




Economic policy uncertainty, governance institutions and economic performance in Africa: are there regional differences?

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Received: 12 July 2022 / Accepted: 14 December 2022 / Published online: 3 January 2023
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Abstract

In recent years, the global economy has witnessed several uncertainty-inducing events. However, empirical evidence in Africa on the effects of economic policy uncertainty (EPU) on economic activities remains scanty. Besides, the moderating effect of governance institutions on the uncertainty-economic performance relationship in Africa and the likelihood of regional differences in the response of economic activities to EPU on the continent are yet to be investigated. To address these gaps, we applied system GMM and quantile regressions on a panel of forty-seven African countries from 2010 to 2019. We find that while global EPU and EPUs from China, USA and Canada exert considerable influence on economic performance in Africa, the effects of domestic EPU and EPUs from Europe, UK, Japan, and Russia were negligible, suggesting that African economies are resilient to these sources of uncertainty shocks. We also find that governance institutions in Africa are not significantly moderating the uncertainty-economic performance relationship. However, our results highlighted regional differences in the response of economic activities to uncertainty, such that when compared to East and West Africa, economic performance in Central, North and Southern Africa is generally more resilient to global EPU and EPUs from China, USA, Europe and UK. We highlighted the policy implications of these findings.

Keywords Economic policy uncertainty · Governance institutions · Economic performance · System GMM regression · Quantile regression

JEL Classification D80 · N20 · O40 · C23

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1 Introduction

In the decade following the 2007–2009 Global Financial Crisis, the global economy has witnessed several uncertainty inducing events. Some of these events include: the European sovereign debt crisis that peaked between 2010 and 2012, the 2015/2016 commodity price shock, the US–China trade war, the Brexit vote, and more recently, the ongoing Covid-19 Pandemic. Indeed, the ongoing Covid-19 Pandemic has caused significant spikes in uncertainty surrounding various aspects of economic life, such as the duration and potency of social distancing, business travels and physical market resumptions, whether working from home will persist, the magnitude of shifts in consumption patterns, and the speed of post-Covid economic recovery, among others (Altig et al. 2020). Consequently, these new realities have significant economic impacts on countries. The report by World Bank (2021) revealed that, due to the COVID-19 Pandemic, economic activity in Africa was estimated to have contracted by 2 percent in 2020. This was driven by contractions on the production side (industry and services sector) and the demand side (private consumption and investment). Besides, Sub-Saharan Africa suffered its first recession in over 25 years, with economic activity contracting by nearly 5 percent on a per capita basis.

Some studies (e.g. Ali 2001; Sahinoz and Erdogan-Cosar, 2018; Altig et al. 2020; Lin and Bai 2021; Ogbonna et al. 2022) have found significant adverse effect of uncertainty on growth, consumption, and investment. Phan et al. (2020) established that uncertainty adversely affects financial stability, while Tran et al. (2020) found that rising uncertainty promotes US banks' diversification into non-interest income activities. Lyu et al. (2021) found that economic policy uncertainty (EPU) has a significant and positive impact on crude oil volatility, and it is most pronounced during extreme market conditions, such as the 2007–2009 Global Financial Crisis and the 2010–2012 European Sovereign Debt crisis. Conversely, Lin and Bai (2021) found that global EPU has an undulating response to oil price shocks, while it has a negatively significant impact on global oil prices. Similarly, Qin et al. (2021) found that the impact of policy uncertainty on travel and leisure undulates between a significant positive and negative effect. Also, Wu et al. (2021) used a three-dimensional wavelet approach on data of five-fragile countries (Brazil, India, Indonesia, South Africa and Turkey) to establish that the causality between global EPU and tourism changes overtime, especially when global EPU and tourism co-move. In terms of institutions, Ali (2001) established that the effect of political instability on growth is inconclusive, but Yildirim and Gökalp (2016) found the effect of political instability on growth to be negatively significant for developing countries. These studies have also found a significantly positive effect of rule of law and regulatory quality on growth, and a unidirectional causality from political stability to economic growth for developing countries, low-income countries and lower middle-income countries (Dixit 2009; Yildirim and Gökalp 2016; Dalyop 2018; Nair et al. 2021; Arvin et al. 2021). Likewise, Kamah et al. (2021) found that the effect of institutional quality on inclusive growth is positively significant.

In spite of the growing literature on the effects of uncertainty on economic activities (e.g. Altig et al. 2020 studied US and UK; Lin and Bai 2021; Xu et al.

2021; and Pan, Wang and Wang, 2021 studied China), empirical evidence in Africa remains scanty, especially following the ongoing Covid-19 Pandemic. Besides, the moderating effect of governance institutions on the uncertainty-economic performance relationship in Africa is yet to be accounted for. To close these gaps, this study builds on the works of Kamah et al. (2021), Nair et al. (2021), Arvin et al. (2021), and Sahinoz and Erdogan-Cosar (2018) in order to deepen the literature and allow for more comprehensive understanding of the uncertainty-economic performance relationship in Africa. This is particularly necessary because studies (e.g. Dixit 2009; Yildirim and Gökalp 2016; Nair et al. 2021; Arvin et al. 2021) have shown that the influence of governance institutions on economic activities can no longer be called unimportant. Indeed, these studies underline the fact that strong governance institutions can render the economic environment transparent and friendly, and thereby promote economic performance across regions. At the very minimum, it is expected that such governance institutions should at least be able to control corruption, enforce the rule of law, ensure government effectiveness, uphold high regulatory quality, maintain political stability and absence of violence and terrorism, and ensure the preservation of voice and accountability.

Thus, the broad objective of this study is to investigate the effects of global economic policy uncertainty (EPU) and governance institutions on economic performance in Africa. The specific objectives are to: (1) ascertain the impacts of global EPU and governance institutions on economic performance in Africa; (2) determine if governance institutions significantly moderate the uncertainty-economic performance relationship in Africa; (3) determine if there are regional differences on the effect of EPU on economic performance in Africa; and (4) establish other significant drivers of economic performance in Africa. The choice of Africa for this study is apt as the continent consists of both very low-income countries and emerging markets with high interactions in the international market and with developed countries. Besides, the leading economies on the continent like Nigeria and South Africa have also been exposed to various uncertainty inducing events, particularly in the last decade. For instance, such events in Nigeria include: the presidential elections of 2015 and 2019; the delay in appointment of Ministers to form the Executive Council of the Federation in 2019; the delays in the submission and approval of national budgets; the fuel subsidy debacle which started in January 2012; the perennial conflicts between nomadic Fulani herdsmen and farmers leading to ethnic tensions; the economic recession of 2016; and the Boko Haram insurgency, among others. In South Africa, such uncertainty-inducing events include: the persistent problem of xenophobic violence which escalated in 2018 and 2019; the ongoing economic recession occasioned by weak manufacturing and trade; the transition from one elected president to another, especially the tensions created towards the emergence of a new president in 2018; the various episodes of bank crises (like the collapse of African Bank in 2014 and the failure of VBS Mutual Bank in 2018); the termination of the bilateral investment treaties between South Africa and European Union member countries in 2012; and the ambiguous and continually changing land reform programme in South Africa, among others.

To achieve the foregoing objectives, the study used system GMM and simultaneous quantile regression frameworks.¹ The data for the study were sourced from the World Bank's World Development Indicators and World Governance Indicators, as well as the global uncertainty index advanced by Davis (2016). The rest of the paper is organized as follows: Sect. 2 focuses on the literature review; Sect. 3 discusses the data and methods used; Sect. 4 presents and discusses the results; and Sect. 5 concludes the paper with some policy recommendations.

2 Literature review

In terms of growth, the effect of economic policy uncertainty (EPU) on economic growth is found to be negatively significant, especially for Asian countries (Lensing, Bo and Sterken, 1999; Xu et al. 2021; Pan et al. 2021). Interestingly, monetary uncertainty was found to be less severe than fiscal uncertainty, where fiscal uncertainty generally relates to government expenditures, taxes, budget deficits and sales uncertainty. For China, the results show that the uncertainty in China stems from the United States (US). Furthermore, in the USA, Barker et al. (2020b) using the method developed by Barker et al. (2020a) found that COVID-induced EPU caused a significant contraction in their economic growth. Similarly, Baharumshah et al. (2016) found that while inflation rate has asymmetric relationship with economic growth, inflation uncertainty promotes growth; however, the negative effect of inflation on growth outweighs the positive gains of inflation uncertainty. Sharma and Paramati (2021) used pooled mean group and cross-sectionally distributed lag models to examine the impact of economic uncertainty on Indian imports. The study found that while the impact of economic uncertainty on imports in India is positively significant in the short-run, it is negatively significant in the long-run. These heterogeneous findings on the growth-effect of EPU suggest that more investigations are required in order to clearly unravel the patterns in this relationship.

Beyond the EPU growth-effect, the effect of EPU traverses across other economic areas and growth components, such as investments and firm behaviours. The directions of impact yield different economic implications on firms or investment activities, which goes into the growth equation. Low investment or business activities due to high EPU, through interest rates, ultimately reduce economic performance. Some studies have found that high EPU leads to reductions in firms' business operations and also reduces business confidence (Shi, Qiu and Fan, 2020; Handley and Li 2020; Montes and Nogueira 2021; Ogbonna et al. 2022). Interestingly, Olivier et al. (2021) used randomised information treatments to examine how exogenous variations in

¹ The choice of simultaneous Quantile Regression (QR) is due to its superiority over OLS, for the following reasons: (1) Socio-economic indicators may be characteristic of different patterns of distribution (De Silva, Simons and Stevens 2016), in which the zero-conditional mean assumption of OLS would be ineffective; (2) QR accounts for this deficiency and ineffectiveness (Salman et al. 2019); (3) QR makes no assumption as regards the presence of moment function (Zhu et al. 2016a, b); (4) Its estimates are still robust in the presence of outliers (Bera et al. 2016) and; (5) No distributional assumptions are considered (Sherwood and Wang 2016).

EPU can affect European households' spending decisions. The findings show that relative to the untreated group, higher EPU reduces household spending on non-durable goods and services as well as on luxury goods and their investments in mutual funds. This contracting-effect on households' spending corroborates the finding by Handley and Li (2020), as declining sales and unemployment growth reduces the disposable income of households. Additionally, Cui et al. (2021) found that the effect of EPU on corporate innovation investment is negatively significant. Ashraf (2021) using data from World Uncertainty Index (WUI) on a bank-panel of 88 countries found that high uncertainty raises interest rates on bank loans, which in turn, reduces investments.

Ongsakul et al. (2021) found that an increase in EPU causes firms to reduce their board size, in order to improve firm's performance amid agency conflicts. Similarly, while economic uncertainty is mute in explaining changes in corporate leverage ratios, policy uncertainty was found to have a positive and significant effect (Schwarz and Dalmácio 2020; Pan et al. 2019; Zhang et al. 2015). Furthermore, Tran et al. (2020) used large samples of US banks to examine the effect of EPU on banks business activities. The study found that EPU has a significant and heterogeneous impact on banks business activities. While it causes the small and medium banks to increase their non-interest income activities, it causes large banks to decline their non-interest income activities. Li et al. (2020) used China's provincial economic policy uncertainty index for 21 countries to analyse the effect of EPU of home and host countries on cross-border mergers and acquisitions (MandAs). The study revealed the following findings: (1) the EPU of home country promotes cross-border MandAs, while the EPU in the host country is negatively significant; (2) while the host country's EPU is symmetric with cross-border MandAs before the financial crisis, it is asymmetric after the crisis; and (3) while the effect of the EPU of home and host countries is significant for developed countries, it is insignificant for developing countries. Clearly, the effect of EPU on firms' business activities is heterogeneous, which somewhat confounds its contributions to economic growth.

Furthermore, Demir and Danisman (2021) used a sample of 2439 banks from 19 countries for the period of 2010–2019, to examine the effect of economic uncertainty on bank credit growth. Findings revealed that economic uncertainty discourages bank credit and this is more pronounced in corporate loans. Furthermore, Karadima and Louri (2020) also used bank-level data of four major European Union countries (France, Germany, Italy and Spain), to empirically examine if EPU has a significant impact on non-performing bank loans. The results revealed that the impact of EPU on non-performing bank loans is positively significant, but this effect is also significantly moderated by higher bank concentration. Similarly, Danisman et al. (2020) used GMM estimator and found that higher EPU tends to promote loan loss provisioning by US banks, especially such EPUs that are News-based and tax expiration indices. Interestingly, Zhang et al. (2021) found that EPU significantly encourages corporate risk-taking in China. However, Wu et al. (2020) used data on 530 banks in nine major emerging Asian economies and found that while economic uncertainty decreases banks' risk-taking, financial uncertainty increases the number of risks bank's take, but insignificant for state-owned banks. These results suggest heterogeneity in the effect of uncertainty in the market with different ownership structures.

Heterogeneous effects exist on the EPU and carbon emissions nexus. Yu et al. (2018) investigated the effect of EPU on firm-level carbon emissions in China. The findings revealed that higher EPU increases manufacturing firm's carbon emissions. Similarly, in Sub-Saharan Africa (SSA), Adedoyin et al. (2021) examined the role of EPU in the energy–growth–emissions nexus. Findings showed that EPU is symmetric with carbon emissions, but its moderating effects result in a decline in the emission levels in SSA. On the other hand, Syed and Bouri (2021) found that while EPU encourages carbon emissions in the short-run, it plunges it in the long-run for the USA. However, for the top ten carbon emission countries, Anser et al. (2021) found that EPU discourages carbon emission in the short-run, but encourages it in the long-run. For China, Abbasi and Adedoyin (2021) found that EPU has an insignificant effect on carbon emissions.

The foregoing review of the literature shows the negative effect of EPU on economic growth, particularly in countries such as China, India, Pakistan and the USA. However, the African perspective on this nexus is under-studied, except for Adedoyin et al. (2021) which found that EPU asymmetrically moderates the energy–growth–emission nexus in SSA. However, the effect of EPU on other components of growth is largely heterogeneous. This controversy and dearth in the literature motivates this study to ask very important question to further deepen our understanding of the uncertainty and growth dynamics. The African perspective will further contribute to the ongoing debate in the literature. These questions are: what are the impacts of EPU and governance institutions on economic performance in Africa? Do governance institutions significantly moderate the uncertainty-economic performance relationship in Africa? Are there regional differences on the effect of EPU on economic performance in Africa? What other macroeconomic factors significantly drive economic performance in Africa? Evidently, this research area is nascent. Hence, there is need to widen the literature geographically in terms of Africa for robust policymaking. Furthermore, the moderating role of institutions in the EPU–growth nexus is yet to be investigated for Africa. This study also intends to cover this gap, especially given that Africa is generally characterized by weak governance institutions.

3 Data and methods

3.1 The data

Based on data availability, this study included a total of forty-eight African countries.² The study covered the period 2010–2019, which lies between the 2007–2009

² The countries included in the study are: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo Republic, Cote d'Ivoire, Congo Dem. Rep., Egypt, Equatorial Guinea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe.

Table 1 Definition of variables and sources of data

Variable	Definitions	Source
gepu	Global economic policy uncertainty (GEPU)	Davis (2016)
epuchina	EPU China	Davis (2016)
epueu	EPU European	Davis (2016)
epuuk	EPU UK	Davis (2016)
epuusa	EPU USA	Davis (2016)
epurussia	EPU Russia	WUI (2020)
epujapan	EPU Japan	WUI (2020)
epucanada	EPU Canada	WUI (2020)
depu	Domestic EPU	WUI (2020)
gdpp	GDP per capita (constant 2010 US\$)	WDI (2020)
vac	Voice and accountability: percentile rank	WGI (2020)
ger	Government effectiveness: percentile rank	WGI (2020)
pvr	Political stability and absence of violence/terrorism: percentile rank	WGI (2020)
rqr	Regulatory quality: percentile rank	WGI (2020)
rlr	Rule of law: percentile rank	WGI (2020)
ccr	Control of corruption: percentile rank	WGI (2020)
gcf	Gross capital formation (% of GDP)	WDI (2020)
labour	Population ages 15–64, total	WDI (2020)
trade	Trade (% of GDP)	WDI (2020)
aidi	Africa infrastructure development index (AIDI) Index	AIDI (2020)

WDI World development indicators, *WGI* World governance indicators, *AIDI* Aggregate infrastructure development index, *WUI* World uncertainty index. The EPU and WUI data were obtained using simple arithmetic average of the corresponding 12 monthly and 4 quarterly figures, respectively. Domestic EPU is the EPU of the respective African countries

Global Financial Crisis (GFC, also known as the Great Recession) and the Covid-19 Pandemic. Focusing on the post-GFC period will enable us to obtain evidence that can be used to inform policies on the continent during the post-Covid-19 Pandemic era. The definitions and sources of data for the variables in the study are shown in Table 1. The dependent variable is GDP per capita growth (proxy for economic performance). The main regressors include: global EPU, China EPU, European EPU, UK EPU, USA EPU, Russia EPU, Japan EPU, Canada EPU and domestic EPU.³ The governance institutions variables include: voice and accountability (VAC), government effectiveness (GER), political stability and absence of violence/terrorism (PVR), regulatory quality (RQR), rule of law (RLR), and control of corruption (CCR). Other control variables included in this study are: capital, labour,

³ All the EPU data were obtained as simple arithmetic average of the corresponding 12 monthly figures, while the World Uncertainty Index (WUI) data were obtained as simple arithmetic average of the corresponding 4 quarterly figures. Domestic EPU is the EPU of the respective African Countries.

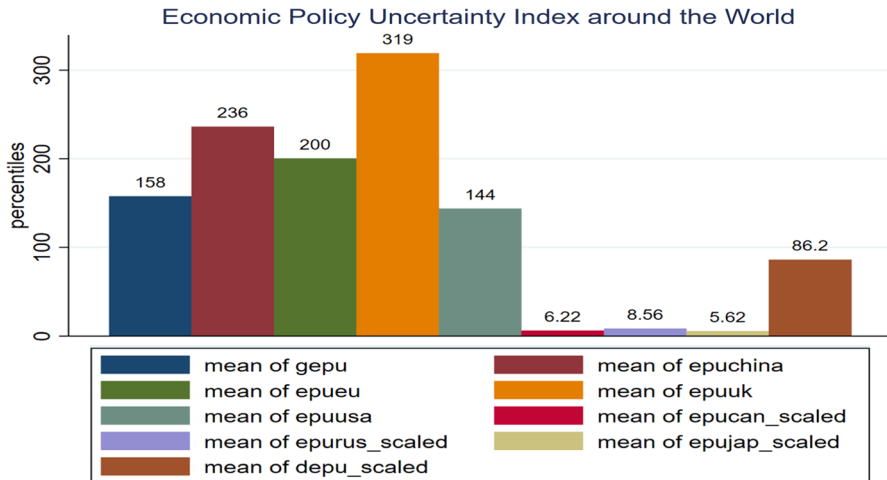


Fig. 1 Economic policy uncertainty around the world

Table 2 Principal component analysis regression for governance quality. *Source* Authors

Principal component	Eigenvalue	Proportion	Cumulative	Scoring coefficients	
				Variables	Comp1
Comp1	4.83*	0.805	0.805	vac	0.382
Comp2	0.477	0.08	0.884	pvr	0.356
Comp3	0.345	0.058	0.942	ger	0.426
Comp4	0.196	0.033	0.975	rqr	0.418
Comp5	0.091	0.015	0.99	rlr	0.439
Comp6	0.062	0.01	1	ccr	0.422

KMO=0.9032, and * means the selected component

infrastructure and trade. Ekeocha et al. (2021) has also controlled for these variables in another study for Africa.

Figure 1 plots the EPU indices around the world. This figure shows that while the mean score of the global EPU is 158 percentage points, the UK has the highest mean value of 319 percentage points, followed by China and European Union. The EPU from USA is the least. We used principal component analysis in this study to generate a single governance quality indicator for Africa as shown in Table 2. In this Table, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is 90.32% (which is above 50%), suggesting that our sample is adequate for both component- and factor analysis. The first component in Table 2 is selected as the principal component due to its eigenvalue being above one. Thus, the institutional quality indicators are summarized into a single governance quality indicator. Figure 2 shows that the overall governance quality in Africa is alarmingly low; the mean score has a negative value. Figure 2 also shows that by regions, governance quality is worst in

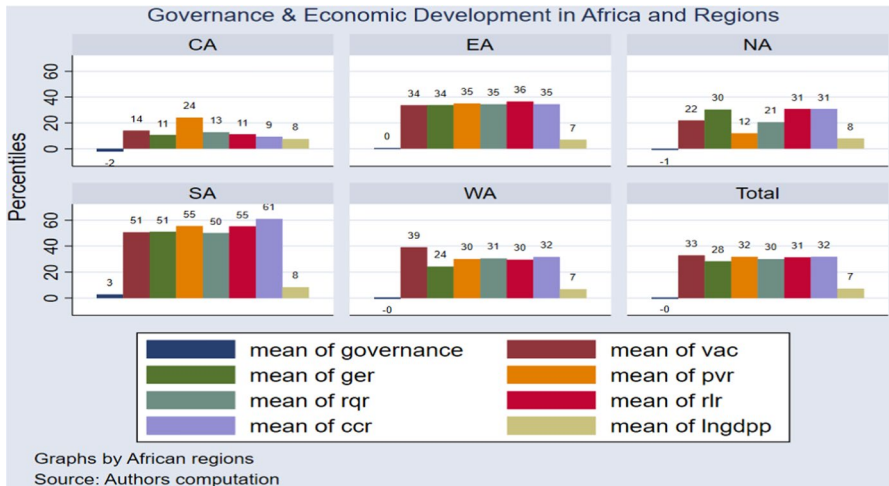


Fig. 2 Governance in Africa and by regions. ger—government effectiveness; vac—voice and accountability; pvr—political stability; rlr—rule of law; rqr—regulatory quality; ccr—control of corruption

Central- and West Africa, followed by Northern Africa. However, it is better in East Africa and best in Southern African region, in comparison with others. Overall, the quality of governance in Africa remains regrettably low. It is noteworthy that political stability indicator is worst in Northern, Central and West Africa. The mean score of economic performance in Africa is about 7 percentage points, which is abysmal. This is worst in West and East Africa, followed by Central Africa. Northern and Southern African regions are better-off in terms of economic performance relative to other regions in Africa. It is important to point out that the Southern African region showed the best performance in both governance quality and economic growth relative to other regions in Africa. Figure 3 plots the data for other control variables expected to impact on economic performance in Africa. The mean score of total trade in Africa is about 74 percentage points, which is most pronounced in Southern and Central Africa, while it is lowest in Northern Africa. The aggregate infrastructure index in Africa is quite low at about 25 percentage points. Central and West Africa have the worst aggregate infrastructure index, followed by Southern Africa. Relative to other regions, Northern Africa has the best aggregate infrastructure index, which is above 50 percentage points. In terms of capital accumulation, the level of capital accumulation is very low in Africa and across all its regions (less than 28% of their gross domestic products). The data exhibited both between and within variations, except for the EPU indexes which are without between variations.

3.2 Methods and model specification

Recall that the specific objectives of this study are to: (1) ascertain the impacts of global EPU and governance institutions on economic performance in Africa; (2) determine if governance institutions significantly moderate the uncertainty-economic performance relationship in Africa; (3) determine if there are regional

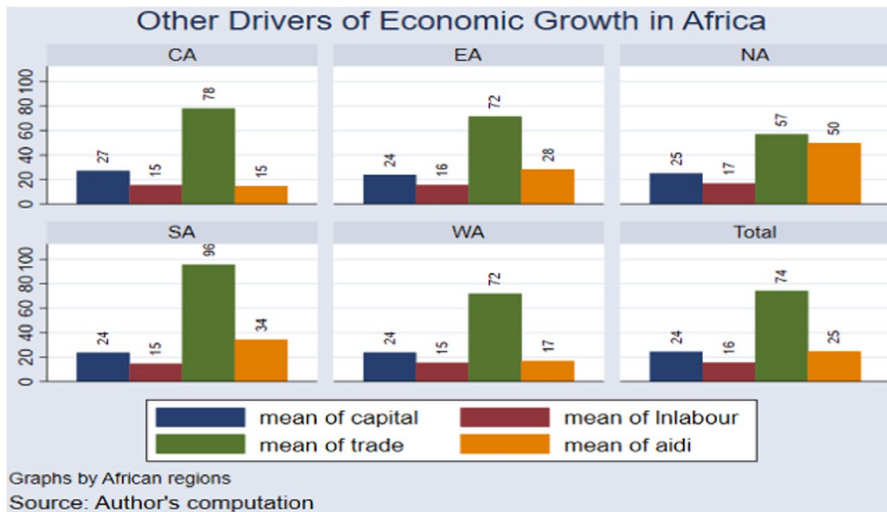


Fig. 3 Other drivers of economic performance in Africa

differences on the effect of EPU on economic performance in Africa; and (4) establish other significant drivers of economic performance in Africa. To achieve these objectives, we begin by considering a logarithmic dynamic panel vector model. Following the variable definitions in Table 1, let $P_{i,t} = (\text{gdpp}_{i,t})'$ denote a 1×1 vector of economic performance in Africa, and δ be the corresponding parameter. Also, let $U_{i,t} = (\text{gepu}_{i,t}, \text{epuchina}_{i,t}, \text{epueu}_{i,t}, \text{epuuk}_{i,t}, \text{epuusa}_{i,t}, \text{epurussia}_{i,t}, \text{epujapan}_{i,t}, \text{epucanada}_{i,t}, \text{depu}_{i,t})'$ stand for a 9×1 vector of economic policy uncertainty indexes. Furthermore, let us denote the 7×1 vector of governance quality indicators as $G_{i,t} = (\text{vac}_{i,t}, \text{pvr}_{i,t}, \text{ger}_{i,t}, \text{rqr}_{i,t}, \text{rlr}_{i,t}, \text{ccr}_{i,t}, \text{governance}_{i,t})$ where governance is the overall governance quality indicator derived from principal component analysis. Lastly, let $D_{i,t} = (\text{capital}_{i,t}, \text{labour}_{i,t}, \text{trade}_{i,t}, \text{aid}_{i,t})'$ denote the 4×1 vector of other control variables expected to be important drivers of economic performance in Africa. Let θ , β , and γ be the respective parameters for $U_{i,t}$, $G_{i,t}$, and $D_{i,t}$, which are to be estimated. Then, the underlying model for this study is as shown in Eq. (1). The choice of the dynamic specification is because previous per capita GDP growth has been found to be an important driver of economic growth in Africa (Levine and Renelt 1992; Ogbuabor et al. 2019; Ekeocha et al. 2021).

$$\ln P_{i,t} = \ln P_{i,t-1} \delta + \ln U_{i,t} \theta + \ln G_{i,t} \beta + \ln D_{i,t} \gamma + \mu_{i,t} \quad (1)$$

where: $\mu_{i,t} = \lambda_i + w_{i,t}$ is a white noise process, $i = 1, 2, \dots, 48$ and $t = 1, 2, \dots, 10$. To provide robustness checks on our estimates, we used the various EPU indexes and governance quality indicators in separate regressions.

In estimating Eq. (1), we adopted the system GMM estimator. Our choice of this estimator is because it is a consistent and asymptotically efficient estimator for panels

with large number of cross sections (N) and small number of time periods (T).⁴ Besides, the system GMM framework accounts for endogeneity problems (Arellano and Bond, 1991; Blundell and Bond, 1998). Blundell and Bond (2000) also revealed that the system GMM estimator not only improves precision but also reduces the finite sample bias in the difference GMM estimator. However, we conducted the Bond (2002) test in order to ensure that our choice of the system GMM estimator instead of the difference GMM estimator is appropriate. Other studies that have also used the system GMM framework include: Baharumshah et al. (2016); Danisman et al. (2020); Montes and Nogueira (2021); Demir and Danisman (2021); and Ekeocha et al. (2021). The moment conditions, $E(P_{i,t}, U_{i,t}, G_{i,t}, D_{i,t}, \mu_{i,t}) = 0$ and $\text{cov}(P_{i,t}, U_{i,t}, G_{i,t}, D_{i,t}, \lambda_i) \neq 0$, ensure that all the regressors are valid instruments. However, to ensure the validity of our estimates, we conducted Arellano–Bond test for error serial correlation at the second order, AR (2), following Arellano and Bond (1991). We also conducted the Hansen (1982) test for over-identifying restrictions, which is preferred to the Sargan test because it is consistent in the presence of autocorrelation.

Furthermore, regional investigations were conducted in this study using the quantile regression approach in Eq. (2).

$$Q_{\alpha}(\ln P_{i,t}) = \delta_{i,\alpha} + \ln U_{i,t}\theta_{i,\alpha} + \ln G_{i,t}\beta_{i,\alpha} + \ln D_{i,t}\gamma_{i,\alpha} + \mu_{i,t} \quad (2)$$

where: all the variables remain as earlier defined. The distributional point for the regressors is α . Q_{α} denotes the regression parameters of the α th distribution point, which can be computed using Eq. (3).

$$Q_{\alpha} = \arg \min_{Q_{\alpha}} \sum_{k=1}^q \sum_{t=1}^T \sum_{i=1}^N \left(\left| P_{i,t-\eta_i-x'_{i,t}} Q_{\alpha} \right| \Omega_{i,t} \right) \quad (3)$$

where q, T, N and $\Omega_{i,t}$ denote the number of quantiles, years, cross sections, and weight of the country in the year, respectively.

Furthermore, we present below the histogram of the normal and kernel density distributions of the dependent variable (LnGDPP) in this study to further justify why the use of QR is preferred to OLS. Figure 4 reveals that the distribution of GDPP (log of GDPP) is left-skewed (not normal distribution). Hence, the kernel density lies above the normal distribution line. This suggests that the median is higher than the mean of the GDPP in Africa, which is clearly visible in the original GDPP plot.⁵ Thus, applying OLS or any threshold regression model on such distribution of the

⁴ Here, the number of cross sections is 48, while the number of time periods is 10. Thus, the number of cross sections is approximately five times the number of time periods. According to Dong et al. (2018) and Sarafidis and Robertson (2009), testing for cross-sectional dependence (CD) is important, especially in dynamic panels where the number of cross-sectional units is higher than the number of time periods ($N > T$). Indeed, this is essential in order to avoid inefficient and misleading estimates. Hence, we conducted tests for cross-sectional dependence (CD) as part of the empirical procedures for this study using the Pesaran (2020) CD tests.

⁵ We also present the skewness and kurtosis test for normal distribution on the regressand, in the Appendix. The results reject the null hypothesis of normality, and it is consistent across African regions.

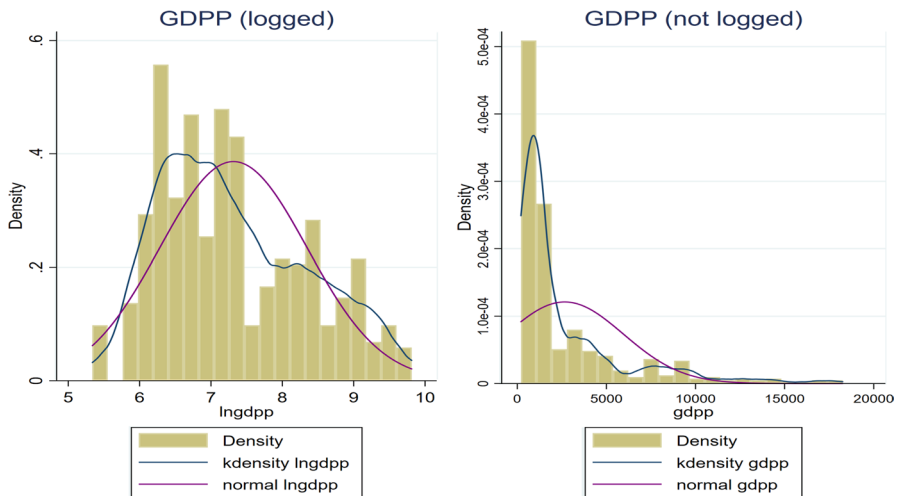


Fig. 4 Normal and Kernel distribution of the regressand (GDPP)

regressand would yield inconsistent estimates. Thus, Fig. 4 further proves the preference of QR to OLS and any other zero-conditional mean based models.

4 Results and discussions

This empirical investigation started with the test for cross-sectional dependence in our panel, which revealed cross-sectional independence.⁶ We estimated the underlying model in Eq. (1) using the aggregate governance institution indicator derived through principal component analysis. This estimation provided the baseline regression results for the study as shown in Table 3. Column (1) of Table 3 did not include any economic policy uncertainty (EPU) variable as a regressor. However, Columns (2) to (10) included global EPU, domestic EPU, China EPU, European EPU, UK EPU, U.S. EPU, Canada EPU, Japan EPU, and Russia EPU, respectively, as well as the interactions of these EPU variables with the governance institution indicator variable. The use of these EPU indexes enabled us to understand how economic performance in Africa is responding to economic policy uncertainties originating from these important sources, especially as China, Europe, USA, UK, Japan, Canada, and Russia, are Africa's important trade partners as documented by African Union (2020). To provide robustness checks on the results in Table 3, we estimated Eq. (1) again using the individual components of the governance institution variable, namely: voice and accountability (VAC), political stability and absence of violence/terrorism (PVR), government effectiveness (GER), regulatory quality (RQR),

⁶ To conserve space, we do not reproduce the results of these preliminary tests here. However, they are available on request.

Table 3 Results of system GMM estimations of the impact of governance and EPU on economic performance in Africa (dependent variable is lngdpp). *Source* Authors

lngdpp	1	2	3	4	5	6	7	8	9	10
L.lngdpp	0.936***	0.937***	0.935***	0.931***	0.935***	0.936***	0.934***	0.935***	0.934***	0.938***
governance	-0.013	-0.013	-0.052**	-0.030*	-0.248	-0.128	-0.039	0.004	0.036***	-0.012*
lncapital	0.003	0.005	0.029*	0.035*	0.028*	0.028*	0.028*	0.027*	0.029*	0.026
lnlabour	0.012	0.010	-0.003	-0.008	-0.003	-0.002	-0.003	-0.003	-0.003	-0.003
lntrade	0.125	0.118	0.017	0.014	0.018	0.018	0.018	0.018	0.017	0.017
lnaidi	0.127*	0.127*	0.067**	0.077**	0.066**	0.065**	0.068**	0.066**	0.068**	0.063**
lndepu	-0.001	-0.001	0.001	-0.007	0.002	0.002	0.001	0.002	0.002	0.001
lngepu			0.028**							
ggepu			0.010**							
gdepu			-0.002	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
Inepuchina				0.022**						
gepuchina				0.005**						
Inepueu					0.015					
gepueu					0.012**					
Inepuuk						0.011				
gepuuk						0.006**				
Inepuusa							0.024***			
gepuusa							0.008			
Inepucanada								0.005**		
gepucanada								0.001		
Inepurussia									-0.022	
gepurussia									0.016**	
Inepujapan										0.006
gepujapan										-0.005**

Table 3 (continued)

Ingdpp	1	2	3	4	5	6	7	8	9	10
Constant	11.320**	11.190**	12.350***	14.600***	9.563***	10.940***	9.707***	9.809***	6.038***	7.092**
Diagnostic Checks										
AR(1)/AR(2)	.08/.26	.08/.26	.09/.20	.07/.19	.09/.22	.08/.22	.11/.17	.09/.24	.08/.16	.09/.17
instr/groups	19/47	20/47	27/47	28/47	27/47	28/47	27/47	28/47	30/47	29/47
Hansen J_stat	0.369	0.338	0.118	0.117	0.145	0.133	0.139	0.192	0.108	0.106
Observations	419	419	419	419	419	419	419	419	419	419

*, **, *** mean significance at 10%, 5% and 1%, respectively. The notations in this table follow Eq. (3). Notice that ggepu, gepuchina, gepueu, gepuuk, gepuusa, epurussia, gepujapan are the respective interaction terms obtained by interacting the governance variable with the respective EPU indexes. This notation applies to gdepu, as well as Appendices Tables 5, 6, 7, 8, 9 and 10. AR(1)/AR(2) refer to Arellano–Bond test for error serial correlation

rule of law (RLR), and control of corruption (CCR). Each of these individual components was used to replace the aggregate governance institution indicator in the model. The results from these robustness estimations are reported in Appendices Tables 5, 6, 7, 8, 9 and 10. All the models in Table 3 and Appendices Tables 5, 6, 7, 8, 9 and 10 we subjected to Arellano–Bond tests for error serial correlation and Hansen (1982) tests for over-identifying restrictions. The results indicate the absence of autocorrelation problem as well as the presence of valid over-identifying restrictions in all cases. The correlation matrix in Appendix 36 indicates that there is no problem of collinearity in our models.

The results in Tables 3 indicate that the initial level of GDP per capita has a significant and positive effect on economic performance in Africa. This suggests that the level of economic performance in the previous period is important in explaining the level of economic performance in the current period in Africa, all else equal. This is consistent with some studies in the extant literature, such as Levine and Renelt (1992), Ogbuabor et al. (2019), and Ekeocha et al. (2021). This finding is also consistent with the models in Appendices Tables 5, 6, 7, 8, 9 and 10. Similarly, the impact of aggregate infrastructure on economic performance is predominantly positive and significant not only in Table 3 but also in Appendices Tables 5, 6, 7, 8, 9 and 10. This finding shows that the role of infrastructural development in Africa's overall economic performance can no longer be called negligible. The finding is consistent with Ekeocha et al. (2021), which elaborately demonstrated that contrary to the widely held view that African economies are bedeviled by huge infrastructural deficits, our finding is nonetheless consistent with the current realities of African economies. For instance, many African economies have witnessed huge private sector-led infrastructural investments in the last decade, especially in the areas of telecommunications, power, transport and logistics, natural resource sectors and heavy industries. Many of such investment projects have been largely driven by the African Finance Corporation, founded in 2007 to deal with Africa's infrastructure requirements. Furthermore, our results indicate that the roles of trade, capital and labour predominantly remained statistically insignificant at the conventional 5% level.

Interestingly, the impact of governance institutions on economic performance in Africa remained overwhelmingly insignificant and negative at the conventional 5% level. The interaction of the governance institution variable with the various economic policy uncertainty (EPU) indices produced a heterogeneous outcome. While the effect of this interaction on economic performance in Africa remained muted in the case of domestic EPU and EPUs from USA, Japan, and Canada, it is seen to be positive and significant for global EPU and EPUs from China, EU, UK, and Russia. However, when the individual components of the governance institutions indicator were used in separate regressions as shown in the robustness results in Appendices Tables 5, 6, 7, 8, 9 and 10, the effects of the interacting these governance institutions indicators with the various EPU indices remained predominantly muted at 5% level. Thus, our results mainly indicate that governance institutions in Africa have not been contributing significantly towards the continent's economic performance, particularly in the last one decade. This finding contrasts Kamah et al. (2021), which found that institutional quality promotes economic growth. Our results particularly indicate that the effects of government effectiveness, voice and accountability, rule

of law, control of corruption and the overall governance indicator were overwhelmingly negative and insignificant. The effect of political stability and absence of violence/terrorism remained muted throughout, while the effect of regulatory quality is significant in some of the models, but mainly negative. Overall, our results indicate that the effect of institutional quality indicators on economic performance in Africa is insignificant and predominantly negative. This is contrary to some studies (e.g. Kamah et al. 2021; Arvin, et al. 2021) whose findings suggest that the effect of institutional quality on growth is positively significant.

Our results become quite interesting when we consider the effects of the economic policy uncertainty (EPU) variables. It is easily seen from Table 3 that the effect of domestic EPU remained mainly positive and insignificant, but when interacted with the governance institution variable, its effect became negative and insignificant throughout. This pattern also dominated in Appendices Tables 5, 6, 7, 8, 9 and 10, thereby emphasizing the prevalence of weak institutions in Africa as earlier observed in this study. The baseline results in Table 3 also indicate that the effects of global EPU as well as the EPUs from China, USA, and Canada on economic performance in Africa are significant and positive at the conventional 5% level. This finding is interesting for two main reasons. First, it underlines the important roles of China and USA in Africa. Second, it is consistent with some recent empirical studies that have obtained evidence showing that uncertainty promotes growth. Examples of such studies include: Baharumshah et al. (2016), which found that inflation uncertainty promotes economic growth; Sharma and Paramati (2021), which found that EPU promotes imports in India in the long-run; and Ongsakul et al. (2021), which found that EPU improves firm's performance through board size reductions. However, Table 3 also shows that the effects of EPUs from EU, UK, and Japan on economic performance in Africa remained positive and statistically insignificant, while that of Russia EPU is negative and muted.

When the components of governance institutions are accounted for in Appendices Tables 5, 6, 7, 8, 9 and 10, we also find that even though the effect of the EPU variables on economic performance in Africa is heterogeneous, it nonetheless predominantly muted at the 5% level. For instance, in the models that controlled for voice and accountability, government effectiveness, regulatory quality, and control of corruption, the effect of the EPU variables is mainly negative but insignificant. In the models that controlled for rule of law and political stability and absence of violence/terrorism, there are evidences of both positive and negative effects of the EPU variables, but the overall pattern showed that these effects remained mainly insignificant. Barker et al. (2020b) found that COVID-induced EPU caused a significant contraction in economic growth in USA, which is contrary to the negligible effect of the EPU variables on economic performance in our results. Thus, in the models in Appendices Tables 5, 6, 7, 8, 9 and 10, the effects of the EPU variables remained mainly insignificant at the 5% level, and the interaction of the EPU variables and the governance institution variables also followed the same patterns, indicating that governance institutions in Africa are not significantly moderating the uncertainty-growth relationship on the continent.

At this point, the findings of this study can be summarized as follows. We find that: (1) aggregate infrastructural development and initial level of GDP per capita

are important drivers of economic performance in Africa; (2) the impact of governance institutions on economic performance in Africa is generally negligible, suggesting that governance institutions on the continent have not been contributing significantly towards its economic performance; (3) global EPU and EPUs from China, USA, and Canada exert considerable influence on economic performance in Africa, thereby underscoring the important or dominant roles of China and USA in Africa; (4) the effects of domestic EPU as well as EPUs from Europe, UK, Japan and Russia on economic performance in Africa are mainly negligible, suggesting that African economies are resilient to these sources of uncertainty shocks; and (5) governance institutions in Africa are not significantly moderating the uncertainty-growth relationship on the continent. In what follows, we investigate whether the effects of governance institutions and economic policy uncertainty on economic performance differ across regions in Africa.⁷ Indeed, the issue of whether there are regional differences regarding the effects of governance institutions and economic policy uncertainty on economic performance in Africa or otherwise remains an important gap in the literature.

4.1 Effects of governance institutions and economic policy uncertainty on economic performance in Central Africa (CA)

The results of the quantile regressions for Central Africa are presented in Appendices Tables 11, 12, 13, 14 and 15. The results are consistent with the findings already established in this study because: (1) the impact of labour is still mainly negligible in Central Africa; (2) the effects of European and UK EPUs on economic performance in Central Africa are mainly negligible and governance institutions could not moderate these effects; (3) the role of infrastructure is still mainly positive, but significant mostly at the highest quantiles; and (4) governance institutions failed to moderate the effect of domestic EPU, indicating that governance institutions in the region are not enhancing the uncertainty-growth relationship. The only differences between our established results and the results for Central Africa are: (1) trade is an important driver of economic performance in Central Africa, especially at the highest quantiles, while the role of capital is also mostly positive and sometimes significant; (2) the effect of governance institutions is mainly positive and significant; (3) the effect of domestic EPU is also mainly positive and significant; (4) the effects of global EPU and EPUs from USA and China are predominantly insignificant and not moderated by governance institutions, while those of Canada, Russia and Japan are negatively significant and moderated by governance institutions.

⁷ The quantile regression results are presented in Appendices 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35. For want of space, the quantile regression plots are not reported, but they are available on request.

4.2 Effects of governance institutions and economic policy uncertainty on economic performance in East Africa (EA)

The results of the quantile regressions for East Africa are presented in Appendices Tables 16, 17, 18, 19 and 20. The results are consistent with the findings already established in this study since: (1) aggregate infrastructural development is an important driver of economic performance in East Africa; (2) the impact of governance institutions on economic performance in East Africa is predominantly negligible; (3) the effect of domestic EPU on economic performance in East Africa remains mainly negligible; and (4) the role of trade as a driver of economic performance in East Africa remains predominantly insignificant. The only differences between our earlier results and the results for East Africa are: (1) capital is an important driver of economic performance in East Africa, but its significant role is observed only for the lowest quantiles; (2) the role of labour is predominantly negative, and significant mainly at the highest quantiles; (3) the roles of global EPU and EPUs from China, Europe, and UK are negative throughout but significant at the lower quantiles, while those of USA, Canada and Russia are mainly muted; and (4) governance institutions significantly moderated the adverse effects of global EPU as well as EPUs from China, Europe, UK and USA. Indeed, a clear regional difference observed in East Africa is the ability of governance institutions to significantly moderate most of the EPU shocks from the rest of the world.

4.3 Effects of governance institutions and economic policy uncertainty on economic performance in North Africa (NA)

The results of the quantile regressions for North Africa are shown in Appendices Tables 21, 22, 23, 24 and 25. The results are consistent with the findings already established in this study since: (1) aggregate infrastructural development is an important driver of economic performance in North Africa; (2) the impact of governance institutions on economic performance in East Africa is negligible throughout; (3) the role of trade as a driver of economic performance in North Africa is mainly negligible; (4) the effects of domestic EPU as well as EPUs from European, UK, Russia and Japan on economic performance in North Africa are negligible throughout; and (5) governance institutions in North Africa are not significantly moderating the uncertainty-growth relationship in the region. The only differences between our established results and the results for North Africa are: (1) capital is mainly an important driver of economic performance in North Africa, while the role of labour is negative throughout and significant at the lower quantiles; and (2) the effects of global EPU and EPUs from China, USA and Canada are muted throughout. An interesting dynamics observed in North Africa is that the interaction of the governance institution variables with the EPU variables was mainly negative and insignificant, which emphasizes the inability of governance institutions to significantly moderate the effects of EPU.

4.4 Effects of governance institutions and economic policy uncertainty on economic performance in Southern Africa (SA)

The results of the quantile regressions for Southern Africa are shown in Appendices Tables 26, 27, 28, 29 and 30. The results are consistent with the findings already established in this study since: (1) aggregate infrastructural development is an important driver of economic performance in Southern Africa; (2) the roles of trade and capital remain predominantly insignificant; (3) the impact of governance institutions on economic performance in Southern Africa is predominantly negligible, particularly in the models that controlled for uncertainty; (4) the effects of domestic EPU and EPU_s from Europe, UK, Japan and Russia on economic performance in Southern Africa are overwhelmingly negligible; and (5) governance institutions in Southern Africa are not significantly moderating the uncertainty-growth relationship in the region. The only differences between our established results and the results for Southern Africa are: (1) labour overwhelmingly impact negatively on economic performance in Southern Africa, and this impact is mainly significant; and (2) the effects of global EPU and EPU_s from China, USA, and Canada are mainly muted. Indeed, for Southern Africa, the EPU variables and their interactions with the governance institution variables are overwhelmingly muted, thereby stressing the failure of governance institutions to moderate the uncertainty-growth relationship in Southern Africa.

4.5 Effects of governance institutions and economic policy uncertainty on economic performance in West Africa (WA)

The results of the quantile regressions for West Africa are shown in Appendices Tables 31, 32, 33, 34 and 35. The results are consistent with the findings already established in this study because: (1) aggregate infrastructural development is an important driver of economic performance in West Africa; (2) the impact of governance institutions on economic performance in West Africa is predominantly negligible; (3) the effect of trade on economic performance in West Africa remained mostly insignificant; and (4) the roles of global EPU and EPU_s from China, and USA are mainly negative and significant in the models that controlled for the components of governance institutions, and this negative effect is significantly moderated by the interaction with governance institutions. The only differences between our established results and the results for West Africa are: (1) the effect of labour is predominantly positive and significant, while the effect of capital is also mostly positive but significant at the highest quantiles; and (2) the roles of domestic EPU and EPU_s from Europe and UK are mainly negative and significant in the models that controlled for the components of governance institutions, and this negative effect is significantly moderated by the interaction with governance institutions.

Table 4 summarizes the foregoing results on the effects of governance institutions and economic policy uncertainty on economic performance across the regions in Africa. Overall, the results are generally consistent with our established findings in

Table 4 Results of quantile regressions on the effects of governance institutions and economic policy uncertainty on economic performance across regions in Africa. *Source* Authors' compilation

Regressors	Central Africa	East Africa	North Africa	Southern Africa	West Africa
<i>Regions in Africa</i>					
Governance	Mainly positive and significant	Mainly negligible	Negligible	Mainly negligible, especially for models that controlled for EPU	Mainly negligible
Domestic EPU	Mainly positive and significant	Mainly negligible	Negligible	Negligible	Mainly negative and significant
Global EPU	Negligible	Negative throughout, and significant at lower quantiles	Negligible	Negligible	Mainly negative and significant
China EPU	Negligible	Negative throughout, and significant at lower quantiles	Negligible	Negligible	Mainly negative and significant
USA EPU	Negligible	Negligible	Negligible	Negligible	Mainly negative and significant
European EPU	Negligible	Negative throughout, and significant at lower quantiles	Negligible	Mainly Negligible	Mainly negative and significant
UK EPU	Negligible	Negative throughout, and significant at lower quantiles	Negligible	Negligible	Mainly negative and significant
Canada EPU	Negatively significant	Mainly negligible	Negligible	Negligible	Mainly positive
Japan EPU	Negatively significant	Mainly positive and significant	Negligible	Negligible	Mainly positive
Russia EPU	Negatively significant	Mainly negligible	Negligible	Negligible	Mainly positive
Interaction of Governance Institutions and EPU	Mainly negligible	Mainly positive and significant	Negligible	Mainly negligible	Significant moderating effect

Table 4 (continued)

Regressors	Central Africa	East Africa	North Africa	Southern Africa	West Africa
Infrastructure	Mainly positive and significant at highest quantiles	Mainly positive and significant	Mainly positive and significant	Mainly positive and significant	Mainly positive and significant
Capital	Mainly positive and sometimes significant	Mainly positive, but significant for countries in the lowest quantiles	Mainly positive and significant	Mainly negligible	Mainly positive and significant at highest quantiles
Labour	Mainly negligible	Mainly negative, and significant at highest quantiles	Mainly negative and significant at lower quantiles	Mainly negative and significant	Mainly positive and significant
Trade	Mainly positive and significant	Mainly negligible	Mainly negligible	Mainly negligible	Mainly negligible

this study, except that some regional differences have now emerged. Policymakers in Africa should be interested in these regional differences, which we highlight and emphasize as follows. First, the effect of the overall governance indicator is mainly negligible across the regions, except in Central Africa, where it is mainly positive and significant. Second, the role of domestic EPU is mainly negligible, except in Central and West Africa, where it is mainly significantly positive and negative, respectively. Third, economic performance in Central, North and Southern Africa is generally unaffected by global EPU and EPUs from China, USA, Europe and UK, whereas global EPU and EPUs from China, USA, Europe and UK have some significant negative effects in East and West Africa, though these negative effects were significantly moderated by governance institutions. Fourth, the roles of EPUs from Canada, Japan, and Russia are mainly negligible across the regions, except in Central and West Africa, where they are negatively significant and mainly positive, respectively. Fifth, the role of capital as a driver of economic performance is mainly positive and somewhat significant across the regions, except in Southern Africa, where it is mainly negligible. Furthermore, the role of labour is mainly negative and significant across the regions, except in West Africa, where it is mainly positive and significant, and Central Africa, where it is mainly negligible. Lastly, the role of trade is mainly negligible, except in Central Africa, where it is positive and significant.

5 Concluding remarks and some policy implications

In spite of the occurrence of several uncertainty-inducing events in various African economies as well as in the rest of the global economy, particularly in the years following the 2007–2009 Global Financial Crisis, empirical evidence in Africa on the effects of uncertainty on economic activities remains scanty. In addition, the moderating effect of governance institutions on the uncertainty-economic performance relationship in Africa is yet to be investigated. Besides, it is still not clear from the extant literature whether there are regional differences on the response of economic activities to economic policy uncertainty in Africa. To address these gaps, this study sought to: (1) ascertain the impacts of global EPU and governance institutions on economic performance in Africa; (2) determine if governance institutions significantly moderate the uncertainty-economic performance relationship in Africa; (3) investigate if there are regional differences on the effect of EPU on economic performance in Africa; and (4) ascertain other significant drivers of economic performance in Africa. The study used system GMM and quantile regression frameworks over the period 2010–2019.

From the baseline system GMM estimations, the study established that: (1) aggregate infrastructural development and initial level of GDP per capita are important drivers of economic performance in Africa; (2) the impact of governance institutions on economic performance in Africa is generally negligible, suggesting that governance institutions on the continent have not been contributing significantly towards its economic performance; (3) the effects of domestic EPU as well as EPUs from Europe, UK, Japan and Russia on economic performance in Africa are negligible, suggesting that African economies are resilient to these sources of uncertainty

shocks; (4) Global EPU and EPUs from China, USA and Canada exert considerable influence on economic performance in Africa, which emphasizes the dominant roles of China and USA in Africa; and (5) governance institutions in Africa are not significantly moderating the uncertainty-growth relationship on the continent. The quantile regressions, which we used to investigate the effects of governance institutions and economic policy uncertainty on economic performance across regions in Africa, indicate that these results are plausible. In addition, some regional differences also emerged and these include: (1) compared to East and West Africa, economic performance in Central, North and Southern Africa is generally more resilient to global EPU and EPUs from China, USA, Europe and UK; (2) the role of domestic EPU is mainly negligible, except in Central and West Africa, where it is mainly significantly positive and negative, respectively; (3) except for Central and West Africa, the roles of EPUs from Canada, Japan, and Russia are mainly negligible across the regions; (4) the effect of capital on economic performance is mainly positive and somewhat significant across the regions, except in Southern Africa, where it is mainly negligible; (5) except for West and Central Africa, the effect of labour is mainly negative and significant across the regions; and (6) the effects of trade and overall governance indicator are notably negligible, except in Central Africa, where they are positive and significant.

The above findings have some policy implications both at continental and regional levels. First, African economies should evolve policies that can strengthen their resilience to global economic policy uncertainty as well as uncertainties emanating from their trade partners like China and USA. Such policies should be targeted at economic diversification. They should also be locally engineered given available structures and realities that are peculiar to different regions and countries in Africa. Second, the predominantly negligible role of governance institutions, especially in moderating the uncertainty-growth relationship on the continent, suggests that African economies should devote strong attention towards improving the quality of governance institutions across the continent. Our findings suggest that such reforms in governance institutions should target all the six dimensions of institutional quality, namely: control of corruption, government effectiveness, regulatory quality, rule of law, voice and accountability, and political stability and absence of violence/terrorism. Furthermore, the important roles of infrastructure and capital indicate that there is need for policies that will enhance infrastructural development on the continent and improve the level of capital accumulation. Besides, the negligible role of trade in our results suggests that there is need for policies that will remove the barriers to trade on the continent; while the adverse effect of labour in our results suggests that African economies should strive to invest in human capital development through increased investment in education and research.

Appendix

See Tables 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36.

Table 5 System GMM regression of VAC and EPU on economic performance in Africa (dependent variable is Lngdpp). *Source* Authors

Ingdpp	1	2	3	4	5	6	7	8	9	10
L.Ingdp	0.596**	0.597**	0.882***	0.885***	0.883***	0.877***	0.873***	0.879***	0.889***	0.907***
Invac	-0.151	-0.151	-0.188	-0.104	-0.312	0.024	-0.146	-0.026	0.095*	-0.226***
Incapital	0.070	0.070	0.050*	0.049*	0.049*	0.051	0.053*	0.051*	0.047*	0.040
Inlabour	0.010	0.009	-0.011	-0.011	-0.011	-0.011	-0.012	-0.011	-0.010	-0.008
Intrade	0.411***	0.410***	0.023	0.022	0.024	0.025	0.024	0.024	0.021	0.018
Inaidi	0.510*	0.508*	0.136**	0.132**	0.133**	0.141**	0.145**	0.138**	0.127**	0.107**
Indepu		-0.002	0.035	0.034	0.034	0.036	0.038	0.035	0.034	0.024
Ingepu			-0.062							
vacepu			0.031							
vacdepu			-0.012	-0.011	-0.011	-0.012	-0.013	-0.012	-0.011	-0.008
Inepuchina				-0.019						
vacepuchina			0.013							
Inepueu					-0.152					
vacepueu					0.053					
Inepuuk						0.048				
vacepuuk						-0.010				
Inepuusa							-0.037			
vacepuusa							0.022			
Inepucanada								-0.003		
vacepucanada								0.003		
Inepurussia									-0.184**	
vacepurussia									0.052**	
Inepujapan										0.236***
vacepujapan										-0.068***

Table 5 (continued)

	1	2	3	4	5	6	7	8	9	10
Ingdpp	22.720	22.120	16.730***	19.540***	13.180**	13.940**	13.190**	12.840***	8.465**	7.134*
Diagnostic Checks										
AR(1)/AR(2)	.60/.45	.59/.43	.09/.23	.08/.24	.14/.35	.07/.28	.09/.25	.08/.36	.09/.21	.07/.07
instr/groups	15/47	15/47	25/47	25/47	24/47	24/47	25/47	25/47	25/47	23/47
Hansen J_stat	0.46	0.376	0.261	0.245	0.346	0.37	0.375	0.323	0.199	0.385
Observations	419	419	419	419	419	419	419	419	419	419

*, **, *** mean significance at 10%, 5% and 1%, respectively. VAC denotes Voice and Accountability. Other notes in Table 3 apply

Table 6 System GMM regression of PVR and EPU on economic performance in Africa (dependent variable is Lngdpp). *Source* Authors

Lngdpp	1	2	3	4	5	6	7	8	9	10
L.lngdpp	0.963***	0.928***	0.931***	0.931***	0.930***	0.930***	0.929***	0.928***	0.930***	0.930***
Inpvr	-0.006	0.010	0.002	0.024	-0.046	-0.006	-0.034	0.024	0.001	0.019
Incapital	0.001	0.027*	0.027*	0.027*	0.027*	0.027*	0.028*	0.027*	0.025	0.027*
Inlabour	0.008	-0.001	0.000	0.000	0.000	0.000	-0.001	0.000	0.000	0.000
Intrade	0.077	0.018	0.015	0.015	0.016	0.016	0.016	0.017	0.016	0.015
Inaidi	0.059***	0.076***	0.073**	0.073***	0.073***	0.073***	0.075***	0.075***	0.075***	0.073***
Indepu		0.003	-0.017	-0.017	-0.014	-0.013	-0.016	-0.017	-0.020	-0.022
Ingepu			0.015							
pvrgepu			0.004							
pvrdepu			0.005	0.005	0.005	0.004	0.005	0.005	0.006	0.007
Inepuchina				0.005						
pvrrepuchina				0.020						
Inepueu				0.000						
pvrpeueu				-0.027						
Inepuuk				0.013						
pvrpeuuk				-0.005						
Inepuusa				0.005						
pvrpeuusa				-0.012						
Inepucanada				0.012				0.005		
pvrpeucanada				-0.005				0.000		
Inepurussia									0.012	
pvrpeurussia									-0.010	
Inepujapan										0.019
pvrpeujapan										-0.003

Table 6 (continued)

Ingdpp	1	2	3	4	5	6	7	8	9	10
Constant	7.559**	9.719**	12.120***	15.070***	9.576***	10.700***	9.565***	9.619***	5.764***	6.043**
Diagnostic Checks										
AR(1)/AR(2)	.09/.21	.13/.34	.14/.25	.13/.26	.14/.27	.14/.27	.13/.26	.14/.39	.13/.36	.12/.28
instr/groups	19/47	22/47	25/47	25/47	25/47	25/47	25/47	25/47	25/47	25/47
Hansen J_stat	0.103	0.086	0.124	0.123	0.110	0.108	0.167	0.115	0.095	0.093
Observations	419	419	419	419	419	419	419	419	419	419

***, ** means significance at 10%, 5% and 1%, respectively. PVR denotes political stability and absence of violence/terrorism. Other notes in Table 3 apply

Table 7 System GMM regression of GER and EPU on economic performance in Africa (dependent variable is Lngdpp). *Source* Authors

Ingdpp	1	2	3	4	5	6	7	8	9	10
L.Ingdpp	0.938***	0.939***	0.929***	0.939***	0.928***	0.935***	0.931***	0.934***	0.934***	0.939***
Inger	-0.026	-0.030	-0.074	-0.027	-0.064	-0.040	0.200	0.003	0.082***	-0.112***
Incapital	0.022	0.024	0.026*	0.024*	0.025	0.023	0.024	0.024	0.023	0.020
Inlabour	0.009	0.007	-0.003	-0.004	-0.003	-0.003	-0.004	-0.003	-0.003	-0.003
Intrade	0.073	0.073	0.023	0.017	0.025	0.022	0.022	0.022	0.022	0.018
Inaidi	0.129**	0.132**	0.069***	0.060***	0.070***	0.062***	0.070***	0.064***	0.061***	0.055**
Indepu		-0.006	0.016	0.005	0.016	0.014	0.014	0.014	0.016	0.010
Ingepu			-0.020							
gergepu			0.015							
gerdepu			-0.005	-0.002	-0.005	-0.004	-0.004	-0.004	-0.004	-0.003
Inepuchina				0.000						
gerepuchina				0.006						
Inepueu					-0.024					
gerepueu					0.013					
Inepuuk						-0.013				
gerepuuk						0.008				
Inepuusa							0.139			
gerepuusa							-0.040	0.004		
Inepucanada								0.000		
gerepucanada									-0.117	
Inepurussia									0.032*	
gerepurussia										0.128**
Inepujapan										-0.041**
gerepujapan										

Table 7 (continued)

	1	2	3	4	5	6	7	8	9	10
Ingdpp										
Constant	12.280***	10.960***	11.880***	14.330***	9.409***	10.23***	8.468***	9.124***	4.993***	7.027***
Diagnostic Checks										
AR(1)/AR(2)	.09/.23	.09/.20	.09/.23	.09/.21	.09/.26	.08/.25	.14/.19	.10/.32	.08/.15	.10/.07
instr/groups	19/47	20/47	25/47	26/47	25/47	26/47	26/47	27/47	27/47	26/47
Hansen J_stat	0.169	0.173	0.163	0.125	0.155	0.162	0.278	0.248	0.114	0.149
Observations	419	419	419	419	419	419	419	419	419	419

***, ***, *** means significance at 10%, 5% and 1%, respectively. GER denotes government effectiveness. Other notes in Table 3 apply

Table 8 System GMM regression of RQR and EPU on economic performance in Africa (dependent variable is Lngdpp). *Source* Authors

Lngdpp	1	2	3	4	5	6	7	8	9	10
L.Lngdpp	0.901***	0.904***	0.923***	0.924***	0.925***	0.926***	0.923***	0.925***	0.923***	0.932***
lnqr	-0.065*	-0.074**	-0.214**	-0.121**	-0.209*	-0.131**	-0.139	-0.002	0.113***	-0.046
Incapital	0.017	0.017	0.035*	0.035*	0.034*	0.033*	0.035*	0.033*	0.035*	0.026
lnlabour	0.016	0.013	-0.005	-0.005	-0.004	-0.004	-0.005	-0.004	-0.004	-0.003
Intrade	0.150	0.163	0.023	0.022	0.023	0.023	0.023	0.023	0.023	0.020
lnaidi	0.190**	0.190**	0.088***	0.087***	0.085***	0.084***	0.088***	0.086***	0.088***	0.071
lndepu	-0.012	-0.012	0.023	0.023	0.020	0.019	0.021	0.020	0.026	0.009
lngepu			-0.090*							
rqrgepu			0.038**							
rqrdepu			-0.008	-0.008	-0.007	-0.006	-0.007	-0.007	-0.009	-0.003
lnepuchina				-0.038						
rqrrepuchina				0.019**						
lnepueu					-0.097					
rqrrepueu					0.036*					
lnepuuk						-0.052*				
rqrrepuuk						0.020**				
lnepuusa							-0.050			
rqrrepuusa							0.024			
lnepucanada								-0.010		
rqrrepucanada								0.005		
lnepurussia									-0.191***	
rqrrepurussia									0.055***	
lnepujapan										0.046**
rqrrepujapan										-0.012*

Table 8 (continued)

	1	2	3	4	5	6	7	8	9	10
Ingdpp	17.040**	13.780*	13.540***	16.480***	10.500***	11.520***	10.290***	10.140***	6.223**	4.744
Diagnostic Checks										
AR(1)/AR(2)	.07/.47	.07/.32	.09/.21	.08/.22	.09/.23	.08/.25	.09/.20	.09/.23	.08/.15	.11/.17
instr/groups	19/47	19/47	25/47	25/47	25/47	25/47	25/47	25/47	27/47	28/47
Hansen J_stat	0.444	0.368	0.11	0.093	0.119	0.102	0.192	0.143	0.111	0.105
Observations	419	419	419	419	419	419	419	419	419	419

*, **, *** mean significance at 10%, 5% and 1%, respectively. RQR denotes regulatory quality. Other notes in Table 3 apply

Table 9 System GMM Regression of RLR and EPU on economic performance in Africa (dependent Variable is Lngdpp) economic performance in Africa. *Source* Authors

Lngdpp	1	2	3	4	5	6	7	8	9	10
L.Lngdpp	0.942***	0.942***	0.921***	0.944***	0.939***	0.924***	0.933***	0.920***	0.924***	0.925***
lnlrr	-0.024	-0.024	-0.127	-0.004	0.028	-0.079	-0.036	-0.008	0.087	-0.060**
lncapital	0.010	0.012	0.032*	0.022	0.024	0.029	0.026	0.031	0.030	0.030
lnlabour	0.011	0.010	-0.005	-0.003	-0.003	-0.004	-0.004	-0.004	-0.004	-0.004
lntrade	0.100	0.093	0.023	0.016	0.017	0.023	0.020	0.024	0.022	0.021
lnaidi	0.112**	0.112**	0.084**	0.057**	0.063**	0.080**	0.070**	0.085**	0.079**	0.079**
lndepu	-0.001	-0.001	0.025	-0.009	-0.006	0.022	0.002	0.024	0.028	0.023
lngepu			-0.040							
rlrgepu			0.023							
rlrdepu			-0.008	0.003	0.002	-0.007	0.000	-0.007	-0.008	-0.007
lnepuchina				0.008						
rlrepuchina				0.004						
lnepuppp					0.034**					
rlrepueu					-0.003					
lnepuuk						-0.027				
rlrepuuk						0.012				
lnepuusa							-0.002			
rlrepuusa							0.008			
lnepucanada								0.004		
rlrepuanada								0.001		
lnepurussia									-0.145	
rlrepurussia									0.040	
lnepujapan										0.062***

Table 9 (continued)

	1	2	3	4	5	6	7	8	9	10
lrepujapan										
Constant	10.080***	9.864***	14.500***	14.620***	12.460***	12.420***	9.855***	11.330***	6.746***	-0.017***
Diagnostic Checks										
AR(1)/AR(2)	.10/.24	.10/.23	.10/.21	.09/.18	.09/.18	.09/.24	.10/.20	.11/.33	.09/.14	.09/.13
instr/groups	19/47	20/47	25/47	26/47	24/47	26/47	25/47	26/47	27/47	27/47
Hansen J_stat	0.332	0.289	0.115	0.102	0.193	0.146	0.119	0.187	0.123	0.115
Observations	419	419	419	419	419	419	419	419	419	419

***, ***, *** mean significance at 10%, 5% and 1%, respectively. RLR denotes rule of law. Other notes in Table 3 apply

Table 10 System GMM regression of CCR and EPU on economic performance in Africa (dependent variable is Lngdpp). *Source* Authors

Lngdpp	1	2	3	4	5	6	7	8	9	10
L.Lngdpp	0.933***	0.933***	0.942***	0.917***	0.926***	0.932***	0.910***	0.918***	0.927***	0.923***
Inccr	-0.032	-0.032	-0.105	-0.129	-0.466	-0.276*	0.032	0.024	0.290**	-0.016
Incapital	0.008	0.007	0.028*	0.039*	0.036*	0.032*	0.039	0.037*	0.031*	0.036*
Inlabour	0.013	0.013	-0.003	-0.007	-0.006	-0.005	-0.007	-0.006	-0.005	-0.007
Intrade	0.129	0.131	0.019	0.019	0.019	0.017	0.021	0.021	0.016	0.018
Inaidi	0.123	0.122	0.068**	0.098**	0.088**	0.080**	0.103**	0.096**	0.079**	0.092**
year	-0.005**	-0.005**	-0.006***	-0.008***	-0.005***	-0.005***	-0.005***	-0.005***	-0.003***	-0.003***
Indepu		0.000	0.000	0.021	0.018	0.017	0.010	0.018	0.017	0.013
Ingepu			-0.032							
cergepu			0.020							
Inepuchina				-0.040						
ccrepuchina				0.020						
ccrdepu				-0.007	-0.006	-0.006*	-0.004	-0.006	-0.006	-0.005
Inepueu					-0.245					
ccrepueu					0.084					
Inepuuk						-0.131				
ccrepuuk						0.045				
Inepuusa							0.059			
ccrepuusa							-0.008			
Inepucanada								-0.040		
ccrepucanada								0.014*		
Inepurussia									-0.391***	
ccrepurussia									0.121**	0.001
Inepujapan										0.011

Table 10 (continued)

Ingdpp	1	2	3	4	5	6	7	8	9	10
Constant	9.969	9.777**	12.560***	17.290***	11.610***	11.870***	10.980***	10.990***	5.822**	6.754**
Diagnostic Checks										
AR(1)/AR(2)	.09/.22	.09/.21	.12/.16	.10/.19	.13/.07	.10/.12	.13/.14	.07/.23	.10/.07	.11/.15
instr/groups	19/47	20/47	24/47	25/47	26/47	27/47	24/47	25/47	26/47	26/47
Hansen J_stat	0.376	0.379	0.148	0.124	0.119	0.114	0.267	0.209	0.175	0.116
Observations	414	414	414	414	414	414	414	414	414	414

***, ***, *** mean significance at 10%, 5% and 1%, respectively. CCR denotes control of corruption. Other notes in Table 3 apply

Table 11 Governance, DEPU, and economic performance in CA (Dependent variable is *lngdpp*). *Source* Authors

<i>lngdpp</i>	<i>q05</i>	<i>q25</i>	<i>q50</i>	<i>q75</i>	<i>q95</i>	<i>q05</i>	<i>q25</i>	<i>q50</i>	<i>q75</i>	<i>q95</i>
governance	0.625***	0.487	0.083	-0.213	-0.444***	0.802***	0.928***	0.685***	0.414	0.133
Incapital	0.244	0.180	-0.000	0.500**	0.891***	-0.643	0.118	0.256	0.214	0.630
Inlabour	0.139	-0.123	-0.287***	-0.241***	-0.228**	0.074	-0.078	-0.195**	-0.140	-0.066
Intrade	1.395***	0.888*	1.511***	1.634***	0.956*	1.254**	0.820**	0.912***	1.259***	0.974***
Inaidi	1.146	0.772	1.267***	1.576***	1.899***	0.721	-0.032	0.228	0.849	1.180**
Indepu						0.253	0.378***	0.303***	0.182*	0.148
Constant	-3.746	3.676	2.471	-1.414	-0.997	2.887	7.399**	7.327***	3.033	0.573
Observations	80	80	80	80	80	80	80	80	80	80

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 12 Governance, DEPU, GEPU, EPUCHINA, and economic performance in CA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	1.193***	0.969***	0.680**	0.946**	0.336	1.036***	1.007***	0.664	0.838	0.323
Incapital	0.978***	0.574*	0.669	0.430	0.950**	0.903***	0.716**	0.638	0.193	0.947**
Inlabour	-0.040	0.014	-0.163	0.003	-0.007	-0.037	0.004	-0.167	-0.046	-0.010
Intrade	0.0252	0.477	0.527	0.865**	0.607**	0.155	0.296	0.562*	1.201***	0.624**
Inaidi	-0.136	0.166	0.392	0.561	1.198**	-0.016	0.019	0.373	0.631	1.160**
Ingepu	0.818**	0.309	0.380	0.410	0.533					
vacgepu	-0.223***	-0.138***	-0.092	-0.144**	-0.115*					
Indepu	0.326***	0.451**	0.267	0.370**	0.189	0.414***	0.471***	0.264*	0.264	0.221
vacdepu	-0.089	-0.115	-0.048	-0.140*	-0.084	-0.098	-0.122	-0.039	-0.081	-0.086
Inepuchina						0.330**	0.333*	0.262	0.135	0.314
vacepuchina						-0.159***	-0.139***	-0.078	-0.087	-0.089
Constant	6.123***	5.141***	5.578***	2.941	-1.170	6.915**	5.943***	6.047*	3.426	-0.296
Observations	80	80	80	80	80	80	80	80	80	80

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 13 Governance, DEPU, EPUUEU, EPUUK and economic performance in CA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q052	q253	q504	q755	q956
governance	1.149***	0.953***	0.764***	0.953**	0.553	1.221***	0.968***	0.667*	0.978**	0.199
Incapital	0.887**	0.543**	0.600	0.385	0.933***	0.953***	0.640	0.712***	0.412	0.791**
Inlabour	-0.048	0.018	-0.128	-0.012	-0.054	-0.051	0.012	-0.169	-0.004	-0.043
Intrade	-0.013	0.526	0.579	0.906**	0.647**	-0.039	0.399	0.495**	0.882***	0.928***
Inaidi	0.081	0.195	0.295	0.587	1.091***	-0.326	0.113	0.411	0.541	1.157***
Inepueu	0.914**	0.241	0.530	0.350	0.814					
vacepueu	-0.214***	-0.121***	-0.094	-0.140**	-0.140					
Indepu	0.238	0.452***	0.274	0.317	0.215	0.360	0.458**	0.225	0.351	0.275
vacdepu	-0.053	-0.111	-0.059	-0.122	-0.120	-0.094	-0.114	-0.024	-0.132	-0.115
Inepuuk						0.626***	0.269**	0.282	0.339	0.468
vacepuuk						-0.177***	-0.117**	-0.077	-0.129***	-0.064
Constant	5.392	5.041	4.622	3.346	-1.213	7.511**	5.385**	5.876***	3.318	-2.208
Observations	80	80	80	80	80	80	80	80	80	80

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 14 Governance, DEPU, EPUUSA, EPUCANADA, and economic performance in CA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.959***	0.997***	0.765**	0.948**	0.382	1.132***	0.914***	1.024***	1.055**	0.995*
Incapital	0.677***	0.558**	0.697*	0.401	1.037***	0.854***	0.308	0.357	0.199	0.600
Inlabour	0.038	0.010	-0.113	0.003	-0.000	-0.049	0.014	-0.100	-0.063	0.085
Intrade	0.555**	0.472	0.501	0.861*	0.490***	0.193	0.847*	0.742**	1.073***	0.550*
Inaidi	0.299	0.130	0.403	0.605	1.248**	-0.405	0.477	0.188	0.431	0.628
Inepuusa	0.220	0.313	0.635	0.419	0.770					
vacepuusa	-0.153***	-0.140***	-0.135***	-0.153**	-0.137**					
Indepu	0.458***	0.434**	0.280	0.307*	0.212	0.510*	0.324**	0.318*	0.216	0.259
vacdepu	-0.127**	-0.107	-0.082	-0.117	-0.096	-0.129	-0.027	-0.088	-0.072	-0.067
Inepucanada						-0.603***	-0.334***	-0.374***	-0.525**	-0.577
vacepucanada						0.207***	0.154***	0.194***	0.232***	0.247*
Constant	4.161	5.440**	4.108*	3.030	-2.000	7.656	3.797	6.931***	4.849	3.280
Observations	80	80	80	80	80	80	80	80	80	80

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 15 Governance, DEPU, EPU, RUSSIA, EPUJAPAN, and economic performance in CA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.879***	0.939***	0.797**	0.974*	1.317**	1.210***	0.958***	0.852***	1.069**	0.676
Incapital	0.490*	0.300	0.438	0.294	0.401*	0.956***	0.439	0.477*	0.185	1.026***
Inlabour	0.057	0.010	-0.130	0.032	0.095	-0.001	-0.007	-0.141	-0.012	-0.001
Intrade	0.932**	0.766*	0.733**	0.938***	0.502***	0.090	0.645	0.656**	1.075***	0.425
Inaidi	0.450	0.256	0.320	0.488	0.560	-0.458	0.134	0.214	0.342	0.987**
Inepurussia	-0.738***	-0.544**	-0.544*	-0.772**	-1.115***					
vacepurussia	0.272***	0.185**	0.246	0.304	0.451***					
Indepu	0.495**	0.406***	0.320*	0.412***	0.237**	0.488**	0.442**	0.307*	0.394*	0.329
vacdepu	-0.161	-0.069	-0.105	-0.175**	-0.111*	-0.113	-0.086	-0.059	-0.134	-0.144
Inepujapan						-0.781***	-0.435*	-0.324	-0.429	-0.544
vacepujapan						0.237**	0.167	0.144	0.187	0.233
Constant	1.189	4.407	6.053*	2.906	4.387*	7.094**	5.202*	7.007***	4.312	1.823
Observations	80	80	80	80	80	80	80	80	80	80

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 16 Governance, DEPU and economic performance in EA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.123***	0.094	0.104**	0.109***	0.127***	0.123***	0.145**	0.104	0.104***	0.126***
Incapital	0.351***	0.447***	-0.023	-0.035	-0.010	0.351***	0.399*	-0.023	0.007	0.058**
Inlabour	-0.049***	-0.076*	-0.097***	-0.082***	-0.077***	-0.048*	0.031	-0.096	-0.121***	-0.097***
Intrade	0.528***	0.334	0.246*	0.323***	0.251**	0.528***	0.143	0.247*	0.228**	0.151
Inaidi	1.098***	1.080***	0.889***	0.776***	0.730***	1.098***	0.962***	0.889***	0.792***	0.790***
Indepu						0.001	0.198**	0.001	-0.033	-0.031
Constant	0.603***	1.772	5.000***	4.975***	5.378***	0.594**	1.853	4.983***	5.742***	5.659***
Observations	135	135	135	135	135	135	135	135	135	135

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 17 Governance, DEPU, GEPU, EPUCHINA, and Economic performance in EA (dependent variable is lngdpp). *Source:* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.122***	0.032	0.017	-0.026	0.072	0.114***	0.036	0.023	-0.015	0.057
Incapital	0.620***	0.567***	0.029	-0.012	0.035	0.631***	0.566**	0.023	-0.019	0.034
Inlabour	0.001	-0.086	-0.095***	-0.113***	-0.090***	-0.011	-0.087	-0.084	-0.101*	-0.094**
Intrade	-0.245	-0.248	0.167**	0.374**	0.218*	-0.246*	-0.242	0.205	0.382**	0.232*
Inaidi	1.033***	1.146***	1.007***	0.901***	0.811***	1.041***	1.138***	1.009***	0.874***	0.827***
Ingepu	-0.457**	-0.308	-0.485***	-0.427*	-0.196					
vacegepu	0.144**	0.112***	0.132***	0.126**	0.076					
Indepu	-0.188	-0.190	-0.172	-0.250	-0.312**	0.033	-0.140	-0.071	-0.190	-0.301
vacdepu	0.097	0.068	0.039	0.050	0.076*	0.037	0.054	0.0143	0.038	0.070
Inepuchina						-0.376**	-0.306	-0.429***	-0.411**	-0.249
vacepuchina						0.112**	0.099*	0.106***	0.111**	0.082*
Constant	2.588**	3.612***	4.810***	4.632***	4.907***	2.901***	3.868***	4.742***	4.739***	5.014***
Observations	135	135	135	135	135	135	135	135	135	135

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 18 Governance, EPUEU, EPUUK and economic performance in EA (dependent variable is lngdpp). *Source:* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.126***	0.029	0.028	-0.032	0.074	0.130***	0.033	0.033	-0.020	0.075
Incapital	0.619***	0.590***	0.048	-0.015	0.039	0.587***	0.578**	0.052	-0.014	0.033
Inlabour	0.011	-0.097	-0.093*	-0.104**	-0.097*	0.023	-0.094	-0.095**	-0.099**	-0.089**
Intrade	-0.260	-0.260*	0.164	0.397**	0.177	-0.212	-0.257	0.140	0.360***	0.243*
Inaidi	1.038***	1.154***	0.981***	0.908***	0.815***	1.004***	1.138***	0.977***	0.889***	0.805***
Inepueu	-0.448**	-0.269	-0.479***	-0.420*	-0.142					
vacepueu	0.150***	0.099*	0.124***	0.122**	0.075					
Indepu	-0.296	-0.136	-0.139	-0.236	-0.330	-0.361	-0.156	-0.141	-0.256	-0.239
vacdepu	0.127	0.050	0.030	0.047	0.080	0.144	0.056	0.0317	0.056	0.057
Inepuuk						-0.416**	-0.296	-0.450***	-0.457***	-0.139
vacepuuk						0.144***	0.092*	0.113***	0.118***	0.057
Constant	2.279	3.758**	4.958***	4.433***	4.856***	2.002	4.041**	5.175***	4.871***	4.837***
Observations	135	135	135	135	135	135	135	135	135	135

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 19 Governance, DEPU, EPUUSA, EPUCANADA, and economic performance in EA (dependent variable is lngdpp). *Source:* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.124**	0.032	0.008	-0.032	0.071	0.109**	0.046	0.011	0.002	0.105**
Incapital	0.605***	0.541***	0.046	-0.026	0.040	0.622***	0.609***	0.031	-0.006	0.050
Inlabour	0.011	-0.075	-0.108**	-0.110***	-0.100***	-0.010	-0.092	-0.122**	-0.100***	-0.108***
Intrade	-0.237	-0.235	0.154	0.408***	0.172	-0.316	-0.270*	0.208	0.429***	0.180
Inaidi	1.027***	1.158***	1.012***	0.902***	0.821***	1.145***	1.121***	0.997***	0.856***	0.788***
Inepuusa	-0.490*	-0.268	-0.407***	-0.271	-0.121					
vacepuusa	0.158**	0.125***	0.136***	0.122***	0.068					
Indepu	-0.294	-0.252	-0.182	-0.191	-0.262	0.106	-0.088	-0.072	0.005	0.023
vacdepu	0.129	0.086	0.038	0.034	0.062	0.008	0.039	0.006	-0.015	-0.017
Inepucanada						0.519	0.635*	0.613**	0.474	0.026
vacepucanada						-0.168	-0.172*	-0.168*	-0.125	-0.004
Constant	2.383*	3.030**	4.542***	3.794***	4.962***	2.678**	4.262***	5.048***	4.568***	5.778***
Observations	135	135	135	135	135	135	135	135	135	135

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 20 Governance, DEPU, EPUUSSIA, EPUJAPAN, and economic performance in EA (dependent variable is lngdpp). *Source:* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.112***	0.042	0.032	-0.005	0.125***	0.114***	0.033	0.002	-0.012	0.045
Incapital	0.610***	0.586**	0.014	-0.044	0.0301	0.649***	0.545***	0.017	-0.012	-0.003
Inlabour	0.016	-0.063	-0.090**	-0.101*	-0.088**	0.035	-0.101	-0.110**	-0.090*	-0.084**
Intrade	-0.247	-0.234	0.173	0.403*	0.107	-0.274	-0.234	0.177	0.368**	0.272*
Inaidi	1.046***	1.123***	0.998***	0.883***	0.791***	1.054***	1.146***	1.021***	0.886***	0.828***
Inepurusia	1.240*	0.822**	0.774*	0.661	0.377*					
vacepurussia	-0.352*	-0.261***	-0.255**	-0.195	-0.103					
Indepu	-0.419	-0.282	-0.181	-0.094	-0.349	-0.282	-0.057	-0.260	-0.178	-0.215
vacdepu	0.164	0.098	0.044	0.012	0.091	0.122	0.026	0.058	0.037	0.047
Inepujapan						0.711**	0.557	0.924***	0.873***	0.493
vacepujapan						-0.247***	-0.170*	-0.228***	-0.217***	-0.149
Constant	2.602	3.418**	4.391***	4.541***	5.815***	1.774	4.166***	5.247***	4.788***	4.947***
Observations	135	135	135	135	135	135	135	135	135	135

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 21 Governance, DEPU and economic performance in NA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q052	q25	q50	q75	q95
governance	0.033	0.021	-0.025	-0.068	-0.131**	0.016	0.018	-0.025	-0.062	-0.090
Incapiatal	0.586***	0.545***	0.450***	0.369***	0.270*	0.546***	0.554***	0.454***	0.377***	0.349***
Inlabour	-0.206***	-0.268***	-0.219***	-0.185**	-0.182	-0.177	-0.279***	-0.227*	-0.187	-0.153
Intrade	-0.132	-0.245	0.052	0.259	0.403	-0.029	-0.263	0.039	0.221	0.323**
Inaidi	0.496***	0.513***	0.409***	0.312***	0.294*	0.492***	0.528***	0.419**	0.282*	0.245**
Indepu						0.007	-0.0102	-0.005	0.010	0.025
Constant	8.292***	9.896***	8.606***	7.836***	7.630***	7.554***	10.040***	8.722***	8.162**	7.480***
Observations	40	40	40	40	40	40	40	40	40	40

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 22 Governance, DEPU, GEPU, EPUCHINA, and economic performance in NA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.043	0.016	-0.021	-0.083	-0.078	-0.080	0.026	-0.020	-0.077*	-0.112
Incapital	0.499***	0.558***	0.461***	0.297***	0.337***	0.438***	0.558***	0.459***	0.306***	0.264**
Inlabour	-0.238**	-0.297***	-0.228**	-0.114	-0.149	-0.272***	-0.283***	-0.223**	-0.110	-0.124
Intrade	-0.076	-0.241	0.018	0.484*	0.406*	-0.036	-0.235	0.013	0.477*	0.546**
Inaidi	0.462***	0.566***	0.417***	0.228	0.280**	0.488***	0.527***	0.406***	0.223	0.307
Ingepu	0.079	0.034	0.024	0.146	0.247					
vacgepu	-0.023	-0.008	-0.006	-0.035	-0.045					
Indepu	0.214	-0.020	0.024	0.206	0.243	0.200	-0.011	0.030	0.187	0.182
vacdepu	-0.073	0.000	-0.011	-0.064	-0.080	-0.072	-0.004	-0.012	-0.056	-0.055
Inepuchina						0.080	0.049	0.019	0.105	0.121
vacepuchina						-0.016	-0.008	-0.005	-0.030	-0.035
Constant	8.935***	9.981***	8.770***	6.151***	6.367***	9.274***	9.798***	8.758***	6.235***	6.010***
Observations	40	40	40	40	40	40	40	40	40	40

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 23 Governance, DEPU, EPUUE, EPUUK, and economic performance in NA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.029	0.013	-0.023	-0.082	-0.085	-0.000	0.003	-0.021	-0.083	-0.081
Incapital	0.600***	0.553***	0.461***	0.287**	0.286**	0.576***	0.533***	0.460***	0.294***	0.272***
Inlabour	-0.231*	-0.298***	-0.227**	-0.111	-0.138	-0.251*	-0.277**	-0.224**	-0.111	-0.092
Intrade	-0.218	-0.227	0.027	0.497	0.438	-0.165	-0.164	0.022	0.492**	0.541***
Inaidi	0.484***	0.574***	0.416**	0.221	0.227	0.530**	0.545***	0.411**	0.223	0.201
Inepueu	0.031	0.0370	0.009	0.179	0.223					
vacepuue	-0.035	-0.007	-0.007	-0.037	-0.034					
Indepu	0.174	-0.028	0.032	0.234	0.211	0.164	-0.029	0.030	0.216*	0.311
vacdepu	-0.067	0.003	-0.013	-0.073	-0.069	-0.068	0.005	-0.012	-0.066	-0.092
Inepuuk						0.0618	0.021	0.021	0.131	0.191
vacepuuk						-0.034	-0.004	-0.005	-0.032	-0.047
Constant	9.378***	9.923***	8.822***	5.970**	6.339***	9.202***	9.537***	8.712***	6.120***	5.740***
Observations	40	40	40	40	40	40	40	40	40	40

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 24 Governance, DEPU, EPUUSA, EPUCANADA, and economic performance in NA (dependent variable is lngdpp). *Source:* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.097	0.016	-0.023	-0.067	-0.111	-0.043	0.014	-0.023	-0.077	-0.055
Incapital	0.435***	0.561***	0.461***	0.308*	0.332***	0.433***	0.540***	0.459***	0.282***	0.293***
Inlabour	-0.279**	-0.299***	-0.224*	-0.112	-0.227	-0.160	-0.272**	-0.228*	-0.051	-0.036
Intrade	-0.010	-0.245*	0.034	0.404	0.306	0.062	-0.142	0.049	0.366**	0.403**
Inaidi	0.508**	0.568***	0.411**	0.228	0.363	0.366**	0.530***	0.428**	0.123	0.151
Inepuusa	0.114	0.044	0.015	0.163	0.228					
vacepuusa	-0.024	-0.010	-0.007	-0.030	-0.024					
Indepu	0.251*	-0.009	0.029	0.189	0.121	0.264	0.039	0.011	0.109	0.012
vacdepu	-0.087*	-0.003	-0.011	-0.060	-0.050	-0.074	-0.016	-0.004	-0.034	0.008
Inepucanada						-0.109	-0.078	-0.028	0.057	0.073
vacepucanada						0.029	0.026	0.010	-0.014	-0.015
Constant	9.203***	10.010***	8.729***	6.243**	7.457***	7.759***	9.473***	8.650***	6.249***	5.847**
Observations	40	40	40	40	40	40	40	40	40	40

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 25 Governance, DEPU, EPUUSSIA, EPUJAPAN, and economic performance in NA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.033	0.020	-0.023	-0.068	-0.061	-0.048	0.013	-0.024	-0.066	-0.043
Incapital	0.508***	0.546***	0.463***	0.355***	0.284**	0.456***	0.507***	0.443***	0.308***	0.341***
Inlabour	-0.255*	-0.278**	-0.233*	-0.120	-0.066	-0.191	-0.229	-0.203*	-0.125	-0.10
Intrade	-0.146	-0.226	0.0291	0.399	0.384	-0.000	-0.140	0.055	0.431***	0.360**
Inaidi	0.447**	0.530***	0.427**	0.216	0.171	0.406	0.458*	0.379**	0.209	0.220
Inepurussia	-0.255	-0.054	-0.052	-0.285	-0.074					
vacepurussia	0.085	0.031	0.017	0.081	0.025					
Indepu	0.345	0.039	0.030	0.277	0.106	0.268	0.043	0.042	0.285*	0.276*
vacdepu	-0.115	-0.021	-0.012	-0.075	-0.034	-0.085	-0.012	-0.013	-0.090*	-0.085
Inepujapan						-0.156	-0.052	-0.028	-0.214*	-0.198
vacepujapan						0.040	0.006	0.007	0.076	0.072
Constant	9.606***	9.946***	8.798***	6.666***	6.218***	8.177**	9.066***	8.436***	6.853***	6.614***
Observations	40	40	40	40	40	40	40	40	40	40

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 26 Governance, DEPU and economic performance in SA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.054**	0.095***	0.109***	0.192***	0.088	0.057**	0.101***	0.119***	0.195***	0.082
Incapital	-0.079	-0.222*	-0.232	-0.367	-0.122	-0.096	-0.237***	-0.261	-0.375	-0.102
Inlabour	-0.439***	-0.423***	-0.429***	-0.329**	-0.101	-0.436***	-0.418***	-0.410***	-0.327***	-0.090
Intrade	-0.059	-0.218	-0.392	-1.015**	-0.088	-0.074	-0.223	-0.351	-1.020**	-0.034
Inaidi	1.869***	1.661***	1.568***	0.899***	0.603	1.850***	1.633***	1.537***	0.888***	0.617
Indepu						0.006	-0.012	-0.015	0.006	0.013
Constant	8.695***	10.280***	11.520***	15.470***	8.636*	8.843***	10.320***	11.180***	15.530***	8.177**
Observations	50	50	50	50	50	50	50	50	50	50

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 27 Governance, EPUCHINA, EPUEU and economic performance in SA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.018	0.090	0.064	0.064	0.150	0.002	0.072	0.061	0.089	0.116
Incapital	-0.281***	-0.364***	-0.203	-0.204	-0.296	-0.266	-0.326*	-0.214	-0.185	-0.200
Inlabour	-0.517***	-0.449***	-0.456**	-0.434**	-0.277*	-0.539***	-0.468***	-0.464***	-0.375**	-0.307**
Intrade	-0.035	-0.328	-0.567*	-0.788*	-0.749	-0.014	-0.402	-0.508	-0.733**	-0.871***
Inaidi	1.997***	1.663***	1.564***	1.465***	0.994*	2.065***	1.703***	1.631***	1.296**	1.047*
Ingepu	-0.285	-0.147	-0.261	-0.367	-0.233					
vacgepu	0.047	-0.013	0.008	-0.003	-0.043					
Indepu	-0.049	0.176	0.076	0.176	0.194	-0.027	0.109	0.084	0.101	0.171
vacdepu	0.016	-0.047	-0.020	-0.055	-0.051	0.010	-0.030	-0.023	-0.023	-0.044
Inepuchina						-0.230	-0.112	-0.140	-0.214	-0.121
vacepuchina						0.047	0.002	0.009	-0.002	-0.029
Constant	10.610***	12.600***	13.920***	15.710***	15.160***	10.350***	12.580***	12.990***	14.450***	14.990***
Observations	50	50	50	50	50	50	50	50	50	50

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 28 Governance, DEPU, EPUEU, EPUUK, and economic performance in SA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.074	0.100	0.140	0.172	0.230	0.016	0.125	0.140	0.143	0.213*
Incapital	-0.300	-0.232	-0.245	-0.249*	-0.440	-0.251	-0.263	-0.296	-0.158	-0.424
Inlabour	-0.451***	-0.426***	-0.367**	-0.322*	-0.270	-0.524***	-0.423***	-0.361**	-0.324**	-0.289**
Intrade	-0.203	-0.319	-0.462	-0.690	-1.005**	-0.120	-0.541	-0.511	-0.657	-1.161**
Inaidi	1.757***	1.627***	1.406***	1.124**	0.814	1.981***	1.514***	1.315**	1.207***	0.727
Inepueu	-0.293	-0.042	0.037	-0.258	-0.427					
vacepueu	0.005	-0.006	-0.032	-0.034	-0.030					
Indepu	0.068	0.045	0.074	0.119	0.113	-0.060	0.179	0.100	0.125	0.132
vacdepu	-0.012	-0.013	-0.031	-0.032	-0.015	0.0164	-0.052	-0.033	-0.039	-0.023
Inepuuk						-0.264	0.021	0.007	-0.085	-0.218
vacepuuk						0.045	-0.028	-0.025	-0.034	-0.023
Constant	12.060***	11.250***	11.760***	14.880***	18.080***	11.030***	12.740***	12.480***	13.36***	18.180***
Observations	50	50	50	50	50	50	50	50	50	50

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 29 Governance, DEPU, EPUUSA, EPUCANADA, and economic performance in SA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.083	0.092	0.142	0.260**	0.245**	0.083**	0.096	0.100	0.087	0.136
Incapital	-0.343**	-0.331**	-0.252	-0.117	-0.217	-0.313	-0.274**	-0.228	-0.171	0.113
Inlabour	-0.431***	-0.435***	-0.371***	-0.213	-0.190	-0.435***	-0.448***	-0.415***	-0.390***	-0.389***
Intrade	-0.101	-0.158	-0.467	-0.595	-0.745*	-0.228	-0.238	-0.431	-0.837**	-1.096**
Inaidi	1.747***	1.703***	1.421***	0.872**	0.763	1.707***	1.702***	1.551***	1.251***	1.332***
Inepuusa	-0.204	-0.094	0.088	0.476	0.015					
vacepuusa	-0.003	-0.005	-0.033	-0.103*	-0.103**					
Indepu	0.090	0.080	0.069	0.095	0.221	0.056	0.089	0.185	0.281	0.646**
vacdepu	-0.015	-0.025	-0.032	-0.039	-0.062	-0.007	-0.027	-0.056	-0.094*	-0.176**
Inepucanada						-0.0565	-0.010	-0.266	-0.264	-0.984**
vacepucanada						-0.000	0.019	0.058	0.054	0.234**
Constant	11.100***	10.910***	11.530***	10.430***	13.970***	10.530***	10.630***	11.360***	13.660***	13.670***
Observations	50	50	50	50	50	50	50	50	50	50

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 30 Governance, DEPU, EPUUSSIA, EPUJAPAN, and economic performance in SA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	0.074	0.079	0.119*	0.150***	0.211**	0.067	0.114	0.132	0.190*	0.276*
Incapital	-0.278*	-0.230*	-0.240	-0.163	0.173	-0.014	-0.245**	-0.308*	-0.485*	0.278
Inlabour	-0.474***	-0.462***	-0.390***	-0.312***	-0.327***	-0.427***	-0.412***	-0.347***	-0.282*	-0.283
Intrade	0.046	-0.253	-0.403	-0.601	-1.246***	-0.137	-0.414	-0.491	-0.408	-1.457**
Inaidi	1.907***	1.754***	1.521***	1.201***	0.978***	1.822***	1.558***	1.303**	1.063*	0.690
Inepurussia	0.072	0.013	-0.327	-0.714	-0.834					
vacepurussia	-0.063	-0.036	0.056	0.113	0.196					
Indepu	-0.126	-0.045	0.097	0.143	0.213	-0.087	0.088	0.049	0.102	0.226
vacdepu	0.043	0.010	-0.035	-0.042	-0.068	0.024	-0.032	-0.025	-0.042	-0.064
Inepujapan						0.013	-0.057	0.005	-0.021	-0.880*
vacepujapan						0.003	0.036	0.031	0.060	0.225
Constant	8.850***	10.430***	10.790***	11.020***	14.210***	8.877***	11.520***	12.090***	12.270***	15.240***
Observations	50	50	50	50	50	50	50	50	50	50

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 31 Governance, DEPU and economic performance in WA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q052	q25	q50	q75	q95
governance	-0.023	0.069	0.027	0.035	-0.042	-0.019	0.069**	0.027	0.015	-0.022
Incapital	0.238**	0.035	-0.018	0.301**	0.466***	0.204***	0.084	-0.026	0.417***	0.475***
Inlabour	0.175***	0.200***	0.192*	0.059	0.142***	0.169***	0.208***	0.194**	0.038	0.124*
Intrade	- -0.092	-0.012	-0.138	-0.327*	0.102	-0.029	-0.010	-0.139	-0.302**	0.084
Inaidi	0.601***	0.555***	0.721***	0.981***	0.994***	0.622***	0.574***	0.723***	1.056***	1.180***
Indepu						-0.033	-0.060	-0.005	-0.095	-0.123*
Constant	1.786***	2.041**	2.567**	3.972***	0.691	1.580**	1.539	2.540**	3.413***	0.204
Observations	160	160	160	160	160	160	160	160	160	160

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 32 Governance, DEPU, GEPU, EPUCHINA, and economic performance in WA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.038	-0.039	-0.013	0.010	0.001	-0.040	-0.031	-0.019	0.024	0.007
Incapital	0.276***	0.253	0.068	0.490**	0.460***	0.238	0.166	0.089	0.477**	0.459***
Inlabour	0.174***	0.169**	0.166***	0.082	0.133***	0.165***	0.186**	0.142**	0.083*	0.114***
Intrade	-0.198	-0.178	-0.208*	-0.253	-0.037	-0.146	-0.134	-0.252	-0.249*	-0.115
Inaidi	0.609***	0.754***	0.750***	1.017***	0.948***	0.619***	0.748***	0.803***	1.039***	1.001***
Ingepu	-0.543	-0.886**	-1.021***	-0.321	-0.566					
vacegepu	0.140	0.173	0.262***	0.016	0.137*					
Indepu	-0.943**	-0.925**	-1.454***	-0.292	-1.227***	-0.719	-0.826	-1.143**	-0.055	-0.835**
vacdepu	0.257**	0.256**	0.408**	0.073	0.299***	0.193	0.244	0.325**	0.0118	0.200**
Inepuchina						-0.406	-0.741	-0.866**	-0.105	-0.347
vacepuchina						0.105	0.155	0.213**	-0.027	0.064
Constant	2.252*	3.275*	3.335***	3.910***	1.446	2.201**	2.890**	3.888***	3.664***	2.261***
Observations	160	160	160	160	160	160	160	160	160	160

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 33 Governance, DEPU, EPUUE, EPUUK, and economic performance in WA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.038	-0.010	-0.013	0.042	0.024	-0.043	-0.003	-0.021	0.018	0.014
Incapital	0.282***	0.352	0.092	0.411*	0.463***	0.242**	0.210	0.120	0.507**	0.467***
Inlabour	0.177***	0.146	0.155*	0.093	0.110***	0.165***	0.185**	0.141*	0.079	0.113**
Intrade	-0.194	-0.108	-0.231*	-0.270*	-0.160	-0.145	-0.134	-0.260	-0.278*	-0.150
Inaidi	0.611***	0.721***	0.767***	1.000***	1.035***	0.628***	0.694***	0.809***	1.045***	1.041***
Inepueu	-0.493	-0.809**	-1.011***	-0.416	-0.568					
vacepueu	0.123	0.167*	0.246***	0.0246	0.056					
Indepu	-0.904*	-1.037***	-1.457***	-0.399	-0.928**	-0.829	-0.807*	-1.331***	-0.340	-0.950***
vacdepu	0.245*	0.281***	0.404***	0.098	0.214**	0.220	0.211*	0.369***	0.077	0.224***
Inepuuk						-0.438	-0.575*	-0.901***	-0.224	-0.438
vacepuuk						0.112	0.122	0.213***	0.014	0.058
Constant	2.216***	2.828**	3.715***	4.451***	3.628**	2.175*	2.492**	3.969***	3.502***	2.919**
Observations	160	160	160	160	160	160	160	160	160	160

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 34 Governance, DEPU, EPUUSA, EPUCANADA, and economic performance in WA (dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.0354	0.007	0.002	0.054	0.023	-0.023	0.064	0.027	0.057	0.057
Incapital	0.282	0.246	0.043	0.358	0.483***	0.267**	0.109	0.049	0.374**	0.477***
Inlabour	0.178***	0.178**	0.165**	0.068	0.143***	0.179***	0.212***	0.167***	0.076*	0.125***
Intrade	-0.209	-0.105	-0.172	-0.307**	-0.107	-0.161	-0.023	-0.157*	-0.276***	-0.189
Inaidi	0.597***	0.670***	0.727***	0.981***	1.003***	0.588***	0.605***	0.764***	0.979***	0.988***
Inepuusa	-0.638	-0.740	-0.856***	-0.064	-0.023					
vacepuusa	0.171	0.157	0.260***	0.053	0.091					
Indepu	-1.143	-0.970	-1.451***	-0.653	-1.091***	-0.654**	-0.635	-0.908***	-0.595	-1.208***
vacdepu	0.310	0.266	0.406***	0.154	0.262***	0.180**	0.171	0.258**	0.141	0.289***
Inepucanada						0.504*	0.404	0.905***	0.285	0.516
vacepucanada						-0.142*	-0.124	-0.256***	-0.072	-0.131
Constant	2.134	2.577*	2.549***	2.679*	-0.521	1.911**	1.329	2.729***	3.123***	1.744
Observations	160	160	160	160	160	160	160	160	160	160

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 35 Governance, DEPU, EPUJAPAN, EPUJAPAN, and Economic performance in WA (Dependent variable is lngdpp). *Source* Authors

lngdpp	q05	q25	q50	q75	q95	q05	q25	q50	q75	q95
governance	-0.034	-0.089	-0.016	-0.000	0.0054	-0.041	0.038	-0.003	0.026	0.006
Incapital	0.269***	0.242*	0.010	0.247	0.457***	0.217	0.166	0.140	0.554***	0.542***
Inlabour	0.189***	0.144**	0.185***	0.120**	0.112**	0.164***	0.217**	0.122	0.055	0.074
Intrade	-0.182	-0.237**	-0.198***	-0.296*	-0.113	-0.131	0.040	-0.271	-0.387***	-0.282*
Inaidi	0.580***	0.826***	0.769***	0.902***	0.987***	0.637***	0.710***	0.787***	1.139***	1.061***
Inepurussia	2.126**	1.521**	1.773***	0.773	0.755					
vacepurussia	-0.581**	-0.592***	-0.588***	-0.303	-0.247					
Indepu	-1.957**	-1.431**	-1.664***	-0.986	-1.255*	-0.472	-0.189	-1.164**	-0.436	-1.090***
vacdepu	0.532**	0.427***	0.483***	0.276	0.299*	0.127	0.037	0.325**	0.088	0.231**
Inepujapan						0.430	0.305	1.375**	0.201	0.899**
vacepujapan						-0.115	-0.046	-0.349**	0.003	-0.165
Constant	1.866***	1.217	2.033***	2.438	1.198	2.103***	0.973	3.905***	3.432***	3.053**
Observations	160	160	160	160	160	160	160	160	160	160

*, **, *** mean significance at 10%, 5% and 1%, respectively

Table 36 Matrix of correlations

A	Variables	1	2	3	4	5	6	7	8	9	10	11
1	Ingepu	1										
2	Inepuchina	0.966	1									
3	Inepueu	0.808	0.705	1								
4	Inepuppp	0.998	0.975	0.79	1							
5	Inepuuk	0.84	0.809	0.933	0.828	1						
6	Inepuusa	0.799	0.645	0.687	0.774	0.589	1					
7	Indepu	0.243	0.251	0.165	0.249	0.152	0.087	1				
8	Incapital	-0.074	-0.071	-0.07	-0.074	-0.067	-0.062	0.051	1			
9	Inlabour	0.026	0.033	0.015	0.027	0.024	0.002	-0.455	0.002	1		
10	Inaitdi	0.122	0.151	0.091	0.127	0.122	0.004	0.237	-0.014	-0.144	1	
11	Intrade	-0.028	-0.036	-0.04	-0.027	-0.055	0.015	0.148	0.338	-0.52	0.173	1
B												
1	governance	1										
2	Invac	0.731	1									
3	Inpvr	0.692	0.53	1								
4	Inger	0.844	0.602	0.528	1							
5	Inlr	0.854	0.674	0.614	0.857	1						
6	Inqr	0.83	0.689	0.507	0.818	0.851	1					
7	Inccr	0.834	0.723	0.538	0.767	0.831	0.775	1				
8	Incapital	0.156	0.156	0.165	0.215	0.207	0.161	0.203	1			
9	Inlabour	-0.277	-0.117	-0.503	-0.012	-0.127	-0.054	-0.199	0.001	1		
10	Inaitdi	0.572	0.283	0.324	0.58	0.512	0.352	0.474	-0.014	-0.147	1	
11	Intrade	0.339	0.285	0.492	0.206	0.172	0.172	0.269	0.34	-0.514	0.175	1

The variables in numbers 1–6 in panel A and 1–7 in panel B were entered separately into our regression models to avoid collinearity problems

Funding This paper received no external funding.

Declarations

Conflict of interest The authors declare that they have no competing interests.

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