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Improving Media Measurement: Evidence From the Field

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In light of a recent exchange between Prior (2013a) and Dilliplane, Goldman, and Mutz (2013), we evaluate the new American National Election Study program-count measures of news exposure using a unique dataset that tracks self-reports as well as actual exposure to news collected via passive tracking devices. We bring these data to bear on concerns raised by Prior (2013a) about the construct and convergent validity of the new ANES measures. Our results add nuance to previous findings showing respondents' propensity to overreport exposure to news, and also demonstrate that on average, self-reported measures reflect relative *levels of exposure quite well. Additionally, we show that the more unique news programs a person watches, the more* total *time he or she is exposed to political news. Very few people watch only one program but watch it repeatedly. The data also reveal an increase in the number of programs watched leading up to election day, and a concomitant increase in the amount of time* per capita *spent with political news as elections approach. We conclude, however, that the program–count measure is not without its weaknesses. Shortening the list of programs affects construct validity by introducing noise into the low end of the scale. Expanding the list of programs in the survey to include local news and special reports will improve fidelity at the low end of this new measure.*

Keywords Media, ANES, Prior, Mutz

There is little doubt that people's self-reports of exposure to media are imperfect (Ansolabehere & Iyengar, 1998; Bartels, 1993; Chaffee & Schleuder, 1986; Fiske & Lazarsfeld, 1945; Lazarsfeld, Berelson, & Gaudet, 1944; Price & Zaller, 1993; Prior, 2009a, 2009b, 2013b; Vavreck, 2007). Despite decades of awareness and dissatisfaction dating back to the first panel study of elections (Lazarsfeld et al., 1944), survey researchers—because of limited budgets—have been constrained in their ability to remedy this disconnect. The use of data from set-top boxes and the tracking of media exposure via passive devices are costly measurement tools that academics engaged in large-scale surveys are far from being able to afford, especially given the current funding climate in the U.S. Congress. For the near future, survey measures of media use are bound to rely on self-reports that require corrections. These limitations, however, should not stop researchers from improving upon existing measures of media use—especially as changes in the media

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environment increase the sheer volume of news and the number of platforms on which people consume news. Survey measures, imperfect as they are, must keep up with the times.

For many years, the American National Election Study (ANES) has relied on questions about the frequency of news watching to chart respondents' exposure to political information, along with questions about a person's interest in news about the campaign across different mediums (television, radio, magazines, and newspapers). Over the last decade, however, the media environment has expanded beyond these outlets. Asking questions about TV, radio, magazines, and newspapers no longer captures the many ways people consume news. More importantly, existing ANES measures of television news viewing provide no way for researchers to track the *content* of the news, which has become of increasing interest to political communication researchers.

In 2012, the ANES principal investigators formed a committee to evaluate the media, participation, and campaign items that have traditionally been fielded by the project. The full ANES board deliberated the committee's recommendations, which resulted in the fielding of a new battery of news exposure measures alongside the traditional items.[1] The new items are aimed at tapping into not just the amount of news respondents consume but also the *content* of that news. They also account for time-shifted and cross-platform viewing. The items were originally fielded on the National Annenberg Election Study (NAES) in 2008. Dilliplane, Goldman, and Mutz (2013) document the reliability and validity of the measures, demonstrating among other things that changes in the media measures predict subsequent changes in elements such as political interest and knowledge.

Before the public release of the 2012 ANES data, Prior (2013a) questioned the validity of the new measures, writing, "It is doubtful that respondents who report high news or campaign exposure actually were exposed to more news or campaign content than respondents who report less exposure" (pp. 620–621), and warning future users of the ANES off of the news measures. This concern can be broken into two separate problems. The first is about the self-reported nature of the measure and rests on the belief that overreports of exposure render such measures useless. The lack of connection to real exposure is taken to mean no signal about relative levels of news viewing can be extracted from a measure relying on self-reports. The second problem is conceptual and questions the fundamental relationship between the number of news programs a person watches in a month and the total amount of time a person is exposed to news content. Prior (2013a) writes that the new ANES measure, which counts the number of programs a person watches in a typical month, similarly scores a person who watches one program every night it is on and a person who watches that show only once.

Prior's ultimate solution to these problems is to abandon survey measures of media use and replace them with a passive mode of data collection such as those used by some current audience tracking companies. How much better than self-reports would data from a tracking device be at measuring the *relative* levels of respondents' news consumption? Obviously the problem of overreporting would disappear, but if overreports shift everyone's news consumption by roughly the same amount—like a clock that is always 10 minutes fast—then as predictors of political behavior, self-reports might function as well as actual observations of exposure. It is possible that despite the overreporting, on average, those who watch a lot of news are still ranked higher on the self-reported measure than those who watch little news.[2] What is known about the claim that it is doubtful that people who report high news exposure actually are exposed to more news than those who report low exposure? Or about the relationship between the number of news shows a person watches and his or her total news consumption? In order to assess these questions, we need data on

self-reported exposure to news *and* simultaneous tracking data on the same people's actual exposure to news. Such data are rare, but we are in a position of having just such a dataset.

To investigate and better understand these relationships, we use a unique dataset that contains self-reported survey measures of news exposure and passive tracking of media exposure collected by a San Mateo, CA, startup called Integrated Media Measurement Incorporated (IMMI).[3] In 2006, IMMI hired survey research firm YouGov, Inc., to impanel several thousand people from five major media markets around the country. The samples were constructed via probability methods using list-based sampling techniques (with replacement) and were drawn to be representative at the media market level.[4] Initial contact was made via a phone call containing a very short profile survey and the invitation to enroll in the panel.[5] IMMI offered panelists a Web-enabled smart phone and paid the monthly charge, and in exchange, panelists agreed to make the phone their primary mobile device. The IMMI phones sampled 10 seconds of every 30 seconds of ambient room noise *for each panelist on every day* using software developed by its programmers—and of course, panelists agreed to this upon enrollment. The sounds were encoded, not recorded, and simultaneously IMMI was encoding all of the media on every television and radio station in the panelists' markets.[6] The data from the phones were matched to the universe of media in the market, allowing IMMI to generate a daily profile of every panelist's media consumption.[7] Overall, 89% of panelists were in compliance, on average, each day.[8] The data we use include every respondent's full set of media exposure moments from every day between August 15 and November 7.

We use these passive tracking data joined with respondent's profile survey data to corroborate previous findings demonstrating the noise associated with self-reports of news exposure (Prior, 2009a, 2009b, 2013b) and the prevalence of overreporting at the high end of the consumption scale (Vavreck, 2007). But we also show that self-reports on average reflect the relative levels of news exposure with some fidelity. Further, we illustrate the impressive relationship between the number of news shows a person regularly watches (the form of the new ANES questions) and the total number of minutes a person is exposed to news. The tracking data confirm that the fundamental idea behind the new ANES measures is sound. There is, however, a considerable amount of noise in this relationship at the low end of news consumption when the list of news shows is limited (as it was by the ANES in 2012). The tracking data on actual exposure lead us to suggest a number of ways the ANES measures could be improved to address some of the concerns raised by Prior (2013a).

Construct Validity

We begin with a very basic demonstration, using the IMMI tracking data, of the problems associated with self-reports that Prior (2013a) and Dilliplane et al. (2013) both describe. Figure 1 uses data from the passive tracking that IMMI did and also from a self-reported media exposure question asked in the company's profile survey fielded to panelists in May of 2006 (the question asks, "How much time do you spend watching TV news in a typical day?" Answer choices include never, fewer than 2 hours, between 2 and 4 hours, or more than 4 hours). The actual number of hours the panelist spent watching daily news is represented on the vertical axis.[9] The panelist's self-report of news consumption is on the horizontal axis. Accurate self-reports are indicated using a solid, square plotting symbol. These unique data reveal that most people either accurately report or underreport their exposure to news when asked for a self-report. Most of the accurate reporting comes from people who consume some news, but fewer than 2 hours of news a day (42% of the sample). Underreporting mainly occurs for panelists who say they never watch the news, but

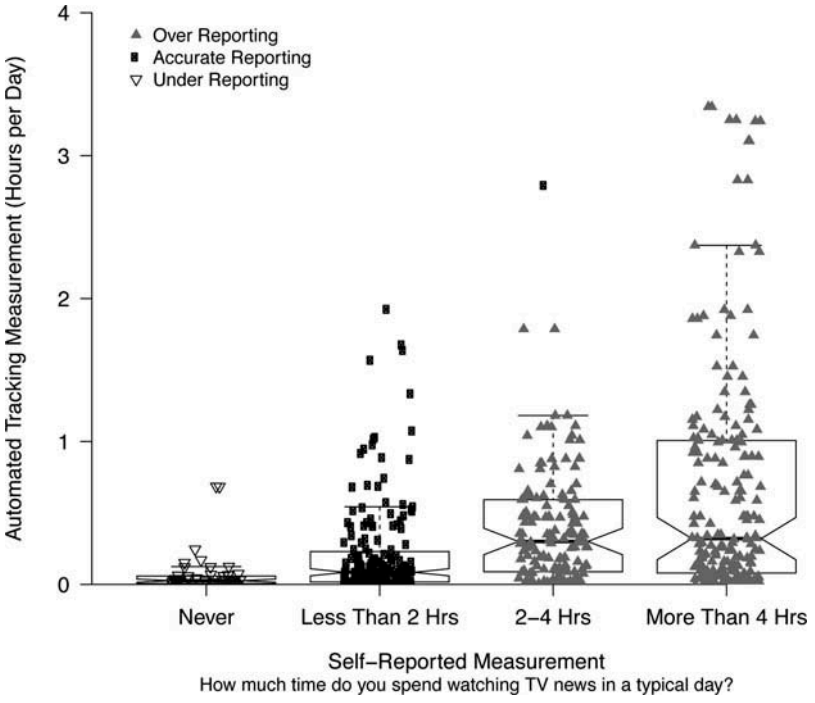

Figure 1. Self-reports versus actual news consumption. Self-reported news exposure from the IMMI panelist survey vs. average daily exposure captured by the IMMI passive tracking device. The panel survey asks, "How much time do you spend watching TV news in a typical day?" Answer choices include never, fewer than 2 hours, between 2 and 4 hours, or more than 4 hours. Data are for 920 IMMI panelists over the period from August 15 to November 7, 2006. The figure presents the median and interquartile range within the self-reported outcome.

who are actually exposed to some news during the day (13%). Forty percent of respondents overestimate the amount of news to which they are exposed during a typical day (the upward pointing triangular symbols in Figure 1). In some cases, the overreports are quite large—for example, not a single person who reported watching more than 4 hours of news on a typical day was actually exposed to more than 4 hours of programming on average. In fact, the median exposure level among those who reported "more than 4 hours" was just under 30 minutes.[10]

As both Prior (2013a) and Dilliplane et al. (2013) admit, self-reports are likely to be overreports.[11] But, on average, increases in this self-reported measure reflect increases in the actual amount of news to which respondents were exposed—the relationship between actual news consumption and self-reports of exposure to news is *not* flat. A person who reports high news exposure *is* more likely to have been exposed to more actual news content than a person who reports low news exposure, although it is likely that both are off in their reports of the hours they spent exposed to the news. Not everyone overreports exposure to news; in fact with our four outcome categories, slightly more than half of respondents do not (and some people underreport it), and despite the noise associated with the upper levels of self-reporting, there is a positive relationship between self-reports of news exposure and actual consumption—they are correlated in these data at .37.

The New ANES Program Count and the Total Amount of News

Instead of asking respondents to guess how many hours or days a week they spend watching the news (the current ANES question asks people "How many days in the past week did you watch the national network news on TV?"), the new ANES measures, and the original NAES items upon which they are based, ask respondents about the programs they watch "regularly" (defined as at least once a month). Several other national election surveys (the British National Election Study and the European Election Study, for example) have moved to this type of measure, which allows users of the data to track not only the amount of exposure respondents have to news but also its *content.* The program list is only shown to those respondents who report they have heard something about the presidential campaign from television sources. The items are administered (in the 2012 ANES, for example) by showing computer screens of 16 programs at three separate times during the survey so respondents can click on the programs they regularly watch.[12] Dilliplane et al. (2013) argue that these measures have high true score reliability, that they have high inter-person reliability over time, and that they correspond nicely to the top shows as ranked by the Nielsen Company. Prior (2013a) argues that the measure lacks conceptual clarity because it similarly scores a respondent who watches two programs only once a month and a respondent who watches the same two programs every night of the month.

We begin by showing the relationship of the new ANES program list measure to the old frequency of national evening news measure. Figure 2 shows the close relationship between the old and new measures.[13] People's estimate of the number of days in a typical week on

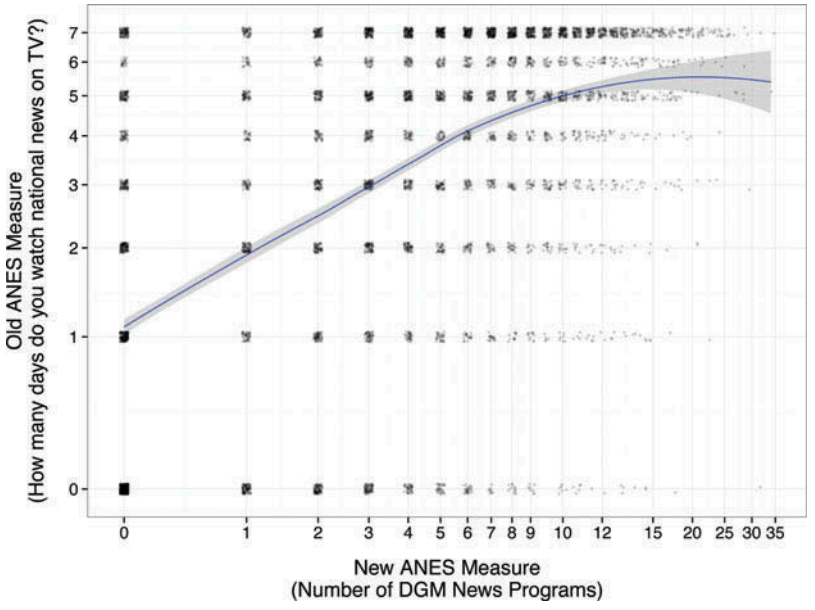

Figure 2. New ANES program count measure and old ANES frequency measure, 2012. Data are from the first release of the face-to-face and self-complete versions of the 2012 ANES (July 2013). The in-person sample consists of 2,056 cases and the self-administered sample consists of 3,860 cases. ANES weights for the combined sample were applied. In the interviewer-assisted sample, respondents completed the program-list questions on a computer tablet that the interviewer handed them.

which they watch the national evening news on TV tracks closely with their assessments of their regular monthly viewing of the programs on the ANES program list.[14]

Although we cannot plot this new ANES measure against actual hours exposed to news as we did for the frequency measure (because IMMI did not ask the program-list questions on its profile survey), the fact that the two self-reports show a strong relation to one another gives some confidence that increasing values of this new measure would also reflect increasing hours of actual news viewing. We use the IMMI data to illustrate directly this relationship between number of news programs and time spent watching news. The relationship is presented using data on real behavior, not survey responses about news consumption; thus, these data show the underlying relationship between the number of shows and the amount of news a person *actually* consumes. Whether we can accurately extract this relationship from self-reports is a different question, but a lack of relationship in the behavioral data would be problematic at this point. In terms of real behavior, do people who watch more news programs, on average, watch more news overall? Or is the number of programs unrelated to the total amount of news consumed, as Prior (2013a) has suggested?

The data in Figure 3 are clear on this point whether we plot the relationship for all news programs (top row, right panel) or only the shows used by Dilliplane et al. (2013) (hereafter DGM) in their 2008 validation exercise (top row, left panel). The data show a strong positive relationship between the number of unique shows people watch and the total amount of news people consume, on average.[15] The number of shows people watch is strongly related to the total news they consume.

There are, however, differences between the right and left panels of Figure 3 in the top row that are worth considering. The relationship for the small set of 49 shows (top left panel) used by the NAES in 2008 has more dispersion than the relationship for the 188 shows in the complete set. Why is this the case, and what does it tell us about the underlying relationship between show counts and minutes of news exposure? Consider the point in the top row, left panel, that indicates a panelist watched a single DGM program but was exposed to roughly 7 hours of total DGM news programming. This point, clearly an outlier among those who score a one on the count measure, represents exactly the situation that Prior (2013a) is worried about: a person who watched one program from the list but watched it more than once—in fact, probably seven times, or for a total of about 7 hours. This person is classified as not very interested in news on the count measure, but in reality, he or she is consuming about the same amount of news as others scoring high on the count measure. The data in the right panel of the top row make clear that this person is misclassified by the count measure. Notice that when we plot show counts and hours for *all* news shows (the right panel), the person who watches one program for 7 hours gets reclassified as someone who watches roughly five total news shows a month. How worried should users be about such misclassifications?

Left-Out Shows

To answer this question, we plot the count of DGM measures from 2008 against total news hours (second row) in Figure 3. *This* is the relationship that the self-reported count measure is intended to capture. Note the increased level of dispersion at the low end of the count scale relative to the plot above it of DGM counts and DGM hours. This is particularly noticeable in comparing the set of people who watch no DGM programs. Now that we are plotting this count against all news consumption, we see that there are people scoring a zero on program count who are consuming more than 10 hours of news a month. This exposure

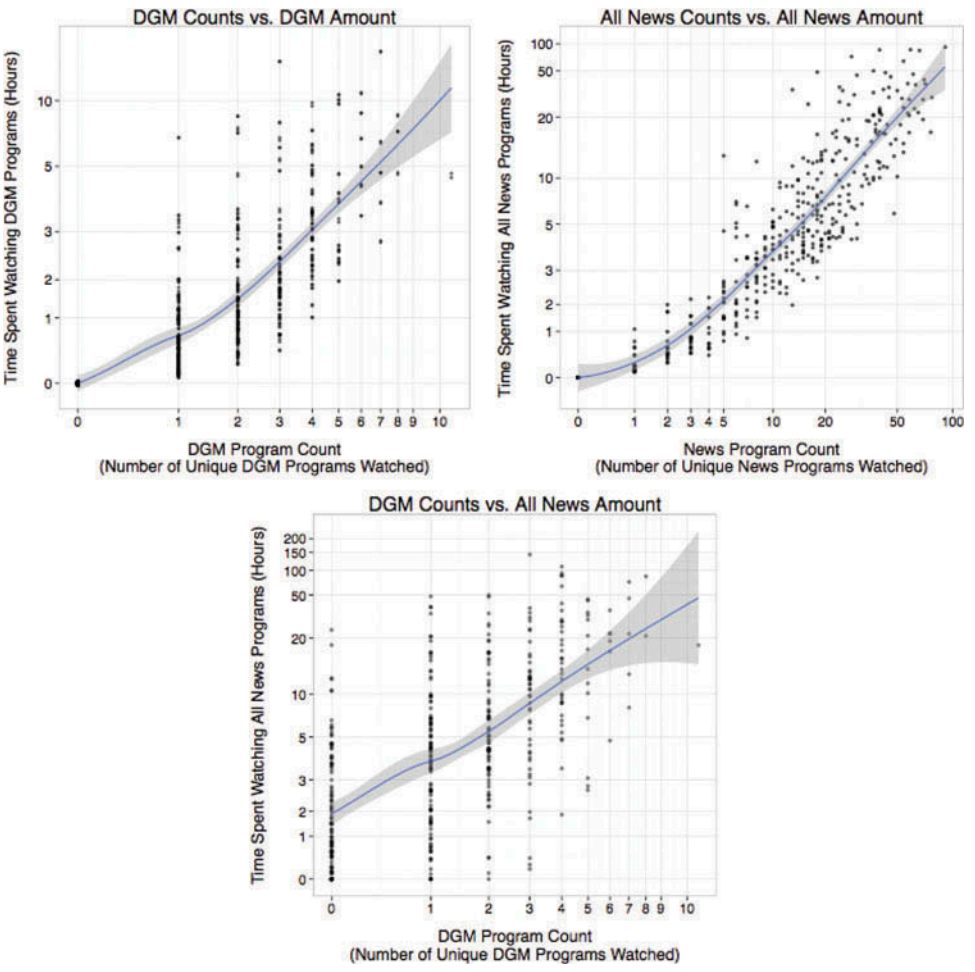

Figure 3. Number of news programs vs. time spent watching news programs. All panels compare the number of news programs people actually watched in 3 months to the number of hours they were actually exposed to news in the same time period. The lines are loess (locally weighted scatterplot smoothing) estimates displaying the trends of the data. The gray shading is a 95% confidence interval. Data are 920 IMMI panelists over the period of August 15 to November 7, 2006. We selected the universe of news programs based on programs that the 2006 TV Guide categorized as "General News" or "Politics." Table 1, available online, shows the list of 188 unique television programs included in our analysis.

is coming from news shows that are not in the DGM (or ANES) counts. The relationship between counts and hours is tight—this is visible in the right panel in the top row, but by limiting the number of shows in the count, noise is introduced, particularly at the low end of the scale.

This noise can be eliminated by increasing the number or kinds of shows about which people are asked. The 49-show limitation essentially eliminates many of the ways people watch "a little bit" of news—local news, news specials (like election night returns), or the occasional viewing of a special report—and thus lumps at zero, for example, people who watch only these types of programs with people who regularly watch shows that are not on

the existing list. Sorting out the low end of the scale could improve precision. Since local news is the primary source of news for most people (Fowler, Goldstein, Hale, & Kaplan, 2007; Gilliam & Iyengar, 2000; Hale, Fowler, & Goldstein, 2007) and is also watched by people who typically avoid national news (LaCour, 2013), including it as a category in the program list could help to sort out local news viewers from regular consumers of non-listed cable programs. Similarly, people typically only watch news specials such as PBS's "Invasion Iraq" one time (an actual datapoint from a panelist watching only one news program), but these specials may attract viewers who are generally less interested in daily news as well as those who are regular viewers. Including special reports would separate out those truly occasional viewers from more regular viewers who also watch specials. As can be seen from the panels in Figure 3 much of the noise at zero is coming from missing programs.[16]

Repeated Viewing

The noise at zero is easily understood by thinking about which programs are missing, but the same may not be true of the noise associated with one or two programs. Returning to Figure 3, what can be learned about the people who score a one on the DGM count but are watching a considerable amount of news? It is possible, as Prior (2013a) argues, that these are people who watch the same listed show *repeatedly* during the month (in the absence of also watching other news programming on the list). Using the IMMI data, it is easy to calculate for how many people this is happening at the low end of the DGM scale.

Among people who score a one on the count measure, 64% watch that program *only* once over the 11 weeks we track them. Fifteen percent watch the show twice in nearly 3 months, and 9% watch it three times. Less than 3% of the people who score a one on the count measure watch that one show more than once a week—and by far, most people watch it only once in a month. Thus, most of the people in the bottom panel in Figure 3 who score at the low end of the scale but watch multiple hours of TV news are racking up hours of news by being exposed to programs *left off the program list,* not by watching the same program over and over again. Very few people watch *only* one news show, but watch it every night of the week for an entire month. *People who watch news shows repeatedly also watch a lot of news shows.* This is easy to see by comparing the lower panel of Figure 3 with the upper right panel—all of the people who are high on hours but low on DGM count (lower panel) get redistributed in the top right panel such that they become high on the program count and hours when we allow the count to track all possible programming.[17]

Convergent Validity

Prior (2013a) also brings into focus the convergent validity of the list measures, arguing that they fail to demonstrate an increase in exposure to news as the election draws near. Prior (2013a) argues that one of the clearest features of presidential campaigns is that more people tune in late in the campaign—and that the list measure fails to demonstrate this simple pattern, with its convergent validity thus being questionable. But how late is late in the campaign? The measures adopted by the ANES, which Dilliplane et al. (2013) analyze from 2008, ask people about their news consumption over the last *month.* If the increase in news viewership before elections is limited to the days right around election day, the monthly measure may not be granular enough to pick up the increased exposure when averaged over a month or a quarter of data collection. In fact, speaking about the NAES 2008 measures, Prior (2013a) writes that in order to find any increase in exposure to the

Fox News Channel in advance of the election, "One has to look at weekly averages to find greater exposure around Election Day than at other times of the year. The highest weekly value occurs in the week of November 11th" (p. 627). This suggests the possibility that increasing attention to news in advance of an election occurs in close proximity to the election itself. Indeed, this is demonstrated by Figure 1 in Goldman Mutz, and Dilliplane (2013), which presents averages for the number of shows watched (in the last month) by week of interview.

We use the IMMI tracking data to corroborate once again the strong relationship between the number of news shows people watch and the amount of news they consume *per capita* in the lead up to an election. Goldman, Mutz and Dilliplane (2013) show that the average number of news shows people watch goes up, on average, as the 2008 election draws near (if the data are examined week by week). Prior (2013a) demonstrates that the monthly average of the number of people tuning in to at least 6 minutes of the Fox News Channel goes up as the 2008 election draws near. Our data show that the amount of time panelists spend watching news *per capita* increases as the 2006 elections approach (see Figure 4) and that the share of people watching 6 minutes, and even longer segments of news (15 and 30 minutes), goes up as well (see Figure 5).

On average, people are watching 10 more minutes of political news on election day in 2006 than on any other day since October, and 20 minutes more than any day since August. Granted, fewer people become interested in midterm elections relative to presidential elections, but still the data show an increase in news consumption near the election, both during the week and on the weekends. In general, weekend television viewing rates are lower than weekday rates, as can be seen in the top and bottom panels of Figure 4. Figure 5 shows that the portion of people watching even small amounts of news more than doubles in the month before the election.

Most of the increase in exposure to news, however, happens within 3 weeks to a month of the election, as can be seen in the NAES data from 2008 (in Dilliplane et al., 2013) and

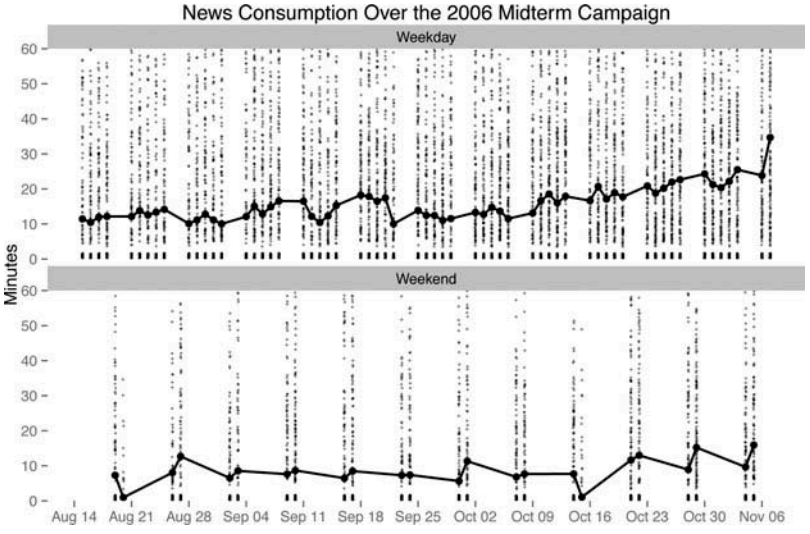

Figure 4. Increasing news consumption as election approaches. Points represent panelists' total time spent consuming news per day. The line represents mean news consumption from August 14, 2006, to November 7, 2006 (election day). Data are from 920 IMMI panelists.

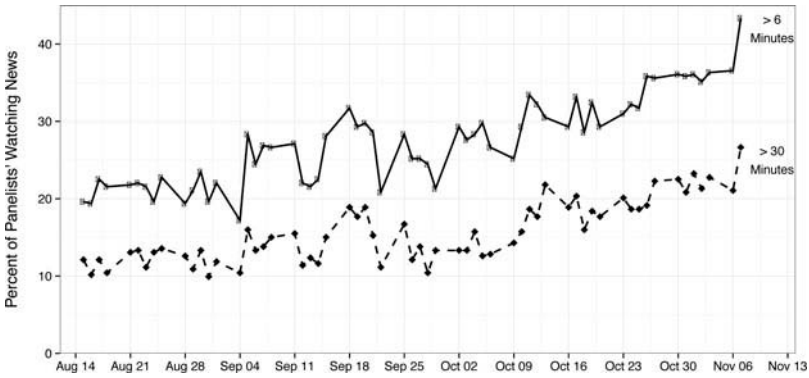

Figure 5. News consumption per capita as election approaches. Shown is the percentage of panelists watching at least 6 minutes and 30 minutes of news programming from August 14, 2006, to November 7, 2006 (election day). Data are from 920 IMMI panelists.

here in 2006.[18] Thus, survey respondents asked about the past month's viewing habits on October 1 are likely to check fewer shows than respondents asked about the last month's viewing on November 7. Prior (2013a) was right to claim that the number of news shows and the number of people watching news shows should clearly increase in the lead up to election day. Multiple sources of data now demonstrate this pattern.[19]

Conclusion

Our evaluation of the program-count measure using passive tracking data demonstrates both the construct and convergent validity of the measure. On average, people who watch increasing numbers of news shows regularly are exposed to more news programming overall. Further, the measure shows an increase in the number of news programs a person watches leading up to election day, and a concomitant increase in the amount of time *per capita* spent with political news. Whether we look on average across a single time period or at changes in the number of programs over time, the same relationship holds: The more news shows a person watches, on average, the more total time he or she is exposed to political news. The theoretical construct motivating the list technique is well-grounded in reality. Of course, the standard disclaimers about overreports in survey measures of exposure apply, but these tracking data reveal that less than half of the people in these two markets overreported average news viewing and that even the noisy survey measures of those who did overreport were correlated with actual news consumption on average (at .37).

Shortening the list of programs as the ANES and NAES have done appears to affect the construct validity of the measure specifically by introducing noise into the low end of the count scale. Our data suggest that including local news viewership and news specials like those that most people watch on election night will help sort out people who watch one news program somewhat regularly from those who watch only occasional local news or news specials. This separation will help to reduce the noise at the low end of the scale. To save survey time and still allow respondents to count all news programming to which they are exposed, perhaps future surveys that use these measures can show respondents the program grid as it appears on nearly all digital video recorders now and make the programs clickable. This would not only save time, but improve the measure's construct validity as Prior (2013a) suggests.

Finally, if the choice is between two self-reported measures of media exposure, such as the old ANES frequency items and the newer list-based measure (correlated at nearly .8 in the 2012 ANES), we believe the choice is obvious. Even though it may take longer to field and thus increase the cost of measuring these concepts, the list-based method offers a tremendous opportunity to merge media content data to measures of exposure. Without measures of content, frequency is of reduced value. For questions about agenda-setting, learning, priming, persuasion, or selective exposure, researchers can do much more with measures of the media content people expose themselves to relative to measures of frequency, even if such measures are self-reports.

Supplemental Material

Supplemental data for this article (Table 1: Television News Programs Included in Analysis) can be accessed on the publisher's website at: http://dx.doi.org/10.1080/10584609.2014.921258.

Notes

1. The principal investigators of the 2012 project were Vince Hutchings, Simon Jackman, and Gary Segura. The committee evaluating the existing media, participation, and campaign items consisted of Matt Barreto, Sunshine Hillygus, Diana Mutz, and Lynn Vavreck, who served as the committee's chair.

2. This ignores the possibility of correlated errors with dependent variables (see Vavreck 2007), but this problem is not part of the critique in question.

3. The company's technology was subsequently purchased by Arbitron in 2009. These data were obtained through a consulting agreement between IMMI and Lynn Vavreck in 2006.

4. YouGov started with a list of consumers in each market obtained from a commercially available file. Panelists were randomly selected and were replaced with the nearest matching consumer on the list if need be.

5. Nearly 20% of the sample completed the initial profile survey. Actual enrollment in the panel, which was done via a second phone call, was roughly half (10%).

6. To ease concerns about the way media viewership or the media landscape has changed since 2006, we note that the IMMI method accounts for time-shifting viewing and can code content viewed or heard online as well.

7. For more on the IMMI method and validation of its measurement techniques, see Jackman, LaCour, Lewis, and Vavreck, (2012) and LaCour (2013). We use IMMI data from the weeks leading up to the 2006 midterm elections in the New York and Chicago media markets, which both had a competitive Senate election and several house elections in 2006. A replication dataset for the figures drawn here is available upon request.

8. To convey a sense of the fidelity of the IMMI measures, the IMMI panelists in these data watched an average of 28.4 hours of television per week, compared with the Nielsen 2006 national estimates of 31 hours of television per week. Similarly, in terms of radio exposure the IMMI panelists averaged 18.8 hours of radio a week compared with Nielsen 2006 national estimates of 19 hours of radio per week. More rigorous tests of the accuracy of these data are reported in Jackman et al. (2012).

9. We selected the universe of news programs based on programs that the 2006 TV Guide categorized as "General News" or "Politics." The table in the Appendix (available online) shows the list of 188 unique television programs included in our analysis.

10. This pattern is consistent with previous illustrations of overreporting (Vavreck, 2007) showing that people with higher levels of interest and participation exaggerate their exposure to political media more than those with lower levels of political interest and participation.

11. Dilliplane et al. (2013) question the validation exercises previously performed on the IMMI tracking data (Jackman et al., 2012; LaCour, 2013), saying that no analyses were done to evaluate the extent to which exposure was underestimated or overestimated by the tracking software. Jackman et al. (2012) investigated instances of suspected technology overreporting when they noticed the software registering hits for political ads that were not aired during the time people allegedly saw them (the master set of media showed the ads were not on the air at these times). Upon further investigation, they discovered that the campaign ads were being played on Sunday morning political talk shows that the panelists were watching—and the tracking software, appropriately, counted that media as an ad viewing.

12. In the ANES administration in 2012, respondents of Hispanic ethnicity were shown an additional set of 16 programs aimed at Hispanic audiences. These shows were mixed in with the regular programs.

13. They are correlated in the 2012 ANES at .76 regardless of mode of interview.

14. It is worth pointing out at this point that the program-list measure, the old ANES days-per-week measure, and the IMMI hours-per-day measure are all tapping slightly different concepts, albeit all about news exposure. The list method requires that respondents count individual programs they watch, while the other measures ask people to track the number of days or hours they do something. Given that all of the measures are memory recall measures about news programming, it is unlikely that the differences in question wording render the items incomparable. In fact, the high levels of correlation across the measures we are able to compare suggest that each item does about as well as the other in measuring actual exposure, which is another reason that the list method may be preferable as it also provides the opportunity to measure content as well as frequency.

15. Because the exposure data are substantially skewed, in this graph and the ones that follow, we transform the data for ease of visualization by taking the natural logs of exposure (we add one unit to every case to avoid having to take the log of zero). Essentially, we are "zooming in" on the part of the graph where most of the cases are found—the lower left corner—and "zooming out" on the high end of the scale. Units on the graph represent actual hours of exposure or number of programs, untransformed.

16. Including more shows comes at a price, but it seems a good deal of leverage can be gained by the inclusion of local news, perhaps at the expense of one of the more nuanced cable programs, thus keeping the change cost-neutral.

17. Of course, if one is interested in the marginal results on frequency of viewing a particular show in a week or month, the list measure cannot deliver those. But these data show that the measure taps total levels of exposure well conceptually, with the bonus of being able to measure the content of exposure, too.

18. As of this date, the preliminary release of the ANES 2012 data did not include a variable for date of interview; thus, we cannot check for this pattern in 2012.

19. Although surveys, like ANES, that are not designed to have representative replicates of the sampling frame released at a daily or weekly level are not ideal for assessing temporal changes in marginal results. The NAES, however, is designed to be analyzed this way (see Johnston & Brady, 2002).

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