

Media malaise or a virtuous circle? Exploring the causal relationships between news media exposure, political news attention and political interest

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Abstract. Being politically interested is one of the most important norms from a democratic perspective, as it is a crucial antecedent for voting, political knowledge, civic and political participation, and attentiveness to political information. However, only limited research has focused on the relationship between media use and political interest, despite the notion that modern politics is mediated politics. Even more important is the fact that the causal relationship between media use and political interest still has not been firmly established. Against this background, the purpose of this study is to investigate the causal relationship between news media use and political interest. The results show that there are indeed causal and reciprocal relationships between political interest and attention to political news, and between political interest and exposure to some, but not all, news media. Overall these results lend stronger support to the perspective of media mobilisation theories than media malaise theories.

To be politically interested is one of the most important norms from a democratic perspective. It might not be a sufficient condition for other forms of political involvement, but it appears to be a necessary condition. As noted by Van Deth and Elff (2004: 478): ‘Without a minimum level of curiosity about politics, citizens would not even be aware of the political process or of opportunities to defend their well being or contribute to collective decisions.’ In fact, research has convincingly shown that there is a clear linkage between political interest on the one hand, and political knowledge (Delli Carpini & Keeter 1996; Eveland & Scheufele 2000), civic and political participation (Oskarson 2007; Verba et al. 1997), political talk (Pan et al. 2006), voting (Bennulf & Hedberg 1999; Holmberg & Oscarsson 2004), and attentiveness to political information and media use (Atkin et al. 1976; Drew & Weaver 2006; Lupia & Philpot 2005), as well as susceptibility to media effects (Kazee 1981), on the other. Thus, high or at least moderately high political interest should be seen as a virtue, especially from the perspectives of the participatory and deliberative models of democracy (Elster 1998; Pateman 1970). Hence, low and even declining levels of political interest among young people has generated concern (Lupia & Philpot 2005), as have the gender gap in levels of political

interest (Banwart 2007; Verba et al. 1997) and evidence showing that low political interest is more prevalent among the socially and economically disadvantaged in society (Oskarson 2007).

At the same time, it is well-established that the media constitute the most important source of political information and channel of communication between the governors and the governed. The number of people who experience politics directly is limited, and even those who are politically active gain most of their political information through traditional mass media or new media such as the Internet. Mediated political information and experiences also permeate interpersonal political discussions. In other words, politics has increasingly become mediated (Bennett & Entman 2001) as well as mediated (Mazzoleni & Schulz 1999; Strömbäck 2008).

From this perspective, it is surprising to find that, as noted by Prior (2008: 2), 'political scientists have devoted little attention to studying political interest as a dependent variable'. The same could be said with respect to communication research, where '[t]he relationship between political interest and media use has not been extensively studied' (Delli Carpini 2004: 404). With some exceptions, focusing in particular on the importance of political interest in the context of Internet use (Johnson & Kaye 2003; Lupia & Philpot 2005), most studies include political interest as a control variable in different equations or are satisfied by demonstrating a correlation between media use and political interest. Some studies even include consumption of news media as an indicator of political interest (Oskarson 2007), thus conflating a certain behaviour (media consumption) with an attitude (political interest). With only few exceptions (Atkin et al. 1976; Bennett et al. 2000), research has not focused on or been able to demonstrate the causal relationships between media use and political interest. As noted by Delli Carpini (2004: 404–405):

In general, although political interest has been found to be positively associated with the use of public affairs media, little is known regarding the extent to which this reflects the seeking-out of political information by already interested citizens, the socializing effects of media on interest, or some interaction between the two.

The lack of research focusing on the impact of media consumption on political interest is particularly surprising considering the clashing perspectives of 'mobilisation' and 'media malaise' theories in media research during the last decades (Aarts & Semetko 2003; Cappella & Jamieson 1997; De Vreese 2005; Moy & Pfau 2000; Newton 1999; Norris 2000; O'Keefe 1980; Robinson 1976; Valentino et al. 2001). Broadly speaking, according to media malaise theories,

the news media have a negative impact on people's political participation and cognitions – for example, their trust in politicians and sense of political efficacy (Cappella & Jamieson 1997; O'Keefe 1980; Robinson 1976). Media mobilisation theories, on the other hand, claim that the news media overall have a positive impact on people's political participation and cognitions (Holtz-Bacha 1990; Holtz-Bacha & Norris 2001; Norris 2000; Newton 1999).

If a positive and causal relationship between media use and political interest can be established, it would support those arguing that a virtuous circle (Norris 2000) is at work, with the media contributing positively to the functioning of democracy. If, on the other hand, a reverse causal relationship can be established, it would support the perspective of media malaise theories (Robinson 1976), arguing that the contribution by the media to democracy is, at least in some respects, adverse.

The main problem in the context of media use and political interest is to establish the causal relationships. Although research shows that there is a positive correlation between media use and political interest (Delli Carpini 2004; Drew & Weaver 2006), correlations do not prove causality. The positive correlations between media use and political interest could reflect that use of news media has a positive impact on people's political interest, but also that politically interested people seek out news media to a greater extent than those who are less politically interested. A combination of these two processes is also highly possible. In addition, it might be the case that some media contribute positively to people's political interest whereas other media do not, as suggested by the 'dual effects' model (Aarts & Semetko 2003). Notwithstanding the fact that levels of political interest vary across nations (Oskarson 2007; Van Deth & Elff 2004), it might also be the case that some media in some countries contribute to increasing political interest whereas equivalent media in other countries do not. Such findings could cast further light on the importance of different media formats (television versus newspapers versus Internet versus radio) and forms of ownership (private versus public service) or, when linked to content analyses, different media content (e.g., when politics is framed as a game versus as issues).

Aside from the general need to study political interest as a dependent variable (Prior 2008), there are hence several reasons to investigate the causal relationships between news media use and political interest. Against this background, the purpose of this study is to investigate the causal relationships between news media use and political interest, and whether there are differences between different media in this respect. In extension, our purpose is also to contribute to the larger discussion between the perspectives of media malaise and media mobilisation theories.

Empirical background, purpose and hypotheses

The context of this study is Sweden and the 2006 election campaign. According to the framework developed by Hallin and Mancini (2004), Sweden represents a prototypical example of the democratic corporatist model of media and politics. As such, it is characterised by, among other things, high newspaper circulation, a high degree of journalistic professionalisation, strong although decreasing state intervention but with strong protection for press freedom, and strong public service (Hallin & Mancini 2004; Petersson et al. 2005). While there used be strong links between newspapers and organised social and political groups – a high degree of political parallelism – these links have become increasingly weakened, and today news journalism is characterised by political neutrality (Hallin & Mancini 2004; Petersson et al. 2005; Strömbäck & Nord 2008).

There are several reasons why this case has been chosen. First, Sweden is a country with rather stable levels of political interest. Longitudinal surveys show that during the last decades, about or somewhat more than 50 per cent of the population has claimed to be at least moderately interested in politics (Holmberg & Weibull 2006: 19). That share normally increases during election years, suggesting that an electoral cycle is at work and that people in this respect are mobilised politically by elections (Strömbäck & Johansson 2007). Second, the Swedish media landscape offers a rather wide variety of different media, in terms of media forms, media ownership and media consumption, although there are tendencies toward increasing media concentration (Petersson et al. 2005). With respect to broadcast media, a public service monopoly was in place until the late 1980s (Djerf-Pierre & Weibull 2001). Commercial cable television, broadcast from abroad, was introduced in the late 1980s, and the first commercial terrestrial television channel – *TV4* – was launched in the early 1990s. Today there are numerous commercial cable and digital television channels, and although the focus of the majority of these is on entertainment, there are some that devote significant resources to news and public affairs reporting (Jönsson & Strömbäck 2007). With respect to television news consumption, at the time of the 2006 election 56 per cent reported watching the news on at least one of the two public service channels at least five days a week, whereas the corresponding share for the most important commercial television channel was 32 per cent. The share for morning newspapers was 70 per cent, for news on the Internet 40 per cent, for local radio 38 per cent, and for news in national public service radio 26 per cent (Holmberg & Weibull 2006: 27). In addition, 20 per cent reported reading a tabloid at least three days a week (Westlund 2007: 328).

There is also evidence that the resources and news space devoted to politically relevant news varies between different media. Generally speaking, the

national morning newspapers offer more political news reporting than the tabloids, and the public service television channels offer more political news reporting than the commercial television channels. For example, a study by Asp (2006), covering the four weeks before election day in 2006, showed that the number of news stories per day on the upcoming election was 4.8 and 4.9, respectively, in the public service television news shows *Rapport* and *Aktuellt*, as compared to 4.4 and 0.9, respectively, in the commercial television news shows *TV4 Nyheter* and *TV3 Update*. The national public service radio news show *Dagens Eko* offered 3.5 stories per day. With respect to the press, the morning newspapers *Dagens Nyheter* and *Svenska Dagbladet* offered 29 and 18 stories per day, respectively, whereas the tabloids *Expressen* and *Aftonbladet* offered 11 and 13 stories per day, respectively (Asp 2006: 10). Thus, there was a wide variety not only with respect to different news media, but also with respect to the amount of news space devoted to political and public affairs reporting. This variety allows us to compare the correlation and causal relationships between media use and political interest not only across individual media, but also across media that differ in how they are owned or operated.

Another prerequisite for a proper study of the causal relationships between media consumption and political interest is access to data including a time dimension (Menard 2002). Cross-sectional surveys can shed light on correlations or associations between media use and political interest (Drew & Weaver 2006), but they are inherently insufficient when it comes to investigating causal relationships. In the case of the Swedish 2006 election, however, we have access to a panel study with three waves, including more than 1,000 respondents participating in all three waves. With these data it will be possible to investigate the causal relationships between news media use and political interest.

Hypotheses

There are few recent studies that have focused on the correlation between news media use and political interest (Chang 2007; Drew & Weaver 2006), although the evidence suggests a positive correlation (Delli Carpini 2004). Correlations do not prove causation; hence the present focus on the causal relationship between political interest and media use. In this and other contexts it is important to make a distinction between news media *exposure* and *attention*. As noted by Chaffee and Schleuder (1986), these are two different concepts, where 'attention' conceptually refers to an 'increased mental effort', whereas 'exposure' refers to the use of different media or media content. While news media exposure is a precondition for attention to news media content, it is highly possible to be exposed to news media content without paying any

particular attention to it. This distinction is particularly important as research suggests that media exposure measures might underestimate the impact of television (Chaffee & Schleuder 1986). Thus we will include measures of both news media exposure and attention. By 'news media exposure' we mean measures dealing with how often (e.g., how many days during the last week) people consume various news media. By 'attention' we mean measures dealing with how much attention people pay to different types of news.

As noted above, in previous research some have argued that the media contribute to a virtuous circle (Norris 2000) – which in this case could inform a hypothesis that news media exposure and attention to political news leads to higher political interest – whereas others argue that the media rather contribute to media malaise or spirals of cynicism – which could inform a hypothesis that news media exposure and attention to political news has no or even a negative impact on political interest, and that positive associations between news media exposure, attention to political news and political interest are due mainly to a process of self-selection (Delli Carpini 2004; Petersson et al. 2006). Of course, it is also highly possible and even likely that twin processes are at work – that is, political interest has an influence on news media exposure and attention to political news, while news media exposure and attention to political news simultaneously have an influence on political interest. In fact, this appears to be the most likely explanation for the positive correlations between political interest and different measures of media use uncovered in prior research. Hence our first hypotheses are:

H1a: Political interest will have a positive impact on attention to political news.

H1b: Political interest will have a positive impact on news media exposure.

H2a: Attention to political news will have a positive impact on political interest.

H2b: News media exposure will have a positive impact on political interest.

Both the associations and causal relationships might however differ between news media exposure and attention to political news. In general, attention to political news should display stronger associations with degrees of political interest than news media exposure, not least since attention refers to 'increased mental effort' (Chaffee & Schleuder 1986) whereas exposure can be both active and passive. A second reason for this expectation is that people may expose themselves to news media for many reasons that are

unrelated to politics, as suggested by uses and gratifications research (Blumler 1979), while a third reason for this expectation is that attention measures might be more reliable than exposure measures and more valid when investigating media effects (Chaffee & Schleuder 1986). Hence, our next hypotheses are:

H3a: Attention to political news will have a stronger impact on political interest than news media exposure.

H3b: Political interest will have a stronger impact on attention to political news than on news media exposure.

With respect to news media exposure, there might also be differences across news media, as suggested by research showing that dual effects might be at work (Aarts & Semetko 2003; Holtz-Bacha 1990; Holtz-Bacha & Norris 2001). As the public service channels have an obligation to report on politics and public affairs (Jönsson & Strömbäck 2007), and arguably have a stronger ethos of focusing on what is in the public interest, it can be expected that the relationship with political interest will be stronger with respect to public service television and radio news than with respect to commercial television news. Research has also shown that in Sweden as in many other countries, ‘higher levels of knowledge are positively and significantly correlated with preferences for public broadcasting’ as opposed to commercial broadcasting (Holtz-Bacha & Norris 2001). Hence, although the main commercial television channel, *TV4*, operates under a charter similar to that which must be followed by the public service media, with respect to the broadcast media, our next hypotheses are:

H4a: Exposure to public service broadcast news will have a stronger impact on levels of political interest than exposure to commercial broadcast news.

H4b: Political interest will have a stronger impact on exposure to public service broadcast news than to commercial broadcast news.

With respect to Swedish newspapers, recent research suggests that use of morning newspapers and the tabloid *Aftonbladet* is positively associated with political knowledge and political trust, whereas the opposite holds true for consumption of the tabloid *Expressen* (Petersson et al. 2006: 127–134). Focusing on different types of newspapers – thus setting aside the difference found between the two tabloids in earlier research – and following the underlying logic suggested by this research, our final hypotheses are:

H5a: Exposure to morning newspapers will have a stronger impact on political interest than exposure to tabloids.

H5b: Political interest will have a stronger impact on exposure to morning newspapers than to tabloids.

Methodology and data

To address the above hypotheses, this study builds upon a three-wave panel study completed by the Centre for Political Communication Research, in cooperation with IFS AB. The election was held on 17 September 2006, and the final phase of the election campaign started in mid-August. The first wave was initiated 7–18 August, the second wave 28 August–15 September and the third wave 18–27 September. All interviews were conducted by means of computer-assisted telephone interviews with a random sample of citizens between the ages of 18 and 74. Our main priority when planning the panel study was to make sure that at least 1,000 respondents participated in all three waves, and that the time span between the waves was about three weeks. Based on this, the first wave included 2,161 respondents, while the second and third waves included 1,154 and 1,007 respondents, respectively. This leaves us with a total response rate of 46.6 per cent.¹ All analyses in this study are based on the responses from those who participated in all three waves. The ordering of the interviews in the second and third waves was conducted so that those who were interviewed early in the first wave were re-interviewed early in the second and third wave, while those who were interviewed late in the first wave were re-interviewed late in the second and third waves. In the end, the time span between interviews in two successive waves was thus approximately three weeks, whereas the time span between interviews in Waves 1 and 3 was about six weeks.

One major benefit of panel studies is that they allow scholars to study changes over time at the individual level. From that perspective it is not as crucial as in some other types of studies that the sample is a perfect match with the population it is supposed to represent. Nevertheless, the final sample in the utilised panel study was broadly representative in terms of gender, age and education, although with some over-representation of males, highly educated and older people.² Several tests for the effect of panel attrition were also conducted. These tests showed that those who dropped out from the study after the first or second panel wave were similar to those who participated in all three waves in terms of education. There was a slight over-representation of males in the group of dropouts and the respondents in this group were on average three years younger than those who participated in all three waves. More importantly, the latter group scored higher on both political interest

(3.14 versus 2.93) and attention to political news (3.23 versus 3.02) in the first wave of the panel (see measures below). This reflects a common non-response problem with surveys in general and panel studies in particular, which might affect the estimated results due to decreased variance in these two key variables. Nevertheless, the panel design and analytic strategy used in this study create a unique opportunity to analyse the reciprocal relationship between political interest and media use over time.

Measures and variables in the models

Political interest: To measure political interest, we used the standard survey item: ‘Generally speaking, how interested are you in politics?’ The response alternatives ranged from 1 (not at all interested) to 5 (very interested).

Political news attention: The questionnaire included one question about how much attention people pay to political news: ‘Generally speaking, to what extent do you follow the news about politics?’ The response alternatives ranged from 1 (never) to 5 (very often).

News media exposure: To measure people’s exposure to different news media, the survey included the question ‘How many days during the last week did you read or watch the news in the following media, in its traditional form or on the Internet?’ The response alternatives ranged from 0–7 days. The news media included were the two public service television news shows *Rapport* and *Aktuellt*, the main commercial TV news show *TV4 Nyheterna*, the public service radio news show *Ekot*, the morning newspapers *Dagens Nyheter* and *Svenska Dagbladet*, and the newsstand tabloids *Aftonbladet* and *Expressen*. In essence, the study includes all major national news media.

Modeling causal and reciprocal relationships with panel data

The causal effects of political interest on news media exposure and attention to political news, as well as the reversed causal relationship, will be estimated using statistical models for panel data that were explicitly developed for the study of reciprocal relationships. By estimating and comparing both *cross-lagged effects* through ordinary least squares (OLS) and *synchronous effects* using two-stage least squares (2SLS), it will be possible to make stronger causal inferences regarding the relationships than would be the case with cross-sectional data. Figure 1 illustrates the logic behind the cross-lagged effects model and the synchronous effects model (Finkel 1995; Heise 1970; Westholm 2005).

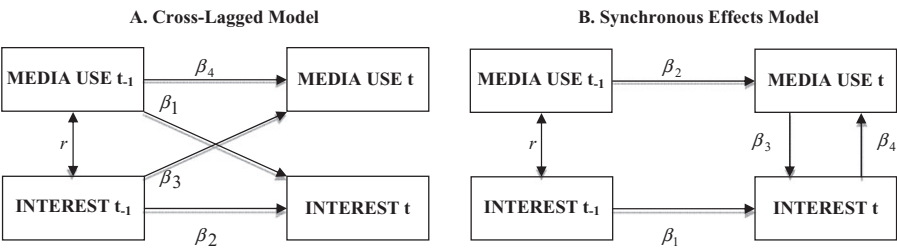


Figure 1. Media use and political interest: The cross-lagged and synchronous effects model.

The general case of the cross-lagged model shown in Figure 1 can be summarised in the following set of structural equations:

$$Y_t = \beta_1 X_{t-1} + \beta_2 Y_{t-1} + U_1 \tag{1}$$

$$X_t = \beta_3 Y_{t-1} + \beta_4 X_{t-1} + U_2 \tag{2}$$

where Y denotes political interest, X media use, and U the error term in each equation. Subscripts t and t–1 correspond to the time of measurement. The first equation regresses time t values of political interest (Y_t) on time t–1 values of media use (X_{t-1}) as well as time t–1 values of political interest (Y_{t-1}). Put differently, the current levels of political interest are modeled as a function of past levels of political interest and prior media use. Including past levels of political interest and media use as predictor variables in this way is one of the great advantages of panel data, and strongly improves our ability to make causal inferences.

Including the lagged dependent variable as a control variable in the model (Y_{t-1} in the first equation above and X_{t-1} in the second equation) can be justified on several grounds (for in-depth discussions on this, see Finkel 1995; Heise 1970; Taris 2000; Teorell 2009). As Finkel (1995: 9) has stated, inclusion of the lagged dependent variable in the model ‘frames the analysis in the following fashion: Do the independent X variables influence changes in Y *for fixed levels of Y_{t-1}* ?’ This is important because the model is estimating *individual-level changes* in the dependent variable over time and how such changes are related to the other independent variables of interest (Heise 1970: 5). In short, β_2 in the first equation and β_4 in the second both represent stability effects of the dependent variable over time, while β_1 and β_3 are the estimated effects of the independent variables on change in the dependent variables between panel waves.

However, the cross-lagged effects model is based on specific assumptions regarding the time lags between cause and effect (Finkel 1995; Heise 1970;

Slater 2004). In short, it is assumed that the causal lag between independent and dependent variables corresponds to the time elapsed between measurements (i.e., panel waves). For strongly reciprocal variables such as news media exposure, political news attention and political interest, estimation of cross-lagged effects might lead to simultaneity bias whenever the time period between measurements exceeds the true causal lag (Teorell 2009: 208). As argued by Finkel (1995: 32): ‘The presence of cotemporal or synchronous influences between variables necessitates alternative methods of estimating the reciprocal causal effects.’ The synchronous effects model also depicted in Figure 1 provides such opportunities – a model similar to the instrumental variable approach suggested by Slater (2004: 173). Rather than assuming cross-lagged effects, the synchronous effects model assumes that effects are caused instantaneously. The general case of the synchronous effects model (Figure 1) can be expressed in the following manner:

$$Y_t = \beta_3 X_t + \beta_1 Y_{t-1} + U_1 \quad (3)$$

$$X_t = \beta_4 Y_t + \beta_2 X_{t-1} + U_2 \quad (4)$$

The reciprocal effects between X and Y mean that the synchronous effects model cannot be estimated properly using OLS (Finkel 1995: 33; Slater 2004: 173). Instead, the synchronous effects model needs to be estimated applying an instrumental variable approach using two-stage least squares (Baum 2006: 185). In general, the problem is to find a proxy variable that can operate as an instrument for the independent variable X_t in the first equation and Y_t in the second equation, that meets the criteria of being highly correlated with X_t and Y_t , respectively, while at the same time unrelated to the error term of each equation; and has no direct causal influence on the dependent variable (Finkel 1995: 33). Access to panel data makes this possible as the lagged values of the independent variables can be used as instruments – that is, X_{t-1} can be used as an instrument for X_t in the first equation, while Y_{t-1} can be used as an instrument for Y_t in the second equation. They are both strongly related to their time t values, but only indirectly related to the dependent variable through their time t effects (Finkel 1995; Lindgren 2006; Westholm 2005). This is made possible by the underlying assumption of the synchronous effects model that causal effects are instantaneous.

In sum, the reciprocal relation between political interest and news media exposure as well as attention to political news will be analysed using both cross-lagged and synchronous effects. The following cross-lagged effect models will be estimated using OLS:

$$News_t = \beta_1 Int_{t-1} + \beta_2 Edu + \beta_3 Sex + \beta_4 Age + \beta_5 \Delta Talk + \beta_6 News_{t-1} + U_1 \quad (5)$$

$$Interest_t = \beta_7 News_{t-1} + \beta_8 Edu + \beta_9 Sex + \beta_{10} Age + \beta_{11} \Delta Talk + \beta_{12} Int_{t-1} + U_2 \quad (6)$$

The first equation will estimate the lagged effects of political interest on current news media exposure and attention to political news, controlling for education, sex, age, changes in the amount of political discussion between panel waves, as well as prior news media use. The second equation will estimate the lagged effects of news media exposure and attention to political news on current levels of political interest, controlling for education, sex, age, change in the amount of political discussion and prior interest levels. Education, sex and age are included as control variables as these factors have been shown to influence both interest in politics and news consumption (Althaus et al. 2009; Prior 2007). Individual-level change in political discussion is used as a control variable to parcel out any potential mobilisation effects during the campaign. Thus, the estimated effects of political interest on news media exposure and attention to political news, and the effects of news media exposure and attention to political news on political interest, control for any increases in the level of political discussions during the campaign. The following synchronous effect models will be estimated using two-stage least squares:

$$News_t = \beta_1 Int_t + \beta_2 Edu + \beta_3 Sex + \beta_4 Age + \beta_5 \Delta Talk + \beta_6 News_{t-1} + U_1 \quad (7)$$

$$Interest_t = \beta_7 News_t + \beta_8 Edu + \beta_9 Sex + \beta_{10} Age + \beta_{11} \Delta Talk + \beta_{12} Int_{t-1} + U_2 \quad (8)$$

The first equation uses the lagged values of political interest as an instrument for time t values of this variable, based on the assumption of instantaneous effects, while the second equation uses lagged values of news media exposure and attention to political news as an instrument for time t values of this variable. Both models include the same control variables as their cross-lagged versions.

The reason for estimating both cross-lagged and synchronous effects is the opportunity this brings for evaluating how sensitive the results are to the different assumptions of causal lags (Lindgren 2006; Westholm 2005). Comparing cross-lagged to synchronous effects has been suggested as a way of estimating minimum and maximum causal effects: '[T]aken together the two approaches can provide something of a lower and upper bound for the total effect of x on y , i.e., while the cross-lagged effect may tend to underestimate the true relationship, the instantaneous effect may tend to overestimate it' (Lindgren 2006: 92). This is not to say that panel data are the final solution to the problem of causal inference. Nevertheless, we believe the dataset and the

analytical procedures used here will be able to provide a firmer answer than hitherto with respect to the important and too often neglected question about the causal relationships between news media exposure, attention to political news and political interest.

Results

The effects of political interest on news media use as well as the effects of news media use on interest in politics are presented in four tables in this section. Each table includes both lagged and synchronous effects estimated between both the first and second panel wave and the second and the third wave – producing four columns per table. Table 1 presents lagged and synchronous effects of attention to political news on political interest. As can be seen, attention to political news has a consistently positive impact on political interest – irrespective of people’s prior level of political interest. Furthermore, the synchronous media effects are in both cases more than twice the size as the lagged effects. As lagged effects and synchronous effects may be considered as a lower and upper bound for the true causal effects, the results in Table 1 strengthen the conclusion that attention to political news has a positive effect on political interest. Thus, *H2a*, predicting that attention to political news will have a positive impact on political interest, is supported.

The relatively high R^2 values are due to inclusion of the lagged dependent variable as a control variable in the models, indicating that political interest levels are quite stable between panel waves. Thus, people’s interest in politics did not change much on an individual level during the first weeks of the

Table 1. Media effects on political interest (OLS and 2SLS estimates)

	WAVE 1-WAVE 2		WAVE 2-WAVE 3	
	Lagged effects	Synchronous effects	Lagged effects	Synchronous effects
Political news	0.207*** (0.026)	0.513*** (0.063)	0.167*** (0.024)	0.432*** (0.062)
Adj. R^2	0.67	0.68	0.68	0.69

Notes: Lagged effects are unstandardised OLS estimates with standard errors in parentheses. Synchronous effects are two-stage least squares estimates with standard errors in parentheses. All models control for education, sex, age, changes in the amount of political discussion between panel waves as well as prior political interest. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

election campaign. While not very surprising, this fact nevertheless explains the high amount of explained variance.

The results presented in Table 2 confirm the reciprocal nature of the relationship between attention to political news and interest in politics. Both the lagged and the synchronous effects of political interest on attention to political news are positive and statistically significant. Thus being politically interested increases the propensity to seek out news about politics in the media, and this supports *H1a*.

The larger amount of explained variance in Table 1 than in Table 2 reveals another important aspect of the reciprocal relationship between news media use and political interest – namely that levels of political interest are more stable over time than are levels of exposure to the news media. This should not come as a surprise. Political interest is mainly shaped by long-term forces and does not fluctuate much from one day to another (Prior 2008). Attention to political news is, in comparison, more volatile and influenced by short-term forces.

The results thus far show that there is a causal and reciprocal relationship between political interest and attention to political news. The next step in the analysis is to investigate the relationship between political interest and news media exposure. First we will investigate the impact of news media exposure on political interest. Table 3 presents the effects of exposure to different news media on political interest. Using exposure to different news media as independent variables leads to a more scattered picture of the media’s impact on political interest. Three observations are important. First, while most of the coefficients are positive, they tend to be rather weak and are more often than not below standard levels of statistical significance. Second, there is an interesting pattern with respect to the type of news media exposure that produces

Table 2. Effects of political interest on news media use (OLS and 2SLS estimates)

	WAVE 1-WAVE 2		WAVE 2-WAVE 3	
	Lagged effects	Synchronous effects	Lagged effects	Synchronous effects
Political interest	0.309*** (0.032)	0.486*** (0.048)	0.368*** (0.028)	0.571*** (0.043)
Adj. R ²	0.52	0.57	0.58	0.58

Notes: Lagged effects are unstandardised OLS estimates with standard errors in parentheses. Synchronous effects are two-stage least squares estimates with standard errors in parentheses. All models control for education, sex, age, changes in the amount of political discussion between panel waves, and prior news media use. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

significant (or nearly significant) positive effects on political interest. Positive effects are found for exposure to both public service television news shows *Rapport* and *Aktuellt*, as well as to the public service radio news show *Ekot*. Exposure to the commercial *TV4 Nyheter*, however, does not have a significant impact on political interest. This lends support to *H4a*, predicting that exposure to public service broadcast news will have a stronger impact on political interest than exposure to commercial news.

Turning to the impact of exposure to different newspapers, *H5a* predicted that exposure to morning newspapers would have a stronger impact on political interest than exposure to tabloids. This hypothesis is only partially supported. The results show that exposure to the morning newspapers *Dagens Nyheter* and *Svenska Dagbladet* had some, nearly significant, effects on political interest

Table 3. Media effects on political interest (OLS and 2SLS estimates)

	WAVE 1-WAVE 2		WAVE 2-WAVE 3	
	Lagged effects	Synchronous effects	Lagged effects	Synchronous effects
Rapport	0.025** (0.009) Adj. R ² = 0.64	0.052** (0.017) Adj. R ² = 0.66	0.011 (0.008) Adj. R ² = 0.67	0.021 (0.015) Adj. R ² = 0.67
Aktuellt	0.013 (0.009) Adj. R ² = 0.65	0.026 (0.016) Adj. R ² = 0.66	0.015 ^b (0.008) Adj. R ² = 0.67	0.028 ^c (0.014) Adj. R ² = 0.68
TV4 Nyheter	0.011 (0.008) Adj. R ² = 0.65	0.018 (0.013) Adj. R ² = 0.66	0.007 (0.008) Adj. R ² = 0.68	0.010 (0.012) Adj. R ² = 0.68
Ekot	0.021** (0.007) Adj. R ² = 0.66	0.034** (0.013) Adj. R ² = 0.66	0.011 (0.007) Adj. R ² = 0.67	0.020 (0.012) Adj. R ² = 0.67
Dagens Nyheter	0.017 ^a (0.009) Adj. R ² = 0.65	0.021 ^a (0.011) Adj. R ² = 0.65	0.003 (0.008) Adj. R ² = 0.67	0.003 (0.010) Adj. R ² = 0.67
Svenska Dagbladet	0.039* (0.012) Adj. R ² = 0.65	0.044** (0.014) Adj. R ² = 0.65	0.013 (0.011) Adj. R ² = 0.67	0.016 (0.012) Adj. R ² = 0.67
Aftonbladet	0.008 (0.008) Adj. R ² = 0.65	0.011 (0.010) Adj. R ² = 0.65	0.015* (0.007) Adj. R ² = 0.67	0.019* (0.009) Adj. R ² = 0.67
Expressen	-0.004 (0.010) Adj. R ² = 0.65	-0.005 (0.013) Adj. R ² = 0.65	0.004 (0.009) Adj. R ² = 0.67	0.005 (0.011) Adj. R ² = 0.67

Notes: Lagged effects are unstandardised OLS estimates with standard errors in parentheses. Synchronous effects are two-stage least squares estimates with standard errors in parentheses. All models control for education, sex, age, changes in the amount of political discussion between panel waves, and prior political interest. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ^a $p = 0.059$. ^b $p = 0.061$. ^c $p = 0.051$.

between the first and second panel wave. On the other hand, exposure to the tabloid *Aftonbladet* also had a significant effect on political interest between the second and third wave. Overall though, the results suggest that news media that are more clearly devoted to serious news coverage of politics (public service news and morning newspapers) has a greater potential to increase levels of political interest than news media that tend to treat politics more 'pragmatically' and less 'sacerdotally' (commercial television news and tabloids), to use the distinction between different media orientations towards politics suggested by Semetko et al. (1991: 6). It is important to note, however, that none of the media appear to have a negative impact on political interest.

The third observation is that the results are not consistent across panel waves. In none of the cases are the positive effects present between both the first and the second, and the second and the third waves. Thus, while the effects of news media exposure tend to be positive rather than negative, and clearer for some media than others, they are not strong and consistent. The impact of attention to political news is both stronger and more consistent than the impact of exposure to different news media. This lends support to *H3a* (see also Chaffee & Schleuder (1986) about attention and exposure as measures in media effects research).

Turning to the effects of political interest on exposure to different news media, *H1a* predicted that political interest would have a positive impact on news media exposure, *H4b* that political interest would have a stronger impact on exposure to public service broadcast news than to commercial broadcast news, and *H5b* that political interest would have a stronger impact on exposure to morning newspapers than to tabloids. Table 4 addresses these hypotheses. The results show that political interest has a positive impact on exposure to different media, but also that these effects are not equal across news media. Instead, the positive impact of political interest is largely confined to the public service news shows – *Rapport*, *Aktuellt* and *Ekot* – and, to some extent, the morning newspapers. Between the second and third wave, political interest also has a positive impact on exposure to the tabloid *Aftonbladet*. Thus, *H4b* is supported, whereas *H5b* receives mixed support. Interestingly, the same media where exposure had a causal impact on political interest were the ones where political interest had a causal impact on news media exposure. Thus, the positive, causal and reciprocal relationship between political interest and news media exposure is largely confined to the public service news shows and the morning newspapers, and to some extent the tabloid *Aftonbladet*. Again it is worth noting that the results show no negative effects.

Overall, the effects of political interest on news media exposure are both stronger and more consistent with respect to public service television and radio than to newspapers. For the public service news media, both the lagged

and the synchronous effects are positive and significant, and the synchronous effects are stronger. No synchronous effects were calculated between the second and third panel wave due to the retrospective character of these news media use questions. It is important to note here that the lagged and synchronous effect models are based on different assumptions about the causal lags of political interest and news media exposure. The lagged model assumed that interest values at time $t-1$ affect news media use at time t , while the synchronous model assumed that these effects occur immediately.

In sum, the combined results show that there is a significant, causal and reciprocal relationship between attention to political news and political interest, that political interest has a positive impact on exposure to some but not all news media, and that exposure to some – and virtually the same – news media has a positive impact on political interest. By employing statistical models for panel data that were explicitly developed for analysing reciprocal

Table 4. Interest effects on news media use (OLS and 2SLS estimates)

Political interest	WAVE 1-WAVE 2		WAVE 2-WAVE 3
	Cross-lagged effects	Synchronous effects	Cross-lagged effects
Rapport	0.288*** (0.061) Adj. R ² = 0.47	0.374*** (0.078) Adj. R ² = 0.48	0.202** (0.059) Adj. R ² = 0.50
Aktuellt	0.270*** (0.060) Adj. R ² = 0.43	0.348*** (0.077) Adj. R ² = 0.44	0.205** (0.061) Adj. R ² = 0.44
TV4 Nyheterna	0.012 (0.059) Adj. R ² = 0.41	0.015 (0.076) Adj. R ² = 0.41	0.049 (0.058) Adj. R ² = 0.43
Ekot	0.165** (0.061) Adj. R ² = 0.44	0.214** (0.007) Adj. R ² = 0.44	0.290*** (0.061) Adj. R ² = 0.45
Dagens Nyheter	0.015 (0.038) Adj. R ² = 0.71	0.019 (0.048) Adj. R ² = 0.71	0.086* (0.034) Adj. R ² = 0.76
Svenska Dagbladet	0.070* (0.031) Adj. R ² = 0.69	0.090* (0.040) Adj. R ² = 0.69	0.005 (0.026) Adj. R ² = 0.76
Aftonbladet	0.073 (0.046) Adj. R ² = 0.66	0.094 (0.060) Adj. R ² = 0.66	0.088* (0.044) Adj. R ² = 0.69
Expressen	0.015 (0.042) Adj. R ² = 0.58	0.019 (0.054) Adj. R ² = 0.58	0.029 (0.036) Adj. R ² = 0.68

Notes: Lagged effects are unstandardised OLS estimates with standard errors in parentheses. Synchronous effects are two-stage least squares estimates with standard errors in parentheses. All models control for education, sex, age, changes in the amount of political discussion between panel waves, and prior news media use. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

relationships, the estimated effects capture individual-level changes in political interest and news media exposure during the 2006 Swedish election campaign, and how such changes were influenced by news media use and political interest, respectively. The larger and more consistent effects of political interest on news media exposure, as well as the higher amount of explained variance in the models predicting time t interest values with time $t-1$ interest values compared to the models predicting time t news media use with time $t-1$ news media use, indicate that the impact of political interest on news media use is stronger and more consistent than the impact of news media use on political interest.

Discussion and conclusion

Being politically interested is one of the most important norms from a democratic perspective, as it is a crucial antecedent for, among other things, political knowledge and political participation. From such a perspective, it is surprising that only a limited amount of research has addressed the antecedents of political interest (Prior 2008), and the relationship between media consumption and political interest (Delli Carpini 2004). Although research has found a positive correlation between media use and political interest, the question of the causality of this relationship has rarely been investigated with data and methods developed for analysing causal and reciprocal relationships. Against this background, the purpose of this study was to investigate the causal relationships between news media exposure, attention to political news and political interest.

The results show that the relationship between political interest, news media exposure and attention to political news is both causal and reciprocal. As hypothesised, the effects are particularly strong and consistent with respect to attention to political news. Political interest has a positive causal impact on attention to political news, and attention to political news has a positive causal impact on political interest. The results with respect to the relationship between political interest and news media exposure do not show as strong and consistent effects, but the effects go in the same direction. In particular there appears to be a rather consistent, if not as strong as in the case of attention to political news, causal and reciprocal relationship between political interest and exposure to the public service news shows, the morning newspapers and the tabloid *Aftonbladet*. In the case of commercial television news and the tabloid *Expressen*, no significant effects were found. Interestingly, the positive effects were found for the same news media that previous research has found to offer more political news coverage (Asp 2006). This indicates that the media content

matters for the effects of news media exposure on political interest, and that exposure to news media that report extensively on politics primes people's political interest.

It is important to note, however, that all effects detected were positive. In no case did the results suggest a negative causal relationship between political interest and exposure to different news media. In this respect, the results support the notion of a virtuous circle rather than of media malaise. This does not, of course, rule out that some news media might have other effects that are detrimental from a democratic perspective – for example, on people's trust in politicians. Neither does it rule out the possibility that over a longer period of time the effects of news media exposure might be less positive. As the time span for this study is only six weeks, we cannot rule out that the long-term effects differ from the short- or medium-term effects. In the short-to-medium term, the results nevertheless strongly suggest that the media have a positive impact on people's political interest.

At least this is the case in Sweden. The extent to which these results are also valid in other countries is of course an open question that can only be addressed by further, and comparative, research. Having said this, we do believe that the results in this study are likely to be valid in other countries that share similar characteristics with Sweden, such as a media landscape that offers a wide variety of media – in terms of media forms, media ownership, media consumption and media content – strong public service broadcasting, and the democratic corporatist model of media and politics. Considering the importance of political interest from a scholarly and societal perspective, we hope the results of this study will encourage further research in other countries on the effects of news media exposure and attention to political news on political interest – and vice versa. One major question in such research should be the causal mechanisms behind the media's influence on political interest.

We also think it is important in future research to include both attention and exposure measures. Although news attention to some extent is contingent upon media exposure, it cannot be assumed that exposure equals attention (Chaffee & Schleuder 1986). While attention measures risk over-estimating the media's influence – due to people's responses being affected by what is perceived as socially desirable responses and the strong reciprocal nature of dependent and independent variables – exposure measures might underestimate the media's influence, particularly in the case of television where exposure measures often are less reliable (Chaffee & Schleuder 1986). From this perspective, the effects of attention measures might be interpreted as representing maximum effects, whereas the effects of exposure measures might be interpreted as minimum effects. By including attention as well as exposure measures, confidence in the results can be increased.

Appendix

Table A1. Descriptive statistics: Media attention and exposure variables (mean values and standard deviations)

	Wave 1	Wave 2	Wave 3
Attention to political news (0–5)	3.228 (1.140)	3.282 (1.094)	3.402 (1.041)
Rapport (0–7)	3.642 (2.749)	3.659 (2.657)	3.892 (2.599)
Aktuellt (0–7)	3.039 (2.638)	2.931 (2.534)	3.015 (2.565)
TV4 Nyheterna (0–7)	2.718 (2.546)	2.629 (2.465)	2.722 (2.493)
Ekot (0–7)	1.900 (2.707)	1.899 (2.619)	2.033 (2.623)
Dagens Nyheter (0–7)	0.977 (2.274)	1.005 (2.271)	0.996 (2.245)
Svenska Dagbladet (0–7)	0.504 (1.691)	0.584 (1.820)	0.567 (1.764)
Aftonbladet (0–7)	1.767 (2.580)	1.869 (2.603)	1.941 (2.581)
Expressen (0–7)	0.942 (2.041)	1.072 (2.148)	1.018 (2.054)

Note: Cell entries are mean values with standard deviations in parentheses.

Table A2. Descriptive statistics: Political interest and interpersonal discussions about politics (mean values and standard deviations)

	Wave 1	Wave 2	Wave 3
Political interest (0–5)	3.142 (1.097)	3.142 (1.094)	3.207 (1.030)
Political discussions	2.794 (1.197)	2.752 (1.152)	2.823 (1.134)

Note: Cell entries are mean values with standard deviations in parentheses.

Table A3. Descriptive statistics: Age, sex and education (mean values, standard deviations and percentages)

Age (20–74)	Sex (%)	Education (%)
54.0318 (14.759)	Male 57	Primary 22.5
	Female 43	Secondary 39.7
		University 37.6

Notes: Cell entry for age is the mean value with standard deviation in parenthesis. Cell entries for sex and education are percentages.

Notes

1. It should be noted that while we could have made efforts to increase the total response rate, this was considered a lower priority than ensuring that at least 1,000 respondents participated in all three waves and that the time span between waves was about three weeks.

2. In the final sample: 43 per cent were female and 57 per cent male; 22.5 per cent had compulsory school as the highest completed educational level, whereas 39.8 had completed secondary school and 37.7 per cent had completed or were at the time of interviewing studying at the university level; 3.4 per cent were aged 20–25 years, 12.1 per cent were 26–36 years, 14.9 per cent were 36–45 years, 15.1 per cent were 46–55 years, 25.2 per cent were 56–65 years and 29.3 per cent were 66–75 years.

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