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Legislative incapacity and underreporting of COVID-19 mortality

Takaharu Saito

Nagoya University of Commerce and Business, Japan

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ABSTRACT

The prevalent interpretation of COVID-19 mortality underreporting typically focuses on authoritarian regimes' propensity for data manipulation. This study, however, posits that the demand side is integral to enhancing the veracity of COVID-19 mortality figures. Through quantitative analysis, it is demonstrated that legislative oversight of the executive significantly correlates with the divergence between excess mortality and officially reported COVID-19 mortality. Moreover, such oversight is shown to bolster the influence of bureaucratic capacity on the precision of mortality data. Consequently, these findings suggest that the notion of "autocratic advantage" in COVID-19 management is not solely a byproduct of regime-led data falsification but also a reflection of deficiencies in legislative and bureaucratic capacities.

1. Introduction

In the COVID-19 pandemic, proponents of the "autocratic advantage", the idea that authoritarian countries are better at dealing with social problems, posited a direct positive relationship between the level of democracy and COVID-19 mortality rates (Cepaluni, Dorsch and Branyiczki, 2021; Karabulut et al., 2021), a stance contested by other scholars who deemed this correlation to be misleading (Cassan and Van Steenvoort, 2021; Annaka, 2021). A significant contribution to this debate is by Neumayer and Plümper (2022), who investigated the "mortality gap"–the variance between reported COVID-19 fatalities and excess mortality, a metric endorsed by the World Health Organization (World Health Organization, 2023). Their findings underscored a more notable gap in authoritarian states, a theme further explored in subsequent studies (Kofanov et al., 2023).

This study pivots to analyze the mortality gap from a demand-driven perspective, diverging from the commonly explored supply side. Recent literature has predominantly associated this gap with intentional data distortion in authoritarian regimes (Balashov, Yan and Zhu, 2021; Kilani, 2021; Neumayer and Plümper, 2022; Kofanov et al., 2023). Contrary to this view, we posit that the gap stems from bureaucratic underreporting of COVID-19 fatalities, a phenomenon influenced by a lack of legislative efficacy. We argue that a robust legislature, representing public interests, compels bureaucracies to take more stringent measures against the pandemic, thereby ensuring more accurate mortality reporting. Our empirical investigation reveals a correlation between the mortality gap and lack of legislative efficiency, a relationship that remains significant even after accounting for executive influences and other relevant variables. This finding underscores the overlooked importance of legislative functions in this context.

The implications of our research challenge the notion of an inherent "autocratic advantage." The results suggest that this perceived advantage is partly attributable to deficiencies in legislative and bureaucratic processes, in addition to data manipulation tactics in authoritarian regimes. These insights corroborate studies asserting the superiority of democratic regimes in managing a spectrum of socio-economic issues (Acemoglu et al., 2019; McMann and Tisch, 2021; Oyèkọ́lá, 2023) and their effectiveness in combating the COVID-19 pandemic (Cassan and Van Steenvoort, 2021; Neumayer and Plümper, 2022; Annaka, 2021, 2022), thereby questioning the validity of the "autocratic advantage" hypothesis.

2. Legislature's importance in reporting COVID-19 mortality

Recent scholarly inquiries into the disparity between reported excess mortality and official COVID-19 mortality rates predominantly attribute this gap to authoritarian leaders' manipulation of data (Balashov, Yan and Zhu, 2021; Kilani, 2021; Neumayer and Plümper, 2022; Kofanov

E-mail address: takaharu_saito@nucba.ac.jp.

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et al., 2023). This study posits that the legislative body is a pivotal factor in ensuring the accuracy of mortality data.

Initially, the legislature's role in overseeing the executive's administrative processes is critical (McCubbins and Schwartz, 1984; McCubbins, Noll and Weingast, 1987; McGrath, 2013). It can establish independent committees and hold hearings to supervise government agencies (Epstain and O'Halloran, 1995; McGrath, 2013), thereby enforcing executive accountability (Aberbach, 1990; Kriner and Schickler, 2016).

Nonetheless, this oversight function presents significant challenges and requires substantial resources for legislative members (Kriner and Schickler, 2016; Miller and Ruder, 2020; King, Gailmard and Wood, 2023). Their interests, including re-election (Fenno, 1978), may not always align with conducting in-depth investigations into executive actions. Moreover, effective oversight necessitates resources such as adequate budget and staffing, which vary internationally (Bolton and Thrower, 2022). As a result, legislatures with extensive resources, exemplified by the U.S. Congress, are more capable of effective executive monitoring (Rosenbloom, 2002; Grisinger, 2012; Kriner and Schickler, 2016).

Furthermore, bureaucratic agencies often pursue objectives that differ from those of the legislature (Niskanen, 1971; Gailmard, 2014). Although this divergence can precipitate legislative-executive conflicts, it does not preclude the legislature from accomplishing its policy objectives. Bureaucracies, concerned with their reputation and autonomy (Carpenter, 2001), tend to improve their operations under legislative scrutiny to avoid reputational harm (Headrick, Serra and Twombly, 2002; Drolc and Keiser, 2021).

In the COVID-19 pandemic, the legislature's role in overseeing the executive's management of the crisis is pivotal. When instances of underreporting are discernible, the legislature has the capacity to identify these discrepancies and compel the executive to rectify the data. This dynamic was evident in the United States, where President Donald Trump's initial downplaying of COVID-19 and his interference with the CDC's scientific approach prompted criticism from House Democrats, influencing the CDC to publicly express concerns despite executive pressure (Higgins-Dunn and Newburger, 2020; Editorial, 2020). Accordingly, we propose.

Hypothesis 1 When the legislative constraint on the executive is high, the mortality gap decreases

Furthermore, the interaction between legislative oversight and bureaucratic integrity is significant in mortality reporting. Comprehensive and accurate mortality data necessitate a robust bureaucratic infrastructure at both national and local levels (Roßmann et al., 2021; Peeters, Rentería and Cejudo, 2023). This encompasses detecting infections, ascertaining causes of death, and aggregating this data on a national scale. However, the efficacy of bureaucratic reporting is not solely dependent on legislative scrutiny but also on the bureaucracy's capacity and resources. The CDC's response, a manifestation of the U.S. bureaucracy's autonomy and reputation, exemplifies this interplay (Carpenter, 2001, 2010). Consequently, we posit.

Hypothesis 2 When the legislative constraint on the executive is high, the presence of strong bureaucratic integrity is associated with a decrease in the mortality gap

3. Data and analysis

Our study relies on publicly available cross-national observational data, obviating the need for ethical review procedures. This study utilizes the gap between excess mortality and official COVID-19 mortality as the dependent variable, in line with (Neumayer and Plümper, 2022). Excess mortality data were sourced from the World Health Organization (WHO), and official COVID-19 mortality statistics were obtained from `https://ourworldindata.org/`. While official mortality data in authoritarian regimes are commonly perceived as manipulated (Balashov, Yan and Zhu, 2021; Kilani, 2021; Neumayer and Plümper, 2022; Kofanov et al., 2023), excess mortality is considered less susceptible to such distortion (World Health Organization, 2023). The gap thus serves as an indicator of potential inaccuracies in governmental reporting, particularly in authoritarian contexts where legislative and bureaucratic efficiencies are compromised.

The study's independent variables were obtained from Coppedge et al. (2021). To analyze legislative constraints on executive power (H1), the research utilized the *legislative constraints on the executive* index formulated by Pemstein et al. (2019). This index, derived from Bayesian factor analysis of legislative constraint indicators, encompasses legislature's questioning of officials, executive oversight, investigative actions by the legislature, and opposition party presence, also referenced in Coppedge et al. (2021). Data for these indicators were collected through surveys of experts on each country, inquiring, for instance, about the frequency of legislative questioning of executive officials. Consequently, higher values on this index indicate stronger constraints on executive authority.

In addition, to assess bureaucratic integrity (H2), the study sourced the *public-sector theft* index from Coppedge et al. (2021), which is predicated on expert surveys inquiring about the prevalence of public sector employees' theft, embezzlement, or misappropriation of state resources for personal or familial benefit. Lower indices denote a decrease in corruption levels.

The determination of control variables adheres to the backward criterion strategy, which addresses common influencers of both the independent and dependent variables, following the guidance of the literature (Pearl,2009; Arif and Aaron MacNeil, 2022). Initially, economic conditions within each country are recognized as influencing legislative oversight of executives as well as the propensity for COVID-19 underreporting. Given the legislature's role within democratic institutions and the documented causal connection between economic health and democratic processes (Acemoglu et al., 2019), this factor is pivotal. Additionally, economic constraints are linked to increased underreporting of COVID-19 due to the associated financial burdens. To adjust for this variable, we integrate the logarithmic value of per capita income, sourced from Bolt and Luiten (2020), into our analysis.

Furthermore, the overall health status of a population impacts legislative constraints on executives and the underreporting of COVID-19. The nexus between health standards and democratic efficacy has been the subject of scholarly investigation (Oyèkọ́lá, 2023; Gingerich and Vogler, 2021), with public health also influencing COVID-19 severity and governmental performance during pandemics. Consequently, the percentage of the population fully vaccinated (Neumayer and Plümper, 2022) and median age (United Nations, 2022) are incorporated as control measures.

This methodology for the selection of control variables aligns with the approaches employed in existing literature (Annaka, 2022; Neumayer and Plümper, 2022). The analysis focuses on data from 2021, bypassing 2020′s initial phase of COVID-19 spread, which could have impacted mortality data. The year 2021, marked by global recognition of COVID-19 as a critical policy issue, provides a more suitable context for comparative policy analysis.[1]

To assess Hypothesis 1, the study employs ordinary least squares (OLS) regression models.

The specified model is delineated as follows:

[1] For example, Andorra saw deaths and hospitalizations increase significantly in January 2021. Algeria started the vaccination in late-January 2021 (IMF, 2023).

$$\text{Excessive Mortality}_i = \beta_1(\text{legislative constraint on the executive})_i + \beta_2(\text{per capita income(log)})_i + \beta_3(\text{population fully vaccinated})_i + \beta_4(\text{median age})_i + \varepsilon_i$$

Initially, the analysis isolates the effect of legislative oversight. Subsequently, it incorporates additional control variables.

For Hypothesis 2, the investigation extends to include the interactive effect of legislative oversight and bureaucratic integrity on excessive mortality, formalized as:

$$\text{Excessive Mortality}_i = \beta_1(\text{legislative constraint on the executive})_i + \beta_2(\text{public sector theft})_i + \beta_3(\text{legislative constraint on the executive})_i \times (\text{public sector theft})_i + \beta_4(\text{per capita income(log)})_i + \beta_5(\text{population fully vaccinated})_i + \beta_6(\text{median age})_i + \varepsilon_i$$

The preliminary model scrutinizes the direct and interactive impacts of legislative oversight and bureaucratic integrity, followed by an analysis incorporating control variables.

In each model, i symbolizes the country under examination, and ϵ represents the error term, encapsulating unobserved heterogeneity.

4. Results

The results presented in Tables 1 and 2 validate the hypotheses. Table 1 affirms Hypothesis 1, indicating that enhanced legislative constraints are inversely related to the mortality gap, a finding reinforced by the model (2) which includes various control variables. Table 2 substantiates Hypothesis 2, revealing that the legislative constraints interact with bureaucratic integrity significantly to reduce the mortality gap. This effect persists in the model (2), which accounts for control variables. Fig. 1 illustrates the estimated impact of the interaction, demonstrating a notable difference in the predicted mortality gap under conditions of high legislative constraint on the executive, comparing scenarios with and without strong bureaucratic integrity. The figure is based on a model that fixes legislative constraints while varying bureaucratic integrity, clearly showing how changes in bureaucratic integrity influence the mortality gap.

To affirm the robustness of our study, we conducted several checks, including using an alternative variable instead of the main independent variable *legislative constraint on executive* (Appendix Table 1) and adding control for executive respect for the constitution (Appendix Table 2), both aligning with our main results. We addressed potential multicollinearity through Variance Inflation Factor analysis, finding minimal risk (Appendix), and examined residuals for model misspecification, observing no systematic patterns (Appendix Fig. 1). These steps solidify our findings' reliability, emphasizing legislative oversight's significance in democratic governance.

Table 1
Legislative constraint on the executive is negatively associated with mortality gap among 168 countries in 2021.

Dependent Variable:		Mortality gap
Model:	(1)	(2)
Variables		
Constant	90.66***	148.3*
	(13.59)	(62.36)
Legislative constraint on the executive	−53.86**	−64.62**
	(20.62)	(21.89)
N. of fully vaccinated (/100)		−1.879***
		(0.5359)
Median age		3.642**
		(1.192)
GDP per capita (log)		−13.43
		(9.213)
Fit statistics Observations	168	164
R2	0.03949	0.16105
Adjusted R^2	0.03370	0.13994

IID standard-errors in parentheses.
Signif. Codes: ***: 0.001, **: 0.01, *: 0.05,.: 0.1.

5. Conclusion

The empirical findings corroborate the hypotheses. A pronounced legislative constraint on the executive correlates with a reduced mortality gap between excess mortality and official COVID-19 mortality. Moreover, the synergy of legislative constraint and bureaucratic capacity further diminishes this gap.

These results offer novel insights into the debated notion of "autocratic advantage." Prior studies argued that this perceived advantage is a mirage, primarily attributed to authoritarian regimes' manipulation of data (Balashov, Yan and Zhu, 2021; Kilani, 2021; Neumayer and Plümper, 2022; Kofanov et al., 2023). Our analysis extends this understanding, revealing that the illusory advantage also arises from legislative and bureaucratic deficiencies. Legislatures lacking robustness are

Table 2
Interaction of legislative constraint on the executive and bureaucratic integrity is negatively associated with a decrease in mortality gap among 168 countries in 2021.

Dependent Variable:	Mortality gap	
Model:	(1)	(2)
Variables		
Constant	89.43***	74.63
	(18.99)	(68.30)
Legislative constraint on the executive	–32.34	−63.74*
	(26.77)	(26.39)
Bureaucratic integrity	16.50	22.00·
	(11.90)	(11.93)
Legislative constraint on the executive × Bureaucratic integrity	−47.06**	−55.73***
	(15.41)	(15.04)
N. of fully vaccinated (/100)		−1.896***
		(0.5190)
Median age		4.535***
		(1.150)
GDP per capita (log)		−6.934
		(8.932)
Fit statistics Observations	168	164
R2	0.14047	0.25462
Adjusted R^2	0.12474	0.22614

IID standard-errors in parentheses.
Signif. Codes: ***: 0.001, **: 0.01, *: 0.05,.: 0.1.

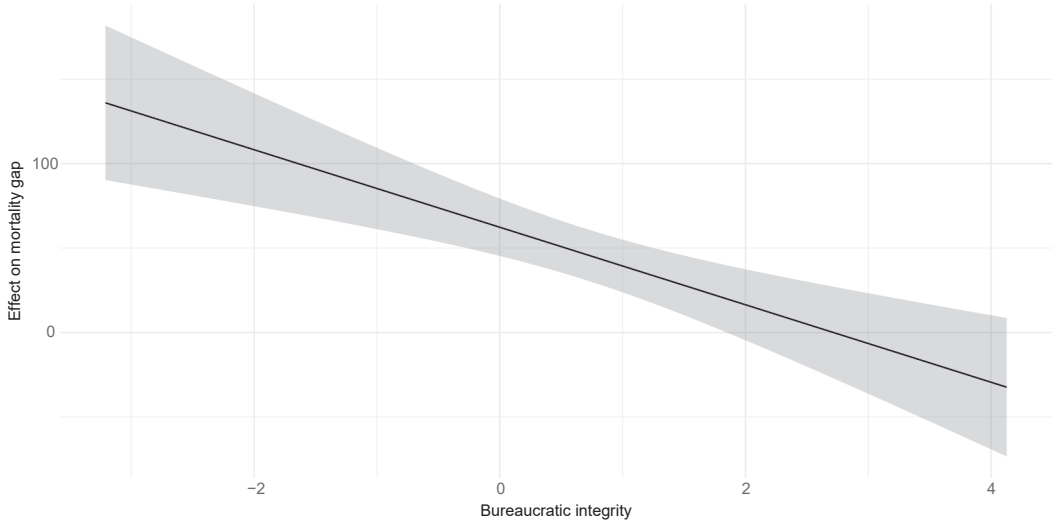

Fig. 1. When legislative constraint on the executive high, the presence of strong bureaucratic integrity is associated with a decrease in mortality gap among 168 countries in 2021.
Note: The figure is based on a model that fixes legislativev constraints while varying bureaucratic integrity, clearly showing how changes in bureaucratic integrity influence the mortality gap.

less effective in ensuring accurate mortality reporting, thus contributing to a skewed perception of pandemic severity.

Furthermore, this research contributes to a more layered understanding of the advantages inherent in democratic governance. The prevailing scholarship asserts that democracies are adept at navigating socio-economic dilemmas (Acemoglu et al., 2019; McMann and Tisch, 2021; Oyèkọ́lá, 2023) and effectively combating COVID-19 (Cassan and Van Steenvoort, 2021; Neumayer and Plümper, 2022; Annaka, 2021, 2022). Our study enriches this discourse, showing that more capable legislatures possess the ability to support the necessary processes for accurately assessing the severity of a pandemic, which constitutes a preliminary step towards effective management of the pandemic (Jahn et al., 2022).

6. Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, we used ChatGPT for its help with coding and editing. After using this tool/service, we reviewed and edited the content as needed and take full responsibility for the content of the publication.

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CRediT authorship contribution statement

Takaharu Saito: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.pmedr.2024.102694.

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