

Unemployment expectations, excessive pessimism, and news coverage

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Abstract

This study employs monthly survey data and information obtained from media content analyses to investigate the potential link between (negativity in) economic news coverage and the pessimism in German unemployment expectations. For the period from 2001 to 2009, time-series estimates do not indicate a link in the short-run, but the cumulative effects of repeated media coverage affect long-run attitudes. A single negative report has a long-term effect similar to that of a positive one, but the quantitative dominance of negative over positive news causes an asymmetric reaction in unemployment expectations, which promotes pessimism.

JEL classification: C22; D83; D84; E30

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1 Introduction

Unemployment expectations may have considerable negative effects on aggregate consumption and wage growth (Blanchflower, 1991; Carroll & Dunn, 1997), because consumers and employees restrain themselves when they are uncertain or pessimistic about the future. Previous research indicates that people usually expect substantially higher unemployment rates than the rates that actually appear in the future (Dua & Smyth, 1993; Dickerson & Green, 2012; Tortorice, 2012).

Why are people so pessimistic about future unemployment? The impact of information transmitted by news media on unemployment expectations has been studied by some authors (Mutz, 1992; Carroll, 2003; Curtin, 2003; Hagen, 2005), though without considering

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the possible link between pessimism and the news media. Using survey data and information obtained from media content analyses, this study addresses this research gap by examining the role of two categories of coverage in German news media: reports on the development of unemployment and coverage of the general economic situation. During the period from 2001 to 2009, it is possible to distinguish immediate agenda-setting effects from the long-run consequences of repeated news coverage.

News media are an obvious candidate cause of biased unemployment expectations, because reporting on the economy tends to be disproportionately negative (Kepplinger, 2000; Hagen, 2005). Prior research suggests that news media distort economic expectations or perceptions in general; for example, Brettschneider (2003) finds that negativism in television news coverage is associated with pessimistic perceptions of the general economic situation, and Soroka (2006) shows that public responses to negative economic information are greater than to positive news. Dräger (2011) uncovers asymmetry in regard to inflation perceptions, and Hollanders & Vliegenthart (2011) find interrelations among the real economy, consumer confidence, and negative news.

In addition to addressing an important research gap, this article contributes to research on the media effects of economic news coverage in two ways. First, this study applies the asymmetric error correction approach proposed by Shin, Yu, & Greenwood-Nimmo (2011) to evaluate the cumulative influence of repeated media coverage, because its long-run effects might not be detected by usual time-series methods. Second, simple empirical tests are constructed to test for different forms of asymmetry in media effects. In particular, the distinction between *per-unit* and *quantity-related* asymmetry allows for a more detailed evaluation of the influence of (biased) news coverage.

The next section provides a brief discussion of the theoretical background for this study, followed by a description of the data. After explaining the econometric strategy and presenting the estimation results, this article concludes with a discussion of the implications.

2 Theoretical background

The assumption that economic news coverage affects unemployment expectations can be justified by media dependency theory (Ball-Rokeach & DeFleur, 1976; Palmgreen & Clarke, 1977; Zucker, 1978). According to this theory, information transmitted by news media affects individual knowledge more extensively when less information is available from alternative sources (e.g., personal experience, interpersonal communication). In this regard, it is important to distinguish between unemployment as a personal versus a national problem (Mutz, 1992; Hagen, 2005). In the first case, expectations are egotropic; employees evaluate the likelihood of losing their own job, which is mostly influenced by job searches and displacements in the personal environment or interpersonal communication. In contrast, when individuals form expectations about unemployment as a national problem, it requires a sociotropic evaluation, which often depends on economic news coverage, because alternative sources of information are barely available.

With regard to the time horizon at which news coverage affects unemployment expectations, it is necessary to distinguish between immediate and long-run effects (van Raaij,

1989). Agenda-setting theory (McCombs & Shaw, 1972; McCombs, 2004) mainly refers to the short-run or immediate influence of media coverage. However, no unique definition exists to describe how long the short run lasts. Depending on the topic, the medium, and the frequency of measurement, periods of a few days up to two months are usually considered as the time span for immediate effects.

Long-run media effects may result from repeated coverage of a topic (Salwen, 1988). This corresponds to the idea of cultivation put forward by Gerbner & Gross (1976), who find a positive relation between television use and attitudes congruent with those portrayed on television. Due to availability heuristics, people often base their judgements on the most accessible information; repeated activation affects the ease with which they can recall information (Shrum, 2009). By analogy, repeated news coverage of a certain topic may lead to long-term changes in attitudes due to the accumulation of effects.

A possible relationship between pessimism in unemployment expectations and media coverage requires some asymmetry in the effects of negative and positive news. Perhaps the media impact differs between individual reports, such that a single negative report has a greater impact than a positive one, or vice versa. This *per-unit* asymmetry relates to the marginal effects of news reports. A possible explanation for this form of asymmetry could be confirmation biases and selective exposure to information (Klapper, 1960; Zillmann & Bryant, 1985). People avoid unfavourable news, fit it to their beliefs or preferences, or forget it. In contrast, news that corresponds to their existing attitudes receives increased attention and may have a greater effect on the formation of unemployment expectations. In this regard, prospect theory (Kahneman & Tversky, 1979) suggests stronger effects of negative information, because decisions-making processes are often influenced by loss-aversion and endowment effects. Therefore, people respond differently to favourable and unfavourable changes in economic variables (Kahneman, Knetsch, & Thaler, 1991; Tversky & Kahneman, 1991). In fact, the increased sensitivity to negative information is a robust finding in the psychological literature (see Cacioppo & Gardner (1999), Baumeister, Bratslavsky, Finkenauer, & Vohs (2001), and Rozin & Royzman (2001) for reviews), especially in the context of attitude and impression formation (e.g., Peeters & Czapinski, 1990).

Another form of asymmetry might stem from the quantitative dominance of negative over positive coverage, which would suggest a *quantity-related* asymmetry. According to Iyengar (1990), media can create an accessibility bias through the frequent coverage of a particular topic, which affects judgements about the topic's salience. In that case, the quantitative negativity in economic news coverage would affect perceptions of reality, which might influence the formation of people's expectations towards pessimism.

3 Data

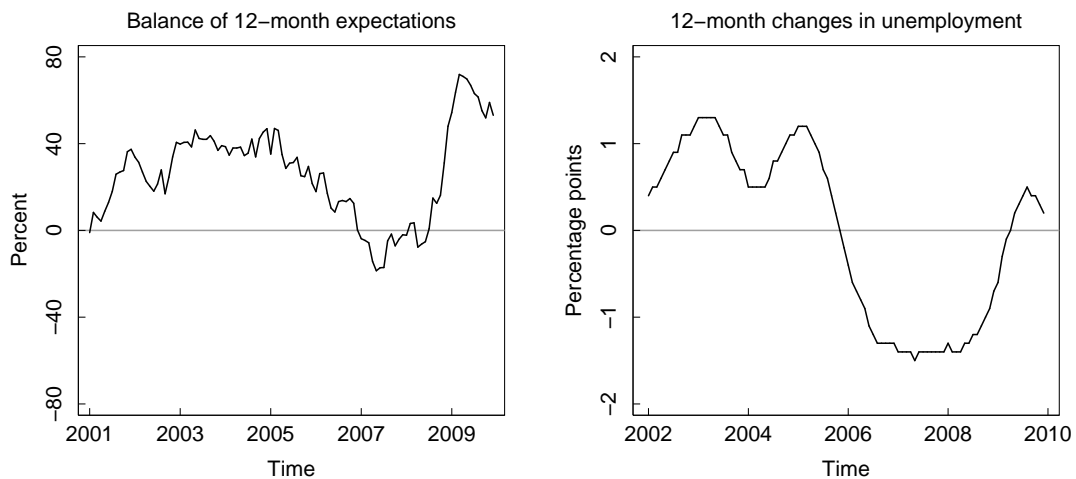
Data availability allows for investigation of the research question on a monthly basis for the period from 2001 to 2009 in Germany. The data set includes time series for unemployment expectations, news reporting, and control variables.

Unemployment expectations

This study uses representative data from the European Business and Consumer Surveys, which repeatedly ask about participants' unemployment expectations for the economy over the next 12 months. These data are expressed as a balance series, such that unemployment expectations are measured as the difference between weighted proportions of answer options that indicate expectations of increasing or decreasing unemployment as percentage points of the total answers.

Figure 1 shows this balance series in comparison with actual 12-month changes in unemployment. Except for a few months in 2007 and 2008, the majority of people believed that unemployment was going to increase. The series peaked in March 2009, when approximately 72% of the respondents expected an increase. Compared with actual changes in unemployment, the expectations were overly pessimistic, because actual changes were rather balanced: Increases and decreases ultimately summed to -1.7 percentage points.

Figure 1: Unemployment: expectations and actual development



News coverage

News reporting data for German newspapers, news magazines, and television newscasts are provided by Media Tenor International.¹ This media research institute gathers data by analysing articles or television news segments on politics, economics, and business using media content analysis, conducted by professionally trained experts who achieve high inter-coder reliability and validity. The institute collects information with respect to the date, position, topic, and tone of each article or segment, following consistent instructions documented in codebooks. In particular, this study uses the aggregated, monthly news output pertaining to (a) the development of unemployment and (b) the general economic situation – both restricted to domestic developments – in the following leading media:

¹<http://www.mediatenor.com>.

- The newscast ‘Tagesschau’, aired daily at 8:00 PM by the largest public service broadcaster ARD (‘Consortium of Public-Law Broadcasting Institutions of the Federal Republic of Germany’). According to its average audience reach of 8.86 million viewers in 2009, it is the most important German news broadcast.
- The second most important news show, ‘heute’, which airs daily at 7:00 PM through the public service broadcaster ZDF (‘Second German Television’), reached 4.02 million viewers on average in 2009.
- The most important privately produced newscast, ‘RTL aktuell’, airs daily at 6:45 PM on the commercial broadcast RTL Television. Its 2009 average audience amounted to 3.79 million viewers.
- The national daily tabloid ‘Bild’ is published by one of Europe’s largest multimedia companies (Axel Springer AG), from Monday to Saturday, with an average daily reach of 3.19 million readers in 2009.
- ‘Der Spiegel’ (Spiegel Publishing) is Germany’s most influential weekly news magazine. On average, the magazine reached 1.05 million readers per week in 2009.
- With an average weekly reach of 0.64 million readers in 2009, ‘Focus’ is another leading weekly news magazine in Germany, published by Hubert Burda Media.

Although not all employees necessarily obtain news from these particular media outlets, this selection is likely representative of the coverage that reaches the public, because the German news media market is rather concentrated, and media companies are often interlocked ([Die Landesmedienanstalten, 2007](#)). For example, online news portals, which this selection does not explicitly consider, are often subsidiaries of print or television media and rely on the same content production.

The coverage can be decomposed into news about increasing and decreasing unemployment, as well as negative and positive reporting about the general economic situation. Media Tenor International classifies news as positive or negative on the basis of codebook instructions, which helps maximise the independence of coders’ personal opinions. This captures both explicit (i.e., wording is characterised by clear terms of agreement or refusal) and implicit (i.e., taking the respective context into account) judgements.²

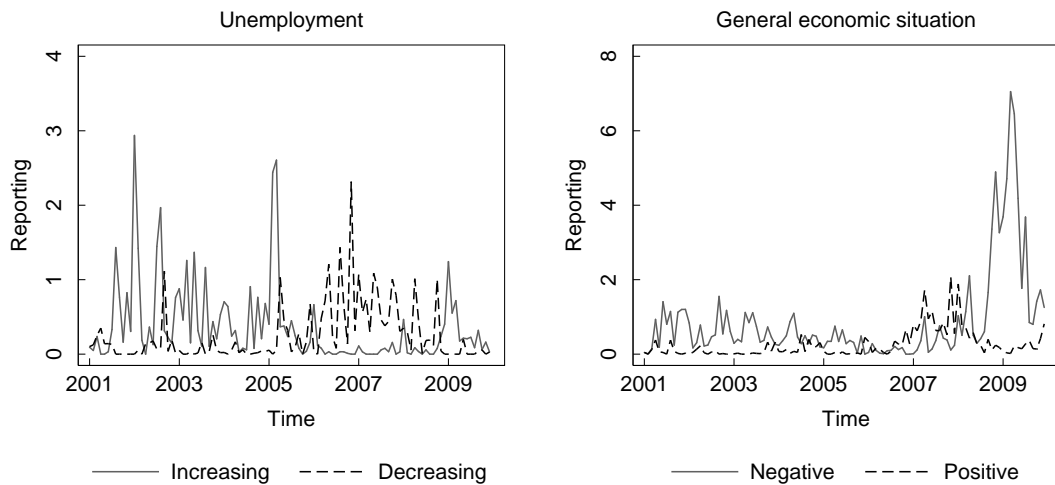
Individual articles and reports are weighted by their respective placement within the newspaper, magazine, or newscast, because a cover story attracts more attention than an article on inner pages; the same applies to the order of segments in a newscast. To approximate such effects, first or leading reports receive a weight of 1, and all other reports receive a weight of 1 divided by their appearance rank. A second weight controls for differences in the reached audience, because average numbers of viewers or readers differ substantially across the considered media outlets. Therefore, the contribution of each media outlet to the aggregate amount of reporting is weighted by the respective yearly average audience or reader share within this group of six sources.³

²Of course, there is also coverage that is neither negative nor positive. However, including a neutral-news variable does not provide additional insights and leaves the results unaffected. Therefore, this study only reports the statistically more efficient estimates based on models without neutral reporting.

³For the reach of the TV news audience, information was gathered from [Darschin & Gerhard \(2004\)](#) and [Zubayr & Gerhard \(2005\)](#), (2006), (2007), (2008), (2009), (2010) for the respective years. The numbers needed to construct the readership weights for print media were provided by the German Audit Bureau of Circulations (IVW).

Figure 2 shows the resulting time series of news reporting, which indicate the expected dominance of negative news. In terms of the cumulative number of weighted reports, the ratio of the coverage of increasing to decreasing unemployment amounted to 1.5 to 1; negative reporting on the economic situation exceeded positive coverage by a factor of 3.4. It would be beyond the scope of this study to evaluate whether the disproportion simply reflects economic reality or whether there is a bias, such that the picture conveyed by the news media is more negative than reality. However, previous research on negativity in economic news coverage suggests that a bias can be assumed (Brettschneider, 2003; Hagen, 2005; Soroka, 2006).

Figure 2: News reporting variables



There are several explanations for the dominance of negative media coverage. First, journalists might be influenced by the same psychological principles as other people, such that their interpretation of information about the economy could be more affected by bad than good news. Second, negative news coverage could be part of the role news media have in representative democracies. Because economic outcomes are influenced by economic policy, critical news coverage could reflect a well-functioning news media, holding the government accountable for its actions (Soroka, 2006). In this regard, this study cannot attempt to judge whether or not negativity in reporting implies that the news coverage is ‘faulty’, because this would require normative considerations. Third, a negativity bias might arise as a consequence of the profit-maximising behaviour of media companies, as Mullainathan & Shleifer (2005) and Gentzkow & Shapiro (2006) show. Consumers usually perceive news coverage to be inaccurate if reports deviate from their prior beliefs. Because a reputation for accuracy is usually considered as a means to expand the demand for their products, media companies have an incentive to produce reports that correspond to the prior beliefs of potential consumers. Gentzkow & Shapiro (2010) present empirical evidence that demand for media products responds to the fit between the news coverage and the ideology of consumers.

Control variables

As discussed in Section 2, unemployment expectations may be influenced not only by economic news coverage but also by personal experiences and interpersonal communication. The impact of these alternative sources of information can be controlled for with data describing actual economic conditions. In this regard, previous research suggests that unemployment expectations are essentially driven by actual unemployment and gross domestic product (GDP) (Curtin, 2003; Tortorice, 2012). This study uses the harmonised unemployment rate calculated by the OECD, instead of official numbers from the German Federal Employment Agency, because the latter measure does not reflect economic reality very well. Although GDP is available on a quarterly basis at best, the index of industrial production is an ideal proxy, because it is measured monthly and correlates strongly with GDP. The index of industrial production (logarithms) also came from the OECD Main Economic Indicators Database. Unemployment expectations might be correlated with further macroeconomic variables, such as inflation, productivity, or interest rates. However, it would be difficult to interpret such correlations as causal with regard to information transmission and expectations formation. Considering the sample size of 108 observations, the selection of control variables includes only the unemployment rate and the GDP proxy, to ensure the number of parameters to be estimated is manageable.⁴

Unit root tests

Unit root tests (see Table A.1 in the Appendix for details) indicate that the series of unemployment expectations, the unemployment rate, and the index of industrial production can be assumed as I(1) within the tested period. In contrast, the test results are mixed and sometimes not clear-cut for the media variables. Coverage about increasing unemployment can be assumed as I(0), whereas the ADF and Phillips-Perron tests contradict each other for decreasing unemployment. Test results also vary between I(0) and I(1) for negative and positive coverage about the general economic situation.

4 Estimation strategy and results

4.1 Immediate agenda-setting effects

To evaluate whether the different news categories affect unemployment expectations through immediate agenda-setting effects, this study employs an ordinary autoregressive distributed lag (ARDL) model:

$$\Delta y_t = \mu + \sum_{j=1}^{p-1} \phi_j \Delta y_{t-j} + \sum_{j=0}^{q-1} \theta'_j \Delta \mathbf{x}_{t-j} + \varepsilon_t, \quad (1)$$

⁴Specifications with alternative control variables (e.g., using the unemployment rate only or the rate of inflation instead of the index of industrial production) lead to results very similar to those presented in this paper. Details are available on request.

where the dependent variable y_t refers to the unemployment expectations. Accordingly, y_{t-j} on the right-hand side of the equation indicates lagged unemployment expectations. The vector \mathbf{x}_t contains the explanatory variables. The first difference operator Δ indicates that all variables enter the model in first differences to avoid spurious regression results. The error term ε_t is assumed to be normally and independently distributed. The dependent variable enters the model with 12 lags, which is the (empirically) necessary lag length to avoid serial correlation in the errors (excluding particular insignificant lags does not affect the results). The regressors are allowed to affect unemployment expectations with current and one-month lagged values, because surveys of unemployment expectations are conducted in the second or third week of each month. Lags of a higher order are not included, though there could be occasional correlations with the dependent variable. In the context of testing for immediate agenda-setting effects though, such higher-order correlations would have no causal interpretation.

In this ARDL setting, the null hypothesis of *per-unit* symmetry of media effects against the alternative of asymmetry can be evaluated using a Wald test:

$$H_0^{Unit}: \sum_{j=0}^{q-1} \theta_j^{neg} + \sum_{j=0}^{q-1} \theta_j^{pos} = 0, \quad (2)$$

where θ_j^{neg} denotes the lagged coefficients for news coverage on increasing unemployment or negative reporting on the general economic situation, whereas θ_j^{pos} refers to the lagged coefficients for reporting on decreasing unemployment or positive coverage of the general economic situation, respectively.

It might be possible that asymmetry exists between the effects of negative and positive news, when taking differences in the sample-wide news output between the news variables into account. As shown in Section 3, the volume of negative coverage clearly exceeds that of positive reporting, especially in relation to the general economic situation. The corresponding factors of disproportionate reporting can be used to estimate the impact of each news variable, controlling for the quantitative dominance of negative coverage. This is implemented by normalising the time series of positive news with respect to the sample-wide amount of negative news:

$$news_t^{pos-norm} = \frac{news_t^{pos}}{\sum_{t=1}^T news_t^{pos} / \sum_{t=1}^T news_t^{neg}}, \quad (3)$$

which is effectively the same as multiplying the estimated coefficients of the non-normalised variables by the sample-wide sum of weighted reports. However, re-estimation with normalised variables supports a test of the null hypothesis of *quantity-related* symmetry:

$$H_0^{Quan}: \sum_{j=0}^{q-1} \theta_j^{neg} + \sum_{j=0}^{q-1} \theta_j^{pos-norm} = 0, \quad (4)$$

where $\theta_j^{pos-norm}$ refers to the media coefficients that result from the regression with normalised media variables.

Table 1 summarises the results of the regression in first differences. With an adjusted R^2 of 0.42, the model attains only a moderate fit. Nonetheless, the residuals are satisfactory, because there are no indications of autocorrelation, heteroscedasticity, or non-normality. Moreover, the parameters are sufficiently stable over time, and the model does not suffer from functional misspecification. The estimates indicate that changes in the unemployment rate do not have a significant impact, whereas economic growth significantly lowers the expectations of unemployment. The media variables have the expected signs, such that negative (positive) news leads to increasing (decreasing) unemployment expectations. However, only reports of increasing unemployment exert a statistically significant influence. Wald tests suggest that the null hypothesis of *per-unit* symmetry of media effects cannot be rejected for either unemployment or general economic coverage. Therefore, the effects of a one-unit change in negative news (i.e., increasing unemployment or negative coverage of the general economic situation) have the same absolute magnitude as the effects of a one-unit change in positive news (i.e., decreasing unemployment or positive coverage of the general economic situation). The tests for *quantity-related* symmetry of media effects do not suggest asymmetry as well, so the quantities of negative and positive news appear to neutralise each other. Therefore, it can be concluded that there is no short-term link between (negativity in) economic news coverage and pessimism in unemployment expectations.

Table 1: Immediate effects on unemployment expectations

	Sum of Lags ¹⁾	H_0^{Unit}	H_0^{Quan}
Unemployment expectations	0.119 (0.050)		
Unemployment rate	4.743 (0.442)		
Industrial production	-123.607 (0.038)		
News coverage			
Increasing unemployment	3.176 (0.001)	-1.327 (0.653)	0.123 (0.957)
Decreasing unemployment	-4.503 (0.181)		
Negative economic situation	1.592 (0.287)		
Positive economic situation	-5.111 (0.340)	-3.519 (0.339)	0.084 (0.956)
Constant	0.417 (0.400)		
Model diagnostics			
Adjusted R^2	0.417		
SC(12)	6.256 (0.903)		
HET(12)	27.113 (0.299)		
NORM	0.564 (0.754)		
CUSUM	1.076 (0.286)		
RESET	0.802 (0.453)		

Note: P-values are given in parentheses. SC(12), HET(12), NORM, CUSUM, and RESET refer, respectively, to the Ljung-Box Q statistic for serial correlation up to order 12, the Breusch-Pagan test for heteroscedasticity up to order 12, the Doornik-Hansen test for normally distributed residuals, the Harvey-Collier test statistic for parameter stability, and Ramsey's specification test.

¹⁾ The sum of distributed lags 0 to 1 for the explanatory variables and 1 to 12 for the dependent variable.

4.2 Long-run media effects

Usually, long-run effects between time series would be evaluated within a cointegration framework. However, such an evaluation requires that the variables are integrated of the same order, which is not the case in this study. The question of whether the media variables affect unemployment expectations permanently instead can be evaluated using the non-linear autoregressive distributed lag (NARDL) framework proposed by [Shin, Yu, & Greenwood-Nimmo \(2011\)](#), which has the advantage of providing a means to investigate possible long-run relationships by combining I(0) and I(1) variables. In particular, the NARDL framework can reveal whether unemployment expectations return to their previous level after having increased or decreased due to a news shock. In this regard, positive (x_t^+) and negative (x_t^-) partial sum processes of a time series x_t are an important feature of this approach:

$$\mathbf{x}_t^+ = \sum_{j=1}^t \Delta \mathbf{x}_j^+ = \sum_{j=1}^t \max(\Delta \mathbf{x}_j, 0), \quad (5)$$

$$\mathbf{x}_t^- = \sum_{j=1}^t \Delta \mathbf{x}_j^- = \sum_{j=1}^t \min(\Delta \mathbf{x}_j, 0). \quad (6)$$

In turn, the NARDL model can be written as:

$$\Delta y_t = \mu + \rho y_{t-1} + \boldsymbol{\theta}^{+'} \mathbf{x}_{t-1}^+ + \boldsymbol{\theta}^{-'} \mathbf{x}_{t-1}^- + \sum_{j=1}^{p-1} \varphi_j \Delta y_{t-j} + \sum_{j=0}^q (\boldsymbol{\pi}_j^{+'} \Delta \mathbf{x}_{t-j}^+ + \boldsymbol{\pi}_j^{-'} \Delta \mathbf{x}_{t-j}^-) + \varepsilon_t, \quad (7)$$

where the long-run multipliers are computed as $\mathbf{LR}^+ = -\widehat{\boldsymbol{\theta}}^+ / \widehat{\rho}$ and $\mathbf{LR}^- = -\widehat{\boldsymbol{\theta}}^- / \widehat{\rho}$. In this context, the existence of permanent effects can be evaluated using the following Wald test:

$$H_0^{Perm}: LR^+ = LR^-, \quad (8)$$

which denotes the null hypothesis that the positive and negative changes in a regressor have symmetric long-run effects on the dependent variable. A rejection of the null hypothesis then implies that a shock from the respective variable causes unemployment expectations to increase permanently if $LR^+ - LR^- > 0$, whereas $LR^+ - LR^- < 0$ indicates a permanent decrease. Accordingly, the difference between LR^+ and LR^- measures the extent of the persistence.

Tests for the long-run symmetry of media effects can be conducted similar to Equations (2) and (4), but using the corresponding differences between long-run multipliers instead of short-run coefficients:

$$H_0^{UnitLR}: LR_{neg}^+ - LR_{neg}^- + LR_{pos}^+ - LR_{pos}^- = 0, \quad (9)$$

$$H_0^{QuanLR}: LR_{neg}^+ - LR_{neg}^- + LR_{pos_norm}^+ - LR_{pos_norm}^- = 0. \quad (10)$$

Table 2 reports the estimated differences between negative and positive long-run coefficients⁵ and the results of the described asymmetry tests. The specification is statistically satisfactory, because there are no indications of residual problems, parameter instability, or functional misspecification. The model achieves a much better fit (adjusted $R^2 = 0.77$) than the ARDL model. A likelihood ratio test indicates that the more general ARDL model can be rejected at the 1% significance level, which highlights the role of the persistence that characterises the time series.

Table 2: Long-run effects on unemployment expectations

	$LR^+ - LR^-$	H_0^{Perm}	H_0^{UnitLR}	H_0^{QuanLR}
Unemployment rate	2.253	(0.850)		
Industrial production	-48.040	(0.185)		
News coverage				
Increasing unemployment	2.123	(0.113)	-1.523 (0.514)	-0.349 (0.852)
Decreasing unemployment	-3.646	(0.050)		
Negative economic situation	6.172	(0.000)	0.177 (0.935)	4.404 (0.000)
Positive economic situation	-5.996	(0.005)		
Model diagnostics				
Adjusted R^2	0.768			
SC(12)	12.328	(0.420)		
HET(12)	44.147	(0.706)		
NORM	1.187	(0.552)		
CUSUM	0.522	(0.604)		
RESET	0.694	(0.505)		

Note: P-values are given in parentheses. SC(12), HET(12), NORM, CUSUM, and RESET refer, respectively, to the Ljung-Box Q statistic for serial correlation up to order 12, the Breusch-Pagan test for heteroscedasticity up to order 12, the Doornik-Hansen test for normally distributed residuals, the Harvey-Collier test statistic for parameter stability, and Ramsey's specification test.

The estimates indicate that the unemployment rate and the index of industrial production are not associated with significant permanent changes in unemployment expectations. In contrast, all media variables evoke persistent reactions, except for coverage of increasing unemployment; the corresponding coefficient is only slightly above the 10% significance level though. The marginal effects of each news variable are rather similar, so the Wald tests for *per-unit* symmetry of negative and positive effects cannot be rejected for both news categories; the long-run effects of media coverage neutralise each other in this regard. Taking the quantitative dominance of negative over positive news into account, the null hypothesis of *quantity-related* symmetry can be rejected, according to the highly significant

⁵As a means to capture possible immediate agenda-setting effects, the short-run dynamics have the same lag structure as the ARDL model in Table 1 (i.e., 12 lags of the first difference of the dependent variable, lags 0 to 1 of the first differences of the explanatory variables). The estimated short-run coefficients (available on request) are not reported here, because they are not of primary interest and barely exhibit asymmetry. Restricting the short-run coefficients to symmetry would lead to results very similar to those in the ARDL model.

Wald statistic (p-value = 0.000), for news coverage about the general economic situation. The test does not indicate asymmetry for news about increasing and decreasing unemployment. This finding supports the conjecture that negativity in economic news coverage is associated with pessimism in unemployment expectations, at least with regard to coverage of the general economic situation. Therefore, media-induced pessimism appears to function through an ‘hysteresis’ channel, because (a) media effects do not dissipate but affect the long-run memory of people and (b) the disproportionate output of negative economic news is not compensated for by positive coverage.

Although the Harvey-Collier test statistic does not indicate significant temporal instability in the estimated coefficients, it is necessary to evaluate whether the estimates are robust to changes in the sample, because unemployment expectations and negative news coverage on the economic situation seem affected by the global economic crisis (Figures 1 and 2). For that reason, the NARDL model is estimated recursively, starting with the sample up to 2007m12 and adding one observation with each step until the full range has been reached. Figure A.1 in the Appendix shows the resulting recursive long-run coefficients. Although the estimates of some variables exhibit a break at the beginning of the recursion, the coefficients are sufficiently stable over time, because the break or other fluctuations do not affect the conclusions. The confidence intervals of the coefficients tend to shrink with increasing sample size; more observations reduce estimation uncertainty. Figure A.2 in the Appendix depicts the recursive estimates to evaluate the robustness of the tests for *per-unit* and *quantity-related* symmetry. The recursion consistently confirms that news coverage about increasing and decreasing unemployment has symmetric long-run effects on the unemployment expectations, for both the marginal effect of single reports and when the analysis accounts for quantitative negativity. Regarding news about the general economic situation, the recursion also confirms *per-unit* symmetry in the media effects. The null hypothesis of *quantity-related* symmetry can be rejected only towards the end of the recursion though. However, this cannot not be interpreted as lacking robustness, but as merely caused by the relatively high estimation uncertainty for smaller sample sizes.⁶ The point estimate of the balance of negative and positive coverage of the general economic situation is continuously positive and confirms the link to pessimism in unemployment expectations even without the influence of the crisis.

Because media effects often correlate with demographic characteristics, Tables A.2 to A.4 report the results of robustness checks according to education, income, and age groups.⁷ These estimates do not indicate substantial differences in the media effects between demographic groups. Without exception, negative coverage of the general economic situation significantly increases the unemployment expectations. The null hypothesis of *quantity-related* symmetry of the effects of general economic news coverage cannot be rejected in case of the 4th income quartile and three age groups, for which the respective p-values are slightly above the 10% level.

⁶It could be argued that it is not the lower number of observations that causes the test statistic to be significant in the full sample only, but the excessive negative media coverage that is associated with the crisis. To rule this possibility out, the model is estimated for the period from 2003m1 to 2009m12; this sample captures the full potential influence of the crisis, but should provide an insignificant test result if the assumption that a smaller number of observations increases estimation uncertainty is correct: The resulting point estimate amounts to 2.687; with a p-value of 0.118, the corresponding null hypothesis of quantity-related symmetry between negative and positive news cannot be rejected.

⁷This check involves estimating the model with group-specific unemployment expectations, which also came from the European Business and Consumer Surveys.

5 Discussion

The news media bear a heavy responsibility when transmitting information about the economy, because relevant information rarely is available from alternative sources. People depend on media coverage to form their economic expectations and make economic decisions. If the news media induce a bias in expectations, economic efficiency might be affected and welfare reduced. Because expectations of unemployment are often overly pessimistic, this study empirically investigates whether this pessimism indicates a link to (negativity in) economic news coverage. To address the question, this study tests for different forms of asymmetry in immediate and long-run media effects using survey data and time series obtained from media content analyses.

After controlling for alternative sources of information, the estimates do not indicate a short-run link between public pessimism and news coverage. The marginal effects of individual reports on unemployment expectations do not differ between negative and positive news. The effects are also symmetric when taking the quantitative dominance of negative over positive news into account. However, the estimates clearly suggest that economic news coverage cultivates long-run attitudes in the form of unemployment expectations. If the expectations change in reaction to an increase in the news output, they do not necessarily return to their initial level but instead tend to shift permanently.

The results, which are robust over time and across demographic groups, suggest that a single negative report has a long-run effect that is similar to the influence of a positive report, but their higher numbers relative to positive reports causes an asymmetric reaction in unemployment expectations. In particular, coverage on the general economic situation – rather than news about increasing or decreasing unemployment – promotes pessimism in unemployment expectations by changing long-run attitudes.

Unfortunately, this study cannot address several related aspects. A major limitation concerns the implications for public information and broadcasting policy. For example, it is not clear whether the dominance of negative news implies that the media coverage is ‘faulty’. Future research thus has to consider normative aspects, such as the question for the optimal degree of negativity that ensures a critical monitoring of the government but reduces the distortion of economic expectations. In addition, neither the theoretical arguments nor the data used in this study allow to address the role of how (un-)critical people process information transmitted by news media. It should be evaluated whether the results change when controlling for the people’s trust in the news media. Moreover, it is necessary to gather additional media data to evaluate whether the findings also apply to other time periods or countries. For example, after 2009, unemployment expectations fell sharply in Germany to a level comparable to the 2007 low. Presumably, there was a similar decline in the amount of negative economic news. Unfortunately, media data are not consistently available so far to account for these recent developments.

In Germany, the past decade has been characterised by a lengthy debate about weak domestic demand. According to the German Council of Economic Experts, private consumption suffered from pessimism about the overall economic trend, caused by years of stagnation (e.g., [SVR, 2003, 2008](#)). Considering this article’s findings, the persistent weakness in Germany’s domestic demand might have been less severe had the economic news coverage been more positive. However, further evidence is needed to verify this conjecture, such as explicit tests for a link between negativity in economic news coverage and spending or saving behaviour.

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Appendix

Table A.1: Unit root tests

		ADF ¹⁾			Phillips-Perron ²⁾			KPSS ²⁾			Conclusion
		Lags	Det.	P-val.	Bandw.	Det.	P-val.	Bandw.	Det.	LM-Stat. ³⁾	
Unemployment expectations	level	12	c	(0.211)	7	c	(0.341)	8	c	0.137	I(1)
	level	12	c, t	(0.617)	7	c, t	(0.661)	8	c, t	0.140	
	diff.	11		(0.037)	6		(0.000)	6	c	0.121	
Unemployment rate	level	3	c	(0.179)	8	c	(0.770)	9	c	0.326	I(1)
	level	3	c, t	(0.235)	8	c, t	(0.889)	9	c, t	0.280	
	diff.	5		(0.072)	6		(0.000)	8	c	0.568	
Industrial production	level	3	c	(0.235)	6	c	(0.528)	9	c	0.600	I(1)
	level	3	c, t	(0.284)	6	c, t	(0.583)	9	c, t	0.141	
	diff.	4		(0.000)	6		(0.000)	6	c	0.073	
Media: incr. unemployment	level	0	c	(0.000)	2	c	(0.000)	5	c	0.647	I(0)
	level	0	c, t	(0.000)	8	c, t	(0.000)	2	c, t	0.093	
Media: decr. unemployment	level	5	c	(0.564)	7	c	(0.000)	8	c	0.348	I(0)/I(1)
	level	5	c, t	(0.887)	7	c, t	(0.000)	8	c, t	0.159	
	diff.	4		(0.000)				8	c	0.066	
Media: negative econ. situation	level	0	c	(0.024)	4	c	(0.030)	8	c	0.402	I(0)/I(1)
	level	0	c, t	(0.053)	4	c, t	(0.056)	8	c, t	0.174	
	diff.	0		(0.000)	3		(0.000)	4	c	0.038	
Media: positive econ. situation	level	8	c	(0.315)	6	c	(0.000)	8	c	0.486	I(0)/I(1)
	level	8	c, t	(0.253)	6	c, t	(0.000)	8	c, t	0.088	
	diff.	7		(0.001)				31	c	0.174	

¹⁾ Lag-length selection according to Akaike criterion (maximum lag order = 12).

²⁾ Bandwidth selection as suggested by [Newey & West \(1994\)](#).

³⁾ Critical values (1%/5%/10%): 0.739/0.462/0.347 (constant), 0.216/0.146/0.119 (constant and trend).

Table A.2: Long-run media effects by education groups

	$LR^+ - LR^-$	H_0^{Perm}	H_0^{UnitLR}	H_0^{QuanLR}
Primary				
Unemployment rate	11.713	(0.489)		
Industrial Production	-36.437	(0.443)		
News coverage				
Increasing unemployment	1.412	(0.419)	-3.091 (0.346)	-1.641 (0.530)
Decreasing unemployment	-4.503	(0.081)		
Negative economic situation	5.351	(0.001)	-0.461 (0.874)	3.636 (0.030)
Positive economic situation	-5.811	(0.031)		
Secondary				
Unemployment rate	-0.380	(0.976)		
Industrial production	-53.924	(0.169)		
News coverage				
Increasing unemployment	2.640	(0.068)	-1.080 (0.657)	0.118 (0.952)
Decreasing unemployment	-3.720	(0.053)		
Negative economic situation	6.522	(0.000)	0.152 (0.948)	4.643 (0.000)
Positive economic situation	-6.370	(0.007)		
Further				
Unemployment rate	-7.179	(0.564)		
Industrial Production	-35.440	(0.439)		
News coverage				
Increasing unemployment	-0.210	(0.904)	0.137 (0.958)	0.025 (0.991)
Decreasing unemployment	0.347	(0.857)		
Negative economic situation	5.672	(0.000)	2.784 (0.234)	4.820 (0.002)
Positive economic situation	-2.889	(0.181)		

Note: P-values are given in parentheses.

Table A.3: Long-run media effects by income groups

	$LR^+ - LR^-$	H_0^{Perm}	H_0^{UnitLR}	H_0^{QuanLR}
1st Quartile				
Unemployment rate	11.067	(0.477)		
Industrial Production	-52.526	(0.208)		
News coverage				
Increasing unemployment	2.885	(0.063)	-3.041 (0.301)	-1.133 (0.612)
Decreasing unemployment	-5.926	(0.031)		
Negative economic situation	6.035	(0.000)	-1.195 (0.665)	3.902 (0.005)
Positive economic situation	-7.230	(0.010)		
2nd Quartile				
Unemployment rate	-3.262	(0.822)		
Industrial Production	-17.606	(0.700)		
News coverage				
Increasing unemployment	0.584	(0.752)	-1.108 (0.696)	-0.563 (0.813)
Decreasing unemployment	-1.692	(0.404)		
Negative economic situation	4.616	(0.007)	2.420 (0.326)	3.969 (0.019)
Positive economic situation	-2.196	(0.305)		
3rd Quartile				
Unemployment rate	8.371	(0.662)		
Industrial production	-47.535	(0.430)		
News coverage				
Increasing unemployment	2.486	(0.221)	-2.016 (0.581)	-0.566 (0.844)
Decreasing unemployment	-4.502	(0.152)		
Negative economic situation	6.689	(0.001)	-1.935 (0.666)	4.145 (0.050)
Positive economic situation	-8.624	(0.056)		
4th Quartile				
Unemployment rate	5.644	(0.783)		
Industrial Production	-53.027	(0.322)		
News coverage				
Increasing unemployment	2.364	(0.243)	-1.171 (0.731)	-0.033 (0.991)
Decreasing unemployment	-3.535	(0.135)		
Negative economic situation	4.905	(0.008)	-2.678 (0.318)	2.668 (0.136)
Positive economic situation	-7.584	(0.003)		

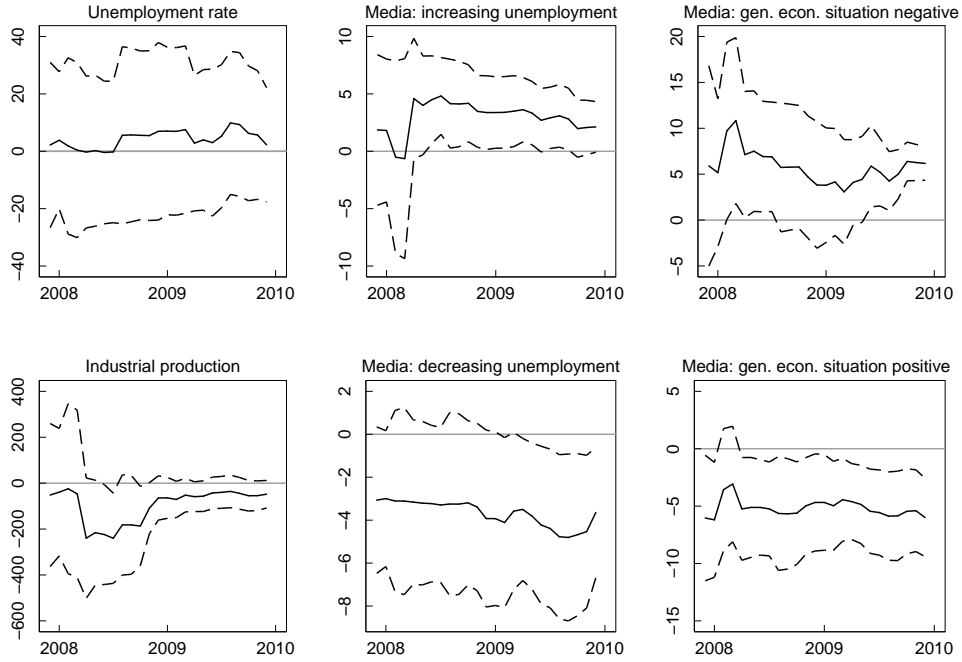
Note: P-values are given in parentheses.

Table A.4: Long-run media effects by age groups

	$LR^+ - LR^-$	H_0^{Perm}	H_0^{UnitLR}	H_0^{QuanLR}
16–29				
Unemployment rate	-5.181	(0.655)		
Industrial Production	-41.265	(0.285)		
News coverage				
Increasing unemployment	2.695	(0.056)	0.363 (0.874)	1.114 (0.556)
Decreasing unemployment	-2.331	(0.177)		
Negative economic situation	5.073	(0.000)	0.664 (0.761)	3.772 (0.005)
Positive economic situation	-4.409	(0.024)		
30–49				
Unemployment rate	-8.579	(0.709)		
Industrial production	-50.082	(0.356)		
News coverage				
Increasing unemployment	2.152	(0.253)	1.529 (0.659)	1.730 (0.538)
Decreasing unemployment	-0.622	(0.805)		
Negative economic situation	5.227	(0.015)	-1.175 (0.684)	3.339 (0.119)
Positive economic situation	-6.402	(0.006)		
50–64				
Unemployment rate	-0.489	(0.982)		
Industrial Production	-27.359	(0.656)		
News coverage				
Increasing unemployment	1.336	(0.528)	-0.992 (0.779)	-0.242 (0.934)
Decreasing unemployment	-2.329	(0.342)		
Negative economic situation	4.846	(0.016)	-2.070 (0.473)	2.806 (0.154)
Positive economic situation	-6.916	(0.008)		
65+				
Unemployment rate	-20.800	(0.563)		
Industrial Production	-72.585	(0.401)		
News coverage				
Increasing unemployment	1.575	(0.571)	2.600 (0.603)	2.270 (0.572)
Decreasing unemployment	1.024	(0.792)		
Negative economic situation	7.414	(0.027)	0.598 (0.908)	5.403 (0.131)
Positive economic situation	-6.815	(0.072)		

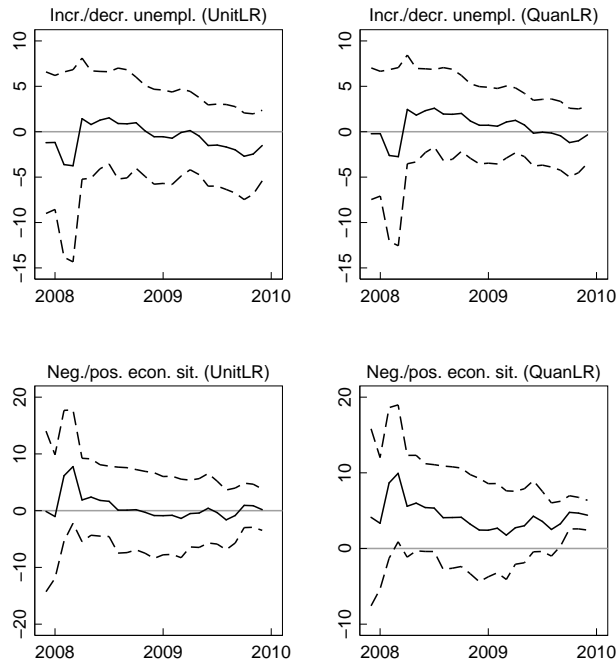
Note: P-values are given in parentheses.

Figure A.1: Recursive long-run coefficient estimates



Note: Estimates are provided as $LR^+ - LR^-$, including the 90% confidence interval.

Figure A.2: Recursive estimates of long-run asymmetry in media effects



Note: Estimates are provided, respectively, as $LR_{neg}^+ - LR_{neg}^- + LR_{pos}^+ - LR_{pos}^-$ and $LR_{neg}^+ - LR_{neg}^- + LR_{pos_norm}^+ - LR_{pos_norm}^-$, including the 90% confidence interval.