Article

Media in the Geopolitical Crossfire: Identification and Novel Data Sources for IB Research

Harald Puhr[1] a, Alexander Kupfer[1]

[1] University of Innsbruck, Austria

AIB Insights

The media is a rich data source for IB scholars to study policy uncertainty, stakeholder attention, and issue salience. However, the media is exposed to geopolitical tension and political interference. The resulting bias distorts the insights scholars gain from media analysis and leads to potentially impaired conclusions. This study introduces GDELT and Google Trends as novel data sources to handle this challenge. Their usefulness is illustrated by an analysis of media coverage of Russia's invasion in Ukraine in 2022. The paper guides scholars in conducting media-based research in the face of abrupt geopolitical tension and political interference.

> "*The first casualty, when war comes, is truth*" – Hiram Johnson

INTRODUCTION

The media plays a fundamental role for information dissemination in society. For individuals, the media is an important channel to gather information about events and issues. For scholars in international business (IB) and related fields, the media is a rich data source to operationalize constructs like policy uncertainty, stakeholder attention, and issue salience. For politicians, however, the media is a means of communication and control – particularly in periods of substantial and abrupt geopolitical tension. If this is the case, political interference in the media biases reporting and consequently leads to impaired conclusions from media analysis.

The purpose of this article is to draw attention to this challenge and to propose GDELT and Google Trends as potential remedies. We develop the following two-step, data-driven approach: First, applying GDELT to identify structural breaks in the media that indicate interference and bias. Second, consideration of alternative data sources such as Google Trends that suffer less from direct political interference. We illustrate the proposed approach by an analysis of media coverage of Russia's invasion in Ukraine in 2022.

MEDIA-BASED RESEARCH

For researchers in IB and related fields, the media offers a gateway to understanding information-seeking in foreign societies. Among the most prominent media-based research is the economic policy uncertainty index compiled by Baker, Bloom, and Davis (2016). Similar approaches to measuring risk in IB have been applied by Bekaert, Harvey, Lundblad, and Siegel (2014) and Nguyen, Kim, and Papanastassiou (2018). Other studies in IB rely on the media to identify inter-state conflicts (Wang, Weiner, Li, & Jandhyala, 2021) or battle-related deaths (Witte, Burger, Ianchovichina, & Pennings, 2017). IB scholars have also applied media analysis to the firm level and used it for firm classification (Lazzarini, Mesquita, Monteiro, & Musacchio, 2020) or the identification of firm-related events and market entries (Dinner, Kushwaha, & Steenkamp, 2018; Wang & Li, 2019; Witte et al., 2017; Zhou & Wang, 2020), and to operationalize stakeholder relations (Henisz, Dorobantu, & Nartey, 2014).

These approaches build on the understanding of the media as a neutral information supplier to society. Consequently, under the assumption that information supply by the media corresponds to information demand in society, the more intense reporting on an issue, the greater the issue's salience – the importance that society assigns to it (Dennison, 2019).

MEDIA IN THE CROSSFIRE

Scholars, however, should be cautious when drawing conclusions from media analysis as the existence of bias in the media is well documented in the literature (Groseclose & Milyo, 2005; Herman & Chomsky, 2010). Bias can cause over- or underrepresentation in the media for certain issues, individuals, or organizations. Consequently, the link

---

a Contact author: harald.puhr@uibk.ac.at

between information supplied by the media and information demanded by society weakens and media analysis provides a distorted view on issue salience.

Political pressure is a major source of bias in the media – politicians may, for instance, interfere with the media to secure their power (Papadopoulou & Maniou, 2021). Such interference is particularly strong in the context of geopolitical tension, since politicians can lever the media as part of their geopolitical strategies (Vultee, 2009) or may use geopolitical tension as an excuse for interference in the media in pursuit of domestic political objectives. Hence, during phases of high geopolitical tension, such as inter-state conflicts, power struggles, or foreign intervention, pressure on the media rises (Mejias & Vokuev, 2017). For researchers, this implies that during periods of abrupt geopolitical tension, the media is likely to provide a biased perspective on information demand in society and insights on issue salience become distorted. This is crucial as, for example, measures for risk or stakeholder attention in foreign countries become unreliable.

STEP 1: USE GDELT FOR BIAS IDENTIFICATION

Even though bias due to geopolitical tension can be identified by a critical assessment of news outlets, we propose a quantitative approach for identification using GDELT.[1] GDELT is a comprehensive database of global news reports that covers print, broadcast, and online media automatically translated from over 100 languages from across the world. We refer readers to Odziemkowska and Henisz (2021) and Zheng (2020) for recent applications of GDELT in IB and to Hoffmann, Santos, Neumayer, and Mercea (2022) for a critical discussion of GDELT. Within GDELT, we particularly highlight the Global Knowledge Graph, a dataset of individual news reports that are automatically coded regarding the themes they refer to, the individuals, organizations, and locations they mention, as well as the reports' tonality. We suggest that researchers use this dataset to monitor reporting on (geopolitical) tension-related themes over time and across countries to identify a potential bias by looking for structural breaks in the reporting.

To demonstrate our approach, we analyze media coverage of Russia's invasion in Ukraine in 2022. We calculated the share of Ukraine-related news that refers to "armed conflict" in India, Russia, and the USA from January to March 2022. Keeping in mind that Russia invaded Ukraine on February 24, Figure 1 indicates how such tension affects the media reporting.

Comparing reporting before and during the war allows the identification of a structural break. Although we find a consistently lower share of news referring to "armed conflict" in Russia even before its attack on Ukraine, this gap

widens after the start of the invasion. When focusing on the shape of the data trend (rather than the intensity) of reporting, we see similarities between India and the USA. For Russia, however, we observe a structural break that leads to a divergence after February 24 and indicates a potential bias in the Russian media.

GDELT also allows researchers to dig deeper into media reporting for bias identification. Researchers can, for example, identify individual persons that are mentioned in media reports and compare the shape of trends in this reporting. In Figure 2, we again document structural breaks around February 24 as there are different shapes of the trends for reporting in Russia when compared with reporting in India and the USA. Accordingly, GDELT offers a myriad of opportunities to identify media bias based on structural breaks in reporting. We therefore recommend:

Conduct analysis with GDELT to identify the existence of bias in the media based on diverging trends in reporting across countries. Relative over- or underreporting on individual topics in countries points at biased reporting.

## STEP 2: USE GOOGLE TRENDS AS AN ALTERNATIVE DATA SOURCE

Once a potential bias is detected, researchers might be interested in alternatives to media analysis that are less affected by political interference. For this purpose, we present Google Trends as an alternative data source to examine issue salience in societies.[2] Although research ranging from Economics to Epidemiology applies Google Trends, it has attracted only limited attention in IB – see Puhr and Müllner (2022) for an exception. Google Trends provides data on search volume for specific topics and thereby allows researchers to approximate issue salience in terms of information seeking by internet users – rather than information supply by the media. The greater the search volume for a topic, the greater information demand, and the greater the issue salience of the respective topic. Since search volume on Google is a direct outcome from information seeking by users, political interference in the media does not directly affect search volume. Google Trends therefore can offer an alternative to media reporting in periods of abrupt geopolitical tension.

Figure 3 presents search volume on Google in India, Russia, and the USA for a selection of topics[3] that are related to Russia's invasion of Ukraine. The figure shows the topics' relative importance in each of the three countries. Importantly, we observe no structural breaks in search volume as in the media before. If the media had provided an unbiased view on issue salience, patterns in reporting would have resembled those in online searches. In case of political inter-

---

[1] Documentation and access to GDELT data is available at https://www.gdeltproject.org.

[2] Documentation and data from Google Trends are available at https://trends.google.com.

[3] As proposed by Kupfer and Zorn (2020), we use search topics to define broad and language-independent keywords.
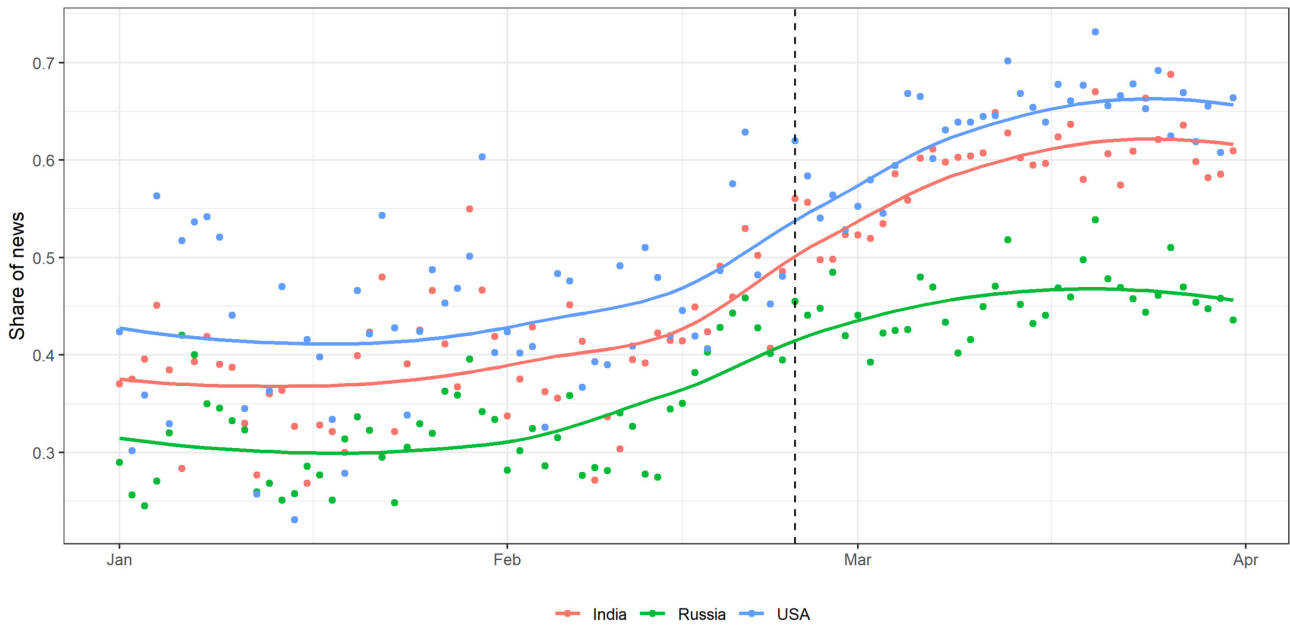
Figure 1. Share of Ukraine-related news items that refer to "armed conflict"

Note: Data source: GDELT; Dots signify the share of news items geo-tagged to Ukraine that refer to "armed conflict"; Lines fitted with local regression models; Dashed line indicates February 24th 2022.

**Figure 2. Share of Ukraine-related news items that refer to "armed conflict" by person**

Note: Data source: GDELT; Dots signify the share of news items geo-tagged to Ukraine that refer to "armed conflict" as in Figure 1 but additionally refer to the respective person; Lines fitted with local regression models; Dashed lines indicate February 24th 2022.

ference in the media, Google Trends is an alternative data source that suffers less directly from political interference than the media.

Google Trends also allows researchers to analyze queries that are related to specific keywords. This provides insights on the context, in which keywords were used on Google. Table 1 shows that searches in Russia for the three topics presented in Figure 3 were predominantly concerned with

the situation in Ukraine. This additional context further highlights the contrast between online information-seeking and media reporting identified in Figure 3. We therefore recommend:

When identifying a bias in the media, alternative data sources such as Google Trends can offer a perspective on issue salience that is less affected by political interference.
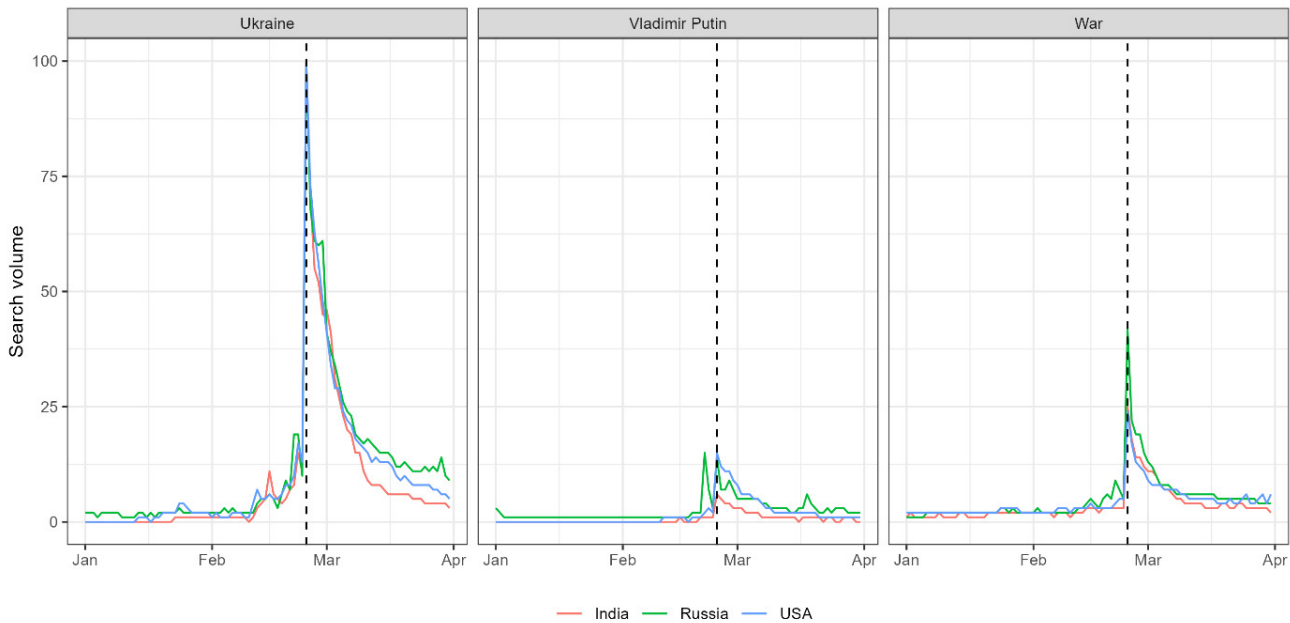
Figure 3. Search volume on Google by selected topics

Note: Data source: Google Trends; Lines represent relative search volume for topics in the respective country; Dashed lines indicate February 24th 2022.

Table 1. Related queries for searches on Google in Russia by selected topics

Ukraine	Vladimir Putin	War
Map of military operations in Ukraine	Putin's address on February 21st/February 24th/March 18th	When will the war in Ukraine end?
Special operation in Ukraine	Putin recognized LNR and DNR	Petition against the war
Talks between Russia and Ukraine	Talks between Putin and Zelensky	What is the war in Ukraine about?
When is the war in Ukraine over?	Has Putin singed the draft degree?	News about the war in Ukraine
How many people have died in Ukraine?	Why is Putin going to war?	War in Ukraine 2022

Note: Data source: Google Trends; Related queries per topic that gained most in interest on Google in Russia from January to March 2022; Topics translated from Russian with Google Translate.

CONCLUSIONS

The media offers a rich data source for scholars in IB and related fields. However, bias in media reporting – particularly due to abrupt geopolitical tension – is a challenge for IB researchers. This is because media-based analyses and cross-country comparisons of issue salience in society may become distorted due to political interference. Our two-step approach guides researchers on how to handle this challenge.

It is important to note, however, that structural differences between countries regarding political systems, press freedom, and online censorship can affect the outcomes of this analysis. In countries with rigid censorship, GDELT and Google Trends cannot detect reliable signals about rising political interference or issue salience. While researchers keep these caveats in mind, our recommendations allow for more robust research on issue salience in society particularly during periods of abrupt geopolitical tension.

―――――――――――――――――――――――――

ABOUT THE AUTHORS

Harald Puhr is an Assistant Professor of International Management at the University of Innsbruck in Austria. In his research, Harald investigates how firms manage uncertainty in the global business environment and how they generate opportunities based on these uncertainties. In addition, he is fascinated by novel methodologies that explore new and innovative sources of data. In this vein, Harald applies data from GDELT and Google Trends to measure the internationalization of firms, individuals, products, and social phenomena.

Alexander Kupfer is an Assistant Professor at the Department of Information Systems, Production and Logistics Management and the Digital Science Center (DiSC), University of Innsbruck, Austria. Alexander's work focuses on information in digital business and digital markets. He investigates how new data sources, like Google Trends or information from online consumer reviews, help to reduce information asymmetries in the economy. Moreover, he is very interested in examining the motivation of users to generate and provide information in the digital sphere.

REFERENCES

Baker, S. R., Bloom, N., & Davis, S. J. 2016. Measuring Economic Policy Uncertainty. *The Quarterly Journal of Economics*, 131(4): 1593–1636.

Bekaert, G., Harvey, C. R., Lundblad, C. T., & Siegel, S. 2014. Political risk spreads. *Journal of International Business Studies*, 45(4): 471–493.

Dennison, J. 2019. A review of public issue salience: Concepts, determinants and effects on voting. *Political Studies Review*, 17(4): 436–446.

Dinner, I. M., Kushwaha, T., & Steenkamp, J.-B. E. M. 2018. Psychic distance and performance of MNCs during marketing crises. *Journal of International Business Studies*, 50(3): 339–364.

Groseclose, T., & Milyo, J. 2005. A measure of media bias. *The Quarterly Journal of Economics*, 120(4): 1191–1237.

Henisz, W. J., Dorobantu, S., & Nartey, L. J. 2014. Spinning gold: The financial returns to stakeholder engagement. *Strategic Management Journal*, 35(12): 1727–1748.

Herman, E. S., & Chomsky, N. 2010. *Manufacturing consent: The political economy of the mass media*. New York: Random House.

Hoffmann, M., Santos, F. G., Neumayer, C., & Mercea, D. 2022. Lifting the veil on the use of big data news repositories: A documentation and critical discussion of a protest event analysis. *Communication Methods and Measures*, 16(4): 283–302.

Kupfer, A., & Zorn, J. 2020. A language-independent measurement of economic policy uncertainty in Eastern European Countries. *Emerging Markets Finance and Trade*, 56(5): 1166–1180.

Lazzarini, S. G., Mesquita, L. F., Monteiro, F., & Musacchio, A. 2020. Leviathan as an inventor: An extended agency model of state-owned versus private firm invention in emerging and developed economies. *Journal of International Business Studies*, 52(4): 560–594.

Mejias, U. A., & Vokuev, N. E. 2017. Disinformation and the media: The case of Russia and Ukraine. *Media, Culture & Society*, 39(7): 1027–1042.

Nguyen, Q., Kim, T., & Papanastassiou, M. 2018. Policy uncertainty, derivatives use, and firm-level FDI. *Journal of International Business Studies*, 49(1): 96–126.

Odziemkowska, K., & Henisz, W. J. 2021. Webs of influence: Secondary stakeholder actions and cross-national corporate social performance. *Organization Science*, 32(1): 233–255.

Papadopoulou, L., & Maniou, T. A. 2021. 'Lockdown' on digital journalism? Mapping threats to press freedom during the COVID-19 pandemic crisis. *Digital Journalism*, 9(9): 1344–1366.

Puhr, H., & Müllner, J. 2022. Foreign to all but fluent in many: The effect of multinationality on shock resilience. *Journal of World Business*, 57(6): 101370.

Vultee, F. 2009. The second casualty: Effects of interstate conflict and civil war on press freedom. *Media, War & Conflict*, 2(2): 111–127.

Wang, D., Weiner, R. J., Li, Q., & Jandhyala, S. 2021. Leviathan as foreign investor: Geopolitics and sovereign wealth funds. *Journal of International Business Studies*, 52(7): 1238–1255.

Wang, S. L., & Li, D. 2019. Responding to public disclosure of corporate social irresponsibility in host countries: Information control and ownership control. *Journal of International Business Studies*, 50(8): 1283–1309.

Witte, C. T., Burger, M. J., Ianchovichina, E. I., & Pennings, E. 2017. Dodging bullets: The heterogeneous effect of political violence on greenfield FDI. *Journal of International Business Studies*, 48(7): 862–892.

Zheng, C. 2020. Comparisons of the city brand influence of global cities: Word-embedding based semantic mining and clustering analysis on the big data of GDELT global news knowledge graph. *Sustainability*, 12(16): 6294.

Zhou, N., & Wang, H. 2020. Foreign subsidiary CSR as a buffer against parent firm reputation risk. *Journal of International Business Studies*, 51(8): 1256–1282.