

Learning Political News From Television

Comparing Knowledge Effects of Watching Public Service and Commercial TV News

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WORK IN PROGRESS

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Introduction

During the last years, an increasing number of studies suggest that there is a positive linkage between media systems with strong public service media, the supply of political information and political knowledge. While Aalberg et al. (2010) and Esser et al. (2012) show that public service TV offer better political information opportunities than commercial TV, the central conclusion of a recent six-country comparative study is that “public service television sustains a higher level of public knowledge than market-based television” (Aalberg & Curran, 2012, p. 193). Another series of comparative studies also shows that public service-oriented media systems deliver more hard news than more market-based media systems, and that public knowledge of hard news and international news is greater in public service-oriented systems (Curran et al., 2009; Iyengar et al., 2010). Most recently, a comparative study covering 27 countries shows that exposure to public service TV news exerts significant positive effects on political knowledge whereas exposure to commercial TV news has the opposite effects (Fraile & Iyengar, 2014, p. 7-8).

At the same time, there are also several studies that show no or only weak knowledge effects from watching TV news (Delli Carpini & Keeter, 1996; Drew & Weaver, 2006; Janssen, 2009; Leshner & McKean, 1997; Price & Zaller, 1993). In addition, most albeit not all studies investigating knowledge effects from watching TV news rely on cross-sectional data. This holds true for both cross-national and single-country studies. On the individual level of analysis they thus fall short of empirically establishing the causal linkage between TV news exposure and political knowledge. Another shortcoming is that previous research has

not addressed whether knowledge effects is contingent upon the intensity of the political environment, i.e., depending on whether there is an election campaign or not.

Against this background, the purpose of this paper is to (a) investigate the effects on political knowledge from watching TV news, (b) compare the effects on political knowledge from watching public service versus commercial TV news, and (c) to investigate whether potential knowledge effects from watching TV news differ depending on the intensity of the political environment. To address the last part, the study will compare the effects on political knowledge from watching public service versus commercial TV news across three contexts: an election campaign to the European Parliament, a non-election period, and an election campaign to the national parliament. Empirically, the study is based on a four-wave panel survey in Sweden, a country with a dual broadcasting system and intense competition between public service and commercial TV news.

Apart from this introduction, the paper consists of five sections. In the first section we will review theory and research on the effects on political knowledge from watching TV news. The second section will describe the case at hand, Sweden. The data and methodology will be described in the third section while the results will be presented in the fourth section. Finally we will summarize and discuss the theoretical contributions of the study.

Television Effects on Political Knowledge

The extents to which news media aid citizens in becoming politically informed belong to the most important questions within political communication research (Holbert, 2005, p. 511). Not surprisingly, scholars have thus devoted great attention to investigating whether or to what extent people become more knowledgeable by using various media. With respect to knowledge effects from watching TV news, findings have been inconsistent however. For example, while Price and Zaller (1993) found significant but small effects in about half of the

cases they investigated, Drew and Weaver (2006), Delli Carpini and Keeter (1996) and Fraile (2011) did not find any significant knowledge effects at all. The same holds true for Jenssen (2009), although using a broader measure that also included exposure to various election campaign programs, and for Norris et al. (1999) when using knowledge of party policies as measure of political knowledge (see also Eveland & Scheufele, 2000). When using knowledge of civic facts as dependent variable, in the UK Norris et al. (1999) did however find a positive knowledge effect from use of TV news. Also in the UK, Newton (1999) likewise found a positive knowledge effect from watching TV news, and the same holds true for Liu et al. (2013) using data from the American National Election studies (ANES). Another strand of research has focused on how television use might influence knowledge gaps between different groups in society, typically those of lower and higher socioeconomic status or with stronger or weaker motivations to follow the news (Eveland & Scheufele, 2000; Jerit, 2009; Hwang & Jeon, 2009; Kwak, 1999; Shehata, 2013; Shehata et al., 2015; Tichenor et al., 1970). A recurring finding in this research is that exposure to television news might decrease knowledge gaps by, among other things, reaching groups who otherwise do not consume much news (see, for example, Eveland & Scheufele, 2000; Kwak, 1999; Shehata, 2013; Shehata et al., 2015).

On balance, most research seems to suggest that watching TV news does increase political knowledge, although the effects might be weak. The fact that previous findings have been inconsistent might have several explanations. Among these are the uses of different measures of political knowledge (civic-style facts or surveillance facts), different measures of media use (exposure or attention), different types of data (cross-sectional or panel surveys), and different analytical techniques and control variables. In general, the pattern seems to be that studies using *attention* to TV news as independent and *current events or surveillance knowledge* as dependent variable produce stronger effects than studies using TV news

exposure as independent and *civics knowledge* as dependent variable.

In this study the main independent variable will be exposure rather than attention to TV news, which might result in weaker effects than if measures of attention had been used (Chaffee & Schleuder, 1986). On the other hand, we will use current events knowledge rather than more stable civics knowledge as dependent variable. Overall, we thus expect there to be positive knowledge effects from TV news exposure. Therefore, our first hypothesis (H1) is: *There will be positive knowledge effects from exposure to TV news.*

The Importance of Information Environments

While most research on knowledge effects from watching TV news historically has focused on individual-level factors, the context in which people watch television and what kind of TV news they watch might also be of great importance. A number of recent studies have also suggested that the information environment in which people are situated might go a long way in explaining both people's news consumption and how television influences political learning (see, for example, Althaus et al., 2009; Elvestad & Blekesaune, 2008; Jerit et al., 2006; Shehata & Strömbäck, 2011). Of importance in this context are not only the overall quantity of media coverage, but also the scheduling of TV news and the likelihood that people incidentally will be exposed to TV news (Esser et al., 2012; Schoenbach & Lauf, 2002; Shehata et al., 2015). Simply put, the extent to which people follow and learn from TV news is not only a matter of individual predispositions, although these are important and have become more important as media choice has increased (Aalberg et al., 2013; Prior, 2007; Strömbäck et al., 2013). It is also a matter of how much, where and when different types of information are available and the ease to which people can access them, i.e., the opportunity structures for political news. As suggested by Esser et al. (2012), "Favorable opportunity structures are determined not only by the sheer volume of information programs but also by

their extensive distribution throughout the TV schedule, their integrative placement between popular shows, and their allocation to an attractive timeslot.”

Along these lines, a number of comparative studies have investigated the linkages between media systems, the availability of political news, and people’s knowledge of political affairs. A key distinction that has evolved through this research is between more commercial and more public service-oriented systems. Investigating the quantitative supply of news and current affairs on television, both Aalberg et al. (2010) and Esser et al. (2012) found that public service TV channels tend to offer more news and current affairs programs than their commercial counterparts, and consequently that public service-oriented systems offer better political information opportunities (see also Brekken et al., 2012). For a Swedish study comparing the supply of news and public affairs in public service and commercial channels, see Asp, 2011b). The same conclusion is reached by Cushion (2012), after an extensive review of research on the value and content of public service versus commercial broadcasting.

There is also research comparing the effects of public service versus commercial TV news in terms of knowledge. In a comparative analysis covering four countries, Curran et al. (2009) combined a quantitative content analysis and a survey and showed not only that the public service-oriented systems in Finland and Denmark provided more hard news on TV than the more commercially-oriented systems in the UK and the US, but also that this was related to greater political knowledge in the former countries (see also Iyengar et al., 2010). In another comparative project, Aalberg and colleagues investigated both the amount and type of hard and soft news available on television news in six countries (Belgium, The Netherlands, Norway, Sweden, the UK and the US) as well as people’s media use. Summarizing their findings, Aalberg and Curran (2012, p. 193) conclude that “the way in which the media are organized has a significant impact on what the media report, and on the quality of informed citizenship. To reiterate, the central conclusion of this book is that public service television

sustains a higher level of public affairs knowledge than market-based television”.

A similar conclusion follows from a comparative study by Fraile and Iyengar (2014), covering 27 European democracies. Using data from the European Election Survey, they find a positive effect from exposure to public service TV news but a negative effect from exposure to commercial TV news. Another comparative study by Aalberg et al. (2013), covering eleven countries and focusing on the media’s coverage and public knowledge of international hard news, similarly found that “public service broadcasters devote more of their international coverage to hard news topics” (p. 396) and that “there is a positive relationship between the level of hard news coverage offered by the news media in a country and the citizens’ level of hard news knowledge” (p. 403).

The difference between exposures to public service TV news versus commercial TV news might however vary across countries, as suggested by a comparative study by Soroka et al. (2014). Their study included Canada, Italy, Japan, Norway, Britain and South Korea. On an overall level of analysis, their results show that the knowledge effects of exposure to public service TV news is greater than the effects of watching commercial TV news – provided that the public service broadcasters mainly are funded through public money and that they are independent from government. This finding is important since it suggests that not all public service broadcasters are like.

One particularly relevant study in this context is a study by Shehata et al. (2015), using panel data collected during the 2010 Swedish election campaign to investigate inadvertent learning from watching different TV channels among groups with different levels of motivation to follow politics. Although focusing on channel exposure rather than TV news exposure, among other things this study found that exposure to public service channels – but not the commercial TV4 or purely entertainment-oriented TV channels – did contribute to political learning.

Taken together, extant research thus suggests that exposure to television news increase people's political knowledge and that exposure to public service TV news has stronger effects on political knowledge than exposure to commercial TV news. Important to note though is that most studies investigating the knowledge effects of exposure to TV news rely on cross-sectional data, and the same holds true for all the comparative studies that on the aggregate level compare the effects from exposure to public service versus commercial TV news. On the individual level of analysis they thus fall short of empirically establishing the direction of causality, even though some use sophisticated analytical techniques to try to circumvent this. This means the findings pertaining to the difference between exposures to public service versus commercial TV news in principle could be due to self-selection processes, particularly when using general or civic knowledge as dependent variable.

Nevertheless, based on the research reviewed above our second hypothesis (H2) is:
The political knowledge effects of exposure to public service TV news will be more positive than the political knowledge effects of exposure to commercial TV news.

The Importance of Context

The fact that research suggests that information environments matter for people's exposure to and learning from watching TV news is a strong indication that context matters. How much people expose themselves to, or pay attention to, and subsequently learn from watching TV news is likely to vary not only across countries, but also across contexts within countries.

For example, when major events occur or the political debate is unusually intense, people are more likely to follow the news than during more routine periods. The "informed citizen", to use Schudson's distinction between modes of citizenship (1998), might follow the news all the time, but the "monitorial citizen" is more likely to tune in mainly when there is something particularly interesting or important going on (see also Zaller, 2003).

One particularly intense period, politically speaking, are election campaigns. During these, political parties and candidates devote more resources and attention to getting their messages across while the media devote more resources and space to covering political news. When this happens, people tend to respond by getting more interested in and paying more attention to politics. In essence, election campaigns mobilize people politically, a quite consistent finding that has been found in many countries including Britain (Norris et al., 1999; Norris, 2006), the United States (Bergan et al., 2005; Holbrook & McClurg, 2005) and the case at hand, Sweden (Strömbäck, 2008; Strömbäck & Shehata, 2013).

Not all election campaigns are created equal though. A key distinction in this respect is between first- and second-order national election, where first-order national elections refers to national elections such as presidential elections and elections to the national parliament. Second-order national elections, in contrast, refer to elections where less is perceived to be at stake, for example by-elections, regional and local elections and elections to the European parliament (Reif & Schmitt, 1980; Marsh, 1998). A recurrent finding is that parties campaign less intensively for, while media devote less attention to covering, second-order national elections, with the end result that people are less mobilized and turn out to vote in fewer numbers in second-order compared to first-order national elections (van der Brug & van der Eijk, 2007; Maier et al., 2011).

At least three politically different contexts can thus be distinguished: first-and second-order national election campaigns and non-election periods, respectively. Thus far, no study has however compared the knowledge effects from watching TV news across these different contexts. As extant research has found that media (as well as people in general) devote more attention to first-order than to second-order national elections, it can however be expected that there will be stronger positive knowledge effects from watching TV news during first-order than during second-order national election campaigns. The rationale is twofold. The first is

that TV news devotes more resources and attention to politics during first-order than during second-order national election campaigns. The second is that more people – including those who do not watch TV news regularly – are likely to tune into the news during first-order national election campaigns. During these campaigns, TV news thus offers more political news while they also might reach more people who are less knowledgeable about politics. A similar logic would lead us to expect stronger knowledge effects from watching TV news during second-order national election campaigns than during non-election periods. This expectation is however more tentative, as it is not necessarily the case that TV news cover politics more intensively during second-order national election campaigns than during non-election periods. Several studies have for example shown that the extent to which TV news covers elections to the European parliament differs widely across member states, and that in some cases, TV news hardly cover these elections at all (Schuck et al., 2011; de Vreese et al., 2007). Nevertheless, based on the above review our next hypothesis (H3) is: *The knowledge effects from exposure to TV news will be strongest during election campaigns to the national parliament (first-order national election), weaker during election campaigns to the European parliament (second-order national election) and weakest during non-election periods.*

To our knowledge, there is no study comparing knowledge effects from exposure to public service versus commercial TV news across contexts that differ in political intensity. As research suggests that exposure to public service TV news will yield stronger and more positive knowledge effects than exposure to commercial TV news, it is however reasonable to expect that this pattern will hold across contexts. Hence, our final hypothesis (H4) is: *The political knowledge effects of exposure to public service news will be more positive than the political knowledge effects of exposure to commercial TV news during campaigns to the national parliament (first-order national election) as well as to the European parliament (second-order national election) and during non-election periods.*

Empirical Background: The Swedish Case

This study will focus on Sweden, a country often considered a prototypical example of the democratic corporatist model of media and politics (Hallin & Mancini, 2004). As such, it has a history of strong newspapers and strong public service broadcasting. Until the early 1990s there was a public service monopoly in place, but since then, TV has been deregulated and a number of commercial channels have launched. In terms of audience reach, the most important channels are SVT1 and SVT2 (public service) and TV4 (commercial). In 2014, on an average day 40 percent watched SVT1 while 38 percent watched TV4 and 19 percent watched SVT2 (Nordicom, 2015). These channels are also the most important in terms of news programming (Asp, 2011a), where the main daily news shows are *Rapport* (SVT1), *Aktuellt* (SVT2) and *TV4 Nyheterna* (TV4). According to the national SOM-surveys, in 2014, 50 percent watched either *Aktuellt* or *Rapport* at least five days a week while 33 percent watched *TV4 Nyheterna* (Ohlsson, 2015).

All these three news shows are considered serious, but there are differences between them. Most importantly, research suggests that *TV4 Nyheterna* is more commercialized, as evidenced by, among other things, a stronger focus on soft news, a stronger tendency to frame politics as a strategic game or as scandals rather than as issues, a more interpretive coverage of politics and, in most election campaigns, less extensive coverage of the election campaigns (Asp, 2011b; Jönsson & Strömbäck, 2007; Strömbäck, 2013). The differences should not be overstated however: in many cases the similarities are greater than the differences (Asp, 2011b). In terms of the coverage of election campaigns to the national versus the European parliament, there is only one study comparing the extent to which Swedish TV news cover these, focusing on the 2002 national and the 2004 European parliamentary elections. According to that study, the coverage of the European parliamentary election constituted only

about a quarter of the coverage of the national election (Strömbäck & Nord, 2007).

Whether this pattern holds for other years is not clear, although it is obvious that Swedish TV news usually treats elections to the European parliament as second-order national elections and covers them less extensively. 2014 might have been special though, as it was considered a super-election year with elections to the European and the national parliament held the same year. The election to the European parliament was held on May 25 while the national election was held on September 14. The election to the European parliament was thus held in the shadows of the national election, which might have influenced the coverage. Thus far no studies on the 2014 elections have been published though, so it is hard to tell if or to what extent the coverage of the 2014 elections differed from earlier elections.

Methodology and Data

To reiterate, the purpose of this paper is to (a) investigate the effects on political knowledge from watching TV news, (b) compare the effects on political knowledge from watching public service versus commercial TV news, and (c) to investigate whether the knowledge effects from watching TV news differ depending on the intensity of the political environment. To investigate this and test the hypotheses above, this study will utilize the [blinded], a four-wave panel study conducted by [blinded] in cooperation with the polling institute [blinded] in Sweden.

The sample for the panel survey was drawn using stratified probability sampling from a database of approximately 35.000 citizens from [blinded] pool of web survey participants. The participants included in this pool are recruited continuously using random digit dialing. No self-selection is allowed: all recruitment of participants is based on random probability samples. Approximately 13 percent of those who are initially contacted and invited agree to be part of this pool of respondents, and the pool is representative for the population in terms

of sociodemographic characteristics.

The panel survey is based on a sample of 6,897 respondents aged 18–75 years from this pool, stratified by gender, age and county of residence. They were asked to complete a web survey four times during a period of approximately five months. Wave 1 of the panel took place six weeks before the election to the European parliament (April 11–22), Wave 2 immediately after the election to the European parliament (May 26–June 4), Wave 3 took place six weeks before the national election (August 1–13) and Wave 4 immediately after the national election (September 15–24). All who participated in the first wave were invited to participate in subsequent waves. If someone who participated in the first wave abstained in wave 2 or 3, they were still invited to participate in any subsequent waves. 2,281 respondents participated in all four waves, resulting in a total cooperation rate of 33% (Cooperation Rate 2 [COOP2], American Association for Public Opinion Research [AAPOR]). The cooperation rates for each wave are presented in Appendix A/Table A1.

Measures

This study estimates the effects of TV news exposure on political knowledge, controlling for several key background variables. Below the measures used in this study will be detailed.

Exposure to TV news. To measure TV news exposure, respondents were asked: “During the last week, how many days did you watch the following news programs on radio or television?” In this study we will use the responses with respect to *Aktuellt* (SVT, public service), *Rapport* (SVT, public service) and *TV4 Nyheterna* (TV4, commercial). The response alternatives – here reverse coded – were “Daily” (5), “5–6 days a week” (4), “3–4 days a week” (3), “1–2 days a week” (2), “More seldom” (1) and “Never” (0).

Current affairs knowledge/surveillance facts. The main dependent variable will be knowledge about current affairs or what is sometimes referred to as surveillance facts. In

order to capture people's knowledge of current affairs, wave 2, 3 and 4 all included a set of six *different* knowledge questions. All of these focused on events and proposals that made news in major national media – i.e., new information – during the weeks between the panel waves. This construction is important for two reasons. First, it ensures learning about these surveillance facts must have taken place between panel waves, i.e., that people could not have learned this information beforehand. Second, in contrast to general political knowledge, some kind of media is likely to be a source for learning this kind of information. For each question, four response alternatives were given, including “Don't know”. Following Iyengar et al. (2010), a time limit of 20 seconds for answering each question was used to avoid web searches for correct answers. For each wave, the six items were summed to form an additive index ranging from 0 (no correct answers) to 6 (all questions answered correctly). This will be used as the main dependent variable. All knowledge questions used are described in Appendix A/Table A2.

Control variables. All of the regression models will include a number of key control variables. Among these are standard sociodemographic variables such as age, gender and education. Originally education is a three-level variable, and in the models we will use low education (less than high school) as reference category and include dummy variables for high school and university-level education. Another control variable is political interest, based on the item “How interested are you, generally speaking, in politics”. The response alternatives range from 1 (not at all interested) to 4 (very interested). The most important control variable is however a measure of general political knowledge, to be described below.

General political knowledge. To assess general political knowledge, the first wave included a set of ten knowledge questions focusing on knowledge about the political system and permanent features of Swedish politics, for example what is required to change the Swedish constitution and what political institution make Swedish laws. The ten items were

summed to form an additive index ranging from 0 (no correct answers) to 10 (all questions answered correctly). Similar to the measure of current affairs knowledge, for each question, four response alternatives including “Don’t know” were given. A time limit of 20 seconds for answering each question was again used to avoid web searches for correct answers.

By using this measure of general political knowledge as well as other control variables from the first panel wave, and using knowledge of current political affairs that happened between panel waves as measure of political knowledge, we will take advantage of the fact that panel surveys allow us to control for the time order. This will substantially improve our abilities to make causal inferences about the effects of exposure to TV news shows.

Empirical Results

Before addressing our hypotheses, let us begin with some descriptive results. Our main interest relates to the political knowledge effects from exposure to TV news. A pre-requisite for any knowledge effects is that people actually expose themselves to political news. And many do. To illustrate this, Table 1 shows the share of respondents watching each of the news shows at least five days a week and the mean value (in parenthesis) for each of the three news programs in each wave, based only on those respondents who participated in all four waves.

Table 1. Exposure to TV News Shows in Wave 1–4.

	Wave 1	Wave 2	Wave 3	Wave 4
Aktuellt (SVT, PS)	32,9 (2,6)	33,1 (2,6)	29,7 (2,4)	36,1 (2,7)
Rapport (SVT, PS)	37,7 (2,7)	37,3 (2,7)	33,8 (2,6)	41,1 (2,9)
TV4 Nyheterna (TV4, C)	28,9 (2,4)	28,1 (2,4)	24,3 (2,2)	30,0 (2,5)

Note. The table shows the share of respondents watching each of the news shows at least five days a week, with means within parenthesis, based on those (N=2,281) who participated in all four waves. The scale ranges from 0 (Never) to 5 (Daily). Unweighted data.

Briefly, the results show that *Rapport* is the most frequently watched news show, followed by *Aktuellt* and *TV4 Nyheterna*. Save for the notion that self-reported media exposure often can be problematic (Prior, 2009), these results as well as other studies (Ohlsson, 2015) shows that TV news consumption is quite widespread. In terms of changes across time, the results show that there were virtually no changes between Wave 1 and 2. In the third wave, that took place in early August and thus covered the non-election period as well as late summer, there was a decline, before TV news consumption increased during the national election campaign.

In terms of political knowledge, the descriptive results show that people could answer barely half of the questions correctly (Table 2). Important to reiterate is that each wave included six *different* questions tapping knowledge of events that had happened since the last wave. Thus, lower values in waves 3 and 4 do not indicate decreasing knowledge: it might also indicate that the questions asked in these waves were more difficult.

Table 2. Knowledge of Current Political Events in Wave 2–4 (mean values).

	Wave 2	Wave 3	Wave 4
Mean	3,32	2,36	2,25
(SD)	(1,37)	(1,33)	(1,63)

Note. The table shows the mean values and standard deviation (in parentheses) for the additive knowledge indices in Wave 2, 3 and 4. The indices run from 0 (no correct answers) to 6 (all questions answered correctly). N=2,281.

As was shown above, in previous research on knowledge effects from watching TV news the findings have been mixed. Nevertheless, the first hypothesis (H1) posited that there would be positive knowledge effects from exposure to TV news. To test H1, let us first investigate the bivariate relationship between exposure to TV news and knowledge of current political affairs in waves 2, 3 and 4. The independent variable will be a summed index of exposure to TV news in each wave, while the dependent variable will be the knowledge indices in each wave.

The results show that there are significant effects on knowledge about current political affairs from exposure to TV news in Wave 2 ($r = .22, p < .001$) as well as in Wave 3 ($r = .22, p < .001$) and Wave 4 ($r = .19, p < .001$). The results thus lend initial support for H1. A more robust test requires multivariate analyses however, controlling for background variables that may also have an impact on political knowledge. To this end, Table 3 presents the results of a series of regression analyses. The dependent variables are the indices for political knowledge in each panel wave while the independent variables are gender, age, education, political interest, general political knowledge and the summed indices of TV news exposure.

Table 3. Effects on Political Knowledge from Exposure to TV News, Wave 2–4.

	Wave 2	Wave 3	Wave 4
Gender (0=female, 1=Male)	.64*** (.05)	.32*** (.05)	.69*** (.06)
Age	.01*** (.00)	.00 (.00)	.001** (.00)
Education			
High school	.14 (.09)	– .14 (.10)	.18 (.11)
University	.29** (.09)	– .05 (.10)	.44*** (.11)
Political interest	.26*** (.03)	.40*** (.03)	.52*** (.04)
General political knowledge	.18*** (.01)	.15*** (.01)	.23*** (.02)
Exposure to TV news	.03*** (.00)	.04*** (.00)	.03*** (.01)
Adjusted R ²	.29	.22	.35
N	2,281	2,281	2,281

Note. Estimates are unstandardized OLS coefficients with standard errors in parentheses. ** $p < .01$, *** $p < .001$. All measures of the independent variables are taken from Wave 1, except the measures of exposure to TV news that are from the same wave as the knowledge indices.

The results show that there are positive knowledge effects from watching TV news, even after controlling for important background variables such as political interest and general political knowledge. The effect sizes are not large, particularly compared to the effects of political interest and general political knowledge, but they are still significant. Thus, the results lend support for H1.

According to H3, the knowledge effects from exposure to TV news would be strongest during the election campaign to the national parliament, weaker during the election campaign to the European parliaments and weakest during the non-election period. This hypothesis is however not supported. As can be seen, the effects from exposure to TV news hardly differ at all between the waves. Interesting to note though is that the explained variance is highest with respect to the national election campaign, followed by the election campaign to the European parliament and, finally, the non-election period. The non-election period in particular seems to be an outlier, as exemplified by the counterintuitive – albeit non-significant – finding that education is negatively correlated with knowledge about current political affairs and the lower explained variance compared to the two other periods.

All TV news programs might not be created equal though, and a key question for this paper is whether there are differences between the knowledge effects from watching public service versus commercial TV news.

According to H2 the political knowledge effects from exposure to public service TV news will be more positive than the political knowledge effects from exposure to commercial TV news. To investigate this, let us first look at the bivariate relationships between exposure to public service versus commercial TV news and knowledge of current political affairs in waves 2, 3 and 4, without controlling for any background variables or exposure to the other news shows. In these and subsequent analyses, the two public service news shows *Aktuellt* and *Rapport* will be treated separately, as there might be differences across them. The first results are presented in Table 4.

Table 4. Bivariate Relationships between Exposure to Public Service and Commercial TV News Shows and Political Knowledge, Wave 2–4.

	Political Knowledge W2	Political Knowledge W3	Political Knowledge W4
Aktuellt (PS)	.25***	.24***	.23***

Rapport (PS)	.27***	.26***	.26***
TV4 Nyheterna (C)	.04**	.07**	.02

Note: N=2,281. *p < .05, **p < .01 ***p < .001. Estimates are Pearson correlations. The measures of TV news exposure are from the same waves as the indices of knowledge of current political affairs.

The results show that the knowledge effects from watching both public service TV news shows are more positive than the knowledge effects from watching commercial TV in each of the three waves. In addition, in one case there is not even a significant relationship between political knowledge and exposure to the commercial *TV4 Nyheterna*. These results lend initial support to H2. Like before it is however important to investigate the effects taking different background variables into account. To further test H2 we will thus investigate the relationship between exposure to the three news shows and knowledge of current political affairs in each wave, controlling for gender, age, education, political interest, general political knowledge and exposure to the other TV news shows. The results are presented in Table 5.

Table 5. Effects on Political Knowledge from Exposure to Public Service and Commercial TV News Shows, Wave 2–4.

	Wave 2	Wave 3	Wave 4
Gender (0=female, 1=Male)	.63*** (.05)	.30*** (.05)	.67*** (.17)
Age	.00*** (.00)	– .00 (.00)	.00 (.00)
Education			
High school	.15 (.10)	– .145 (.10)	.19 (.11)
University	.29** (.10)	– .06 (.10)	.45*** (.11)
Political interest	.24*** (.03)	.37*** (.03)	.49*** (.04)
General political knowledge	.18*** (.01)	.14*** (.01)	.22*** (.02)
Exposure to TV news			
Aktuellt (PS)	.02 (.02)	.05* (.03)	.02 (.03)
Rapport (PS)	.09*** (.02)	.12*** (.03)	.12*** (.03)
TV4 Nyheterna (C)	– .03	– .04* (.02)	– .05* (.02)
Adjusted R ²	.30	.23	.35
N	2,281	2,281	2,281

Note. Estimates are unstandardized OLS coefficients with standard errors in parentheses. *p < .05, **p < .01 ***p < .001. All measures of the independent variables are taken from Wave 1, except the measures of exposure to TV news that are from the same wave as the knowledge indices.

The results show that it indeed makes a difference whether people expose themselves to public service or commercial TV news shows, but also that the effects on political knowledge differ depending on what public service TV news show people expose themselves to. The first thing to note is that the effects of watching public service news consistently are positive, but only in the case of *Rapport* is the effect significant in each wave. With respect to *Aktuellt* the effect is only significant in the second wave. The second thing to note is that the estimates of watching commercial *TV4 Nyheterna* consistently show negative signs, and the negative effect is significant in both the third and the fourth wave. Taken together these results lend support to H2, predicting that the political knowledge effects of exposure to public service TV news are more positive than the political knowledge effects of exposure to commercial TV news. They also lend support for H4, predicting that the political knowledge effects of exposure to public service TV news would be more positive than the effects of exposure to commercial TV news during the campaigns to the national parliament as well as to the European parliament and during the non-election period.

Still, the difference between the public service news shows *Aktuellt* and *Rapport* is interesting, as it suggests that not only the organizational structure and ownership (public service versus commercial) matters. The format and contents also matter, although the data cannot explain why the knowledge effects from exposure to *Rapport* are more positive than the effects from exposure to *Aktuellt*.

Discussion and Conclusions

Although there are disagreements about how informed citizens should be for democracy to function well (Bennett, 2003; Zaller, 2003), few would probably argue against the notion that an informed citizenry is of democratic value. As noted by Delli Carpini and Keeter (1996, p.

8), "Political information is to democratic politics what money is to economics: it is the currency of citizenship".

Since the media – and not least TV – constitute the most important source of political information for most people, how much citizens learn from exposing themselves to TV news is of key importance. In this light, the results of this study should offer some comfort to those worried that people do not learn from watching TV news. Regardless of whether the period under study is a first-order national election campaign, a second-order national election campaign or a non-election period, the results show positive knowledge effects.

Equally important however is the results showing that it matters what TV news people expose themselves to. More precisely, the results show that exposure to public service TV news shows leads to positive knowledge effects whereas exposure to commercial TV news has negative knowledge effects. In essence, public service TV news matter and contributes more to an informed electorate than commercial TV news. Important to note is that these results hold after including stringent controls, including general prior political knowledge that Price and Zaller (1993) suggested as an alternative measure of current news story learning.

Altogether these results support the growing number of studies that on the aggregate level suggest that public service-based system sustains a higher level of political knowledge than market-based systems (Aalberg & Curran, 2012; Iyengar et al., 2010; Curran et al., 2009; Fraile & Iyengar, 2014). They are also in line with the (limited) previous research in Sweden (Shehata et al., 2015). Also important however is the finding that the knowledge effects are stronger for one public service TV news show than for the other. This indicates that it is not ownership per se that is decisive. The format and the content also matter.

Taken together these findings have practical as well as theoretical implications. In terms of practical implications, the results suggest that policy-makers that believe in the importance of an informed citizenship should support public service TV broadcasting. This is

important, as the value of public service in an information environment where there is more information available than ever has been questioned in many countries. The results also suggest that the public service broadcaster as well as the commercial broadcaster should try to better understand why their TV news shows do not always have (as) positive knowledge effects. This leads to an important theoretical implication. In light of this and previous research, there is a great need to understand why some TV news shows and not others yield positive knowledge effects. Only by understanding this will it be possible for broadcasters with that ambition to deliberately design their TV news shows to increase the positive knowledge effects or turn negative knowledge effects into positive.

Having said this, it should be recognized that this study has its limitations. Among them is that the results might be sensitive to the choice of knowledge questions. Intentionally we selected knowledge questions about issues that had been discussed in major media, but it cannot be ruled out that the results would have been different had we included other – or more – questions. Since the results largely is in line with other recent research, we do not think this is a major problem, but obviously it would be better with more knowledge questions. Another limitation is that we cannot know how far these results are valid beyond the case of Sweden. This is always a problem with single-country studies. On the other hand, we believe this limitation is outweighed by the opportunity to use panel data that allowed us to analyze the effects of exposure to TV news on the individual, and not only aggregate, level.

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Appendix A.**Table A1. Cooperation Rates in the Panel Survey.**

Wave	Wave sample	Completed interviews	Total COOP	Wave COOP
Wave 1	6,897	3,557	52%	52%
Wave 2	3,557	2,995	43%	84%
Wave 3	3,557	2,747	40%	77%
Wave 4	3,557	2,676	38%	75%

Note: Table A1 presents the sample sizes, the number of completed interviews, and the total as well as wave cooperation rate for each of the waves. The cooperation rates were calculated as the proportion of all cases interviewed of all eligible unites ever contacted (COOP2, AAPOR).

Table A2. Current Affairs Knowledge Questions in Wave 2–4.

Wave 2	– A country recently decided not to buy the Swedish combat aircraft JAS Gripen. Which country was that?
	– Recently a major accident in Turkey led to massive protests. What kind of accident was it that happened?
	– What is that name of the party that won the election in India about a week ago?
	– According to a recent study by the Swedish National Council for Crime Prevention, what is the share of politicians who have been afflicted by threats, harassments or violence?
	– Försvarsberedningen [Swedish term] recently presented its report on Sweden’s future defense policy. Which of the following proposals did it make?
	– In which county did the armed forces recently take power through a coup after months of protests and unrest?
Wave 3	– Earlier this summer the alliance parties presented a proposal called “Sverigebygget”. What was the proposal about?
	– What party suggested earlier this summer that one billion should be set aside to even out the pay gap between women and men?
	– What party suggested earlier this summer that 20 000 new apartments should be build for students?
	– Who was recently appointed as new President of the European Commission?
	– A passenger flight was recently shot down over Ukraine. From what country came most of the passengers?
	– What party suggested earlier this summer that there should be a ceiling for the number of kids in preschool groups?
Wave 4	– Approximately how many new jobs have been created in Sweden since the 2006 election?
	– The defense alliance NAT= recently finished its summit in Wales. What was decided during the summit?
	– In his summer speech recently, the Prime Minister Fredrik Reinfeldt brought up an issue that received a lot of attention in the public debate. What was the issue about?
	– In their joint platform, the alliance parties presented different goals for their policies during the next term. Which of the following goals was included in their platform?
	– Which of the following proposals was included in the Social Democrats’ platform?
	– Recently it was decided what area of responsibility the EU-commissioner Cecilia Malmström will have in the new Commission of the EU. What is her new area of responsibility?