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Estimating the effect of news media consumption on political participation

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Abstract

After years of research in political communication the field is still divided about the effects of media on political participation. Points of contention revolve around the direction of the effect (positive or negative) and the trigger for the effects (media format or media content). In addition, previous studies have generally treated the U.S. as a unified unit of analysis, neglecting the possibility these effects may vary across different markets in the U.S. With an independent data set of 37,000 randomly selected respondents from a representative sample of 100 markets in the United States, and using elaborate media measures with multi-item scales in hierarchical linear models, this study addresses these questions. We find that reading the newspaper is positively linked to voting while watching television is not linked to voting and that the association is stronger for news content than for entertainment content. We also find that these effects vary across markets in the U.S. and that region and urbanicity help explain that variation. We conclude that (1) there is no single "media effect," (2) the effect overall is not very strong, (3) all else being equal whether people vote or not depends on the medium people use and the content they use it for and (4) all this may vary depending on the market. Future studies on media and political participation would do well to investigate why some media affect some voters in some places but not others.

Estimating the effect of news media consumption on political participation

Introduction

The main body of literature about media effects and political participation is divided. Many argue that the effect of media use is negative. Scholars, both in the U.S. and in Europe, cite a variety of reasons for coverage that leads to low voter turnout, apathy and social disengagement. George Gerbner and his colleagues (1980) argue that the media's flow of bad news (and its increasing consumption) creates a fearful and untrusting public. Robert Putnam blames the decline in social capital on time spent with television (2000). Henry Milner (2002) believes that television viewing, by replacing newspaper reading, leads to a decline in civic literacy. Others view the negative, strategy-focused and cynical presentation of political communication as failing the requirement of democratic government (Entman, 1989, Cappella & Jamieson, 1997, Patterson, 1993). Yet, a growing number of studies show that media use is positively related to higher levels of political knowledge and participation (Brynin & Newton, 2003, Clarke & Fredin, 1978, McLeod et al, 1999, Simon, 1996, Newton, 1999, Pinkleton at al, 1998, Pinkleton & Austin, 2001, Weaver & Drew, 2001). An extensive literature review and a large-scale comparative study lead Norris (2000) to argue that there is no conclusive evidence of a negative relationship between media use and political participation (also known as "videomalaise" theory), let alone a clear causal link between them. On the contrary, she finds evidence to support her theory that active, involved people attend to the news media and are more likely to be affected by the media than others (the "virtuous circle" theory).

Another area still unsettled in the literature has to do with what it is about the media that produces an effect on political participation. Most studies focus on media format or content: studies have looked at whether the act of watching television contributes to videomalaise (Gerbner et al., 1994, Robinson, 1976), at whether there is a difference in civic or political participation between people who use various media (McLeod et al., 1983; Shah et al., 2001), and at whether certain media content, rather than format, is the key to explaining media effects (Brynin & Newton, 2003; Hooghe, 2002; McLeod & McDonald, 1985). Actual time spent with media is another factor studied. Putnam (1995, 2000) is well known for arguing that time spent with television diminishes time set aside for civic activities, though others have suggested there is little evidence to support the time replacement argument (e.g., Moy et al., 1999, Norris, 1996).

Most studies in this field have been conducted within a single geographic unit – a market, State, or country. Control variables traditionally include individual-level variables such as demographic and attitudinal measures. Recently, some scholars have begun comparing countries or media systems to explore the effect of macro-level variables (e.g., regulatory environment, journalistic culture) on the relationship between media use and political participation. Much of this research has focused on comparisons across nations. Most notably, Norris (2000) embarked on a comprehensive study of the role of the news media in the United States and Europe, suggesting that such variables as modernization, the characteristics of the media system, and patterns of political coverage have an impact

on the relationship between media use and political participation. Other cross-national studies have found that variables such as media ownership (public or commercial) and news culture influence the relationship between media use and political participation (See for example Aarts & Semetko, 2001, Semetko, 1996, Patterson, 1998).

These comparative studies represent significant progress in the search for a comprehensive understanding of variations in media effects. However, most cross-national research treats each country as a single system, overlooking differences within countries. In a nation as large and diverse as the United States, this could potentially be problematic. There have been numerous studies examining market differences in the United States but they tend to focus on either individual-level variables (such as political knowledge; see Clarke & Fredin, 1978) or on media variables (such as diversity of viewpoints represented in the media; see Lacy et al., 1989). What is missing is an examination of whether the effects themselves vary across markets in the United States: Is the relationship between media use and political participation stronger in one market than in another?

This study aims to explore whether there are variations in the relationship of media use and political participation across markets in the United States, and to explain some of that variation. The study is uniquely positioned to sort out this question: It is an independent data set of 37,000 respondents across the United States, randomly selected from 100 markets in 2000. The data set allows the use of hierarchical linear models to look into differences across markets in the United States and then to explain these differences using macro-level variables such as region and urbanicity. For the individual-level variables related to media use we have developed a set of multi-item scales that elaborate the standard measures of "hours watching television" or "days reading the newspaper" and refine measures of interest in media content. With this unique data set, the study also addresses some of the basic controversial questions about the relationship of media use to political participation: Is media use related to increased or decreased political participation? What is it about the media that causes the effect – the format itself (i.e., television or print media) or the content (i.e., news or entertainment)?

Research hypotheses
Our first set of hypotheses concerns the relationship among individual-level media use, political participation and political interest. We first examine the role of political interest in the relationship between media and political participation and expect to find that it is considerable. Our first hypothesis is as follows:

      H_1: Political interest constrains media effects on political participation.

We expect to find that political interest has a strong effect on political participation and, moreover, that it interacts with media use to produce different effects for varying levels of political interest.

We go on to examine effects of media format and media content on political participation. Based on the literature, we expect newspapers use to have a stronger effect

than television use on political participation. In addition, given the affinity of political interest and interest in news, we expect to find an effect of media content on political participation. The following hypotheses address these issues:

H_2: The relationship between newspaper reading and political participation is stronger than the relationship between television use and political participation.

H_3: The relationship between interest in news and political participation is opposite the relationship between interest in entertainment and political participation.

The second area we explore in this study is the variability of the above media effects across markets in the U.S., or what we call macro-level effects. Although all markets in the U.S. are part of the same media system, there are regional and market differences that can conceivably change the effects of media. For example, certain norms of behavior may be stronger in some regions than others. Putnam (2000) argues that regional differences exist in social capital and civic tradition, with implications for norms of individuality and trust. The South, he argues, has a unique civic tradition related to its history of slavery. This, in turn, can have an effect on citizens' perception of the media, its importance, and their own civic role. It is plausible that these characteristics create an environment in which media have a great effect on political participation in some regions and less in others. Thus, we hypothesize:

H_4: Media effects on voting vary across markets.

Methods and data

Data.
Our sampling plan can be summarized briefly as follows. We first compiled a sampling frame of 864 daily U.S. newspapers using lists of newspapers from the Newspaper Association of America, the Audit Bureau of Circulation[1] (ABC), and *Editor and Publisher*. We drew a stratified random sample of 101 U.S. daily newspapers, stratifying on market and newspaper characteristics such as circulation, urbanicity, competition, market penetration, and the geographical extent of distribution. We mailed 100,000 surveys to consumers in the 101 newspaper "markets," where a market is the set of zip codes that account for at least 80% of circulation of the specified daily newspaper; markets were defined using data from the Audit Bureau of Circulation. The number of surveys mailed to each market was selected to produce approximately the same number respondents in an effort to provide a balanced sample of consumers. We included a $3 incentive with each survey. In total, 37,036 responded, giving a response rate of 37%. The distribution of the number of responses in each market had a mean of 337, standard deviation of 46, minimum of 271, and a maximum of 472. We then did a telephone survey of 2000 non-responders. The telephone survey was used in forming weights for readers and nonreaders, along with U.S. Census data on age and gender.

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[1] See http://www.accessabc.com.

Scale Development.
The questionnaire included items measuring voting behavior and intentions, political interest, and newspaper and television behavior and interests. The exact question wording of all items is provided in the appendix. Exploratory factor analyses with varimax rotations and scree plots were used in constructing the scales.

The dependent variable, political participation, is measured as a voting scale with three items measuring whether the subject voted in 1992 and 1996, and intended to vote in 2000. We use seven main explanatory variables, all of which are media variables. We measure newspaper readership using Reader Behavior Scores (RBS) (Calder & Malthouse, in press), which is a scale composed of time, frequency, and completion of readership on weekdays and Sundays. Interest in newspaper news is a nine-item scale with items measuring interest in, for example, war, politics and natural disasters/accidents. Interest in newspaper entertainment is a five-item scale with items measuring interest in movies, popular music, fashion/beauty, TV, and arts. All newspaper interest questions were measured on three-point scales. To measure overall television consumption we form a four-item scale composed of the number of types of channels, number of times during the day, the number of hours per week, and the number of channels watched. Specific television interests were measured yes-no checkboxes for various specific channels and types of channels. Interest in television news is an 11-item scale composed of interest in national news, local news, news magazines, and business/financial news, and specific channels (CNN, CNBC, MSNBC, CSPAN, ABC, NBC, CBS). Interest in television entertainment is a 19-item scale including interest in movies, specific movie channels (HBO, ShowTime, TBS), music/variety, specific music channels (MTV, VH1, Comedy Central), interest in situation comedies, late-night talk shows, game shows, and dramas. All media scales were transformed to have minimum value 1 and maximum value 7. Interest in politics has four items that measure the importance of keeping up with local events, state and national issues, voting, and how closely the subject was following the 2000 presidential campaigns. In addition, we controlled for age, gender and education. Age and education are measured in year and female is a dummy variable taking the value 1 for females and 0 for males.

We attempt to explain the variation in the effect of media consumption on political participation across markets using geographic region and urbanicity. For geographic region we use the four U.S. Census regions: Northeast, Midwest, South, and West. Our measure of urbanicity comes from Claritas, which classifies the urbanicity of every zip code. The urbanicity of a market is the average urbanicity of the zip codes that make up the market weighted by the population of the zip codes.

Statistical Models.
We analyze the data with hierarchical linear models (HLM). All models were estimated in SAS using proc mixed. Let y_{ij}, x_{ij1}, …, x_{ijp} denote the measures of voting, and p covariates, respectively, of customer j in the market of newspaper i. We assume that,

(1) $y_{ij} = (\beta_0 + b_{i0}) + (\beta_1 + b_{i1}) x_{ij1} + … + (\beta_2 + b_{i2}) x_{ij2} + e_{ij}$,

where $(b_{i0}, b_{i1}, ..., b_{ip})$ is a normal random vector of regression coefficients with mean $(0,0, ..., 0)$ and e_{ij} is normal with mean 0 and variance σ^2. The values of $(\beta_0, \beta_1, ..., \beta_p)$ are estimates of the coefficients for the entire population.

Results

Individual effects

Table 1 shows a Pearson correlation matrix of the scales. The matrix can be used to obtain an initial understanding of how individual constructs affect voting and identify potential problems with multicollinearity. Interest in politics has the strongest correlation with voting. Variables with more moderate correlations include total newspaper readership (RBS), interest in newspaper news, and interest in television news. Television entertainment has a small negative correlation with voting. There are several large correlations among predictor variables indicating that multicollinearity could be a problem. There are very large correlations between television format and interest in television news and entertainment. Likewise there are substantial correlations between newspaper RBS and interest in newspaper news and entertainment. There are also substantial correlations between interest in politics and interest in television and newspaper news, and newspaper RBS. All correlations were computed using more than 30,000 observations.[2] Our first finding, then, points to the centrality of political interest to voting, and hints at the role political interest plays in the relationship between media and voting.

--- Table 1 about here ---

Table 2 shows the results of regressing voting on age, education, female, political interest and media variables using HLM as specified in Equation (1) above. Model 1 does not include political interest while Model 2 does. All media variables are on 1-7 scales, age and education are measured in years and female is a dummy variable taking the value 1 for females and 0 for males. Note that the effects of the controls are in the expected direction: the more educated a person is, the higher he/she rates on the voting scale. The effect of age, while weaker, is also positive – the older a person is the more likely he/she votes. Gender has no significant effect in Model 1 but there is a positive effect for female in Model 2. The standard deviation column indicates the standard deviation of b_{ij}. For example, the standard deviation for education in Model 1 is .040; since HLM assumes that is b_{ij} normal, one could infer that the effect of education on voting in 68% of markets is in the interval $.238 \pm .040$ after confirming that this assumption is plausible. The P-value column in the fifth column tests the null hypothesis that the variance (or equivalently standard deviation) of is b_{ij} 0 against the alternative that the variance is positive. Since the P-value for education is .000, we reject the null hypothesis and conclude that the effect of education on voting varies across markets.

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[2] Significance levels are not indicated because of the two-stage cluster sample design. The usual statistical inference for Pearson correlations is not valid here because subjects are nested within markets.

--- Table 2 about here ---

Comparing Models 1 and 2 gives us insight into the crucial role political interest plays. Beginning with Model 1, we see that, when controlling for age, education and gender, newspapers have a significant effect on voting (β=.146, P<.001) and television does not (β=.022, P=.329). Introducing political interest, which is correlated with newspaper and television use, into Model 2 causes the magnitude of the coefficients for newspaper and television to change considerably. At the same time, we see a substantial effect for political interest (β=.781, p<.001). These analyses strongly suggest that newspaper and television media have a complex relationship with voting. Our measure of political interest asks about the importance of keeping up with local, state, and national events and elections. Respondents presumably keep up with such events by consuming one or more forms of media, making it difficult to disentangle the effect of having a belief that it is important to keep up with events from the effect of doing so through the consumption of media. Our first hypothesis, that political interest constrains media effects on political participation, is supported.

To get a better sense of just how the interaction between political interest and media use produces effects on political participation, we use a median split of political interest. Table 3 shows that the intercept for those with low political interest is .909 while those with high political interest have a significantly different (P=.000) intercept of .909+1.635 = 2.544, indicating that those with high political interest have a greater base likelihood of voting. For those with low political interest, the effect of reading the newspaper on voting is β=.152 while for those with high political interest the effect is .152-.127 = .025. In other words, reading the newspaper has a much stronger effect for those who are not interested in politics than for those who are. However, the intercept suggests that those who are interested in politics are more likely to vote regardless of their media consumption. The effect of watching television on voting is not significant for high or low political interest respondents.

--- Table 3 about here ---

The results so far also address our second hypothesis that the relationship between newspaper reading and political participation is stronger than the relationship between television use and political participation. We see in Table 2 that newspaper readership has a significant positive effect on voting, though it is overestimated in Model 1, which does not include political interest. Television use, on the other hand, does not have a significant effect on voting. And we see in Table 3 that the main effect of newspapers on voting holds, and that newspapers have an even greater effect on voting among those who are less interested in politics. In short, the data support our second hypothesis.

Our third hypothesis concerns media content. Does what people read in the newspaper or watch on television affect voting? We have reason to expect, based on Table 1, that interest in news content will have a positive effect on voting whereas entertainment

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content will not. Table 4 shows the results of an HLM analysis regressing voting on interest in news and entertainment content, both in newspapers and television[3].

-- Table 4 about here ---

The first noteworthy finding is that, overall, entertainment content – in both newspapers and television – has a negative effect on voting and that news content has a positive effect. Focusing first on Model 1, the effect of newspaper's entertainment content on voting is β=-.0068 (P<.001) and the effect of television's entertainment content on voting is β=-.0084 (P<.001). News content, in contrast, has a positive effect: β=.193 (P<.001) for newspaper and β=.157 (P<.001) for television. These findings support our third hypothesis: The effect of news in the media on political participation is positive while the effect of entertainment in the media on political participation is negative.

Also in Table 4 we see that these effects vary substantially across markets. The estimated standard deviations of b are large and significant for newspaper and television entertainment and news. For newspaper news, β=.193 and σ=.101 (P<.001); based on the normality assumption of the model, we can conclude that 68% of newspaper markets have effect on voting in .193 ± .101. Thus, in some markets interest in news has a strong positive effect on voting, in most markets the effect is at least positive, and in a small percentage the effect is close to zero. Television entertainment is especially interesting, where β=-.068 and σ=.124 (P<.001); the size of the standard deviation is larger than for the slope indicating that in some markets television entertainment has a small positive effect while in others the effect can be very negative.

Finally, Table 4 again illustrates the role of political interest. This time we see that by adding political interest to the equation the effect of newspaper news changes from positive to negative. In Model 2, the effect of newspaper news on voting is β=-.056 (P=.001). As discussed earlier, this is a classic sign of multicollinearity, which can be attributed to the likelihood that those interested in politics will be also interested in news in the media. Note also that the effect of television news remains positive but weak (β=.034, P=.021) and that the effects of education and age weaken while the effect of being female strengthens.

Table 5 shows how interest in specific media content interacts with political interest, again split at the median. There are many similarities between this analysis and the one documented in Table 3. The intercept for those with high political interest is substantially larger (β=2.217) than for those with low political interest. The effect of being interested in newspaper news on voting for those who are not interested in politics is positive and highly significant (β=.156, P<.001) while the effect of interest in newspaper news for those who are highly interested in politics is close to 0 (β=.156-.184=-.028). The effect of interest in newspaper entertainment for people with low

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[3] For the sake of brevity we use the term "newspaper news" or "newspaper entertainment" and "television news" or "television entertainment" to indicate respondents' rating of importance. These are not measures of the content per se.

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political interest is slightly negative (β=-.045) and the effect is not significantly different (P=.874) for people with high political interest (β=-.045+.003=-.042). As with newspaper news, the effect of television news on voting for those with low political interest is positive (β=.175) while the effect for those with high political interest is near zero (β=.175-.156=.019). The effect of television entertainment on voting for those with low political interest is significantly negative (β=-.109) and is near zero for those with high political interest (β=-.109+.122=.014). The large standard deviation values indicate that all effects vary substantially across markets.

--- Table 5 about here ---

Macro effects
All of the HLM analyses presented above have shown significant and substantial variation across markets. We now examine whether these differences across markets can be explained by characteristics of the markets themselves. In particular, we shall discuss whether urbanicity and region should be considered when studying the effects of media on voting. We have also examined characteristics of the local newspaper including competition (number of competing newspapers in the market), circulation, quality and editorial style but not found them to be significant. Because political interest is correlated with interest in newspaper and television news and including political interest introduces substantial multicollinearity into the model, we omit political interest.

Table 6 shows the effects of interactions between media variables and urbanicity, which is split at its median. Because of the stratified sampling plan, there are a substantial number of small markets in our study. The intercepts for more urban markets (β=.655-.135=.520) and less urban markets are not significantly different (P=.582), which means that there is no main effect for urbanicity on voting. However, there are interaction effects with urbanicity: The effect of newspaper entertainment on voting in less urban markets is negative and significant (β=-.050, P=.001). The effect of newspaper entertainment on voting in more urban markets is significantly more negative (β=-.050-.106=-0.157); the P-value testing the null hypothesis that the slopes for urban and less urban markets are equal is .001. Thus, interest in newspaper entertainment content has a stronger negative effect in more urban markets than in less urban ones. The effect of watching television news in less urban markets is β=.132 and the effect in more urban markets is β=.132+.092=.224. Watching television news in more urban markets has a stronger effect on voting than in less urban markets. Urbanicity does not have a significant interaction with newspaper news (P=.366) or television entertainment (P=.481). Including urbanicity in the model has reduced the variation in slopes across markets of some variables. The standard deviation for newspaper entertainment was .056 in Table 5, and is reduced to .038 in Table 6. After including urbanicity, we can no longer reject the null hypothesis that the variance of *b* for newspaper entertainment equals 0 (P=.108).

--- Table 6 about here ---

Table 7 shows how region interacts with media effects. We begin with discussion of main effects (i.e., the intercept). We can reject the null hypothesis that all of the region effects on the intercept are equal (P<.0001) in favor of the alternative that at least one effect is nonzero. People in the Midwest are much more likely to vote than those in other regions. The Northeast and South have negative coefficients, although they are not significantly different than that for the West. Region has a strong interaction with education. Education has less effect on voting in the Midwest (β=.225-.082=.143) than in the other regions. The effect of television news is greater in the Northeast (β=.107+.191=.298) than in the other regions: those watching television news in the Northeast are more likely to vote than their counterparts in other regions. The effect of newspaper entertainment on voting is negative in the Midwest and South while it is not significantly different from 0 in the West and Northeast: those who attend to entertainment in the newspaper in the Midwest and South are less likely to vote than their counterparts in the West and Northeast. We cannot reject the null hypothesis that the slopes are all equal for the interaction between region and newspaper news (P=.0993) or region and television entertainment (P=.2383). There is still significant variation across markets, but the variation has been reduced. The standard deviation of b for television news was .097 in Table 5 and is .087 after accounting for region. The standard deviation of b was .040 in Table 5 and is .032 after including region.

--- Table 7 about here ---

Discussion

We started this article by pointing out that after years of research in political communication the field is still divided about the effects of media on political participation. Debates revolve around the direction of the effect (positive or negative) and the trigger for the effects (media format or media content). As expected, this article shows that reading the newspaper is positively linked to voting while watching television is not linked to voting. In addition, the study shows that the association is stronger for news content than for entertainment content, especially in newspapers. Based on the findings of this study, it is safe to say that there is no single "media effect," that the effect overall is not very strong and that, all else being equal, whether people vote or not depends on the medium people use and the content they use it for.

We have reached these conclusions using an independent data set of 37,000 randomly selected respondents from a representative sample of 100 markets in the United States. The measures we used for media use are all multi-item scales with robust inter-item reliability, providing richer and more thorough measurement than has been employed up to date. We see this as a major strength of this study.

In addition to establishing that media use is linked to voting – depending on media format and content – we also attempted to come to grips with the role of political interest. We found that role substantial. We determined that the relationship between newspaper use

and voting is stronger among those who are less interested in politics than those who are more interested. That is, for people with low political interest, reading the newspaper makes a difference: those who are not very interested in politics will be more likely to vote if they read the newspaper more. In contrast, among those who are already highly interested in politics, whether or not they read the paper will not have a significant effect on voting. Unlike with newspapers, political interest does not produce interaction effects with television on voting: There is no significant difference between those who say they are highly interested in politics and those who say they are not. In both cases, television use has almost no effect on voting. Put another way, unlike newspapers, the use of television per se does not induce people, with low or high political interest, to vote.

As for media content, again, political interest interacts with media effects. This interaction is more intuitive: For those who are less interested in politics, the effects of newspaper news and television news are stronger than for those who are more interested in politics. For entertainment content, the effects overall is negative with some minor differences between those who are highly interested in politics and those who are not. So people with low political interest are more inclined vote if they read or watch news, whereas people who keep up with politics will likely vote regardless of how much news they consume.

These findings identify a gap in the virtuous circle theory (Norris, 2000). The theory maintains that those who are interested in politics keep up with the news thus reinforcing their interest whereas those who are disengaged from politics are also not interested in the news resulting in little change in their previous disinterest. While the data support the claim that through the virtuous circle the media serve to "activate those who are already most active," they do not support the claim that there are basically no media effects for the disinterested. On the contrary, we clearly found that the media also serve to "activate those who are least active."

A central focus of this article, and an addition to the existing literature, is the exploration of variations in media effects on voting that occur in different markets in the U.S. We found that variation exists with respect to all media variables. So, for example, an estimate of β=.146 for newspaper use may vary by $\pm$ .068 in most markets, indicating that the effect could be quite strong in some markets and weak in others. This implies that traditional national samples cannot capture or account for this and that it is misleading to treat the U.S. as a cohesive unit of analysis.

When examining some of the factors that may explain this variation, we found that some of the usual suspects did not play a role in reducing variation across markets. Newspaper competition and circulation size did not help explain why media effects on voting are greater in some markets than others. But we did find that region and urbanicity matter – that where a person lives interacts with how much of an effect media will have on his or her voting behavior, in some cases. There is something about the region in which these markets are located and their level of urbanicity that matters for media effects on voting.

Note that although region and urbanicity help explain the variation in media effects on voting across markets, they do not explain it away completely. One possible reason for that is that region and urbanicity do not interact with all media variables in the same way: Only television news and newspaper entertainment are vulnerable to region and urbanicity. We found that television news has a stronger positive effect on voting in the Northeast and in more urban markets and that newspaper entertainment has a stronger negative effect in the South and Midwest and in more urban markets. However, neither television entertainment nor newspaper news interact with region or urbanicity.

This article offers a better understanding of media effects on political participation and how they vary in different markets. It shows that the relationship between media use and political participation is more complex than previous studies suggest and demonstrates the benefit of using better measurements. Future studies on media and political participation would do well to investigate why some media affect some voters in some places but not others.

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Tables

Table 1: Correlation Matrix

Variable	Political Interest	NP RBS	NP News	NP Entertainment	TV Use	TV News	TV Entertainment
Political Interest	1.00						
NP RBS	0.28	1.00					
NP News	0.34	0.27	1.00				
NP Entertainment	0.07	0.15	0.51	1.00			
TV Use	0.06	0.15	0.05	0.15	1.00		
TV News	0.25	0.24	0.15	0.07	0.58	1.00	
TV Entertainment	-0.04	0.07	0.03	0.22	0.70	0.33	1.00
Age	0.21	0.19	0.02	-0.08	0.15	0.22	-0.11
Female	-0.05	-0.02	0.00	0.22	0.03	-0.04	0.04
Education	0.24	0.03	0.09	-0.02	-0.18	0.06	-0.12
Vote	0.53	0.18	0.15	0.01	0.02	0.16	-0.06

Table 2: Voting and media format

Variable	Model 1				Model 2			
	Estimate	P-value	Std Dev	P-Value	Estimate	P-value	Std Dev	P-Value
Intercept	0.378	0.007	0.692	0.000	-0.429	0.001	0.711	0.000
Age	0.028	0.000	0.006	0.000	0.017	0.000	0.006	0.000
Female	0.060	0.151	0.262	0.000	0.113	0.002	0.216	0.000
Education	0.238	0.000	0.040	0.000	0.120	0.000	0.034	0.000
NP RBS	0.146	0.000	0.068	0.000	0.025	0.004	0.042	0.003
TV Use	0.022	0.329	0.107	0.002	-0.024	0.251	0.109	0.001
Political Interest					0.781	0.000	0.108	0.000

Table 3: Voting, media format and interaction with political interest

Variable	Political Interest	Estimate	P-value	Std Dev	P-Value
Intercept		0.909	0.000	0.618	0.000
Age		0.022	0.000	0.003	0.000
Female		0.117	0.002	0.123	0.000
Education		0.187	0.000	0.019	0.000
Political Interest	High	1.635	0.000		
NP RBS		0.152	0.000	0.055	0.000
NP RBS*Political Interest	High	-0.127	0.000		
TV Use		-0.002	0.934	0.010	0.001
TV Use*Political Interest	High	0.007	0.824		

Table 4: Voting and media content

Variable	Model 1				Model 2			
	Estimate	P-value	Std Dev	P-Value	Estimate	P-value	Std Dev	P-Value
Intercept	0.452	0.002	0.667	0.000	-0.149	0.289	0.769	0.000
Age	0.027	0.000	0.006	0.001	0.016	0.000	0.006	0.000
Female	0.093	0.047	0.302	0.000	0.137	0.000	0.225	0.000
Education	0.214	0.000	0.038	0.000	0.118	0.000	0.041	0.000
NP news	0.193	0.000	0.101	0.000	-0.056	0.001	0.100	0.000
NP entertainment	-0.068	0.000	0.052	0.029	-0.020	0.116	0.051	0.024
TV news	0.157	0.000	0.100	0.000	0.034	0.021	0.077	0.001
TV entertainment	-0.084	0.000	0.124	0.000	-0.033	0.067	0.098	0.000
Political Interest					0.809	0.000	0.108	0.000

Table 5: Voting, media content and interaction with political interest

Variable	Political Interest	Estimate	P-value	Std Dev	P-Value
Intercept		0.951	0.000	0.683	0.000
Age		0.021	0.000	0.006	0.000
Female		0.135	0.002	0.260	0.000
Education		0.171	0.000	0.040	0.000
Political Interest	High	2.217	0.000		
NP News		0.156	0.000	0.107	0.000
NP News*Political Interest	High	-0.184	0.000		
NP Entertainment		-0.045	0.007	0.056	0.016
NP Entertainment*Political Interest	High	0.003	0.874		
TV News		0.175	0.000	0.097	0.000
TV News*Political Interest	High	-0.156	0.000		
TV Entertainment		-0.109	0.000	0.123	0.000
TV Entertainment*Political Interest	High	0.122	0.000		

Table 6: Voting, media content and urbanicity

Variable	Urban	Estimate	P-value	Std Dev	P-Value
Intercept		0.655	0.000	0.648	0.000
Age		0.026	0.000	0.006	0.001
Female		0.126	0.008	0.275	0.000
Education		0.209	0.000	0.039	0.000
Urban	High	-0.135	0.582		
NP News		0.181	0.000	0.102	0.000
NP News*Urban	High	0.035	0.366		
NP Entertainment		-0.050	0.001	0.038	0.108
NP Entertainment*Urban	High	-0.106	0.001		
TV News		0.132	0.000	0.098	0.000
TV News*Urban	High	0.092	0.017		
TV Entertainment		-0.072	0.010	0.129	0.000
TV Entertainment*Urban	High	-0.034	0.481		

Table 7: Voting, media content and region

Variable	Region	Estimate	P-value	Std Dev	P-Value
Intercept		0.544	0.050	0.468	0.007
Region	Midwest	1.374	0.000		
	Northeast	-0.553	0.019		
	South	-0.418	0.223		
	West	0			
Age		0.027	0.000	0.005	0.002
Female		0.121	0.011	0.276	0.000
Education		0.225	0.000	0.032	0.000
Education*Region	Midwest	-0.082	0.000		
	Northeast	0.001	0.961		
	South	0.002	0.927		
	West	0			
NP News		0.141	0.000	0.093	0.000
NP News*Region	Midwest	0.042	0.401		
	Northeast	0.005	0.924		
	South	0.098	0.027		
	West	0			
NP Entertainment		-0.278	0.330	0.051	0.031
NP Entertainment*Region	Midwest	-0.082	0.046		
	Northeast	0.012	0.795		
	South	-0.085	0.018		
	West	0			
TV News		0.107	0.003	0.087	0.001
TV News*Region	Midwest	0.015	0.770		
	Northeast	0.191	0.001		
	South	0.041	0.341		
	West	0			
TV Entertainment		-0.101	0.032	0.124	0.000
TV Entertainment*Region	Midwest	0.058	0.378		
	Northeast	0.077	0.292		
	South	0.043	0.461		
	West	0			

Dependent variable:
Voting: "Did you: vote in the November, 1996 (Clinton/Dole) general election?
(Yes/no/not sure / not old enough)"
"Did you: vote in the November, 1992 (Bush/Clinton/Perot) general election?"
"Will you vote in the 2000 election in November?"
Not sure was recoded to no and not old enough to missing.
Coefficient alpha is .89.

Independent variables:
Newspaper format: A scale composed of time, frequency, and completion of readership
on weekdays and Sundays See Calder & Malthouse (in press); coefficient alpha is .92.

Newspaper News and Newspaper Entertainment: Average score for content areas
classified as "news" and those classified as "entertainment."
"Please indicate how important each section is to you personally by checking one box in
the importance section for each type of content.'" (1 = "Little/None", 2 = "Some", and 3
= "A lot") The survey included 30 content areas: Arts (e.g., dance, classical music,
museums, etc.); Automotive; Business, Economics and Personal Finance; Community
announcements (including weddings, events, etc.); Education; Environment; Fashion and
Beauty; Food; Health, Fitness and Medicine; Home, Garden and Real estate; Jobs and
Career; Movies; Natural disasters / Accidents; Obituaries; Ordinary People; Parenting
and Relationships; Police / Crime / Courts / Legal; Politics / Government; Popular Music;
Religion / Spirituality; Science and Technology; Sports; Television; Travel; War /
International conflict; Weather; Ads and inserts for food and groceries; Ads for clothing,
health and beauty aids, and stores other than supermarkets; Classified ads for jobs and
employment opportunities / automobiles / real estate; Ads for entertainment events and
sporting events.
Interest in Newspaper News, coefficient alpha is .84.
Interest in Newspaper Entertainment, coefficient alpha is .72.

TV Format: Count the number of Channels checked, excluding none and other (see
below)
Count the number of Types checked, excluding none (see below)
"How many hours do you personally watch TV each day in an average 7-day week? (For
each day of the week write in the number of hours you watch TV. If you do not watch
TV on a particular day, write in a '0'.)" The total hours were used in the scale
"When do you typically watch television? (Check all that apply.)" Options included:
Before 9 a.m., 9 a.m.-noon, noon-5 p.m., 5 p.m.-7 p.m., 7 p.m.-9 p.m., 9 p.m.-10 p.m., 10
p.m.-11 p.m., after 11 p.m., do not watch TV. The number of boxes checked, excluding
do not watch, was included in the scale.
Coefficient alpha is .78.

TV Channels: "Which of the stations/channels do you *regularly* watch in an average 7-
day week? (Check all that apply.)" The survey included the following items: None/Do

not watch TV, ABC, CBS, Fox, Fox Family, NBC, PBS, WB, A&E, AMC, BET, Bravo, Cartoon Network, CNBC, CNN, Comedy Central, CSPAN, Discovery, Disney, ESPN, Golf, HBO, HGTV, History Channel, Lifetime, Learning Channel, MSNBC, MTV, Nickelodeon, Playboy, QVC, ShowTime, TBS, TNN, TNT, USA, VH1, Weather Channel, Other.

TV program types: "Which types of shows do you *regularly* watch in an average 7-day week (Check all that apply.)" The survey included the following items: None/Do not watch TV, Biographies, Business/Financial News, Documentaries, Dramas, Daytime Talk Shows, Game Shows, Food, Garden & Decorating, Home/Shopping, Late Night Talk Shows, Local News, Movies, Music/Variety, National News, News Magazines (e.g., 60 Minutes), Religious Programs, Science/Nature, Situation Comedies, Soap Operas, Sports, Travel.

TV News: The channels CNN, CNBC, CBS, NBC, ABC, MSNBC, and CSPAN; the types National News, News Magazines, Local News, and Business/Financial News. Coefficient alpha is .71.

TV Entertainment: The channels TNT, USA, TBS, Lifetime, MTV, Comedy Central, VH1, A&E, AMC, HBO, ShowTime, Bravo, and WB; the types Movies, Music/Variety, Dramas, Situation Comedy, Late Night Talk Shows, and Game Shows. Coefficient alpha is .77.

Interest in politics: "How important is it for you, personally, to participate in the following types of civic activities?" "Elections;" "keeping up with local/community events;" "Keeping up with state and national issues." All were measured on five-point scales anchored by "Extremely Important" and "Not at all important."
"How closely would you say you are following stories about the 2000 Presidential election campaigns?" Responses measured on four-point scale anchored by "Very closely" and ""Not following much at all".
Coefficient alpha is .85.

Age: Measured in years.

Education: Measured in years.

Gender: A dummy variable with the value 1 for females and 0 for males.

Region: Each state is categorized into 1 of 4 regions, based on the U.S. Census categorization.

Urbanicity: Claritas classifies every 5-digit zip as 1=rural, 2=town, 3=city, 4=suburb, or 5=urban. The urbanicity variable that we use is the average Claritas urbanicity rating across all zips that make up the home market of a newspaper, weighted by the number of people living in the zip code.