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de Ruiter, R.; Vliegenthart, R.

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Original Article

Understanding media attention paid to negotiations on EU legislative acts: a cross-national study of the United Kingdom and the Netherlands

Rik de Ruiter^{a,*} and Rens Vliegthart^b

^aInstitute for Public Administration, Leiden University, Leiden, The Netherlands.

E-mail: r.de.ruiter@fgga.leidenuniv.nl

^bDepartment of Communication Science, Amsterdam School of Communication Research (ASCoR), University of Amsterdam, Amsterdam, The Netherlands.

*Corresponding author.

Abstract Studies of the news coverage of European Union (EU) affairs have not yet paid much attention to coverage of the negotiations leading to EU legislative acts. This article investigates the factors that influence the attention national newspapers devote to these acts. We hypothesize that the decisions made by journalists and editors to pay attention to EU-level negotiations on legislative acts through newspaper articles is dependent on how the EU-level negotiations proceed and the characteristics of the legislative proposal. The hypotheses are tested with a new dataset on newspaper coverage in the Netherlands and the UK with regard to 295 directives. The results indicate that media coverage increases when journalists need to invest only a minimal amount of resources to understand the substance of new legislation or the negotiation process leading to the adoption of EU legislation. These findings are discussed in light of the debate on the European public sphere.

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Keywords: Media; European Union; legislative politics; United Kingdom; the Netherlands; public sphere

Introduction

The role of the national media in the multi-level system of the European Union (EU) is a well-studied topic in the European integration and political communication literature. Key in this literature is the notion of a European public sphere (De Vreese, 2007). Studies have focused on the conditions under which the European

public sphere can develop (Habermas, 2001) and have discussed specific instances in which it is argued to be present or absent (Eder, 2000; Koopmans, 2007; Trenz, 2005; Bijsmans, 2011). However, the research has so far largely neglected a part of the media coverage of EU affairs that is highly relevant, i.e., the coverage of the negotiations on EU legislative acts. To fill this gap, this study examines the amount of media coverage at the national level as measured by the number of newspaper articles as well as the tone of the coverage of the day-to-day decision-making process on EU legislative acts. This research will only consider EU directives under negotiation in the ordinary legislative procedure, which is currently the standard procedure to reach agreement on EU legislation. A directive is a type of EU law that needs to be transposed into national legislation, in contrast to EU regulations and decisions. This direct relevance of EU directives for the national policy-making process increases the chance that national media will follow the preceding EU negotiation process on an EU legislative act.

The next section reviews the literature to identify the factors that drive the journalists and editors of newspapers to report on EU affairs in general and the EU legislative process in particular. Insights are used from studies on EU legislative politics as well as from the field of journalism to formulate hypotheses outlining the factors that are most likely to affect the *amount* of media coverage of EU-level negotiations on legislative acts at the national level. The results section presents the findings of the regression analyses on a new dataset on the media coverage in the United Kingdom (UK) and the Netherlands of all directives agreed upon through the ordinary legislative procedure in the period 2000–2010 ($N = 295$). A sample of 100 articles on the most referred-to directives [see also Tables 2 and 3 in the web-appendix]] in both member states is analysed in more detail to assess the *tone* of the media coverage and the types of articles published in newspapers. The concluding section discusses the findings in light of the development of the EU public sphere and answers the question regarding the conditions under which national media can play a role in linking the EU legislative process to citizens in the EU.

Media Coverage and Legislative Politics in the EU

Empirical studies of the media coverage of EU affairs focus on the questions of how the EU is covered and what the potential effects of this coverage are on citizens' perceptions and attitudes (De Vreese, 2003). Multiple studies examine the coverage of the EU in general and events such as European Parliament (EP) elections and referenda in particular from a cross-national perspective (e.g., Hobolt, 2007; Boomgaarden *et al*, 2013). However, only a few of these cross-national studies explicitly address the question of how country characteristics can explain variations in coverage. De Vreese *et al* (2006) show that the media in new member states devoted more attention to the 2004 EP elections than did outlets in old

member states. Peter and De Vreese (2004) demonstrate that in countries with higher levels of satisfaction with democracy, the coverage of the EU is higher. In a similar vein, De Vreese *et al* (2007) find that the 1999 EP elections were more visible in countries with high levels of elite polarization on EU issues. Moreover, the findings from longitudinal studies also indicate that journalists pay more attention to EU affairs when an Intergovernmental Conference or Council meeting takes place or when a new European Commission is installed (Peter and De Vreese, 2004; Boomgaarden *et al*, 2010, 2013; Van Noije, 2010).

Both the cross-national and longitudinal studies reviewed here focus on general EU coverage, either in terms of overall attention paid to the EU and its main institutions or in the way the EU is framed (Schuck *et al*, 2013). There is hardly any attention in the literature regarding media coverage of the EU legislative process, not even in more descriptive analyses of the coverage of specific policy areas (see Koopmans, 2007; Kandyla and De Vreese, 2011). However, the coverage of the day-to-day decision-making process on EU legislation is an important aspect of EU politics about which citizens need to be informed and, hence, is a crucial part of the European public sphere. The goal of this article is to shed light on the questions of whether, when and how national media cover the negotiations on EU legislative acts.

It is hypothesized in this article that factors related to the *process* along which the EU-level negotiations on legislative acts proceed and the *characteristics* of the legislative acts themselves influence the cost-benefit calculus of journalists and editors when deciding whether the negotiations are newsworthy enough to report on in their newspapers. In general, Brussels correspondents tend to be critical of the EU institutions and feel hindered in their reporting by the complexity of the EU decision-making process (Gleissner and De Vreese, 2005; Raeymaeckers *et al*, 2007; Lecheler, 2008). Moreover, given that the public in the member states is by and large uninterested in EU affairs¹ and the media will be aware of this lack of audience interest, only those issues that have a direct link to the concerns of citizens have a serious chance to make it into the newspapers (Gleissner and De Vreese, 2005; Gattermann, 2013). Hence, we assume in this article that the references in national newspapers to negotiations on legislation at the EU level increases when two conditions are fulfilled: (i) only a limited investment of resources (i.e., time, available space in the newspaper, staff) is necessary for the journalists to understand the substance of new legislation or the negotiation process leading to the adoption of EU legislation, and (ii) a proposal for an EU legislative act can be directly linked to the main concerns of citizens in the member states. These conditions indicate that the decision by journalists to report (or not) on EU-level negotiations on legislative acts can be understood as the outcome of a rational process (Statham, 2007). These two conditions derived from the political communication literature are linked to variables and indicators used by scholars of EU legislative politics for measuring the process along which negotiations on

EU legislative acts proceed and the characteristics of these acts (see Table 1 for an overview).

A first factor influencing the decision by journalists to pay attention to a directive in newspaper articles or not, is the level of conflict involved in a proposed legislative act during the process of EU-level negotiations. The level of conflict is considered to be one of the most important news values that can help journalists decide what is newsworthy and what is not (Galtung and Ruge, 1965). Additionally, media attention on domestic legislative processes is to a large extent determined by the level of political conflict over the specific piece of legislation (Melenhorst, 2015). In a high conflict negotiation process, the positions of actors with decision-making power are usually clearly defined and highly visible, which lowers the costs for journalists to understand the substance of the new legislation or the negotiation process leading to the adoption of EU legislation. Hence, it can be expected that journalists are more likely to report on acts on which there is disagreement between the positions of actors during negotiations than on acts adopted through rubber-stamping.

The literature on EU legislative politics pays abundant attention to the conflict situations created by disagreements about legislative acts between the EP and the Council during EU-level negotiations. These conflicts consist of clashes between supranational arguments – represented by the EP – and member states' interests – represented by the Council (Naurin and Rasmussen, 2011). In other words, disagreements between the EP and the Council are often related to the question of the allocation of tasks between the EU and domestic levels. To test whether this type of conflict indeed triggers attention by journalists and editors – leading to more references in national newspapers – the following hypothesis is formulated:

- 1a. The more conflict there is between the EP and the Council during the negotiations on a proposed legislative act at the EU level, the more references there will be to the act in national media.

An indicator to measure the presence of conflict between the EP and the Council is the stage of the ordinary legislative procedure at which the negotiations on EU legislative acts are concluded. The EP and the Council can conclude negotiations in the first, second, or third reading. When the EP and the Council do not succeed in reaching agreement on proposed EU legislative acts in the first or second reading, a third reading stage is necessary to reconcile the two institutions. A conciliation committee with representatives of the Commission, the EP and the Council has become the method employed to ultimately resolve the fiercest inter-institutional conflicts on legislative acts (Rasmussen, 2011; Franchino and Mariotto, 2012).

A high degree of *intra*-institutional conflicts during negotiations – i.e., within the Council or the EP – also informs journalists of the positions of the actors with decision-making power. Conflict within the EP indicates ideological disagreements

Table 1: Variables and indicators

<i>Hypothesis</i>	<i>Variables related to the negotiation process or characteristics of the legislative act</i>	<i>Operationalization</i>	<i>Measurement</i>	<i>Expected effect</i>
Condition I: Limited investment of resources to understand the substance/negotiation process of an EU legislative proposal				
1a	Process: Inter-institutional conflict on EU legislative act	Conflict between the EP and the Council	Is the act agreed upon in conciliation/third reading? 1 = yes, 0 = no	+
1b	Process: Intra-institutional conflict on EU legislative act	Conflict within the Council Conflict within the EP	Is the act only an A-item on the Council agenda? 1 = yes, 0 = no Is the act agreed upon unanimously in the responsible EP committee? 0 = yes, 1 = no	– +
1c	Process: Transparency of legislative process	A legislative act negotiated in informal trilogues in the first reading is less transparent	Is the act agreed upon through informal trilogues in the first reading? 1 = yes, 0 = no	–
1d	Characteristics: Complexity of legislative act	A legislative act that involves more policy fields is more complex	Number of EP committees	–
Condition II: Direct link with important concerns of citizens in member states				
2a	Characteristics: Magnitude of policy change introduced	Legislative act proposes entirely new or amended legislation	Is the act a new or substantially amended act? 1 = yes, 0 = no	+
2b	Characteristics: Saliency of EU legislative act	Saliency at the national level in the eyes of MPs	Number of times act is mentioned in plenary/committee debates/written reports in the lower house of the national parliament	+

because they refer to conflicts between MEPs representing different political groups in the EP. Conversely, disagreements on legislative acts within the Council between representatives of national governments are indicative of conflicts between member state interests. The following expectation on the link between intra-institutional conflict and media coverage can be formulated:

- 1b. The more conflict there is within the EP or the Council during the negotiations on a proposed legislative act at the EU level, the more references there will be to the act in national media.

The presence or absence of intra-institutional conflict in the EP can be measured using voting data from the responsible EP committee on a Commission proposal for a legislative act (Settembri and Neuhold, 2009; Rasmussen and Toshkov, 2011). The presence or absence of intra-institutional conflict in the Council can be measured by determining whether an issue is discussed as an A or B item on the agenda of the Council. With an A issue, the Council can decide to discuss a proposal for EU legislation as a minor issue on its agenda and simply adopt the decision made by one of the Council working groups, or COREPER, without discussion. Issues that require thorough discussion because of disagreements between member state representatives in the Council of Ministers are put on the agenda as B issues (Best and Settembri, 2008; Häge, 2011).

A second factor related to the amount of resources journalists need to invest is the degree of transparency in the EU-level negotiations on a proposed legislative act (Settembri, 2005). Transparency is the availability of information about how decisions are made in a political system (Cross, 2012). We expect a positive relationship between the degree of transparency in the EU legislative process and the media coverage on proposed EU legislative acts negotiated through this process. Journalists are unlikely to pay attention to EU legislative acts that are agreed upon through a less transparent decision-making process, given that the costs of collecting the information necessary for the coverage are likely to be high. This argument leads to the following hypothesis:

- 1c. EU legislative acts that are agreed upon through a transparent legislative process will be referred to more in national media than EU legislative acts that are agreed upon in a non-transparent legislative process.

As a measure of the transparency of the process of adopting an EU legislative act, we use the occurrence of an informal trilogue in the first reading (see also Farrell and Héritier, 2009; Finke and Dannwolf, 2013). When EU institutions conclude negotiations in the first reading with informal negotiations preceding an agreement, the directive is agreed upon through informal trilogues. These trilogues take place behind closed doors between a limited number of representatives of the EP, the Council and the Commission (Shackleton and Raunio, 2003; Farrel and Héritier, 2004; Toshkov and Rasmussen, 2012; Héritier and Reh, 2012; Reh *et al.*, 2011). Hence, when negotiations on a directive at the EU level are concluded with an informal agreement between the EP and the Council in a trilogue in the first reading, the legislative process at the EU level is more difficult to follow for journalists because of the relatively opaque nature of these informal meetings (Farrell and Heritier, 2004: 9).

A third factor related to the amount of resources journalists need to invest is the complexity of a legislative act (Rasmussen, 2012; Rasmussen and Toshkov, 2011). Scrutinizing a complex dossier can entail high costs for the journalists and editors of newspapers because they need to process a larger amount of information to understand the substance than with a less complex dossier. Furthermore, the journalists and editors of newspapers are well aware of the often limited knowledge of EU affairs among their readers and the constraints this lack of knowledge puts on their reporting (Gleissner and De Vreese, 2005). Hence, the high complexity of a proposed legislative act can be a reason for journalists and/or editors to neglect it and instead write and publish newspaper articles on acts that are easier to understand. This argument leads to the formulation of the following hypothesis:

- 1d. The more complex a proposed EU legislative act is, the fewer references there will be to the act in national media.

As an indicator of the complexity of an EU legislative act, the number of EP committees involved in the negotiations is chosen. It is assumed that the more committees that are involved in the negotiations on an act, the more policy fields it touches upon and the more complex the dossier is (Rasmussen, 2011).

For analytical reasons, the first four hypotheses draw sharp distinctions between conflict, transparency and complexity. In the methodological section, statistical evidence is presented indicating that statistically there is little overlap between the variables, which indicates that each variable measures a different aspect of the EU-level negotiation process on legislative acts or the characteristics of the acts.

On the basis of the literature on EU legislative politics, two factors can be identified that are related to the second condition for journalists to report on negotiations on legislation at the EU level – i.e., a proposal for an EU legislative act can be directly linked to important concerns of the citizens of member states. The first factor focuses on the magnitude of the policy change introduced by an EU legislative act (Rasmussen, 2011; Rasmussen and Toshkov, 2011; Finke and Dannwolf, 2013). It is expected that the less policy change an EU legislative act introduces at the member state level, the less likely journalists will be to consider the proposed legislative act to have an impact on the most important concerns of citizens at the member state level. EU legislative acts are more likely to introduce policy changes at the national level when they include entirely new legislation or they amend current legislation, in contrast to acts that only undergo minor revisions or are withdrawn. Examples of the latter two types of acts are legislative acts that are recast, repealed or consolidated. These acts are of little domestic consequence. This argument leads to the following hypothesis:

- 2a. The more policy change at the member state level that a proposed EU legislative act introduces, the more references there will be to the act in national media.

The second factor related to the second condition for media reporting on EU legislative acts is the saliency of an act at the national level (Warntjen, 2012). An EU legislative act that is salient in the eyes of politicians and/or the public at the domestic level is more interesting for journalists working for national newspapers to report on because it is likely to attract more attention from media consumers than a legislative act that is low in salience. Journalists tend to rely on institutional sources in the absence of survey data on every single issue to measure the opinion of the public at large when deciding what is newsworthy (Bennet, 1990). One of the most important institutional sources from which journalists obtain information about the most important concerns of citizens are parliamentary debates at the national level (Vliegenthart and Walgrave, 2011; Van Aelst and Vliegenthart, 2014). When key politicians at the national level devote attention to an EU legislative act in debates in national parliaments, such attention strongly signals to journalists the act's relevance for citizens. This argument leads to the following hypothesis:

- 2b. The more salient a proposed EU legislative act is on the agenda of national parliaments, the more references there will be to the act in national media.

Research Design

All directives agreed upon through the ordinary legislative procedure in the period from December 2000 until November 2010 were studied (source: prelex). The reason for studying directives from December 2000 onwards is that the parliamentary database of the British House of Commons did not allow for the consistent analysis of references to directives before 2001. We consider the period until November 2010, thus covering a time span of one decade.

The UK and the Netherlands were chosen as cases because of differences between the countries on a number of aspects that are relevant for this study. If we find, despite these differences, that the same prominent factors drive attention to directives in the national newspapers in both member states, the likelihood that the findings are generalizable to other EU member states increases. In structural terms, the countries differ in their political systems (two party versus multi-party), media systems (liberal versus continental) (Hallin and Mancini, 2004) as well as their historic position towards European integration. The newspaper industry in the UK is traditionally more market-driven, with a large focus on revenues from sales and advertisements. In terms of general political coverage, this characteristic translates into more negative, personalized coverage of politics compared to the Netherlands. In the UK, the tabloid newspaper *The Sun* is the most negative, while the popular newspaper *de Telegraaf* is the most negative in the Netherlands (Vliegenthart *et al*, 2011). The UK is traditionally among the most sceptical member states, while the

Netherlands (at least until recent years) was among the strongest supporters of the EU project (see also endnote 1). These different attitudes towards the EU seem to be reflected in the types of EU correspondents who are active in Brussels. British journalists in Brussels are of the investigative type, with a more critical position towards the EU, while Dutch EU correspondents are closer to the EU institutionalist type of journalist and are characterized by a more positive stance vis-à-vis the EU (Van Noije, 2010: 261). Moreover, the UK has broadsheet newspapers and tabloid newspapers – with the latter paying less attention to the EU, but when they do, often in a critical way – while the Netherlands has no newspaper that is comparable to the British tabloid newspapers in their stance towards European integration.

Media attention on a directive at the national level is measured by counting the number of articles published in Dutch and British newspapers in which the directive was mentioned during the negotiation process at the EU level. Negotiations start with a proposal by the Commission for a directive and end with the signing of a legislative act by the EP and the Council. We chose to focus on newspapers for both substantive and practical reasons. While newspapers are facing declining circulation numbers throughout Europe, partly because of the rise of new media and the Internet, during our research period, they were still one of the most important sources for citizens to be informed about European politics (Gleissner and De Vreese, 2005). On the one hand, compared, for example, to television news, newspapers usually cover a wider variety of topics, thus increasing the probability of attention paid to legislative processes. On the other hand, newspapers are limited in terms of personnel. Of the selected newspapers, most had one or two Brussels correspondents, while *The Sun*, the only real tabloid included, did not have a Brussels correspondent until 2005. The following newspapers were studied: *Algemeen Dagblad*, *NRC Handelsblad*, *de Volkskrant*, *Trouw*, and *Het Parool* (for the Netherlands), *The Independent*, *The Times*, *The Guardian*, *The Sun*, and *The Daily Telegraph* (for the UK) (source: Lexis-Nexis). By selecting both a tabloid newspaper (*The Sun*, the only tabloid available in the database for the entire period under study) and quality broadsheet papers in the case of the UK and both popular (*Algemeen Dagblad*) and quality newspapers in the Netherlands, a selection of newspapers is used that can be considered a representative sample of the available print media in both countries. The Lexis-Nexis database was analysed with search strings specifically composed for each directive consisting of (words from) the title of the directive, the number of the directive and, when applicable, the unofficial title of the directive (e.g., the services directive, a.k.a the Bolkestein directive). Only articles mentioning a directive in substantive terms were counted. Articles counted were written by Brussels correspondents or newspaper journalists located in the member states who report on domestic topics influenced by EU affairs. Results were checked manually for relevance. Since we are only interested in explicit attention for the directive, we consider this rather focused selection strategy appropriate and yielding valid results.

On average, one article is published per directive in the UK. The score in the Netherlands is somewhat higher, with a mean of 1.48 articles published per directive (see Table 2). In the UK, 79 per cent of the directives do not receive any attention at all. For the Netherlands, this total is 80 per cent. The articles that refer to a directive are hardly ever published on the front pages of the newspapers. The difference between the pure tabloid and the broadsheet papers can be clearly observed from the descriptive statistics for the UK, with considerably less coverage in the UK tabloid paper than in the Dutch and British broadsheet papers (see also Table 1 in the web-appendix).

To gain more insight into the content of the media coverage in both countries as a background against which the hypotheses are assessed, the 13 most referred-to directives in Dutch and British newspapers were analysed (see figure 1 in the web-appendix). For 12 of the most referred-to directives, all newspapers articles for each member state separately are selected for an in-depth qualitative analysis of the tone on European integration (neutral, negative, positive), the type of article (short wire story, background article by correspondent in Brussels, background article by journalists working in the UK/the Netherlands) and whether the article was published on the front page of the newspaper. For the services directive (COM 2004 2), a random sample was drawn from the total of, respectively, 84 and 80 Dutch and British newspaper articles published on this directive. For both member states, 20% of the total of articles on the services directives were analysed for both member states separately. In total, this sampling strategy results in a sample of 100 articles for each member state for the in-depth qualitative analysis of the 13 most referred-to directives with regard to the tone on European integration, the type of article and whether the article was published on the front page of the newspaper. Of this sample 26 newspaper articles (both from British and Dutch newspapers) were

Table 2: Summary statistics: dependent and main independent variables ($N = 295$)

	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
UK: number of newspaper articles with references to a directive, per directive	1.007	5.322	0	84
NL: number of newspaper articles with references to a directive, per directive	1.488	5.799	0	80
1a. Third reading: conciliation committee	.088	.284	0	1
1b. A-item on Council agenda	.536	.5	0	1
1b. Unanimous vote in responsible EP committee	.353	.479	0	1
1c. 1st reading, with informal trilogue	.261	.440	0	1
1d. Number of EP committees	1.668	1.055	0	7
2a. Entirely new or amended legislation in directive	.661	.474	0	1
2b. NL: attention to directives in Tweede Kamer (non-standardized)	1.159	3.886	0	42
2b. UK: attention to directives in House of Commons (standardized)	.000	2.479	-1.312	27.378

coded for tone by a second coder. The intercoder reliability was satisfactory (percentage wise agreement 85%, Krippendorff's $\alpha = .76$).

To measure inter-institutional conflict (hypothesis 1a), we examine whether an EU legislative act undergoes negotiations through the whole ordinary legislative procedure, thus arriving at the conciliation committee in third reading (source: prelex). The indicator for inter-institutional conflict in the Council (hypothesis 1b) is whether the Council labelled a proposal for a legislative act only as an A item on its agenda or (also) as a B item (source: prelex). Intra-institutional conflict in the EP (hypothesis 1b) is measured using data on voting in the responsible EP committee on the Commission proposal for a legislative act. MEPs in the committee can vote 'yes', 'no' or 'abstain' on the report of the rapporteur on a proposed EU directive. We measure disagreement within the EP by whether the vote in the relevant committee in question was unanimous or not (Rasmussen and Toshkov, 2011) (source: legislative observatory). The occurrence of informal trilogues in the first reading is chosen as a measure for the transparency of the EU legislative process (hypothesis 1c). This variable is measured by selecting summaries of the decisions on EU directives (source: legislative observatory) with the use of the following key words: agreement, compromise, informal, trilogue (see Toshkov and Rasmussen, 2012 for a similar way of coding). Documents that contained these words were read in detail and hand-coded as a first reading agreement through informal trilogues when there was indeed a reference in the summaries to a compromise between the EP and the Council. Subsequently, a dummy variable was created to measure the presence or absence of an informal agreement between the EP and the Council through trilogues in first reading. Dummies are included in the analysis for directives agreed upon in the first reading without informal trilogues, i.e., non-significant directives on which no negotiations took place between the EP and the Council. Directives agreed upon in the second reading function as the reference category. The number of EP committees involved in the scrutiny of a draft proposal for a directive is used as a measure for the multi-dimensionality and, hence, complexity of a legislative act (hypothesis 1d). The more committees that are involved, the more policy fields it touches upon, and the more complex a dossier is (Rasmussen, 2011) (source: prelex).

To measure the magnitude of the policy change introduced by a legislative act (see hypothesis 2a), all directives were categorized based on whether they included entirely new legislation or amended legislation or whether they were recast, repealed or consolidated (source: prelex). To test hypothesis 2b, online databases of the Dutch Tweede Kamer and the British House of Commons were used (www.overheid.nl; www.parliament.uk), in which transcripts of plenary debates as well as parliamentary committee meetings can be consulted. The parliamentary databases were analysed using the same search strings as those used for measuring media coverage of EU affairs. The counted references can be part of an oral or written question, a comment by an MP to a minister in a committee meeting or plenary debate, a report by a parliamentary committee of the UK House of Commons on a

directive in negotiation at the EU level (these reports do not exist in the Dutch parliamentary setting), or a discussion or vote in plenary meetings through which (dis)agreement with a proposed directive was expressed. For the Netherlands, the scrutiny of directives during negotiations at the EU level was measured by the number of meetings of parliamentary committees and plenary debates in which a reference was made to a directive in negotiation at the EU level. For the UK, written reports of parliamentary committees on directives in negotiation at the EU level were also counted. These reports comment on the substance of a directive and judge whether the scrutiny reserve should be lifted. Because this variable is measured for the UK by the ‘number of meetings’ and the ‘number of reports’, the scores for transcripts and reports were mean-standardized and summed afterwards.

The start of a new parliamentary and/or a new government term are factors that influence the cost-benefit calculus of journalists because such events can lead to a lower prioritization of EU issues. Hence, a variable measuring the start of a new parliamentary term after national elections and/or of a new government term after coalition negotiations at the national level is included as a control. Dummies are included in the analysis to account for these effects (source: www.overheid.nl; www.parliament.uk). To control for possible trends of overall increasing or decreasing attention to directives over time, a variable is included in the analysis that measures the year negotiations were concluded for each directive. Another factor that needs to be controlled for is the EU-related workload for journalists. The Commission proposes more legislative acts in certain periods than in others, thus creating more or less work for journalists when reporting on legislative acts in negotiation at the EU level. To account for this effect, a variable is included in the analysis that measures the number of legislative acts proposed by the European Commission during the period of negotiations on a directive.

Dummy variables were constructed to control for effects specific to certain policy fields. The EP committee assigned to a Commission proposal for an EU directive was chosen as an indicator to control for these effects. In the case of multiple EP committees involved in the negotiations, the main responsible committee was used to identify the policy field. Another dummy was added to control for the effect of the introduction of a new transparency rule (regulation 1049/2011) that came into force on December 3, 2001, possibly affecting the availability of information about the legislative process for journalists.

The data collected were used to construct a dataset with count data on 295 directives for both countries. Negative binominal regression models were estimated to test the hypotheses. A negative binominal regression model is a model with a dependent variable that is a count variable and that follows a Poisson distribution with over-dispersion (i.e., the variance is larger than the mean). The alpha parameter in Table 3 indicates that in both countries, the dependent variable (count of articles) is indeed over-dispersed; thus, a negative binominal regression is preferred over the simpler Poisson model. Because our dependent variable has a considerable amount of

‘0’ scores in both countries – i.e., directives that do not receive any media attention at all – we compared the results of the ‘ordinary’ negative binominal regression with those of a zero-inflated negative binominal regression. The outcomes of the Vuong test, which compares the model fit of both types, suggests that for both countries, the simpler negative binominal version is preferred.

The correlation between the independent variables is low. The variance inflation factor values are well below the threshold of 10. This result means that there is no statistical evidence of considerable overlap between the variables; i.e., each variable measures a different aspect of the EU-level negotiation process on legislative acts or the characteristics of the acts.

Results

A first remarkable result is that approximately 80% of the directives do not receive any attention at all in British and Dutch newspapers. The reason for this lack of attention is that many directives involve rather technical issues or propose small administrative changes to existing legislation. These directives with non-significant changes or of a highly technical nature are agreed upon between the European institutions in the first reading without any formal or informal negotiations. The lack of attention by the European institutions paid to these non-significant legislative acts is mirrored in the absence of coverage of these acts in newspapers at the national level. From the estimation of the regression models (see Table 4 in the web-appendix), it becomes clear that journalists in the UK and the Netherlands report 90% less on legislative proposals for directives agreed upon in the first reading without formal or informal negotiations than on legislative proposals agreed upon in the second reading. The 20% of directives that do receive media coverage in Dutch and British newspapers show strong similarities between the two countries (see figure 1 in the web-appendix). The most referred-to directive in the period from 2000 to 2010 is in both countries the services directive (COM 2004 2). Other directives that are often referred to in newspapers in both member states concern the promotion of the use of energy from renewable sources (COM 2008 19), the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading (COM 2006 818), and the sustainable use of pesticides (COM 2006 373). Despite these similarities, there are also large differences between the two member states, foremost with regard to the tone of the articles (see Tables 2, 3 in the web-appendix). The results of the qualitative in-depth analysis of the articles published on the 13 most referred-to directives illustrate this and are the background against which the hypotheses can be fully assessed. Within the sample of 100 articles on the most referred-to directives in the Netherlands, 54 articles are neutral on the EU legislation proposed, 17 articles are positive, and 29 articles have a negative tone. In the UK, the media coverage is more negative, with 51 negative articles, 14 positive articles and 35 neutral articles. In both

countries, the articles with a negative tone on the proposed EU directives consist of reports on the slow progress of EU-level negotiations on directives that are evaluated positively (i.e., the services directive in the UK) or on proposed EU legislation that is judged by journalists to be inappropriate or too bureaucratic (e.g., on a mercury ban in barometers). In the Netherlands, the media coverage comes in the form of short wire stories (27 articles), longer background articles written by Brussels-based correspondents (40 articles) and longer background articles written by journalists working in the Netherlands (27 articles). In the UK, fewer background articles on EU directives are written by correspondents in Brussels (34 articles) and more are written by journalists working in the UK (49 articles). In the Netherlands and the UK, four articles were published on the front page (NL: all in *NRC Handelsblad*; UK: in *The Independent* and *The Times*).

The empirical findings from the quantitative analysis indicate that the indicator for inter-institutional conflict measuring whether negotiations between the EP and the Council continue through the conciliation stage is not significantly related to the media coverage in Dutch and British newspapers (see Table 3). Directives that are

Table 3: Dependent variable: number of articles in national newspapers with a reference to a directive in negotiation at the EU level in the ordinary legislative procedure (2000–2010)

Hypothesis	Independent variables	NL: media coverage		UK: media coverage	
		Coeff.	% change	Coeff.	% change
1a.	Third reading, conciliation committee	−.682 (.605)	−49.4	−.706 (.506)	−50.6
1b.	A-item on Council agenda	−1.067** (.480)	−65.6	−.735* (.423)	−52.0
	Unanimous vote in EP committee	.948** (.446)	158.2	.735** (.348)	108.4
1c.	1st reading, informal trilogue	−1.758** (.783)	−82.8	−1.782*** (.640)	−82.3
1d.	Number of EP committees	.845*** (.249)	132.7	.577*** (.192)	78.1
2a.	Entirely new or amended legislation	.518 (.467)	67.9	.421 (.399)	52.3
2b.	Scrutiny of directive in lower house	.063 (.045)	6.5	.111** (.051)	11.8
	Log-likelihood	−274.599		−231.812	
	Pseudo R-squared	.148		.207	
	Alpha+	4.370 (.837)		2.342 (.559)	

$N = 295$; + indicates overdispersion. See Table 4 in the web-appendix for results on the control variables.

*** $p < .01$; ** $p < .05$; * $p < .1$ significance level; standard errors in parentheses.

agreed upon in the second reading overall result in similar amounts of media attention as those that reach the conciliation stage in the third reading. This result leads to the rejection of hypothesis 1a.

Second, intra-institutional conflict within the Council or the EP on an EU directive triggers media attention at the national level in the Netherlands and the UK (see hypothesis 1b). An EU directive that is labelled as only an A item on the Council agenda is less likely to be referred to by Dutch and British journalists than a directive labelled as a B item on the Council agenda. The regression models show that when the Council labels a draft directive as only an A item on its agenda – i.e., for rubberstamping – the number of articles in Dutch newspapers decreases by 65%, and the number of articles in British newspapers decreases by 52%. Directives on which the MEPs in the responsible EP committee disagree are more referred to in Dutch and British newspapers than directives on which the MEPs in the responsible committee agree unanimously. When the EP committee does not unanimously adopt the report of the rapporteur on a proposed EU directive, there is a 158% increase in the number of articles in Dutch newspapers and a 108% increase in articles in British newspapers when compared with reports on directives that are adopted by a unanimous vote. In sum, the findings for both the UK and the Netherlands indicate that journalists and editors are most interested in ideological conflicts within the EP between party groups or conflicts within the Council between member state interests.

Third, the analysis shows that the proposed EU directives that are agreed upon in the first reading with informal negotiations are significantly less referred to by journalists in the Netherlands and the UK than directives that are agreed upon in the second reading. We find that when directives are agreed upon at the EU level through informal trilogues in the first reading, the number of articles in Dutch and British newspapers decreases by 83% when compared to directives that are agreed upon in the second reading. These findings provide support for hypothesis 1c on the influence of the degree of transparency of the EU legislative process on the media coverage of EU legislative acts.

Fourth, the more complex an EU directive is, the more that Dutch and British journalists will pay attention to it (see hypothesis 1d). The results show that for every extra EP committee involved from the outset in negotiations on a directive at the EU level, the number of articles in Dutch newspapers increases by 133%, and the number of articles in British newspapers increases by 78%. This effect is in the opposite direction as hypothesized. The multi-dimensionality of complex legislative dossiers is apparently interesting for journalists in both member states to report on. The findings from our analysis suggest that the number of EP committees involved in providing an opinion on a legislative proposal can be viewed as another indicator of the likelihood of conflict within the EP; the more EP committees there are that have an interest in voicing their opinion on a legislative proposal, the higher the likelihood is that the EP committees will have

different opinions on the proposal, the higher the scope for conflict within the EP will be, and the more likely journalists will be to identify such proposals as newsworthy.

Not all of the variables related to the second condition for media coverage on EU legislative acts reach significance. First, the magnitude of the policy change at the national level introduced by a proposed EU directive is not significantly related to the number of articles in Dutch and British newspapers (see hypothesis 2a). The qualitative study of the sample of 100 articles hints at an explanation for this unexpected finding. The directive on temporary work (COM 2002 149) was modelled after Dutch legislation and, hence, did not have any consequence for Dutch legislation. However, Dutch newspapers did report on the EU-level negotiations because of several larger member states' fierce opposition to the directive. Apparently, other factors, e.g., trans-national conflict, overrule the impact of the magnitude of the policy change.

Second, Dutch journalists are not triggered to report on proposed EU directives because of political attention paid to a directive at the national level. The number of references to proposed EU directives in the British House of Commons, however, is positively and significantly related to the number of articles published in British newspapers. When an MP in the British House of Commons refers to a directive in either plenary debates or committee meetings, or when a written report of a parliamentary committee is published, the number of articles in British newspapers increases by 12%. Hence, on the basis of the quantitative analysis, we cannot exclude that in the UK, the media agenda indeed follows the political agenda (see hypothesis 2b). However, a more detailed examination of the parliamentary and media data shows that no direct reference was made in the newspaper articles to the attention paid to negotiations on EU directives in the House of Commons. Moreover, the newspaper articles were often published a day or two after a decision on a directive was taken at the EU level by the EP or the Council. The publication of reports of committees in the House of Commons and debates in committee meetings or in plenary sessions on the same decisions often occurred weeks after the newspaper articles were published. In sum, the sequence of parliamentary attention and media attention to the negotiations on directives is not in line with hypothesis 2b.

Despite the differences in the media and political systems between the UK and the Netherlands and the stronger polarization on EU affairs since 2004 among citizens in the UK compared to those in the Netherlands, the same prominent factors drive the *amount* of attention paid to EU directives in national newspapers in both member states. However, the qualitative analysis of the sample of 100 articles shows that considerable differences in the *tone* of the articles exist: they are more negative in the UK than in the Netherlands.

Conclusion

The findings of this article are relevant for scholars interested in the conditions under which the European public sphere can develop (see Eder, 2000; Habermas, 2001; Trenz, 2005; Koopmans, 2007; De Vreese, 2007; Bijsmans, 2011). First, it can be argued that a further development of the European public sphere would require an increase in the overall media attention paid to the EU legislative process. Although the media coverage on proposed directives follows some of the most newsworthy events in the negotiation process at the EU level in both the Netherlands and the UK, many processes receive only marginal attention in the national media. Hence, the public at large is only informed about the day-to-day decision-making process at the EU level to a limited extent. If one takes as starting points that the presence of public communication is a *sine qua non* for a functioning public sphere (Trenz, 2004) and our claim that the coverage of the day-to-day decision-making process on EU legislation is an important aspect of EU politics about which citizens need to be informed, the results of this study indicate that this minimum requirement in regard to EU-level negotiations on proposed directives is not being met.

Second, the resources invested to understand the substance of new legislation or the negotiation process leading to the adoption of EU legislation need to be as limited as possible for journalists to allow the European public sphere to develop further. More ideological polarization in the EP between political groups and more disagreement between member state interests in the Council increase publicity about the EU legislative process across different member state contexts (see Føllesdal and Hix, 2006). This increased publicity lowers the costs for journalists to understand the substance of new legislation and the negotiation process leading to the adoption of EU legislation. Moreover, the low transparency of the EU legislative process at the EU level raises the costs of information collection for journalists, resulting in fewer newspaper articles on directives negotiated behind closed doors. If EU institutions are committed to increase the media coverage of newsworthy directives during negotiations at the EU level, it is advisable not to conclude negotiations on directives in informal trilogies. In light of the continuing increase in informal trilogies over the last decade, it is difficult to imagine that this undermining effect for the development of an EU public sphere can be easily countered. Hence, the EU legislative process is likely to continue to suffer from a structural lack of publicity, as informal trilogies are considered to be crucial for reaching inter-institutional agreement. Generating media attention is in these instances of little concern to politicians and may even be considered to undermine the possibilities for reaching agreement on highly political, sensitive issues for which politicians want to avoid blame. In short, the logic of the journalists and editors of national newspapers is often in tension with the logic of politicians at the

EU level, with a detrimental effect for the future development of an EU public sphere.

About the Authors

Dr. Rik de Ruiter is assistant professor at the institute for Public Administration, Leiden University.

Dr. Rens Vliegenthart is full professor for Media and Society in the Department of Communication Science and at the Amsterdam School of Communication Research (ASCoR), University of Amsterdam.

Note

- 1 The percentage of respondents in Eurobarometer surveys who do not have an opinion on whether membership is a good or a bad thing for their country has decreased over time in the UK and the Netherlands. In the Netherlands, 7% of the respondents in 2001 stated that they do not know whether EU membership is good for their country. After 2004, this percentage dropped to 1%. For the UK, the decrease was even more pronounced, with 22% stating in 2000 that they do not know whether membership is a good thing and approximately 6% for the period from 2004 to 2010. Moreover, more UK citizens have an explicit opinion about EU membership, indicating that it is a good thing (25% in 2000, 46% in 2006) or a bad thing (24% in 2000, 33% in 2010). These figures are an indication that EU affairs are slightly more worthwhile to report on for journalists, especially in the UK.

References

- Bennet, W.L. (1990) Toward a theory of press-state relations in the United States. *Journal of Communication* 40(22): 103–127.
- Best, E. and Settembri, P. (2008) Surviving enlargement: How has the council managed? In: Best E., Christiansen T. and Settembri P. (eds.) *The institutions of the enlarged European Union, continuity and change*. Cheltenham: Edward Elgar Publishing, pp. 34–53.
- Bijsmans, P. (2011) *Debating Europe: Reflections on EU affairs in the public sphere*. Maastricht: Universitaire Pers.
- Boomgaarden, H.G., De Vreese, C.H., Schuck, A., Azrout, R., Elenbaas, M., Van Spanje, J.H.P., et al. (2013) Across time and space: Explaining variation in news coverage of the European Union. *European Journal of Political Research* 52(5): 608–629.
- Boomgaarden, H.G., Vliegenthart, R., De Vreese, C.H. and Schuck, A. (2010) News on the move: Exogenous events and news coverage of the European Union. *Journal of European Public Policy* 17(4): 506–526.
- Cross, J. (2012) Striking a pose: Transparency and position taking in the Council of the European Union. *European Journal of Political Research* 52: 291–315.
- De Vreese, C.H. (2003) *Framing Europe: Television news and European Integration*. Amsterdam: Aksant Academic Publishers.

- De Vreese, C.H. (2007) The EU as a public sphere. *Living Reviews in European Governance* 2(3). <http://www.livingreviews.nl/lreg-2007-3>. Accessed 5 Nov 2012.
- De Vreese, C.H., Banducci, S.A., Semetko, H.A. and Boomgaarden, H.G. (2006) The news coverage of the 2004 European Parliamentary Election Campaign in 25 countries. *European Union Politics* 7(4): 477–504.
- De Vreese, C. H., Lauf, E. and Peter, J. (2007) The media and European Parliament elections: Second-rate coverage of a second-order event? In: Van der Brug W. and Van der Eijk C. (eds.) *European elections and domestic politics. Lessons from the past and scenarios for the future*. Notre Dame: University of Notre Dame Press, pp. 116–130.
- Eder, K. (2000) Zur Transformation nationalstaatlicher Öffentlichkeit in Europa'. *Berliner Journal für Soziologie* 2: 167–184.
- Farrell, H. and Héritier, A. (2004) Interorganizational negotiation and intraorganizational power in shared decision making. Early agreements under codecision and their impact on the European Parliament and the Council. *Comparative Political Studies* 37: 1184–1212.
- Farrell, H. and Héritier, A. (2009) The invisible transformation of the co-decision procedure: Problems of democratic legitimacy. In: Moury C. and De Sousa L. (eds.) *Institutional challenges in post-constitutional europe: governing change*. Routledge.
- Finke, D. and Dannwolf, T. (2013) Domestic scrutiny of European Union politics: Between whistle blowing and opposition control. *European Journal of Political Research*. doi:10.1111/1475-6765.12014.
- Føllesdal, A. and Hix, S. (2006) Why there is a democratic deficit in the EU: A response to Majone and Moravcsik. *Journal of Common Market Studies* 44(3): 533–562.
- Franchino, F. and Mariotto, C. (2012) Explaining negotiations in the conciliation committee. *European Union Politics*. doi:10.1177/1465116512468216.
- Galtung, J. and Ruge, M. (1965) The structure of foreign news. *Journal of Peace Research* 2: 64–91.
- Gattermann, K. (2013) News about the European Parliament: Patterns and external drivers of broadsheet coverage. *European Union Politics*. doi:10.1177/1465116513476146.
- Gleissner, M. and De Vreese, C.H. (2005) News about the EU Constitution: Journalistic challenges and media portrayal of the European Constitution. *Journalism* 6: 221–242.
- Habermas, J. (2001) Warum braucht Europa eine Verfassung? (Why Does Europe need a constitution?). http://www.zeit.de/2001/27/Warum_braucht_Europa_eine_Verfassung_. Accessed 6 Nov 2012.
- Häge, F. (2011) Politicising Council decision-making: The effect of European Parliament empowerment. *West European Politics* 34(1): 18–47.
- Hallin, D.C. and Mancini, P. (2004) *Comparing media systems. Three models of media and politics*. Cambridge: Cambridge University Press.
- Héritier, A. and Reh, C. (2012) Codecision and its discontents: Intra-organisational politics and institutional reform in the European Parliament. *West European Politics* 35(5): 1134–1157.
- Hobolt, S.B. (2007) Taking cues on Europe? Voter competence and party endorsements in referendums on European integration. *European Journal of Political Research* 46(2): 151–182.
- Kandyla, A. and De Vreese, C.H. (2011) News media representations of a common EU foreign and security policy. A cross-national content analysis of CFSP coverage in national quality newspapers. *Comparative European Politics* 9(1): 52–75.
- Koopmans, R. (2007) Who inhabits the European public sphere? Winners and losers, supporters and opponents in Europeanised political debates. *European Journal of Political Research* 46(2): 183–210.
- Lecheler, S. (2008) EU membership and the press: An analysis of the Brussels correspondents from the new member states. *Journalism* 9(4): 443–464.
- Melenhorst, L. (2015) The media's role in lawmaking. A case study analysis. *International Journal of Press/Politics* 20(3): 297–316.
- Naurin, D. and Rasmussen, A. (2011) New external rules, new internal games: How the EU institutions respond when inter-institutional rules change. *West European Politics* 34(1): 1–17.

- Peter, J. and De Vreese, C.H. (2004) In search of Europe—A cross-national comparative study of the European Union in National Television News. *Harvard Journal of Press/Politics* 9(4): 3–24.
- Raeymaeckers, K., Cosijn, L. and Deprez, A. (2007) Reporting the European Union: An analysis of the Brussels press corps and the mechanisms influencing the news flow. *Journalism Practice* 1(1): 102–119.
- Rasmussen, A. (2011) Early conclusion in bicameral bargaining. Evidence from the co-decision procedure of the European Union. *European Union Politics* 12(1): 41–64.
- Rasmussen, A. (2012) Twenty years of co-decision since Maastricht: Inter- and intrainstitutional implications. *Journal of European Integration* 34(7): 735–751.
- Rasmussen, A. and Toshkov, D. (2011) The interinstitutional division of power and time allocation in the European Parliament. *West European Politics* 43(1): 71–96.
- Reh, C., Héritier, A., Bressanelli, A. and Koop, C. (2011) The informal politics of legislation: Explaining secluded decision-making in the European Union. *Comparative Political Studies*. doi:[10.1177/0010414011426415](https://doi.org/10.1177/0010414011426415).
- Schuck, A., Vliegenthart, R., Boomgaarden, H.G., Elenbaas, M., Azrout, R., Van Spanje, J., et al. (2013) Explaining campaign news coverage: How medium, time and context explain variation in the media framing of the 2009 European Parliamentary elections. *Journal of Political Marketing* 12: 8–28.
- Settembri, P. (2005) Transparency and the EU legislator: Let he who is without sin cast the first stone. *Journal of Common Market Studies* 43(1): 637–654.
- Settembri, P. and Neuhold, C. (2009) Achieving consensus through committees: Does the European Parliament manage? *Journal of Common Market Studies* 47(1): 127–151.
- Shackleton, M. and Raunio, T. (2003) Co-decision since Amsterdam: A laboratory for institutional innovation and change. *Journal of European Public Policy* 10(2): 171–187.
- Statham, P. (2007) Journalists as commentators on European politics: Educators, partisans or ideologues? *European Journal of Communication* 22(4): 461–477.
- Toshkov, D. and Rasmussen, A. (2012) Time to decide: The effect of early agreements on legislative duration in the EU. *European Integration online Papers* 16(11): 1–20.
- Trenz, H. J. (2004) Media coverage on European governance: Exploring the European public sphere in national quality newspapers. *European Journal of Communication* 19(3): 291–319.
- Trenz, H.J. (2005) *Europa in den Medien. Die Europäische Integration im Spiegel Nationaler Öffentlichkeit*. Frankfurt: Campus Verlag.
- Van Aelst, P. and Vliegenthart, R. (2014) Studying the Tango. An analysis of parliamentary questions and press coverage in the Netherlands. *Journalism Studies* 15(4): 392–410.
- Van Noije, L. (2010) The European paradox: A communication deficit as long as European integration steals the headlines. *European Journal of Communication* 25(3): 259–272.
- Vliegenthart, R., Boumans, J.W. and Boomgaarden, H.G. (2011) Changing in political news coverage: Personalization, conflict and negativity in British and Dutch newspapers. In: Brants K.L.K. and Voltmer K. (eds.) *Political communication in postmodern democracies. Challenging the primacy of politics*. London: Palgrave, pp. 92–110.
- Vliegenthart, R. and Walgrave, S. (2011) Content matters. The dynamic of parliamentary questioning in Belgium and Denmark. *Comparative Political Studies* 44(8): 1031–1059.
- Warntjen, A. (2012) Measuring salience in EU legislative politics. *European Union Politics* 13(1): 168–182.

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