Asian Development Policy Review
ISSN(e): 2313-8343
ISSN(p): 2518-2544
DOI: 10.55493/5008.v12i2.4996
Vol. 12, No. 2, 91-99.

URL: www.aessweb.com

Democracy and child mortality: Evidence from Sub-Saharan Africa

Anand Sharma[1+]
Vipin Sharma[2]
Shekhar Tokas[3]

[1]*O.P. Jindal Global University, Sonipat, India.*
[1]*Email: anandsharma@jgu.edu.in*
[2]*University School of Business, Chandigarh University, Mohali, India.*
[2]*Email: vipinsharmakaushik@gmail.com*
[3]*Dr. B.R. Ambedkar University, Delhi, India.*
Email: shekhar@aud.ac.in

(+ Corresponding author)

Article History
Received: 26 September 2023
Revised: 7 November 2023
Accepted: 23 January 2024
Published: 4 March 2024

Keywords
Child mortality
Democracy
Health
Infant mortality rate
Neonatal mortality rate
Panel data
Sub-Saharan Africa.

ABSTRACT

Many countries in Sub-Saharan Africa (SSA) are characterized by low levels of democracy and show dismal health outcomes. This paper examines the association between democracy and child mortality rates in the 40 Sub-Saharan African (SSA) countries using data from 2000 to 2019. Democracy is measured using three indices prepared by Polity5, Varieties of Democracy (V-Dem) Institute and Freedom House. The data on infant mortality and neonatal mortality rates are taken from the World Development Indicators of the World Bank. The panel data regression results indicate that democracy is negatively linked to infant and neonatal mortality rates. This finding implies that a greater degree of democracy in SSA countries is associated with lower child mortality rates. The results of this study are robust for alternative measures of democracy. The paper also finds that education, urbanization, immunization, economic freedom, and water facilities are negatively associated with child mortality rates. These findings suggest that SSA countries should formulate policies that promote a robust democracy and strengthen the political rights of their citizens. These countries should invest in education, infrastructure, and immunization and implement policies that raise the pace of urbanization and improve economic freedom. These policy measures are likely to favorably affect child mortality rates in the SSA countries.

Contribution/ Originality: There have been few research studies that have examined the association between democracy and child mortality in Sub-Saharan African countries. Additionally, this article utilizes three indices of democracy, resulting in more reliable and conclusive findings.

1. INTRODUCTION

Democracy is regarded as a major instrument for enhancing the health outcomes of all sections of society. The differential health performance of developing countries is often attributed to the varying degrees of democratic environments in these countries (Noble, 2019; Wullert & Williamson, 2016). Most of the underdeveloped countries in Sub-Saharan Africa (SSA) are characterized by weak and low levels of democracy. Some of these least democratic countries, such as Ethiopia, Rwanda, and Uganda, have made significant improvements in health outcomes in recent years (Bollyky et al., 2019; Sharma, 2020). Therefore, it is interesting to examine the linkages between democracy and health outcomes in SSA countries. Child mortality is regarded as a useful indicator of health as it captures the relative position of the poorest members of society (Wigley & Akkoyunlu-Wigley, 2017; Wullert & Williamson, 2016).

It is important to understand the theoretical mechanisms through which democracy may affect health outcomes. Democratic countries may facilitate the efficient provision of public goods, such as health care, for several reasons. First, there is more accountability among the political leaders in democracies as a greater focus on the provision of public goods enhances the chances of re-election. The competitive elections in democracies incentivize politicians to understand the needs of the vulnerable sections of society and allocate more resources to social services such as health and education. Democracy provides a medium for the people to voice their concerns regarding the state of social services (Besley & Kudamatsu, 2006; Noble, 2019; Sen, 1999). Second, democracies enable the selection of efficient, capable, and unbiased political leaders who act in the best interest of society (Besley & Kudamatsu, 2006; Wang, Mechkova, & Andersson, 2019). These agents formulate the appropriate health-related policies and devote significant attention to facilitating the delivery of health-related services. Third, poor and marginalized sections of the population in democracies have a preference for redistribution policies. Democratic governments aim to fulfil these demands by imposing higher taxes and generating resources to raise the amount and efficiency of spending on health (Vollmer & Ziegler, 2009; Wang et al., 2019). Democracies are more receptive to feedback, criticism, and discussion from various stakeholders in society. These feedback and discussion mechanisms may enable democratic societies to improve the efficiency and functioning of their public health programs and thus have a favorable effect on health outcomes (Bollyky et al., 2019; Sen, 1999).

Several studies in the literature have analyzed the link between democracy and health outcomes for a cross-section of countries (e.g., (Besley & Kudamatsu, 2006; Klomp & De Haan, 2009; Safaei, 2006; Wang et al., 2019; Wigley & Akkoyunlu-Wigley, 2017; Zweifel & Navia, 2000)). These studies have found a beneficial effect of democracy on health outcomes. Few studies have exclusively focused on the linkages between democracy and child health in developing countries (e.g., (Burroway, 2016; Mejia, 2022; Noble, 2019; Welander, Hampus, & Nilsson, 2015)). Some of these studies have found a favorable effect of democracy on child mortality, whereas others have reported weak effects of democracy on child mortality. For example, using fixed effects regression and indices of democracy from the V-Dem database, Mejia (2022) found a favorable effect of democracy on child mortality in developing countries. Welander et al. (2015) have also reported a positive influence of democracy on child mortality in 70 developing countries between 1970 to 2009. On the other hand, Burroway (2016) used a hierarchical generalized linear logit model and reported an insignificant association between democracy and child health, as measured by diarrhea and malnutrition, in the case of 52 developing countries. Noble (2019) has also found an insignificant effect of democracy on child health by using the regression technique. However, using structural equation modelling, he reported favourable indirect effects of democracy on infant mortality. Limited studies in the context of SSA countries also reveal mixed results. For example, Wullert and Williamson (2016) used a quadratic model for 47 SSA countries and found that hybrid political environments are associated with higher infant mortality rates. Sharma (2020) reported that democracy exerted an adverse effect on infant and neonatal mortality rates in 34 SSA countries from 2005 to 2016.

This paper attempts to understand the connection between democracy and child mortality in SSA countries during the period 2000-2019. This study makes several valuable contributions to the literature. Firstly, this study employs three distinct indicators of democracy, hence yielding stronger findings. Furthermore, this research makes a useful contribution to the scarce body of literature on the relationship between democracy and health, particularly in underdeveloped countries. There is a scarcity of research that has specifically examined this link in the context of SSA countries.

2. METHODS

Based on the extant literature, we examine the relationship between democracy and child mortality by using the following regression model (e.g., (Li, An, Xu, & Baliamoune-Lutz, 2018; Sharma, 2020; Sharma, Sharma, & Tokas, 2022)).

$$Child\ Mortality_{it} = \beta_0 + \beta_1 Democracy_{it} + \beta_2 X_{it} + \gamma_i + \varepsilon_{it}$$

Where child mortality$_{it}$ represents the two dependent variables, viz., infant mortality rate and neonatal mortality rate. In the baseline model, democracy is measured through the Polity score, which ranges from -10 to +10. The value of -10 denotes a strongly autocratic regime, and +10 shows a strongly democratic regime. X_{it} shows the vector of socio-economic control variables in country i at time t. These include economic freedom, per capita gross domestic product (GDP), the share of the urban population in the total population, the incidence of human immunodeficiency viruses (HIV), public health expenditure as a percentage of GDP, percent of children with immunization, water facilities, and average years of schooling. γ_i reflects the country-specific characteristics, and ε_{it} is the error term in the model.

The empirical model outlined above may be estimated by different methods, viz., pooled ordinary least squares (OLS), fixed effects (FE) or random effects (RE), two-stage least squares (2SLS), or generalized method of moments (GMM). We prefer to use the fixed effects estimation technique due to certain challenges associated with the other methods. Specifically, the pooled OLS method gives biased and inconsistent estimates. The instrumental variable methods (2SLS and GMM) are difficult to use in practice due to the challenge of finding a suitable instrumental variable (Sharma et al., 2022). In the absence of valid instruments, the estimates may not be reliable. Thus, we follow the extant literature and use the fixed effects method in this paper (Edeme & Nkalu, 2019; Sharma et al., 2022).

3. DATA

In this study, we obtain the annual data for 40 SSA countries for the 20-year period from 2000 to 2019. The data on the two outcome variables (infant mortality rate and neonatal mortality rate) and the control variables are drawn from the World Development Indicators of the World Bank. The data on the key explanatory variable, i.e., democracy, is obtained from three different sources.

In our baseline regression model, we make use of the Polity5 democracy index. We also utilize the political rights index provided by Freedom House and the index of democracy released by the V-Dem Institute as alternative indices of democracy. The political rights index prepared by Freedom House is based on three components: the electoral process, political pluralism, participation, and functioning of government. This index ranges from 1 to 7, with higher values showing low political rights and minimum political freedom (Freedom House, 2022).

This index is recoded so that higher values are associated with greater political rights and a stronger democratic environment. The V-Dem index of democracy used in this paper reflects its performance with respect to electoral democracy. This index lies between 0 and 1, with higher values denoting stronger electoral democracy in a country (V-Dem, 2022).

Table 1 reports the descriptive statistics and variable definitions. The infant mortality rate in SSA countries ranges from 12.5 per 1000 (Mauritius in 2009 and 2010) to 139.5 per 1000 (Sierra Leone in 2000). The minimum value of neonatal mortality rate is 5.6 per 1000 (Botswana in the years 2001 and 2002), and the maximum value is 54.7 (Guinea Bissau in the year 2000).

4. RESULTS AND DISCUSSION

The initial analysis presents the bivariate relationship between democracy and the child mortality variables Figure 1.

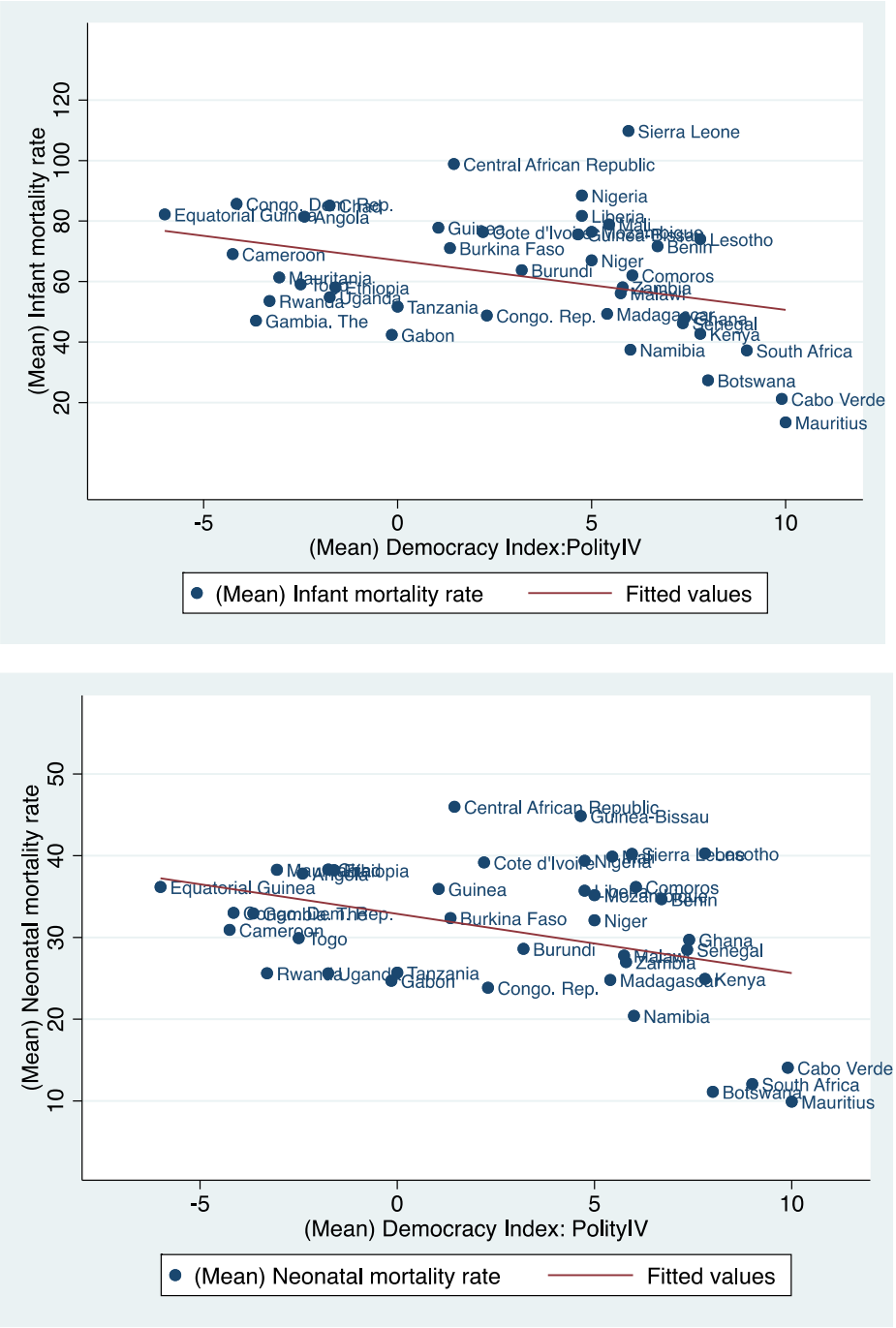

Figure 1. Bivariate relationship between democracy and child mortality.

The top-panel graph in Figure 1 shows a negative association between the average level of democracy and the average infant mortality rate. For example, countries such as Congo, Equatorial Guinea, Cameroon, and Angola, with low average democracy indexes (between -6 and 0), exhibit high (above 60 per 1000) average infant mortality rates. On the other hand, countries that have a freer political environment on average (such as Mauritius, Cabo Verde, Botswana, and South Africa) witness low average infant mortality rates (less than 30 per 1000). The bottom panel graph in Figure 1 also reveals that countries with a higher democracy index, on average, have lower neonatal mortality rates.

Table 1. Variable definitions and descriptive statistics.

Variable	Definition	Mean	S.D.	Minimum	Maximum
Infant mortality	Infant mortality rate (Per 1000 live births)	62.28	24.13	12.50	139.50
Neonatal mortality	Neonatal mortality rate (Per 1000 live births)	30.79	9.70	5.60	54.70
Male infant mortality	Male infant mortality rate (Per 1000 live births)	67.71	25.72	13.80	147.10
Female infant mortality	Female infant mortality rate (Per 1000 live births)	56.56	22.49	11.10	131.30
Democracy (Polity 5)	Index of democracy from Polity5 (Ranging from -10 to +10)	2.88	4.81	-6	10
Democracy (V-Dem)	Index of democracy from V-Dem (Ranging from 0 to 1)	0.46	0.18	0.11	0.84
Democracy (F.H.)	Political rights index from Freedom House (From 1 to 7)	3.78	1.77	1	7
Economic freedom	Economic freedom index (Ranging from 0 to 100)	54.22	7.66	24.30	77
Per capita GDP	GDP per capita, PPP (Constant 2017 international $)	4534.54	5744.44	630.70	41249.49
Urbanization	Urban population as % of the total population	39.46	16.57	8.24	89.74
Incidence of HIV	% of people ages 15-49 who are infected with HIV	4.82	5.83	0.10	26.30
Pub. health expenditure	Public health expenditure (% of GDP)	1.53	1.11	0.062	5.56
Immunization	% of children (12-23 months) receiving measles vaccination	72.26	17.50	16	99
Improved water	Improved water source (% of people with access)	61.24	16.44	18.08	99.86
Education	Expected years of schooling	9.49	2.31	2.90	15.30

Source: Freedom House (2022), Heritage Foundation (2022), Polity5 (2022), UNESCO (2022), V-Dem (2022) and World Bank (2022).

We report the regression results with standardized coefficients in Tables 2-4. The results in Table 2 depict the relationship between the index of democracy (Polity5) and the child mortality variables. Columns 1 and 3 show the fixed effects (FE) results for infant mortality rate and neonatal mortality rate, respectively. On the other hand, columns 2 and 4 present the random effects (RE) findings for comparison. We prioritize the fixed effects (FE) model due to the Hausman test providing evidence in favor of its usage. After accounting for important socio-economic factors, the findings emphasize that countries with higher levels of democracy tend to have lower average child mortality rates. Specifically, columns 1 and 3 show that democracy has a negative and statistically significant relationship with infant and neonatal mortality rates. A one-standard deviation increase in the index of democracy is associated with a 0.104 standard deviation (or about 2.5 per 1000) and a 0.103 (or about 1 per 1000) reduction in infant and neonatal mortality rates, respectively.

Most of the control variables are significant and have expected signs. For example, economic freedom, which is an indicator of the quality of economic institutions, shows a negative and significant relationship with child mortality rates. Countries with greater urbanization, higher immunization coverage, better water facilities, and increased levels of education are associated with lower infant mortality rates. Column 1 also shows that the incidence of HIV is positively linked to the infant mortality rate. However, urbanization and the prevalence of HIV appear to have a weak link with the neonatal mortality rate. It is noteworthy that per capita GDP turns out to be insignificant and, thus, has a weak relationship with both infant and neonatal mortality rates. Another striking finding is the positive and significant coefficient on public health expenditure across all the models. The RE results also support these findings and show that democracy is negatively linked to child mortality rates.

Table 2. Democracy and child mortality (Fixed and random effects).

Variable	(1) FE Infant mortality	(2) RE Infant mortality	(3) FE Neonatal mortality	(4) RE Neonatal mortality
Democracy (Polity 5)	-0.104***	-0.106***	-0.103***	-0.099***
	(0.024)	(0.023)	(0.021)	(0.021)
Economic freedom	-0.151***	-0.160***	-0.110***	-0.115***
	(0.020)	(0.020)	(0.018)	(0.018)
Per capita GDP	-0.063	0.004	0.038	0.028
	(0.070)	(0.061)	(0.063)	(0.056)
Urbanization	-0.292***	-0.151**	-0.029	-0.004
	(0.072)	(0.061)	(0.065)	(0.057)
Incidence of HIV	0.268***	0.245***	-0.019	-0.017
	(0.068)	(0.054)	(0.061)	(0.051)
Public health expenditure	0.070***	0.060***	0.137***	0.130***
	(0.022)	(0.023)	(0.020)	(0.020)
Immunization	-0.159***	-0.174***	-0.097***	-0.102***
	(0.021)	(0.021)	(0.019)	(0.019)
Water	-0.429***	-0.447***	-0.382***	-0.367***
	(0.042)	(0.039)	(0.038)	(0.035)
Education	-0.442***	-0.467***	-0.471***	-0.475***
	(0.026)	(0.025)	(0.023)	(0.022)
Observations	800	800	800	800
Adjusted R^2	0.79		0.75	

Note: Standard errors are in parenthesis.
*** p<0.01, ** p<0.05.

Next, we assess the robustness of the regression results by utilizing two alternative indices of democracy. These FE results are reported in Table 3.

Table 3. Alternative indices of democracy and child mortality (Fixed effects).

Variable	(1) Infant mortality	(2) Neonatal mortality	(3) Infant mortality	(4) Neonatal mortality
Democracy (V-Dem)	-0.074***	-0.063**		
	(0.027)	(0.025)		
Economic freedom	-0.145***	-0.105***	-0.150***	-0.111***
	(0.020)	(0.018)	(0.020)	(0.018)
Per capita GDP	-0.080	0.021	-0.073	0.024
	(0.070)	(0.063)	(0.070)	(0.063)
Urbanization	-0.334***	-0.074	-0.371***	-0.101
	(0.072)	(0.065)	(0.072)	(0.065)
Incidence of HIV	0.297***	0.011	0.294***	0.012
	(0.068)	(0.061)	(0.068)	(0.062)
Public health expenditure	0.065***	0.132***	0.066***	0.132***
	(0.022)	(0.020)	(0.022)	(0.020)
Immunization	-0.150***	-0.090***	-0.162***	-0.100***
	(0.022)	(0.019)	(0.021)	(0.019)
Water	-0.419***	-0.371***	-0.414***	-0.364***
	(0.042)	(0.038)	(0.042)	(0.038)
Education	-0.436***	-0.466***	-0.444***	-0.471***
	(0.026)	(0.023)	(0.026)	(0.023)
Democracy (Freedom House)			-0.060***	-0.034*
			(0.023)	(0.020)
Observations	800	800	800	800
Adjusted R^2	0.78	0.74	0.78	0.74

Note: Standard errors are in parenthesis.
*** p<0.01, ** p<0.05, * p<0.1.

Columns 1 and 2 present the results using the V-Dem Institute's index of democracy, and columns 3 and 4 show the results using Freedom House's political rights index. These results corroborate our previous findings and indicate that more democratic countries exhibit lower child mortality rates. Column 1 shows that the coefficient on the democracy index is -0.0704, which implies that one standard deviation rise in democracy is linked with a 0.704 standard deviation (or about 1.7 per 1000) reduction in infant mortality rate. Similarly, the coefficient on democracy is negative and significant in column 2. The coefficients on the democracy index in columns 3 and 4 are slightly lower in magnitude but depict a similar negative relationship between democracy and child mortality rates. The findings with respect to the control variables are broadly comparable to the previous ones. On average, higher economic freedom, greater urbanization, larger immunization coverage, better drinking water facilities, and an increase in education are associated with a reduction in child mortality rates. Public health expenditure and the prevalence of HIV are positively linked to infant and neonatal mortality rates. Per capita income has an insignificant effect on child mortality. Democracy may not be related to male and female child health in a similar manner. Therefore, we also test the relationship between democracy and the male-female infant mortality rate and present these results in Table 4. We use all three indices of democracy to examine the relationship between democracy and child mortality by gender. In all the models (columns 1-6), we find that more democratic countries witness both lower male and female infant mortality rates. We obtained similar results for the control variables. Thus, our foregoing findings turn out to be quite robust, and we find no evidence of a differential relationship between democracy and male and female infant mortality rates.

Table 4. Democracy indices and child mortality by gender (Fixed effects).

Variable	(1) Male infant mortality	(2) Female infant mortality	(3) Male infant mortality	(4) Female infant mortality	(5) Male infant mortality	(6) Female infant mortality
Democracy (Polity 5)	-0.101***	-0.106***				
	(0.023)	(0.024)				
Economic freedom	-0.151***	-0.150***	-0.145***	-0.145***	-0.150***	-0.149***
	(0.019)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Per capita GDP	-0.062	-0.068	-0.079	-0.085	-0.072	-0.078
	(0.069)	(0.071)	(0.069)	(0.072)	(0.069)	(0.072)
Urbanization	-0.305***	-0.277***	-0.346***	-0.322***	-0.382***	-0.358***
	(0.071)	(0.074)	(0.071)	(0.073)	(0.071)	(0.073)
Incidence of HIV	0.275***	0.259***	0.304***	0.290***	0.301***	0.287***
	(0.067)	(0.070)	(0.067)	(0.070)	(0.067)	(0.070)
Public health exp.	0.071***	0.069***	0.066***	0.064***	0.067***	0.065***
	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.023)
Immunization	-0.157***	-0.160***	-0.149***	-0.152***	-0.160***	-0.163***
	(0.021)	(0.022)	(0.021)	(0.022)	(0.021)	(0.022)
Water	-0.423***	-0.435***	-0.414***	-0.425***	-0.409***	-0.420***
	(0.041)	(0.043)	(0.042)	(0.043)	(0.042)	(0.043)
Education	-0.437***	-0.446***	-0.432***	-0.440***	-0.439***	-0.448***
	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Democracy (V-Dem)			-0.075***	-0.072***		
			(0.027)	(0.028)		
Democracy (F.H.)					-0.058**	-0.062***
					(0.022)	(0.023)
Observations	800	800	800	800	800	800
Adjusted R^2	0.79	0.78	0.79	0.78	0.79	0.78

Note: Standard errors are in parenthesis.
*** p<0.01, ** p<0.05

The regression results suggest that more democratic countries are likely to witness lower rates of child mortality. This finding is consistent with the extant literature (e.g., (Mejia, 2022; Safaei, 2006; Wang et al., 2019; Wigley & Akkoyunlu-Wigley, 2017)). As discussed earlier, greater accountability of political leaders in democratic societies incentivizes them to invest in the provision of public goods such as health and education. In addition, democracies

have processes in place that promote criticism, feedback, and discussions. These mechanisms enable the governments of democratic countries to strengthen and upgrade their public health programs. SSA countries need to emphasize policies that promote a democratic environment and enhance the political rights of their citizens. The paper also finds that education, economic freedom, access to safe drinking water, immunization coverage, and urbanization are closely linked with child mortality rates. These findings suggest that policymakers in SSA nations should prioritize these aspects, as they have a strong negative correlation with child mortality rates. The positive association of public health expenditure with child mortality could be due to high corruption and poor governance quality in SSA countries. Other studies in the context of developing countries also lend support to this finding (e.g., (Akinlo & Sulola, 2019; Kulkarni, 2016)).

5. CONCLUDING REMARKS

This paper studies the linkages between democracy and child mortality for the 40 SSA countries during the period 2000-2019. Using fixed effects regression and employing three indices of democracy, we find that democracy has a negative association with both infant and neonatal mortality rates. We also find that education, urbanization, immunization, water facilities, and economic freedom have a close negative link with child mortality rates. Interestingly, we also show that SSA countries with higher public health expenditures witness higher child mortality rates. Our paper significantly contributes to the limited empirical literature for SSA countries and provides support for the view that democracies are associated with better health outcomes for children. There are various important policy implications from these findings. First, SSA countries should focus on strengthening their democratic institutions, which enhance the political rights of their citizens. Democracies are likely to allocate a larger fraction of the resources to improve the provision of health facilities and related infrastructure. Second, there is an urgent need to emphasize education, raise urbanization, expand immunization coverage, and increase the level of economic freedom. These critical variables have very strong negative linkages with child mortality.

Further research at the local level is also required to understand the additional theoretical channels through which democracy may affect child mortality. The findings presented in this paper do not prove causality, and future research may attempt to identify the causal effects by suitably addressing the endogeneity concerns. It would also be useful to examine the relationships between political institutions and other aspects of children's health and wellbeing, such as cognitive development, mental and emotional well-being, etc.

Funding: This study received no specific financial support.
Institutional Review Board Statement: Not applicable.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

REFERENCES

Akinlo, A. E., & Sulola, A. O. (2019). Health care expenditure and infant mortality in Sub-Saharan Africa. *Journal of Policy Modeling, 41*(1), 168-178. https://doi.org/10.1016/j.jpolmod.2018.09.001

Besley, T., & Kudamatsu, M. (2006). Health and democracy. *American Economic Review, 96*(2), 313–318. https://doi.org/10.1257/000282806777212053

Bollyky, T. J., Templin, T., Cohen, M., Schoder, D., Dieleman, J. L., & Wigley, S. (2019). The relationships between democratic experience, adult health, and cause-specific mortality in 170 countries between 1980 and 2016: An observational analysis. *The Lancet, 393*(10181), 1628-1640.

Burroway, R. (2016). Democracy and child health in developing countries. *International Journal of Comparative Sociology*, *57*(5), 338–364. https://doi.org/10.1177/0020715216676514

Edeme, R. K., & Nkalu, C. N. (2019). Public expenditure and human development in Nigeria in the last decade, composition and distributional impacts. *Economics and Business Letters*, *8*(2), 62–73. https://doi.org/10.17811/ebl.8.2.2019.62-73

Freedom House. (2022). *Country and territory ratings and statuses, 1973-2022.* Retrieved from https://freedomhouse.org/report/freedom-world

Heritage Foundation. (2022). *Index of economic freedom.* Retrieved from https://www.heritage.org/index/explore?view=by-region-country

Klomp, J., & De Haan, J. (2009). Is the political system really related to health? *Social Science & Medicine*, *69*(1), 36-46. https://doi.org/10.1016/j.socscimed.2009.03.033

Kulkarni, L. (2016). Health inputs, health outcomes and public health expenditure: Evidence from the BRICS countries. *International Journal of Applied Economics*, *31*(1), 72-84.

Li, Q., An, L., Xu, J., & Baliamoune-Lutz, M. (2018). Corruption costs lives: Evidence from a cross-country study. *The European Journal of Health Economics*, *19*(1), 153-165. https://doi.org/10.1007/s10198-017-0872-z

Mejia, S. A. (2022). Democracy and health in developing countries: New cross-national evidence, 1990–2016. *Sociological Perspectives*, *65*(5), 981-1000. https://doi.org/10.1177/07311214221082689

Noble, M. D. (2019). Democracy and infant mortality in less-developed nations: Dismantling differences in direct and indirect effects modeling. *Sociological Perspectives*, *62*(3), 282-307. https://doi.org/10.1177/0731121418820035

Polity5. (2022). *Regime authority characteristics and transition datasets.* Retrieved from https://www.systemicpeace.org/inscrdata.html

Safaei, J. (2006). Is democracy good for health? *International Journal of Health Services*, *36*(4), 767-786. https://doi.org/10.2190/6V5W-0N36-AQNF-GPD1

Sen, A. (1999). *Development as freedom.* New York: Anchor.

Sharma, A. (2020). Does economic freedom improve health outcomes in Sub-Saharan Africa? *International Journal of Social Economics*, *47*(12), 1633-1649. https://doi.org/10.1108/IJSE-01-2020-0008

Sharma, A., Sharma, V., & Tokas, S. (2022). Institutional quality and health outcomes: Evidence from the EU countries. *Economics and Business Letters*, *11*(2), 70-78. https://doi.org/10.17811/EBL.11.2.2022.70-78

UNESCO. (2022). *UNESCO institute for statistics.* Retrieved from http://data.uis.unesco.org/

V-Dem. (2022). *The V-Dem dataset.* Retrieved from https://www.v-dem.net/vdemds.html

Vollmer, S., & Ziegler, M. (2009). *Political institutions and human development - Does democracy fulfil Its "constructive" and "instrumental" role?* Policy Research Working Paper No. 4828, World Bank, Washington, D.C.

Wang, Y.-t., Mechkova, V., & Andersson, F. (2019). Does democracy enhance health? New empirical evidence 1900–2012. *Political Research Quarterly*, *72*(3), 554-569. https://doi.org/10.1177/1065912918798506

Welander, A., Hampus, L. C., & Nilsson, T. (2015). Globalization, democracy, and child health in developing countries. *Social Science and Medicine*, *136–137*, 52–63. https://doi.org/10.1016/j.socscimed.2015.05.006

Wigley, S., & Akkoyunlu-Wigley, A. (2017). The impact of democracy and media freedom on under-5 mortality, 1961–2011. *Social Science & Medicine*, *190*, 237-246. https://doi.org/10.1016/j.socscimed.2017.08.023

World Bank. (2022). *World development indicators.* Retrieved from https://data.worldbank.org/indicator

Wullert, K. E., & Williamson, J. B. (2016). Democracy, hybrid regimes, and infant mortality: A cross-national analysis of Sub-Saharan African nations. *Social Science Quarterly*, *97*(5), 1058–1069. https://doi.org/10.1111/ssqu.12240

Zweifel, T. D., & Navia, P. (2000). Democracy, dictatorship, and infant mortality. *Journal of Democracy*, *11*(2), 99–114. https://doi.org/10.1353/jod.2000.0047