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Do Autocratic Regimes Excel in Natural Disaster Relief? A Case Study of Political Institutions and Covid-19 Exposure

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DO AUTOCRATIC REGIMES EXCEL IN NATURAL DISASTER RELIEF? A CASE
STUDY OF POLITICAL INSTITUTIONS AND COVID-19 EXPOSURE

By
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A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the
requirements of the Sally McDonnell Barksdale Honors College.

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ABSTRACT

The COVID-19 pandemic of 2020 has challenged what we know about the politics of public health. In this research study, I investigate the COVID-19 pandemic as a natural disaster and hypothesize if authoritarian governments are more adequate at disaster control and relief. I hypothesize that the more autocratic a government structure, the better they would be at handling COVID-19 exposure and outbreaks due to their centralized decision making, unified media, and their ability to make unpopular decisions without repercussions. In order to test this theory, I gather data from the Johns Hopkins database for three key dates in the pandemic time frame. With this data, I created three regression analyses using the statistical software, R. My analyses show that there was surprisingly no correlation between government structure and covid exposure. In my conclusions, I find that the government structure has no significant impact on how countries handled the COVID-19 pandemic.

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Section 1: Introduction

In early March of 2020 the first case of the novel COVID-19 entered the United States. Shortly after, the world began to change forever. Phrases like quarantine, social distancing, and "six feet apart" became present in everyday casual conversations. As the world began to adjust and figure out the best way to keep people safe, there were massive differences country by country in deciding how to handle the pandemic, having never seen anything like this before.

In China, cases began to spike, streets became empty and hospitals filled to maximum capacity. In the US at this time we saw very few cases. That quickly began to change as COVID-19 first appeared in Washington state. Over the next few months COVID cases skyrocketed across the world while everything remained shut down. As summer approached, cases skyrocketed even more in the United States, Europe, and India while other countries like China began to steadily decline.

This apparent trend in COVID-19 exposure and how quickly each country was able to control the spread, sparked my thought that maybe government structure has a systematic relationship with how successfully each country handled this natural crisis.

In this thesis, I build on natural disaster literature to define COVID-19 as a natural disaster. I then use that literature and quantitative data to argue that autocratic countries are better at handling natural crises, specifically the novel COVID-19 crisis. Autocracies are more effective at handling natural disasters due to their qualities of centralized decision making, unified media, and their ability to make unpopular decisions without repercussions. I apply these characteristics of autocracies to the COVID-19 pandemic of 2020 in order to argue that autocracies should be more effective at handling COVID-19. To test this hypothesis, I gather data on COVID-19 cases from the Johns Hopkins database. I pair this with data on democracy and conduct empirical testing in the statistical software R.

In an interesting discovery, COVID-19 does not follow similar trends of disaster recovery in autocracies, and I am unable to find support of a significant relationship between government structure and COVID exposure. At the beginning of the crisis, on March 1, 2020, I saw in my regression analysis that democracies had significantly fewer covid cases, but as the crisis significantly progressed and cases skyrocketed, I eventually see that there is no relationship. This is important because it shows that while those particular qualities of autocracies can play a role in some natural disasters, in the COVID-19 pandemic government structure played no role in how successful a country handled COVID-19 exposure.

In the following thesis, I will use literary analysis to build the argument that the COVID-19 is indeed a natural crisis and that authoritarian regimes have had an advantage in the past when it comes to successful disaster relief, in comparison to democracies as described in Section 2. In Section 3, I will argue that due to the nature of autocracies, they were more equipped and more likely to handle the COVID-19 crisis. Following that argument in Section 4, I use statistical analysis to graph levels of democracy using the polity scale, various countries COVID exposure rates over the past year, and control all other variables that could potentially affect exposure and disaster relief. In Section 6, when I present my results, I found that while there was potential correlation in democracy in early March, as COVID-19 progressed and exposure increased there was no significant trend with democracy levels and COVID exposure. I do however, see correlation between certain control variables and COVID exposure that will be further expanded on in Section 6.

The purpose of this study is to analyze what it is about autocratic regimes that make them more effective at handling natural disasters, and then use this information to potentially implement strategies reflective of these qualities in the future in more democratic regimes. By using COVID-19 and analyzing what contributes to outbreaks and exposure, one can use this information to slow the spread of the virus and alter response accordingly. COVID-19 took millions of lives and continues to plague the world with

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illness. In the following study, I can better understand what affects recovery and what qualities of governments influence COVID exposure.

Section 2: Literature Review

When investigating disaster response, defining disasters is crucial, yet challenging. As I approach disasters, there needs to be a common definition that encapsulates many disasters as well as categorizes them in a cohesive manner. *Quarantelli, Lagadec and Boin* state that disasters are disruptions to society caused by critical events, and the best way to categorize them is according to their cause (Quarantelli Lagadec & Boin 2007). Contributing to that definition**,** *Nel and Righarts (2008)*, define the most common type of disaster, natural disasters, by stating that natural disasters are, "nature induced cataclysmic events or situations which overwhelm local capacity, often (although not necessarily) resulting in a request for external assistance" (p.162).

I use this to define disasters seeing as it is important to acknowledge that natural disasters come in many different variations. For example, there are natural disasters such as climate-related events (hurricanes, floods) and geological-events (earthquakes), but also other types of disasters such as insect infestations, and epidemics. Yet, something important when investigating disaster response, is to also categorize events based on their severity. Research done by *Quarantelli, Lagadec and Boin,* shows that these "novel crises" have three things in common; both affect political government on a national and international level, they spread quickly, and there is no clear point of origin. Novel crises are those where there is little past experience to draw on, so the response is even more challenging (Quarantelli Lagadec & Boin 2007).

Studying disasters is difficult due to the long-term effects of disasters and how different each time span is. Recovery can take years or even decades, and is dependent on government structure, the type of

crisis, the location and so much more. In this thesis, I focus more on government's short-term response to disaster rather than long term recovery (infrastructure, funding, etc.)

As I begin to discuss disaster and government response it is important to analyze the main differences between autocracy and democracy. When analyzing these main differences, it is important to identify what it is about the characteristics that contribute to making these structures different in disaster responses. Democracies are systems of government that are controlled by officials that are elected by the whole population. Democracies are defined by accountability and free speech. "In democracies, major emergencies require involvement by multiple jurisdictions and many levels of representative government. Coordinating among these often overlapping and contentious jurisdictions can be difficult. Politicians must identify and justify priorities and actions to local leaders, the public and the mass media" (Schwartz, 2012, p.314). Besley and Burgess also mentioned the active nature of the press and media in natural crises (Besley & Burgess 2002).

Autocracies are systems of government that are controlled by one individual with absolute power. Autocracies are defined by their central power, lack of elections and controlled media by that one individual power. As I investigate government response and natural disaster further, these qualities will help analyze why it is certain government structures are better equipped for swift response.

Section 2.1 Government Response to Natural Disaster

Government structure plays a massive role in the response to natural disasters. The severity of said disaster directly correlates to government response, and when analyzing why governments respond, their structure will play a largely contributing role. Assuming politicians are self-interested actors who want to maintain power, I immediately see a difference in a democratic and autocratic response. Democratic leaders are held accountable in disaster relief by voters demanding accountability. *Sen* makes

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the argument that famines never occur in democracies because leaders have incentives to undertake famine/disaster prevention (Sen 2001). However, *Cohen and Werker* argue that while citizens don't hold governments accountable for preventing disasters, they reward politicians when they respond with government aid. Because of this, voter approval impacts how generous democratic governments are regarding relief (Cohen and Werker 2001).

This implication from the necessary voter approval, is not a contributing factor in autocracies. Seeing as voter approval incentivizes democratic leaders to care about disaster response, is it important to find what incentivizes autocratic leaders. Autocratic leaders still care about disaster relief due to their desire for positive growth in a long time-horizon. Autocratic leaders are also held accountable in a potentially more violent way, with protests and riots with the threat of being deposed. *Olson and Wright* suggest that autocrats should care about disaster response because they care about the overall wellbeing of their constituency, as a way to extract money in the future (Olson 2000) (Wright 2008).

The level to which autocratic leaders care is correlated to their time-horizons. *Wright* claims that dictators when obtaining a long-time horizon, have a greater incentive to invest. The longer than they are secure in office without complications, the more incentive to build on their successes. They face challengers when they have a short time horizon causing alternative decision making. Wright states that these short time horizons lead to selfish motives to gain personal wealth in case of collapse. Data shows in Wright that long time horizons create positive growth while short horizons create negative growth due to issues such as repression and private pay-offs. Low probability of regime failure indicates positive growth. Time horizons also play an impactful role in obtaining foreign aid, as discussed by Wright (Wright 2008).

Section 2.2: Authoritarian Advantage in Disaster Response

All autocracies are not the same, and identifying how their leader's backgrounds affect regime behavior and response to disaster is incredibly important. Just like democracies vary in their electoral rules and practices (ex. majoritarian vs. proportional representation), autocracies also vary in systematic ways. For example, *Weeks* theorizes about how autocrat's personalities vary, and how this can have important implications for foreign policy outcomes like conflict (Weeks 2001).

Authoritarianism has many characteristics that are not ideal in the sense of freedom and democracy that I see in many democratic governments today, however they have an abundance of traits that are superior to other structures in disaster relief. The authoritarian advantage, as discussed by *Schwartz* is suggested to be the "sole casual variable for successful pandemic response" (Schwartz 2012). *Schwartz* defends this claim by using a case study on the responses comparatively by the Taiwan and China governments to the SARS pandemic in 2003. This comparison is extremely useful in the proximity of the two states, with such different government structures. As discussed by Schwartz, "identifying the challenge, engaging relevant bureaucracies, implementing a response, communicating the nature of the crisis and responding effectively to the public" (Schwartz 2012 p.314), These are the necessary steps to handling a disaster effectively. Autocratic governments are structured in such a way that communicating effectively and cohesively to the public in a crisis like this, is a strong suit and one we don't see in democracies.

I see in Schwartz a direct example of an issue an authoritarian structure wouldn't have to face, "Due to the relative lack of public confidence in the leadership in Taiwan, government leaders hesitated to act strongly against the SARS outbreak for fear of alienating the voting population" (Schwartz 2012 p.324). Schwartz identifies three main factors needed to respond properly and efficiently in public health crises: centralized decision-making powers, public support, and the government's ability to shape the tone

of the crisis in the media. Shown clearly in the case study, authoritarian structures have the advantage in having centralized decision-making powers and the ability for the government to shape the tone of the crisis. As far as public support goes, shaping the tone in a specific way can help increase public support (Schwartz 2012).

Flores and Smith find that the occurrence of anti-government protests and political survivor of leaders is correlated to the death toll. In autocracies, the death toll doesn't have a strong impact on political survival seeing as accountability is not nearly as prominent in these government systems. Small coalition systems have little incentive to protect citizens from disasters as it doesn't affect them particularly directly. *Flores and Smith* find that autocrats shouldn't care about disasters because the death toll doesn't lead to increased protests in autocracies, but that doesn't mean that there aren't other mechanisms that incentivize autocrats to care (Flores & Smith 2012).

Disaster governance can even impact conflict in countries, post-disaster. Natural disasters can greatly affect and contribute to conflict both on a domestic and international level. One way that citizens might be able to hold autocratic leaders accountable are protests and riots. The threat of being deposed, may make autocratic leaders do what their citizens demand. For example, *Desportes & Hilhorst* find that in autocracies, natural disasters can lead to civil conflict, which isn't good for autocratic leaders. Desportes and Hilhorst then discuss how low intensity conflict can be escalated by disasters… "Low-intensity conflict is characterized by intense political tensions and violence that is more readily expressed in ways other than direct physical harm," say Desportes and Hilhorst (Desportes & Hilhorst, 2020, p.343)**.**

Lastly, I find that the citizens themselves find increased solace in autocratic structures in comparison to democracies, when it comes to times of turmoil. Literature by *Miller* shows that even, "citizens prefer authoritarian rule when the economy and society are in turmoil" (Miller 2016), which helps to understand why some may support an authoritarian structure and the way it may succeed in

comparison to democratic structures. *Miller* shows that citizens, in a time of economic threat, would rather have a centralized strong leader with considerable discretionary authority as opposed to a democracy (Miller 2016).

Section 2.3: Obstacles in Disaster Relief

Disaster relief in democracies can and does become extremely political, especially at the international level. In democracies specifically, there are many elaborate decisions to be made by many people which can impact disaster relief greatly. *Garrett and Sobel* claim, **"**we examine whether congressional and presidential influences affect the rate of disaster declaration and the allocation of federal disaster relief payments made by the FEMA*"* (Garret & Sobel 2002 pg. 3). The activities of FEMA are subject to congressional oversight by several committees. The president must declare something a disaster in order to grant funding but there is no specific framework when declaring a disaster.

I use data by *Garret and Sobel* to find evidence that states in which politicians have support from get more disaster declaration, especially in election years. This helps us support the claim that democracies handling of natural disasters can be further motivated by political gain to the extent where granting may or may not be provided. "We find evidence that disaster declaration and the level of FEMA disaster expenditures are both politically motivated. These findings cast doubt on FEMA's altruistic goal of financial assistance to those most in need and questions the role of government vs. private agencies in providing disaster relief" (Garret & Sobel 2002, p. 22).

These very prominent factors play a huge part in how democracies struggle in comparison to autocracies. When democracies have to wait for funding or agreement from many conflicting political groups, the time constraints on needed relief become an issue. Similarly, political motivations behind funding to certain areas, as well as political competition stand in the way of disaster relief. This however,

is something only shown in democracies seeing as autocracies don't deal with the implications of free and fair elections.

Section 3: COVID – 19

The literature has articulated several reasons why autocratic governments might have an advantage in disaster response. In this thesis, I build on previous work to argue that autocratic governments should have an advantage in responding to the COVID-19 pandemic. As I begin to analyze the characteristics of the 2020 COVID-19 pandemic, I can better understand why some countries provided disaster relief that was swift and lasting in comparison to the US, India, and Brazil's response.

A pandemic is the worldwide spread of a new disease. Beginning in China, spreading rapidly to Europe and then to the United States, COVID-19 quickly became a worldwide issue. There are many different types of COVID-19, and the one I will be researching as a part of our argument is the SARS-Cov-2. For the sake of ease, I will refer to it in this paper as COVID-19, and the coronavirus. This virus has caused a worldwide pandemic and its symptoms are potentially deadly. COVID-19 is a respiratory illness that causes an abundance of different symptoms, varying with each individual. Because of an incubation period of 2 to 14 days, COVID-19 is alarmingly dangerous, especially to those with compromised immune systems.

According to Johns Hopkins Medicine, COVID-19 appeared in Wuhan, China in December of 2019. COVID-19 was hypothesized early on to be linked to a seafood market in Wuhan, China. COVID-19 originated in China and then began to rapidly spread throughout the world. As discussed prior, because the coronavirus has such a differentiating incubation period with each individual, the spread and contagion capacities are alarming and new.

COVID-19 has brought about an abundance of challenges to every state as the incubation period, symptoms and more information is being discovered every day. As a virus with so little consistency and a non-stop growing pandemic, the coronavirus has brought about massive complications for individuals' health, the economy, and the political world.

Over two million people have died as a result of the COVID-19 pandemic so far. On March 13, 2020, "The U.S. Centers for Disease Control and Prevention (CDC) reported 1,678 cases of the coronavirus, an increase of 414 cases from its previous count, and said that the number of deaths had risen by 5 to 41. The agency said the cases had been reported by 46 states and the District of Columbia, up from its previous report of 42 states and the District of Columbia" (reuters.com). Little did we know, in February of 2021, there would be 114 million cases of COVID-19 reported worldwide. The COVID-19 pandemic took the entire world by surprise and the uncertainty of the disease combined with the rapid spread of the virus left the world unsure of many things. How to handle the outbreak, how to keep people alive and how long this would be an issue for.

On the global scale, nearly one full year after the first shutdown due to COVID-19, beginning March 2021 we see three democracies with numbers that rank them in the highest total cases of COVID. Brazil holding around 10 million total cases, India holding nearly 11 million total cases, and then the United States of America almost reaching 29 million total COVID-19 cases. While India and Brazil have recently seen a steady decrease in cases in comparison to two months ago, the United States sees steadily high cases.

When Quarantelli, Lagadec and Boin defined disaster they mentioned the phrase, "disruption to society". The COVID -19 pandemic to say the least, has been an alarming disruption to society. Not only that, but this virus grew to overwhelm any government's capacity, especially regarding healthcare. Instances that affect both affect political government on a national and international level, spread quickly,

and with no clear point of origin are three factors that disasters have in common. According to this description of disaster commonalities, the Coronavirus falls under each of these categories defining disaster.

COVID-19 has affected politics nationally for every single country differently. Each country has had to make a decision on how to handle the virus in their own specific circumstances and how that will affect their current institutions. There are many different variations in lockdown, such as mandatory quarantine, recommended quarantine and then entire government shut downs. Democratic governments can make the decision to enforce certain restrictions, giving people no choice but to stay inside, but this has limits. Some governments decided to call a national emergency and place a stay at home order, while some only encouraged quarantine. Autocratic governments had more freedom to demand and enforce strict quarantine, without fear of push-back from the people. As a worldwide pandemic, COVID-19 is affecting international politics in an abundance of ways.

Government structure plays a massive role in the COVID-19 outbreak. With so much uncertainty, and the biggest reliance on healthcare that the world has seen to their knowledge so far, how the government chooses to response but also their structure is crucial. Schwartz mentions the most important line of action in disaster response being, "identifying the challenge, engaging relevant bureaucracies, implementing a response, communicating the nature of the crisis and responding effectively to the public" (Schwartz 2012). In order for the communication of the virus and implementing a response to be successful, there needed to be one source informing the state about the facts that they knew in order to avoid speculation. Following quickly, there needed to be a mandatory stay at home period.

Autocracies are better equipped to deal with COVID-19 specifically, due to their nature and structure. The structure of autocracies, while not particularly free and fair, offer immediate decision making with less back and forth as well as a centralized media source. Because of their structure they can

effectively communicate one plan of action and don't have to rely on pleasing their citizens because their leaders are not held accountable through elections. In order to effectively distribute information to inform the masses, autocracies have a huge advantage. Autocracies have the benefit of centralized decision making with one individual or a small group with ultimate power. This is an advantage that they have because democracies have to pass covid relief through institutional structures. This takes time and time is costly in this type of emergency situation.

As far as relief goes from an economic and infrastructural standpoint, centralized decision making is crucial for quick action. As shown in the literature prior, quick and efficient decision making is necessary to get relief on the way. I see a strong issue in democracy displayed by the United States even today through the passing of stimulus checks. Americans who have suffered financially have a dire need for compensation and with the house Republicans and Democrats arguing over the proper amount along with the distribution of it all, people are suffering and time is being wasted. In China for example, the "response to the outbreak was truly a nationwide response: systematic, comprehensive and coordinated. This is why China was able to 'flatten the curve' so dramatically," he said, referring to social isolation measures aimed at keeping the number of coronavirus infections at a manageable level for hospitals and medical workers who would otherwise be overwhelmed with sick patients" (Hjelmgaard, Lyman & Shesgreen 2020). This central decision made in China was incredibly effective at flattening the curve in order to help hospitals catch up. A democracy would not have been able to make a decision like this in a quick enough time frame.

As far as decisions towards financial aid as well as healthcare and infrastructure there is no potential for election favoring in autocracies. Evidence in the literature shows us that elected officials are more likely to provide more aid in election years, as well as to areas that they need more votes from. In autocracies, we don't see this need to please certain groups of individuals for votes but rather a desire

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from leaders to handle the issue and move forward regardless of the opinions of their constituents. Similarly, regarding national lockdowns, autocracies can take the option to force a lockdown without fear of losing office. Lockdown decisions are proven to be extremely unpopular, which contributes to the inability of democracies to control the spread of COVID. Autocracies do not have to worry about making unpopular decisions, helping that decision to force a lockdown.

Media has played a massive role in the COVID-19 pandemic, particularly in the United States. As a worldwide pandemic mixed with the greatest technology age with social media, there is an abundance of information being distributed. Democracies are open to conflicting information due to their systematic nature whereas autocracies with more of a lack of free speech have one central message.

With information evolving every few hours on a daily basis, the potential for misinformation is high, particularly in a polarized political climate like the United States. In order to keep populations safe from the virus, the first call to action was to stay home and quarantine due to the severity, but in democracies the severity was consistently being argued over.

With the freedom of speech in democracies comes an abundance of misinformation, and with the COVID-19 outbreak the US as a country saw more clearly the growing of a post-truth society. "While Facebook, Twitter, and YouTube have all recently ramped up efforts to take down COVID-19 misinformation following public outcry, social media platforms "fall short" when it comes to curbing the flow, said Joan Donovan, who leads the Technology and Social Change Project at HKS" (Pazzanese 2020). An abundance of false information hurt the progress of containing the coronavirus because the individuals reading these sources lose massive amount of trust in the government and had no idea who to believe.

For example, our president at the time, Donald Trump consistently criticized our nations medical professionals who have no reason to lie, for his own political gain. These accusations and mixed opinions

not based in fact cause a massive divide among the people of the United States. Even today we have those who refused to acknowledge scientific proof as a result of politically motivated misinformation provided by the President of the United States. "Fauci's recommendations and assessments have largely been in line with public health experts throughout the coronavirus pandemic but not aligned with what the President perceives his political interests to be" (Klein 2020).

Media had played a huge role not only in the distribution of information, but the advancements in technology helped provided quick recovery measures in China. "Outside, drones hovered above streets, yelling at people to get inside and scolding them for not wearing face masks, while elsewhere in China facial-recognition software, linked to a mandatory phone app that color-coded people based on their contagion risk, decided who could enter shopping malls, subways, cafes and other public spaces" (Hjelmgaard, Lyman & Shesgreen 2020). The Chinese message is coherent, even if politicized, while the US message is divisive and contradictory.

Democracies are incredibly concerned about doing the "hard" thing because of reelection potential. Because public opinion is less important in autocracies, this is less of a concern so politicians have better incentives to take hard actions without fear of reprisal. These hard actions during the pandemic are those of mandatory quarantine. The actions that each government took varied a lot by country. While China instituted very strict lockdowns, the US instituted enforceable at home quarantine. Some countries like Sweden took no lock down actions at all. Even within a federal country like the United States, the response to covid varied greatly by state.

Autocratic governments have had a significant advantage in the COVID-19 pandemic from the start due to their ability to force lockdowns. While unpopular in the moment, this immediate action and mandatory quarantine allowed the virus to die out significantly quicker. Democratic governments don't have this capability which is a disadvantage in times of crises where the state needs to be entirely on

board with one another. Due to democratic accountability in government officials, political leaders need to represent their constituency with the risk of being voted out.

This example of a novel crisis that is COVID-19, more effectively solved in autocracies in comparison to democratic response, advances our argument that autocracies are better suited for handling novel crises due to their structure and nature. Due to autocracies centralized decision making, unified media, and their ability to make unpopular decisions without repercussions they should be better able to handle natural disasters. This is the hypothesis that I will discuss in the next section.

Section 4: Research Design

I hypothesize that due to autocracies centralized decision making, unified media, and their ability to make unpopular decisions without repercussions, autocracies should be better able to handle natural disasters. This is the hypothesis I will discuss and analyze in the next section.

To test this hypothesis, I focus on the literature on autocracy and democracy and what attributes of those structures affect successful disaster recovery. I build on this literature to test these predictions in a recent and novel crisis – COVID 19. I seek to compare exposure rates across countries based on their level of democratic institutions, controlling for other factors that could impact my main variables. I will measure the level of democracy using the polity scale, and use the specific dates of March 1, 2020, September 1, 2020 and March 1, 2021, to gather COVID exposure numbers for my dependent variable. In evaluation of my hypothesis, I employ regression analysis run in the program R. Regression analysis will allow me to view the independent variable, and hold all other variables constant. R will be particularly useful because it will allow me to control for many external factors that could potentially impact COVID exposure.

Section 4.1: Dependent Variable

My dependent variable is COVID-19 exposure, which varies significantly across different countries. The dates that will I use for the dependent variables are March 1,2020, September 1, 2020 and March 1, 2021, and I measure COVID-19 exposure in all of the countries for which I have data on this specific date. In order to find the data of covid exposure, I use the Johns Hopkins data set which has been updated and maintained since January 22, 2020. "JHU updates its data multiple times each day. This data is sourced from governments, national and subnational agencies across the world" (ourworldindata.org). This data set is not only incredibly reliable but it is, "maintained by a team at its center for systems science and engineering (CSSE)" (Ritchie n.d.).

Seeing as institutions don't change, I picked 3 moments in time. Its challenging because the numbers have ebbed and flowed, but these specific dates were chosen due to the time frame of the first reported COVID cases. In the fall of 2020, Coronavirus had been present in the United States for about six months and worldwide for about eight. March 1st, 2020 is the first date because it was when the coronavirus first gained worldwide reports. I chose the second date of September 1, 2020 in order to gain data and perspective of where the world was 6 months later. Finally, the date March 1, 2021 offers a unique perspective of the status of the world was a full year later. This gives a timeline of initial response, a few months for each institution to figure out about the virus and a plan of action, and then viewing the effects of those actions. The world saw countries begin to lower their cases and get disaster relief on the way around this time, while other countries continued to suffer and cases continued to grow.

There are some limitations when using COVID-19 exposure as our dependent variable. For example, testing varies in each state and while some institutions can demand testing, others cannot which can potentially alter the data. I specifically chose these dates because they were before the vaccination period, and then March 1, 2021 was directly after the vaccination period. The dates chosen were

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specifically initially before the vaccination period, and then including one date after the first initial vaccine distribution.

I chose exposure as opposed to COVID deaths because there are many different factors nearly impossible to account for in COVID deaths. It is hard to measure institution relief when it comes to deaths because it's more difficult to measure health care, as well as the other factors that cause death. These other factors could be lack of ability to get health care, development factors and more. Exposure provides the data of spread without the added factors of ventilators, hospital ability, government healthcare funding and more.

Section 4.2: Independent Variable

Our main independent variable is Democracy. The level of democracy is changed state by state and democracy is the variable that is extremely important but also very difficult to measure. Because democracy is difficult to measure empirically, I will use the Polity IV index which measures democratic and autocratic institutions on a scale of -10 to 10.

To better understand the units of measure I must first explain what the Polity Scale is. The Polity project is the most widely used method for measuring levels of autocracy as well as regime. "The "Polity Score" captures this regime authority spectrum on a 21-pont scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy)." This means I can uniformly place countries into categories of "autocracies" (-10 to -6), -anocracies (-5 to 5) and democracies (+6 to +10). Lower scores are more autocratic and higher scores are more democratic (Marshall, Gurr & Jaggers 2015).

The polity scale is based on the more core characteristics of autocracies and democracies. For democracy, these elements consist of, "the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders, the existence of institutionalized

constraints on the exercise of power by the executive and the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation" (Marshall, Gurr & Jaggers 2015). For autocracies, they are defined by how they, "restrict or suppress competitive political participation. chief executives are chosen in a regularized process of selection within the political elite, and once in office they exercise power with few institutional constraints. Most modern autocracies also exercise a high degree of directedness over social and economic activity, but we regard this as a function of political ideology and choice, not a defining property of autocracy" (Marshall, Gurr & Jaggers 2015).

Each of these qualities has a ranking in number which is how they are empirically defined in the polity scale. This polity scale is indicative of all of the attributes that make democracies and autocracies better or worse at handling a novel crisis such as the coronavirus. The most recent update of the polity scale is from 2018. While this is a limitation to some extent, institutions are slow to change. Because the institutional measure precedes COVID-19, we can be sure that the temporal ordering is correct in how the independent variable affects the dependent variable.

Section 4.3: Control Variables

There are many other factors that affect both contagion and democracy, and it is important to control for the effects of these variables to isolate the relationship between COVID-19 and democracy. For my study, the controls will be development, health expenditure, foreign aid and population density.

Development is a very important factor to control for when it comes to democracy. Development is a huge outcome of government structure. The more developed an economy, the more likely that government is to be a democracy. I can measure for development by GDP per capita. Health expenditure also plays a huge role in COVID relief, seeing as how much the usage of masks, sanitary measures, hospital prominence and vaccine distribution impacts the spread of COVID regardless. However, it's not just about being able to buy COVID supplies, but about baseline levels of doctors and machines as well as

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up to date facilities. As well as these factors, it also includes the baseline level of health among the population. Population density can impact COVID exposure drastically seeing as it is a highly contagious disease that is airborne. The closer the population, the easier it is to spend time within six feet of other individuals, increasing the risk of the spread. Especially in population dense cities, factors including public transport can increase transmission possibilities. Foreign aid impacts the ability for states to control covid spread by contributing resources that underdeveloped countries may not have as much access too such as vaccines, masks, cleaning supplies and more.

I will gather data for all of my control variables from the World Bank Development indicators. in order to maximize the number of observations, I use data from 2018, which aligns with when the Polity measure is available. While more updated data would be preferable, these measures give us any idea of countries baseline ability to handle emerging crises.

To account for variation in COVID exposure, control variables measuring development (GDP per capita), foreign aid (net official development assistance as a % of GDP), population density (population per square kilometer), and health expenditure (percentage of total government spending), will be included in the model.

Section 4.4: Method

For my method, I will use a regression analysis. A regression analysis uses statistical methods to estimate relationships between the dependent variable and independent variables. I will use this because it shows the strength of the relationship between said variables to help predict a potential future relationship.

This is the most useful because it allows to control for many external factors. Regression analysis allows me to watch the effects of the independent variable, while holding the controls discussed above

constant. In order to make the regression analysis, I will use the R statistical software in order to input large data sets as well as create the model.

My unit of analysis is the many different countries with different government structures. The approach I will be using is cross sectional and I will look at all of the countries in the world at three separate moments in time (March 1, 2020, September 1, 2020 and March 1, 2021). COVID-19 cases will be measured on this day and the rest of the variables are measured on the yearly level for 2018. Each row in the data is one country at that single time. While each row will be a country, each column is one of the variables. In the next section I will present my results.

Section 5: Graphs and Tables

| DV: COVID-19 Deaths	(1) March 1, 2020	(2) September 1, 2020	(3) March 1, 2021
Democracy	-460.885*	-3005.00	-16810.00
	(250.782)	(10030.00)	(39060.00)
GDP per capita	-0.025	-2.170	-0.6362
	(0.062)	(3.283)	(12.82)
Health Expenditure	325.406	78830.00**	3783000.00***
	(629.336)	(24760.00)	(96150.00)
Population Density	-0.526	12.63	-31.05
	(1.404)	(83.88)	(328.1)
Foreign Aid	-362.543	-27110.00*	-102700.00*
	(527.665)	(13260)	(50900.00)
R²	0.073	0.062	0.1162
Number of observations	58	146	147

(Table 1, Relationship between Democracy and COVID-19 cases)

Correlation between Covid-19 Cases and Democracy
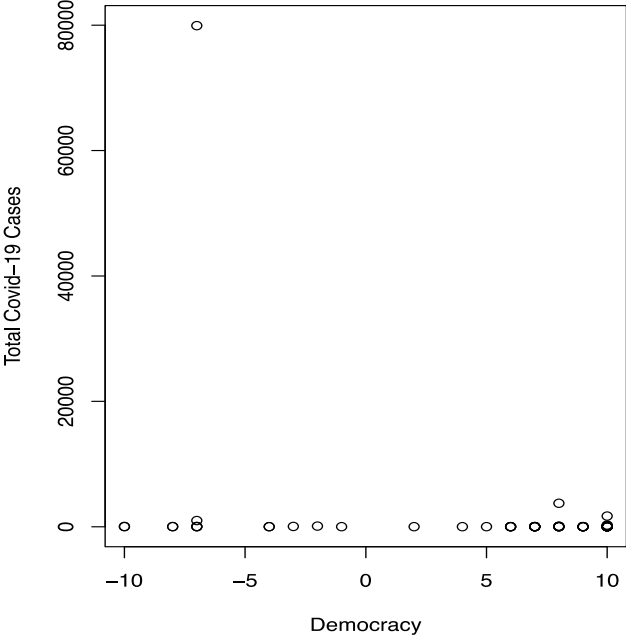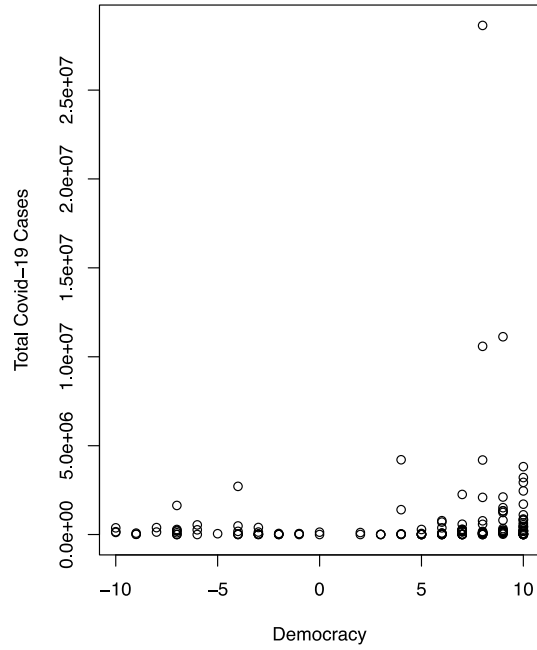

(Figure 1- Correlation between Democracy and COVID-19 on March 1, 2020)

Correlation between Covid−19 Cases and Democracy
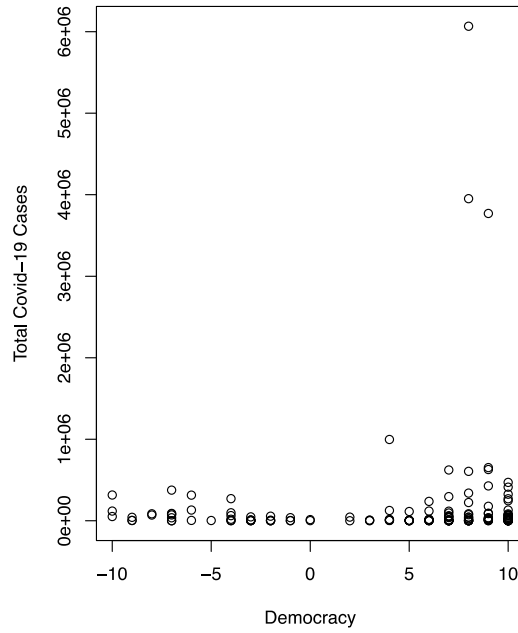
(Figure 2 – Correlation between Democracy and COVID-19 on September 1, 2020)

Correlation between Covid−19 Cases and Democracy

(Figure 3 – Correlation between Democracy and COVID-19 on March 1, 2021)

Section 6: Results

In my results table, I present the data from Johns Hopkins on countries COVID exposure correlated with democracy levels, using the Polity index, holding all other variables (GDP, Health Expenditure, Population Density, Foreign Aid) constant. Each column presents a different date where COVID exposure was recorded, using the dates March 1 2020, September 1 2020, and March 1, 2021. Each row represents a different variable, with our first row as our dependent variable being democracy. In the rows, I have listed the coefficient above, and the standard error following below. Following democracy are my controls which consist of GDP per capita to measure development, Health Expenditure, Population Density, and Foreign Aid. Following those are controls are R^2 and the number of observations. I included these because the R^2 tells us how much of the variation in COVID-19 is being explained by the variables in our model. The number of observations is important because it tells us how much data I have. I can tell that there is a lot more data for the later dates than for March 1, 2020

In March of 2020, for every one unit increase in polity, I see 460 less covid cases. This is significant due to the p level of 0.07, defining significance according to political science standards at $p < 0.1$. There is no other significance for any correlation following democracy in March.

Following March, I review data from September 1, 2020. In this column, there is no significance in the level of democracy and COVID exposure. We infer that this is for two reasons. The first being that there is no true relationship between COVID-19 exposure and democracy. I also find that due to the massive increases creating more data, there is an extremely small chance that democracy has an impact on COVID-19 exposure. I found significance in March 2020 between COVID-19 exposure and democracy most likely because the more democratic countries are located geographically further from the point of the origin of the COVID-19 outbreak.

In September, I see that for every 1 unit increase in foreign aid, there are 27000 less covid cases. While this is not extremely significant, it does hold some significance. A one percent increase in ODA as a percentage of GDP, leads to 27,000 less COVID cases holding all other variables constant. As well as net ODA, we see an extremely significant relationship in health care expenditures and COVID cases. For every 1 unit increase in health care expenditures, I see 78,830 more COVID cases. This is particularly interesting seeing as one would normally suspect that more health care would decrease covid cases.

In order for my research to gain a broad scope of COVID exposure possibilities, I analyze data from March 1, 2021, one year following the initial worldwide outbreak. In March, similar to September I see no significance in COVID exposure and level of democracy, further leading us to believe that government truly has no effect on covid relief and exposure. Similar to September, I find that health expenditure is extremely significant in relation to COVID exposure, and that as countries health care expenditure goes up, COVID cases increase as well. This is likely the case seeing that the European countries generally spend more on health care, so happened to also have incredibly high covid exposure. Foreign aid is somewhat significant in March 2021, as we see foreign aid increase, coronavirus cases decrease a small amount.

To look at these results a different way, I graph the basic correlation between democracy and total COVID-19 deaths for the three selected dates in Figures 1,2 and 3. In each figure Democracy is on the X-axis and COVID-19 deaths are on the Y axis.

Starting with the Figure 1, which shows the correlation on March 1, 2020, I see a single outlier in this graph, which is China. China is an autocracy and had a number of COVID cases that was significantly higher than any other country. This might be why I find that democracies do better with COVID cases on March 1, 2020.

Following the discovery in March 2020, I thought it was significant to test the data in September. Figure 2 shows that coefficients are much higher here, as are the total number of cases which is why we re analyze. I see in September when I analyze Figure 2, that I don't find a relationship because there are many outliers, the United States being a peak outlier.

Lastly, I see in Figure 3, the results from March 2021. These results are very similar to September, in that there is still no significant correlation between COVID exposure and democracy. Figure 3 shows similar outliers to Figure 2, but with overall less cases as a whole, most likely due to the beginning of vaccinations as well as a long enough time frame for countries to gain more control over the spread. With more cases to gather data from in September and March 2021, I find the outcome that levels democracy doesn't impact COVID exposure consistent and reliable, proving my thesis incorrect.

Section 7: Conclusion

COVID-19 meets my definition of a natural disaster as it is a novel crisis and has affected political government, spread very quickly, and there was no clear point of origin. Upon reviewing literature regarding authoritarian societies and their advantage in handling natural disasters, as well as the nature of crises themselves, I hypothesized that due to the nature of authoritarian governments, they would have an advantage in handling the coronavirus pandemic of 2020. While autocratic regimes are known to handle natural disaster better due to their attributes, that is not the case in the COVID-19 pandemic.

I test my argument through creating multiple regression analyses with the statistical analysis program R, including variables of COVID exposure, levels of democracy on the polity scale and multiple control factors. I use this data to graph 3 figures showing each countries COVID exposure rates in each month chosen. Much to my surprise, I found that there was no correlation between the handling of

COVID-19 and government structure. While I expected there to be correlation between government structure and the outcomes of COVID relief, there was no correlation with either democracies or autocracies. I saw a slight significance in March 2020, but realized in both September and March 2021 as data grew stronger and COVID-19 remained prominent in the world, relief and ability to lower cases had nothing to do with levels of democracy.

This means for the real world that there is a significant amount of research that still needs to be done on what caused such a drastic difference in other countries handling the COVID-19 pandemic. China and the United States are definitely outliers when it comes to examining this data. It is possible that government structure affected both of these large countries, but not in a consistent way that created a trend in democracies and autocracies worldwide. It is also possible that different types of democracies and autocracies held attributes that affected the response to the COVID-19 pandemic.

Due to the consistent findings as proven in the literature about disaster relief in autocracies and the reasons they are more effective, I find it intriguing that although COVID-19 is a disaster, the results did not show strong significance with democracy and exposure. I attribute this to the very unique and sporadic nature of COVID. In order to help learn more about these results, I could potentially study specific countries COVID-19 containment procedures and how they varied, and then compare those with each other while looking how the number of cases changes over time. This could potentially be extremely important research due to all of the harm that this pandemic has caused both to the lives of millions but to the economy and development as well.

This pandemic took over 2.5 million lives, and has made tens of millions of others very ill. Apart from the crippling humanitarian aspect of health issues that this pandemic caused, there were countless businesses lost as well as massive unemployment, creating an abundance of economic issues. The world will never be the same after the COVID-19 pandemic, and while we will forever be more equipped for

unexpected change, future research must continue in case of another crises like this. With planning, research, and prevention methods, another crisis like this can either be averted, or more quickly handled. Further research regarding government structures and effectiveness with solving natural disasters in general should be explored. It is incredibly important to explore how to better solve pandemics and how to take the best course of action for the health of others but also how to save countries economic and developmental health. The most effective means of dealing with a pandemic are necessary for exploration so if something similar were to happen in the future, all of the wreckage from the past year could be minimized or avoided. Similarly, in studying what affects disaster relief and controlling the effects of natural crises, we as a world can better approach future crises with similar natures.

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