aug 2015	.19	6,087	160	29 Sep 2015	17 Dec 2015	.15

when those viewers turned off the shows, so too did they turn off the political content.

2. Data and research design

Our data comes from three sources. Our ratings data come from a ratings company which tracks network, cable, and digital streaming audiences in 15 min increments across 156 designated market areas (DMA) in the continental united states. We acquired a massive data set of Comedy Central ratings, from November 2014 to February 2016, for *The Daily Show with Jon Stewart, The Daily Show with Trevor Noah, The Colbert Report, The Nightly Show with Larry Wilmore, Key and Peele, South Park*, and *Inside Amy Schumer*. This provides variation in the size of the Comedy Central audience, geographically and temporally. The level of detail within our data set provides us an unusually precise means to compare respondents on the basis of the exposure to comedic political programming, reflective of small fluctuations in individual markets. Table 1 describes the available ratings data, by each transition *type* (either Stewart–Noah, or Colbert–Wilmore), and the specific Comedy Central show for which we have available data.

Next, we take reported vote counts measured at the county level. To measure the independent variable, we divided each market into two periods for each of the two sets of Comedy Central late night talk shows. The periods were determined by the host of each show–either the high rated predecessor, or the less successful successors. For each market/show/host combination, we omitted the repeated shows, and took an average of the night ratings. We then captured the percentage decline within each market as the shows transitioned between hosts. This percentage decline is the key independent variable for the subsequent models.

The hierarchical structure of our data is described in Table 2.

$$GOPcountyvote_{i,2016} - GOPcountyvote_{i,2012} = b_0 + b_1(NoahRatings_i - StewartRatings_i) + b_{3,j}$$

where *i* indexes counties and *j* indexes states. For simplicity, the county level sociodemographic controls (educational attainment, racial composition, and income), are included in these models, but omitted above.[1] The b_3 term is a random intercept at the state level. Separate models are estimate for the effect of the Noah and Wilmore induced declines in the Stewart and Colbert audiences, respectively. The average contemporaneous decline in the control Comedy Central shows during this period (*Key and Peele, Inside Amy Schumer*, and *South Park*) are averaged and included as a control.

This approach has two key advantages. First, the breadth of unobserved factors which determined the size of the Comedy Central

Table 2
Data structure for main models. DMA x State are the *intersection* of the area of a DMA (Designated Market Area) and a state. Since some DMA span states, our data are separate for each part of DMA which falls in each state. We then nest these DMA fragments in states.

	Unit	N
Level 1	DMA x State	192
Level 2	States	41

audience in a particular market during the initial period are largely controlled by differencing the series. Second, to control for prior variation in political attitudes, each regression also includes county level estimates of 2012 presidential vote, as well as individual level controls, to remove the effect of potential political confounders. Our modelling strategy is a standard difference-in-difference approach, in which we isolate the effect of changes in Comedy Central viewership by regressing the differential performance of the GOP's presidential candidates in 2012 and 2016 on the difference in the viewership of *The Daily Show* and *The Colbert Report-Nightly Show*.[2]

3. Vote share results

The ratings decline associated with Stewart's departure had a pronounced positive effect on Trump's vote share, compared to Romney's 2012 vote share. However, the decline associated with Colbert's replacement by Wilmore had no similar effect. We display our results in Table 3. The first column looks at the effects of Stewart's replacement by Noah, while the second looks at Colbert's replacement by Wilmore. As our dependent variable is the *difference* in county-level Republican vote share from 2012 to 2016 and our independent variable of interest is the decline in television ratings, positive numbers indicate a positive effect on Trump's vote share and negative numbers indicate the opposite. By our estimate, the ratings decline at *The Daily Show* was associated with a 1.11 percentage point increase in Republican presidential vote share at the county level, significant by conventional standards ($p < .01$). The effect of the ratings decline following Colbert's departure is not significant.

To account for the possibility that our effects are owed not to anything specific about the shows but instead reflect broader trends related to cable subscriptions and Comedy Central's popularity, we include ratings for the same time periods from other well-known Comedy Central shows. The *CC Controls* variable accounts for ratings for *South*

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[1] These models' results are described in Table 3 on page 15.

[2] The extensive econometric literature on this method is applied in Card and Kreuger (1994) and discussed at length in Angrist and Pischke (2009).

Table 3
Comedy central and the 2016 election.

	Dependent variable:	
	Trump Vote Share (16) – Romney Vote Share (12)	
	(Noah Handoff)	(Wilmore Handoff)
Decline in Noah audience	1.11***	
	(0.42)	
CC Controls During Noah Transition	1.25	
	(0.78)	
Decline in Wilmore Audience		−0.46
		(0.47)
CC Controls During Wilmore Transition		0.81
		(0.91)
Perc Some College	−0.07***	−0.05**
	(0.02)	(0.02)
Perc BA+	−0.41***	−0.39***
	(0.01)	(0.02)
Perc Black	−0.09***	−0.08***
	(0.01)	(0.01)
Perc Hispanic	−0.08***	−0.06***
	(0.01)	(0.01)
Median Household Income (000s)	−0.08***	−0.06***
	(0.01)	(0.02)
Per Capita Income (000s)	0.18***	0.15***
	(0.02)	(0.02)
Median Household Value (00,000s)	0.15**	0.34***
	(0.06)	(0.11)
Adult poverty rate	0.03	0.07*
	(0.03)	(0.04)
Perc Foreign Born	−0.05**	−0.05*
	(0.02)	(0.02)
Constant	12.59***	12.89***
	(1.01)	(1.30)
Observations	1,790	1,163
Log Likelihood	−4,289.01	−2,717.70
Akaike Inf. Crit.	8,606.02	5,463.41
Bayesian Inf. Crit.	8,682.88	5,534.23

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Park, *Key and Peele* and *Inside Amy Schumer* during both hand-off periods. We also include a host of standard control variables in our models, including the percentage of the county with some college, with a B.A. degree, the percentages of black, Hispanic and foreign-born residents, the median household income and median household value, per capita income, and the adult poverty rate.

As Table 3 shows, none of the other shows' ratings during these time periods exhibited effects on voting. This indicates that our results cannot be dismissed by pointing to broader cable or channel-specific trends. To put the effect size in context, consider the results from the demographic controls. Unsurprisingly, several had significant results on voting. Yet the effects of *The Daily Show*'s ratings decline loomed larger than several controls, such as those related to education and ethnicity, that have been more commonly discussed in analyses of the 2016 election.

Our results presented so far are plausible. It would be concerning, however, if the relationship between the ratings declines and vote share persisted after the 2016 election. Such a finding would suggest that the results presented thus far are mostly owed to quirks in the large data sets we are working with, rather than reflective of any meaningful shifts that affected 2016 vote share. In Table 4, we re-estimate our models, but make 2018 Republican Congressional vote share, relative to 2016, our dependent variable. Reassuringly, we detect null results. The ratings decline we study preceded the 2016 election, and the effects of that decline seem restricted to that particular election.

Table 4
Effect of Noah and Wilmore audience changes on 2018 GOP congressional vote, relative to 2016. We include, but omit for clarity, controls for the other Comedy Central shows. At the district level, we control for whether the seat had a Democratic or Republican incumbent, or if it was open, and for the 2016 GOP presidential vote, and the district's percent white residents, percent residents with a college degree or more, and percent of households with an income greater than $100,000.

Noah decline	2.34	2.66 (4.76)		
	(4.84)			
Wilmore decline			2.26	1.61 (4.08)
			(4.23)	
Open seat		1.39 (2.47)		3.12 (2.71)
Rep Incumbent		4.52* (2.30)		5.48** (2.54)
District Trump vote		−.37***		−.44*** (.11)
		(.09)		
District perc white		.02 (.05)		.04 (.06)
District perc BA+		−.22 (.14)		−.28* (.17)
District perc > $100 k		−.11 (.14)		−.05 (.17)
Observations	282	282	249	249
R^2	.03	.16	.02	.15

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

4. Electoral college simulations

To understand the magnitude of the relationship between Stewart's departure and the 2016 election results, we conducted three sets of election simulations, the results of which we describe below. All simulations rely on the multilevel model deployed in the previous section. For each simulation, we bootstrap a new version of the multilevel model presented in the previous section. We then estimate the difference in the GOP vote share for each country, as a function of each covariate in the model. Each covariate is held at its observed level, except for the level of decline in the two Comedy Central shows, whose manipulations make up the key quantity in these simulations. Their manipulation is described below. Each separate county estimates is aggregated to estimate a state presidential election result. These state results are converted into electoral college votes to simulate a national presidential outcome.

If the vote share differences we attribute to *The Daily Show*'s ratings decline had not occurred, would the 2016 presidential election have turned out differently? Our evidence suggests that the answer is yes. In a world in which Trump does not gain 1.1% of the vote share over Romney at the county level, Clinton wins the electoral college in 69% of our simulations. These results should be interpreted cautiously; they do not mean that Stewart, and Stewart alone, paved Donald Trump's path to the White House. They are highly stylized simulations that reduce a complex, dynamic election to one variable. Our research design is not without its deficiencies. We cannot completely account for the differences in candidate and political context between 2012 and 2016 and our identification strategy is not as strong as others (e.g., DellaVigna and Kaplan, 2007). Nonetheless, these simulation results indicate that, had Stewart remained on the air, the election might very well have turned out differently.

5. Potential mechanism: attitudes

We now turn to potential mechanisms that could explain this effect. First, we look at attitudes. Is it the case that, when he went off the air, Stewart caused his viewers to express more openly conservative policy attitudes? To answer, we model responses to a variety of 2016 questions from the Cooperative Congressional Election Study (CCES) on ratings declines for both *The Daily Show* and the Colbert-Wilmore hand-off.

We focused on CCES questions on controversial issues, relating to abortion, gun control, environmental regulations and criminal justice reform. Fig. 3 shows the effects of the *decline* in the Stewart-Noah
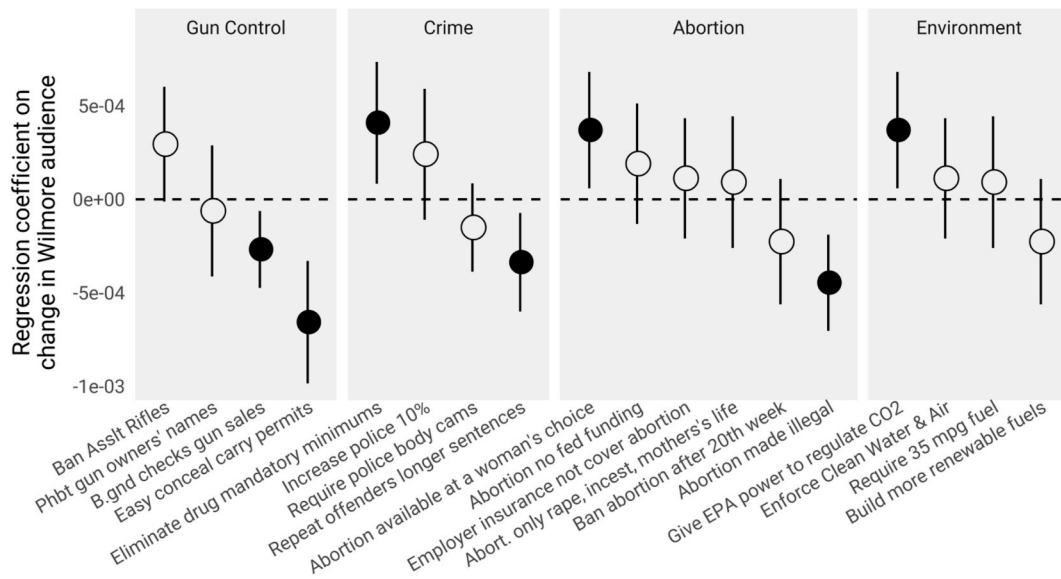
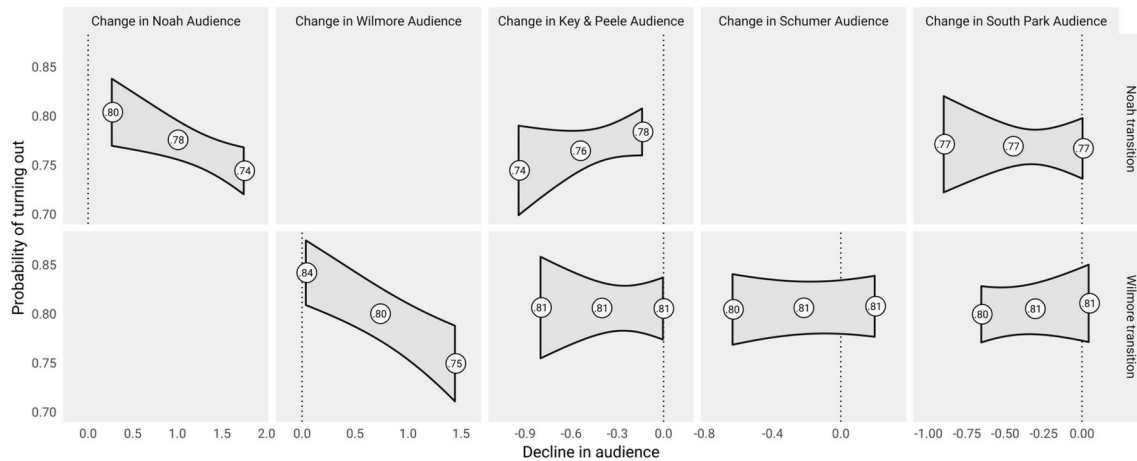**Fig. 3.** Effects on political attitude and life events.

Fig. 4. Relationship between Comedy Central audience change and turnout in the 2016 presidential election. Comparisons of changes in the size of Comedy Central shows during the transition of the Stewart-Noah are printed in the top row, and the same comparisons for changes during the Wilmore transition are printed in the bottom row. Each facet panel shows the relationship between the decline in a Comedy Central audience and the probability of a respondent voting, while holding all other shows' audience at their means. Predicted probabilities taken from the logit regression models described in table 1 in the appendix.

audience. Each column facet shows the effect on atti-tudes in a different class of political contests–gun control in first facet, followed by crime, abortion, and protection of the environment. The last facet offers a plausibility test on the results, by measuring the effect of changes in the Noah audience on non-attitudinal measures. If it was the case that we were simply estimating ephiphenomenal changes in the Comedy Central audience as a result of social or economic changes, we would see comparably large effects for life events as political attitudes (since the Comedy Central independent variable would simply be mediating these confounding effects.)

The effects of both shows' rating declines on political attitudes and life events. Significant results in black bullet points; non-significant results in white.

While some of the attitudinal effects are statistically significant, the effect sizes are vanishingly small. In addition, some of the effects we do observe indicate that the ratings decline may have been associated with an increase in *liberal* attitudes. This suggests that Stewart's effects on the

2016 election outcome did not run through his ability to directly sway policy attitudes.

6. Potential mechanism: mobilization

Next, we study another possible mechanism: Changes in voter turnout associated with Comedy Central shows. Was Stewart more effective than his replacement at turning Democratic voters out? To answer, we again exploit the 2016 Cooperative Congressional Election Study (CCES), and measure the effect of changes in the Noah and Wilmore audiences (relative to the Stewart and Colbert audiences, respectively), on the probability that a CCES respondent voted. The CCES data allow us to measure the effect of these shows' changes in audience, while controlling for contemporaneous changes in other Comedy Central shows. Fig. 4 reports these effects (these regression effects are taken from two logit models reported in the appendix.) Each facet row shows the predicted probability of a respondent voting in the

presidential election while moving each show's change in audience from its 5th to 95th percentile (exploiting geographic variation in the change in the shows' ratings).[3]

The predicted probabilities in Fig. 4 make two points plain. First, we observe that Noah and Wilmore were the only Comedy Central shows that had large audience declines over this period.[4] (By comparing the relative location of the vertical line, we see that only Wilmore and Noah have their curves entirely to the right hand side of the vertical.) Second, we see that a strong negative relationship is apparent for only the Wilmore and Noah shifts. Consistent with our findings from county-level Republican vote share data, there is no relationship between fluctuations in the *South Park*, Inside Amy Schumer, or *Key & Peele* audiences. This is strong evidence that the relationship we report above is not a function of the vicissitudes of Americans' TV appetites, since we only observe this relationship between ratings and turnout for the two specific shows whose format was expressly political.

Worth noting is that both the Stewart and the Colbert ratings declines were negatively associated with voter turnout. Yet as we show above, only the former appears to have affected actual Republican vote share. In other words, both shows' ratings declines affected voter turnout, but only *The Daily Show*'s proved pivotal for electoral outcomes. We cannot know for sure why this is, but one possible explanation lies with the shows themselves. While *The Daily Show* was unflappably sincere in its political and partisans commitments, *The Colbert Report* was entirely satirical. Decoding the humor and parsing out the political content of the latter likely required a great deal more political sophistication than the former. Not watching *The Colbert Report* may have depressed one's interest in politics generally; but not watching *The Daily Show* may have depressed one's interest in supporting the Democratic Party, and opposing the Republican Party, specifically.

7. Conclusion

In this paper, we leverage transitions at two of Comedy Central's flagship shows, *The Daily Show* and *The Colbert Report*, as well as attendant ratings declines, to isolate the effects of these shows on the 2016 election. We find that the transition in hosts at *The Daily Show*, and the subsequent ratings decline, had a positive effect on Donald Trump's 2016 vote share. We do not find that the replacement of Colbert with Wilmore had similar effects on vote share, nor do we find that ratings of other Comedy Central shows affected vote share. The null results on other shows suggest that the effects from *The Daily Show* cannot be explained away by broader trends in cable and Comedy Central. While both shows' ratings declines affected voter turnout, the end of *The Colbert Report* did not influence vote share in the way that *The Daily Show* did.

Our study design is not without its weaknesses. First and foremost, this is not a randomized experiment, nor do we have, a la DellaVigna and Kaplan (2007), an identification strategy that approaches as-if randomization. While we do rely on a standard econometric tool to make causal inferences, our findings are nonetheless weaker—and should be treated more cautiously—than the aforementioned study or

an ideal randomized field experiment would be. Relatedly, although our modeling strategy attempts to account for traditional factors that inform electoral outcomes, ultimately we are unable to solve a challenges that confronts all investigations of between-election change: Differences in candidates and political contexts across years. Such differences matter. A different set of nominees might have produced results. For that matter, our results would probably look very different had Comedy Central found more popular replacements for Stewart and Colbert.

Ultimately, our results should not be as surprising as they might first seem. Indeed, they echo some of the extant literature in media effects and social psychology. Baum (2005) shows that, when presidential candidates appear on televised comedy shows, they are able to have an unusual impact on otherwise disengaged voters. Parkin (2010) reports similar findings. In such informal environments, less engaged voters are likely to view candidates from the opposite party more favorably. More fundamentally, in line with Baum's (2002) logic, when Stewart and Colbert hosted and the shows were very popular, viewers were willing to absorb the small costs associated with political information in order to be entertained.

Indeed, contemporary surveys of Daily Show viewers made clear that most people watched primarily to be entertained (Pew Research Center, 2010). Distractions such as those provided by humor can people more receptive to political information that they might otherwise counter-argue. Consequently, at the height of their popularity, Colbert and Stewart may have been able to shape partisan allegiances to a surprising extent. However, as previous studies have shown, the viewers Stewart and Colbert most affected were otherwise politically disengaged and uninformed. As Zaller (2004) demonstrates, such voters are precisely the most likely voters to shift partisan allegiances between presidential elections. When the shows' ratings declined and those viewers went elsewhere, their politics likely changed as a result.

What, then, would follow? In an age of ideological self-segregation, mere exposure to co-partisan media sources can mobilize voters (Dilliplane, 2011). If they were not being exposed to Stewart and Colbert, otherwise disengaged voters who shared his partisan attachments may have been more likely to stay home on election. Such viewers are akin to those who, when a quirk of an election deprives them of access to one candidate's messaging, are more likely to be persuaded by his opponent's messaging (Huber and Arceneaux 2007). Crucially, our investigation of CCES data suggests that the political implications of the ratings declines are likely tied up in mobilization.

Stewart was a popular liberal commentator, often but not always friendly to Democratic politicians. His views were shared with millions night after night. The effects of his departure, and the comparative unpopularity of his replacement, might not have been enormous, but they were in the direction one would have anticipated in advance. In an election decided by the narrowest of margins, it mattered. Of course, so too did many other factors; we have only attempted to estimate one.

When asked to describe his audience, Stewart famously replied that "A lot of them are probably high" (Cosgrover-Mather, 2004). And when asked to describe his importance, he said: "On a scale of zero to 10, I'd go with a zero, not very important" (Cooper and Bailey, 2008). Yet as is well-known, many viewers counted *The Daily Show* as a primary news source during Stewart's tenure (Pew, 2004). When they turned on Jon Stewart, television viewers encountered Democratic politicians behaving informally, interviewed by a genial host whose political views generally favored the Democratic Party. Stoned or not, viewers' political behavior was likely affected by Stewart's departure, with considerable consequences.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.electstud.2019.03.007.

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[3] These predicted probabilities also control for a respondent's partisanship, age, income, race, and state of residence. These probabilities reflect the changes in Comedy Central audiences for a 32 year old white male resident of California, who is a political independent, with an income of $58,000. This demographic profile reflects the modal or mean value of every categorical or continuous control (respectively).

[4] To make these comparisons between the shows, declines are measured as follows. To compare the changes during the Stewart-Noah transition, we estimate the decline in the Noah audience as a percentage of the Stewart audience, for each DMA x state intersection. We then measure the *contemporaneous* change in the other *Comedy Central* shows during this same period. This process is then performed again for the Colbert-Wilmore transition.

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