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Data Journalism Research: Studying a Maturing Field across Journalistic Cultures, Media Markets and Political Environments

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ABSTRACT

Although data journalism is practiced globally, data journalism research has traditionally focused on a limited set of countries, primarily within the liberal and democratic corporatist media systems. Many recently published studies illustrate a growing scholarly interest in data journalism in other parts of the world, but these studies are still limited in number. This special issue brings together five new empirical studies of data journalism around the world, as well as two commentaries and two book reviews on the topic with the aim of broadening the theoretical, empirical, and geographic perspectives on data journalism. The core of the special issue consists of five national and comparative case studies studying data journalism in Africa, the Arab world, Italy, the UK, and Argentina. Combined, these articles and the other publications in this special issue point to three important contextual factors that shape data journalism worldwide: journalistic cultures, media markets, and the political environment. After a discussion of each of these three factors, areas for future research are proposed.

Introduction

Although data journalism is practiced globally, data journalism research has traditionally focused on a limited set of countries where scholars study developments in their own environment. Many recently published studies illustrate a growing scholarly interest in data journalism beyond the liberal and democratic corporatist media system, but these studies are still limited in number. This special issue brings together five national and comparative case studies; two commentaries of data journalism around the world and two book reviews, with the aim of broadening the theoretical, empirical, and geographic perspectives on data journalism as a particular maturing form of

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digital journalism. It expands on the special issue "Journalism in an Era of Big Data," edited by Seth Lewis (2015), which was a pioneering compilation that formed the starting point for a growth of data journalism studies focused on Western contexts.

Historical accounts on the development of data journalism share the same key Anglo-American ingredients: Philip Meyer and precision journalism, NICAR and computer-assisted reporting, as well as Simon Rogers and the influential The Guardian Datablog (Appelgren 2019). More recent examples of data journalism include WikiLeaks, the Panama Papers, and discussions of election predictions by the likes of Nate Silver. However, although much of what currently is denoted as data journalism indeed has its origins in a North American and Anglo-Saxon setting (see, for example, Anderson 2018; Hermida and Young 2019), the development of data in journalism is not purely a North American/Anglo-Saxon phenomenon. Data journalism is practiced all around the world (Mutsvairo 2019b; Mutsvairo, Bebawi, and Borges-Rey 2019). In an analysis of projects nominated for the Data Journalism Awards, Loosen, Reimer, and De Silva-Schmidt (2017), for example, found that between 2013 and 2016, projects from 33 countries were nominated, including countries from five continents. This stands in contrast with the research literature on data journalism, which has long focused primarily on countries belonging to what Hallin and Mancini (2004) labeled the liberal media system (primarily the United States and the United Kingdom) and the democratic-corporatist media system (primarily Nordic countries such as Sweden) (Ausserhofer et al. 2017). While there is great value in exploring these pioneering data-journalism practices, the specific contexts of these countries limit the generalizability or comparability of these findings to journalists working in other countries and media systems. Furthermore, tools and practices from Western countries may guide the journalistic epistemological approach to truth and knowledge (Lewis and Westlund 2015) as well as the study of such practices and expertise in other parts of the world, yet with different outcomes (e.g., Xu and Gutsche 2019).

Given cross-national differences in data-journalism practices, we see a need for the field to broaden its spatial perspective and for more studies into data journalism outside of the liberal and democratic corporatist media systems. We agree with Mutsvairo (2019b, 8) that "without the development of a body of research about how data journalism is being practiced and/or hindered in non-Western contexts, there is a risk that it will contribute to a widening of the cultural divide."

Data journalists have a strong transnational networking tradition. They often arrange international conferences, at times in cooperation with academia, focused on teaching data journalism work methods and introducing tools and basic programming among peers. When we arranged the academic track at the NODA (Nordic Data Journalism) conference at Södertörn University in Stockholm in 2018 we discovered a need for a special issue that assessed if, and where data journalism has been helpful for the development of journalism practice, particularly outside (but not limited to) Western contexts. After the conference, we created an open call addressing comparative perspectives and encouraging work from other parts of the world, resulting in this special issue. This introduction proceeds as follows. First, the five case studies that form the core of this special issue are introduced. Combined, these articles point to

three important contextual factors that shape data journalism worldwide: journalistic cultures, media markets, and the political environment. After a discussion of each of these three factors, areas for future research are proposed.

Data journalism in different contexts

The cross-national comparative research, country-specific case studies, and commentaries from leading international experts in this special issue give insight into cross-national communalities and differences in data journalism around the globe. In the first contribution, Lewis and Al Nashmi (2019) present the Arab region as a difficult and dangerous environment for reporters and editors. Arab authorities are not only restricting access to relevant data but are even censoring and punishing journalists who try to access and report data in an unfavorable way. Reporters are struggling with freedom of expression while also feeling pressured by social expectations of loyalty, reinforced by religion. As Lewis and Al Nashmi underline, for data journalism to thrive in the region, reporters need to balance between discomforting data-driven news work and Islamic and cultural values of respect for authority. The authors conclude that one cannot expect to find more than traces of data journalism in this region. They tried for more than a year to find informants across the Middle East and North Africa for this first-ever study of data journalism in the Arab region and ended up doing 16 interviews. The results point at the barriers to the expansion of data journalism, both structurally (lack of public data as well as political and social expectations) and individually (ignorance and resistance).

The development of data journalism has traditionally been aided by actors outside the newsroom, who often educate data journalists in using tools and accessing data (Aitamurto et al. 2011; Appelgren 2016; Appelgren and Nygren 2014; Usher 2016). For this special issue, Cheruiyot, Baack, and Ferrer-Conill (2019) studied a subset of these actors: the civic technologists. Based on the three researcher's expertise, they did this in an African and a European context and found that the goals of civic tech are not the simple diffusion of Western ideas but rather a negotiation of local and national origins with global issues (Cheruiyot, Baack, and Ferrer-Conill 2019, 13). The two practices that civic tech and journalists share are those of facilitating and gatekeeping, with facilitating being about enabling others to take action themselves and gatekeeping being about highlighting information that is deemed publicly relevant. Journalists are closer to a gatekeeping than a facilitating role, where civic tech instead is more prominent. Civic technologists thus reach their goal of engaging people in important issues. By doing so, they influence data journalism practices by introducing friction between journalistic and civic goals.

Porlezza and Splendore's (2019) study of the rise of data journalism in Italy gives much-needed insight into data journalism in a polarized pluralist media system. Following Ekström and Westlund (2019), they apply a theoretical framework that encompasses social systems, institutions, organizations, practices, and individuals in the field. Italy's media system is characterized by close connections between politics and journalism, "political parallelism," an orientation toward opinion pieces and commentary, and a low level of professionalism (Agostini 2004; Cornia 2014; Hallin and

Mancini 2004). Fifteen journalists were interviewed out of an estimated 20 total Italian data journalists, which shows the limited uptake in Italy. Italian data journalists tend to work together with activists such as Spaghettiopendata, a network that gathers and generates data from public sources. In the study, interviewees shared the professional norms and values of the Anglo-American journalism culture, especially regarding objectivity and transparency. They also saw themselves as activists working toward open and accountable government in Italy by, for instance, making data publicly accessible.

While data journalism is not an established field in Italy, the data journalists in the UK have long been driving the global development of data journalism work methods. In Anderson and Borges-Rey's (2019) study, the focus is on journalists' relationships with their constructed audiences through digital design. Similar to what other recent studies show on the level of interactivity in data journalism, it appears that data journalists in the UK actively avoid interactivity when producing data journalism. It is saved for special projects and only included if it is justified with interactive features. The study reveals a discrepant view of audiences among data journalists, who see the audience as both embodied and active and, at the same time, as measured commodities (see, for example, Ferrer-Conill and Tandoc 2018). However, even though audience metrics reveal disinterest in sophisticated interactivity, the interviewed journalists claim that audiences demand new forms of storytelling and that they employ an audience-first approach that includes experiences placing the reader at center stage.

Palomo, Teruel, and Blanco-Castilla's (2019) show that Latin America is a breeding ground for data journalism projects in which the audience genuinely plays an active part in the production process. Citizens in Colombia, Peru, Venezuela, and Argentina are directly involved in creating data-journalism stories through data management: by coding data, contributing with data, and correcting information. The article presents a typology of audience participation in data journalism as well as a case study of Argentinian newspaper *La Nación*, which is a frontrunner in integrating an active audience into the data journalism department. In Latin America, where digitalization arrived late and investigative reporting is traditionally constrained, audience participation made it possible to "cover topics that journalists cannot do alone" and to uncover "situations involving huge breaches of human rights not identified in official records" (Palomo, Teruel, and Blanco-Castilla 2019, 2).

Combined, these papers; the two included commentaries by Bruce Mutsvairo and by Kate Wright, Rodrigo Zamith, and Saba Bebawi; and the two book reviews of three recent books on data journalism show that while data journalism is widespread, there are indications that it has not yet taken news outlets globally by storm. Notably, even though the case studies in this special issue focus on data journalism in Africa, the Middle East, Italy, the UK, and Argentina, a number of challenges are similar: the group of those who call themselves data journalists in each country is small, stories are often based on government data, and data-journalism education by journalism schools is still in its infancy. Although heavily influenced by Anglo-American ideals, data journalists globally negotiate their local and national origins when adopting practices of data journalism. However, they might also struggle with freedom of expression being limited by official policy as well as social expectations of loyalty, reinforced by

religion. It would be a mistake to only point at the contexts in which data journalism is practiced outside of the liberal and democratic corporatist media system as limiting journalism's development. The articles have shown that specific forms of data journalism have developed beyond these systems. These new forms often come with new relationships with actors outside of journalism, such as a partnership with the audience, activists, or civic technologists.

Journalistic cultures, media markets, and the political environment

Combined, the papers in this special issue, together with the limited number of other studies that have looked at data journalism in other geographical areas, point to three contextual factors that matter for how data journalism takes shape beyond liberal and democratic-corporatist media systems.

First, *journalistic culture* matters. Data journalism in the United States is traditionally seen as a way to reinforce journalism's contribution to democracy by strengthening objectivity, allowing journalists to act as watchdogs of government, and fostering audience participation (Parasie and Dagiral 2012, 854). These Western journalistic values are by no means universal (Hanitzsch et al. 2019; Mellado et al. 2017; Waisbord 2000), and different journalistic traditions can limit the applicability of data journalism as practiced in the West to different journalistic contexts. In this special issue, Lewis and Al Nashmi (2019) suggest that Arab journalists need to display loyalty to authorities. Thus, independence and investigative journalism are held back by norms against confrontation, such as a preference for being in line with Muslim ideals in terms of balancing individual freedoms with the collective. Palomo, Teruel, and Blanco-Castilla (2019) state that there are barriers to watchdog journalism in Latin America, such as the lack of an investigative reporting culture. Such barriers also affect the development of data journalism. In other parts of the world, Zhang and Feng (2019), for example, showed that "doubts about the compatibility with China's existing media system" (1281) and different reporting traditions have limited the adaptation of data journalism in China. Similarly, in Thailand, it would not currently be possible to adapt the "formula of data journalism" as performed by data journalists from the United Kingdom and the United States, mainly because of the lack of structured data but also because of the gap between traditional reporting revolving around on-site interviewing driven by opinions from news sources and newer forms of innovations in journalism (Thienthaworn 2018).

Second, *media market structures* matter. While large media markets like the United States or media markets with strong public broadcasters might have the resources available to invest in and experiment with innovative forms of data journalism, this is by no means the standard around the world. De Maeyer et al. (2015) previously showed, for example, that a lack of resources was one of the important reasons why data journalism had a slow take-up in French-speaking Belgium. In this special issue, Lewis and Al Nashmi (2019) found a common ignorance toward data in the Arab region and found that few journalists are data literate, in large part due to journalism organizations in the region such as journalism schools lacking resources. In their study on African and European civic tech and nonprofit organizations, Cheruiyot, Baack, and

Ferrer-Conill (2019) found that peripheral actors often are the leading voices in data journalism on the African continent and that these actors are expanding the methods and procedures of data journalism while negotiating activism and advocacy roles with aspirations of obtaining a functioning democracy. They find a difference between the Western and African civic tech contexts, as Western peripheral actors see themselves as partners to journalists while African counterparts see themselves as alternative data-journalist organizations. According to Cheruiyot, Baack, and Ferrer-Conill (2019), the difference could stem from data journalism being underdeveloped in African media markets as compared to in the studied Western media markets. Similarly, in Kenya, Kiambi (2019) found that the lack of knowledge on statistics among Kenyan journalists is related to several characteristics of the Kenyan media system, such as government control of the media, commercialization, and limited resources. This special issue also contains two studies with a Western context. Anderson and Borges-Rey (2019) explored five large UK/US news outlets and found little optimism toward interactive features among the interviewed journalists. Nevertheless, these resourceful companies invested more in delivering customized user experiences and had an "audience-first" approach that coexists with increased efforts to control the user experience and guide the reader through the narrative, thus invoking the traditional gatekeeping role of journalism.

Third, the *political context* matters. Despite trends of globalization the nation-state and its political institutions are still a dominant factor shaping the conditions in which journalists work (Rao 2019). This becomes, for example, clear in the liberal and democratic corporatist media systems, where data journalism is facilitated by the concept of "open data," i.e., the availability of official statistics, public databases, political observatories, and open-access regulations. In this special issue, Palomo, Teruel, and Blanco-Castilla (2019) account for how most Latin American countries have passed transparency legislation to guarantee access to official information. In many parts of the world, data journalists do not have these resources, as illustrated by the study of the Middle East and Northern Africa by Lewis and Al Nashmi (2019). For Spain, Appelgren and Salaverría (2018) have shown that even when open access or transparency regulation is in place, this does not guarantee that data journalists will have broad access to information. Next to legislation, "a culture of accountability" is needed to guarantee that journalists have access to information. Similarly, in this special issue, Porlezza and Splendore (2019) found that due to the recent introduction of a transparency law in Italy, Italian public data providers are less likely and generally less equipped to provide open data ready to be analyzed by journalists.

A maturing field of global data journalism research

Referring back to Mutsvairo's quote at the beginning of this introduction, we believe that more attention on the influences of journalistic cultures, media markets, and the political environment might help to further develop understanding of data journalism worldwide. This would also open up further avenues of research, especially into how data journalism can contribute to bridging the digital divide. Funding for data journalism programs beyond the Western world comes in large part from multilateral sources,

such as the World Bank and United Nations programs; large Western public donors such as US Aid; private actors such as The Bill and Melinda Gates Foundation and the International Centre for Journalism; and private companies such as Google and Facebook (e.g., Mutsvairo 2019a). The export of data journalism by Western actors and the "Googlefication" of data journalism are interesting topics for future research. The Silicon Valley giant has educated almost 300,000 journalists worldwide since 2015 in using its free software, such as by training them on how to use Google Fusion tables (Lindén et al. 2019). This decisive institutional factor of the development of data journalism is interesting in terms of the impacts of Western ideals on local journalism and deserves more research.

The access to data in developing countries and questions of their quality are other topics in need of research, as the examples in this special issue illustrate. In less-resourced countries, the justification of "national security" may be used to ban certain kinds of news and restrict the release of information to the public. In Africa, available data are often flawed for institutional reasons such as lack of resources, giving the wrong indicators of society (Jerven 2013; Lindén 2013). Access to data might not mean the same as usability as data, which, for instance, can be unstructured, paired with restrictions of use, or impossible to download in bulk. Future research should look into how such limitations, on the one hand, hinder data journalism beyond the Western world, but on the other hand may also lead to new forms of data journalism to circumvent these limitations. Such new forms of data journalism, like innovative ways to create datasets or engage with the audience might in turn inspire data journalists working in the global north. The articles in this special issue do not explicitly assess data journalism through a post-colonial perspective. The indication is however that journalistic ideals typically associated with the liberal media model rub on to how data journalism develops as a practice across the globe regardless of media systems. Future research should therefore critically examine how journalistic ideas related to the liberal model affect the data journalistic practice in other media systems.

More broadly, we believe that the articles in this special issue can inspire more cross-national comparative data journalism research and case studies beyond the liberal media system and democratic corporatist media systems. At the same time, we expect that the body of research in data journalism in these media systems will continue to grow, ideally accompanied with thorough reflections on the generalizability of the findings to other contexts. This would in our view be clear indicators of the further maturing of the field of data journalism research.

Disclosure statement

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