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Democracy and Covid-19: How democratic values did (not) shape Covid-19 response policies

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Democracy and Covid-19

How democratic values did (not)
shape Covid-19 response policies



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Foreword

This thesis: Democracy and Covid-19. How democratic values did (not) shape covid-19 policies is the final product of my master Public Administration: International and European Governance at the Leiden University. When I started this master in the summer of 2020 I did not expect it to finish my master during corona-times. I absolutely did not expect to write a whole thesis on Covid-19. During the time of my master study the tables have turned and I got interested in the coronavirus and the belonging policies. I got interested in how these pandemics arise and how we can battle against it. The coronavirus also opened my eyes that if we continue to handle the earth and animals as we do today, pandemics are likely to happen more often. That insight made it even more interesting to write a thesis about this theme for me. And so it happened that this thesis is about Covid-19. Although it was a struggle sometimes, I also enjoyed writing it and put my knowledge in practice. It took longer than expected. The extra time I took was very valuable with an internship at the Dutch Ministry of Agriculture, Nature and Food Quality, but I am happy to have finished my thesis by now. After writing this thesis and now almost 2 years into the corona pandemic, it is also safe to say that I am more than tired of Covid-19, so let us all hope that Corona will be gone soon.

From this place I would like to say a word of thanks to those who supported me with my thesis. First of all, my supervisor Simon Vydra, who took the time for all meetings and has provided me with valuable feedback. Thank you for the feedback, even though it lasted longer than we both wanted. I would also like to thank my fellow students of this capstone group. Especially Bob Keim, with whom I was in the same subgroup. We have provided each other valuable feedback, which helped me to improve my thesis. Special thanks also to my housemates, who sometimes proofread my thesis and in general for the sphere in house now it is all working from home. Last but not least, a special thanks to my parents and sisters who supported me with everything and to whom I could always fell back when something went not as it had to go.

For now, I wish you joy in reading this thesis and take care of yourself and your beloved ones in times of Corona.

Thijs Vreugdenhil, January 7th, 2022

Abstract

Since December 2019, the Covid-19 pandemic is travelling around the world. In the first waves, governments are struggling how to deal with the pandemic. Each government has their own view on the coronavirus and how to battle against it. In whatever way governments fight Covid-19, they have to take into account a number of aspects. One of these aspects is the level of democratic values in a country. In the first part of this thesis, I researched whether or not democratic values, as measured by the V-dem have been shaping the stringency of policy, as measured by the Oxford Stringency Index, in the first periods of the Covid-19 pandemic. It turned out that the democratic values had no statistically significant effect on the peak of stringency in policy. Out of the variables that I controlled for, only the number of Covid-19 deaths had this significant effect. In the second part of this thesis, a small case study was conducted to outlying cases. This case study showed that fear, prevention, a lack of knowledge and the economy interests has driven the initial responses in the Covid-19 pandemic.

Key words: Covid-19 pandemic, pandemic response policy, stringency of policy, democratic values

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Chapter 1: Introduction

In December 2019, the first case of a new coronavirus was identified in Wuhan, China. This virus, which was named Covid-19, rapidly spread around the world. 2 years later, to the best of our knowledge, this virus infected over 270 million people and took the lives of over 5 million people worldwide (John Hopkins University, 2021). It is expected that not all cases are known, and thus estimations are that these numbers are higher. Scientists assume that vaccination is the key to fight the Covid-19 pandemic. In most parts of the world, a vaccination process is in place. However, it may take a long time to get to the necessary minimum vaccination grade.

The lasting of the Covid-19 pandemic has the epidemiological consequences of the risk that new, possibly dangerous mutations can happen (Chutel & Santona, 2021). In 2021, the Delta and Omikron mutations have had a significant influence on the virus and created new epidemiological situations. There are not only epidemiological consequences of the Covid-19 virus. Policies, such as lockdowns, have unintended side effects. Examples of these effects are mental health, regular health, and the economic situation. During the time of the pandemic, significantly more people have reported symptoms of depression (Abbott, 2021). Regular healthcare had to be scaled back. On the one hand, because a patient with Covid-19 symptoms occupies more beds in the hospital, because of social distancing and protective clothing from nurses and doctors. On the other hand, because personnel in the healthcare got sick as well. Therefore, operations had to be postponed. During the first wave (March 2020 – April 2020) the Dutch Health Institute (RIVM) expected a loss of over 50 thousand healthy life years (RIVM, 2020). The exact consequences for the economic situation are still unknown but the International Monetary Fund (IMF) is anticipating for the biggest economic crisis since the great depression in the 1930s (BBC, 2020).

There is a long list of possible measurements that are expected to be helpful in the battle against the spread of the Covid-19 virus. These measurements include lockdowns, curfews, travel restrictions, restrictions on gatherings, physical distance, wearing face masks, and more. These measurements can be seen as a toolbox to fight Covid-19. Governments choose measurements from this toolbox to fight Covid-19. The policy cocktail differs per country. Whereas for example in the first wave of Covid-19 France had a very strict lockdown, while at the same time Sweden had no lockdown at all (Egger, Magni-Berton, Roché & Aarts, 2021). Reasons why policy is different can probably be seen in the differences in numbers of confirmed cases or deaths, but also in population density, the Gross Domestic Product (GDP), or the median age in a country. The possible policies also have their own unintended consequences.

In any case, the implementation of any policy is a trade-off. Not only between the (unintended) consequences but also between the values that are considered important in a country. In western countries, these values often align with democratic principles. A curfew or a lockdown may limit the right or value to move freely. In each measurement, a trade-off is present. What do we value more, the right to move freely or the right to medical healthcare? It is a constant trade-off between freedom and security that is present in all the Covid-19 policies. To what extent can the freedom to move be limited in order to ensure public health safety. How willing is a government to limit democratic values, which are sometimes ensured in the constitution, to meet their goal to keep their citizens safe? The consideration that these democratic values and type of government has some influence on the pandemic response policy in a country has led me to the following research question:

“How does the type of government influences the stringency of pandemic response policy?”

There is no right way, no handbook, on how to handle a pandemic. This is partly because there is a lack of knowledge concerning these pandemic policies. Since the Spanish flu, which is considered as the *mother of all pandemics*, killed 50 million people worldwide between 1918 and 1920 (Taubenberger & Morens, 2006 p.70), Covid-19 is only the 8th pandemic (LePan, 2020). Among the earlier pandemics are the Asian Flu, Hong Kong Flu, HIV/AIDS, Sars, Swine Flu, and Ebola (LePan, 2020). These earlier pandemics required different approaches because they had their own level of infectiousness, transmission, and a different geographical spread.

Of course, most countries may praise themselves lucky that they do not have earlier experience in pandemics policy. This lack of experience also brings along a lack of knowledge. This lack of knowledge is relevant because it is argued that countries who suffered more from the SARS outbreak (2002-2004) were better prepared for the Covid-19 outbreak (Basher & Haque, 2013, p.13).

It is relevant to have knowledge on how the type of government influences the stringency of pandemic response policy here. In 2007 already, the World Health Organization (WHO) declared pandemic influenza as the most feared security threat of the 21st century (World Health Organization, 2007 p.45). The questions scholars are asking is not if a new pandemic will occur in the future, but when, where, and how a new pandemic will occur. The WHO refers to this unknown disease as *Disease X*. New outbreaks of a *Disease X* are inevitable and, because of globalization, the threats of it spreading around the world are greater than ever before (Iverson, 2020 p. 758; Mooney, 2021). This insight makes it particularly valuable to know what policy response can be expected in a new disease and what possible consequences this policy will have.

In this thesis, the focus will be on the first wave of the Covid-19 pandemic. The choice for this time period is that this will show us the initial approach of countries. Governments had to act without much time, because the situation was urgent, and often also without all the necessary knowledge of the virus. The first, initial response therefore tells us if a government takes the approach to have as much business as usual, or takes an approach to protect its citizens against all costs. It may therefore give us insights in how new pandemics will be battled in the beginning. We can even see this with the new mutations of the coronavirus. In November 2021, a new phase began, when the new Omikron-variant was discovered (Huyghebaert, 2021). This new situation is similar to what we can expect with a new pandemic, and the uncertainty and measurements that came along. There is a good opportunity that similar situations will arise again in the future (Koopmans; in Bohlmeijer & Oudman, 2021, 0.32-1.43). The period in which countries experienced their first wave depends per country.

In March 2020, the Oxford University introduced a stringency index (Nederlands Juristen Blad, 2020). This index is new in the field of health and shows the stringency of the policies in different countries. Measures, such as travel restrictions, curfews, and many more are combined to a single stringency value. It makes it possible to compare the stringency in different countries. A great number of democratic indexes have also been in place. A number of democratic values and principles are measured and combined together to give a value to the democracy in a country. In this thesis, I will make use of the V-dem Democracy Index.

These indexes will be used in this thesis. The conducted research will have a mixed-methods approach. This means that both a quantitative analysis as well as a qualitative research will be conducted. First, in the quantitative analysis, different datasets are combined to research a potential correlation between the democratic values and the stringency of pandemic response policy. Afterwards, the qualitative analysis will consist of a small number of case studies. Cases will be selected based on the quantitative results. The outliers of the quantitative analysis are interesting and will be researched further. A more in-depth description of the chosen methods will follow in the methodological chapter.

The structure of this thesis will be in the following way. Chapter 2 will be the theoretical framework. In this chapter, the existing theoretical knowledge will be discussed. This knowledge consists of the democracy and democratic values on the one hand and the pandemic response policy and stringency on the other hand. This will provide a firm theoretical framework that forms the foundation of the expectations and hypotheses that will be tested in this thesis. This chapter concludes with the conceptual model. Chapter 3 will be the methodology. In this chapter, I will elaborate on the used indexes. These indexes are the Oxford Stringency Index for the stringency of policies, and the V-dem democracy Index for the democratic values. In this chapter, I will also touch upon the research methods that will be used in this research. This includes the quantitative and qualitative research methods. For the quantitative research I will also mention the added control variables and defend why I chose the used data. Chapter 4 will be the results section. In this chapter I will first conduct the quantitative analysis and present the results of this. This automatically leads to the case selection for the qualitative analysis. This analysis will also be conducted and presented in this chapter. Chapter 5 is the conclusion of this thesis. In this chapter, the research question will be answered and the hypotheses that were formulated in the theoretical chapter will be assessed. In chapter 6, the discussion, I will reflect on the research I conducted and mention some shortcomings of it. I will also provide a number of recommendations for further research to improve the academic knowledge on this theme.

Chapter 2: Theoretical chapter

In this theoretical chapter, I will provide an overview of the existing literature. I will start with the democracy and democratic values. The definition of democracy and democratic values will be discussed. I will argue which democratic values can be considered important in the light of pandemic response policy and thus need to be measured in this research. In the second part, I will focus on the pandemic response policy and stringency of this policy. Although the literature is limited, I will provide some of the existing knowledge on pandemic response policy. I will also discuss policy stringency and argue which effects can be linked with the democracy and democratic values. The theoretical knowledge of both democratic values and pandemic response policy together will lead to a set of hypotheses and expectations that will be tested in the upcoming chapters of this thesis.

Democracy and democratic values

Democracy is a rather difficult concept to define. The original definition dates back to ancient Greek and means government by the people (Habben Jansen, 2018). However, the understanding of democracy, and its corresponding values has evolved over the last 2500 years. Huntington (1990) describes three waves of democratization. These are periods in which the amount of democracies worldwide increased. The first wave of democratization only started in the late 1820s (Gates, Hegre, Jones, & Strand, 2003), shortly after the democratic revolutions in Western Europe and the philosophical ideas about democracies by philosophers such as Rousseau, Montesquieu, Hobbes and others. Nowadays, there is no single form of democracy (Shell, 1990 p.20). The most common forms in the 21st century are the direct democracy, the representative democracy, and the liberal democracy (Hague, Harrop & McCormick, 2016 p. 40). In a direct democracy citizens express their opinions on an issue directly through voting. This can be done through referendums or popular initiatives (Altman, 2016 p.1209). A direct democracy works best in a small community with a relatively low difference in wealth (Fennema, 2012 p. 9). The issue here is that most countries do not comply to these conditions. Therefore, the most common democratic form is the representative democracy (Bulmer, 2017 p.4). A representative democracy is a democracy in which citizens elect people to govern in their name (Hague et al., 2016 p. 42). A liberal democracy can be seen as a form of representative democracy. Whereas a representative democracy only takes political rights into account, a liberal democracy also takes the civil rights and property rights into account (Mukand, & Rodrik, 2020 p. 770). This limits the power of the government (Hague et al., 2016 p. 44).

Although, there are some differences between these forms of democracy, a number of key democratic values are present in all forms. In the next paragraphs I will mention the cornerstones of inalienable rights, freedom and equality, free, fair and frequent elections, inclusion, and the civil and property rights.

The first cornerstone of a democracy is that humans have inalienable rights (Yang, 2020). There is no wide consensus on what these rights exactly are, but they include at least the following components: freedom, equality, free, fair and frequent elections, popular control of the government, inclusion, and, as said before, the civil and property rights in a liberal democracy (Thomassen, 2009 p.4; Dahl, 1998, as described in Tilly, 2007 p. 9; Mukand & Rodrik, 2020 p. 770).

The second important democratic principles are those of freedom and equality (Thomassen, 2009 p. 4). These are rather broad concepts but both have an important link with the Universal Declaration of Human Rights. The respect for these basic human rights is considered important in democracies (Council of Europe, n.d.) In a broad definition, the principle of freedom exists of the

freedom from and the freedom to. Freedom from is the freedom from constraints by especially the government (Thomassen, 2009, p.7). This also includes the civil liberties as freedom of speech, association, assembly and religion. In simpler words, the freedom from in a democracy entails that citizens have a big amount of freedom as long as they do not harm their fellow citizens and their properties (Okulicz-Kozaryn, 2014). The other freedom is the freedom to. Freedom to is closely related to the freedom of choice. It is defined as the opportunities with mutually exclusive alternatives (Okulicz-Kozaryn, 2014). Equality can be divided in political and social equality. Political equality is easily described as the idea that every citizen has the same equal political rights. This means that members of the community have equal rights in expressing their opinion (Beetham, 2009 p. 282). All votes must count equally (Dahl, 1998, as described in Tilly, 2007 p. 9). In a democracy, the social equality refers to the equality of opportunity. This means that all individuals have the same opportunities to develop themselves (Thomassen, 2009 p.9). Fennema (2012 p. 12) mentions this as equality at the start. This came into practice in the democratic revolutions against privileges of specific groups.

The third principle of liberal democracy are the free, fair and frequent elections. By free, fair and frequent elections, the electoral conditions are specified. Elections can be specified as free if any political party is able to participate in the elections. They should be able to do so with the same conditions as other parties. On the other hand, every voter must be able to vote for whichever party he/she wants to vote without any political pressure. The fairness of an election means the absence of fraud. To ensure that the counting of the votes is fair, this process is usually transparent for observers. International organizations usually sent observers to election to control the fairness of elections. With frequent elections, the interval in which elections take place is identified. Politicians are chosen for a fixed term until new elections. The length of this fixed term may vary. Politicians in the Netherlands are chosen for a fixed term of 4 years, while the Austrian national council is elected every 5 years (Kiesraad, n.d.b; Bundesministerium für Inneres, n.d.). In certain countries, the amount of terms a president can serve is also limited. A US president is only allowed to serve two terms, while there are no limits to the maximum terms in Germany (Economic Times, 2020; Deutsche Welle, n.d.) In case of a fall of the government, elections may take place earlier. These rules concerning the elections are usually secured in the constitution of a country. In democracies, the aspect of popular control of the government can be linked to the principle of free, fair and frequent elections. Popular control means that the government is subject of accountability towards its citizens. In democracies this is embedded through the frequent elections. In these elections, the voters can judge on the policy of the previous time. They can vote in front or against this policy.

A fourth principle of liberal democracy is inclusion. Inclusion means that all citizens are included in the democracy. All citizens who comply to a certain preconditions (e.g. nationality or a certain age) are eligible to participate in the democratic process. This means that no minority groups will be left out, and their rights are equally valued as the rights of the majority groups.

The last principle of liberal democracy are the civil and property rights. Although all rights are important, literature on liberal democracy explicitly points out civil and property rights. These rights are highly connected to the idea of freedoms in a democracy. Property rights protect the properties of citizens. This means that the state cannot take these properties away from its citizens (Mukand & Rodrik, 2020 p.766). The civil rights are to ensure equality and non-discrimination. This means that each individual should have equal access to public goods (Mukand & Rodrik, 2020 p.766). The latter could obviously be a part of the principle of equality at the start, while it also relates to the inclusion principle of the democracy.

Democracies can be categorized in different categories. Here, I will use the categorization provided by Hague et al. (2016). This is the same categorization that is used by the Economist Intelligence Unit in their annual democracy indexes. Their categorization goes from a full democracy towards a flawed democracy, a hybrid regime and an authoritarian regime. The earlier mentioned principles are important in a democratic system and therefore it can be expected that they are protected and respected by democratic governments. These principles will influence the democratic decision-making process and presumably also the pandemic response and strictness policies of countries. In this light, a definition of whether a country can be considered as a democracy or not is useful. In a full democracy, all of the principles are ensured in the constitution and are enforced. The next in line is a flawed democracy. In a flawed democracy, most of the democratic principles are respected but they are not institutionalized. This implies that the democracy is vulnerable for developments that harm the democracy in this country. These lack of institutionalization makes flawed democracy vulnerable for corruption (Nsia-Pepira, 2017 p.65). It is also possible that flawed democracies have some deficiencies in the democratic institutions. The definitions become somewhat complex in a hybrid regime. In a hybrid regime, the institutions have the appearance to be democratic but these institutions are manipulated in a way that ensure that the ruler keeps in power (Hague et al., 2016 p.58). According to Nsia-Pepira (2017 p.65) hybrid regimes are flawed democracies without free and fair elections. Lastly, in an authoritarian regime, most of the democratic principles are not in place. Authoritarian regimes usually have no really free and fair elections, minorities are not protected and freedom of expression is limited (Hague et al., 2016 p.58). A number of states are on paper formally democratic, but democratic procedures are not in place, so they are not democratic in practice (Brennan, 2018 p.3).

Pandemic response policy and stringency

As introduced before, an important part of liberal democracy has to do with the people's freedom. Liberal democrats state that governments should intervene as less as possible. Stringency of policy is in conflict with this idea. Stringent policy implies an extra set of measurements, rules for the people.

Policy is the set of measurements and resources that are necessary to achieve certain goals (Bekkers, Fenger & Scholten (2017, p.12). These goals are usually set by politicians. The process that leads to a certain policy usually takes time and can be described as a policy cycle. In the light of the pandemic response policy in the Covid-19 pandemic, these time is lacking. Decisions have to be made as soon as possible. It is argued that a fast response limits the spread of Covid-19 and reduce the risks of a new outbreak in the short future (Tung, 2021 p. 3). In the Covid-19 pandemic, it turned out to be difficult to implement a proportional response policy. Dewi et al. (2020) showed that more than half of the countries implemented a disproportional response policy. Most of the disproportional reacting countries were overreacting. As overreacting policies may harm the economic situation of a country and the mental state of citizens, overreacting response policy must be prevented.

There is no wide, scientific definition of stringency of policy. Especially not in the light of a global pandemic. There is, however, a definition of stringency when it comes to environmental policies. The OECD defines the environmental policy stringency as a higher cost to environmentally harmful behaviour. This can be done through for example taxes or grants (Botta & Koźluk 2014). In the pandemic response policy, the stringency is a little different. The environmental stringency policy seems to be a form of soft power. Soft power means that an actor tries to attract and persuade other actors in order to achieve their goals (Nye, 2003). In soft power, there is no ban on certain activities

whereas hard power can contain bans. In the pandemic response policy, a mixture of both powers will be used. Advices, such as to work from home, and to have a limited number of guests at home are soft power. Travel restrictions, rules to wear masks or mandatory closures are a form of hard power. In this mixture, the used hard power is obviously a more stringent policy than the soft power.

In the Covid-19 pandemic policy response comes in different ways. Measurements can be health measurements or economic measurements. The health measurements are important, this is the policy that a government implements to stop the spread of the pandemic. A second response policy is the economic support. As consequences of the policy, businesses have to shut down, and people lose their jobs and consequently their income while companies are heading towards a bankruptcy. The Oxford Stringency Index identifies different areas in which policy response takes place. They distinguish measures to contain the virus and closure of potential threats, economic response, responses concerning health measurements and other measurements (Hale et al, 2021 p. 530). The Oxford Stringency Index takes these three types of measurements together in their index. I will take this together as the pandemic response policies. With the research question in mind, this leads to the following hypothesis:

H1a: More democratic countries will have more stringent pandemic response policies

H1b: More democratic countries will have less stringent pandemic response policies

The first category is the category of containment and closure measurements. This contains the closure of public services and workplace as well as restrictions on movements (Hale et al, 2021 p. 530). These measurements are mostly implemented at an early stage of the spread of Covid-19 (Haug et al, 2020 p. 1305). Closing places where people gather and restrictions movement are believed to be amongst the best measurements to limit the spread, despite its negative consequences (Haug et al, 2020 p. 1308). On the other hand, it is argued that open economies, without a lockdown, has also done well in the battle against Covid-19 (Altman, 2020 p.30). Closure of places, restrictions on travel, lockdowns and curfews do not only have consequences on the personal level, but also on the democracy in general.

A lockdown permits people to move outside their home only for absolutely necessary activities (Kraaijeveld, 2021 p.2). In a lockdown people are not free to choose what they want to do, they are restricted by rules that usually do not apply to them (Kraaijeveld, 2021 p.7). It is not difficult to imagine that a one can experience a curfew or a travel restrictions as a violation to their freedom to move. The freedom of movement is so important that it has been constitutionalized in the Universal Declaration of Human Rights article 13. This article states that *“Everyone has the right to freedom of movement and residence within the borders of each State”* (United Nations, n.d.b). In that light, one can argue that it is remarkable that the first lockdowns in European countries in March 2020 had a positive effect on the trust in government (Bol, Giani, Blais, Loewen, 2020 p. 502). The authors themselves argue that it has to be seen whether this sentiments sustain and given the amount of anti-lockdown protests around Europe, the sentiments might indeed have changed (France24, 2021). On the other hand is the right to health is also a crucial part of the Universal Declaration on Human Rights. This includes the right on the highest possible standard of healthcare (United Nations, & WHO, 2008). Thus, this is a perfect example of the trade-off that governments

have to make in the battle against Covid-19. As both aspects seem to be in conflict with the basic principles of a liberal democracy, this has led to the following hypotheses:

H2a: More democratic countries will implement less stringent containment and closure policies.

H2b: More democratic countries will implement more stringent containment and closure policies.

The second category is the category of economic responses. Economic responses includes income supports for people who lose their job, debt relief for households, other fiscal measures and international support (Hale et al., 2021 p.530). As a direct consequence of Covid-19 and the containment and closure measurements taken by governments, a lot of people around the world has lost their income. According to the International Labour Organization (ILO), 8.8 percent of global working hours, and the corresponding income, was lost. This is four times more than the financial crisis in 2009 (International Labour Organization, 2021 p.5). In order to fight a new upcoming crisis, a big recession, governments should do whatever it takes, because otherwise jobs will not exist anymore after the pandemic and many firms will go bankrupt (Baldwin & Weder di Mauro, 2020 p.14). Economic consequences and uncertainties are seen throughout all sectors of the economy (Nicola et al, 2020). However, not all sectors are hit equally. On the contrary, the food sector has increased its profits, albeit in an adapted format where grocery stores are getting more important (Nicola et al., 2020 p. 190). Another sector that is obviously booming is the medicine sector. In the bigger picture, these industries do not change the loose of working hours as illustrated by the ILO and the urgent call that governments must act now to prevent a new economic crisis. Moreover, the ILO warns for long lasting risks for the labour market and even warns for a “lost generation” (International Labour Organization, 2020 p. 13). In the light of ensuring equal opportunities, it can be expected that governments will implement strong economic policies to ensure the democratic value of equality. This consideration has led me to the following hypothesis:

H3: More democratic countries will implement more stringent economic response policies.

The third category that is measured are the health measurements. This category contains the policy regarding testing, contact-tracing, face masks and vaccination policy. It also includes the investments in both the health care as well as vaccines (Hale et al., 2021 p.530). In this category, a distinction can be made between the Covid-19 related health care and the regular health care. The Covid-19 related health care has a huge impact on the health systems. Due to Covid-19, more people end up in a hospital, but at the same time there is less space in hospitals because of the social distancing rules within the hospital. One Covid-19 patient may easily occupy 3 or 4 hospital beds. These effects lead to the measurements that regular health care had to be scaled back. This had the consequence, that for example in the Netherlands, hospitals had to postpone or even decline some of its regular activities. This has led to a loss of healthy life years (RIVM, 2020 p.19; Gupta strategists,

2020 p.10). Not every person had access to the hospital for the needed medical care. This is in conflict with article 25 of the Universal Declaration of Human Rights, which states that “*Everyone has the right to (...) medical care.*” (United Nations, n.d.b). This puts democratic governments in a dilemma. With Covid-19 measurements in the hospital, they are fulfilling their task to provide medical care for those who need this because of a Covid-19 infection, while on the other hand, this can mean that people will not get the medical care they need. This puts governments in a scenario where a loss of healthy life years unfortunately seems inevitable. Health measurements such as contact-tracing, the mandatory wearing face masks and vaccination are aimed to prevent hospitalization of Covid-19 patients. These measurements therefore automatically implies space for non-Covid-19 patients in the hospitals. Therefore the following hypothesis has been formulated:

H4: More democratic countries will implement more stringent health policies

Hypotheses and expectations

Throughout this theoretical chapter, I have introduced a number of hypothesis that will be tested in the following chapters of this thesis. This hypotheses are shown in the following conceptual model in figure 1. To have a clear overview of the hypotheses, they are also written down below the conceptual model. This conceptual model starts with the box of democratic values at the left. There are four lines from this box. Three of them go to the boxes in the middle column, the last goes directly to the box of Stringency of policy. This last, long, line has a +/- sign in it. This means that democratic values can both have a positive as well as a negative effect on the stringency of policy. This is in accordance with hypotheses 1a and 1b. The line that is going to the box of containment and closure policies at the top also has a +/- sign in it. The democratic values can both have a positive or a negative effect on the containment and closure policies. This is in line with hypotheses 2a and 2b. The next line goes to the economic response policy. This line has only a + sign. The expectation is that democratic values have a positive effect on the economic response policy, as is in line with hypothesis 3. The last line goes to the health measurements box and also contains a + sign. The expectation is that democratic values have a positive effect on the health measurement policy. This is in line with hypothesis 4. From all 3 boxes in the middle, a line is drawn to the stringency of policy. This is because these aspects make up the stringency index. I have not put any signs in here, because these relations are self-evident and part of the Oxford Stringency Index. Thus, the relation between the aspects and the total stringency is not a part of this research

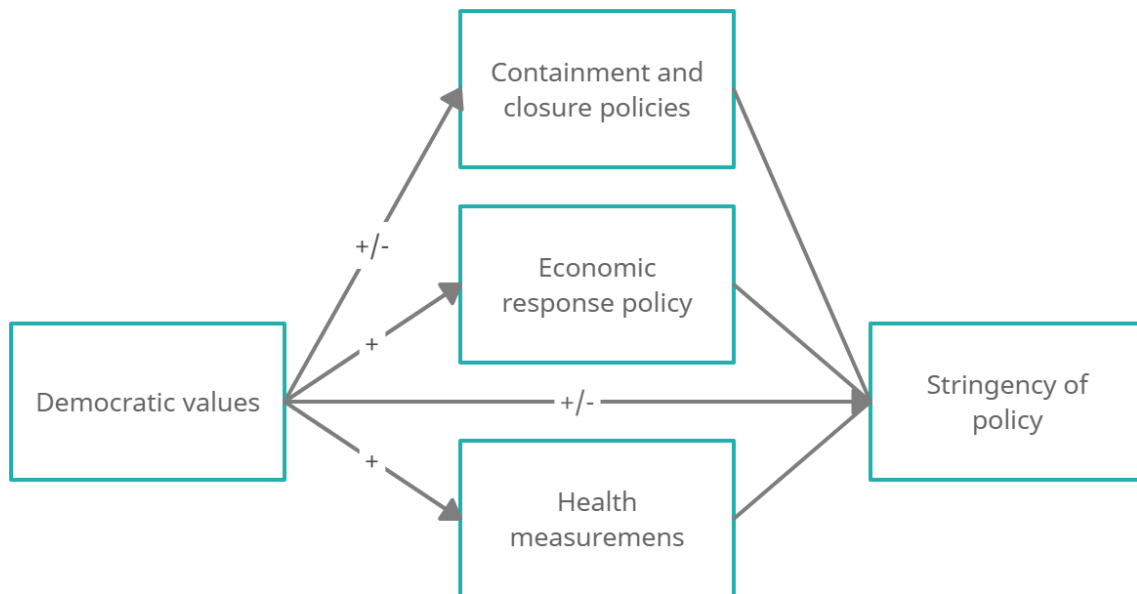


Figure 1: Conceptual model

This conceptual model contains the following hypotheses:

- H1a: More democratic countries will have more stringent pandemic response policies
- H1b: More democratic countries will have less stringent pandemic response policies
- H2a: More democratic countries will implement more stringent containment and closure policies.
- H2b: More democratic countries will implement less stringent containment and closure policies.
- H3: More democratic countries will implement more stringent economic response policies.
- H4: More democratic countries will implement more stringent health policies.

Chapter 3: Methodology

In this chapter I will elaborate on the mixed-methods research approach I will conduct. I will explain why I chose this method and how this research design will help me to answer the research question. I will also dive deeper into other aspects concerning the research design.

The first part of the research will consist of a quantitative research method. In the quantitative part I will make use of the data collected by the Oxford Stringency Index and the V-dem democracy index. A number of control variables will be added, this will strengthen the reliability of the analysis. The quantitative research will be a multiple linear regression. This multiple regression will tell the influence of the variables when controlled for the other variables. It does not only show if the total model is significant, but also if the separate variables are significant. If the quantitative part shows a significant relation between the independent and the dependent variable, there will probably still be some outliers. These outliers are countries who do not fit in the model. It can be expected that there will be a number of outliers. It is also possible that the linear regression does not show any significance at all. A small number of outliers will be further researched in the qualitative analysis later on. The qualitative part will be used to research what other factors influence the Covid-19 policy of some countries. I will use official government press releases in order to research what other factors those governments took into account into their Covid-19 policies. I am conducting a secondary data analysis. This means that the data I will use was collected by others for other purposes (Johnston, 2013 p. 619). The advantage of this approach is that the data already exists. However, Johnston (2013 p. 622) gives a number of evaluative questions to assess the quality and usefulness of the data. These questions contain the original purpose, the responsible persons for the research and the method of data collection. In this chapter, I will first address these questions and argue why the chosen indexes are appropriate for answering my research question. After this, I will touch upon the chosen method. I will explain why I chose this methods and how exactly the research will be done.

Oxford Stringency Index

To measure the stringency of countries, the Oxford Stringency Index will be used. The reason why this index is used is simple: It is the only index that measured the stringency of policy during the Covid-19 pandemic. Certain indexes have been used in economic research before. As stated before, stringency policy indexes also have been used in the light of environmental policies. As the covid-19 pandemic and the stringent policies that came along were new to the world, so is the measurement of this policies. The Oxford Stringency Index started in 2020 and measures the stringency of policy during the covid-19 pandemic on 9 metrics (Roser, 2021)

The Oxford Stringency index has as a first goal to provide reliable, global and open data and research on the spread of the Covid-19 pandemic as well as the impact of and the progress against it and to measure whether the approach of countries is successful or not. A second goal is to allow other interested persons to understand this data and research (Ritchie, et al, 2021). This first goal goes a step further than my research, as I am solely looking to the approach countries take and not whether this approach is successful or not. This means that I do not need the collected data regarding the confirmed Covid-19 cases and deaths, thus I will not use the complete dataset provided by the Oxford Stringency Index. The data collection takes place via sources that are open for the public, such as newspaper articles and government press releases. The data collection is done by students and staff of the Oxford University (Hale, et al., 2021). The research project is still

developing. This indicates that indicators can be added later and some of them have been measured retrospectively. In the second half of 2020 the variables of facial coverings, vaccination policies and protection of elderly people were added and measured retrospectively (Blavatnik School of Government, & University of Oxford, n.d.). This makes clear that the data might not give a complete overview of the implemented policies at a given moment. This also implies that policy can retrospectively be assessed as more or less stringent than at an earlier moment. Thus, the analysis of the stringency of policy can become incomplete.

The Oxford stringency Index measures the stringency of policy measurements during the Covid-19 pandemic. They do this based on 18 indicators. In the light of the hypothesis I will use the division they have made into containment and closure measurements, economic response measures and health system measurements to analyse policy in relation with the corresponding democratic values. In the light of containment and closure policy, the measurements that restricts the ability of people to move freely are taken into account. The economic response policy contains all the measurements that demand a certain investment from the government. This includes the measurements regarding financial support for both individuals and companies. In the last category, the measurements are related to the health systems. These are the policies regarding face masks, contact tracing and vaccination. The full list of measurements taken into account in the analysis can be found in appendix B.

V-dem democracy index

The core activity of the V-dem institute is to produce high-quality research that provides insights on democracies (Mechkova & Sigman, 2016). The V-dem institute describes itself as an independent research institute. The institute is based on the University of Gothenburg (Sweden) and has standards in favour of the democracy. These standards are visible in a project called *“The case for Democracy”* in which the V-dem institute promotes the benefits of a more democratic world (V-dem institute, 2021b). The data for the V-dem democracy index is collected by over 3.000 scientists around the world and they have implemented a measurement model that minimizes coding errors (V-dem institute, 2021a). The database of V-dem is annually updated and they also publish a yearly V-dem democracy report.

The V-dem democracy index has a wide range of aspects measured to determine the political score of a country. They distinguish electoral, liberal, participatory, deliberative, and egalitarian principles of democracy. I will not take all of these principles and the underlying indicators into account. That is, because not all principles will be relevant in the light of the stringency of Covid-19 policies. I will argue which principles are taken into account and which not. These principles of democracy are not literally the same as the principles that were mentioned in the theoretical framework. However, there is an overlap between the principles. This overlap is worked out in the next table, where the earlier mentioned principles are in the left column and the matching principle of the V-dem democracy index is in the right column. It should be noted that not all principles of the V-dem democracy index are matching with another principle. The deliberative principle has more to do with drivers of politics instead of another political principle. I linked the liberal principle to both aspects of rights. The egalitarian principle is not only matched to freedom and equity but also to inclusion. Free, fair, and frequent elections are linked to both electoral and the participatory principle. This is because these principles represent both the passive (to be eligible) and active (to vote) participation in elections (Kiesraad, n.d.a).

Political principles	V-dem democracy index principles
Inalienable rights	Liberal principle
Freedom and equity	Egalitarian principle
Free, fair, and frequent elections	Electoral principle, participatory principle
Inclusion	Egalitarian principle
Civil and property rights	Liberal principle

Figure 2: Political principles and V-dem principles

The first principle is the electoral principle. The electoral principle is based on the role of periodic elections in a democracy (Coppedge et al. 2020 p.4). This principle includes electoral aspects as suffrage, the freedom of political organizations and the absence of fraud or other systematic irregularities in elections (Coppedge et al, 2021 p. 43). These electoral principles are considered fundamental for the democracy. Early in the Covid-19 crisis, Landman and Di Gennaro Splendore (2020) identified that the Covid-19 pandemic affects critical elements in the electoral process. IDEA (2021) identified two ways in which the Covid-19 pandemic and the measurements have influenced elections. Firstly, a number of (small) elections has been postponed. This has influences on the power balance. Not only will the Covid-19 pandemic influence democracy, but the absence of free, fair and frequent elections may also give policymakers a form of a free pass to continue their covid-19 policies without taken accountable for it. This may possibly lead to different choices in the pandemic response policy. At the end, politicians who can be taken responsible will always have the short-term interests of the next elections in mind. After all, a new measurement can be good for the long term, but bad for the short term. Any closure of shops is unpopular now, but it may in the end prevent a longer closure. The closure of shops may then make the politician unpopular and his chances to get re-elected will reduce, as follows the theory (Garri, 2013 p. 200). According to the data of IDEA (2021) a greater number of countries decided to hold their election despite the Covid-19 pandemic. In these countries, another problem occurs concerning the voter turnout. IDEA (2021) showed that until 31 March 2021, turnout on national elections has decreased in 58% of the countries. Although, Covid-19 measurements are not directly linked to the elections, they are clearly affected by Covid-19 measurements. Therefore, the electoral principle of democracies will be a part of the democratic values in my analysis.

The second principle is the liberal principle. The liberal principle consists the values of protecting individual and minority rights from state repression (Coppedge et al., 2020 p.4). To measure this, the V-dem democracy index looks to the civil liberties and the rule of law in a country and whether these are constitutionalized (Coppedge et al., 2021 p. 49). As the liberal principle looks to aspects of individual freedom, the liberal principle certainly is important in relation to the Covid-19 measurements. As discussed earlier, these measurements can be experienced as undemocratic because they are in conflict with the civil liberties in this liberal component. Therefore, the liberal principle of democracies will be part of the democratic values in my analysis.

The third principle is the participatory principle. The participatory principle consists of the active participation of citizens in the political process (Coppedge et al., 2020 p. 4). This does not only mean voting at the elections but also participation in civil society organizations (Coppedge et al., 2020 p. 4). It could be argued that demonstrations and other protests can be a part of this principle. After all, that is one of the most obvious ways in which citizens express their opinion about policy by the government. However, the V-dem democracy index takes the turn here towards a more direct democracy. Indices that are taken into account are the power of elected governments and the direct popular vote (Coppedge et al., 2020 p. 51). These measurements seems more or less in line with the electoral principle of free, fair and frequent election, which came across in the earlier paragraph

about the electoral principle. Thus, this principle is already part of the analysis, via the electoral principle and therefore, the participatory principle itself will not form a separate part of my analysis.

The fourth principle is the deliberative principle. The deliberative principle consists of the value that decisions from the government are pursuing the public good. It also includes the drivers of these decision to be an informed process and a reason-based dialogue (Coppedge et al., 2020 p. 4). In the V-dem democracy index, this includes the justification of policy by politicians. This principle includes the public justification for policy and whether these are pursuing the public good. In the light of the Covid-19 measurements, this means that politicians have to give a proper justification for the trade-off they have made. This is important because it gives reason to policy and influences the support of the policy. Another part of this principle is the well-informed government (Coppedge, 2021 p. 54). This has been subject to discussion as advisory groups on the one hand may lack some legitimacy because they are not chosen, while on the other hand they add legitimacy to the policy because of the knowledge they offer. In any case, the deliberative principle influences Covid-19 policy and therefore this principle will be analysed in this thesis.

The fifth and final principle is the egalitarian principle. The egalitarian principle consists of the idea that inequalities inhibit the political rights and liberties. This means that, although groups have the same rights, these rights are not equally used. Ideally, this would be the case (Coppedge, 2020 p.4). According to the V-dem report, the egalitarian principle can be achieved when all groups have equally protection of their rights, equal resources and equal access to power (Coppedge et al. 2020, p. 55). Equality is important in the democracy and is at stake because of different processes in the Covid-19 pandemic. In the first place does the pandemic itself affect people in an unequal way. Some people get sicker than others. Secondly, policies of countries affect people unequally, one can imagine that closure of workplace has a great impact on some people, while the work of others continued as usual. Additional to this, the pandemic and its responses have had a greater impact on woman and girls as well as teenagers reporting more feelings of boredom in comparison with other age groups (Caroppo et al, 2021). As argued earlier, this equality is important in the democracy and the effects of the Covid-19 pandemic affects people unequally. Part of the actions by government are aimed to ensure equality despite the Covid-19 pandemic. Therefore, I will take this egalitarian principle into account in the analysis.

The V-dem democracy report is perfectly suitable to measure democratic values in countries around the world. However, the V-dem report has measured 179 out of 193 countries in the world. Countries that are not part of the V-dem report and thus cannot be part of my analysis are: Andorra, Antigua and Barbuda, Bahamas, Belize, Brunei, Dominica, Grenada, Holy See, Kiribati, Liechtenstein, Marshall Islands, Micronesia, Monaco, Nauru, Palau, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Tonga, and Tuvalu. (Alizada et al., 2021).

Quantitative research

In the first and most important part of my research, a quantitative analysis will be conducted. The goal of this quantitative analysis is to research whether or not there is a correlation between the above-mentioned democratic values and the measurements countries took concerning containment and closure, economic responses, health policies and the total package of measurements. This would mean that ideally all of these factors would be subject of an analysis in relation with the scores on the democracy index. However, given the availability, these analysis could only be done with the

total package and the containment and closure policies of countries. The other data became available later on. However, this github file was not transferable to a SPSS file.

An important point is the moment in time that stringency will be measured for my analysis. The stringency of policy in a certain country may vary over time and can be dependent of different factors. A number of strategies could be used to do this. A number of countries are using a threshold for imposing or lifting measurements. These thresholds are usually based on a relative number of infections or the hospital occupation. If the numbers pass these threshold, restrictions will be imposed. If the number drops below this threshold, restrictions will be lifted. These thresholds vary between countries. In certain countries restrictions are imposed because of high numbers, while at the same time in other countries restrictions are imposed when numbers are still relatively low. Then, the goal is to keep the numbers low. Therefore, it is impossible to come up with a threshold to determine when the stringency of policy is measured. Therefore, the moment in time when I will measure the stringency of policy is when the stringency is at the highest level in the Covid-19 pandemic, according to the Oxford Stringency Index. Not only will difficulties concerning thresholds being avoided, it will also show the best picture of how far a government will go when it comes to implementing stringent policy.

Another option for my research was to do a panel data analysis. However, in a panel data analysis, the cases are repeatedly measured over a given time period (Frees, 2004 p.1-2). This panel data analysis thus include cross-sectional units N and time periods T (Hsiao & Yanan, 2006). A panel data analysis would be useful when we want to measure a difference over time, for example if we want to compare stringency over time in a certain country. What accounts for a different level of stringency while other factors remain the same or why does a country have a different policy stringency over time while their level of democracy remains the same? Although, this can be very interesting, this is not the suitable method for the research I will be conducting. Instead of a video-view over time where changing stringency is measured, I will rather use a picture-view about the stringency at a certain moment in time.

For the research, I will use the SPSS program. This is, because SPSS is one of the most powerful analytical programs and it has a wide variety of modules that can cover statistical analysis (Salkind, 2017 p. 6 & 362). For the analysis, the democratic values are considered as the independent variable. The democratic values are expressed in a score interval. The V-dem report gives scores to countries, based on their performances. They give a total score for the democracy in a country. This score is the liberal democracy index (LDI). Besides this, they give scores on the 5 components mentioned before (V-dem institute, 2021d). The scale of the scores is between 0 and 1. This is also expressed in a score, with an absolute 0. This means that the democratic values are an interval scale (Salkind, 2017 p.32). Based on the measurements a country takes, the Oxford Stringency Index give them scores. These scores also do have an absolute 0, so this also is an interval scale (Salkind, 2017 p.32). In the analysis I will find out whether X (democratic values) predicts Y (Stringency of policy) (Salkind, 2017 p. 297). Taken the type of the variables into account, the most suitable method to research this relation is a regression analysis.

A simple regression analysis is also possible to do this research because the ultimate goal is not only to find the correlation between the two variables but also to find out whether stringency of policy can be predicted by the democratic values. The goal is to research whether we can make a formula for a straight regression line. The basic formula of this would be as follows:

$$Y' = bX + a$$

In this formula Y' is the predicted score of the whole package of policy stringency, or for the containment and closure policies. X is the level of democracy in a country, b is the direction or slope of the regression line and a is the starting point at the Y -axis (Salkind, 2017 p. 297). If a linear regression will be found, the results will mostly be close to this regression line. A regression analysis then gives us the values of a and b , a future report on democracies might tell us the value of X and thus we can predict what the policy stringency (Y') will be when a new pandemic might occur in the future.

Of course, the potential relation between policy stringency and democratic values is not as simple as the formula above. There are other factors that may influence the stringency of policy and thus need to be controlled for in this research. As control variables, the relative cases of confirmed Covid-19 cases and Covid-19 deaths are added. Those are, as well as all the other control variables, measured as a 7-day interval ratio on the day a country implemented their strictest lockdown. This is because the numbers then gives us a more realistic view of when and why the lockdown is implemented. A 7-day interval is necessary to avoid influence from the day of the week. These numbers might be fluctuating because in the weekends less people get tested (RTL Nieuws, 2020). Thirdly, the reproduction rate is used as a control variable. The reproduction rate tells us how many people one Covid-19 can infect. A reproduction rate of 1,09 means that 100 infected people infect 109 others. A reproduction rate of 0,90 means that these 100 infected people only infect 90 others. This number is called R_0 and tells us whether the pandemic is growing (R_0 above 1) or shrinking (R_0 below 1) (Aronson, Brassey, & Mahtani, 2020). The reproduction rate is used to determine whether policy helps to stop the spread of Covid-19 or not. This might influence an urge for more or less stringent policies. The R_0 of Covid-19 without any measurements is estimated to be far above 2. (Aronson et al, 2020). Measurements are taken to pull the R_0 back below 1 and let the pandemic shrink. If the R_0 will stay below 1, the pandemic will slowly vanish. Unfortunately, at the moment of research, the reproduction rate at the first day of the most stringent policy was not available in all cases. There turned out to be more control variables with an insufficient availability of the data. As the results section will show, I have dealt with this in the analysis by deleting a number of control variables. A fourth control variable could have been the hospitalization in a certain country. The number of hospitalization is a reliable indicator to present the ongoing pandemic (Allieta & Rossi Sebastiano, 2021). However, data on hospitalization is barely available. The data that was found is focused on European countries with some additions (Our world in Data, 2021g). Although I have collected these data, there are only 21 cases available and thus this data can only be used in a highly limited way. The last control variable I will account for in my analysis is the amount of daily Covid-19 tests. As was done with the confirmed Covid-19 cases and Covid-19 deaths, this will be done based on a 7-day average. Testing is important because it gives a clear overview of the epidemiological situation in a given country. It does not only give a view of the share of people who have Covid-19 but also the share of people who do not have Covid-19 (Mercer & Salit, 2021). Thus, the Covid-19 would be better monitored when the amount of tests is higher. Mercer and Salit (2021) even goes to the conclusion that widespread testing is an invaluable guide to the Covid-19 response policies. As the variables we can control for will be measured in the regression analysis, this analysis will be a multiple regression analysis instead of a simple regression analysis.

Throughout the process, a number of more control variables have been added to this analysis. The added control variables are the Gross Domestic Product (GDP), air population, and

population density. In the next paragraphs I will elaborate a little more on these added control variables. The data of all these control variables is also attached in the appendices.

The first added control variable is the GDP. A number of measurements simply have to do with the available money in a country. For example, economic support, testing policy, or contract tracing, which are all considered as forms of stringent policy can only be in place if there are sufficient means available in the country. To measure the GDP of a country, the most recent data collected by the World Bank is used. These data is attached in appendix E

The second added control variable is air pollution. Aabed and Lashin (2020) concluded that these environmental variables drive the spread of the Covid-19 virus. It is argued that air pollution kills seven million people per year (World Health Organization, 2021). In the region of Lombardy, in northern Italy, a positive correlation was observed between air pollution and the number of Covid-19 deaths (Lau, 2020; Conticini, Frediani, Caro, 2020). The data of the air pollution is collected by Numbeo (2021) and can be found in appendix F

The last added control variable is population density. Sy, White and Nichols (2021) concluded that in the United States population density is associated with the reproduction number. A similar conclusion was found by Wong and Li (2020), who reason that a higher population density makes it harder to comply to physical distance rules. As a consequence, US counties with higher population density have more Covid-19 cases. Velasco, Tseng and Chang (2021) have observed this effect significant in high and low population countries, indicating that this effect is in place worldwide. To measure the population density, the data collected by Worldometer (2021) is used. An overview of this data can be found in appendix G.

However, these variables might have a little overlap in what they are saying. It may for example seem straightforward that the number of confirmed Covid-19 cases is closely, if not precisely, related to the number of Covid-19 tests. This leads to the risk that one single component is measured in two control variables and has a double influence on the dependent variable. In order to avoid this, I will start the quantitative analysis with an multicollinearity analysis, to identify which predictors are closely related to another and therefore have to be left out of the analysis. In this case, I will have a maximum of nine control variables, besides the dependent variable. This number may be reduced in the analysis because data might be not good enough available or some collinearity between control variables. For now, this leads to the following formula:

$$Y' = B_0 + B_1 * X_1 + B_2 * X_2 + B_3 * X_3 + B_4 * X_4 + B_5 * X_5 + B_6 * X_6 + B_7 * X_7 + B_8 * X_8 + B_9 + X_9$$

In comparison to the formula of the simple regression analysis, Y' remain to be the predicted score for the whole package of stringency policy or for the level of containment and closure policies. B_0 is the point where this regression line crosses the Y-axis. The X 's are the independent variables and the B 's account for the influence of the different variables (X 's) on the predicted outcome (Y') (Vocht, de, 2013 p.192).

It can be argued that a bunch of more control variables influence the epidemiological situation and thus Covid-19 policies. One can think of demographic aspects with regards to sex, it seems that more man than women are dying from Covid-19 (Mooney, Kaplan, Kim, 2020). Another demographic aspect can be age (Zawbaa, et al, 2020). Elderly people have a significant risk of severe

illnesses as a consequence of Covid-19 (World Health Organization, 2020). These aspects influence the Covid-19 pandemic and thus the policy with regards to the battle against it. Another variable can be climate, it is argued that the spread of Covid-19 is reduced in warmer climates, this can depend on both temperature as well as the amount of sunlight (Zawbaa et al, 2020; Chen, Prettnner, Kuhn, Geldsetzer, Wang, Bärnighausen, & Bloom, 2021). Lastly, Zawbaa et al. (2020) shows that an earlier vaccination with the BCG vaccine may also affect the spread of Covid-19 cases in a country. A number of these variables, including the demographic aspects mentioned here have influence on the number of Covid-19 cases and Covid-19 deaths. Therefore, to some extent, these variables are, partly, already defining other control variables. For other variables it is hardly impossible to control in my research and thus I am not able to control for them. This shortcoming will be discussed more extensively in the discussion chapter.

Ideally, the sample size would be as great as the amount of countries in the world. This number is debatable, but the UN counts 193 member states (United Nations, n.d.a). However, both databases do not include all countries and, especially the Oxford Stringency Index, also measure results of so-called non-independent areas. Besides the earlier mentioned countries missing in the V-dem democracy index, a number of countries is also missing in the Oxford Stringency Index. These countries are Armenia, Comoros, Equatorial Guinea, Guinea-Bissau, Maldives, Montenegro, North Korea, North Macedonia, and Sao Tome and Principe. Countries are only useful for this research if they are present in both the V-dem democracy index as well as the Oxford Stringency Index. Therefore, these countries could not be a part of my research. Lastly, the countries of Botswana, Greece, Mali, Solomon Islands, Turkmenistan, and Vanuatu had to be left out because the control variables could not be measured for these countries. This makes that the amount of measured cases in this research is 161.

However, we can expect that there will be some outliers. These are cases which have a bigger deviation from the regression line and those cases need to be researched further (Vocht, de, 2013 p.187). If it is necessary, a residue analysis will be conducted to control whether the initial research complies to a number of presuppositions of the regression analysis (Vocht, de, 2013 p.202). It is important to analyse these cases deeper to gain a deeper insight in other variables in the policy.

Qualitative research

Besides the tests to control the quality of the analysis, it is a good possibility that in the case of outliers the pandemic response policy is influenced by other variables than the measured democratic values. This is the case when outcomes do not correspond with the expected values based on the regression line. This means that a deeper analysis must be conducted to determine what other actors might influence the stringency of the policy in these countries. In this research, I will dive deeper into a possible 4 outliers. This selection will, if possible, contain 2 positive and 2 negative outliers. This does not mean that I will look at the furthest outliers. It is possible that analysing these, would be stating the obvious. As this sampling is aimed at the unusual outcomes of the earlier analysis, the case sample selection is based on the deviant case sampling (Creswell & Poth, 2018). This does not mean that the most outlying countries have been deeper analysed. A choice has to be made, based on the expected availability of documents and the usefulness of analysing these countries. In some countries, it can be too easy to see why policy was different. This is the case in countries which leaders were put on the "Ostrich alliance" by the Financial Times. The leaders of these countries, Belarus, Brazil, Nicaragua, and Turkmenistan simply denied Covid-19 (Financial Times, 2020). This makes clear why their policies had been less stringent than probably expected.

Ideally, official government press releases would be used for this in which governments justify their behaviour. However, that has some deficiencies. In the first place, these documents are rather difficult to find. Secondly, and most important, these documents would not tell us the whole truth. Governments usually provide the data that justifies their policy themselves. They have the availability to do this in such a way that their policy is the right, or at least the less worst policy. Moreover, the total Covid-19 numbers. Several models showed that the confirmed Covid-19 cases are almost always an underestimation (Blauw, 2020).

Therefore, I moved on to news articles and other publications are used to provide us a better image of the Covid-19 situation and a critical view on the governments. However, as science has to be objective, it is not the goal to identify policy as good or bad. The goal of the qualitative analysis is to provide a broader image of the Covid-19 situation in a country and to explain what factors might account for unexpected policies. In this analysis the date of the articles and press releases is important. As the aim is to research why the most stringent policy of these countries is not in line with the expectations, I will search for the documents that defend their stringiest policy.

The qualitative research method means that a number of documents have systematically been analysed (Bowen, 2009). As said before, the selection of documents is done via a deviant case sampling strategy (Creswell & Poth, 2018). To find the documents that fit into the analysis, documents have been searched on the internet. The countries were already known and thus, the search was mostly on the internet pages of the involved governments. It varies between the countries what was possible for the search. Some pages had an extensive search engine where the search could be limited to certain documents and a given time period. In these cases, the search was usually to terms as "Covid-19" or "corona". In other cases, the search was a little more difficult and the search was on the internet to "[Country] Covid-19 and the date". This last search command was also used to find non-governmental documents and news articles about the measurements. This was necessary to be able to have a more objective view on the policies in the selected countries. An extra challenge was in the search to documents from Israel and Japan. Both countries have their own alphabet, respectively the Hebrew alphabet and the Japanese writing system. Minor mistranslations are possible in the translation from these alphabets to the Latin alphabet that is in use in Western Europe nowadays. It is almost impossible to prevent these mistranslation but to do so, as far as possible, official translations of the government releases or news articles have been used and not the automatically generated translations on the internet. A list of documents analysed in the qualitative part is provided in appendix I.

To analyse the documents, the Atlas.Ti programme has been used. In this programme, a number of documents can be coded with the same codebook. This makes it possible to have a good overview about where a code is used. Thus, it is easy to compare which codes we can find in which documents. In order to code all the documents, selective coding was done. Selective coding means that parts of the documents will be linked to a list of categories that was already made (Creswell & Poth, 2018 p. 84). Besides the selective coding, a small amount of open coding is conducted. Open coding means that some codes have been added during the analysis. This can be the case when something seems to be important but was not part of the categories in the original codebook. The whole codebook is attached in appendix H.

Chapter 4: Results

In this section I will conduct my research, as explained in the methodological chapter. First, I will do my quantitative analysis. I will share these results and explain how these results can be interpreted. Based on these results, the case selection for the second, qualitative analysis will be made. After the case-selection is made and this research is conducted, the results will be shared and I will discuss how these results can be interpreted.

Quantitative analysis

We start with the described statistics of the collected data. These statistics are shown in figure 3 below.

		Statistics									
		LDI	Covid_cases	Covid_deaths	Tests	Reproduction	Hospitalization	GDP_Capita	Air_pollution	Population_density	Age_median
N	Valid	176	161	161	88	107	21	174	109	171	91
	Missing	0	15	15	88	69	155	2	67	5	85
	Mean	,4031	51,1365	,8939	,8495	1,2740	135,1905	14031,405	57,6465	247,25	30,64
	Median	,3750	2,1000	,0400	,1800	1,2000	80,0000	5566,200	61,2400	83,00	29,00
	Mode	,09 ^a	,00	,00	,00	1,39	,00 ^a	126,9 ^a	58,42 ^a	25	28

a. Multiple modes exist. The smallest value is shown

Figure 3: Statistics

Besides the mean, median, and mode, this table shows the N of each independent variable. This N is important, as more missing values can make the analysis less reliable. After all, only the cases that have valid values in all of the independent variables are used in the analysis. It is possible in SPSS to fill the gaps with logical values as the mean or mode value of an independent variable. This is, however, not beneficial for the reliability of the analysis. Therefore, for the following analysis I decided to delete the variables that have less than 50% of valid N values. Thus, the variables of tests (50% valid N values) and hospitalization (12% valid N values) have been removed in the further analysis.

Stringency policy

The first step in the quantitative analysis is to ensure there is no collinearity between independent variables. Collinearity means that two or more variables are correlated. If that is the case, this will have a disproportional effect on the ultimate outcome. In order to avoid collinearity, a collinearity diagnosis analysis has been conducted in SPSS. This analysis gives a VIF value. A VIF value below 5 indicates that there is no collinearity, while a VIF value above 5 indicates collinearity. If there is an independent variable with a VIF value above 5, this variable has to be removed. This process goes on until there are no independent variables with a VIF value above 5. The first collinearity analysis included the LDI, the number of Covid-19 cases, the number of Covid-19 deaths, the Reproduction

rate, the GDP per Capita, the air pollution, population density, and the median age as independent variables. As consequences of this first collinearity analysis, the air pollution (VIF: 5,537) was removed as independent variable. This interesting collinearity was analysed further with a Pearson correlation. This analysis showed that air population was too strong related to the GDP per capita (-,723) and the median age (-,706), both with a significance level of 0.000 , In the second collinearity analysis, there were no independent variables with a too high VIF value, so all these independent variables are included in the quantitative analysis.

With the remaining independent variables, a linear regression analysis was conducted in order to research whether or not there is a correlation. Thus, this analysis was ran with the highest stringency as dependent variable and the LDI, the number of Covid-19 cases, the number of Covid-19 deaths, the reproduction rate, the GDP per capita, the population density and the median age as independent variables. The coefficients table of this analysis is shown in figure 4 below.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	85,756	8,354		10,266	,000
	LDI	5,956	8,643	,129	,689	,494
	Covid_cases	-,028	,019	-,270	-1,458	,151
	Covid_deaths	2,047	,979	,389	2,091	,042
	GDP_Capita	,000	,000	-,245	-1,237	,222
	Population_density	,000	,005	,005	,039	,969
	Age_median	-,295	,238	-,205	-1,240	,221
	Reproduction	6,591	3,725	,244	1,769	,083

a. Dependent Variable: highest_stringency
 Figure 4: Coefficients table: Highest Stringency

The most important statistics of this table are the significance numbers. An independent variable does have a statistically significant influence on the dependent variable if the p-value, in the last Sig.-column is less than 0.05. The only independent variable with a p-value less than 0.05 is the number of Covid-19 deaths, with a p-value of .042. Therefore, the number of Covid-19 deaths has a statistically significant effect on the highest stringency of covid-19 policy in a country. All the other independent variables have a p-value higher than 0.05. This means that, according to this analysis, these values do not have a statistically significant effect on the highest stringency of Covid-19 policy in a country. If we take a better look in the model summary of this analysis, it is worth noticing that there is a R square value of .195. This means that only 19.5% of the variance in the highest stringency in a country can be explained with the help of these variables. This is a low percentage and thus needs to researched further.

Highest containment

In order to determine a possible statistically significant influence of any independent variable on the dependent variable of the highest containment policy in a country, the same process was conducted but with the highest containment instead of the highest stringency as dependent variable. This variable was also retrieved from the Oxford World in Data dataset on the Coronavirus. The containment index is part of the bigger stringency index, that was used in the first quantitative analysis. For this analysis, the same independent variables as before will be used. This leads to the coefficients table as presented in figure 5 below.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	73,069	6,516		11,213	,000
	LDI	-1,498	6,742	-,044	-,222	,825
	Covid_cases	-,006	,015	-,086	-,440	,662
	Covid_deaths	1,326	,764	,341	1,737	,089
	Reproduction	4,414	2,906	,221	1,519	,135
	GDP_Capita	-2,831E-5	,000	-,058	-,277	,783
	Population_density	,001	,004	,041	,279	,781
	Age_median	-,099	,186	-,093	-,533	,596

a. Dependent Variable: Containment

Figure 5: Coefficients table highest containment

The significance numbers of this coefficients table speak for themselves. Most of them are way too high to be significant. Based on this table, there is absolutely no variable that is significant on the highest containment in a country. If we dive deeper into the numbers here, other forms of any correlation also seems to be missing. The model summary gives an R square value of only .105. This means that only 10,5% of the variance in the highest containment in a country can be explained throughout the use of these variables. It is safe to say that none of these independent variables has a significant effect on the dependent variable. The reason for this can be that, after all, the containment is only a part of the total stringency. More or less stringent policies on other aspects can lead to a higher or lower value of the highest containment, which makes it hard to find a pattern on one single aspect. This will be discussed more in-depth in the discussion chapter later in this thesis.

Qualitative analysis

The second part of this analysis is a qualitative analysis in which official documents of countries that did not align with the expectations are discussed. This is good to research further because the R squared values in the quantitative analysis were low. This means that only a small amount of variances can be explained via the quantitative analysis, for the other, bigger amount of cases, the

qualitative analysis will explain what other variables might have played a role in the explanation of Covid-19 policies.

To this end, it is needed to determine the outliers in the quantitative analysis. These outliers can be both positive as negative. A positive outlier means that a country had more stringent policy than could be expected based on the quantitative analysis. A negative outlier means that a country had less stringent policy than could be expected based on the quantitative analysis. The process of choosing the outliers to be further examined is not as straightforward as choosing just the most outlying countries. One of the most outlying negative countries is for example Belarus. Belarussian president Alexander Lukashenko was put on the list of the “Ostrich alliance” by the Financial Times. This is a list with world leaders that denied the danger of Covid-19 and therefore refused to take any actions (Schipani, Foy, Webber, Seddon, 2021). He believed vodka and ice hockey were the best medicines against Covid-19 (NU.nl, 2020). That is the main, and obvious reason why Belarus had no stringent policy. It does not make any sense to do a further research to Belarus or similar countries, because that would be stating the obvious. The list of outliers is shown in figure 6 below. The chosen positive outlying countries are Israel and Austria. The chosen negative outlying countries are Latvia and Japan. These countries are chosen because it can be safely assumed that they do have enough resources to implement stringent policies. The chosen outliers were Israel and Austria on the positive side, and Latvia and Japan on the negative side.

Case Number	Std. Residual
Cuba	1,900
Kuwait	1,557
Georgia	1,388
Cyprus	1,219
Israel	1,156
Austria	1,126
Bhutan	1,120
Dominican Republic	1,119
El Salvador	1,014
Latvia	-1,017
Cameroon	-1,515
Japan	-2,038
Belarus	-3,972

a. Dependent Variable:
highest_stringency

Figure 6: Outliers

Positive outliers

The positive outliers are Israel and Austria. Israel implemented their most stringent policy on April 8th, 2020, this policy was in place until April 10th, 2020 and again between April 14th, 2020, and April 16th, 2020. To analyse this policy and the why of this policy, an official press release of the Israeli Ministry of Health and a news article from the Times of Israel were analysed. This Israeli policy had to do with the festive events of Passover Seder, an important religious event for the Jews. The policy followed only shortly after a big outbreak in the Israeli city of Bnei Brak and the press release of the Ministry of Health showed that they were concerned about new outbreaks. The Times of Israel identified that travel between cities was officially banned.

“Highways throughout the country emptied as travel between cities was officially banned.” (Times of Israel, April 7th, 2020)

Not only travel between cities was prohibited, also shops, including supermarkets and other essential shops had to close. Israelis were only allowed to go outside within a certain distance of their houses. Public transportation was shut down and international flights were cancelled for a short time. The government stated that Israel was one of the leading countries, when it comes to the relative number of tests, although a shortage of reagents testing activities had been stopped over a couple of days. The testing policy will be increased. The Ministry of Health also stated that the measurements are important to ensure that the morbidity rates remain under control. Despite not explicitly stated, this can be linked to the hospitalization and maybe even a possible threat of over occupation of the hospitals. The extra measurements in Israel can clearly be related to the religious holiday in the country. The Israeli government seems to be afraid that citizens neglect the measurements already in place and that the religious holiday will turn into a superspreading event in which the number of Covid-19 cases will explode. An interesting aspect of the policy in Israel is the following:

“The curfew measure will not extend to Arab towns, where Passover is not celebrated.”

This aspect was highlighted by the newspaper the Times of Israel. It may give us another example that the policy was anticipatory against the normally expected movements because of the holiday, as towns where this holiday was not celebrated are free of the extra measurements. It also tells us that the new policy had nothing to do with the current number of Covid-19 cases, Covid-19 deaths, the reproduction rate, or hospitalization, but primarily the fear of an increase in Covid-19 cases.

In Austria the most restrictive set of measurements was in force from November 16th, 2020 until December 6th, 2020, and again from December 26th, 2020 until February 7th, 2021. Here, the

focus will be on the first period. This restrictions followed when earlier measures turned out to be ineffective. Among this more restrictive policy were measurements as closures of non-essential shops, a curfew day and night, restrictions to limit contact between persons and the requirement to work from home.

“My pressing demand for the coming weeks is as follows: Don't meet anyone. Every social contact is one too many”. (Sebastian Kurz, bundeskanzler of Austria) (The Local, 2020).

In contrast to Israel, the number of confirmed Covid-19 cases is important in the Austrian policy. The numbers of confirmed cases has exploded in the days before the new measurements. Points of concern here are the tracing of infections and the hospitalization. The pressure on hospitals and hospital personnel has risen. Sebastian Kurz, at that time bundeskanzler (head of government) of Austria stated that most of the new cases could not be traced. This means that the authorities are not sure where contamination took place. This is one of the reasons why the Austrian government took this whole package of measurements. It was simply impossible for Austria to implement smaller, targeted measures because they do not know where to target on. However, the rising number of Covid-19 cases and the increasing pressure on the Austrian hospitals made that they could not wait for more knowledge.

To conclude, based on the study to Israel and Austria as positive outliers, we can identify two different reasons why these countries were positive outlying. The first reason is anticipatory to prevent new bigger outbreaks from happening. The second reason seems to be uncertainty, and thus the risk-averse behaviour to ensure new outbreaks will not happen.

Negative outliers

The negative outliers are Japan and Latvia. If a country is a negative outlier, this means that their most stringent was less stringent than we would have expected. This means that for these countries, we are not looking to what has driven the implemented policy, but what has driven them to the not implemented policies. For both countries, a number of press releases by the government have been analysed.

In Japan, the most stringent policies was in place on the 27th and 28th of February 2021. Until that moment, Japan only had minimal restrictions on daily life (Inside Japan Tours, 2021). There has never been a really strict lockdown. The state of emergency that was called, only allowed restrictions to be suggested, there was no possibility to enforce them. The Japanese Prime minister Yoshihide Suga even cancelled the press conference of this announcement (The Asahi Shimbun, 2021). The new policy made it possible for regions to enforce measurements. The main restriction of Japan during the whole Covid-19 pandemic were travel restrictions (The Ministry of Foreign Affairs of Japan, 2021).

“(…) all Japanese nationals and foreign nationals with the status of residence are also required to pledge to refrain from using public transportation for 14 days,

and to be in quarantine at home or other designated areas for 14 days, retain the location data, and provide it to the health centers or other institutions, if requested.”

Furthermore, the dates that the policy was on the highest stringency level according to the Oxford Stringency Index seems strange. On the 26th of February 2021, prime minister Yoshihide Suga stated that the emergency for six prefectures. This was a week earlier than was planned. The possible rise in stringency might be explained by the fact that the new rules made it possible for the prefectures to enforce rules, such as working from home or closures of schools and shops. Until then, this was only an advice. Despite this strange turn in stringency, the restrictions also made clear why Japan did not had more stringent policies, as we would have expected.

The Japanese news website Kyodo News stated that the restrictions were necessary to revive the Japanese economy (Kyodo News, 2021). Manufactured goods form a significant part of the Japanese export throughout the years (Japan External Trade Organisation, 2020). Those jobs cannot be done from home, and thus a more stringent lockdown would probably have immense consequences for the economy of Japan. An important notice here should also be that the number of Covid-19 cases were low in Japan and by that, they gained the opportunity to lift restrictions. There are several reasons why Japan had low numbers of Covid-19 cases. According to Iwasaki & Grubaugh (2020), possible reasons are the Japanese culture, a milder version of Covid-19 in Japan or other physical aspects that made the Japanese less receptive for Covid-19. Lastly, Statista (2020) stated that isolation is the best defense against a pandemic. Although, they mention small islands in the Pacific Ocean, Japan has similar advantages.

In Latvia, the most stringent policy was in place from March 27th till May 11th, 2020. In this period, the cabinet of ministers of the republic of Latvia issued a number of measurements in the battle against Covid-19. The main policies in Latvia had to do with social distancing and reduced opening times of recreational centres.

“The working hours of cultural, entertainment, outdoor sports and other recreational areas has been reduced from 8.00 to 22.00. (...) A distance of two metres, as well as other physical distancing and epidemiological safety measures must be observed in all indoor, outdoor public spaces and common areas.”
(Cabinet of Ministers, Republic of Latvia, 2020).

Besides this measurements, commercial establishments, such as malls had to close on the weekends, on weekdays they could remain open. Another measurement in Latvia was an early closure of Riga International Airport. According to Foreign Policy (2020), the reasons for this approach, referred to as a middle-of-the-road approach, are in the respect for the science and the unity in Latvia. On the state of emergency and the measurements taken by the government, prime minister Kristjanis Karins told:

“The World Health Organization had just declared COVID-19 a pandemic. We had not recorded any deaths. The number of infections was small and growing slowly

(...) We decided to do this in order to prevent a disaster.” (Latvian prime Minister Kristjanis Karins in Foreign Policy (2020).

Besides the respect and trust in the science, and the unity in Latvia, there seems to be another driver for the Covid-19 response policy in Latvia. The situation of the hospitals in Latvia was worrying. There are not enough ICU beds to handle an outbreak similar to the earlier outbreaks in Italy and Spain. There also is a shortage of personnel, and many staff is older than 65 (Foreign Policy, 2020). It seemed like Latvia acted preventive because the country could not face the consequences of a big Covid-19 outbreak. They could act like this preventive because they had more knowledge than other countries. The first wave arrived earlier in other European countries and Latvia could learn from them. This has probably prevented a disaster and a more stringent policy in Latvia. With this early success in fighting the pandemic, Latvia might have prevented a greater outbreak and thus the necessity for stricter policies. There seems to be no other clear reason why the Latvian policy was as strict as it was. Foreign policy (2020) probably summarizes the successful Latvian policy the best:

“The right decisions by the right people at the right time.”

To conclude, based on the study to Japan and Latvia as negative outliers, we can identify two different reasons why these countries were negative outlying. The first reason seems to be to avoid greater damage to the economy. It should be stated that this came with other aspects that made this less stringent policy possible in Japan. For the case of Latvia it is not entirely clear why the Latvian policy was as stringent as it was. What is clear, is that the policy was driven by science, unity and the worrying state of the healthcare. It is assumable that this early measurements made more stringent policy not necessary in the Covid-19 pandemic.

Chapter 5: Conclusion

In this chapter I will use the data collected in the analytical chapter to give an answer to the research question of this thesis and test whether we can accept or reject the hypothesis. The research question was as follows:

“How does type of government influences the stringency of pandemic response policy?”

Next to this research question, 3 hypothesis have been formulated. These hypothesis were:

- H1a: More democratic countries will have more stringent pandemic response policies.
- H1b: More democratic countries will have less stringent pandemic response policies.
- H2a: More democratic countries will implement less stringent containment and closure policies.
- H2b: More democratic countries will implement more stringent containment and closure policies
- H2: More democratic countries will implement more stringent economic response policies.
- H3: More democratic countries will implement more stringent health policies

I will start with the conclusion on the last two hypotheses. Unfortunately, the necessary, separate data to test hypothesis 3 and hypothesis 4 only became available late during the process of writing. Besides this, the github file of this data was at that time not transferable to the a SPSS file. Altogether, this made it close to impossible to test for these hypotheses. In the qualitative analysis a little amount of data was found on these hypotheses. However, this was too little to enable us to make any assumption on whether or not to accept these hypotheses.

Hypothesis 2 could be tested with the quantitative research. The analysis, with the containment and closure policies as dependent variable showed no significant relation between the containment and closure policies and any of the independent variable. It can therefore be stated that the democratic values do not influence the containment and closure policies. Thus, both hypothesis 2a and 2b have to be rejected.

Hypothesis 1 is similar with the research question. The analysis towards the pandemic response policies showed that there is no significant relation between the Liberal Democracy Index and the stringency of policy. This means that both hypothesis 1a, as well as 1b have to be rejected. The only significant link that was found is between the number of Covid-19 deaths and the stringency of policy. It is therefore safe to conclude that the number of Covid-19 deaths has a statistically significant effect on the stringency of the policy at the peak of this stringency.

In the qualitative analysis, some outlying countries were further researched. This was to find what drove the policies in this countries. A more stringent policy than expected was observed in Israel and Austria. The conclusion of this analysis is that more stringent policies than we would expect were taken because of the (fear of) more risks on infections. In Israel, the policy anticipated on a possible rise of infections due to a religious holiday that would normally lead to more movement. To prevent this movement and reduce the risks, for a short period, more stringent policy was in place. In Austria, the main driver was the lack of knowledge. It was not possible to trace back the Covid-19 infections to a single source. This made it impossible for the Austrian government to

implement targeted policies. Therefore, they made the choice to make stringent policies for all possible sources. This, clearly, made the policy more stringent than expected. Less stringent policy was observed in Japan and Latvia. In Japan, an important driver was to revive the economy. However, it is also good to notice that Japan had some other advantages, that made it possible to have less stringent policies. One of these advantages might be the natural isolation it has as an island. Latvia showed no clear reason why its policy were less stringent than expected. They acted very preventive when the number of cases was still low in the country. They also acted in line with the scientific knowledge. It is assumable that this preventive action prevented a bigger outbreak and more stringent policies.

Chapter 6: Discussion

In this final chapter I will critically reflect on my own research. I will shine a light on the research process I have been through and highlight a number of shortcomings of this research. I will end this chapter with a number of recommendations for further research in the field of policy stringency and Covid-19.

Shortcomings

Throughout this research, there are a number of shortcomings. The shortcomings that I will reflect on are the following: availability of data on Covid-19, both by governments as by the Oxford Stringency Index, the lack of data to answer hypotheses three and four, and the limited scope of the qualitative analysis.

The first shortcoming is the availability of data on the Covid-19 virus. Most of this data was not complete, and will probably never be. Especially in the first wave of the virus, the testing capacity was not everywhere good enough. This means that the number of Covid-19 cases is presumably higher than was reported. A second reason why data is not complete is the denial of the Covid-19 virus by some world leaders. It is assumed that they do not picture the right image of the situation in their country. Data might be manipulated in favour of their leaders. As this is mainly happening in non-democratic countries, the lack of this knowledge may have distorted the analysis in this research.

The second shortcoming also has to do with the available data. The Oxford Stringency Index, which was used as main source for the stringency is still developing. Data is added retrospectively. Thus, the available data grew after the data was used. This implies that the dataset was not complete at the time that I used the data of it. It probably still isn't.

A third shortcoming has to do with the failure of answering hypotheses 3 and 4. It was presumably assumed that the data for each of the components of the Oxford Stringency Index was publicly available, but it turned out that this initially was not the case. At the given moment, the collected data was insufficient to give any direction for an answer on hypothesis 3. For hypothesis 4, a small indication of an influence was given, but this was not significant and is based on very limited data. The data became available later on, but this file was not transferable to the SPSS, in which the whole analysis had been done.

The fourth shortcoming is the fairly limited scope of the qualitative analysis. In this research only four countries have been analysed. On the worldwide scale with almost 200 countries, this is, of course, a low N-value. Another shortcoming here is the limited amount of researched documents. This had mainly to do with the difficulty to find these documents. There were some obstacles here. A first obstacle was the publication date of the documents that had to be found. This made it a needle in the haystack. Despite, the documents gave a somewhat acceptable representation that was good enough to do the qualitative research.

Recommendations for further research

When it comes to research regarding Covid-19 policy or pandemic policy in general, a lot is still unclear. It would be interesting to look deeper into this, as a new similar pandemic unfortunately will be more and more likely to arise in the future. Based on the experiences in my research I will give a number of recommendations here, but this list of recommendations is far from exhaustive. The recommendations I will do here are comparisons between waves, deeper analysis on countries, complementary study between similar countries, and research to the effects of policy on the long term.

The first recommendation is to do a research that compares the different waves in countries. Unfortunately, there has been multiple waves of Covid-19. This periods, where the number of infections rose, has led to new measurements in countries around the world. It would be interesting to conduct a research that aims to find out what countries did different in new waves. This research focused on the first wave, a period in which not much was known about the new coronavirus. It is interesting to research what countries did in latter waves, when there was some knowledge available and they had experience on the first wave. Will this knowledge lead to more or less stringent policies? And, what are the drivers of policy in the second wave? If they were different than in the first wave, why were they different?

The second recommendation is to do a research that dives deeper into the countries. In this research, the time and documents were missing to dive deeper into countries. A deeper dive into the countries can tell more about the why of their policies. For such research, it might be good to have in-depth interviews with the policymakers and to request documents that were not made public. An example of a research question in this research would be: Why did country A pursue this policy?

The third recommendation is to do a complementary research between similar countries. Despite, a lot of countries have similar characteristics, both policies and infections differs a lot between countries. This recommendation can go two ways. First, this research can look to countries that are similar in characteristics that seemed to play a role in the Covid-19 pandemic, such as population density, median age, and climate. Why would such similar countries have different policies? The second way is to look at countries that had similar policies with different outcome. Why did policy B work in country C, but didn't work in country D?

The last recommendation is to do a research to the effects of policies on the long term. This research, obviously, couldn't be conducted now as the long-term effects are far from visible. But some day, long-term effects on for example the economy, the health care and the health in countries will become visible. It is interesting to do a research to this if effects differs per country. The questions in this research would be: What was the long-term effect of policy E? As there have been many different policies, the long-term effect will probably also differ and thus it is also interesting to compare different countries and different policies in this research. If policies end up to have the same long-term effect, it would even be worth researching what made that this different policies led to the same outcome.

This short list of recommendations is far from exhaustive. Global pandemics, such as the Covid-19 pandemic are a relatively new phenomenon, but scientists assume that global pandemics will return more and more in the future. There is a lot knowledge to gain, in order to prepare ourselves for the future pandemics, not only in the epidemiological field but also in the field of public

administration. It is likely that there is no perfect way to handle pandemics, but we can at least strive to find the way that comes closest to the perfect way.

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Appendices

Appendix A: LDI Scores

Country	Score on Liberal Democracy Index ¹
Afghanistan	0,19
Albania	0,40
Algeria	0,15
Angola	0,21
Argentina	0,67
Armenia	0,60
Australia	0,79
Austria	0,76
Azerbaijan	0,07
Bahrain	0,05
Bangladesh	0,10
Barbados	0,68
Belarus	0,08
Belgium	0,82
Benin	0,30
Bhutan	0,46
Bolivia	0,23
Bosnia and Herzegovina	0,34
Botswana	0,48
Brazil	0,51
Bulgaria	0,49
Burkina Faso	0,51
Burundi	0,05
Cambodia	0,07
Cameroon	0,12
Canada	0,74
Cape Verde	0,69
Central African Republic	0,21
Chad	0,09
Chile	0,76
China	0,04
Colombia	0,45
Comoros	0,17
Costa Rica	0,85
Croatia	0,64
Cuba	0,09
Cyprus	0,72
Czech Republic	0,71
Democratic Republic of Congo	0,16
Denmark	0,88
Djibouti	0,12

¹ Lührmann et al. (2020)

Dominican Republic	0,34
Ecuador	0,48
Egypt	0,12
El Salvador	0,38
Equatorial Guinea	0,06
Eritrea	0,01
Estonia	0,83
Eswatini	0,12
Ethiopia	0,16
Fiji	0,28
Finland	0,84
France	0,80
Gabon	0,21
Gambia	0,42
Georgia	0,51
Germany	0,83
Ghana	0,60
Greece	0,74
Guatemala	0,41
Guinea	0,14
Guinea-Bissau	0,35
Guyana	0,40
Haiti	0,23
Honduras	0,23
Hong Kong	0,25
Hungary	0,37
Iceland	0,79
India	0,34
Indonesia	0,45
Iran	0,14
Iraq	0,22
Ireland	0,82
Israel	0,65
Italy	0,78
Ivory Coast	0,31
Jamaica	0,70
Japan	0,73
Jordan	0,24
Kazakhstan	0,13
Kenya	0,37
Kosovo	0,43
Kuwait	0,29
Kyrgyzstan	0,29
Laos	0,09
Latvia	0,74
Lebanon	0,29
Lesotho	0,50
Liberia	0,48
Libya	0,15
Lithuania	0,76

Luxembourg	0,78
Madagascar	0,27
Malawi	0,45
Malaysia	0,28
Maldives	0,44
Mali	0,32
Malta	0,61
Mauritania	0,18
Mauritius	0,50
Mexico	0,41
Moldova	0,47
Mongolia	0,50
Montenegro	0,35
Morocco	0,26
Mozambique	0,25
Myanmar	0,27
Namibia	0,52
Nepal	0,45
Netherlands	0,82
New Zealand	0,85
Nicaragua	0,06
Niger	0,39
Nigeria	0,36
North Korea	0,01
North Macedonia	0,43
Norway	0,86
Oman	0,14
Pakistan	0,25
Palestine	0,13
Panama	0,56
Papua New Guinea	0,34
Paraguay	0,43
Peru	0,69
Philippines	0,28
Poland	0,49
Portugal	0,79
Qatar	0,10
Republic of the Congo	0,12
Romania	0,55
Russia	0,10
Rwanda	0,11
Sao Tome and Principe	0,59
Saudi Arabia	0,05
Senegal	0,58
Serbia	0,24
Seychelles	0,47
Sierra Leone	0,44
Singapore	0,31
Slovakia	0,76
Slovenia	0,65

Solomon Islands	0,48
Somalia	0,10
South Africa	0,58
South Korea	0,79
South Sudan	0,07
Spain	0,80
Sri Lanka	0,38
Sudan	0,09
Suriname	0,60
Sweden	0,87
Switzerland	0,85
Syria	0,04
Taiwan	0,72
Tajikistan	0,05
Tanzania	0,33
Thailand	0,17
Timor-Leste	0,46
Togo	0,20
Trinidad and Tobago	0,64
Tunisia	0,64
Turkey	0,11
Turkmenistan	0,04
Uganda	0,23
Ukraine	0,35
United Arab Emirates	0,09
United Kingdom	0,80
United States of America	0,73
Uruguay	0,80
Uzbekistan	0,11
Vanuatu	0,64
Venezuela	0,07
Vietnam	0,11
Yemen	0,04
Zambia	0,27
Zimbabwe	0,19

Appendix B: List of stringency indicators

Indicator²	Measured for hypothesis 1	Measured for hypothesis 2	Measured for hypothesis 3
School closing	Yes		
Workplace closing	Yes		
Cancel public events	Yes		
Restrictions on gathering size	Yes		
Close public transport	Yes		
Stay-at-home requirements	Yes		
Restrictions on internal movement	Yes		
Restrictions on international travel	Yes		
Income support		Yes	
Debt/contract relief for households		Yes	
Fiscal measures		Yes	
Giving international support		Yes	
Public information campaign			
Testing policy			Yes
Contact tracing			Yes
Emergency investment in health care			Yes
Investment in COVID-19 vaccines			Yes
Facial coverings			Yes
Vaccination policies			yes

² Blavatnik School of Government & University of Oxford (n.d.).

Appendix C: Highest stringency and containment and closure policies

Country	Highest stringency ³	Time period	Highest Containment & Health index ⁴	Time period
Afghanistan	84,26	Apr 12 th , 2020 – Jun 8 th , 2020	69,05	Jun 9 th , 2020 – August 3 rd , 2020
Albania	89,81	Apr 18 th , 2020 – May 17 th , 2020	73,21	Apr 21 st , 2020 – May 17 th , 2020
Algeria	92,13	Apr 14 th , 2020 – Apr 23 rd , 2020	75,12	Mar 16 th , 2021 – Apr 5 th , 2021 and Apr 12 th , 2021 – Apr 26 th , 2021
Angola	90,74	Mar 27 th , 2020 – Apr 22 nd , 2020	68,45	Apr 9 th , 2020 – Apr 22 nd , 2020
Argentina	100,00	Mar 23 rd , 2020 – Apr 25 th , 2020	86,31	Apr 14 th , 2020 – Apr 25 th , 2020
Australia	78,24	Feb 1 st , 2021 – Feb 4 th , 2021 and Feb 15 th , 2021	78,33	Apr 24 th , 2021 – Apr 26 th , 2021
Austria	82,41	Nov 16 th , 2020 – Dec 6 th , 2020 and Dec 26 th , 2020 – Feb 7 th , 2021	82,62	Dec 27 th , 2020 – Jan 14 th , 2021, Jan 21 st , 2021 – Feb 7 th , 2021, and Feb 12 th , 2021 – Feb 14 th , 2021
Azerbaijan	96,30	Jun 21 st , 2020 – Jul 27 th , 2020	82,74	Jun 21 st , 2020 – Jul 27 th , 2020, Jan 2 nd , 2021 – Jan 4 th , 2021, Jan 9 th , 2021 – Jan 10 th , 2021, Jan 16 th , 2021 – Jan 17 th , 2021, and Jan 23 rd , 2021 – Jan 24 th , 2021
Bahrain	78,70	Mar 28 th , 2020 – Apr 8 th , 2020	72,62	Jun 3 rd , 2020 – Jul 6 th , 2020
Bangladesh	93,52	Apr 12 th , 2020 – Apr 30 th , 2020 and May 17 th , 2020 – May 30 th , 2020	84,88	Apr, 26 th , 2020
Barbados	88,89	Apr 8 th , 2020 – May 3 rd , 2020	78,33	May 11 th , 2020 – now
Belarus	27,78	Dec 24 th , 2020 – now	49,94	Dec 29 th , 2020 – Jan 11 th , 2021
Belgium	81,48	Mar 20 th , 2020 – May 4 th , 2020	75,12	Apr 9 th , 2021 – Apr 18 th , 2021
Benin	70,83	Mar 30 th , 2020 – May 10 th , 2020	62,80	Apr 20 th , 2020 – May 10 th , 2020
Bhutan	97,22	Aug 11 th , 2020 – Aug 31 st , 2020	83,93	Aug 14 th , 2020 – Aug 31 st , 2020

³ Our World in Data (2021b).⁴ Our World in Data (2021a).

Bolivia	96,30	Mar 31 st , 2020 – May 24 th , 2020	74,40	Jun 20 th , 2020 – Jun 23 rd , 2020
Bosnia and Herzegovina	92,59	Apr 10 th , 2020 – Apr 23 rd , 2020	76,79	Apr 10 th , 2020 – Apr 23 rd , 2020
Botswana	86,11	Apr 2 nd , 2020 – May 7 th , 2020	66,67	May 1 st , 2020 – May 7 th , 2020
Brazil	81,02	May 5 th , 2020 – May 31 st , 2020 and Jul 4 th , 2020 – Jul 28 th , 2020	72,62	May 25 th , 2020 – May 31 st , 2020, and Jul 3 rd , 2020 – Jul 28 th , 2020
Bulgaria	73,15	Mar 21 st , 2020 – Mar 31 st , 2020 and Apr 15 th , 2020 – May 5 th , 2020	61,90	Apr 29 th , 2020 – Apr 30 th , 2020
Burkina Faso	89,81	May 4 th , 2020	72,62	May 4 th , 2020
Burundi	27,31	Feb 16 th , 2021 – Feb 22 nd , 2021	27,08	Feb 16 th , 2021 – Feb 22 nd , 2021
Cambodia	72,69	Apr 16 th , 2021 – now	79,23	May 11 th , 2021 – now
Cameroon	71,30	Apr 18 th , 2020 – Apr 30 th , 2020	59,52	Apr 18 th , 2020 – Apr 30 th , 2020
Canada	75,46	Jan 9 th , 2021 – Mar, 12 th , 2021 and Apr 1 st , 2021 – now	72,98	May 17 th , 2021 – now
Cape Verde	87,96	May 2 nd , 2020 – May 4 th , 2020	75,30	May 25 th , 2020 – Jun 29 th , 2020
Central African Republic	75,93	May 8 th , 2020 – Jun 10 th , 2020	56,55	Jun 6 th , 2020 – Jun 10 th , 2020
Chad	88,89	Apr 13 th , 2020 – May 11 th , 2020	68,45	May 7 th , 2020 – May 11 th , 2020
Chile	87,50	Jul 3 rd , 2020 – Jul 16 th , 2020 and Aug 1 st , 2020 – Aug 9 th , 2020	85,77	Apr 26 th , 2021 – May 2 nd , 2021
China	81,94	Mar 26 th , 2020 – Mar 27 th , 2020, May 10 th , 2020 – Jun 2 nd , 2020, Sep 15 th , 2020 – Sep 20 th , 2020, Oct 24 th , 2020 – Oct, 29 th , 2020, and Nov 24 th , 2020 – Dec 7 th , 2020	78,63	Apr 9 th , 2021 – May 3 rd , 2021
Colombia	90,74	Apr 27 th , 2020 – May 5 th , 2020	84,52	Apr 27 th , 2020 – May 5 th , 2020
Costa Rica	81,48	Apr 27 th , 2020 – Apr 30 th , 2020	62,86	May 19 th , 2021 – now
Croatia	96,30	Mar, 23 rd , 2020 – Apr 26 th , 2020	80,95	Apr 11 th , 2020 – Apr 26 th , 2020
Cuba	100,00	May 11 th , 2020 – Jun 17 th , 2020	86,31	May 12 th , 2020 – Jun 17 th , 2020
Cyprus	94,44	Apr 16 th , 2020 – May 3 rd , 2020	85,60	Jan 10 th , 2021 – Jan 25 th , 2021
Czech Republic	82,41	Mar, 23 rd , 2020 – Apr 1 st , 2020	81,43	Jan 30 th , 2021 – Feb 11 th , 2021
Democratic Republic of Congo	80,56	Apr 6 th , 2020 – Jul 21 st , 2020	63,99	Apr 20 th , 2020 – Jun 21 st , 2020

Denmark	72,22	Mar 18 th , 2020 – Apr 14 th , 2020	68,57	Jan 9 th , 2021 – Feb 7 th , 2021
Djibouti	94,44	Mar 23 rd , 2020 – May 16 th , 2020	80,36	May 10 th , 2020 – May 16 th , 2020
Dominican Republic	100,00	Apr 28 th , 2020 – May 17 th , 2020	85,12	May 1 st , 2020 – May 17 th , 2020
Ecuador	93,52	Mar 17 th , 2020 – May 3 rd , 2020	78,57	Apr 6 th , 2020 – May 3 rd , 2020
Egypt	84,56	Mar 25 th , 2020 – Jun 6 th , 2020	69,64	May 25 th , 2020 – Jun 6 th , 2020
El Salvador	100,00	May 7 th , 2020 – Jun 1 st , 2020	87,50	May 15 th , 2020 – Jun 1 st , 2020
Eritrea	93,52	Apr 1 st , 2020 – Jul 5 th , 2020	82,14	Feb 23 rd , 2021 – Mar 8 th , 2021
Estonia	77,78	Mar, 29 th , 2020 – Apr 26 th , 2020	67,98	Mar 11 th , 2021 – Mar 14 th , 2021
Eswatini	89,81	Apr 3 rd , 2020 – Apr 15 th , 2020	68,45	Feb 9 th , 2021 – Feb 28 th , 2021
Ethiopia	80,56	Apr 8 th , 2020 – Sep 10 th , 2020	70,24	Aug 25 th , 2020 – Sep 10 th , 2020
Fiji	86,11	Mar, 30 th , 2020 – Apr 25 th , 2020	74,40	Apr 17 th , 2020 – Apr 25 th , 2020
Finland	67,59	Mar, 27 th , 2020 – Apr 13 th , 2020	56,55	Mar 27 th , 2020 – Apr 13 th , 2020
France	87,96	Mar 17 th , 2020 – May 10 th , 2020	78,04	Apr 12 th , 2021 – May 2 nd , 2021
Gabon	82,26	May 14 th , 2020 – Jun 30, 2020	76,79	Jul 1 st , 2020 – Jul 14 th , 2020
Gambia	83,33	Aug 6 th , 2020 – Aug 13 th , 2020	73,21	Aug 6 th , 2020 – Aug 13 th , 2020
Georgia	100,00	Mar 31 st , 2020 – Apr 26 th , 2020	84,52	Apr 17 th , 2020 – Apr 26 th , 2020
Germany	85,19	Jan 5 th , 2021 – Jan 9 th , 2021	73,69	Dec 27 th , 2020 – Jan 4 th , 2021
Ghana	86,11	Mar 30 th , 2020 – Apr 17 th , 2020	69,64	Mar 30 th , 2020 – Apr 17 th , 2020
Greece	88,89	Feb 28 th , 2020 – Mar, 16 th , 2020	90,00	Feb 28 th , 2021 – Mar 16 th , 2021
Guatemala	96,30	Apr 18 th , 2020 – Jul 26 th , 2020	76,79	Apr 18 th , 2020 – Jul 26 th , 2020
Guinea	80,56	Jul 15 th , 2020 – Jul 16 th , 2020	67,38	Mar 2 nd , 2021 – Mar 8 th , 2021
Guyana	87,04	Apr 9 th , 2020 – Jun 7 th , 2020	78,33	May 12 th , 2021 – now
Haiti	93,52	April 19 th , 2020	65,48	May 23 rd , 2020 – Jun 1 st , 2020
Honduras	100,00	Mar 21 st , 2020 – Jun 7 th , 2020	82,74	May 21 st , 2020 – Jun 7 th , 2020
Hong Kong	71,30	Dec 4 th , 2020 – now	77,98	Apr 23 rd , 2021 – now
Hungary	79,63	Mar 8 th , 2021 – Apr 6 th , 2021	76,31	Mar 8 th , 2021 – Apr 6 th , 2021

Iceland	65,74	Mar 25 th , 2020 – Mar 30 th , 2020	69,52	Mar 25 th , 2021 – Mar 30 th , 2021
India	100,00	Mar 22 nd , 2020 and Mar 25 th , 2020 – Apr 19 th , 2020	91,96	Apr 9 th , 2020 – Apr 19 th , 2020
Indonesia	80,09	Apr 24 th , 2020 – May 2 nd , 2020	71,01	Mar 1 st , 2021 – now
Iran	81,48	Mar 23 rd , 2021 – now	71,55	Mar 23 rd , 2021 – Apr 26 th , 2021
Iraq	96,30	Mar 26 th , 2020 – Apr 20 th , 2020	82,14	Apr 20 th , 2020
Ireland	90,74	Apr 6 th , 2020 – May 17 th , 2020	83,81	Jan 29 th , 2021 – Feb 28 th , 2021
Israel	94,44	Apr 8 th , 2020 – Apr 10 th , 2020 and Apr 14 th , 2020 – Apr 16 th , 2020	88,45	Jan 31 st , 2021 – Feb 6 th , 2021
Italy	93,52	Apr 12 th , 2020 – May 3 rd , 2020	85,42	Apr 12 th , 2020 – May 3 rd , 2020
Ivory Coast	80,56	Mar 24 th , 2020 – May 7 th , 2020	64,58	Apr 9 th , 2020 – May 7 th , 2020
Jamaica	87,04	Apr 22 nd , 2020 – May 30 th , 2020	77,26	Apr 6 th , 2021 – Apr 10 th , 2021
Japan	50,93	Feb 27 th , 2021 – Feb 28 th , 2021	51,43	Feb 27 th , 2021 – Feb 28 th , 2021
Jordan	100,00	Mar 18 th , 2020 – Apr 20 th , 2020	79,76	Mar 18 th , 2020 – Apr 20 th , 2020
Kazakhstan	92,13	Mar 30 th , 2020 – Apr 30 th , 2020	78,57	May 1 st , 2020 – May 3 rd , 2020
Kenya	88,89	Apr 6 th , 2020 – Jun 22 nd , 2020	77,38	May 4 th , 2020 – May 31 st , 2020
Kosovo	92,59	Mar 24 th , 2020 – May 17 th , 2020	77,26	Jan 22 nd , 2021 – Jan 30 th , 2021
Kuwait	100,00	May 10 th , 2020 – May 30 th , 2020	88,69	May 18 th , 2020 – May 30 th , 2020
Kyrgyzstan	92,13	Mar 25 th , 2020 – Apr 29 th , 2020	71,13	Mar 25 th , 2020 – Apr 29 th , 2020
Laos	96,30	Mar 30 th , 2020 – May 3 rd , 2020	85,83	Apr 22 nd , 2021 – Apr 26 th , 2021
Latvia	69,44	Mar 27 th , 2020 – May 11 th , 2020	58,63	May 27 th , 2020 – Jun 7 th , 2020
Lebanon	92,59	Feb 9 th , 2021 – Mar 22 nd , 2021	78,45	Mar 2 nd , 2021 – Mar 22 nd , 2021
Lesotho	90,74	Mar 29 th , 2020 – May 5 th , 2020	72,62	Feb 8 th , 2021 – Feb 28 th , 2021
Liberia	87,96	Apr 12 th , 2020 – May 22 nd , 2020	72,62	Apr 24 th , 2020 – May 22 nd , 2020
Libya	100,00	Apr 17 th , 2020 – May 27 th , 2020	77,38	Apr 18 th , 2020 – May 27 th , 2020
Lithuania	87,04	Apr 10 th , 2020 – Apr 13 th , 2020	73,10	Dec 28 th , 2020 – Dec 31 st , 2020

Luxembourg	79,63	Mar 17 th , 2020 – Apr 19 th , 2020	70,71	Dec 28 th , 2020 – Jan 3 rd , 2021
Madagascar	95,37	Apr 5 th , 2020 – Apr 19 th , 2020	73,21	Apr 5 th , 2020 – Apr 19 th , 2020
Malawi	64,81	Aug 8 th , 2020 – Aug 31 st , 2020	60,48	Apr 12 th , 2021 – Apr 19 th , 2021
Malaysia	80,56	May 12 th , 2021 – now	80,71	May 12 th , 2021 – now
Mali	75,00	Mar 25 th , 2020 – Apr 30 th , 2020	61,90	May 9 th , 2020
Malta	87,04	Apr 3 rd , 2020 – May 21 st , 2020	80,95	May 4 th , 2020 – May 21 st , 2020
Mauritania	77,78	Mar 29 th , 2020 – Jun, 30 th , 2020	64,88	Jun 15 th , 2020 – Jun 30 th , 2020
Mauritius	97,22	Mar 23 rd , 2021 – Mar 29 th , 2021	90,24	Mar 23 rd , 2021 – Mar 29 th , 2021
Mexico	82,41	Mar 30 th , 2020 – May 31 st , 2020	67,56	Apr 17 th , 2020 – May 31 st , 2020
Moldova	87,04	Mar 24 th , 2020 – Apr 17 th , 2020	76,79	May 15 th , 2020
Mongolia	96,30	Apr 13 th , 2021 – May 3 rd , 2021	85,48	Apr 23 rd , 2021 – May 3 rd , 2021
Morocco	93,52	Mar 25 th , 2020 – Jun 10 th , 2020	82,74	Jun 1 st , 2020 – Jun 10 th , 2020
Mozambique	75,00	Jun 17 th , 2020 – Jul 28 th , 2020 and Aug 7 th , 2020 – Aug 17 th , 2020	73,33	May 5 th , 2021 – now
Myanmar	86,11	Apr 17 th , 2020 – May 2 nd , 2020	79,05	Mar 9 th , 2021 – Mar 22 nd , 2021
Namibia	73,15	Apr 17 th , 2020 – May 4 th , 2020	64,29	Sep 4 th , 2020 – Sep 6 th , 2020
Nepal	96,30	Mar 24 th , 2020 – May 6 th , 2020	83,81	May 4 th , 2021 – now
Netherlands	82,41	Jan 23 rd , 2021 – Feb 7 th , 2021	72,50	Jan 30 th , 2021 – Feb 7 th , 2021
New Zealand	96,30	Mar 26 th , 2020 – Apr 27 th , 2020	80,95	Apr 1 st , 2020 – Apr 26 th , 2020
Nicaragua	24,07	Apr 15 th , 2020 – May 6 th , 2020	20,24	Apr 15 th , 2020 – May 6 th , 2020, and May 16 th , 2020 – May 25 th , 2020
Niger	61,11	Mar 28 th , 2020 – May 12 th , 2020	50,60	Apr 23 rd , 2020 – May 12 th , 2020
Nigeria	85,65	Apr 23 rd , 2020 – May 3 rd , 2020	76,19	Apr 25 th , 2020 – Jun 3 rd , 2020
Norway	79,63	Mar 24 th , 2020 – Apr 19 th , 2020	71,55	Mar 25 th , 2021 – Apr 15 th , 2021
Oman	100,00	Jul 25 th , 2020 – Jul 26 th , 2020	85,71	Jul 25 th , 2020 – Jul 26 th , 2020
Pakistan	96,30	Mar 26 th , 2020 – Apr 14 th , 2020	78,15	Apr 20 th , 2021 – May 10 th , 2021

Palestine	96,30	Mar 22 nd , 2020 – May 25 th , 2020	80,48	Mar 17 th , 2021 – Mar 20 th , 2021
Panama	93,52	Apr 18 th , 2020 – May 12 th , 2020	79,76	Sep 14 th , 2020 – Oct 11 th , 2020
Papua New Guinea	83,80	Apr 16 th , 2020 – Apr 24 th , 2020	69,35	Apr 18 th , 2020 – Apr 24 th , 2020, and Aug 7 th , 2020 – Aug 11 th , 2020
Paraguay	93,52	Mar 24 th , 2020 – May 24 th , 2020	72,86	Mar 27 th , 2021 – Mar 28 th , 2021
Peru	96,30	May 1 st , 2020 – May 10 th , 2020	82,74	May 1 st , 2020 – May 10 th , 2020
Philippines	100,00	Mar, 22 nd , 2020 – Apr 30 th , 2020	82,56	Apr 4 th , 2021 - Apr 19 th , 2021
Poland	83,33	Apr 9 th , 2020 – May 24 th , 2020	75,48	Dec 31 st , 2020 – Jan 1 st , 2021
Portugal	87,96	Apr 9 th , 2020 – Apr 13 th , 2020, May 1 st , 2020 – May 3 rd , 2020, Jan 22 nd , 2021 - Jan 24 th , 2021, Jan 29 th , 2021 – Jan 31 st , 2021, Feb 5 th , 2021 – Feb 7 th , 2021, Feb 12 th , 2021 – Feb 14 th , 2021, Feb 19 th , 2021 – Feb 21 st , 2021, Feb 26 th , 2021 – Feb 28 th , 2021, Mar 5 th , 2021 – Mar 7 th , 2021, and Mar 12 th , 2021 – Mar 14 th , 2021	85,24	Feb 26 th , 2021 – Feb 28 th , 2021, Mar 5 th , 2021 – Mar 7 th , 2021, and Mar 12 th , 2021 – Mar 14 th , 2021
Qatar	86,11	Mar 28 th , 2020 – Apr 21 st , 2020	86,67	Apr 6 th , 2021 – Apr 21 st , 2021
Republic of the Congo	97,22	Mar 31 st , 2020 – May 17 th , 2020	80,95	Apr 30 th , 2020 – May 17 th , 2020
Romania	87,04	Mar 31 st , 2020 – May 10 th , 2020	75,12	Jan 15 th , 2021 – Feb 14 th , 2021, and Feb 21 st , 2021 – Mar 14 th , 2021
Russia	87,04	Mar 30 th , 2020 – Apr 5 th , 2020	79,46	Apr 19 th , 2020 – May 11 th , 2020
Rwanda	90,74	Mar 21 st , 2020 – May 3 rd , 2020	85,12	Apr 30 th , 2020 – May 3 rd , 2020
Saudi Arabia	94,44	Apr 26 th , 2020 – Apr 29 th , 2020	83,33	May 30 th , 2020
Senegal	77,78	Mar 25 th , 2020 – May 10 th , 2020	69,05	Apr 11 th , 2020 – May 10 th , 2020
Serbia	100,00	Mar 21 st , 2020 – Apr 20 th , 2020	80,95	Mar 21 st , 2020 – Apr 20 th , 2020
Seychelles	93,52	Apr 9 th , 2020 – May 3 rd , 2020	79,17	Apr 9 th , 2020 – May 3 rd , 2020

Sierra Leone	88,89	Apr 5 th , 2020 – Apr 7 th , 2020, and May 3 rd , 2020 – May 5 th , 2020	81,55	May 3 rd , 2020 – May 5 th , 2020
Singapore	76,85	Apr 8 th , 2020 – May 11 th , 2020	75,60	Apr 14 th , 2020 – May 11 th , 2020
Slovakia	87,04	Apr 8 th , 2020 – Apr 13 th , 2020	81,01	Mar 28 th , 2021 -Apr 11 th , 2021
Slovenia	89,81	Mar 30 th , 2020 – Apr 19 th , 2020	81,67	Apr 1 st , 2021 – Apr 6 th , 2021
Solomon Islands	69,44	May 20 th , 2020 – May 22 nd , 2020	50,60	May 20 th , 2020 – May 22 nd , 2020
Somalia	60,19	Apr, 11 th , 2020 – May 28 th , 2020, and Mar 3 rd , 2021 – Mar 7 th , 2021	52,38	Mar 3 rd , 2021 – Mar 7 th , 2021
South Africa	87,96	Mar 26 th , 2020 – Apr 30 th , 2020	80,95	May 1 st , 2020 – May 31 st , 2020, and Jul 27 th , 2020 – Jul 29 th , 2020
South Korea	82,41	Apr 6 th , 2020 – Apr 17 th , 2020	76,19	Apr 6 th , 2020 – Apr 17 th , 2020
South Sudan	86,11	Apr 18 th , 2020 – May 6 th , 2020	72,02	May 29 th , 2020 – Jun 15 th , 2020
Spain	85,19	Mar 30 th , 2020 – May 3 rd , 2020	71,31	Dec 27 th , 2020 – Jan 6 th , 2020
Sri Lanka	100,00	Mar 27 th , 2020 – Apr 17 th , 2020	87,02	May 17 th , 2021 – now
Sudan	91,67	May 29 th , 2020 – Jun, 11 th , 2020	73,21	May 29 th , 2020 – Jun, 11 th , 2020
Suriname	100,00	Sep 11 th , 2020 – Sep 14 th , 2020	86,90	Sep 11 th , 2020 – Sep 14 th , 2020
Sweden	69,44	Dec 14 th , 2020 – Mar 31 st , 2021	64,46	Feb 17 th , 2021 – Mar 9 th , 2021
Switzerland	73,15	Mar 17 th , 2020 – Apr 26 th , 2020	67,38	Apr 15 th , 2021 – Apr 18 th , 2021
Syria	87,04	Apr 1 st , 2020 – Apr 19 th , 2020, and Apr 22 nd , 2020 – May 25 th , 2020	66,67	Apr 2 nd , 2020 – Apr 19 th , 2020, and Apr 22 nd , 2020 – May 25 th , 2020
Taiwan	56,02	May 16 th , 2021 – now	78,10	May 19 th , 2021 – now
Tajikistan	66,67	Jun 3 rd , 2020 – Jun 14 th , 2020	52,38	Jun 3 rd , 2020 – Jun 14 th , 2020
Tanzania	50,00	Apr 12 th , 2020 – May 17 th , 2020	38,39	Apr 20 th , 2020 – May 17 th , 2020
Thailand	76,85	Apr 3 rd , 2020 – May 2 nd , 2020	69,35	May 1 st , 2020 – May 2 nd , 2020
Timor-Leste	87,04	Apr 20 th , 2021 – now	78,81	Apr 20 th , 2021 – now
Togo	73,15	Apr 2 nd , 2020 – Jun 7 th , 2020	66,43	Apr 5 th , 2021 -Apr 12 th , 2021
Trinidad and Tobago	90,74	Apr 27 th , 2020 – May 20 th , 2020	79,17	Apr 27 th , 2020 – Apr 30 th , 2020

Tunisia	90,74	Mar 22 nd , 2020 – May 3 rd , 2020	72,62	May 7 th , 2020 – May 14 th , 2020, and Feb 16 th , 2021 – Mar 7 th , 2021
Turkey	87,04	Apr 26 th , 2021 – May 16 th , 2021	86,43	Apr 26 th , 2021 – May 16 th , 2021
Turkmenistan	73,15	Nov 5 th , 2020 – Dec 17 th , 2020, and Jan 5 th , 2021 – Feb 3 rd , 2021	61,31	Apr 6 th , 2021 – Apr 17 th , 2021
Uganda	93,52	Mar 30 th , 2020 – May 5 th , 2020	75,60	May 6 th , 2020 – May 17 th , 2020
Ukraine	88,89	Mar 18 th , 2020 – May 21 st , 2020	79,17	May 7 th , 2020 – May 21 st , 2020
United Arab Emirates	89,81	Apr 4 th , 2020 – Apr 16 th , 2020	83,93	Apr 13 th , 2020 – Apr 16 th , 2020
United Kingdom	87,96	Jan 5 th , 2021 – Feb 21 st , 2021	81,67	Jan 5 th , 2021 – Feb 21 st , 2021
United States of America	75,46	Nov 16 th , 2020 – Dec 1 st , 2020	70,24	Nov 16 th , 2020 – Dec 1 st , 2020
Uruguay	87,04	Mar 15 th , 2021 – Mar 30 th , 2021	80,71	Mar 29 th , 2021 – Mar 30 th , 2021
Uzbekistan	96,30	Apr 28 th , 2020 – May 7 th , 2020	81,85	Apr 28 th , 2020 – May 7 th , 2020
Vanuatu	83,33	Mar 26 th , 2020 – Apr 4 th , 2020	61,90	Mar 26 th , 2020 – Apr 4 th , 2020
Venezuela	90,74	Jan 4 th , 2021 – Jan 10 th , 2021	79,40	Apr 5 th , 2021 – Apr 25 th , 2021, and May 3 rd , 2021 – now
Vietnam	96,30	Apr 1 st , 2020 – Apr 14 th , 2020	84,52	Apr 9 th , 2020 – Apr 14 th , 2020
Yemen	58,33	May 1 st , 2020 – May 4 th , 2020, and May 28 th , 2020 – Jul 12 th , 2020	41,07	May 1 st , 2020 – May 4 th , 2020, and May 28 th , 2020 – Jul 12 th , 2020
Zambia	70,83	May 2 nd , 2020 – May 7 th , 2020	60,42	May 2 nd , 2020 – May 7 th , 2020
Zimbabwe	87,96	Mar 30 th , 2020 – Jun 4 th , 2020, and Feb 16 th , 2021 – Mar 1 st , 2021	75,83	Feb 19 th , 2021 – Mar 1 st , 2021

Appendix D: Control variables

Country	Date	Average Covid-19 cases 7-days before (per million people) ⁵	Average Covid-19 deaths 7-days before (per million people) ⁶	Daily tests 7-days average (per 1000 people) ⁷	Reproduction rate ⁸	Number of Covid-patients in hospital (per million people) ⁹
Afghanistan	12 April 2020	0,99	0,03		1,39	
Albania	18 April 2020	5,71	0,15	0,08	1,06	
Algeria	14 April 2020	1,96	0,43		1,07	
Angola	27 March 2020	0,01	0,00		Not available	
Argentina	23 March 2020	0,77	0,01	0,00	2,11	
Australia	1 February 2021	0,24	0,00	1,32	Not available	
Austria	16 November 2020	790,98	6,87	3,41	1,04	409
Azerbaijan	21 June 2020	39,06	0,49		1,27	
Bahrain	28 March 2020	14,36	0,25	0,84	1,30	
Bangladesh	12 April 2020	0,46	0,02	0,00	2,61	
Barbados	8 April 2020	14,42	1,49		Not available	
Belarus	24 December 2020	202,31	0,89	2,38	1,01	
Belgium	20 March 2020	20,93	0,42	0,21	2,33	96
Benin	30 March 2020	0,01	0,00		Not available	
Bhutan	11 August 2020	1,48	0,00	0,79	0,59	
Bolivia	31 March 2020	0,95	0,07	0,00	Not available	
Bosnia and Herzegovina	10 April 2020	14,02	0,83	0,21	1,16	

⁵ Our World in Data (2021d).⁶ Our World in Data (2021e).⁷ Our World in Data (2021c).⁸ Our World in Data (2021f).⁹ Our World in Data (2021g).

Botswana	2 April 2020	Not available	Not available		Not available	
Brazil	5 May 2020	28,38	1,92		1,43	
Bulgaria	21 March 2020	2,51	0,02		1,30	
Burkina Faso	4 May 2020	0,25	0,03		0,92	
Burundi	16 February 2021	1,50	0,00		Not available	
Cambodia	16 April 2021	16,03	0,12		0,12	
Cameroon	18 April 2020	1,06	0,05		1,38	
Canada	9 January 2021	255,07	4,05	2,91	1,04	120
Cape Verde	2 May 2020	15,93	0,26		1,00	
Central African Republic	8 May 2020	2,10	0,00		Not available	
Chad	13 April 2020	0,12	0,00		Not available	
Chile	3 July 2020	184,80	7,35	0,77	0,80	
China	26 March 2020	0,04	0,00		0,94	
Colombia	27 April 2020	4,55	0,18		1,34	
Costa Rica	27 April 2020	0,98	0,00	0,03	0,81	
Croatia	23 March 2020	8,98	0,04	0,07	2,19	
Cuba	11 May 2020	1,45	0,10	0,17	0,63	
Cyprus	16 April 2020	27,89	0,33	1,67	0,76	41
Czech Republic	23 March 2020	12,51	0,01		1,93	11
Democratic Republic of Congo	6 April 2020	0,13	0,02		1,15	
Denmark	18 March 2020	16,57	0,10	0,14	1,34	
Djibouti	23 March 2020	0,43	0,00		Not available	
Dominican Republic	28 April 2020	18,07	0,54	0,09	1,14	
Ecuador	17 March 2020	0,35	0,02		Not available	
Egypt	25 March 2020	0,36	0,02		1,45	
El Salvador	7 May 2020	6,61	0,11	0,26	1,28	
Eritrea	1 April 2020	0,44	0,00		Not available	
Estonia	29 March 2020	38,02	0,32	0,80	1,39	66
Eswatini	3 April 2020	0,00	0,00		Not available	

Ethiopia	8 April 2020	0,03	0,00	0,00	Not available	
Fiji	30 March 2020	0,32	0,00	0,03	Not available	
Finland	27 March 2020	15,24	0,18	0,29	1,42	19
France	17 March 2020	12,54	0,24		2,44	38
Gabon	14 May 2020	38,51	0,13		1,38	
Gambia	6 August 2020	31,45	0,47	0,11	1,40	
Georgia	31 March 2020	1,43	0,00		0,95	
Germany	5 January 2021	208,80	7,66	1,63	1,00	
Ghana	30 March 2020	0,57	0,01	0,02	1,48	
Greece	28 February 2020	Not available	Not available		Not available	
Guatemala	18 April 2020	0,78	0,03	0,00	1,26	
Guinea	15 July 2020	6,30	0,04		1,06	
Guyana	9 April 2020	3,27	0,36		Not available	
Haiti	19 April 2020	0,16	0,01		Not available	
Honduras	21 March 2020	0,32	0,00		Not available	
Hong Kong	4 December 2020	12,62	0,08	4,68	Not available	
Hungary	8 March 2021	529,23	13,75	2,87	Not available	1
Iceland	25 March 2020	203,87	0,84	1,98	1,42	53
India	22 March 2020	0,03	0,00	0,00	2,12	
Indonesia	24 April 2020	1,20	0,09	0,00	1,11	
Iran	23 March 2021	89,12	0,89	0,76	0,94	
Iraq	26 March 2020	0,68	0,08		1,76	
Ireland	6 April 2020	71,00	3,47	0,54	1,54	168
Israel	8 April 2020	57,65	0,84	0,94	0,97	80
Italy	12 April 2020	68,16	9,48	0,75	0,90	516
Ivory Coast	24 March 2020	0,37	0,00		Not available	
Jamaica	22 April 2020	5,21	0,05	0,03	1,03	
Japan	27 February 2021	8,07	0,46	0,33	0,85	

Jordan	18 March 2020	0,71	0,00		Not available	
Kazakhstan	30 March 2020	1,83	0,00	0,10	1,62	
Kenya	6 April 2020	0,29	0,01	0,00	0,80	
Kosovo	24 March 2020	3,33	0,07		Not available	
Kuwait	10 May 2020	123,94	0,67		1,76	
Kyrgyzstan	25 March 2020	0,90	0,00		Not available	
Laos	30 March 2020	0,16	0,00		Not available	
Latvia	27 March 2020	12,80	0,00	0,56	1,20	
Lebanon	9 February 2021	398,17	10,70		0,93	
Lesotho	29 March 2020	0,00	0,00		Not available	
Liberia	12 April 2020	1,04	0,06		Not available	
Libya	17 April 2020	0,52	0,00	0,00	Not available	
Lithuania	10 April 2020	13,91	0,32	0,86	0,94	
Luxembourg	17 March 2020	30,81	0,23	0,33	Not available	0
Madagascar	5 April 2020	0,17	0,00		Not available	
Malawi	8 August 2020	3,27	0,17	0,03	0,87	
Malaysia	12 May 2021	127,32	0,75	2,29	1,20	
Mali	25 March 2020	Not available	Not available		Not available	
Malta	3 April 2020	20,38	0,00	1,48	1,13	
Mauritania	29 July 2020	7,56	0,03	0,13	0,65	
Mauritius	23 March 2021	7,64	0,00		1,22	
Mexico	30 March 2020	0,81	0,03	0,01	1,80	
Moldova	24 March 2020	3,36	0,04		Not available	
Mongolia	13 April 2021	268,95	0,70	7,18	1,39	
Morocco	25 March 2020	0,68	0,01	0,00	1,92	
Mozambique	17 June 2020	0,82	0,00	0,03	1,13	
Myanmar	17 April 2020	0,16	0,00	0,00	Not available	
Namibia	17 April 2020	0,00	0,00	0,00	Not available	

Nepal	24 March 2020	0,00	0,00	0,00	Not available	
Netherlands	23 January 2021	312,65	4,58	1,48	0,86	95
New Zealand	26 March 2020	7,56	0,00	0,36	1,79	
Nicaragua	15 April 2020	0,19	0,07		Not available	
Niger	28 March 2020	0,05	0,00		Not available	
Nigeria	23 April 2020	0,37	0,01	0,00	1,86	
Norway	24 March 2020	36,89	0,24		1,45	39
Oman	25 July 2020	261,68	1,76	0,75	0,80	
Pakistan	26 March 2020	0,56	0,00	0,00	1,72	
Palestine	22 March 2020	0,39	0,00		Not available	
Panama	18 April 2020	40,92	1,39	0,15	1,13	
Papua New Guinea	16 April 2020	0,08	0,00		Not available	
Paraguay	24 March 2020	0,36	0,04	0,00	Not available	
Peru	1 May 2020	81,50	2,12	0,07	1,46	
Philippines	22 May 2020	1,96	0,07	0,07	1,09	
Poland	9 April 2020	9,92	0,44		1,24	
Portugal	9 April 2020	68,96	2,80	0,97	1,12	115
Qatar	28 March 2020	5,41	0,05	0,31	1,56	
Republic of the Congo	31 March 2020	0,39	0,00		Not available	
Romania	31 March 2020	10,78	0,53	0,09	1,75	
Russia	30 March 2020	1,37	0,00	0,18	2,48	
Rwanda	21 March 2020	0,18	0,00		Not available	
Saudi Arabia	26 April 2020	33,48	0,17	0,27	1,39	
Senegal	25 March 2020	0,58	0,00	0,00	Not available	
Serbia	21 March 2020	2,62	0,02	0,00	1,93	
Seychelles	9 April 2020	1,45	0,00		Not available	
Sierra Leone	5 April 2020	0,11	0,00		Not available	
Singapore	8 April 2020	15,21	0,07		1,92	
Slovakia	8 April 2020	7,38	0,03	0,29	1,29	

Slovenia	30 March 2020	21,58	0,55	0,52	1,14	56
Solomon Islands	20 May 2020	Not available	Not available		Not available	
Somalia	11 April 2020	0,13	0,00		Not available	
South Africa	26 March 2020	1,87	0,00	0,04	2,23	
South Korea	6 April 2020	1,74	0,08	0,18	0,69	
South Sudan	18 April 2020	0,00	0,00		Not available	
Spain	30 March 2020	161,39	16,52		1,45	
Sri Lanka	27 March 2020	0,22	0,00	0,00	0,79	
Sudan	29 May 2020	3,94	0,31		1,18	
Suriname	11 September 2020	67,45	4,38		0,73	
Sweden	14 December 2020	582,59	6,32	3,98	1,25	243
Switzerland	17 March 2020	36,46	0,40		2,71	
Syria	1 April 2020	0,04	0,02		Not available	
Taiwan	16 May 2021	2,99	0,00	0,18	0,17	
Tajikistan	3 June 2020	11,49	0,01		0,72	
Tanzania	12 April 2020	0,02	0,00		Not available	
Thailand	3 April 2020	1,72	0,03	0,04	1,05	
Timor-Leste	20 April 2021	40,96	0,00		Not available	
Togo	2 April 2020	0,28	0,04	0,00	Not available	
Trinidad and Tobago	27 April 2020	0,20	0,00		0,15	
Tunisia	22 March 2020	0,69	0,04		Not available	
Turkey	26 April 2021	582,15	4,14	3,50	0,74	
Turkmenistan	5 November 2020	Not available	Not available		Not available	
Uganda	30 March 2020	0,07	0,00		Not available	
Ukraine	18 March 2020	0,04	0,00		Not available	
United Arab Emirates	4 April 2020	14,98	0,12	2,09	2,15	
United Kingdom	5 January 2021	826,48	10,00	6,68	1,25	452

United States of America	16 November 2020	474,44	3,54	4,91	1,21	221
Uruguay	15 March 2021	335,66	2,43	3,18	1,27	
Uzbekistan	28 April 2020	1,11	0,00		0,92	
Vanuatu	26 March 2020	Not available	Not available		Not available	
Venezuela	4 January 2021	8,90	0,10		0,99	
Vietnam	1 April 2020	0,11	0,00	0,04	0,67	
Yemen	1 May 2020	0,03	0,01		Not available	
Zambia	2 May 2020	0,27	0,00	0,02	1,15	
Zimbabwe	30 March 2020	0,04	0,00		Not available	

Appendix E: GDP per Capita

Country	GDP per Capita (in US\$)¹⁰
Afghanistan	507,1
Albania	5 353,2
Algeria	3 974
Angola	2 790,7
Argentina	9 912,3
Armenia	4 622,7
Australia	55 057,2
Austria	50 121,6
Azerbaijan	4 793,1
Bahrain	23 504
Bangladesh	1 855,7
Barbados	18 148,2
Belarus	6 698
Belgium	46 345,4
Benin	1 219,4
Bhutan	3 316,2
Bolivia	3 552,1
Bosnia and Herzegovina	6 108,5
Botswana	7 961,3
Brazil	8 717,2
Bulgaria	9 828,1
Burkina Faso	786,9
Burundi	261,2
Cambodia	1 643,1
Cameroon	1 507,5
Canada	46 189,7
Cape Verde	3 603,8
Central African Republic	467,9
Chad	709,5
Chile	14 896,5
China	10 216,6
Colombia	6 428,7
Comoros	1 370,1
Costa Rica	12 243,8
Croatia	14 944,4
Cuba	8 821,8
Cyprus	27 858,4
Czech Republic	23 489,8
Democratic Republic of Congo	580,7
Denmark	60 213,1
Djibouti	3 414,9
Dominican Republic	8 282,1
Ecuador	6 183,8
Egypt	3 019,2
El Salvador	4 187,3

¹⁰ World Bank (2021)

Equatorial Guinea	8 131,9
Eritrea	642,5
Estonia	23 717,8
Eswatini	3 894,7
Ethiopia	855,8
Fiji	6 175,9
Finland	48 771,4
France	40 496,4
Gabon	7 767
Gambia	777,8
Georgia	4 698
Germany	46 467,5
Ghana	2 202,1
Greece	19 581
Guatemala	4 620
Guinea	962,8
Guinea-Bissau	697,3
Guyana	6 609,6
Haiti	1 272,5
Honduras	2 574,9
Hong Kong	48 713,5
Hungary	16 729,8
Iceland	67 084,1
India	2 099,6
Indonesia	4 135,6
Iran	5 550,1
Iraq	5 955,1
Ireland	78 779
Israel	43 588,7
Italy	33 225,6
Ivory Coast	2 276,3
Jamaica	5 582,3
Japan	40 264,9
Jordan	4 405,5
Kazakhstan	9 812,5
Kenya	1 816,5
Kosovo	4 430,8
Kuwait	32 000,4
Kyrgyzstan	1 309,5
Laos	2 534,9
Latvia	17 819,3
Lebanon	7 583,7
Lesotho	1 118,1
Liberia	621,9
Libya	7 685,9
Lithuania	19 550,7
Luxembourg	114 685,2
Madagascar	523,4
Malawi	411,6
Malaysia	11 414,2

Maldives	10 626,5
Mali	879
Malta	29 737,2
Mauritania	1 679,4
Mauritius	11 099,2
Mexico	9 946
Moldova	4 494
Mongolia	4 339,8
Montenegro	8 910,5
Morocco	3 204,1
Mozambique	503,6
Myanmar	1 407,8
Namibia	4 957,5
Nepal	1 071,1
Netherlands	52 295
New Zealand	41 557,8
Nicaragua	1 912,9
Niger	553,9
Nigeria	2 229,9
North Macedonia	6 022,2
Norway	75 419,6
Oman	15 343,1
Pakistan	1 284,7
Palestine	3 562,3
Panama	15 731
Papua New Guinea	2 829,2
Paraguay	5 414,8
Peru	6 977,7
Philippines	3 485,1
Poland	15 694,7
Portugal	23 214
Qatar	62 088,1
Republic of the Congo	2 280
Romania	12 913,1
Russia	11 585
Rwanda	820
Sao Tome and Principe	1 946,6
Saudi Arabia	23 139,8
Senegal	1 446,8
Serbia	7 411,6
Seychelles	17 448,3
Sierra Leone	527,5
Singapore	65 233,3
Slovakia	19 266
Slovenia	25 940,7
Solomon Islands	2 373,6
Somalia	126,9
South Africa	6 001,4
South Korea	31 846,2
South Sudan	1 119,7

Spain	29 564,7
Sri Lanka	3 853,1
Sudan	441,5
Suriname	6 359,8
Sweden	51 648
Switzerland	81 989,4
Syria	2 032,6
Tajikistan	870,8
Tanzania	1 122,1
Thailand	7 806,7
Timor-Leste	1 560,5
Togo	679,3
Trinidad and Tobago	17 398
Tunisia	3 317,5
Turkey	9 126,6
Turkmenistan	6 966,6
Uganda	794,3
Ukraine	3 659
United Arab Emirates	43 103,3
United Kingdom	42 328,9
United States of America	65 297,5
Uruguay	16 190,1
Uzbekistan	1 724,9
Vanuatu	3 115,4
Venezuela	16 054,5
Vietnam	2 715,3
Yemen	774,3
Zambia	1 305,1
Zimbabwe	1 464

Appendix F: Air pollution

Country	Air pollution¹¹
Afghanistan	92,20
Albania	78,59
Algeria	65,32
Angola	
Argentina	50,73
Armenia	60,23
Australia	23,48
Austria	19,20
Azerbaijan	75,44
Bahrain	71,57
Bangladesh	84,91
Barbados	
Belarus	44,47
Belgium	50,27
Benin	
Bhutan	
Bolivia	73,25
Bosnia and Herzegovina	60,71
Botswana	
Brazil	54,53
Bulgaria	64,48
Burkina Faso	
Burundi	
Cambodia	78,21
Cameroon	
Canada	28,13
Cape Verde	
Central African Republic	
Chad	
Chile	78,96
China	81,47
Colombia	62,88
Comoros	
Costa Rica	44,07
Croatia	30,58
Cuba	
Cyprus	56,77
Czech Republic	36,30
Democratic Republic of Congo	
Denmark	20,40
Djibouti	
Dominican Republic	75,08
Ecuador	58,34
Egypt	84,35
El Salvador	

¹¹Numbeo (2021)

Equatorial Guinea	
Eritrea	
Estonia	19,01
Eswatini	
Ethiopia	77,74
Fiji	
Finland	11,86
France	41,79
Gabon	
Gambia	
Georgia	69,70
Germany	27,48
Ghana	88,98
Greece	51,95
Guatemala	72,49
Guinea	
Guinea-Bissau	
Guyana	
Haiti	
Honduras	
Hong Kong	67,30
Hungary	47,81
Iceland	16,24
India	79,62
Indonesia	67,08
Iran	76,13
Iraq	73,57
Ireland	33,59
Israel	58,42
Italy	53,93
Ivory Coast	
Jamaica	66,27
Japan	39,40
Jordan	76,09
Kazakhstan	72,62
Kenya	75,88
Kosovo	
Kuwait	66,72
Kyrgyzstan	
Laos	78,76
Latvia	33,91
Lebanon	89,35
Lesotho	
Liberia	
Libya	57,78
Lithuania	27,01
Luxembourg	23,27
Madagascar	
Malawi	
Malaysia	62,58

Maldives	
Mali	
Malta	77,76
Mauritania	
Mauritius	56,19
Mexico	61,24
Moldova	
Mongolia	91,84
Montenegro	46,91
Morocco	70,38
Mozambique	
Myanmar	89,77
Namibia	
Nepal	84,26
Netherlands	25,28
New Zealand	23,81
Nicaragua	
Niger	
Nigeria	87,35
North Macedonia	80,03
Norway	18,14
Oman	37,59
Pakistan	73,36
Palestine	
Panama	59,77
Papua New Guinea	
Paraguay	
Peru	82,69
Philippines	74,06
Poland	54,33
Portugal	29,57
Qatar	60,18
Republic of the Congo	
Romania	58,42
Russia	62,32
Rwanda	
Sao Tome and Principe	
Saudi Arabia	64,13
Senegal	
Serbia	61,20
Seychelles	
Sierra Leone	
Singapore	33,16
Slovakia	39,08
Slovenia	22,65
Solomon Islands	
Somalia	
South Africa	56,96
South Korea	61,85
South Sudan	

Spain	39,62
Sri Lanka	59,92
Sudan	
Suriname	
Sweden	18,44
Switzerland	20,09
Syria	72,62
Tajikistan	
Tanzania	64,38
Thailand	75,39
Timor-Leste	
Togo	
Trinidad and Tobago	67,44
Tunisia	70,85
Turkey	66,15
Turkmenistan	
Uganda	
Ukraine	64,31
United Arab Emirates	50,44
United Kingdom	40,25
United States of America	38,89
Uruguay	45,67
Uzbekistan	
Vanuatu	
Venezuela	75,12
Vietnam	85,92
Yemen	
Zambia	
Zimbabwe	74,44

Appendix G: Population density

Country	Population density¹²
Afghanistan	60
Albania	105
Algeria	18
Angola	26
Argentina	17
Armenia	104
Australia	3
Austria	109
Azerbaijan	123
Bahrain	2 239
Bangladesh	1 265
Barbados	668
Belarus	47
Belgium	383
Benin	108
Bhutan	20
Bolivia	11
Bosnia and Herzegovina	64
Botswana	4
Brazil	25
Bulgaria	64
Burkina Faso	76
Burundi	463
Cambodia	95
Cameroon	56
Canada	4
Cape Verde	138
Central African Republic	8
Chad	13
Chile	26
China	153
Colombia	46
Comoros	467
Costa Rica	100
Croatia	73
Cuba	106
Cyprus	131
Czech Republic	139
Democratic Republic of Congo	40
Denmark	137
Djibouti	43
Dominican Republic	225
Ecuador	71
Egypt	103
El Salvador	313

¹² Worldometers (2021)

Equatorial Guinea	50
Eritrea	35
Estonia	31
Eswatini	67
Ethiopia	115
Fiji	49
Finland	18
France	119
Gabon	9
Gambia	239
Georgia	57
Germany	240
Ghana	137
Greece	81
Guatemala	167
Guinea	53
Guinea-Bissau	70
Guyana	4
Haiti	414
Honduras	89
Hong Kong	7 140
Hungary	107
Iceland	3
India	464
Indonesia	151
Iran	52
Iraq	93
Ireland	72
Israel	400
Italy	206
Ivory Coast	83
Jamaica	273
Japan	347
Jordan	115
Kazakhstan	7
Kenya	94
Kosovo	
Kuwait	240
Kyrgyzstan	34
Laos	32
Latvia	30
Lebanon	667
Lesotho	71
Liberia	53
Libya	4
Lithuania	43
Luxembourg	242
Madagascar	48
Malawi	203
Malaysia	99

Maldives	1 802
Mali	17
Malta	1 380
Mauritania	5
Mauritius	626
Mexico	66
Moldova	123
Mongolia	2
Montenegro	47
Morocco	83
Mozambique	40
Myanmar	83
Namibia	3
Nepal	203
Netherlands	508
New Zealand	18
Nicaragua	55
Niger	19
Nigeria	226
North Macedonia	83
Norway	15
Oman	16
Pakistan	287
Palestine	
Panama	58
Papua New Guinea	20
Paraguay	18
Peru	26
Philippines	368
Poland	124
Portugal	111
Qatar	248
Republic of the Congo	16
Romania	84
Russia	9
Rwanda	525
Sao Tome and Principe	228
Saudi Arabia	16
Senegal	87
Serbia	100
Seychelles	214
Sierra Leone	111
Singapore	8 358
Slovakia	114
Slovenia	103
Solomon Islands	25
Somalia	25
South Africa	49
South Korea	527
South Sudan	18

Spain	94
Sri Lanka	341
Sudan	25
Suriname	4
Sweden	25
Switzerland	219
Syria	95
Tajikistan	68
Tanzania	67
Thailand	137
Timor-Leste	89
Togo	152
Trinidad and Tobago	273
Tunisia	76
Turkey	110
Turkmenistan	13
Uganda	229
Ukraine	75
United Arab Emirates	118
United Kingdom	281
United States of America	36
Uruguay	20
Uzbekistan	79
Vanuatu	25
Venezuela	32
Vietnam	314
Yemen	56
Zambia	25
Zimbabwe	38

Appendix H: Codebook for qualitative research

Codebook for qualitative analysis

1. Covid-19 indicators
 - Covid-19 cases
 - Covid-19 deaths
 - Hospitalization
 - o Occupation of “regular” hospital beds
 - o Occupation of IC beds
 - Reproduction rate
 - Testing policies
 - Vaccination policies
 - vaccination grade

2. Policies
 - Lockdown
 - Curfew
 - Restrictions
 - Closures
 - Containment
 - Economic support
 - Border closures
 - Social distancing

3. Other
 - Signals from society?
 - Trust in government?
 - Economy
 - Face masks
 - Other

Appendix I: List of documents in qualitative research

Document number	Source	Link to webpage
Document 1	The times of Israel	https://www.timesofisrael.com/passover-closure-comes-into-effect-with-all-intercity-travel-banned/
Document 2	Israeli Ministry of Health	https://www.gov.il/en/departments/news/05042020_2
Document 3	The Local	https://www.thelocal.at/20201114/austria-braces-for-hard-lockdown-from-tuesday/
Document 4	Kyodo News	https://english.kyodonews.net/news/2021/02/5b6514a1e815-japan-to-decide-to-lift-covid-19-emergency-for-5-prefectures.html
Document 5	The Asahi Shimbun	https://www.asahi.com/ajw/articles/14222139
Document 6	The Ministry of Foreign Affairs of Japan	https://www.mofa.go.jp/ca/fna/page4e_001053.html
Document 7	Cabinet of Ministers. Republic of Latvia	https://www.mk.gov.lv/en/article/stricter-rules-physical-distancing-persons-are-introduced-limit-spread-covid-19
Document 8	Foreign Policy	https://foreignpolicy.com/2020/05/13/coronavirus-pandemic-latvia-follows-lead-medical-experts-science/
Document 9	LSM.lv	https://eng.lsm.lv/article/society/health/lvian-government-steps-up-restrictions-with-two-person-two-meter-rule.a353788/