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Government responses to online disinformation unpacked

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Abstract: This article collects, categorises and analyses responses (n=239) to online disinformation from 103 countries, ten international and regional organisations across six continents (through 2021). We categorised each initiative into eleven non-mutually exclusive categories according to intent, objective and type of disinformation targeted. We also set up a comparative research design to assess whether different types of governments (democratic/authoritarian) approach the fight against online disinformation differently, whether the amount of press freedom in a country has a significant correlation with the response types, and whether the overall wealth of a nation (measured in GDP per capita) impact the (diversity of) responses. The results show an evolution of the focus of government responses to online disinformation over time. Most crucially, we find that democracies, with high levels of press freedom, have a more holistic approach to countering online disinformation, focusing comparatively more on the integrity of their election process, media and education initiatives, and that countries with a higher GDP have more initiatives and legislation in place than countries with a lower GDP. Authoritarian countries generally formulate broad legislation that is also often incorporated into their penal code.

1. Introduction

Since the United States' elections of 2016 and the Brexit referendum that same year, academic and popular attention on online disinformation has grown exponentially. One of the central issues is how legislators are supposed to curb the spread of these false narratives (with potential real-life outcomes) without interfering with citizens' liberal right to freedom of expression (Heinze, 2016; Bennett & Livingston, 2018; Bayer et al., 2021). However, we also see that some governments use the recent problem of online disinformation to pass laws and initiatives that serve to prosecute individuals who contradict state-imposed narratives on events, politics, and state conduct (Khan, 2019). These individuals might include human rights activists, political dissidents, or whistle-blowers.

This research sets out to build a global database containing public policy initiatives and laws set up by governments to respond to online disinformation. To our knowledge, this database in and of itself constitutes the most comprehensive database of its kind currently available.[1] As a starting point, we updated the database of Bontcheva et al.'s work *Balancing Act: Countering Digital Disinformation While Respecting Freedom of Expression* (2020) and checked if all the listed policy initiatives and/or laws were still in place or had changed since the publishing of this work (through 2021). Later, we supplemented the data with new initiatives and legislation from those countries, and we were able to include considerably more countries. We chose to keep the methodology consistent with Bontcheva et al. (2020), categorising each case into eleven non mutually exclusive categories. We added the category "COVID-19 specific" as it allowed us to measure what impact the pandemic had on different governments and their approach to online disinformation in times of a global pandemic.

Furthermore, we observe that the 2016 presidential elections of the US and the Brexit-referendum in the UK acted as a catalyst for other governments. Indeed, most initiatives and legislation were passed after 2016. We also note a considerable rise in policy initiatives during the COVID-19 pandemic. These events might have triggered government responses to tackle online disinformation worldwide, but we also observe that they generate different kinds of initiatives. On the one hand, after 2016, many cases were non-legislative initiatives focusing on elections, counter narratives, education and journalism. On the other hand, during the pandemic, we see a rise in legislation specific to COVID-19 disinformation. Passing laws to curb infection rates resulting from a misinformed public encountered few-

1. The full database is accessible on the Harvard Dataverse: https://doi.org/10.7910/DVN/ZGIKLS

er difficulties and opposition than legislation designed to safeguard elections and other democratic institutions.

Additionally, for this article, we conducted a quantitative analysis in which we compared the level of democratisation, press freedom, and gross domestic product (GDP) of all the countries included in the database against the amount and type of legislation and/or initiatives proposed. We find that democracies with high levels of press freedom have a more holistic approach to countering online disinformation, focusing comparatively more on the integrity of their election process, media and education initiatives, and that countries with a higher GDP have more initiatives and legislation in place than countries with a lower GDP. Authoritarian countries generally formulate broad legislation that is often incorporated into their penal code. This serves authoritarian states' interest in allowing them to use this law to prosecute domestic opponents of the regime.

This article produces unique and robust data on the state of government responses to online disinformation globally (through 2021), demonstrating its relation to levels of democracy, press freedom and GDP. It shows the flurry of activity following the fears over foreign election interference and the manipulative use of online data for political purposes, as well as how moments of crisis provide windows of opportunity to take swift legislative action, related to, but also broader than the emergency at hand. The multitude of ways in which online disinformation is defined (e.g. as political opposition, media literacy skills gap, foreign threat, health emergency) sets the scene for the regulatory strength and nature of government responses.

In the following sections, we explain our methodology for data collection, categorisation, and analysis, as well as the taxonomy underlying the categorisation. Then we turn to our results on government responses to online disinformation, analysing the initiatives over time and by different types of government. In the discussion and conclusion, we raise questions of normativity as Western researchers, and seek to raise attention, in a context of tech lash, to the multitude of contexts and motivations underlying government responses to online disinformation.

2. Methodology

2.1 Data collection

We employed a two-pronged search strategy to locate cases. On the one hand, we

updated Bontcheva et al. (2020) *Balancing Act: Countering Digital Disinformation While Respecting Freedom of Expression*. On the other hand, we performed searches in various existing databases to locate additional disinformation initiatives. We adopt the definition of disinformation in Bontcheva et al. (2020). Disinformation is *"content that is false and has potentially damaging impacts"* (Bontcheva et al., 2020, p. 24). Other definitions may introduce aspects of 'intent to deceive' into the definition, which admittedly sharpens the focus. However we chose to keep the definition outlined in the aforementioned publication in the spirit of "expanding" their work. In addition we are only concerned with government responses to online disinformation. As the definitional scope between these initiatives differs and we sought to capture responses related to misinformation or 'fake news' as well, this merits adopting a broad definition of disinformation in this article. As for government responses, we included any legislative, non-legislative initiative and counter-narrative campaign initiated by national governments and international governmental bodies, which at least in part focus on online disinformation. This means that some initiatives in the database might result in implementation or execution by non-governmental organisations, but all were government initiated.

2.1.1 Updating already documented cases

First, all the government disinformation responses listed in the previous report (91 initiatives) were reviewed and updated using official government documents, legislation, statements, publications, and trusted media reporting. Updating existing cases kept the logic of the 2020 report. To track progress and change (or the lack thereof) in existing cases, we used queries in public online search engines (mostly Google) to access official government publications and trusted press material. As the publications were often provided in the official language(s) of the country or organisation, we used the "Google Translate" in-browser extension and the "DeepL" translation engine to analyse and translate sources.

2.1.2 Adding new cases

Second, to map initiatives after the data collection for the report (concluded in mid 2020), a systematic search for new cases was also undertaken. Currently, there are a few trusted databases that map government disinformation responses around the world. Three databases were the main starting points, while searching for new cases:

- Poynter's "A guide to anti-misinformation actions around the world" (The Poynter Institute, 2019)
- U.S.' library of congress "Government Responses to Disinformation on Social Media Platforms" (Levush et al., 2019)

- Lexota "Law on Expression Online: Tracker and Analysis" is a detailed database about government initiatives against disinformation on the African continent (Lexota, n.d.).

These databases were not used as the source of data itself, but they proved to be excellent starting points to locate additional cases, and often contained data about countries that were not included in Bontcheva et al.'s (2020) work.

In analogy with the methodology to update the existing cases, official government publications were the initial focus of research, followed by press material, reversing the process when needed. This process often initiated a snowball effect, meaning new cases were found whilst updating old ones or researching cases to be included. Many regional databases, information from NGOs, specialist blogs, legislative commentaries provided context and valuable information. The research team also reached out via the Global Internet Governance Academic Network (GIGANET) when policies or initiatives weren't clear or seemed to be absent.[2]

In total, the data collection exercise yielded 239 cases of government responses to online disinformation in 103 countries and ten international organisations across six continents through the end of 2021. While initiatives may still be missing from the database, we endeavoured to be as complete as possible through the described triangulation of data collection methods. In the next section, we outline how we categorised and coded these cases.

2.2 Coding categories

To code all 239 cases, we used the taxonomy of disinformation responses of Bontcheva et al. (2020), which consists of ten categories: (1) Factchecking and monitoring, (2) Investigative responses, (3) Countercampaigns, (4) Election specific responses, (5) Curational responses, (6) Technical and algorithmic, (7) Demonetisation, (8) Ethical and normative, (9) Educational, (10) Empowerment. We introduced one additional category: *"COVID-19 specific responses"* to shed light on how governments use certain events to create opportunities for initiative. The definitions of these categories are detailed in Table 1.

Government initiatives were categorised in eleven *non-mutually exclusive* groups, considering that many initiatives span a multitude of response types (see Table 1). As an example, Australia's COVID-19 Mythbusters initiative is a national counter disinformation campaign (Cat 3) that is also characterised by Monitoring/

2. Many thanks to the GIGANET community for helping compile this overview of government responses to online disinformation.

Factchecking (Cat 1) with an ethical/normative aspect (Cat 8) and as the name suggests, is focused on dis/misinformation surrounding the COVID-19 virus (Cat 11).

Further, we categorised the legal status of all cases as either *(mutually exclusive)*:

- **Non-legislative initiatives**: Initiatives, although set up by the government, without legal basis and enforcement. This category mainly consists of expert platforms, educational initiatives, and tools to empower users (soft law).
- **Counter narratives:** As a subcategory of pre-legislative initiatives, these focus on the construction of counter narratives by governments with the explicit aim of countering false or falsely deemed discourses.
- **Proposed legislation:** When a law that aims to curb the threat of disinformation has been proposed but is still in the process of being approved. These initiatives can still be amended or withdrawn. This category must therefore be reviewed most frequently.
- **Adopted legislation:** Initiatives adopted into the national law and can therefore be enforced against disinformation-related offences (hard law).
- **Law enforcement:** When a law is enforced against disinformation-related offences.

2.3 Country characteristics

Finally, to explore whether and how the various types of initiatives from the typology vary across countries, we supplemented the dataset with variables tracking country characteristics. In particular, we compared against (1) the *economic development of a country*, expecting that greater economic capabilities would increase countries' ability to launch multiple disinformation initiatives. The indicator of choice is the World Bank's GDP per capita, which is available for most – but not all – countries (World Bank, n.d.). We also added indicators for (2) a country's *level of democratisation*.. We expect that higher levels of democratisation would lead to a prioritisation of disinformation as a hybrid challenge to be fought through diverse disinformation initiatives. (3) A country's *level of press freedom* was tracked through the Reporters Without Borders Press Freedom Index 2020 (Reporters Without Borders, 2021). We expect that countries with a higher level of press freedom would be more likely to take disinformation initiatives focused on enhancing the media ecosphere (Wardle & Derakshan, 2017).

Table 1: Online disinformation government response types (Bontcheva et al., 2020, with additional clarifications)

CATEGORY	DEFINITION
Factchecking and monitoring	Usually carried out by news organisations, internet communications companies, academia, civil society organisations, and independent fact-checking organisations, as well as (where these exist)

CATEGORY	DEFINITION
responses	partnerships between several such organisations. These responses share a focus on informing the public on the authenticity and credibility of news stories, online chain messages and popular online narratives.
Investigative responses	Go beyond whether a given message/content is (partially) false, to provide insights into disinformation campaigns, including the originating actors, degree of spread, and affected communities.
Countercampaigns	Tend to focus on the construction of counter narratives by governments with the explicit aim of countering false or falsely deemed discourses.
Election specific responses	Developed specifically to detect, track, and counter disinformation that is spread during elections. This category of responses, due to its very nature, typically involves a combination of monitoring and fact-checking, legal, curatorial, technical, and other responses, which will be cross-referenced as appropriate.
Curational responses	Address primarily editorial and content policy (removing, flagging, … of posts, journalistic articles, forums, blogs, …) and 'community standards', although some can also have a technological dimension, which will be cross-referenced accordingly.
Technical and algorithmic responses	Use algorithms and/or Artificial Intelligence (AI) in order to detect and limit the spread of disinformation or provide context or additional information on individual items and posts. These can be implemented by the social platforms, video-sharing, and search engines themselves, but can also be third party tools (e.g., browser plug-ins) or experimental methods from academic research. This category also includes more basic technology-based responses such as limited or complete internet 'shutdowns'.
Demonetising and economic responses	Designed to stop monetisation and profit from disinformation and thus discourage the creation of clickbait, counterfeit news sites, and other kinds of for-profit disinformation. Rather than punitive measures such as fines, this category entails responses that focus on stopping disinformation practices from generating income and profits.
Ethical and normative	Public condemnation of acts of disinformation or recommendations and resolutions aimed at thwarting these acts. When carried out by a government actor, this "condemnation" is often executed as a result of a perceived security threat to the state and her population which legitimises government action.
Educational	Aims at promoting citizens' media and information literacy, critical thinking, and verification in the context of online information consumption, as well as journalist training.
Empowerment	Designing content verification tools and web content indicators, which are practical aids that can empower citizens and journalists to avoid falling prey to online disinformation. These efforts may also be intended to influence curation in terms of prominence and amplification of certain content – these are included under curatorial responses above.
COVID-19 specific responses	Developed specifically to detect, track, and counter disinformation concerning the Covid-19 pandemic. In analogy with electoral-specific responses, these responses typically encompass different types of responses which are cross-referenced in the data. While other responses are used to curb disinformation surrounding the coronavirus, initiatives are Covid-19 specific when they are introduced as a response, or when law(s) (proposals) are clearly amended, to disinformation that targets facts surrounding COVID-19, and government initiatives to curb the spread of the COVID-19 virus.

3. Analysis

3.1 Government disinformation responses over time

3.1.1 Early adopters (2000-2016)

The trend in Figure 1 points clearly to an explosion of adopted initiatives since 2016. Early adopters were uncommon, though some cases exist. These early initia-

tives often combat online misinformation and disinformation by amending their criminal or penal codes (e.g. Mauritius or Venezuela). In the first period (2000-2006) examples of emergency decrees issued by governments can be found which provide a legal way of prosecuting people or groups who spread disinformation online (or elsewhere) in times of a national emergency. These countries include South Africa and Thailand.

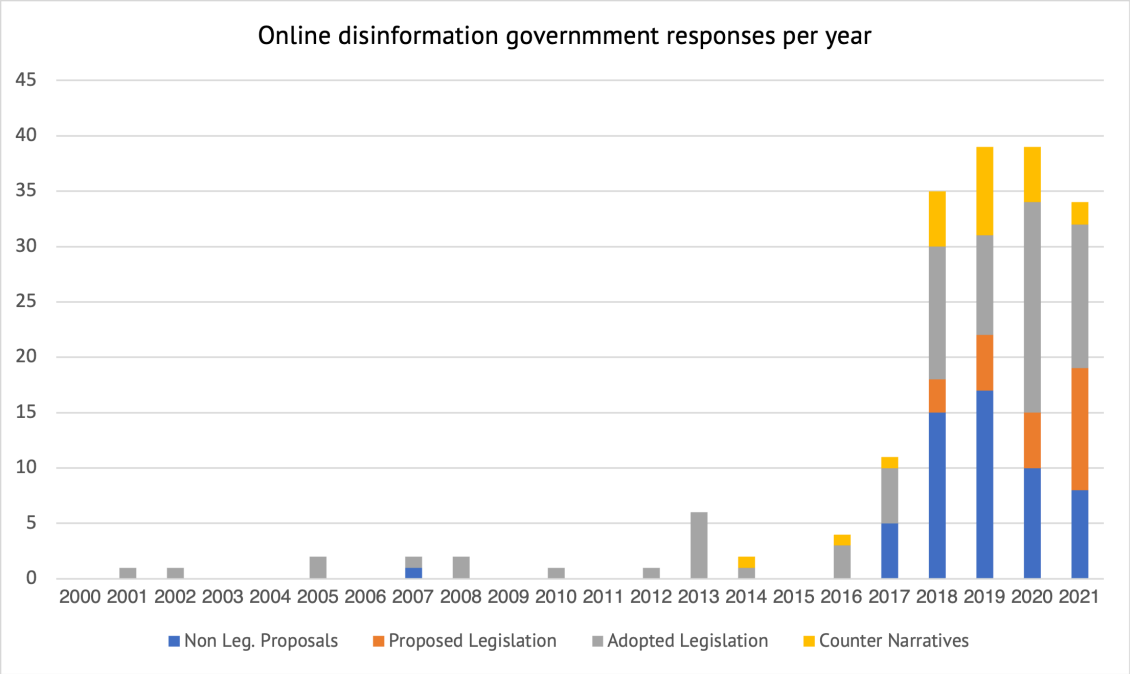

FIGURE 1: Online disinformation government responses per year.

Note: Figure excludes law enforcement, as the exact date (and therefore year) was hard to retrieve. Reports refer to enforcement and application of the relevant legislation for the purpose of tackling disinformation, but often do not indicate when exactly the enforcement started.

From 2007, legislation and initiatives *specific* to online disinformation started to be adopted. Most of the initiatives between 2007 and 2016 remain legislative answers designed to prosecute individuals accused of spreading disinformation or misinformation. With its cyber defence league, Estonia counters online disinformation by means other than legislation (Kaska et al., 2013; Czosseck et al., 2011). In 2016 both the United States and the United Kingdom launched initiatives to counter (online) foreign interference, including disinformation, during the presidential elections and Brexit referendum.

Surprisingly, most of the countries that adopted legislation (vs. non-legislative ini-

tiatives) were rated “Free” at the time of the initiative going into effect. The vagueness and focus on the individual of these early legislations are nowadays more linked to authoritarian regimes. Of the nineteen countries for which we registered cases in the period 2000-2016, ten countries were rated by Freedom House as “Free”, five countries were rated as “Partially Free”, and only four countries were rated as “Not Free” at that time.

3.1.2 Regulations in the “post-truth era” (2017-2019)

As of 2017, we see a significant rise in measures adopted by governments to combat online disinformation and its effects. In 2018, the amount of legislation and adopted programmes by governments tripled. The Brexit referendum campaign and the US presidential elections of 2016 were important triggers of this exponential rise. Both events caused a shockwave through democratic institutions and demonstrated the dangers of disinformation, urging governments to act. The increase in initiatives occurs in all categories (non-legislative proposals, proposed legislation, adopted legislation and counter narratives). Mostly countries categorised as “Free” actively introduced new legislation, launched new initiatives, and have set up counter narrative campaigns. For example, we have Australia's Parliament Joint Standing Committee on Electoral Matters: Democracy and Disinformation, Canada’s Digital Citizen Initiative, Ireland’s Proposal to Regulate Transparency of Online Political Advertising and South Africa’s Political Party Advert Repository and Digital Disinformation Complaints Mechanism. Indeed, many adopted initiatives include an electoral specific approach to countering online disinformation. This finding lends support to our expectations, namely that mainly democratic countries adopted measures in this period to safeguard democratic institutions such as elections, and to maintain a well-informed public. It is important to contextualise these findings in the context of the influence that online disinformation has on democratic elections and public deliberation, but also the rise of anti-democratic populism, whose primary actors are often engaged in online disinformation (Hameleers, 2020). During this second period, intergovernmental and supranational organisations such as the EU and NATO also started their own initiatives, counter disinformation campaigns or even, in the case of the EU, set up their own regulatory framework such as the European Union’s Code of Practice on Disinformation and Action Plan on Disinformation.

3.1.3 The “disinfodemic” (2020-2021)

After the COVID-19 pandemic struck in March 2020, there was a steep rise in adopted and proposed legislation, whereas the total number of non-legislative proposals and counter narratives worldwide declined (see Figure 1). While a large

number of countries introduced COVID-19 specific initiatives to combat disinformation on the coronavirus and the governments' approach to it (Hungary's COVID-19 Misinformation Law, Namibia's COVID-19 Regulations, Paraguay's State of Declared Health Emergency amongst others), we cannot exclude that these laws and initiatives were introduced or used with different intentions.

Throughout the pandemic, there was no significant difference between "Free" and "Not Free" countries that took up legislation, counter narratives or adopted non-legislative initiatives to curb disinformation surrounding the coronavirus or indeed any other kind of online disinformation. In the 2020-2021 period, nineteen "Free" countries adopted new legislation or initiatives, compared to twenty "Not Free" countries (and fifteen "Partially Free" countries). However, as explained in the next section (3.2), we observe a significant difference between the type of regulations and initiatives of the "Free" and "Not Free" countries.

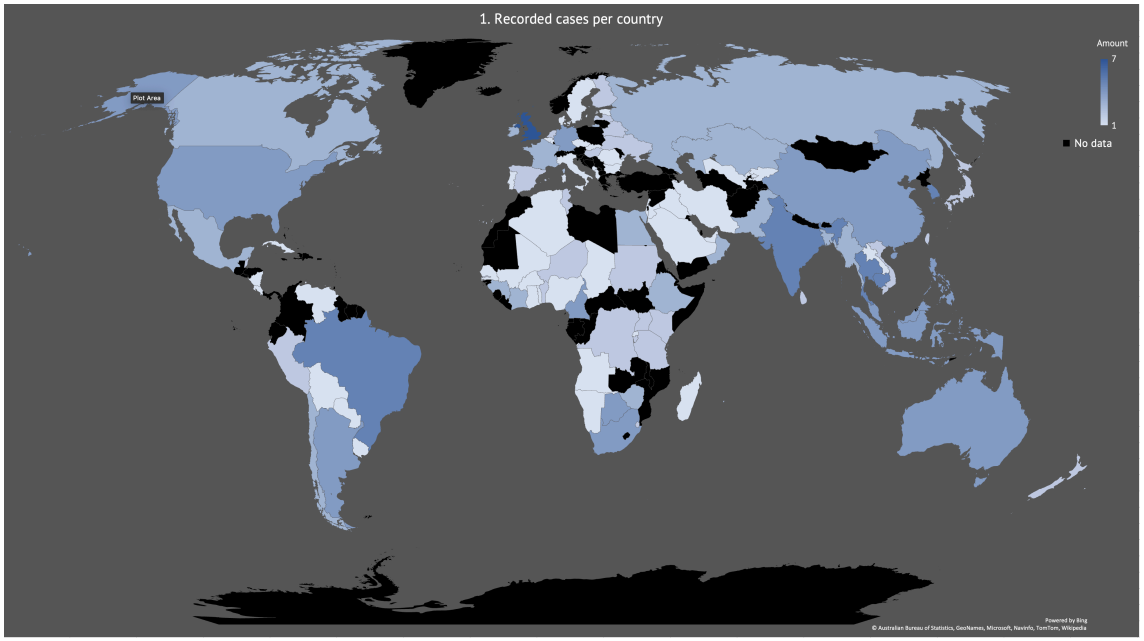

FIGURE 2: Recorded online disinformation government responses per country.

3.2 Government disinformation responses by type of government

One of the main goals of this research was to investigate whether country characteristics can help make sense of disinformation responses. Do governments in less democratic countries impose more draconian information laws? Is there an identifiable, generalisable topology for governments in both democratic and authoritarian countries in their approach to tackling online disinformation?

First, we consider to which extent country characteristics relate to the amount and

diversity of disinformation responses. We expect that economically developed, democratic and "Free" countries are more apt to launch a larger number of initiatives and try and combat disinformation through a greater diversity of approaches – i.e., not just relying on factchecking, but also improving civic education of the media and seeking to thwart monetisation of disinformation. Governments of free and prosperous societies, we contend, may be more likely to embrace a wide range of initiatives against disinformation, and have more budgetary space to do so.

Table 2 presents the results of two linear regressions. Model 1 regresses the total number of disinformation responses of a country on its GDP per capita, level of democratisation and level of press freedom. Model 2 regresses the diversity of initiatives on the same independent variables. Diversity is the number of categories from the typology that were marked 'yes' for at least one initiative in the country. For example, if all initiatives taken in a country only include factchecking, the country scores '1' on diversity. If all initiatives taken in a country include factchecking, curational and technical & algorithmic, the country scores '3' on diversity.

Table 2: Regression of amount and diversity of responses

	MODEL 1: NUMBER OF RESPONSES	MODEL 2: DIVERSITY OF RESPONSES
GDP per capita	0.01 (0.01)	0.05** (0.01)
Level of democratisation	0.01 (0.01)	0.03* (0.02)
Level of press freedom	0.03+ (0.02)	0.08** (0.03)
Intercept	0.22 (1.05)	-2.16 (1.86)
N	99	99
R^2	0.07	0.21

Note: Table entries are unstandardized regression coefficients, with standard errors in parentheses. ** p<0.01, * p<0.05, + p<0.10

Country characteristics do not relate much at all to the number of initiatives taken. We find slightly more responses in countries with higher levels of press freedom, but the model explains only 7% of the variance in the number of initiatives taken. In particular, economic prosperity (GDP per capita) has no effect. This is not too surprising: we know that a single initiative can have far-reaching implications, whereas other countries may take many, but smaller initiatives. In contrast, when we consider how diverse of an approach countries pursue in the fight against disinformation, the model shows that economic development, democratisation, and

press freedom all positively correlate to diversity. More economically developed countries have the capabilities to launch a more diverse array of responses to combat disinformation. Beyond economic capability, however, we also find net effects of democratisation and press freedom, which suggests that democratic governments are keener to fight off the threat of disinformation by pursuing a variety of measures.

Next, we turn to the typology itself: do country characteristics relate to its propensity to take specific categories of initiatives? To examine this, we ran eleven logistic regression models (one per category in the typology). The dependent variable is always whether a country has taken at least one initiative that was categorised in this category (1) or not (0). Table 3 presents the results.

As a first observation, in Table 3, variations in the Pseudo R^2 statistic indicate that we are quite able to explain the presence / absence of some categories of initiatives based on a country's level of democratisation and economic capabilities—for example, investigative responses—but far less able for other categories such as COVID-19 specific initiatives. This lack of model strength for COVID-19 initiatives may be partly due to the peculiar nature of these initiatives: on the one hand, COVID-19 initiatives were perhaps more ad hoc, and dependent on the specific emergency of the pandemic situation at that time. Counter disinformation campaigns are sometimes international, diminishing the impact of country characteristics.

Conversely, in line with our expectation, we find that GDP per capita has a positive and significant correlation with many response types, including fact checking, investigative, curational, demonetisation, educational and empowerment focused responses. Countries that have greater economic capacity to respond to disinformation pursue a more diverse and multifaceted response. Clear examples of this would be the UK and Australia whose initiatives (seven for the UK, four for Australia) cover all response categories or Argentina whose four initiatives cover nine out of eleven categories. There is one exception: normative/ethical responses are more likely as a country's GDP per capita is *lower*. Further analysis, in which we regress whether this type of response is the *only* response implemented in the country, finds an even stronger negative relation to GDP per capita. Qualitative findings also suggest that authoritarian regimes prefer -vaguely formulated- ethical and normative responses, allowing them to repress opposition and critique. Yet, this response type notwithstanding, at a general level the positive connection between GDP, the number and diversity of government responses seems supported by the data.

Next, we turn to the relation between a country's level of democratisation and press freedom, and the types of responses it tends to implement. Compared to a country's economic capabilities, here we find more contingent effects, with democratisation scores only significantly affecting three types of responses, and press freedom scores five response types. Unsurprisingly, the strongest correlation is that between democratisation and election-specific responses. Like most other countries in our dataset, democratic countries mostly started reacting to the threat of online disinformation after the Brexit referendum and the United States' presidential elections of 2016. The effect these disinformation campaigns had on foundational democratic processes convinced democratic governments around the world that there was a sense of urgency to protect their democratic institutions (including the public) from the danger of online disinformation (Bennett & Livingston, 2018). Democratic countries wish to safeguard their elections from the threat of disinformation and are thus more likely to implement responses focused especially on this crucial phase in the representative process. The impact is substantial: keeping GDP per capita and press freedom scores at their mean value, the model estimates that a democratisation score of 20 out of 100 results in a probability of implementing an election specific response of about 1%. In contrast, a country with a democratisation score of 80 out of 100 has a 68% chance of implementing such a response. Beyond election specific responses, democratisation scores seem to affect a country's propensity to pursue factchecking and investigative responses. These initiatives aimed at informing the public are deemed imperative for citizens to make the right decision at the ballot.

In turn, press freedom relates significantly to five response types: factchecking and investigative responses, election specific responses, curational, and ethical & normative responses. The relation between a free press and factchecking / investigative responses seems quite logical: countries that enjoy a prominent level of press freedom and a high(er) quality public sphere may seek to sustain this through responses that debunk false information that circulates in the public sphere. Curational responses are aimed at content providers, either online platforms or media organisations. These response types also lend to non-legislative initiatives that allow for flexibility in approach.

Table 3: Logistic regressions of typology of responses

For optimal readability of this table click here.

VARIABLE	FACTCHECKING & MONITORING	INVESTIGATIVE RESPONSES	COUNTERCAMPAIGNS	ELECTORAL SPECIFIC	CURATIONAL	TECHNICAL & ALGORITHMIC	DEMONETISATION	ETHICAL / NORMATIVE	EDUCATIONAL	EMPOWERMENT	COVID-19 SPECIFIC
GDP PER CAPITA	0.04* (0.02)	0.06** (0.02)	0.01 (0.01)	0.03* (0.01)	0.03+ (0.02)	0.01 (0.01)	0.05** (0.02)	-0.03+ (0.02)	0.03+ (0.01)	0.04* (0.02)	0.01 (0.01)
LEVEL OF DEMOCRATISATION	0.03+ (0.02)	0.08* (0.03)	0.01 (0.01)	0.10*** (0.03)	0.01 (0.02)	0.00 (0.01)	0.02 (0.03)	0.02 (0.02)	0.00 (0.03)	0.01 (0.02)	-0.01 (0.02)
PRESS FREEDOM	0.08* (0.03)	0.13* (0.06)	0.03 (0.02)	0.13** (0.04)	0.05+ (0.03)	0.04 (0.03)	0.03 (0.04)	0.08* (0.04)	-0.05 (0.05)	0.02 (0.05)	0.01 (0.03)
INTERCEPT	-6.16** (2.10)	-12.98*** (4.33)	-3.18* (1.23)	-12.26*** (3.35)	-3.47+ (1.89)	-1.99 (1.64)	-5.76+ (3.31)	-2.15 (2.16)	-0.43 (2.92)	-3.90 (3.03)	-1.16 (1.59)
PSEUDO R^2	0.13	0.33	0.06	0.33	0.11	0.03	0.18	0.15	0.18	0.12	0.01
N	99										

Note: N only includes countries covered in consulted datasets for *GDP* (World Bank, n.d.), *level of democratisation* (Freedom House, n.d.) and *level of press freedom* (Reporters Without Borders, 2021)

4. Discussion

This research constitutes a quantitative analysis of government responses to online disinformation on a global scale. The study moves beyond existing research in the breadth of initiatives against disinformation under consideration, by presenting a comprehensive analysis of 239 initiatives across 103 countries and 10 international and regional organisations. It contributes to existing literature by assessing how types of governments approach and contextualise online disinformation differently (Kolvani et al., 2021; Matasick, Alfonsi, & Bellantoni, 2020; Bradshaw & Howard, 2019). Additionally, it highlights the relevance of events (such as pandemics or elections) in decision-making and approaches to different kinds of disinformation. As evidenced by our data, countries' responses vary substantially in both their magnitude, targets and approaches to combat online disinformation. Beyond the comprehensive overview provided by this study, it also assesses whether country characteristics can help us predict the types of initiatives taken by countries. As such this study provides a valuable resource for academics, policymakers and civil society to understand how levels of GDP per capita, democratisation and press freedom impact the diversity and type of response taken.

In general, we find a significant difference between democratic and authoritarian regimes in their approach to combatting disinformation in our data and research. The relevance of this research is therefore not solely defined by the practical overview of approaches combating disinformation around the globe, but especially in comparing different forms of government and their approach to disinformation. We presented quantitative analyses documenting systematic differences in country's responses to disinformation based on their economic development, press freedom and level of democratisation. Concerning economic development, our analyses show that economic prosperity is a key factor explaining a country's implementation of initiatives: for almost all categories of initiatives, such as investigative reporting, factchecking and demonetisation, a higher GDP increases a country's propensity to launch and implement initiatives.

Conversely, we found less strong evidence on a country's level of democratic governance and its response to disinformation. This factor proved to only positively relate to a country's propensity to implement factchecking, investigative, and election specific responses. Our generalised analysis of the number and diversity of responses a country took, showed that democratic governance only related to the diversity of initiatives: this might be explained by our observations that initiatives by democratic actors cover more categories per initiative.

Finally, we considered as a third and final factor a country's level of press freedom. The data corroborated our expectation that increased press freedom would entail greater numbers of, and diversity in, the initiatives that would be taken. Looking at press freedom's relation to specific initiatives, we find that press freedom scores affect a government's inclination to introduce factchecking, investigative, elections specific, curational and ethical and normative initiatives. The first two kinds of initiatives' correlation might be explained in a straightforward way, as we expect countries with greater levels of press freedom to house competent news media companies and services that can offer their expertise in factchecking and investigating online disinformation. Curational initiatives are aimed at online platforms and media organisations to safeguard the plurality of the media and a population's healthy information diet in the context of elections or referenda. Lastly, the positive relation to normative/ethical responses is curious: on the one hand, we observe that the initiatives of democratic countries and those with high press freedom values are rarely if ever solely normative/ethical, they are complemented with other categories, such as we see in Finland's Media Education Policy or the Netherlands' Code of Conduct on Transparency of Online Political Ads. On the other hand, as indicated above we find that certain authoritarian regimes implement

vague, broad responses that only fit in this category. This possibly allows for the governments to abuse these laws to prosecute when dealing with critical voices in their countries, as we see with most authoritarian initiatives in our research. Examples of such initiatives are Zimbabwe's Cyber Crime, Cyber Security and Data Protection Bill, Tunisia's Enforcement of Article 80 of the Constitution and Nicaragua's Cybercrime Laws. The aforementioned examples are initiatives put in place by countries rated as "not free" or "partially free" in the Freedom House Democracy Index.

As with any study, our approach has its limitations. While mapping disinformation responses on a global scale, we did our utmost to locate initiatives taken on other continents as well. However, as a research team based in Europe and given language diversity, it proved hard to identify all initiatives. In short, there is a real chance that our overview missed initiatives. For instance, accounts of enforcement were hard to come by, for which we mainly relied on local and international press. Due to limited (human) resources, the database of initiatives unfortunately has also not (yet) been updated beyond 2021. The quantitative nature of this research reveals many differences between countries and their approach. However, a qualitative analysis would be needed to obtain a more nuanced picture. While our analysis focuses on the trends, case studies into categories or sets of country responses would bring out the unique context of such initiatives, such as their interrelation with other policies and societal drivers. One such example of further research could explore the dimension of media freedom by mapping countries' disinformation responses against media ownership, diversity and (ethical) self-regulation.

5. Conclusion

In this article, we explored how different governments combat online disinformation and if there are significant differences between authoritarian and democratic governments in their focus and approach. Our analysis shows that government initiatives to counter disinformation are on the rise, with the big surge starting in 2016. In particular, the US presidential elections and the Brexit referendum prompted concern on foreign interference in democratic countries. Further, there is a clear increase in initiatives as a response to the COVID-19 virus outbreak and disinformation associated with the pandemic. We observe this rise worldwide and across countries with different forms of government.

There is however a difference in response between democratic and authoritarian governments. Our multivariate analysis considered whether country characteristics

can help us understand which countries take which initiatives. In line with our expectations, we established that the economic capabilities of a country indicate more diverse initiatives to combat disinformation while the democratic character and the level of press freedom in a country are indicators of the type of initiatives a government is likely to take. Democratic governments unsurprisingly seek to set in place initiatives that safeguard democratic institutions such as elections. The higher the press freedom in a country, the more likely governments will put in place factchecking, investigative, curational, and ethical and normative initiatives. We have not found sufficient evidence to suggest that democratic governments are more likely to introduce initiatives and laws to counter disinformation, however, democratic governments offer a wider variety of initiatives and laws compared to their non-democratic counterparts..

Since the last report of Bontcheva et al. (2020) we introduced a new category (COVID-19 specific) and noticed that initiatives to counter disinformation surrounding the pandemic were widespread and were regularly found in both democratic and authoritarian countries. Equally noteworthy is the fact that both democratic and authoritarian governments were inclined to combat the "disinfodemic" with (restrictive) laws. This could be due to the quick reaction time needed in the face of a global pandemic threatening public health, or the sheer risk of widespread contamination of the people due to them being ill- or misinformed. It opens the path for successive research to explore governments introducing (non) legislative initiatives in various situations and contexts. While the reaction to coronavirus disinformation is mainly characterised by introducing legislation, the reaction to the rampant disinformation during elections and referenda in the West was answered with both non-legislative initiatives, as well as, putting enforceable laws in place. In the context of increased regulation of tech platforms in Europe, the repurposing of interventions and narratives to tackle disinformation, for instance as they relate to online content moderation, should be monitored. Not addressed in this article, yet equally important are the multitude of reasons underlying belief and spreading of disinformation. Are government responses to online disinformation addressing questions of trust in politics, science and technology? Democracies' openness to opposition, resistance and critique is an unequivocal part of freedom of opinion and expression. This makes them vulnerable to disinformation (Faesen et al., 2021), yet let us not forget that in the empowerment of critical thinking and education of media and information literacy also lie the greatest resilience to deception and disinformation – also online.

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