

## The influence of negative newspaper coverage on consumer confidence: The Dutch case

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### ABSTRACT

This paper studies the empirical relationship between the real economy, consumer confidence and economic news coverage in national newspapers for the Netherlands during the period 1990–2009. Media-attention for economic developments is associated with consumer confidence, with more negative news decreasing consumer confidence; this result holds after controlling for the real economy (stock-market). The relationship differs for different business-cycles. The effect is in particular stronger for the months following the beginning of the credit-crisis. This suggests that in line with many popular concerns negative news is among factors influencing the hardness of the landing of the current credit-crisis.

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## 1. Introduction and literature review

The media are now frequently blamed for both deepening the credit-crisis<sup>1</sup> as well as failing to see it coming.<sup>2</sup> The argument underlying this somewhat diffuse allegation is that gloomy news weakens consumer confidence beyond the point justified by real economic conditions. During a recession lower consumer confidence further depresses consumption, thereby adding to a negative spiral of declining aggregate demand, contracting production, and soaring unemployment with a depression cum deflation scenario with low confidence and postponed consumption as an ultimate outcome.

This paper investigates for the Netherlands in 1990–2009 whether there is an empirical link between media-coverage on the one hand and consumer confidence and economic circumstances on the other hand. Our paper extends existing research

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<sup>1</sup> See for example 'Is the media to blame for the credit-crisis?', *Independent*, November 17th 2008, D. Crossley-Holland, and 'MPs assail journalists on credit crisis', *Financial Times*, February 5th 2009, B. Fenton. 'Why didn't the City journalists see the financial crisis coming?', J. Robinson, the *Observer*, October 12th 2008. For a Dutch discussion see 'Media versterken crisis', J. van Duin, *de Journalist*, January 28th 2009 and 'Crisis ook geen lolletje voor RTL Z', W. Dekker, *de Volkskrant*, March 12 2009.

<sup>2</sup> 'Credit crisis: how did we miss it?', D. Schechter, *British Journalism Review*, 20(1), 209, pp. 19–26.

in two ways. First it considers more recent data, up to and including 2009; this allows an analysis of the credit-crisis period. Second, it analyses a considerable longer time series than is commonly done. Twenty years observations allows for testing whether the media-effect differs for different business cycles instead of assuming it does not.

The importance of consumer confidence for consumer spending and, thereby, for economic growth has been established by for example [Acemoglu and Scott \(1994\)](#) and is reviewed by [Ludvigson \(2004\)](#). Consumer confidence itself is influenced by several factors. A first and important factor of consumer confidence is the real economy itself, which includes unemployment, economic growth, and the stock market. The influence of economic developments has been established by many authors, including [Vuchelen \(2004\)](#), [Berry and Davey \(2004\)](#), [Otoo \(1999\)](#), [De Boef and Kellstedt \(2004\)](#) and [Jansen and Nahuis \(2003\)](#).

A second important factor that is identified by several authors is media coverage (for a theoretical discussion see [Van Raaij \(1989\)](#)). There are several papers that consider the link between media and consumer confidence empirically. [Blood and Philips \(1995\)](#) find that recession headlines influence consumer sentiment in the USA in 1989–1993. [Doms and Morin \(2004\)](#) show that several media-variables influence consumer confidence for the US in 1978–2003. [Wu, Stevenson, Chen, and Nuray Güner \(2002\)](#) demonstrate that recession news in the *New York Times* influences public perceptions about the state of the economy during the period 1987–1996, especially during times of economic recession. [Wu, McCracken, and Saito \(2004\)](#) however do not find a similar effect in Japan in 1988–1999 (the ‘Lost Decade’). They suggest that occurrence of the media-effect on consumer confidence depends on the type of economic contraction. The effect may be present in relatively short recessions, not in long periods of stagnation. The paper that speaks most clearly to our study is [Alsem, Brakman, Hoogduin, and Kuper \(2008\)](#). They find for the Netherlands in the period 1998–2002 that media-coverage has a short-run effect on consumer confidence. An important difference between their paper and ours is that by using a computer-assisted content analysis, we are able to consider a time series that is both longer and more recent. This offers the additional advantage that we can compare effects of media coverage in times of economic growth and economic decline, testing precisely the proposition put forward by Wu et al.

To understand why media coverage matters for consumer confidence, even after controlling for real economic circumstances, insights from the field of communication science, where causes, content and effects of media coverage are central topics can be helpful. Communication scientists have proposed different mechanisms that account for the effects news coverage has on individuals’ attitudes and behaviour. The prevailing ones are *agenda setting* and *framing* ([Scheufele & Tewksbury, 2007](#)). Agenda setting refers to the notion that the importance that people attribute to an issue is influenced to a considerable extent by the attention that media devote to this issue ([McCombs & Shaw, 1972](#)). Agenda setting theory asserts that media might not determine *what* people think, but *where* they think *about*. For example, a lot of media coverage about the economy makes this an important issue in the eye of the public as well. Framing assumes that the way mass media report about issues makes a difference. By emphasizing certain aspects of an issue (e.g. problem definitions, solutions) and not others, mass media can directly influence people’s attitudes and evaluations about that issue. In several recent empirical studies especially framing effects have been established (e.g. [Druckman, 2004](#); [De Vreese, 2005](#)). In the case under study, agenda setting and framing combined predict that the amount of attention devoted to negative aspects of the economy (e.g. unemployment, recession) results in increased awareness of economic problems among the public and will consequently lower their confidence.

The paper is organized as follows. The second section discusses the data and the operationalization of the media-variable whereas the third section presents the model and estimation results, as well as several robustness checks. The fourth section concludes.

## 2. The data

The data are from publicly available data sources.<sup>3</sup> The table in [Appendix A](#) provides descriptive statistics. The three variables are discussed in more detail here. For the stock market development we use the Amsterdam Exchange Index (AEX). This index gives the weighted average of the 25 most traded shares on the Dutch stock exchange. The AEX is used as a control variable, considering news-coverage and consumer confidence are both influenced by economic conditions (following [Alsem et al. \(2008\)](#) and [Jansen and Nahuis \(2003\)](#)). In theory, the stock market reflects current economic circumstances as well as future economic expectations. As such, it serves as a leading economic indicator with the advantage that it is available on a monthly basis, in contrast to many quarterly reported economic growth-figures. A drawback of using the stock market is that it may move irrespective of economic conditions; this is in particular the case when a bubble forms on the stock market.

Consumer confidence figures are derived from a monthly questionnaire. In many European countries consumer confidence is measured in a similar way, see [Jansen and Nahuis \(2003\)](#). In the first 10 days of each month 1000 randomly selected new people are interviewed by telephone, and asked how they perceive the state the economy. Individual answers are unfortunately not available, and – if so – would also not be exploitable in the present context as we equally do not know media-usage at the individual level. Thus, we rely on several aggregate level measures. When it comes to media effects, aggregate level studies offer great opportunities. To put it in the words of communication scientist Michael Slater (2004, p. 178)

<sup>3</sup> Consumer Confidence was taken from Statline of the Dutch Bureau of Statistics (CBS, “Centraal Bureau voor de Statistiek”). The AEX index was downloaded from yahoo.finance, and media-variables were constructed using the digital newspaper archive LexisNexis.

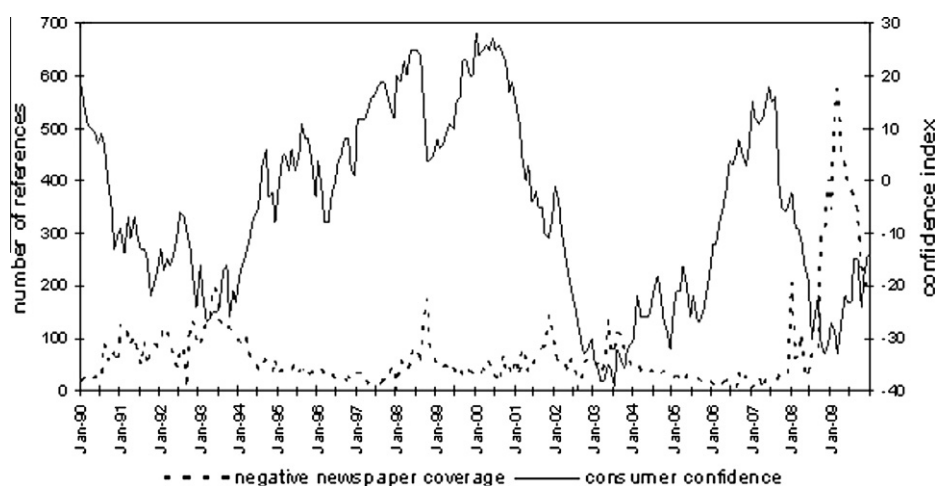


Fig. 1. Negative newspaper coverage and consumer confidence in the Netherlands.

– “When such [time series] studies are an option [...] they permit exceptionally robust inference concerning real world effects of media exposure on national populations.”

Consumer confidence is based upon five questions. The five questions include two questions on the general state of the economy, one asking how the respondent thinks that the economy evolved the last 12 months, one asking how (s)he expects it to develop the next 12 months. Next, it includes two questions on how respondents perceive their own personal financial position. Again one backward-looking question asks how that position improved the last 12 months, while one forward looking question asks whether the interviewed expects this to improve in the next 12 months. A fifth question asks whether it is currently a good time to purchase durable goods.

For each category, the Central Bureau of Statistics (CBS) calculates the difference between the percentage of people with a positive or very positive answer and a negative or very negative answer, leaving aside the intermediate answering-category and the answer “I don’t know”. Consumer confidence is the average of the resulting five calculations, and thus ranges between –100 (if all people answer negatively on all questions) and 100.

To assess media content, we conduct a computer-assisted content analysis of one of the largest Dutch national newspapers, *NRC Handelsblad*. This centre-right newspaper is one of the most read Dutch newspapers and gives much attention to economic issues (Bakker & Scholten, 2005). An additional practical advantage is that the database of this newspaper covers the longest available time-period. Since correlation between news-coverage for the *NRC Handelsblad* and the four other national newspapers (*Telegraaf*, *Trouw*, *Financieele Dagblad* and *Volkkrant*) was very high, results for other newspapers are similar to those of *NRC Handelsblad*.<sup>4</sup> We use the monthly number of references to negative aspects of the economy in the latter newspaper. These negative aspects included recession (*recessie*), economic crisis (*economische crisis*), shrinking economy (*economische krimp*) and economic downturn (*economische neergang*) or fall (*economische teruggang*). References on the front page and in the headline of an article were counted twice to account for their more prominent position in the newspaper. A total number of 17,455 occurrences in 11,585 articles were registered. The use of computer-assisted content analysis is well-established in social scientific research and has multiple advantages in terms of efficiency and consistency, especially when it comes to analysing general characteristics of documents such as newspapers – as we do in this case (for an overview see Cardie & Wilkerson, 2008).

### 3. Estimations and results

Fig. 1 shows the development of negative news coverage and consumer confidence. As can be seen there is considerable variation in both variables. The figure shows that peaks in negative news coverage coincide with dips in consumer confidence. The overall correlation between the two variables is  $-0.38$ , indicating that the lower consumer confidence in a certain month, the more negative newspaper coverage there will be in that month. Negative economic news peaked at in the last part of our research period. After the collapse of Lehman Brothers in September 2008 it became clear and immediate that the banking-crisis would affect the real economy. Other peaks are 1993, 1998 (the rouble-crisis and the collapse of hedge-fund LTCM), 2001 (9/11), 2003 (accounting fraud at several large companies as Enron, Parmalat and in the Netherlands Ahold and Shell) and 2007 (start of the credit-crisis).

<sup>4</sup> Pearson’s  $r$  for monthly number of references to negative aspects of the economy ranges from .96 to .97 for the individual outlets and equaling .98 for the four other newspapers taken together.

**Table 1**Dickey–Fuller unit-root tests (critical value for 5% significance is  $-2.882$ ).

Variable	DF-test
Consumer confidence	–1.849
$\Delta$ Consumer confidence	–15.116
Negative newspaper coverage	–2.256
$\Delta$ Negative newspaper coverage	–18.709
$\ln(\text{AEX})$	.791
$\Delta \ln(\text{AEX})$	–13.624

While economic news coverage and consumer confidence tend to move in tandem, this does not prove that the first causes the second. Both may be driven by the cofounder economic conditions or both may have a similar time trend leading to a spurious regression. To disentangle these different reasons for the correlation we estimated a Vector Autoregression-model (VAR), see [Enders \(2004\)](#). First, the model controls for economic conditions by taking into account its proxy stock market developments. Second, all variables are tested for the presence of a time trend (a so called unit root, see below). If it cannot be rejected that the variables are non-stationary, variables are considered in differences instead of levels. This removes a (common) time trend in the variables and the spurious relation that may result from it. Third, a system of three regression equations are estimated simultaneously with the three (possibly differenced) variables subsequently entering once and once only as the dependent variable and with lags of all three variables as regressors (see also the system of equations in [Appendix A](#)). A variable is thus allowed to be jointly determined by both its own past values and lagged values of the other variables. Causality can subsequently (only) be established in a statistical sense. A variable  $x$  is said to Granger cause another variable  $y$  if lagged values of  $x$  have statistically significant predictive power for  $y$ , also after taking lagged values of  $y$  into account, see again [Enders \(2004\)](#).

A VAR-model allows variables to be determined jointly. This allowance for endogeneity of all variables is important here as media-coverage and stock markets returns not only influence consumer confidence but may be influenced by it as well. A second advantage is that the model does not impose parameter-restrictions a priori, as the lag length is part of the estimation procedure and no parameter is in advance restricted to equal zero as some would be under an exogeneity assumption. The estimation of potentially irrelevant parameters however might decrease efficiency; this is especially relevant as the number of estimated parameters increases with every additional lag length and every variable.<sup>5</sup>

The maximum number of lags included is here restricted to four. This means that we assume that the direct impact of the media will be in effect within 4 months or less. As the psychological and communication scientific effects described are short-run, we consider this a reasonable long, even conservative cut-off point. The maximum number of four is also in line with the literature and was not binding in any of the regressions. Moreover, longer lags would result in non-robust statistical findings due to the relative large number of estimated coefficients.

An important assumption underlying the VAR-model is that all variables are stationary. The basic Dickey-Fuller test could not reject the null hypothesis that consumer confidence, media-coverage and the stock market are non-stationary, see [Table 1](#). As the hypothesis of a unit root is rejected for differenced series, all variables are difference stationary or  $I(1)$  integrated. Note that we took logarithms of the AEX. In this way, the model relates relative changes to each other instead of absolute changes. The difference of the logarithms is an approximation of the relative change of the stock market.

The estimated VAR-model includes consumer confidence (abbreviated CC), negative newspaper coverage (MEDIA) and the stock market (AEX). The logarithms of these variables enter the model; the model equations themselves are given in [Appendix A](#).

The number of lags is indicated by  $k$ . The lag length is selected by the Akaike Information Criterion (AIC), following a common approach in the literature. The AIC suggests a model with one lag the most appropriate. The results are presented in [Table 2](#). Using a five per cent threshold, we find that the effect of the media-variable in the equation with consumer confidence as the dependent variable is negative and significant, indicating that (changes in) negative news is negatively related to (changes in) confidence, which is in line with expectations. A referral to negative economic developments knocks of almost 0.02 point of consumer confidence. The media time-series thus Granger-causes consumer confidence, as it has predictive power for consumer confidence over and beyond the explanatory power of lagged values of consumer confidence.

As a robustness analysis, several deviations from the baseline model are considered. When the VAR-model is estimated with AEX itself instead of its logarithm results are similar (not shown here), that is, the impact of media-coverage on consumer confidence is negative, significant and substantial. The same holds for a VAR-model that excludes the AEX (not shown here). Including the three variables in levels rather than differences does not change conclusions either (also not shown here).

While the main focus is on the influence of media on consumer confidence, it is also interesting to consider the relationship between the AEX index and negative newspaper coverage. As one would expect, there exists a negative influence from AEX on coverage: the better the stock market is doing, the less negative economic coverage. This is in itself not very surprising, as it shows that economic news coverage (partly) reflects the underlying ‘real world’ economic conditions, indicated by the stock market. Interestingly enough, negative newspaper coverage is also associated with the AEX index: negative coverage results in decreasing stock prices. This suggests that investors may partly react to negative news coverage of the econ-

<sup>5</sup> In a VAR with  $n$  variables and  $p$  lags,  $n + pn^2$  parameters are estimated.

**Table 2**VAR-analysis of consumer confidence, negative newspaper coverage and  $\ln(\text{AEX})$ .

	$\Delta \text{CC}$	$\Delta \text{MEDIA}$	$\Delta \ln(\text{AEX})$
<i>Independent variable</i>			
$\Delta \text{CC}$			
1st lag	-.012 (.068)	.89 (.58)	.0004 (.001)
Granger causality test, <i>p</i> -value	0.027	.125	.635
$\Delta \text{MEDIA}$			
1st lag	-.017 (.008)	-.22 (.064)	-.0003 (.0001)
Granger causality test, <i>p</i> -value	.027	0.001	.001
$\Delta \ln(\text{AEX})$			
1st lag	2.96 (4.97)	-100.61 (41.98)	.067 (.068)
Granger causality, <i>p</i> -value	.551	.017	.327
Constant	-.11 (.27)	1.36 (2.32)	.004 (.004)
<i>R</i> -squared	.024	.063	.059
Granger causality test for all, <i>p</i> -value	.053	.042	.004
Number of observations	238	238	238
AIC	12.78		

Note. Reported are unstandardized coefficients with standard errors in parentheses.

omy. In that case, newspapers is one among relevant channels through which economic information is made publicly available before this information is reflected in stock prices. This hypothesis is testable on new data. This could also show whether an exploitable trading strategy can be derived from the correlation between news coverage and stock market developments.

Thus far it was tacitly assumed that the effect of media-coverage is constant over time. The substantial number of observations, 240 in total, allows for testing that assumption. Looking at GDP-growth figures, the sample period consists of two full business-cycles. The first full business-cycle is the period 1990–1999. This period starts with a relatively mild recession after the first Gulf-war, which was turned around by what is now known as the new economy or the dotcom-bubble. The second cycle runs from 2000 to 2007. It starts with the bursting of the dotcom-bubble, worsened by the 9/11 attacks; from 2003 onwards the economy recovered, partly due to low interest rates.

We use the exact same modelling procedure as before for the periods 1990–1999 (120 observations) and 2000–2007 (96 observations). This resulted in a selection of two lags for the first period.<sup>6</sup> The Granger causality test for the first period shows a significant effect with a *p*-value of 0.034. The effect is also substantial, as the coefficients of the two-lags add up to -0.047 (so a change in newspaper coverage equal to one standard deviation of 88.21 is associated with a change in consumer confidence of 4.15 points). In 2000–2007 there is not any evidence that media-coverage influences consumer confidence: relevant model statistics suggest a model with zero lags.

A third business-cycle started in 2008, when the credit-crisis took hold, culminating in the collapse of Lehman Brothers in autumn 2008. We analyse the period 2008–2009 to see whether the effect of media-coverage is important or not. The effect of media-coverage equals -0.028, whereas the *p*-value is 0.055 (in a one-tailed test the effect would be significant with a *p*-value of 0.028). This means that the effect is significant at a significance level of 0.10. It is not significant at a significance level of 0.05, but it has to be borne in mind that samples with few observations (only 24 in this case) typically do not result in significant results. With relatively few observations it is difficult to discriminate the null and the alternative hypothesis. It is therefore remarkable that the effect is already significant at the 0.10 level.

Also the effect has more impact here, as the volatility of media-coverage is much higher in the period 2008–2009 than before. In 2008–2009 the average value of media-coverage was 258 with a standard error of 168, whereas those numbers were 52 and 37 in the period 1990–2007. This means that a one standard error deviation in news-coverage decreased consumer confidence with 4.7 points, a much larger impact than a one standard deviation had prior to the credit-crisis.

Last we compare the effect in 2008–2009 with the first 2 years in the previous business-cycles that GDP-growth declined. For 1991–1992 the effect is smaller (-0.015) and insignificant (0.42), whereas the period 2000–2001 does not show any effect whatsoever with a coefficient of 0.01 and a *p*-value of 0.72.

Taken together, the analysis of sub-samples provides two interesting insights. First, the effect of media-coverage does not seem to be constant over time. This cannot be detected when analysing one single business-cycle as is common in the literature. One possible explanation is that the dotcom-era and the credit-crisis are more driven by debt-financed demand and positive expectations with media-coverage stimulating both. This contrasts with the intermediate period that was more influenced by real world events as the accounting fraud and the attack of 9/11 and the subsequent lowering of interest rates worldwide. Together this leads to the hypothesis that media-attention influences consumer confidence more during a boom-bust cycle that is internal to the economic system (in particular debt-financed consumption and inflated prices of assets and houses) than during a period where a shock (partly) comes from outside the economy. This is in line with the hypothesis of Wu et al. (2004).

<sup>6</sup> Full estimation results available upon request.

A second result is that in the current credit-crisis newspapers seem to have much more impact than before, both in terms of size and significance. Although the sample period is too short to draw generalizable conclusions, the result is nonetheless suggestive, interesting and potentially highly relevant. Media not only cover the crisis, but may also influence it considerably.

#### 4. Discussion and conclusion

This paper has investigated the causal relation between media, the economy and consumer confidence in the Netherlands in 1990–2009. The first finding is that overall the amount of negative news, as operationalized by the monthly referrals to negative economic developments in one of the Dutch leading newspapers, Granger-causes consumer confidence, controlling for economic circumstances, as proxied by the stock market.

The main difference with the existing literature is that this paper takes both a larger and a more recent period into account. This allows analysis of structural breaks and thereby follows the suggested extension of Blood and Philips (1995, p. 18) who state that “it seems worthwhile to extend the statistical analysis to longer data sets that allow for (...) periods of economic expansion as well as recession.” The effect indeed differs for different business-cycles, a result that would have gone unnoticed when analysing smaller samples. The period 1990–1999, representing a full business-cycle, witnessed a substantial, significant and sizable effect and the same holds even more so for the 2 years 2008–2009. In the intermediate period 2000–2007 consumer confidence hardly budged when media-reports varied.

This suggests that the claim that news coverage has real economic consequences, via consumer confidence, is valid in the current economic episode. This in turn further suggests that journalists should consider the independent impact their reporting has on consumers. By amplifying negative economic developments, as the extremely high values of negative newspaper coverage towards the end of our research period indicate, media contribute to a development of declining consumer confidence. The other way round, a more critical stance in the face of up going economic trends that cannot be but unsustainable might be warranted.

Additionally, our analyses reveal a mutual causal relationship between stock market rates and negative economic coverage. Especially the result that the AEX index is influenced by changes in negative economic newspaper coverage is compelling. Ultimately, this implies that stock market analysts could profit from considering media coverage as an important variable when understanding and forecasting changes in stock prices. While further research should point out whether this predictability is really exploitable in trading strategies, it suggests that media-attention might also have a direct economic effect. Overall, the paper demonstrates the value of media coverage as an independent and relevant factor in economic analyses that consequently deserves more attention, both theoretically and empirically.

#### Appendix A

Table A1

**Table A1**  
Descriptive statistics.

Variable	Mean	Standard deviation	Min, max
Consumer confidence	−5.71	17.59	(−39, 28)
ΔConsumer confidence	−.13	4.28	(−17, 11)
MEDIA	72.73	88.21	(1, 578)
ΔMEDIA	.69	36.81	(−146, 211)
AEX	345.23	165.19	(103.28, 693.98)
ΔAEX	.75	22.99	(−75.51, 79.94)

The VAR-model specification

$$\Delta CC_t = \alpha^{CC} + \sum_{i=1}^k \beta_i^{CC} \Delta CC_{t-i} + \sum_{i=1}^k \beta_i^{CC} \Delta \ln(AEX)_{t-i} + \sum_{i=1}^k \beta_i^{CC} \Delta MEDIA_{t-i} + \varepsilon_t^{CC} \quad (3)$$

$$\Delta \ln(AEX)_t = \alpha^{AEX} + \sum_{i=1}^k \beta_i^{AEX} \Delta CC_{t-i} + \sum_{i=1}^k \beta_i^{AEX} \Delta \ln(AEX)_{t-i} + \sum_{i=1}^k \beta_i^{AEX} \Delta MEDIA_{t-i} + \varepsilon_t^{AEX}$$

$$\Delta MEDIA_t = \alpha^{MEDIA} + \sum_{i=1}^k \beta_i^{MEDIA} \Delta CC_{t-i} + \sum_{i=1}^k \beta_i^{MEDIA} \Delta \ln(AEX)_{t-i} + \sum_{i=1}^k \beta_i^{MEDIA} \Delta MEDIA_{t-i} + \varepsilon_t^{MEDIA}$$



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