The influence of democracy, governance and government policies on the COVID-19 pandemic mortality

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Abstract
The paper analyses the determinants of mortality during the Corona pandemic. In a first step, possible causes are subjected to a global comparison. The focus is on political, institutional, economic, demographic and health policy factors. It is shown that, contrary to the assumption, democratic countries have a higher Covid-19 mortality. In a second step, the developed democracies are then analysed to explain this puzzle. Here, more detailed information is used than in the global comparison. It turns out that, measured by the Oxford Stringency Index, government action has been largely unsuccessful. Also, the party-political composition of the government does not play a role. The most important factors are a country’s governance structures, the level of corona incidence, a country’s burden of high-risk patients and its health system. In addition, cultural factors and the vaccination rate seem to have an influence on mortality.

KEYWORDS
COVID 19, democracy, governance, public policy, Sustainable Governance Indicators (SGI)
1 | INTRODUCTION

International comparative policy research has often demonstrated the advantages and better performance of democracies in large macro comparisons between democratic and autocratic systems. This “democratic advantage” was proven, among others, in better sociopolitical performances in various policy fields (Lijphart, 2012; Schmidt, 2019: 233). These include a higher standard of living for elderly people, better health care systems, higher economic equality, better performance in environmental protection and the so-called “democratic peace,” that is, fewer wars and conflicts (Jahn, 2003).

The COVID-19 pandemic seems to paint a different picture here. High mortality rates, measured in death rates per one million inhabitants and high incidence rates are positively correlated with the presence of democratic systems (see also Section 2). This is surprising as democratic systems are typically richer countries, so they should have more financial resources to fight the consequences of the Corona pandemic. Their better health care systems should enable democratic countries to cope with the repercussions of the pandemic more easily. So the puzzle is the following one: why are democracies performing so badly in policy making during the crisis? And more concretely: Why do we observe such a huge variance within the group of democracies?

This paper, therefore, aimed to answer the following three research questions:

1. Which factors explain the mortality of the individual countries during the Corona pandemic in a worldwide comparison?
2. Which factors explain the mortality during the corona pandemic within the group of democratic countries?
3. How well do the public policies of democratic systems perform during the Corona crisis?

The central dependent variable is an outcome indicator in terms of “the general burden” of the Corona pandemic: the deaths per inhabitants. However, this indicator is not without problems, as the measurement of the dependent variable is not uniform across countries and is also subject to measurement errors (see below).

The theoretical and empirical explanatory model is based on various explanatory variables that can be assigned to individual schools of theory. A special attention will be given on the relationship between democracies and Corona performance for both levels of comparison. Therefore, democracy, governance and government policies are the central independent variables. In general, the analyzed variables also refer to different public policy schools:

1. Socioeconomic or functional variables, like the GDP per capita or the incidence of the COVID-19 virus.
2. Partisan theory of government uses the political composition of government as central variable.
3. Institutional variables like EU membership, federalism and size of government.
4. A country’s burden of high-risk patients who have diabetes, obesity or heart disease.
5. The quality and efficiency of the health and social sector, measured by governance indicators.
6. The policy measures of governments to tackle the crisis.
7. The role of culture, respectively, the religious composition.
8. The fiscal capability of countries to deal with the economic fallout caused by the pandemic.
The article is structured as follows: Section 2 examines the relationship between the various independent variables, their theoretical underpinnings and the relationship with the central COVID-19 outcome indicator in a global comparison. Special attention will be given to the relationship between democracy and COVID-19 mortality rates. In the bivariate case, the number of COVID-19 deaths is positively correlated with the level of democracy, that is, more people die because of COVID-19 in democracies than in autocracies. In the multivariate case (see Section 3), controlling for several other socioeconomic and political factors, this finding still persists. Nevertheless, the group of developed democracies (hereinafter the 41 SGI countries)\(^1\) display a clear variance in the outcome indicator. This empirical puzzle needs an explanation. Are there economic, political, institutional or governance factors at work, which determines this large variance? This relationship is discussed in chapters 4 and 5. The central findings are summarized and debated in Section 6.

2 | THEORIES AND HYPOTHESIS

In an empirical analysis on the policy response, Chhibber et al. (2021) showed that COVID-19 measures had disproportionately affected minorities and disadvantaged groups. Policy changes are drastic and the pandemic has led to profound shifts in political attention in all policy areas (Knill & Steinebach, 2022). The empirical data of pandemic has also revealed that specific groups suffer a higher likelihood of mortality, for example, elderly or those who are burdened with disease. Chhibber et al. (2021) also argued that the response measures to the pandemic were designed from a particular perspective, that is, from high-income countries, which were predominantly white and middle class. This would lead to the following hypothesis:

\(H_1\) Rich countries, in terms of GDP per capita, are expected to have lower COVID-19 death rates.

During the pandemic, democratic and political freedoms were restricted. At times the suspicion has been raised that this dismantling of democratic rights was done deliberately to weaken democratic institutions while basing their actions in the fight against the pandemic (exemplary for Bulgaria see Vassileva, 2020). Beyond this “strategy argument”, the intensity and speed of policy enforcement must be considered. In order to enforce policy measures against Corona, democracies require a longer decision making process as more actors are involved. This consideration is based on the veto player theory of Tsebelis (2002) but also on the theory of Lijphart (2012) on the different types of democracy. Karabulut et al. (2021) argue that democratic countries are often expected to fail at providing a fast, strong, and effective response when facing a crisis such as COVID-19. This could result in higher infections and more negative health effects. Their analysis of the association with different democracy measures show that the infection rates of the disease appear to be higher for more democratic countries.

In general, it is assumed that autocracies have more room for political maneuvering. In the course of the Corona pandemic, they either made extensive use of this (such as China) or not (such as some autocracies in Africa). Autocracies in general (Schmidt, 2013) perform worse in most policy areas, but the success of paternalistic autocracies and some defective democracies shows that there are mechanisms of responsiveness here as well. The second hypothesis, therefore, concerns the effect of democracies on the COVID-19 pandemic. In empirical democracy research, political trust is an important steering and guidance resource for the executive. Theoretical (Offe, 2003) and empirical research (Keman, 2014) has repeatedly shown that trust
in the core institutions of the state and in the most important decision makers supports and promotes the legitimacy of the political system. The relationship between "accountability" and "responsibility," the bond between citizens and political parties and ultimately the executive is also based on trust. So despite the evidence that not all autocracies have an overall worse policy performance, it is expected an overall better response by democracies.

**H 2**  *The level of democracy is negatively associated with the COVID-19 death rate.*

The ability of governments to intervene and soften the repercussions of the pandemic is not only determined by prohibitions and regulatory interventions. Hudson et al. (2021) show the different fiscal policy responses of different countries to the Corona pandemic. The measures are divided into two phases, the acute and the recovery phase. While the acute phase focuses on supporting individuals and maintaining employment, the recovery phase is characterized by investments in public infrastructure and climate-neutral investments. These fiscal policy measures generally last longer than in the acute phase. The extent of financial investment varied depending on the strength of the "automatic stabilizers", that is, the fiscal policy measures already in place, which are designed to respond to different phases of the economic cycle. Countries with strong automatic stabilizers, such as extensive unemployment benefits or short-time allowances, needed fewer additional stimulus packages than those lacking in extensive stabilizers. The governments’ fiscal room for maneuver, and their health spending in particular, are thus key variables of government activity. The hypotheses are thus:

**H 3**  *The higher the government spending, the lower the death toll from the pandemic in a country.*  
**H 4**  *The higher the health spending, the lower the death toll from the pandemic in a country.*

An essential factor for explaining policy outcomes in political science are institutionalist theories. There are different strands of these theories, such as (1) Normative Institutionalism, (2) the "rational choice" approach (e.g., Ostrom, 1990; Tsebelis, 1991), (3) Historical Institutionalism (e.g., Steinmo et al., 1992), (4) Empirical Institutionalism (e.g., Weaver et al., 1993). Another (5) contribution to New Institutionalism is the actor-centered Institutionalism of Fritz Scharpf and Renate Mayntz, which is mainly concerned with the interactions of corporate actors (1995: 43). Actor-centered Institutionalism works with a narrow concept of institutions, which can either provide an enabling or restricting context of action for actors, and is thus much more limited in scope than the "normative" variant, which displays a very broad, holistic conception of institutions. These - in addition to the "classical institutions" - also include norms, rules, common understanding, even routines (March et al., 1989: 23). But actor-centered Institutionalism is also dynamic in some respects, because institutions are treated as both "dependent and independent variables" (Mayntz & Scharpf, 1995: 45). Based on these different institutionalist approaches, alternative hypotheses can again be put forward for the influence of the European Union and federalism. A common narrative, however, is that both institutions have a higher problem-solving competence. In this respect, membership in the EU and a pronounced federalism should have a dampening effect on the COVID-19 mortality rates. As such the following hypotheses can be formed:

**H 5**  *In member states of the European Union the COVID-19 related death should be lower than elsewhere.*  
**H 6**  *In federal states the COVID-19 related death should be lower than in centralized states.*
However, one could also take the opposite stance that EU action is time-consuming, results in the lowest common denominator and does not take local conditions in individual countries into account (Tsebelis, 2002). The slow reactions of the European Commission under von der Leyen and the time delays during the initial phase of the pandemic in rule-making as well as procuring masks and vaccines, are evidence for ineffective pandemic management. Therefore, alternate hypotheses concerning federalism and the EU would also be plausible.

In addition to the political, institutional and economic variables, other factors are also used as control variables in the empirical analysis (see Section 3). These include variables that approximate the health status of a society, such as general life expectancy, the incidence of obesity, infant mortality and mortality during pregnancy.

These variables have a clear causality with regard to the dependent variable. Life expectancy is a good variable for approximating the average age of a society. The higher the life expectancy, the more over-aged a society is. The data on the age distribution of COVID-19 deaths also speaks a clear language. For the Federal Republic of Germany, the correlation between age and the occurrence of death is 0.79 (aggregated data referring to 26.01.22), which underlines the very strong statistical relationship between age and COVID-19 mortality. Overall, the number of deaths up to the age of 30 is very low. This suggests that particularly "young" countries, such as on the African continent, have fewer deaths in general. The second variable, population density, also shows a clear causality. One of the key policy measures during the pandemic was social distancing, which manifested itself most clearly in, for example, lockdown measures and mandatory social distancing in schools, universities, shops and other public spaces. Thus, the likelihood of getting infected is higher when the population density is high compared to the risk of infection in rural areas. Another variable that correlates with the frequency of deaths during the pandemic is obesity. The more widespread this "disease of affluence" is in a society, the more likely higher death rates get. At the same time, this variable is a proxy variable for other diseases that suggest a dire course of a COVID-19 infection, such as diabetes or strokes.

The final control variable are the infant mortality rates. The relevance of child mortality can be justified in two ways here: First, child mortality can be considered a result of underdevelopment and thus of a poor health system. In this case, high child mortality would result in an increase of mortality. Secondly, child mortality is also a proxy measure for young societies, which lower the likelihood of a higher rate of COVID-19 related deaths. There is a clear correlation between countries with high population growth and a low average age, and high child mortality rates. However, there are exceptions to this such as the USA, which has a similarly high infant mortality rate to that of a developing country (Marmot, 2015). Despite this, the general correlation still persists. Kapitsinis (2021) analyzed state responses in 79 countries worldwide. In his analysis of to the pandemic, he looked at the mortality rates within the state.

Privatization of health care, underfunding of health care and delayed implementation of strategies to contain and mitigate the coronary pandemic were the main causes of excess mortality. As such, the following hypotheses will round up the empirical analysis.

H 7 The younger a society the lower the COVID-19 related death rates.
H 8 Countries with a high proportion of affluence diseases, like obesity, will experience higher death rates.
H 9 The higher the population density the higher the death toll.
In addition to the direct influences of the variables discussed above, an interaction term is also tested in the empirical test. The reasoning behind this is that there are country-related differences in the effect of the democracy variables. To this end, a conditional effect is to be taken into account for the countries of the EU. The hypothesis is that highly developed democracies manage the Corona crisis better than EU member states with a lower level of democracy.

H 10 The higher the level of democracy in the EU member states, the lower the number of Corona deaths.

3 | EMPIRICAL FINDINGS IN GLOBAL COMPARISON

The COVID-19 related deaths per one million inhabitants constitute the dependent variable for the empirical analysis. The official statistics on COVID-19 mortality do not specify whether people die "from" or "with" the coronavirus. While both cases are expected to be recorded in the official data, an internet search provides contrasting values, indicating between 20 and 80 percent (!) of the recorded deaths did not result directly from corona, but rather "with" it. The heterogeneous data situation certainly applies to all countries. In addition, statistical measurement should have provided for testing capacities and autopsies of the deceased. This, too, only takes place on an arbitrary basis.

However, under-reporting of COVID-19 cases and deaths constitute an important caveat for the following findings. Recent studies show that large shares of COVID infections remain undetected, especially in outbreak epicenters with overwhelmed medical systems. Lau et al. (2021) analyzed case and death numbers reported in March 2020 and found that during the first outbreaks in the United States, Spain and Italy, less than 2% of cases were detected by COVID tests (Lau et al., 2021: 114). In October 2021, the World Health Organization revealed that only 14.2% of cases had been detected in Africa by that time (WHO, 2021). Moreover, while some researchers consider mortality rates a more accurate indicator to estimate the real COVID-19 case numbers (Lau et al., 2021: 111), COVID deaths are also affected by considerable under-reporting (Whittaker et al., 2021). Excess death rates show that the real death toll caused by the virus is about three times higher than official numbers indicate (The Economist, 2021). Even excess deaths are not reliable since it presumes that reported deaths are accurate during non-pandemic times. Routine and pandemic death data are often inaccurate, especially for countries that are subject to armed conflict (Whittaker et al., 2021: 2). In general, then, the Corona pandemic death tolls, however measured, should be interpreted and used with caution. Moreover, statistically a large heteroskedasticity is to be expected, because the statistical coverage correlates with the expansion of the health care systems and the welfare state.

The first analysis in this section will use bivariate correlation and the second analysis are multivariate regression to examine the effects of the discussed variables on the dependent variable. Here, the number of deaths per one million inhabitants is used as the core indicator. In addition, the level of incidence, operationalized as the maximum value of incidence within one year, will be considered. Another serious problem, besides the measurement of the dependent variable, lies in the cyclical course of the pandemic. The different waves of the pandemic hit the individual countries at different times. Therefore, the sequence of policy measures might vary drastically over the different phases of the pandemic. This shows that both the duration and the pattern of the pandemic differ between countries. This cyclical problem is solved for
the indicators by using the maximum value for incidence and the number of deaths (measured in early December of 2021).

Because of the particular focus on democracy and governance indicators, Figure 1 shows the correlation between the electoral democracy index from V-Dem (2020) and the number of deaths. The Pearson correlation of +0.41 is just about medium strong. All five core VDEM democracy indices were checked and the correlations are between $r = +0.340$ (v2x_delibdem) and $r = +0.452$ (Participatory democracy index v2x_partipdem), suggesting an increased mortality rate in democratic countries. The surprising result is: the COVID-19 death toll is higher in democracies compared to autocracies. However, there is a persisting problem in accurately measuring death rates. It can be assumed that with a poorly developed health care system and inadequate statistics, this data is subject to high uncertainties leading to heteroscedasticity. Incidentally, these uncertainties also extend to established welfare states, where accurate recording and attribution of death figures to the pandemic are also highly controversial (see above).

At first glance it seems that, at least in the bivariate case, democracies or a higher level of democracy are associated with higher Corona death rates. Does this also hold true in multivariate regressions, controlling for the socioeconomic and political factors, institutions, health indicators and demographic factors discussed in Section 2? Table 1 displays the findings in a global comparison, with the dependent variable of COVID-19 deaths per one million inhabitants at the time of December 2021.

The results of the multivariate regressions (Table 1) show the following: The hypothesis on the effect of wealth on the death toll is confirmed. The richer a country, the lower the death rate. With regard to the influence of democracy on the dependent variable, it is shown that democratic countries have higher death rates, which confirms the bivariate findings. In this respect, the second hypothesis must be considered rejected, since this variable is highly significant in all three models.

It turns out that the general level of government spending has no significant influence on the Corona death toll (model 1). While the correct sign (negative) to confirm H3 is present, there is no statistical significance. This holds also for all other models tested during the research process. The result for health expenditure is also surprising, as hypothesis H4 cannot be confirmed. On the contrary, equation 3 indicates an increasing effect of health expenditure on Corona mortality rates, albeit only weakly significant.

Membership in the European Union has an increasing effect, which contradicts the fifth hypothesis. The EU’s great promise to provide better living conditions and better health protection is thus being cracked.

The federalism variable, on the other hand, is only significant in equation 1 and insignificant in equation 2. Therefore, it is removed from the statistical analysis for the most significant explanatory model (model 3). However, the interaction term between membership in the European Union and the level of democracy in equation 3 is noteworthy. This implies, based on the highly statistically significant negative effect on death rates, that member countries in the European Union that have a particularly high democracy score have higher success in combating the Corona crisis. This confirms hypothesis 10.

In addition to these political, budgetary and institutional variables, the previously mentioned demographic and health policy factors were also tested. Factors that have commonly been considered risk factors in the Corona pandemic, namely population density or an aging society (measured by life expectancy at birth) are not significant. However, the factor of obesity in a country is shown to have a significant increasing effect on Corona death rates. This measure, which can also be considered a measure of a "too proper" diet, is highly statistically significant and its rather strong effect is fairly surprising. The level of child mortality dampens the COVID-19 death rate,
which is initially also surprising, but might be explained by the different possible interpretations of this variable. Evidently, rich countries and highly underdeveloped countries have lower death rates (which is also confirmed by a correlation of $r = 0.502$ of the HDI with Corona mortality rates). On the one hand countries with a high infant mortality rate usually constitute a very young society, thus reducing the likelihood of a high death toll due to COVID-19. In this respect, infant mortality is more of a demographic variable that, in addition to life expectancy at birth, measures another dimension of demography. On the other hand, this indicator might reflect the quality of the health system within a country.

Of all these variables, based on the beta values of the regressions, GDP per capita, EU membership, the democracy variable, infant mortality and obesity are - across all equations - the most explanatory variables.

Checking for multicollinearity, all models look very good. The VIF-value does not exceed the critical value of 2.0 in any of the models, except for the interaction term in equation 3. This, however, is not surprising considering it is a product of two variables that are part of the equation.

If we now take a closer look at the group of developed democracies, usually one analyzes the 38 OECD countries or, as in this case, the 41 countries that are included in the Sustainable Governance Index (SGI) of the Bertelsmann Foundation. Then a more differentiated picture emerges. Figure 2 shows no significant correlation between the level of democracy and the
COVID-19 death rates (measured in December 2021) for the 41 countries. Figure 2 displays the correlation between the V-Dem indicator for electoral democracies and COVID-19 death rates, which is \( r = -0.1 \). This leads to the conclusion that within the group of rich democratic societies, the factor democracy is irrelevant.

This then raises the further question of the other factors which influence mortality rates related to COVID-19. Comparative policy research (Castles et al., 1993) has introduced, for example, the Family of Nations concept, which shows that countries that are similar, or culturally and geographically close to each other have similar policy profiles. This also seems to be the case here. The countries of Eastern Europe with extensive dictatorship experience are located at the top of Figure 2 are Eastern European countries with extensive dictatorship experience. Countries located in the Latin Rim such as Spain, Portugal, France and Greece are also situated close to each other (Italy is not far from this either). In the group of countries with the lowest COVID-19 death rates are the Scandinavian countries and the Radical Welfare States (Castles, 1999), Australia and New Zealand. The Asian welfare states form another group of countries and also perform very well. In this respect, the “Families of Nations” seem to have some explanatory power. Nevertheless, the concept could be characterized as a black box, as it does not give an explanation on the underlying reason for similar policy results, whether it be partisan composition, cultural factors like language or similarities in governance, which resulted from, for example, learning from neighbors.

However, other factors may be at work here. The higher death rates in democracies might also be attributed to some background variables, namely the higher average age in these countries
and the likelihood of illnesses (e.g., obesity, diabetes, and heart diseases), which are prone to more severe cases of COVID-19. The average age of the population is usually lower in authoritarian countries, which likely reduces the former populations’ mortality risk in comparison to established democracies. Additionally, authoritarian countries often do not have any interest in reporting accurate Corona statistics or acknowledging the threat the virus poses. For example, China published suspiciously low COVID-19 data and the president of Belarus, Alexander Lukaschenko, suggested drinking vodka, visiting a sauna and driving a tractor as remedies for the disease.

### 4 GOVERNANCE AND POLICY MEASURES – THEORY AND DATA

The global analysis of the determinants of COVID-19 related deaths has shown an ambivalent effect for democracies. On average their mortality rates are higher than those of non-democracies, but there is an interesting interaction effect within the group of democratic countries, where, all other things being equal, a high level of democracy goes hand in hand with a lower number of Corona-related deaths. In the following, the democracies will, therefore, be examined more closely and the analyses will be deepened and refined in the process. In addition to the variables already discussed, specific further indicators will be used. First, the left-right composition of government will be examined. The parties-do-matter theory has repeatedly shown that different party compositions and coloring of the government produce different policy outcomes. In the wake of the Corona crisis, it is plausible to assume that left-wing governments in particular will make greater inroads into civil liberties and adopt tougher policy measures, with Sweden being an exception. Moreover, particularly critical voices against Corona measures are more likely to come from the political right and from right-wing protest parties.

**H 11** *The more left-wing parties are represented in government, the more protection measures will be implemented and the lower the death toll should be.*

Another variable that comes to mind, based on Tsebelis’ veto player theory, is the size of the government in the 41 countries studied, that is, the number of parties in the government. Two causal directions for this variable are possible. First, the larger a government, the more broad the support for the measures. This could increase the likelihood for stronger and more invasive protective measures. However, one could also argue that consensus-building gets more difficult with a higher number of parties, making it harder to implement and enforce measures. The first reasoning will be tested in the empirical analysis.

**H 12** *The more parties in government, the easier it is to enforce corona measures and the lower corona death rates are likely to be.*

The University of Oxford has been studying government measures since the beginning of the Corona pandemic. The so-called Oxford Stringency Index (see Figure 3) documents governmental interventions in nine different policy fields. These are, for example, distance compliance measures, mandatory masking, mandatory vaccination and other protective measures or interventions. Overall, the indicator varies between 0 and 100. Figure 3 shows how - at least approximately - the intensity of interventions since the beginning of the Corona pandemic is associated
with the waves of the pandemic. For the statistical analysis, this index was averaged over the year 2021 and the maximum value of the year 2021 was also used. It can be assumed that the stronger the stringency of governmental intervention, the lower the death toll.

**H 13** The stronger the government’s anti-Corona measures, the lower the pandemic’s death toll.

As a further variable, in addition to the measure of obesity already used on a global scale, an indicator was used that combines the incidence of heart disease, cancer, diabetes and other chronic diseases which increase the disease’s severity.

**H 14** The higher the proportion of people with risk factors in a country, the higher the Corona death rates.

A key socioeconomic variable is the incidence of COVID-19. This measure, known as incidence, is also collected for the analyzed countries.

**H 15** The higher the incidence in a country, the greater the death toll from the pandemic.

The importance of vaccination in combating the Corona pandemic is evident. This is a key variable in addressing the crisis.

**H 16** The greater the proportion of people who have received two vaccination doses, the lower the death toll from the pandemic.
In the course of the statistical analysis various fiscal policy indicators, such as the debt ratio or the budget deficit, are also examined. It is assumed that the worse the state of public finances, the less efficiently a government can respond to the pandemic.

**H 17**  
The higher the proportion of people with risk factors in a country, the higher the Corona death rates.

The worse the public finances, the weaker the state's ability to intervene and, consequently, the higher the death toll from the pandemic.

## 5  |  EMPIRICAL FINDINGS FOR THE ADVANCED DEMOCRACIES

The statistical test of the previously formulated hypotheses for the 41 selected developed countries (SGI sample) is carried out by means of multivariate regressions (cf. Table 2). For the statistical analysis, it must be taken into account that only 41 cases are available here, which limits the number of independent variables possible. As a rule of thumb, one independent variable can be included in the regression equation for every ten cases. Additionally, at least ten degrees of freedom should remain in the regression. This means that four or, with a little tolerance, five independent variables are included in the equations.

Again the dependent variable in all equations are the COVID-19 death per one million inhabitants. The results of equations 1 and 2 indicate that the political factors are only weakly significant or even insignificant. The negative sign pertaining to the political coloring of the government indicates that right-wing governments tend toward higher death rates. However, this finding is not significant in equation 2 (and in other subsequent equations within the research process), and the negative sign even turns positive. Overall, the Spearman correlation is also weak (+0.16). In other regressions, which are not displayed here, several other political factors like the size of government or the change of power during the pandemic were shown to be irrelevant. The federalism variable is also not explanatory in the group of developed countries, as opposed to the global comparison. Likewise, variables for the financial capabilities of a country, approximated here by the debt ratio, are not significant. Negatively correlated with mortality is a country's wealth, which is also statistically significant in equation 1 \((r = −0.55)\). A country's wealth has the expected negative sign, that is, it reduces mortality, although the effect disappears in equation 2, too.

EU membership indicates an increasing effect on mortality rates, true to the global comparison, but this is unstable and inconsistent. Similarly for the wealth variable, EU membership is not systematically significant in other equations (not reported here).

In contrast, regression model 2 shows a higher explanatory power than the first. It is noteworthy that the variable of fully completed vaccinations (at the end of 20/21) is not significant. However, this variable is moderately negatively correlated with the Corona death rates \((r = −0.511)\). Thus, vaccinations reduce COVID-19 mortality rates. In contrast, the cultural variable, which has a clear attenuating effect, has a significant explanatory power. This variable, which is essentially based on geographical and religious classifications \((1 = \text{post-communist countries}, 2 = \text{Catholic}, 3 = \text{Protestant}, 4 = \text{Asian})\), shows high significance. Furthermore, the quality of the health care system is proven to be a relevant variable. It is operationalized by the SGI Governance Indicator for health policy and shows a negative influence on the death rates due to Corona. Generally
speaking the SGI governance indicators are consistently negatively correlated with the mortality figures, in some cases quite strongly.

Model 3 has a much higher explanatory power than models 1 and 2. Two particularly strong explanatory variables are the incidence rate and the risk of dying from diabetes, cancer or cardiovascular disease. These two variables are highly statistically significant and increase the COVID-19 mortality rates. Governmental action - and this is very surprising - has no influence at all on the course of the Corona pandemic. The Oxford Stringency Index measures governmental intervention in terms of Corona policies on nine dimensions. Data for this index since the beginning of the pandemic is shown in Figure 3. The correlation between the death toll at the end of 2021 and the Oxford Stringency Index is $r = 0.005$, which shows no association at all. This is more than surprising, given that government measures of distancing, restricting mobility and others are considered key to combating the pandemic. These results indicate that they are not. The finding for this variable is also consistent in other regressions, so that the hypothesis that governmental interventions are efficient must be considered refuted. This surprising finding is confirmed and supported in early 2022 by a large-scale meta-study done by the John Hopkins University (Herby et al., 2022). Their findings were as follows (Herbie et al., 2022: 3): “An analysis of each of these three groups support the conclusion that lockdowns have had little to no effect on COVID-19 mortality. More specifically, stringency index studies find that lockdowns in Europe and the United States only reduced COVID-19 mortality by 0.2% on average. SIPOs were also ineffective, only reducing COVID-19 mortality by 2.9% on average.” All in all, it must be concluded that the government measures and policies to combat the Corona pandemic were largely ineffective.

More crucial than governmental intervention, however, is a country’s governance structure. This is reflected in the different SGI indicators used, which above all measure the quality of the health system and the governance structure of a country in general. The quality of the social system, the health system and the capacity of the executive to act all have a dampening effect on mortality and are statistically significant. In this respect, long-term investments in
| Variables                                      | Model 1              | Model 2              | Model 3              | Model 4              |
|-----------------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Constant                                      | 1021.03 (1.77)*      | 5764.23 (4.61)***    | 93.54 (0.07)         | 308.77 (0.44)        |
| GDP per Capita in US-$                       | −0.18 (−3.20)***     | −0.00 (0.03)         |                      |                      |
| EU membership (1 / 0)                        | 1017.25 (3.54)***    |                      |                      |                      |
| Partisan Complexion of Government (1 = left to 5 = right) | 217.78 (1.75)*      | −54.99 (−0.48)       |                      |                      |
| Federalism (1/0)                             | 554.23 (1.58)        |                      |                      |                      |
| Debt Ratio 2020                              | −2.25 (−0.76)        |                      |                      |                      |
| Full Vaccination End 2021 (2x vaccinated)     |                      | −19.28 (−1.35)       |                      |                      |
| Culture (1–4)                                | −380.41 (2.21)**     |                      |                      |                      |
| Incidence (maximum) 2021                     |                      | 1.04 (3.58)***       | 0.66 (2.30)**        |                      |
| High risk of dying of diabetes, cancer or cardiovascular (#) | 123.19 (3.87)***    |                      | 132.89 (5.72)***     |                      |
| Oxford Stringency Index (OxCGRT mean 2021)   |                      | 14.72 (1.27)         |                      |                      |
| SGI Social Policy                            |                      | −229.58 (−1.77)*     |                      | −157.26 (−1.96)*     |
| SGI Health Policy                            | −298.42 (−1.77)*     |                      |                      |                      |
| SGI Executive Capacity                       |                      |                      | −157.26 (−1.96)*     |                      |
| Share of Catholics                           |                      |                      |                      | 6.84 (2.59)**        |
| Number of Cases/Countries                    | 41                   | 38                   | 41                   | 41                   |
| Multicollinearity (VIF > 2.0)                | No                   | No                   | Weak (#)             | No                   |
| F-Statistic                                  | 5.57***              | 7.39***              | 20.97***             | 24.07***             |
| Adjusted R²                                   | 0.363                | 0.46                 | 0.67                 | 0.70                 |

Notes: Table displays non-standardized regression coefficients; dependent variable in all equations: COVID-19 death per one million inhabitants; t-statistics in brackets: *= significant at 10%, **= significant at 5%, ***= significant at 1%. Variables with multicollinearity are indicated with #. A negative sign in front of an independent variable means: the higher the value of the independent variable, the lower the number of deaths per one million inhabitants; whereas a positive sign indicates an increasing effect on mortality.
the health system and in the governance structure seem to pay off more than lockdowns and other protective measures.

Model 4 essentially confirms this finding, reaffirming that the two central indicators incidence and disease risk are particularly significant and that the SGI governance indicator also has a dampening effect.\(^3\) The proportion of Catholics, used here as a proxy variate for a more lax approach to the pandemic, has an increasing effect. Based on Max Weber’s culturalistic considerations, the private and state behavior of Protestant countries can be described as rather “law abiding” and stringent (elaborate a bit here).

6 | CONCLUDING REMARKS

What are the determinants of mortality in the Corona pandemic? This question was the main focus of this paper as formulated in the first two research questions. It is important to consider not only the results of the significant effects, but also the variables that do not have a significant influence. The paper has two levels of comparison. First, the causes of the pandemic’s death toll were examined in a global comparison. From this it seems that democracy had an increasing influence on the death toll, contrary to the hypothesis that had first been put forward. Nevertheless, it would be wrong to conclude that “democracy kills”, because the interaction effect showed that within the EU, countries with a high level of democracy have lower COVID-19 related mortality rates than countries with a low level of democracy.

Additional factors that have been relevant include the rate of obesity as a measure of a higher COVID-19 risk. In addition, EU membership has an increasing influence on death rates, while the demographic influence, that is, young societies, has a dampening effect. However, several other factors have displayed no causal effect like government spending, health spending and life expectancy.

In a second step, the group of established democracies was examined more closely. In addition to the OECD countries a few more countries were included, namely countries that are covered by the Bertelsmann Sustainable Governance Index SGI. If only this SGI-group is included in the analysis, it becomes clear that political factors do not play a role at all. Neither the party-political composition nor the number of parties in government or a change of power during the Corona crisis have any influence on mortality rates.

The lack of effect of the Oxford University’s Governance Stringency Index was also quite surprising. Governments’ Corona policies have no effect on Corona mortality rates, as they neither increase nor decrease them. This is a remarkable result, as it indicates the ineffectiveness of governmental action! It appears that the stringency of governmental activities in the last 2 years have been useless in containing the death toll of the Corona pandemic.

What does matter, however, is the level of incidence in a country and the number of people at risk in a country. The more people with diabetes, heart disease, obesity and the like, the higher the death rates. This reinforces the traditional view of policy research that socioeconomic or sociofunctional factors have a strong explanatory influence. However, governance indicators are also strong explanatory factors, as good governance leads to lower corona death rates. This result is confirmed both by bivariate correlations and by various operations in the multivariate regressions. In this respect, it is not so much democracy per se, but the specific design of democracy and the form of governance in the individual countries. Good governance is, therefore, key to combating the Corona crisis. An important variable is also Culture, which displayed its relevance in two equations.
CONFLICT OF INTEREST
There are no conflict of interest.

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ENDNOTES
1 The Sustainable Governance Index (SGI) measures peculiarities and specific governance attributes within 41 countries. The SGI-countries are basically wealthy and democratic states, with the core group of OECD member states (Bertelsmann Stiftung 2021).

2 SIP = = shelter-in-place-order.

3 The three governance indicators were derived from expert judgments (scale from 1–10) by answering the following questions: SGI health: Do policies provide high-quality, inclusive and cost-efficient health care?; SGI Social Policy: Do social policies facilitate an equal and fair society?; SGI executive capacity: Does the government have strong steering capabilities?

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