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**Article (Accepted version)
(Refereed)**

Original citation: Watanabe, Kohei (2017) *Measuring news bias: Russia's official news agency ITAR-TASS' coverage of the Ukraine crisis*. [European Journal of Communication](#), 32 (3). pp. 224-241. ISSN 0267-3231
DOI: [10.1177/0267323117695735](https://doi.org/10.1177/0267323117695735)

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Available in LSE Research Online: July 2017

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**Measuring news bias: Russia's official news agency ITAR-TASS's coverage of the
Ukraine crisis**

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18, January 2017

Accepted to the European Journal of Communication

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Keywords: Ukraine crisis, Russia, news bias, propaganda, computerized-content analysis

Abstract

Objectivity in news reporting is one of the most widely discussed topics in journalism, and numbers of studies on bias in news have been conducted, but there is little agreement on how to define or measure news bias. Aiming to settle the theoretical and methodological disagreement, the author redefined news bias and applied a new methodology to detect the Russian government's influence on ITAR-TASS during the Ukraine crisis. A longitudinal content analysis of over 35,000 English-language newswires on the Ukraine crisis published by ITAR-TASS and Interfax clearly showed that ITAR-TASS's framing of Ukraine was reflecting desirability of pivotal events in the crisis to the Russian government. This result reveals Russia's strategic use of the state-owned news agency for international propaganda in its 'hybrid war', demonstrating the effectiveness of the new approach to news bias.

Measuring news bias: Russia's official news agency ITAR-TASS's coverage of the Ukraine crisis

There is almost unanimous agreement on the importance of independent journalism among scholars of mass communication, and objectivity in news reporting is one of the most widely discussed topics in journalism (Barkho, 2013b; Donsbach & Klett, 1993; Maras, 2012). The independence of journalists is a precondition for objective news reporting (Barkho, 2013a). Importantly, journalistic independence provides objective, or unbiased, political information allowing for effective democracy, constrains the power of the mass media, and maintains the trust of the public in mass media (Maras, 2012). Further, biased news reporting leads to the marginalization of certain social groups, misperceptions of political agendas, and public disenchantment and cynicism (Brandenburg, 2005). Researchers have embarked on empirical studies of bias in news on elections (Brandenburg, 2005; Hopmann, de Vreese, & Albæk, 2011; Kahn & Kenney, 2002; Robinson & Sheehan, 1983), wars (Aday, 2010; Aday, Livingston, & Hebert, 2005; Dickson, 1994; Entman & Page, 1994; Pfau et al., 2004), and foreign countries (Chaudhary, 2001; Jones, 2008; Meyer, 1989; Miller, 2007), but there is little agreement on how to define or measure news bias.

In the empirical studies, one school of thought defines the lack of objectivity in news as unbalanced coverage of different subjects (Brandenburg, 2005; Cushion, Lewis, & Groves, 2009; D'Alessio & Allen, 2000; Dominick, 1977; Hopmann, Aelst, & Legnante, 2012). Within this conception of news bias, researchers focus on the sheer number of articles and the length of airtime allocated to certain issues, events or actors. Other groups of researchers pay attention to tones of news reports, using metrics such as 'positive-negative' (Aday, 2010; Brandenburg, 2005; Hopmann et al., 2012; Pfau et al., 2004; e.g. Robinson & Sheehan, 1983), 'favourable-

unfavourable' (e.g. Hofstetter, 1976) or 'supportive-critical' (Aday et al., 2005; Entman & Page, 1994; Kleinnijenhuis, Van Hoof, Oegema, & De Ridder, 2007). In this approach, news reporting with predominantly positive or negative tones is considered to be biased.

The definition of news bias must be operationalizable in empirical inquiries, but it should also be based on the theories of media effect. Agenda-setting theory suggests that the amount of news coverage allocated to certain issues, events or actors influences their perceived importance among audiences ("what to think about") (Besova & Cooley, 2009; Hester & Gibson, 2003; McCombs, Llamas, Lopez-Escobar, & Rey, 1997; Salwen & Matera, 1992; Wanta, Golan, & Lee, 2004), but, if our primary interest is investigating the mass media's role in shaping news audiences' attitudes towards subjects ("how to think"), we must scrutinise the ways those subjects are represented in news reporting. According to the theory of second-level agenda-setting, or priming, news reporting focusing on negative or positive aspects of events, issues and actors has a significant impact on an audience's attitude toward them (Entman, 1993; Hester & Gibson, 2003; Iyengar & Simon, 1993; McCombs et al., 1997). The concept of media framing, which is defined as "selecting and highlighting some faces of events or issues, and making connections among them so as to promote a particular interpretation, evaluation and/or solution" (Entman, 2004, p. 5), also establishes a link between news reporting and people's understanding of public affairs.

Selective media frames manifest as unbalanced tones of news stories, which become either positive or negative when they concern events, favourable or unfavourable when they concern opinions, or supportive or critical when they concern policy options. However, not all news stories with a predominantly positive or negative tone can be considered biased, because tone can be a simple reflection of objective reality, i.e., tones of news reports will be profoundly negative when stories describe inherently negative events, such as natural disasters, armed conflicts or social

disruptions, as Stevenson (1984) correctly point out in negative representation of the underdeveloped countries in foreign news. Also, tones become overwhelmingly supportive of the status-quo when disagreement among political elites is absent (e.g., the aftermath of the 9/11 attacks), as Bennett's (1990) index theory suggests. The reflection of objective reality in the tones of news reporting poses methodological challenges in measuring news bias. Entman (2007), who is agnostic regarding objective reality, has even proposed an approach to news bias focusing only on the balanced coverage of different aspects of events, issues or groups.¹

This methodological challenge has constrained how news bias has been defined and measured in earlier empirical studies. The adoption of concepts such as 'balance' and 'fairness' as proxies to objectivity has been a common practice among researchers, as well as regulators, because of the difficulty in measuring objectivity itself (Maras, 2012). The Fairness Doctrine of the Federal Communication Commission, which required American broadcasters to produce 'balanced' news reporting on public agendas between 1949 and 1987, has strongly affected the concept of news bias in scholarly debates, but 'balance' in news reporting is not so obvious in countries where the political landscape is more complex and the simple 50-50 benchmark derived from the US two-party system does not hold (Hopmann et al., 2012). Some researchers of European media have resorted to benchmarks constructed based on the number of seats political parties hold in legislatures (Brandenburg, 2005), but it seems unrealistic to expect equal coverage of political groups in polarized media systems where partisan journalism is the norm. As a result of this, empirical studies on news bias have concentrated in the United States.

¹ Entman is still dependent on his own knowledge of objective reality in identifying which aspects are not covered by the news when applying this approach.

Aiming to facilitate empirical studies on news bias in complex media systems, I present a new approach to measuring news bias, taking Russia's official news agency ITAR-TASS's English-language news coverage of the Ukraine crisis as an example. My case selection was motivated not only by the significance of the crisis in Europe to international politics, but also by the severity of the above mentioned methodological challenges; in this case, the challenges were made particularly severe by a rapidly changing situation on the ground and a lack of non-media benchmarks with which to assess balance in the news coverage. In my approach to news bias, I will conceptualize objectivity in news reporting as coverage of all possible newsworthy stories, and analyse ITAR-TASS's news coverage in relation to Interfax's broader news coverage. In this setting, Interfax serves as a benchmark unit, which helps us to measure bias in ITAR-TASS's news reporting caused by the Russian government's influence excluding the effects of the inherently positive or negative nature of the events on the ground. I estimated the amount of bias in ITAR-TASS's news reporting using longitudinal data, which I produced by content analysing all the news stories on Ukraine published by the two news agencies over an 16-month period starting from January, 2013.

My statistical analysis of the longitudinal data will clearly show that ITAR-TASS's framing of democracy and sovereignty in Ukraine systematically biased during the crisis corresponding to the desirability of the situation in Ukraine for the Russian regime. The main causes of bias were (1) highly critical comments made by Russian officials on Ukraine, which the news agency quotes very frequently, and (2) profoundly negative descriptions of events related to Ukraine by the news agency. However, ITAR-TASS's news articles tend to present the Russian government's views on Ukraine in an 'objective' style of writing, blurring the distinction between opinions and facts. The

systematic bias in ITAR-TASS's news coverage of the Ukraine suggests the importance of ITAR-TASS in Russia's 'hybird wars', which utilizes non-military means to achieve military goals.

Hypotheses

ITAR-TASS is a prominent example of a state-owned news agency. Its roots can be traced back to the imperial era, when the first Russian news agency, the Russian Telegraph Agency (RTA), was created by the tsar in 1866. The operation of the first news agency was limited to domestic clients, but a more international agency, the St. Petersburg Telegraph Agency, was established by the government in 1904 to overcome Russia's dependence on the German news agency, Wolf, for the international distribution of news. After the 1917 October Bolshevik revolution, newspapers and magazines were obliged to publish information received from a new central news agency, ROSTA, which integrated all national and regional information agencies, and later became the Telegraph Agency of the Soviet Union, known as TASS. This news agency was directly controlled by the state and often used for propaganda during the Soviet era. According to Vartanova and Frolova (2010, p. 264) "TASS was different from other international agencies in that it acted as a voice of the Soviet government which tended to speak to the peoples of the world through its official spokesmen". TASS survived the collapse of the Soviet Union, and was subsequently renamed ITAR-TASS.² Today, it is the official news agency of the Russian Federation and owned and administered by the government, enjoying exclusive access to official information.

² ITAR-TASS was renamed TASS in September 2014 again to emphasize its connection to the predecessor (TASS, n.d.).

The influence of the Russian government as the owner of the news agency alone might have caused bias in its news reporting of the Ukraine crisis, in which Russia has vested interests, but it is also important to note that the general level of press freedom and the journalistic culture in Russia is very different from in Western countries. The media system of Russia is characterized as Polarized model, in which journalists practice partisan reporting, commercial news media experience frequent state interventions, and media figures are integrated into the elite political network (Dobek-Ostrowska & Smaele, 2010; Vartanova, 2011). This limited press freedom and partisan journalism in Russia is expected to increase the degree to which ITAR-TASS reflects the wishes of Russia's political elites, and therefore I expect to find *consistent patterns in the framing of mediated communication that promote the influence of Russia on Ukraine*, which indicate an existence of bias in ITAR-TASS's news caused by the Russian government's influence³ In fact, Horvit (2006), in his research on news agencies' framing of the debates around the US-led intervention into Iraq in 2003, found that 54% of the ITAR-TASS stories sourced Russian government officials, and 53% of the paragraphs in its stories were negative toward US policy. His finding predicts that the ITAR-TASS framing of the Ukraine crisis will reflect the desirability of pivotal events to the Russian government, and therefore I formulate my first two hypotheses as following:

H1: ITAR-TASS's framing of the Ukraine crisis will become more positive
when the situation in Ukraine is desirable to the Russian government.

³ This statement was originally "consistent patterns in the framing of mediated communication that promote the influence of one side in conflicts over the use of government power" (Entman, 2010, p. 166).⁴ See Appendix 1 (available at https://1drv.ms/w/s!AnEkIea2cHXz_DyTqh23A719azme) for more detailed timeline of the crisis.

H2: ITAR-TASS's framing of the Ukraine crisis will become more negative when the situation in Ukraine is undesirable to the Russian government.

Although the literature details theory largely based on studies of the news coverage of elections, wars or foreign countries by retail news media (such as newspapers or TV), I adopt this theoretical framework as a starting point, aiming to identify necessary changes for wholesale news media (news agencies). D'Alessio and Allen (2000) identified three types of bias in news reporting in their meta-analysis of election studies: 'coverage bias', 'gatekeeping bias' and 'statement bias'. According to their definitions, coverage bias stems from unbalanced amounts of news coverage allocated to particular subjects; gatekeeping bias is a result of selection or deselection of particular kinds of stories; and statement bias is caused by inclusion of journalists' opinions. Coverage bias is expected to increase the salience of a particular country for the international audience as concentrated media coverage has an agenda-setting effect; both gatekeeping and statement bias are likely to cause attitude changes among audiences, because the arbitrary selection of stories and insertion of opinions have a second-level agenda-setting effect.

Considering ITAR-TASS's status as an official news agency, I expect to find gatekeeping bias caused by the prioritisation of Russian official sources in its coverage of the Ukraine crisis. Therefore, my third hypothesis is:

H3: Bias in ITAR-TASS's reporting of Ukraine is caused by high representation of Russian government officials in its stories.

However, it is unlikely to find personal opinions in ITAR-TASS's news coverage, because it adopts the 'objective' style of writing in newswires. Alternatively, I expect to find 'corporate bias', in other words, one driven by the ideological, social and political orientations of media

organizations (Barkho, 2013a). This is as opposed to ‘personal bias’, which would derive from the educational, religious, economic or racial background of individual journalists. Therefore, my fourth hypothesis is the following:

H4: Bias in ITAR-TASS’s reporting of Ukraine is caused by its corporate views on Ukraine, but not by the personal views of the journalists.

Methodology

In the studies on news coverage of national politics in the United States, unbalanced volumes or tones of news stories were seen as indications of news bias, but such an approach is not appropriate in measuring bias in ITAR-TASS’s news reporting of the Ukraine crisis, because (1) there is no ground to expect ITAR-TASS to cover different sides of the conflict equally (i.e., Russian news agencies more likely to report the Russian government’s views sympathetically, even without the influence of the Russian government, because of their greater access to Russian sources and Russians’ psychological attachment to the country), and (2) the rapidly changing situation on the ground affects the tones of news reporting (i.e., a more negative tone in a story might be caused merely by occurrences of more inherently negative events, such as violence confrontations or social disruptions, not by it being negatively framed intentionally).

In order to overcome these problems, Interfax, a Russian news agency that is independent from the Russian state (Boyd-Barrett, 2014), is included in the analysis as a benchmark unit. Interfax was founded in a radio station in Moscow independently of the government in the last days of the Soviet Union. Operating as a commercial enterprise, it generates a significant portion of its revenues from its economic news service. According to earlier studies, 85% of Interfax clients consisted of banks and financial enterprises, 10% insurance and audit companies and 5%

privatized enterprise; it has developed a wide range of products that include providing electronic financial information and analytical reports, and has become a leading supplier of information on Russia and CIS countries. Thanks to its successful commercial operation, Interfax maintains a high level of independence from the Russian government (Boyd-Barrett, 2012; Rantanen & Boyd-Barrett, 2004; Vartanova & Frolova, 2010).

I can identify bias caused by the Russian government's influence ('state-ownership effect'), while excluding the effect of ITAR-TASS being based in Russia ('home-country effect') by using Interfax as a benchmark unit. This benchmarking also allows us to control for inherently negative or positive events that affect news content of ITAR-TASS ('real-event effect'). In this approach, I focus on changes in ITAR-TASS's news coverage relative to Interfax's corresponding coverage, and relative changes after pivotal events are treated as bias caused by the influence of the Russian government. This is an application of the difference-in-differences technique, which is widely used in econometrics to estimate the impact of policy interventions (c.f. Card & Krueger, 1994), although it is much more limited for a number of reasons. First, I cannot assume a high stability in benchmark units (media outlets) in studies of media since the spread of information is much less restricted than it is in policy interventions. Second, I often cannot find multiple benchmark units on which to base my statistical estimation of the uncertainty of observed news bias: this is because there are few media outlets comparable to those in which I am interested. Third, the occurrence of media bias can proceed pivotal events when they are predictable (staged events). However, unlike other social scientists, who only have access to numeric data, I can scrutinize original texts produced by the news media, and supplement the quantitative data with rich textual information to overcome the limitations.

Pivotal Events

In the early days of the crisis, there were events with which I can relatively easily associate Russia's political interests, but, as soon as the fight between Kiev's military forces and separatists began, the Russian regime's wishes became increasingly obscure. Therefore, I restricted my analysis to the period from January 1, 2013 to April 21, 2014, the day before the Kiev government relaunched its anti-separatist operations. Table 1 presents pivotal events in the Ukraine crisis with their desirability to the Russian regime.⁴

Table 1: Pivotal events in the early stage of the Ukraine crisis

Date	Label	Event	Desirability
September 03, 2013	E1	Yanukovich demands legal reforms to MPs for EU association plan	Negative
November 21, 2013	E2	The trade agreement with the EU is abandoned by Yanukovych	Positive
January 16, 2014	E3	Protest against the pro-Russian regime in Kiev intensifies	Negative
February 22, 2014	E4	Yanukovych is removed from presidency by the parliament	Negative
March 16, 2014	E5	Crimea referendum is held and 95% support accession	Positive
April 15, 2014	E6	Military operations against separatists are launched	Negative

Data Collection

For my content analysis, I downloaded the English-language news stories covering Russia and CIS countries published by ITAR-TASS and Interfax respectively from the Nexis and Integrum databases between 2013 and 2014.⁵ I collected 103,236 stories for Interfax and 87,725 for ITAR-TASS, after removing duplications. I also downloaded 21,718 Reuters reports from the Factiva on

⁴ See Appendix 1 (available at https://1drv.ms/w/s!AnEkIea2cHXz_DyTqh23A719azme) for more detailed timeline of the crisis.

⁵ The sources were the World service wire of ITAR-TASS; CIS and Russia General Newswires and Kazakhstan, Belarus, Ukraine and Asia Newswires of Interfax.

Ukraine, but they were used solely for manual reading and dictionary construction, as explained in Appendix 2.

Content Analysis

To perform a statistical analysis of news reporting by the news agencies, I content analysed the downloaded news stories in terms of their geographical focus and positive-negative framing of the state of *democracy* and *sovereignty* in Ukraine. Both geographical classification and framing analysis were accomplished by employing computerized content analysis, which relies on dictionaries constructed by lexicon expansion techniques (c.f. Pang & Lee, 2008; Turney & Littman, 2003). The geographical dictionary comprises not only names of places but also of institutions and persons related to the crisis for a higher classification accuracy. The framing dictionaries contain words related to democracy and sovereignty and scored in terms of their positive-negative sentiments. Construction of these dictionaries was based on statistical analysis of the corpus of news stories that I downloaded to avoid arbitrary choices of words.

The adoption of computerized techniques is not only for efficiency in analysing the large volume of news stories published over 16 months, but also for consistency, which is usually difficult for human coders to achieve. The geographical classifier removed almost all the news articles not about Ukraine, accomplishing 0.94 in precision and 0.83 in recall. The framing analysis could replicate human judgements, achieving strong correlation between machine and human coding both in democracy ($r=0.77$) and sovereignty ($r=0.70$) (see Appendix 2 for details explanation and validation of the computerized method).

Statistical Model

To estimate news bias in ITAR-TASS's news reporting, the continuous sentiment scores were regressed on indicators for time period following the pivotal events ($e_1 \dots e_6$), a dummy variable

for ITAR-TASS (g), and their interactions ($e_1g \dots e_6g$) with a random intercept (u) clustered by day:

$$Y = \beta_0 + \beta_1e_1 \dots \beta_6e_6 + \delta g + \gamma_1e_1g \dots \gamma_6e_6g + u + \varepsilon$$

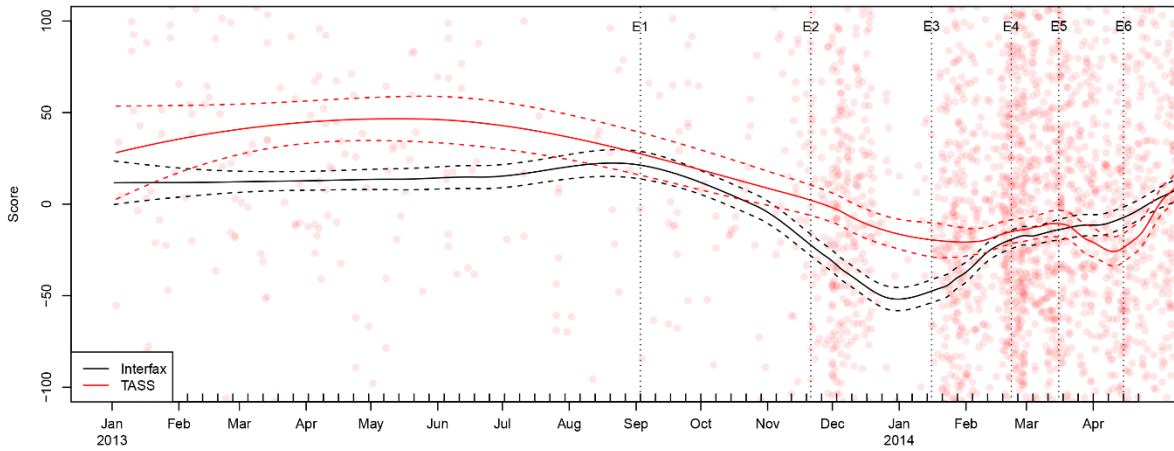
The inclusion of random intercept is to accurately estimate differences between ITAR-TASS and Interfax by controlling for variance caused by time-dependent heterogeneity. In this model, δ captures time-independent institutional heterogeneity, $e_1 \dots e_6$ are real-event effects, and the coefficients $\gamma_1 \dots \gamma_6$ are Russian government-ownership effects, in which I am most interested.

Analysis

The data produced by my content analysis is visualized in Figures 1 and 2, where red circles represent sentiment scores of individual ITAR-TASS news articles, and black and red curves respectively show average sentiment scores of news articles published by Interfax and ITAR-TASS. The average sentiment scores are interpreted as representing the positive-negative framing of democracy and sovereignty in Ukraine by the Russian agencies at particular points of time during the crisis.

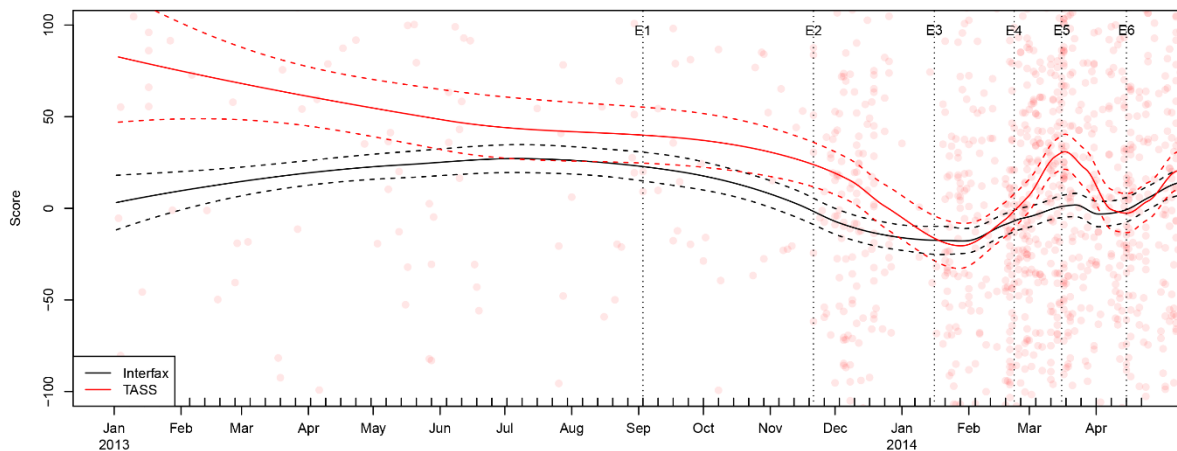
In Figure 1, the red curve runs higher than and parallel to the black line before E1 showing that the framing of Ukraine's democracy was normally more positive by ITAR-TASS than by Interfax. However, ITAR-TASS's coverage shifts toward negative after E1, when the president called for legal reforms to join the EU, but it returns to the normal level of positivity relative to Interfax over E2-E3, following the abandonment of the trade agreement with the EU. A sharp negative shift occurs after E3, and its framing becomes almost as negative as Interfax's over E4-E5. Finally, its framing moves sharply negative after E5, reaching peak negativity around E6, coinciding with the launch of the anti-separatist operation by the Kiev government.

Figure 1: Framing of democracy



In Figure 2, the difference in the framing of sovereignty between ITAR-TASS and Interfax over E1-E2 remains approximately the same as the pre-E1 period. A negative shift of framing starts only after E2, and the relatively positive framing by ITAR-TASS disappears in E3-E4, when the anti-government protests intensify in Kiev. Nevertheless, its framing rapidly improves from E4 toward E5 when the Crimean referendum was held, but it, again, becomes as negative as Interfax after E6.

Figure 2: Framing of sovereignty



Amount of bias

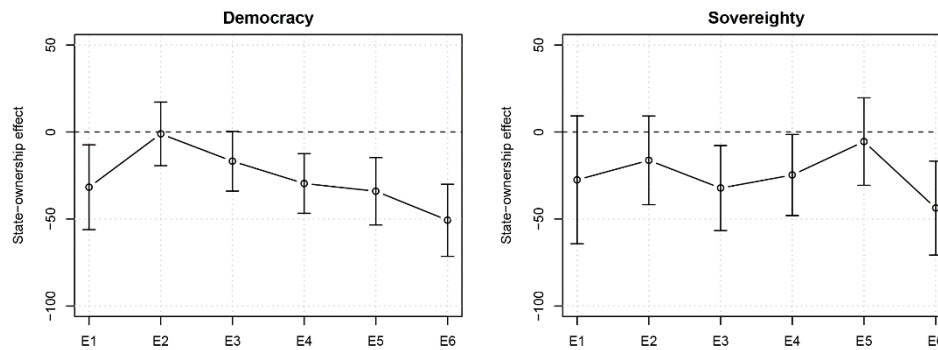
The amount of bias in the framing of the Ukraine crisis by ITAR-TASS was estimated using the statistical model, the results being presented in Table 2. In the table, the most important coefficients are found next to the interactions between the time indicators (E1-6) and the dummy variable for ITAR-TASS (TASS), which measures effects of Russian government's ownership. The estimated state-ownership bias is also summarized in Figure 3 with 95% confidence intervals.

Table 2: Framing of the Ukraine crisis by ITAR-TASS

	<i>Dependent variable:</i>					
	Democracy			Sovereignty		
	(1)	(2)	(3)	(4)	(5)	(6)
TASS	31.033*** (6.953)	22.735*** (6.946)	22.416*** (6.943)	34.783*** (9.695)	27.411*** (9.954)	27.231*** (9.910)
E1	14.575** (6.655)	17.458*** (6.525)	17.663*** (6.517)	16.757* (8.916)	20.562** (8.949)	20.538** (8.874)
E2	-42.680*** (6.007)	-40.624*** (5.920)	-40.111*** (5.913)	-19.738** (7.990)	-19.243** (8.012)	-18.363** (7.928)
E3	-45.593*** (5.883)	-45.494*** (5.828)	-44.906*** (5.821)	-27.975*** (8.108)	-30.279*** (8.149)	-29.495*** (8.053)
E4	-24.071*** (6.628)	-16.678** (6.560)	-15.750** (6.554)	-4.876 (8.844)	-2.373 (8.895)	-0.714 (8.780)
E5	-17.029*** (6.492)	-7.679 (6.467)	-7.175 (6.458)	-16.221* (8.511)	-10.020 (8.624)	-10.128 (8.518)
E6	-27.771** (11.119)	-15.346 (11.047)	-14.695 (11.027)	-19.681 (14.534)	-12.285 (14.658)	-11.271 (14.460)
Russia		-23.663*** (3.052)	-23.481*** (3.050)		-18.714*** (3.757)	-18.516*** (3.741)
Quote		-70.038*** (4.066)	-34.341*** (12.456)		-2.375 (5.204)	89.584*** (16.076)
Quote^2			-41.860*** (13.807)			-105.207*** (17.413)
TASS:E1	-31.737** (12.422)	-31.808*** (12.110)	-31.787*** (12.102)	-27.482 (18.747)	-30.023 (18.768)	-31.778* (18.688)
TASS:E2	-1.067 (9.320)	-0.390 (9.085)	0.172 (9.081)	-16.277 (12.990)	-15.150 (12.987)	-14.970 (12.930)
TASS:E3	-16.794* (8.741)	-17.785** (8.522)	-17.681** (8.517)	-32.245*** (12.456)	-30.403** (12.434)	-30.872** (12.381)
TASS:E4	-29.571*** (8.744)	-34.481*** (8.594)	-34.003*** (8.590)	-24.722** (11.887)	-25.576** (11.987)	-25.141** (11.937)
TASS:E5	-38.267***	-41.076***	-39.884***	-14.107	-17.361	-15.024

	(9.185)	(9.205)	(9.208)	(12.094)	(12.454)	(12.408)
TASS:E6	-52.389***	-54.172***	-53.512***	-48.739***	-53.991***	-52.927***
	(13.013)	(12.887)	(12.881)	(16.583)	(16.825)	(16.757)
TASS:Russia		10.958**	10.944**		13.335*	14.804**
		(5.118)	(5.115)		(7.048)	(7.024)
Constant	8.998***	48.364***	43.364***	12.560***	22.348***	9.795*
	(3.264)	(3.840)	(4.176)	(4.426)	(5.205)	(5.572)
Observations	6,723	6,723	6,723	4,180	4,180	4,180
Log Likelihood	-40,066.280	-39,871.670	-39,863.540	-24,936.590	-24,916.190	-24,894.250
Akaike Inf. Crit.	80,164.550	79,781.340	79,767.070	49,905.170	49,870.380	49,828.500
Bayesian Inf. Crit.	80,273.530	79,910.750	79,903.280	50,006.530	49,990.730	49,955.180
Note:	*p<0.1 **p<0.05 ***p<0.01					

Figure 3: Estimated state-ownership effect



As summarized in Figure 3, ITAR-TASS’s coverage of democracy in Ukraine becomes statistically significantly more negative (-31.7, $p<0.05$) than during pre-crisis after Yanukovich’s speech (E1), indicating the Russian government’s influence on ITAR-TASS. Its framing of Ukraine then becomes as positive as the pre-crisis period after the abandonment of negotiation (E2). The change following the intensified anti-regime protest (E3) is only marginal (-16.7, $p=0.054$), but the collapse of the regime (E4) (-29.5, $p<0.01$) and Crimea referendum (E5) (-38.2, $p<0.01$) are strongly significant. The framing of democracy in Ukraine becomes increasingly negative, reaching -52.3 points ($p<0.01$) after the start of anti-separatist military operations (E6).

This result clearly shows that all the events, other than E5, are followed by changes in framing toward the same direction as predicted by their desirability for the Russia regime.

ITAR-TASS's framing of sovereignty becomes significantly negative (-32.2, $p < 0.01$) only after anti-regime protests intensify (E3), because earlier events did not have serious implications for Ukraine's sovereignty. Framing starts shifting toward the positive (-24.7, $p < 0.05$) from the collapse of the regime (E4), and then negativity completely disappears ($p = 0.21$) after the Crimea referendum (E5), but Kiev's military operations against pro-Russian separatists (E6) brings it to the most negative level (-48.7, $p < 0.01$). These changes also match the patterns, that the author expected based on the desirability of events for the Russian government.⁶

Source of Bias

The statements of Russian officials frequently quoted in ITAR-TASS's news articles are one of the main sources of bias. In my statistical analysis, a dummy variable for mentions of Russian entities (Russia in Table 2) created from the secondary-country category by the geographical classifier shows that articles mentioning Russian entities are 23.6 points ($p < 0.01$) more negative about the democracy in Ukraine, and higher proportions of quotes in articles (Quote in Table 2) lead to more negative framing of the country ($\beta = -70.0$, $p < 0.01$). The effect of mentions of Russian entities also appeared to be statistically significantly negative ($\beta = -18.7$, $p < 0.01$) on framing of sovereignty (model 5), but proportions of quotations have no significant effects in this subject ($p = 0.64$). Yet, further exploration of the data revealed that quadratic terms of the proportions

⁶ Confirmation of the statistical findings by manual reading of the news stories is presented in Appendix 4 (available at https://1drv.ms/w/s!AnEkIea2cHXz_DyTqh23A719azme).

(Quote²) have very strongly significant effects in both democracy ($\beta=-41.8$, $p<0.01$ in model 3) and sovereignty ($\beta=-105.2$, $p<0.01$ in model 6).

Figure 4: Non-linear relationship between sentiment and quotes

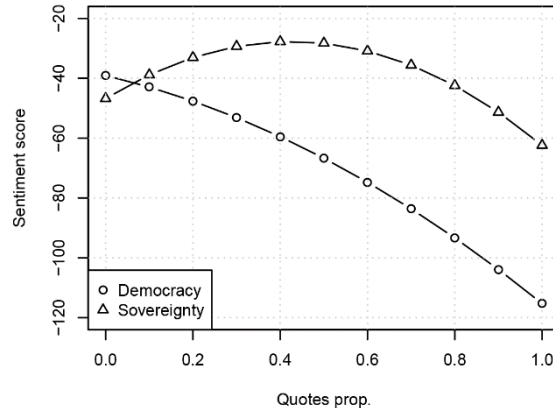


Figure 4 presents sentiment scores predicted by the model 3 and 6 for news articles which mentioned Russian entities and were published by ITAR-TASS after E6. These articles clearly show a non-linear association between framing scores and proportions of quotations, which suggests that there are, at least, three types of biased news stories. The first type simply describes situations regarding democracy and sovereignty in Ukraine negatively with little or no quotation of sources (less than 30% of wordage), while the second largely relies on negative comments on Ukraine made by Russian officials or pro-Russian Ukraine leaders (more than 70%). In the third type, relatively positive comments on Ukraine made by foreign actors, who are important in stories on sovereignty, are quoted (30-70%), but these are followed by very negative descriptions of the situation in the country, which are barely relevant to the quotes, to make the overall framing in the news articles more negative (examples of these three types are presented in Appendix 5).

Discussion

In my analysis of the framing of democracy and sovereignty in Ukraine by ITAR-TASS's English-language service, I found that the news agency's framing reflected the desirability of the preceding events for the Russian government, i.e., only the abandonment of the trade agreement with the EU and the Crimean referendum were framed in as positive a manner as news on Ukraine had been in the pre-crisis period. Apart from the periods following these two events, framing of the Ukraine crisis was profoundly negative, the most negative framing appearing after the launch of military operations against pro-Russian separatists. In this period, ITAR-TASS's framing of democracy and sovereignty shifted 1.88 and 2.47 times greater than Interfax's framing toward the negative, whereby I estimated the amount of bias in ITAR-TASS's coverage to be as large as -52.3 points regarding democracy and -48.7 points regarding sovereignty. These findings support my first and second hypotheses (H1 and H2), and thus I argue that ITAR-TASS's news coverage of Ukraine was biased, reflecting the interests of the Russian government in the country.

The strategic coverage of the Ukraine crisis by ITAR-TASS is indicative of the importance of the news agency in Russia's 'hybrid wars', which utilizes non-military means to attain military goals. In recent years, researchers have paid special attention to Russia's satellite news channel, Russia Today (RT), as a medium for public diplomacy (Galeotti, 2015; Nelson, Orttung, & Livshen, 2015), but very few studies on ITAR-TASS have been conducted from this perspective. The findings of this research suggest that the soft power strategy of Russia, which has been advanced by Vladimir Putin since 2012 (Light, 2015), is more comprehensive than previously thought, namely, in addition to the dissemination of news stories directly to foreign audiences via RT, the Russian government utilizes ITAR-TASS to reach foreign news media, bypassing the Western media's foreign correspondents in Moscow, who tend to be negative about the regime

(Evans, 2005). To achieve this goal, ITAR-TASS even mixes its own very negative descriptions on Ukraine with positive comments of Western leaders, who are generally more newsworthy than Russian officials for Western audiences, in its news coverage, creating the non-linear relationship between the sentiment scores and the numbers of quotation. This is a sophisticated propaganda technique to increase the chance of its news stories to be accepted and redistributed by foreign news media.

By scrutinizing the three types of biased news stories, I have discovered that the main sources of bias in ITAR-TASS's coverage of Ukraine were (1) statements of Russian officials, to which the Russian news agency grants higher prominence, and (2) negative descriptions of the situation in Ukraine, supporting my third and fourth hypotheses (H3 and H4). These causes are to a large extent consistent with the typology developed by D'Alessio and Allen (2000), but not entirely so, because ITAR-TASS's news articles are written in an 'objective' style without making clear distinction between opinions and facts as required in Western journalism. In other words, the typology of news bias developed in research on the Western media does not fully apply to the non-Western media, in which opinions are disguised as facts.

Based on the findings, I propose three changes in its definitions of news bias to extend the scope of the typology. First, D'Alessio and Allen have defined statement bias as a result of inclusion of journalists' opinions, but it should not be restricted to direct expression of opinions (e.g., expressly support or criticize actors or ideas), because opinions can be blended into news stories in various forms, some of which are very difficult to distinguish from 'objective' description of events or issues. In fact, much of the bias in ITAR-TASS's news stories on Ukraine was caused by descriptions with excessive emphasis on their negative aspects of events. Second, as Barkho (2013a) pointed out that sources of bias are not only backgrounds of individual

journalists (personal bias) but also ideological, social and political orientations of media organizations (corporate bias), statement bias should encompass insertion of opinions of media organizations as well as of individual journalists, because personal opinions of journalists were not found in ITAR-TASS's news stories at all. Third, gatekeeping bias was very broadly defined as it is caused by selection or deselection of particular kinds of stories, but it should be redefined as *bias caused by prioritization of particular sources*, since quotation of news sources is the most significant source of bias, which can be easily distinguished from statement bias. These proposed definitions of news bias are summarized in Table 3.

Table 3: Types and definitions of news bias

Type	Cause	Structure	Example	Measurement
Statement bias	Insertion of opinions of journalists or media organizations Description of events or issues with focus on particular aspects	No quote	Stories emphasising social disruption caused by pro-EU protesters	Positive-negative framing of events, issues or actors in relation to benchmark units
Gatekeeping bias	Quotation of particular type of sources	Direct or indirect quotes with attribution	Stories quoting Russian officials who criticise military operations against pro-Russian separatists	

Finally, the revelation of the systematic bias in ITAR-TASS's news coverage of Ukraine demonstrates that the new methodology is an effective approach to measuring news bias. Although I have focused on ITAR-TASS in this research, the new approach is not limited to studies of news agencies or international news media: It is particularly useful in research on media bias in countries with a multi-party or authoritative political system, where estimation of news bias has been very difficult due to the lack of non-media benchmarks. In research on the news bias in multi-party political systems, one can choose a news organization with a particular characteristic (e.g., ownership, political affiliation, etc.) that is expected to cause bias in its news content. Then, the news content should be compared with news content produced by other news organizations lacking

that characteristic. Even if partisan journalism is widely practiced, inclusion of multiple benchmark units selected from the entire political spectrum should allow estimation of news bias. Authoritative media systems usually have very few independent or anti-regime media outlets, but comparison between the state-controlled media should show relative sizes of news bias correspondingly to media outlets' susceptibility to the media control as I have shown elsewhere (Lankina & Watanabe, Forthcoming). I invite readers to research on objectivity of news in some of the most problematic media systems, where biased news reporting is the pressing issue to democracy.

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