The impact of ambiguous economic news on uncertainty and consumer confidence

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Abstract
Journalistic practice emphasizes both positive and negative aspects of news stories. Nevertheless, the effects of ambiguous news, which includes both positive and negative information, are under-investigated. This study examines how exposure to ambiguous economic news affects uncertainty and 'consumer confidence'. Consumer confidence refers to citizens' evaluations of their personal economic situation and of the national economy and is an antecedent of economic behaviour. Using a two-wave national panel survey and a media content analysis, the study demonstrates that ambiguous news exposure and individual level changes in consumer confidence are linked. Our analysis suggests that the relation between exposure to ambiguous news and changes in consumer confidence is mediated by economic uncertainty. This article bridges insights from research on consumer confidence, economic psychology and media effects and unravels one of the mechanisms at play in this cross-field.

Keywords
Ambiguity, consumer confidence, economic news, news exposure, uncertainty

As journalistic news practice emphasizes both positive and negative aspects of a news story, ambiguous news, which contains both positive and negative information, seems inevitable. Nevertheless, little is known about how exposure to ambiguous news affects attitude formation. This is surprising since ambiguity in news may make audiences uncertain of how to interpret the information they are exposed to. As a result, ambiguity
may increase audiences’ uncertainty about the topics to which they are exposed. Moreover, uncertainty may make audiences more pessimistic about these topics. The aim of this study is to investigate how ambiguous news exposure affects attitude formation. We study this in the realm of economics and focus on how exposure to ambiguous economic news affects ‘consumer confidence’, which is an important economic attitude. The connection between ambiguous news exposure and consumer confidence seems close since it is well established in consumer research literature that individuals seek information in order to limit uncertainty and thereby make informed decisions. However, ambiguous news may potentially increase consumers’ economic uncertainty. In addition to its theoretical link to uncertainty, consumer confidence is relevant to investigate because prior studies have already demonstrated a linkage between news coverage and consumer confidence at the aggregate level, that is, negative news coverage of the economy is followed by lower consumer confidence, whereas positive news coverage leads to higher confidence among consumers (de Boef and Kellstedt, 2004; Hetherington, 1996; Hollanders and Vliegenthart, 2011). However, aggregate level studies do not explain the impact of individual factors, such as media consumption, on consumer confidence. Nor do they clarify which mechanisms drive the relationship between news coverage and consumer confidence. Such micro level questions seem important in times with abundant news variety and supply: if individual news exposure affects consumer confidence, it may ultimately turn out to be a predictor of financial behaviour (Dunn and Mirzaie, 2006; Nguyen and Claus, 2013), foster economic downturns (Hetsroni et al., 2014), influence politician evaluations (MacKuen et al., 1992) and election outcomes (Hetherington, 1996). Given the ambiguous nature of television news coverage, it is expected that television in particular has a negative impact on consumer confidence when we control for ambiguity in other types of media exposure. The study offers new theoretical arguments for the mediating effects of economic uncertainty on the relationship between ambiguous news and changes in consumer confidence. It also contributes to the consumer confidence literature by including individual news exposure and economic uncertainty.

**News impact on consumer confidence**

*Consumer confidence* covers individuals’ perceptions about the current and future states of their personal and the national economy. It is theoretically recognized that the information provided by the news media functions as *stimuli* among consumers (Katona, 1960: 55) and that consumer confidence may even be seen as a ‘potential outcome of information processing’ (Wendler, 1983: 364). This could cause consumer confidence to vary according to *how* information is presented in the news media. Prior research at the aggregate level found that negativity in news influences consumer confidence. Hetherington (1996) showed that the economy and people’s evaluations of the economy vary based on the media coverage of the economy. Goidel and Langley (1995) found that negative media portrayals of the economy led to negative ‘misperceptions’ of the economy. Similarly, Soroka (2006) found asymmetric responses to negative information so that economic sentiments are more affected by negative than by positive information. Studies at the individual level focused solely on how the media affects economic
perceptions and expectations. Boomgaarden et al. (2011) showed that negative news coverage of the economy has a negative impact on national economic expectations while personal economic expectations were unaffected. Based on the negative tone in television, Hetsroni et al. (2014) found that heavy viewing of television news was associated with higher economic pessimism at the personal and national levels. The existing research points in the direction that consumer confidence at the individual level can be influenced by the way news is presented.

**Ambiguity and decreasing consumer confidence**

Whereas negativity is the main focus in prior studies linking media content and consumer confidence, ‘ambiguous’ news content is under-investigated. We conceptualize ambiguous news as ‘news that contains both positive and negative information’. Hence, ambiguous news does not provide a clear answer to whether events are good or bad in an economic perspective. Ambiguity can be present in frames as well as in tone. The economic consequence frame is relevant for identifying ambiguity. It is one of the most commonly used news frames (see de Vreese, 2004; Graber, 1988; Semetko and Valkenburg, 2000) and it ‘reports an event, problem or issue in terms of the consequences it will have economically on an individual group, institution, region or country’ (Semetko and Valkenburg, 2000: 96). Empirical studies show that the economic consequence frame affects economic perceptions (de Vreese, 2004; Valkenburg et al., 1999). In theory, ambiguous consequences in a news story may make it difficult for the audiences to know how to interpret the implications of an economic news story. Likewise, ambiguity can be present in the tone of a news story because its valence (positive or negative) is used to describe or evaluate the general economic environment. The presence of both positive and negative tone may also make it difficult for audiences to evaluate the economic situation.

We expect that exposure to ambiguous economic news will have a negative direct effect on consumer confidence because information processing seems to be subject to a negativity bias. Individuals are ‘hardwired to prioritize negative information over positive one’ (Soroka, 2014: 101) and pay more attention to and react more strongly to negative information than to positive information. Such negativity bias is empirically supported (Smith et al., 2003; Soroka, 2014). Soroka (2014) even found a negativity bias for television ads with a mixed (ambiguous) tone as these ads physically activated participants to the same extent as pure negative ads did. The conclusion drawn is that ‘little negativity may go a long way’ (Soroka, 2014: 106). The negativity bias manifests itself in asymmetric effects. Aggregate level studies have found that fluctuations in consumer confidence and economic evaluations are more sensitive to negative information compared to positive information (Goidel and Langley, 1995; Soroka, 2006). Goidel and Langley (1995) even suggest that negative news coverage has the largest effect on economic evaluations when it is mixed and can be interpreted in various ways (p. 326). Hence, more speaks in favour of individuals prioritizing the negative information over the positive one when faced with ambiguous news stories. In terms of consumer confidence, this would expectably manifest itself in more pessimistic economic evaluations. Based on this, we assume that exposure to ambiguous economic news has a negative direct effect on changes in consumer confidence (H1).
Uncertainty as the driving mechanism

Uncertainty is defined as ‘the absence of definite expectations and evaluations’ (Katona, 1960: 56) and exists when ‘situations are unpredictable or cannot be adequately understood’ (Kramer, 1999: 305). To feel economically uncertain thereby captures a state of mind where individuals do not know the probability of a negative or a positive economic outcome because they have no clear basis on which to form their predictions or evaluations. According to economic theory, individuals seek information in order to limit uncertainty and thereby make well-informed decisions. However, information may in some cases increase uncertainty rather than reducing it. In a psychological experiment, Peterson and Pitz (1986) found that uncertainty depends on the number of different estimates an individual can derive from the information available. When only one piece of information is present, uncertainty decreases because no other possible outcomes are apparent. On the other hand, uncertainty increases when more pieces of information are present because more possible outcomes occur. Similar results are found in other fields. Mitchell (1999) found that consumers feel more uncertain when they do not know whether the consequences are good or bad, and feel more certain when the probability is known. Iyengar and Kinder (2010) found that television news audiences become uncertain about how to evaluate presidential performance when the president’s responsibilities were not clearly reported. Moreover, uncertainty seems to increase when information is unexpected and contradicts prior beliefs. Smith and Ellsworth (1985) found that individuals feel more uncertain in surprising situations than in other situations. Based on these empirical findings, ambiguity may evoke uncertainty either because more pieces of information are present or because the information is surprising and contradicts prior beliefs.

Uncertainty may influence consumer confidence for several reasons. According to the Ellsberg Paradox (Ellsberg, 1961), most individuals are ambiguity averse. This means that individuals prefer a bet with a known outcome compared to a bet with an unknown outcome, even though the known outcome may be worse than the unknown one. This is similar to prospect theory (Kahneman and Tversky, 1979) according to which individuals care more about losses in utility than about gains when they make choices under uncertainty. When it comes to consumer confidence, individuals exposed to ambiguity may opt for a pessimistic view in order to be on the ‘safe side’ when they find themselves in uncertain circumstances and have to evaluate the state of the economy. Second, uncertainty will most likely evoke fear. Smith and Ellsworth (1985) showed that uncertainty triggers fear about whether or not one will be able to escape an unpleasant outcome. Lerner and Keltner (2001) also found that fear causes individuals to make pessimistic risk assessments. As far as consumer confidence is concerned, this means that fear may make individuals more pessimistic about the future and make them adopt more risk-averse behaviour. Based on these potential consequences of uncertainty, we expect that economic uncertainty will have a negative impact on consumer confidence (H2).

The television effect

Finally, we consider whether there may be stronger effects in the case of television exposure. According to cultivation theory, television viewing is associated with
pessimistic world views. Such a ‘mean world syndrome’ of television (Gerbner, 1998: 185) has been documented in relation to economic pessimism. Hetsroni et al. (2014) found that television news viewing is associated with higher economic pessimism at both the personal and the national levels. The direction of the effect on economic expectations was determined by the tone of television messages. Moreover, Frey et al. (2007) showed that individuals who watch more television are less satisfied with their economic condition and place more importance on affluence. They also found that television viewing increased anxiety. This finding corresponds well to the claim that television provides ‘a shortcut to emotions’ that cannot be matched by the written word (Brader, 2006: 30), and it supports the idea that television could be capable of evoking uncertainty.

The specific content features of television may also affect the level of uncertainty derived from ambiguous news exposure. The brief and simplified news stories that are broadcasted in a rapid pace (see Eveland et al., 2009; Graber, 2001; Iyengar and Kinder, 2010) may present audiences with ‘an overload of information but inadequate time and guidelines for interpretation’ (Graber, 2001: 149). In newspapers by contrast, information is more likely to be presented in-depth and with contextual information. Information can be reread down to sentence level in the pace needed to understand the information (Graber, 2001: 150). Such repetition is not possible for television which may leave audiences uncertain of how to interpret the information. Altogether, we expect that economic uncertainty mediates the effects of exposure to ambiguous television news on consumer confidence (H3). We also expect that exposure to ambiguous television news has a stronger indirect effect on consumer confidence than exposure to ambiguous news in other outlets (H4).

Methods

The study is based on a two-wave panel survey and a content analysis of Danish economic news. By combining survey and content analysis, it is possible to examine the relationship between individual exposure to ambiguous news and consumer confidence. The case was chosen because Denmark has varied news consumption and a rich supply of news with several broadsheet and tabloid newspapers and broadcast news ensuring variation in the actual news coverage. The two waves of the panel survey were fielded in February and May 2013, which in Denmark were among the last months of a long period with negative trends in the consumer confidence indicator and a negative gross domestic product (GDP) growth rate (Tradingeconomics, 2016a, 2016b).

Two-wave panel survey

The survey was conducted online by TNS Gallup among a representative sample of the Danish population. The first wave ran from 19 February to 4 March 2013, and the second wave ran from 20 May to 2 June 2013. A total of 2480 respondents participated in the first wave (response rate 38%) and 1666 of these respondents participated in the second wave (re-contact rate 68%). There were no sample selection problems as respondent attrition occurred randomly.
**Consumer confidence.** Consumer confidence $t_2$ is operationalized according to the tradition from the University of Michigan Survey Research Center. An index is constructed from five questions that ask respondents about their perception of current economic conditions and expected future economic conditions, both personal and national. These items are as follows: (1/2) ‘How is the economic situation of your family/of Denmark today compared to a year ago?’ (3/4) ‘How do you think the economic situation of your family/of Denmark will be in a year compared to now?’ (5) ‘How much do you think your family will spend in the next 12 months on consumption compared to the last 12 months?’ Response categories for the items ranged from 1 (a lot worse/less), 2 (somewhat worse/less), 3 (same), 4 (somewhat better/more) to 5 (a lot better/more). (Similar approach was applied by de Boef and Kellstedt, 2004.) The scores obtained from each of the five items were aggregated into an average score index with 5 as the highest possible consumer confidence mean score and 1 as the lowest (Cronbach’s alpha = .70, $M = 2.90$, standard deviation ($SD$) = 2.68). The unidimensionality of this scale was controlled for as a factor analysis (Principal Component) extracted only one component from the five items. A similar scale was made for consumer confidence $t_1$ (Cronbach’s alpha = .67, $M = 2.84$, $SD = 2.71$).

**Ambiguous news exposure.** Ambiguous news exposure is measured by combining the survey and the content analysis. A respondent’s total news exposure was measured in the survey by the following question: ‘How many days during a typical week do you use the following media outlet?’ (like Boomgaard et al., 2011; Schuck et al., 2013). This question was asked for eight of the most used Danish news media outlets: DR and TV2 (television), Politiken, Berlingske, Jyllands-Posten and Børsen (broadsheet newspapers), and Ekstra Bladet and BT (tabloid newspapers) including their webpages. Responses were given on an 8-point scale, indicating 0–7 days per week. After this, each respondent’s exposure to each media outlet was weighted according to the percentage of ambiguous news in each media outlet (obtained from the content analysis, see below) by multiplying the number of days a respondent used an outlet with the percentage of ambiguous news in this outlet. A respondent’s media exposure was divided into three subgroups of television exposure, broadsheet exposure and tabloid exposure. Each respondent was assigned an average score for how much ambiguity they were exposed to by each type of media outlet (procedure similar to Boomgaard et al., 2011; Hopmann et al., 2010). As an example, television exposure was obtained by adding the weighted exposure measures for each television outlet including both broadcasted news items and their homepages and calculating average exposure to television news. Exposure to broadsheet news and tabloid news was calculated in the same way.

**Economic uncertainty.** Economic uncertainty was measured by the item ‘How often did news about the economy make you feel uncertain about 1) your own personal economy and 2) the national economy of Denmark’. As uncertainty and fear are theoretically closely related (as outlined above), the same questions were asked for fear. In both cases, response categories ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (most of the time) to 5 (always). The distinction between the personal and the national economy was taken
into account because research has demonstrated that media effects on economic perceptions differ across sociotropic and egotropic evaluations (Boomgaarden et al., 2011). As the consumer confidence index consists of egotropic and sociotropic evaluations, the four uncertainty and fear measures were successfully combined into a scale (Cronbach’s alpha at .84, $M = 2.37$, $SD = 3.06$). The choice of combining uncertainty and fear into one scale was supported by a factor analysis (Principal Component) where only one component was extracted from the four items. The mediating variable economic uncertainty ($t^2$) and the dependent variable consumer confidence ($t^2$) were also found to be two distinct constructs as they correlated relatively weakly (Pearson’s $r = -.28^{**}$). An additional factor analysis extracting one component for consumer confidence and another component for uncertainty supported this.

**Content analysis**

The content analysis was conducted in the period between the two panel waves, beginning with the first day after wave 1 (7 March) and ending with the last day before wave 2 began (19 May). A constructed week sampling strategy that accounts for systematic variation in content due to day of the week was applied for collecting content. By sampling articles every fourth day, all weekdays are equally represented in the sample. The sampling was intensified (like Vliegenthart et al., 2008) in the 2 weeks leading up to the second wave in the acknowledgement of a possible ‘dominance of recency effects’ (Lecheler and de Vreese, 2013). Altogether, 26 days were included in the sample, which resulted in a total of 369 economic news items. Economic news is defined as ‘information reported by the news media about the state of the micro- and macro-economy of Denmark’. Hence, economic news is defined by the topic it covers (approach similar to Hetsroni et al., 2014; van Dalen et al., 2016).

All economic news items were collected through electronic databases applying specified search words. Trained coders coded the level of ambiguity in the news items. In line with the conceptual definition of ambiguity, we operationalize ambiguous news as articles with either (1) presence of both positive and negative tone or (2) presence of both positive and negative consequences. It is not a requirement that positive and negative information is equally present in the news story – the story may be a primarily positive news story that also has negative components. To enhance the link to consumer confidence that consists of both retrospective and prospective items, we include both references to the past, the present and the future in the articles. Keeping the entire news story in mind, coders relied primarily on heading and subheading when deciding tone. The tone of an article was coded as ambiguous when positive information in heading or subheading was accompanied with negative information also in heading or vice versa. In cases where the tone of an article was absent from heading or subheading or if the tone of the article contradicted heading and subheading, coders counted and compared the number of times a positive or a negative tone appeared in the article. If positive tone and negative tone were equally present, the article was coded as ambiguous. The question used for coders to identify tone was, ‘What is the evaluation of the general economic climate?’
where general climate referred to macro-economic stories concerning the national or international economies. An example of a heading with an ambiguous tone is, ‘Nice accounts but low economic growth’ (Politiken, 02 May 2013). In terms of consequences, coders counted an article as ambiguous if it had both favourable and unfavourable consequences. It was not a requirement that favourable and unfavourable consequences were equally present. The question used for consequences was, ‘Does the article report an event, problem or issue in terms of the economic consequences it had/has/can have on an individual, a group, a company, an institution a region or a country’ (Valkenburg et al., 1999). An example of mixed consequences is, ‘On the one side it will be expensive for the state, but on the other side it will secure those losing their rights to unemployment benefits’ (Berlingske, 12 May 2013). For both tone and consequences, coders only included tone and consequences that were explicitly expressed in the articles. The journalist or any actor appearing in an article was allowed to evaluate tone and consequences. Acceptable intercoder reliability (ICR)-results were obtained for both measures: tone (=.72, Krippendorff’s alpha) and consequence frame (=.72 for identifying tone of consequences, Krippendorff’s alpha). The two measures were combined into an ambiguity scale. An article was coded as ambiguous if it had either mixed tone, mixed consequences or both mixed tone and mixed consequences. Likewise, an article was coded as unambiguous if it did not have either mixed consequences or mixed tone. In order to strengthen the connection between the content analysis and the dependent variable consumer confidence, only articles that had Denmark as either (1) the location of the story or (2) the affected location were included. All other news stories were excluded from the analysis. Excluding news items not concerning Denmark, the total number of items included in the analysis was 307.

Results

The results from the content analysis describe levels of ambiguity when the media outlets are divided into broadsheet news, television news or tabloid news. Figure 1 shows that broadsheet news has the highest proportion of ambiguous economic news (17.9%) and tabloid news the lowest proportion (5.1%). Television news is placed in the middle (9.1%). Broadsheet news is significantly more ambiguous than tabloid news (analysis of variance (ANOVA), 𝑝 < .05, 𝑑𝑓 = 2, 𝐹 = 4.52) but not significantly more than television. The difference between television news and tabloid news falls short of statistical significance. On average, 12.4% of the news is ambiguous.

Turning to the effects of ambiguity on changes in consumer confidence. At the aggregate level, there was a modest, significant increase in the scores for consumer confidence 𝑡1 (𝑀 = 2.81, 𝑆𝐷 = 0.53) and consumer confidence 𝑡2 (𝑀 = 2.90, 𝑆𝐷 = 0.53, 𝑡(1665) = −8.56, 𝑝 = .00). At the individual level, fluctuations occurred frequently. A total of 196 (11.8%) of the 1666 respondents scored lower on the consumer confidence scale in wave 2 than in wave 1. In all, 337 (20.2%) respondents scored higher, whereas 1133 respondents (68.0%) scored the same.

First, multiple regression models were used to examine whether these individual level changes in consumer confidence (𝑡2) can be explained by ambiguous news exposure (𝑡1)
(Table 1). After controlling for the initial level of consumer confidence ($t_1$), there were no main effects of any of the exposure variables (model 1). This did not support H1 that exposure to ambiguous economic news had a negative direct impact on changes in consumer confidence. When economic uncertainty was entered into the regression (model 2), it had a significant negative impact on changes in consumer confidence ($t_2$). The increased $R^2$ value shows that significantly more variation in consumer confidence is explained when uncertainty is included in the model ($F = 13.93, p = .02$). This supports the assumption that economic uncertainty has a negative impact on changes in consumer confidence (H2).

**The mediating effect of uncertainty**

Since significant total or direct effects are not prerequisites for finding indirect effects (Hayes, 2013; MacKinnon et al., 2000; Rucker et al., 2011), we examine whether there is a significant indirect effect of uncertainty on consumer confidence. Through bootstrap analysis, using Process Mediation Analysis for simple mediation (model 4) (Hayes, 2013), we found a significant negative mediation effect of economic uncertainty (Table 2). Higher exposure to ambiguous television news ($t_1$) increases economic uncertainty ($t_2$), which in turn decreases consumer confidence ($t_2$) ($b = -.02$, standard error ($SE$) = .01, 95% confidence interval (CI) = -.0373 to -.001, $p = .15$) (after controlling for the lagged dependent variable ($t_1$), exposure to ambiguous news exposure in other media outlets and other control variables). H3 is thereby supported. The same mediation analysis was also run for broadsheet news and tabloid news, but neither of these exposure variables affected changes in consumer confidence indirectly through economic uncertainty. This means that H4 was also supported.
We repeated the same mediation analysis with negativity (composed by negative tone and negative consequences) to see how it affects changes in consumer confidence compared to ambiguity. A very similar pattern is found. In the case of television, there is no significant direct effect of negativity on changes in consumer confidence ($b = -0.02$, $SE = 0.01$, $p = .12$). There is a significant indirect effect of economic uncertainty; however, it seemed weaker for negativity ($b = -0.00$, $SE = 0.00$, CI from $-0.006$ to $-0.001$) than for ambiguity ($b = 0.02$, $SE = 0.01$, CI from $-0.039$ to $-0.002$). Finally, negativity seemed to affect economic uncertainty less ($b = 0.04$, $SE = 0.02$, $p = 0.04$, CI from $0.001$ to $0.075$) than...
ambiguity ($b = .26, SE = .12, p = .03, CI from .018 to .490$). For the other outlets, no direct or indirect effects were found when ambiguity was replaced with negativity (results not displayed).

**Discussion**

Ambiguity seems as an inevitable part of the news as the journalistic news practice emphasizes both positive and negative aspects of news stories. Nevertheless, the effects of ambiguity on attitude formation are rarely studied. The aim of this study was to examine whether exposure to ambiguous economic news explains changes in consumer confidence, and to what extent economic uncertainty drives this effect. The results showed that exposure to ambiguous economic television news increases economic uncertainty, which in turn lowers consumer confidence (H3). The significant mediation effect was found only in the case of television although this was not the outlet type with the highest proportion of ambiguous news. This tells us that television has a unique ability to affect changes in consumer confidence through economic uncertainty (H4). It also supports prior findings and theoretical claims that television is an impactful medium that can induce uncertainty and make it difficult for audiences to process information and evaluate different matters (Brader, 2006; Graber, 2001). Ambiguity in newspapers, on the other hand, did not influence consumer confidence through economic uncertainty. In newspapers, information can be described in more detail and can be reread which may lower uncertainty. As newspapers also require audiences to select the news stories they want to read, audiences have the option to avoid ambiguous news and can focus on clearly negative or positive news. This selectivity is not an option in the case of television where viewers are more likely to watch all the news items and thereby more likely to be exposed to ambiguity.

Unexpectedly, we did not find any significant direct effect of ambiguous television news on changes in consumer confidence (H1). Instead, the significant negative mediation effect showed that economic uncertainty is more sensitive to ambiguity than consumer confidence is (H2). There may be more explanations for this. Ambiguous news may trigger economic uncertainty because the necessity of navigating in the economic reality becomes a difficult task. Second, the complex nature of the consumer confidence scale may obscure potential direct effects, as ambiguity may influence sociotropic and egotropic economic evaluations differently. Such diverging effects of ambiguity would be in line with prior research demonstrating media effects on only sociotropic economic perceptions (Boomgaarden et al., 2011). Although the results were not described in the result section, mediation analyses revealed that whereas ambiguity in television exerted both direct and indirect negative effects on sociotropic evaluations the effect was only indirect through uncertainty for egotropic evaluations. This implies that direct media effects on consumer confidence are difficult to detect at the individual level. It is only when uncertainty is evoked that there is a direct effect on sociotropic evaluations. This encourages future research to look at what other possible mechanisms can indirectly drive the relationship between news exposure and consumer confidence. Finally, the missing negative direct effect of ambiguity on consumer confidence could be explained by the limitations of the negativity bias. According to Soroka (2014), negative
information matters less when the news environment is already negative. Respondents in our study have due to the economic climate in Denmark at the time the research was fielded experienced a period with negative news coverage which may have weakened a direct negative effect of ambiguity. This calls attention to the potential contextual conditionality of media effects as it may vary depending on the state of the economy. In the current individual level study, such contextual differences could not be included. Yet, the positive information of ambiguity may be surprising in a negative environment which can explain the strong positive effect of ambiguity on uncertainty.

This study represents a first step towards revealing one of the mechanisms that drive the effects of ambiguous news exposure on consumer confidence at the individual level. The findings tentatively suggest that individuals who are more frequently exposed to ambiguous economic television news are more likely to have lower consumer confidence due to increased uncertainty. We acknowledge that specific levels of consumer confidence may cause ambiguous news exposure. However, due to our applied panel design we do not see any potential endogeneity issues related to individuals with higher consumer confidence selecting into specific news media. Overall, the findings tell that ambiguity in economic news should not be ignored. Since consumer confidence is an important indicator of future consumption, higher exposure to television news might limit actual spending or financial decisions. At worst and as a negative multiplication effect, this could slow down the economy. The need to explore the effects of individual news exposure on consumer confidence seems crucial in times with an increasing news supply and a still more fragmented media landscape. Finally, the findings could have implications for the journalistic practice as journalists then seem obligated to make television news more comprehensible in order to limit uncertainty and its negative effects. However, as it is inherent in journalistic practice to alert the public to possible future dangers, it may be too much to expect that positive information is not accompanied by negative information or vice versa. And as the current format of television is the most popular news source, it is unlikely that changes will be made. Instead, news audiences should become aware of the possible impact of the news they are exposed to. Uncertainty may be an attractive content feature that sells, but only awareness about its impact can help the news audience to better understand the information.

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**Notes**

1. 1600 * 100/2.449 = 68% (when out-screened respondents were taken into account).
2. The survey samples (W1 and W2) are representative of the Danish population based on the percentages provided by Statistics Denmark for age, region and education.
3. The distinction between broadsheet and tabloid newspapers refers to content differences rather than differences in size.
4. Splitting newspapers into broadsheets and tabloids is common (e.g. Harrington, 2008). Since DR and TV2 both have public service obligations, we do not differentiate between commercial and public service broadcasting. DR and TV2 are combined into a single measure.
5. In each of the 2 weeks before each wave, one new article was sampled 5 days in a row.
6. The database ‘Infomedia’ archives all news articles from printed Danish news media and was applied for sampling printed newspapers. The database ‘Berta’ functions in the same way and was applied for online news.

7. Applied search strings, translated from Danish: economy, deficit, debt, national debt, state budget, inflation, employment, unemployment, unemployed, salary, payment, investment, finance, stock market, C20 (stock market index), stock exchange, tax, financial crisis, house prices, loans, economic growth, consumer, financial profits, exchange rate equivalent, income, deflation, gross domestic product (GDP), gross national product (GNP), imports, exports, trade balance, consumer spending.

8. All four coders went through intensive training sessions that lasted for 4 months. A detailed codebook was distributed to the coders.

9. An example of positive tone is, ‘Managers in the building industry are expecting growth’ (Jyllands-Posten, 14 May 2013). An example of negative tone is, ‘Danish economy is on the edge of recession’ (Jyllands-Posten, 12 April 2013).

10. Intercoder reliability tests were based on news items from all outlets, 24 news articles and 15 television items. (For television, coders were asked to identify whether a story was economic or not and agreed on 14 out of 15 items; percentage agreement = 93.33.)

11. If articles that did not have Denmark as either location or affected location were included in the analysis, the indirect effect was supported but insignificant. If not splitting on outlets but instead applying a total exposure measure combining all outlets, no mediation was found either in case of all consequences or all tone.

12. We acknowledge that consumer confidence (c1) can already be impacted by media exposure and does not serve as the perfect starting point. However, the panel study controls for prior media exposure in the best possible way.

13. When the analysis was run with an index of the two fear variables as the mediator the same pattern was found.

14. Sociotropic model: in the mediation model, a significant negative indirect effect is found ($b = -0.04$, confidence interval (CI) from −0.069 to −0.012), but now also significant total and direct effects are found. Egotropic model: in the mediation model, there is a significant negative indirect effect ($b = -0.20$, CI from −0.051 to −0.001), but no significant total and main effects are found.

References


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