



THE NATIONAL
RESEARCH INSTITUTE
PAPUA NEW GUINEA

DISCUSSION PAPER

COMPARATIVE ANALYSIS OF
GOVERNANCE AND ECONOMIC
GROWTH IN FIJI, PAPUA NEW
GUINEA, SOLOMON ISLANDS AND
VANUATU

Eugene E. Ezebilo
William Kipongi

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Authors' Contributions

Associate Professor Eugene Ezebilo conceived and designed the project, collected secondary data from several databases and conducted brief review of literature to identify some key papers relevant for the study. He also estimated the Ordinary Least Squares regression models and wrote the first version of the manuscript. Mr William Kipongi conducted review on information about the studied countries, prepared the secondary data for data analysis, and reviewed the first version of the manuscript.

Abbreviations and Acronyms

CC	Control of Corruption
CPI	Corruption Perception Index
CV	Coefficient of Variation
EDB	Ease of Doing Business
EFI	Economic Freedom Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GE	Government Effectiveness
GoPNG	Government of Papua New Guinea
HDI	Human Development Index
PNG	Papua New Guinea
PS	Political Stability
OLS	Ordinary Least Squares
RL	Rule of Law
R ²	Coefficient of determination
USD	United States Dollar
WGI	Worldwide Governance Indicators

Abstract

Governance play an important role in providing conducive environment for investment, human development, opportunities for employment and economic growth. However, in most developing countries, governance has been a long-standing issue. This paper reports a comparative study of the impact of political stability, rule of law, control of corruption and government effectiveness on real Gross Domestic Product (GDP) per capita in Fiji, Papua New Guinea (PNG), Solomon Islands and Vanuatu. The data originated from World Bank database on worldwide governance indicators and real GDP per capita and was analysed using descriptive statistics and Ordinary Least Squares (OLS) regression model. The results revealed that of the four countries studied, Vanuatu had the best performance in political stability and rule of law. Fiji had the best performance in the control of corruption, government effectiveness and real GDP per capita. Results from the OLS regression show that an improvement in political stability and rule of law increases real GDP per capita. An improvement in the control of corruption and government effectiveness decreases real GDP per capita in Fiji. It suggests that some businesses in Fiji may be benefiting from corrupt practices in the public sector and ineffectiveness of government in providing public services. Political stability and rule of law can be improved by increasing the capacity of political and governance institutions and promoting the independency of the judiciary and law enforcement agencies. Control of corruption and government effectiveness can be improved by identifying areas that some businesses have been using to benefit from corrupt practices and ineffectiveness of government and block the areas. The findings contribute to how best to stimulate economic growth by considering governance indicators.

Introduction

A safe and secure community provides a conducive environment for investment, employment opportunities, improved education and health outcomes and strengthened social cohesion (National Planning Commission, 2021). However, governments of most developing countries often find it difficult to address issues associated with insecurity and making communities safe for their citizens (Asongu, 2012; Sacks and Levi, 2010). If the intention is to address the issues, it is important to consider addressing factors that contribute to insecurity and that makes our communities unsafe using a holistic approach. The study reported in this paper contributes to it by finding potential mechanisms that can be used to address the issues using four Pacific Island Countries (Fiji, Papua New Guinea (PNG), Solomon Islands and Vanuatu) as case studies. Several factors have been found in the literature that contribute to making communities unsafe and insecure and restrict economic development. The factors include political instability and violence, law and order problems, corruption and government ineffectiveness in the delivery of public services (Uddin et al., 2017; Skaaning, 2010; Cieslik and Goczek, 2018; Alam et al., 2017). In a study of the effect of political stability on economic growth in 120 developing countries, Uddin et al. (2015) found that political stability is a key determinant of economic growth. Political instability restricts economic growth as a result of the presence of poor economic and political institutions in developing countries. It tends to have adverse effects on economic growth through the channels of investment and human development. Other authors that have found that political instability is associated with poor economic development include Radu (2015), who found in a study of the influence of political stability on economic growth in Romania that political stability is a condition for a future and continuous sustainable growth. Haksoo (2010) found in a study of the impact of political stability and Foreign Direct Investment (FDI) flows that countries with high political rights had higher FDI outflows.

In terms of rule of law, Skaaning (2010) concluded that any effort to advance rule of law should be accompanied with good governance. Measures of rule of law differ in both form and appropriateness and differences have implication for implementation. Thus, more precaution should be taken in the development and use of law measures. In a study of the history and elements of the rule of law, Tamanaha (2012) found that the three key themes in the rule of law include “the notion that government is limited by law”, “the notion of formal legality” and the classic expression: “the rule of law, not man”. For the case of corruption, Cieslik and Goczek (2018) found in their study of the control of corruption, investment and economic growth that lack of corruption results in an increase in real Gross Domestic Product (GDP) per capita and investment ratio. That is, corruption restricts economic growth by hindering investment. In a study of corruption and control, Graycar and Sidebottom (2012) found that opportunities in the immediate environment play a causal role in generating corruption. It undermines good governance and the rule of law. Asongu (2012) found in a study of determinants of corruption-control in Africa that greater economic prosperity leads to less corruption-control. Good governance of political stability, government effectiveness and rule of law gain more importance in the fight against corruption when existing levels of corruption-control are high.

Government effectiveness entails matching services with citizen preferences and moving governments closer to the people they are intended to serve, which ensure greater accountability of the public sector (Hunter and Shah, 1998). In a study of determinants of government effectiveness in relation to public administration, Garcia-Sanchez et al. (2013) found that government effectiveness is explained by organisational environment related to economic development and educational status. Alam et al. (2017) found in their study of the impact of government effectiveness on economic growth that government effectiveness results in an increase in economic growth. Brewer et al. (2007) found that wealth of nations is the most important variable that influence government performance in their study of the relation between government performance and effectiveness. They also found that countries with high accountability level and control of corruption have a higher government effectiveness. Corruption has adverse effect on government effectiveness. Sacks and Levi (2010) concluded that the more effective a government is, the higher will be the level of social welfare. Kaufmann et al. (1999) found that an improvement in governance such as an improvement in the rule of law and a reduction in corruption results in a two to four-fold increase in

per capita income.

Several studies on the impact of corruption, political stability, government effectiveness on economic growth that focus on some countries in Asia-Pacific have been conducted. This includes study by Huang (2016) who found in a study of the impact of corruption on economic growth in 13 Asia-Pacific countries that corruption results in a decrease in economic growth in South Korea and China. However, it does not have statistically significant effect on other countries. In another Asia-Pacific study by Azam and Emirullah (2014), they found that corruption and inflation result in a decrease in GDP per capita. In another Asia-Pacific study, Yerrabati and Hawkes (2015) found that corruption hinders economic growth while government effectiveness increases growth. Political stability and rule of law does not have significant effect on economic growth. In a study of the impact of political stability on FDI in the most competitive Asia-Pacific countries, Rashid et al. (2017) found that political stability increases FDI inflow into a country.

The knowledge of the impact of governance indicators such as corruption, rule of law, political stability and government effectiveness can assist government in making informed decision on how to improve economic growth. However, to the best of our knowledge, there is no published papers in the literature that have focused on PNG. The study reported in this paper will help to fill the knowledge gap and assist PNG in drawing lessons from some Pacific Island countries (Fiji, Vanuatu and Solomon Islands) on how to improve the current governance indicators linked to building safer communities for investment.

According to the PNG Medium-Term Development Plan (MTDP) III, the goal associated with law and justice is to strengthen systems and processes of government and the enforcement of rule of law to achieve a safe and secure environment (Department of National Planning and Monitoring, 2017). The MTDP III document also reiterated the need to improve service delivery at the sub-national level. However, since 2018 when the implementation of MTDP III commenced, to the best of our knowledge, there is no published paper that has focused on the impact of MTDP III on the rule of law and government effectiveness in service delivery. This study provides more information and understanding on the status of service delivery by government and rule of law in PNG following the implementation of MTDP III. Other PNG Government documents such as PNG Vision 2050 has suggested the need to improve the country's ranking in corruption perception index from 158 to 50 and to maintain the ranking of 50 on crime index ranking (Independent State of Papua New Guinea, 2009). However, to the best of our knowledge, there is no published paper that focused on the evaluation of control of corruption in PNG. This study will fill the knowledge gap by providing an assessment of the control of corruption by the Government over time as well as provide some lessons that PNG can draw from some Pacific Island countries.

The objectives of this study are the following:

- To assess governance indicators such as political stability, rule of law, control of corruption and government effectiveness in PNG, Fiji, Vanuatu and Solomon Islands and examine impact of the indicators on real GDP per capita of these countries.
- To find how PNG can improve its governance indicators by drawing lessons from Fiji, Vanuatu and Solomon Islands and the literature on the subject.

Pacific Island countries studied and definition of some terms

We studied the impact of governance indicators associated with law and justice on economic growth, specifically real GDP per capita using Fiji, PNG, Solomon Islands and Vanuatu as case study areas. Before providing a brief overview of each of the countries, we will provide definitions of the following terms that have been used to describe the countries.

Real GDP per capita. It measures the monetary value of the total goods and services produced by a country in a given period (usually one year) divided by the population and adjusted for inflation.

Corruption Perceptions Index (CPI). It is an index used to rank countries around the world, based on how corrupt their public sectors are perceived to be (Transparency International, 2021). The results are given on a scale of 0 (highly corrupt) to 100 (very clean).

Ease of Doing Business (EDB) Rankings. It provides measures of business regulations for local firms in 190 economies and ranks the economies based on the ease of doing business in each of the countries (World Bank, 2020). A high ease of doing business ranking indicates that the regulatory environment is more conducive to the starting and operation of a local firm.

Human Development Index (HDI). It is a measure of the average achievement in human development which include a long and healthy life, being knowledgeable and have a decent standard of living (UNDP, 2021). Health dimension of HDI is assessed by life expectancy at birth; education dimension is measured by mean of years of schooling; and standard of living is measured by Gross National Income (GNI) per capita. The HDI is often used to highlight that people and their capabilities should be the criteria used for assessing the development of a country rather than only economic growth.

Economic Freedom Index (EFI). This is used to measure the impact of liberty and free markets around the world (The Heritage Foundation, 2021). The intention is to use it to confirm the relationship between economic freedom and progress.

Overview of Fiji, PNG, Solomon Islands and Vanuatu

Fiji. The country has a parliamentary system of government (Parliament of the Republic of Fiji, 2021). Tourism and subsistence agriculture dominate the country's economy. The agricultural crops include copra, cocoa, sugarcane and pineapples (Britannica, 2021). Commercial sector is dominated by garment and sugarcane production. Government of Fiji provides incentives to investors who want to do business in the country. However, the investors are encouraged to provide jobs and training programs for Fijians. The country ranks 102 in EDB among 190 economies in 2019 and 101 in 2018 (World Bank, 2020, 2019). In terms of HDI, Fiji ranks 93 of 189 in 2019, which is an improvement in its rank (98) in 2018 (UNDP, 2021). The country had HDI value of 0.724 in 2018 and 0.743 in 2019, which indicates a marginal increase. According to EFI for 2021, Fiji ranks 87 (The Heritage Foundation, 2021).

PNG. The country has vast natural resources, which provide strong platform for economic engagement with Asia and beyond (World Bank, PNG 2021) and has parliamentary system of government. PNG economy is dominated by agriculture sector and mineral and energy extraction sector. It has complex cultural dynamics, which is rooted in tribal and ethnic identity, and relationships to the land. This contributes to some of the challenges the country face. Political corruption in the country is linked to political nepotism and the patronage system of governance. Some political leaders often distribute resources amongst their electorates as a way to secure and maintain popular support (Reilly et al., 2015).

In terms of EDB, PNG ranks 120 out of 190 economies in 2019 which is a deterioration from the 2018 ranking of 108 (World Bank, 2020, 2019). The country had HDI score of 0.543 in 2018 and rank 155 and had a score of 0.555 in 2019 with a rank of 155 (World Bank, 2020, 2019). This indicates a marginal improvement in the HDI score but the rank remained the same. For CPI, PNG had a score of 27 out of 100 and rank 142 in 2020 and had a score of 28 in 2019 with a ranking of 137 (Transparency International, 2021). In terms of EFI, PNG had a score of 58.9 out of 100 and ranks 103 out of 190 economies in 2021 (The Heritage Foundation, 2021).

Solomon Islands. The country's economy is primarily based on agriculture, forestry and fisheries (Commonwealth Governance Newsletter, 2021). It has parliamentary system of government (Pacific Islands Legal Information Institute, 2021). It is important to note that agriculture is often restricted because only about 35 percent of the land is suitable for cultivation of crops and agriculture production is often affected by tropical storms. Solomon Islands faced several corruption challenges which is associated with weak institutions and poor governance linked to mismanagement of natural resources (Haque, 2012). The political instability and civil unrest in the country for several years contribute to the corruption in the public sector and ineffective governance.

Solomon Islands ranks 115 in EDB in 2018 and 136 in 2019 (World Bank, 2020, 2019). This indicates that it is becoming more difficult to do business in the country compared to other economies. The country's HDI score was 0.557 and it ranks 153 in 2018 whereas the score was 0.567 in 2019 and ranks 151 (World Bank, 2020, 2019). This indicates a marginal increase in the HDI value and ranking. In terms of CPI, Solomon Islands had a score of 42 in 2019 and 2020 and ranks 77 in 2019 and 78 in 2020 respectively (Transparency International, 2021). Though there was no change in the score the ranking has deteriorated slightly. For EFI, Solomon Islands had a score of 56.5 and ranks 122 in 2021 (The Heritage Foundation, 2021).

Vanuatu. The country has a parliamentary system of government (Pacific Islands Legal Information Institute, 2021). Subsistence agriculture, tourism and offshore financial services have been the economic base of the country (Britannica, 2021). Beef, copra, timber and cocoa are the most important exports of Vanuatu. As the country is vulnerable to weather and commodity market fluctuations, it has been working towards supplementing large-scale agriculture with extractive, manufacturing and service sectors to support long-term economic growth. Vanuatu has attempted to address corruption in the public sector by engaging citizens in decision-making on the delivery of public services through its decentralisation policy. In terms of EDB, Vanuatu ranks 107 out of 190 economies in 2019 which is a deterioration from the 2018 rank of 94 (World Bank, 2020, 2019). The country had HDI score of 0.597 in 2018 and rank 141 and had a score of 0.609 in 2019 with a rank of 140 (World Bank, 2020, 2019). This indicates a marginal improvement in the HDI score but the rank remained the same. For CPI, Vanuatu had a score of 43 out of 100 and rank 75 in 2020 and had a score of 46 in 2019 with a ranking of 64 (Transparency International, 2021). In terms of EFI, Vanuatu had a score of 60.5 out of 100 and ranks 97 out of 190 economies in 2021 (The Heritage Foundation, 2021).

Data used in the study

The data used in this study originated from secondary data that was extracted from World Bank databases on Worldwide Governance Indicators (WGI) and GDP per capita. According to World Bank (2021), governance consists of the traditions and institutions by which authorities in a country is exercised. The WGI is classified into six dimensions of governance: Voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. The WGI is based on over 30 underlying data sources. The data sources are rescaled and combined to create the six aggregate indicators using a statistical methodology known as an unobserved components model. For more information on methodology see Kaufmann et al. (2010).

For WGI data, we visited <https://info.worldbank.org/governance/wgi/> and identified the following four governance indicators which are more relevant to the subject of our study: (i) Political Stability and Absence of Violence; (ii) Rule of Law; (iii) Control of Corruption; (iv) Government Effectiveness.

We extracted estimate of governance for Fiji, PNG, Solomon Islands and Vanuatu for the above governance indicators from 1996 to 2020, excluding 1997, 1999 and 2001 that were not available. It is important to note that estimate of governance measure ranges from -2.5 (weak performance) to 2.5 (strong performance) for each of the governance indicators examined in this study. We also extracted rank of governance, which is the percentile rank among all countries that ranges from 0 (lowest) to 100 (highest). The rank value was extracted for each of the governance indicators examined from 1996 to 2020 excluding 1997, 1999 and 2001 that were not available.

In terms of real GDP per capita, we visited World Bank database associated with GDP for the countries studied (Fiji, PNG, Solomon Islands and Vanuatu). We extracted real GDP per capita values of the countries from 1996 to 2020 excluding 1997, 1999 and 2001 to correspond with the number of observations of the governance indicators. The website where data for each country was extracted are the following:

World Bank (2021a). Fiji: GDP per capita (constant 2015 US\$) for Fiji.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=FJ>

World Bank (2021b). PNG: GDP per capita (constant 2015 US\$) for PNG.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=PG>

World Bank (2021c). Solomon Islands: GDP per capita (constant 2015 US\$) for Solomon Islands.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=SB>

World Bank (2021d). Vanuatu: GDP per capita (constant 2015 US\$) for Vanuatu.
<https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=VU>

Analysis of WGI and real GDP per capita data

The data was analysed using descriptive statistics and inferential statistics. In terms of descriptive statistics, it was used to describe the characteristics of governance indicators and real GDP per capita for the four countries studied. We used descriptive statistics to analyse the data using mean, standard deviation, minimum and maximum values and coefficient of variation, which were presented in graphical and tabular formats. We used inferential statistics to gain more insights on the impact of various governance indicators on real GDP per capita using Ordinary Least Squares (OLS) regression model.

Ordinary Least Squares (OLS) Regression model

The real GDP per capita, which is the dependent variable is continuous. The impacts of governance indicators on real GDP per capita were examined using the OLS regression model. The model assumes that the error terms have the same variance, that is homoscedastic (Greene, 2003). Some of the ways often used to correct for non-homoscedastic include transforming continuous variables into log form and the use of White's heteroscedastic consistent variance estimator (Greene, 2003). In order to address the potential problem of non-homoscedastic of the error term, first, we converted all continuous variables (real GDP per capita, data associated with political stability and absence of violence, rule of law, control of corruption and government effectiveness rank) in this study into logarithms using LIMDEP statistical package (Econometric Software Inc., 2007).

We estimated OLS models for each of the countries examined (Fiji, PNG, Solomon Islands and Vanuatu), making four models and corrected them further for non-homoscedastic (heteroscedasticity) using White's heteroscedastic consistent variance estimator. We conducted Breusch-Pagan test to see whether the OLS assumption of homoscedasticity has been met. The test statistics were 10.57, 2.63, 3.97 and 6.59 at 6 degrees of freedom for FIJI, PNG, SOLOMON and VANUATU models respectively. The critical value of chi-squared for each of the models at 10 percent statistical significance level was 10.64. This indicates that the test statistic was not statistically significant for each of the estimated models, which means that the null hypothesis of homoscedasticity can be accepted.

Four OLS models (FIJI, PNG, SOLOMON and VANUATU) were estimated using the LIMDEP NLOGIT version 4.0.1 statistical package (Econometric Software Inc., 2007) and the impact of governance indicators on real GDP per capita were analysed. The OLS model was estimated as:

$$\text{Log}(GDP_{rpc}) = B_0 + B_1\text{Log}(PS) + B_2\text{Log}(RL) + B_3\text{Log}(CC) + B_4\text{Log}(GE) + B_5(CC*GE) + B_6(PS*RL) + \varepsilon \quad (1)$$

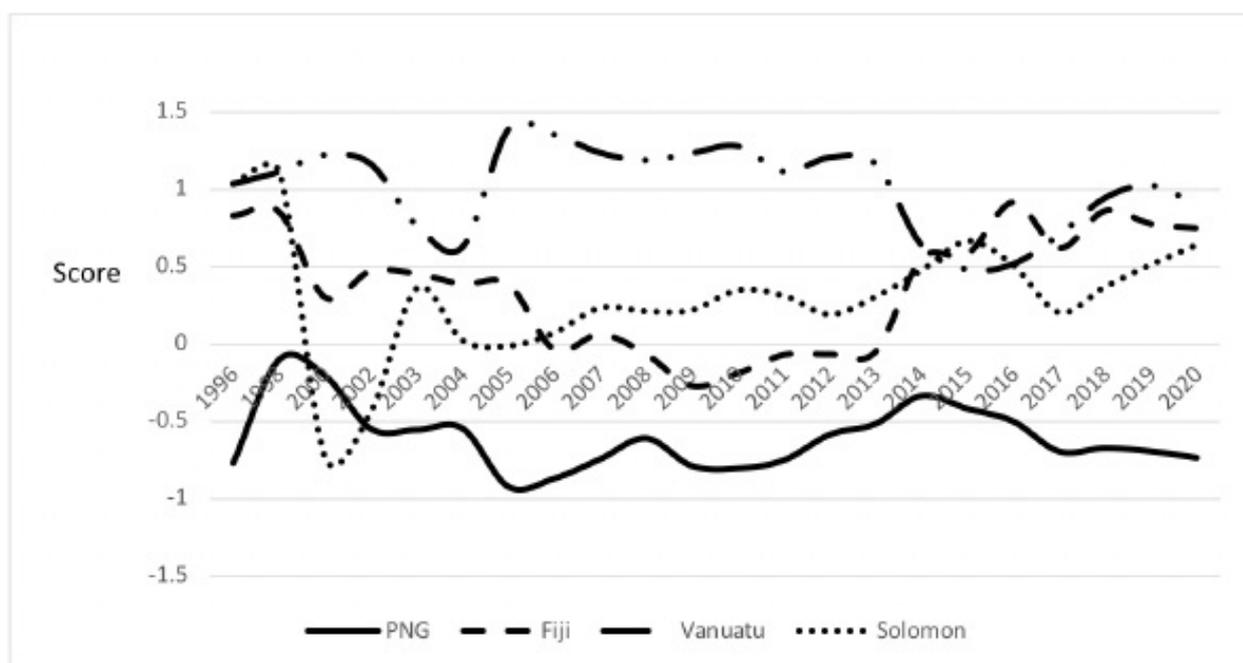
where, B is the vector of parameters to be estimated, GDP_{rpc} is real GDP per capita per annum, PS political stability and absence of violence, RL is rule of law, CC is control of corruption, GE is government effectiveness and ε is an error term, which is assumed to be independently identically distributed.

Results

Comparison of selected governance indicators scores in relation to countries studied

The results reveal that of the four countries studied, Vanuatu had the best score for political stability and absence of violence indicator and PNG had poorest (Figure 1). Vanuatu's score ranges from 0.51 (2010) to 1.38 (2005) and it was -0.92 (2005) and -0.11 (1998) for PNG.

Figure 1. Estimate of political stability and absence of violence in relation to countries

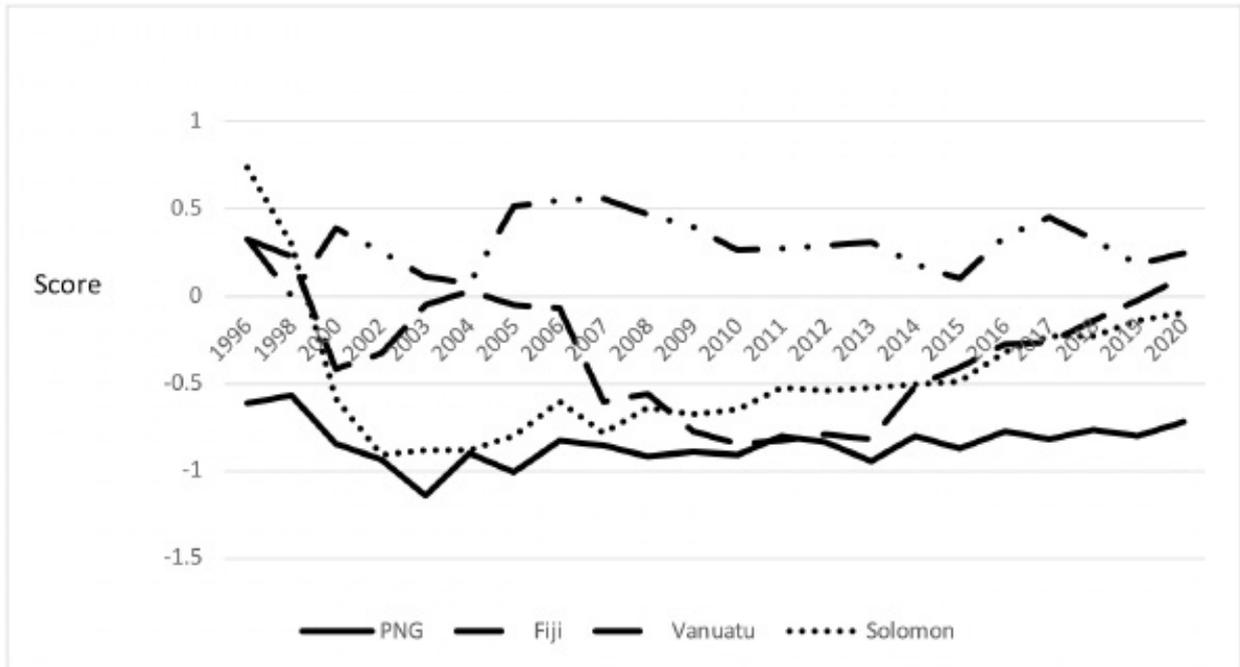


Solomon is Solomon Islands; data source: World Bank database on Worldwide governance indicators, 2021.

The results indicate that Vanuatu had the strongest political stability and had the lowest prevalence of violence and PNG had the weakest stability and highest prevalence of violence (Figure 1). For Fiji, the score ranges from -0.27 (2009) to 0.91 (2016) and it was -0.74 (2000) to 1.1 for Solomon Islands (1998).

In terms of score associated with the rule of law, Vanuatu had the best performance, which ranges from 0.01 (1998) to 0.55 (2006). From year 2000, Vanuatu's scores were higher than the remaining three countries (Figure 2). This suggests that the implementation of rule of law in Vanuatu appear to work better than other countries explored in this study.

Figure 2. Estimate for the rule law in relation to countries

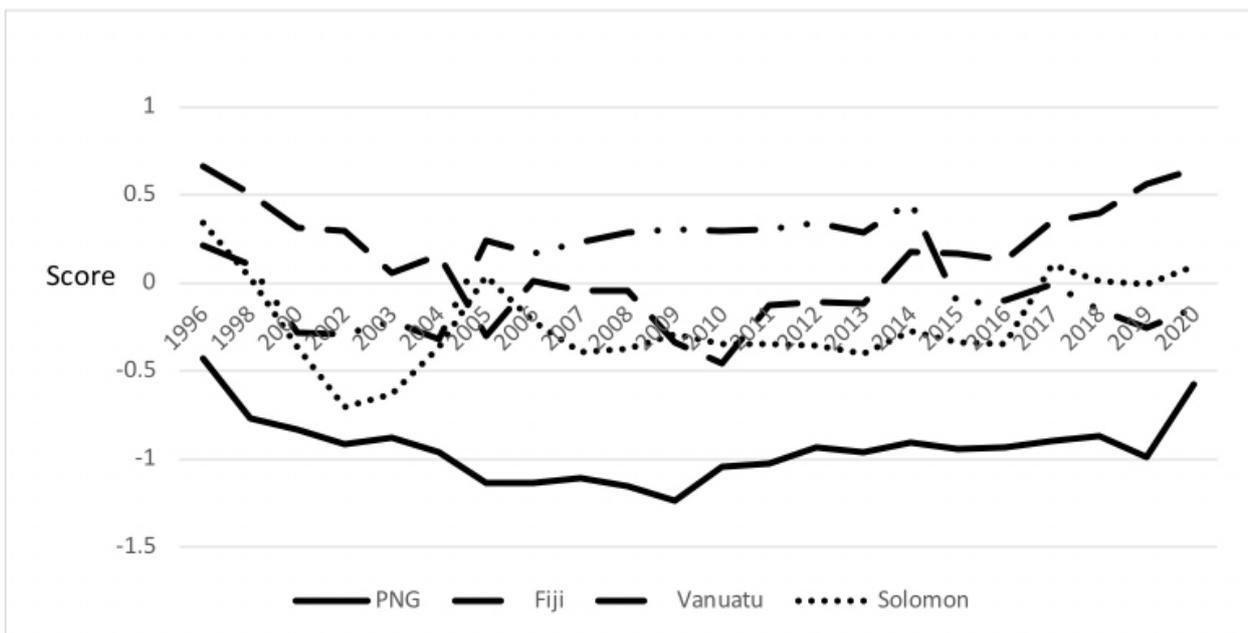


Solomon is Solomon Islands; data source: World Bank database on Worldwide governance indicators, 2021.

PNG had the worst score for rule of law. The score ranges from -1.14 (2005) to -0.57 (1998). This indicates that it is more difficult to implement a law in PNG compared to Vanuatu.

In terms of the control of corruption, Fiji and Vanuatu had the best estimates (Figure 3), which indicate that these countries had better facilities for controlling corruption compared to PNG and Solomon Islands. PNG had the worst estimates and it ranges from -1.23 (2009) to -0.43 (1996). Fiji estimate range from -0.46 (2010) to 0.66 (1996) and Vanuatu ranges from -0.32 (2004) to 0.46 (2014).

Figure 3. Estimate of control of corruption in relation to countries

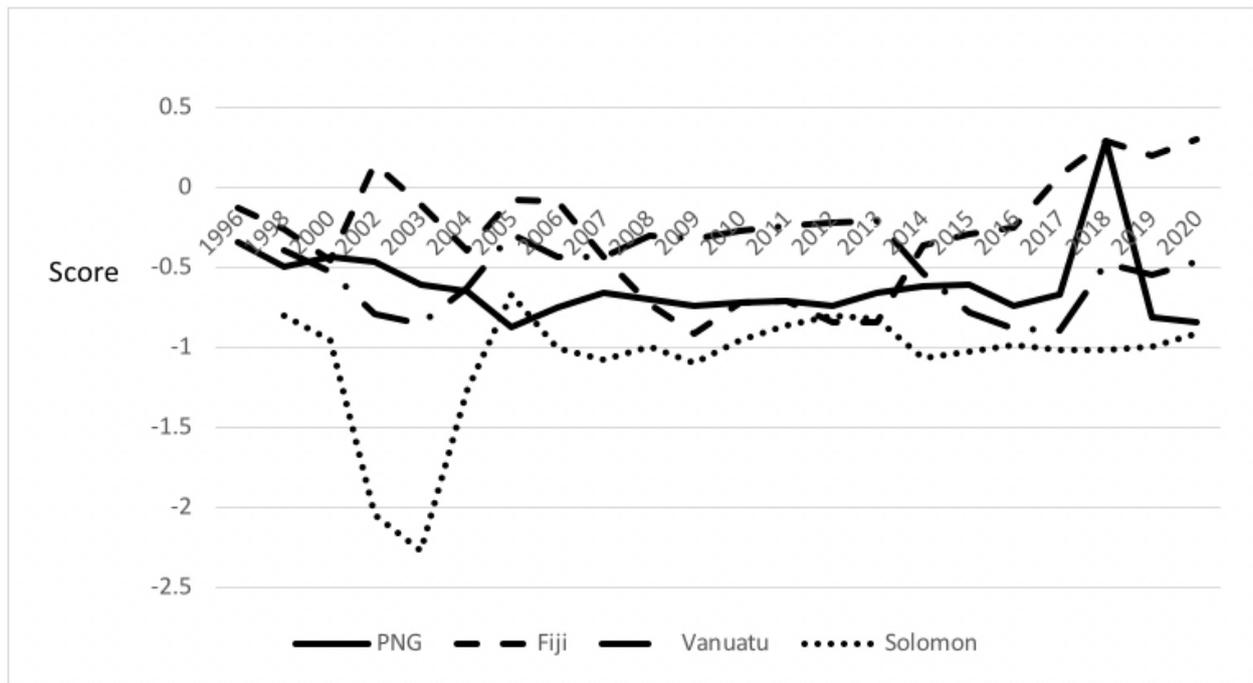


Solomon is Solomon Islands; data source: World Bank database on Worldwide governance indicators, 2021.

PNG did poorly in this indicator as shown by the many negative scores in the years under study (Figure 3). This suggests that the government has not done enough in the area of controlling corruption. In general, all the four countries have not done very well in the control of corruption, each of countries had some negative scores.

In terms of government effectiveness, Fiji had the best performance with estimated score that ranges from -0.84 to 0.3 (Figure 4). Solomon Islands had the poorest performance with score of between -0.67 in 2009 and -2.05 in 2021. Of the four countries, PNG performed better than Vanuatu and Solomon Islands with scores that range from -0.85 in 2020 to 0.29 in 2018.

Figure 4. Estimate of government effectiveness in relation to countries



Solomon is Solomon Islands; data source: World Bank database on Worldwide governance indicators, 2021.

The results in Figure 4 suggest that the delivery of public services such as potable piped borne water, supply of electric power and good road networks are very poor in Solomon Islands and Vanuatu compared to Fiji and PNG. In general, all the four countries have not done very well for this indicator because all of them had some negative scores.

Governance indicators percentile rank and GDP per capita of studied countries

Of the four countries studied, Fiji had the highest real GDP per capita (USD 4,771) and Solomon Islands had the lowest (USD 2,086) as shown in Table 1. However, Vanuatu had the lowest Coefficient of Variation (CV), which correspond to the lowest level of dispersion of the real GDP per capita data around the mean (4.7%). This indicates that of the four countries, GDP per capita data associated with Vanuatu is the most precise. PNG had the highest level of dispersion (16.4%), which indicates that the data of real GDP per capita of the country had the lowest precision.

In terms of governance indicators rank, Vanuatu had the highest rank for political stability and absence of violence (83.4) and rule of law (61.8). PNG had the lowest rank for the two indicators: 25.8 for political stability and absence of violence and 21.4 for the rule of law (Table 1). The CV value for the two indicators show that of the four countries, Vanuatu had the lowest value (13.9% and 5.3%), which means that the data had the highest precision compared to other countries studied. Data associated with Solomon Islands had the lowest precision.

Table 1. Description of variables used in statistical analysis

Variable	Mean	Std.	Min	Max	CV
Real GDP per capita in 2015 USD (GDPPrpc):					
PNGGDPPrpc	2,254	369	1,801	2,854	16.4
FijiGDPPrpc	4,771	589	3,892	5,939	12.3
VanuatuGDPPrpc	2,748	128	2,478	2,893	4.7
SolomonGDPPrpc	2,086	234	1,644	2,529	11.2
Political Stability and absence of Violence (PS):					
PNGPS	25.8	5.8	19.9	41.5	22.5
FijiPS	58.9	13.9	36.0	78.6	23.6
VanuatuPS	83.4	11.6	60.9	99.0	13.9
SolomonPS	56.1	13.9	23.8	87.2	24.8
Rule of Law (RL):					
PNGRL	21.4	4.4	13.4	32.2	20.6
FijiRL	42.1	12.6	22.5	61.8	29.9
VanuatuRL	61.8	3.3	53.0	66.9	5.3
SolomonRL	37.2	12.9	18.7	69.3	34.7
Control of Corruption (CC):					
PNGCC	18.2	7.5	6.7	40.3	41.2
FijiCC	60.0	8.7	40.0	73.7	14.5
VanuatuCC	57.9	7.8	45.4	68.8	13.5
SolomonCC	48.1	8.9	30.3	65.1	18.5
Government Effectiveness (GE):					
PNGGE	28.6	6.3	18.8	43.7	22.0
FijiGE	43.8	14.8	19.6	63.9	33.8
VanuatuGE	35.5	10.3	17.8	46.9	29.0
SolomonGE	15.4	6.9	0	30.9	44.8

CV is coefficient of variation in %; PNG is Papua New Guinea; GDP is real Gross Domestic Product per capita in 2015 USD for the years 1996 to 2020 excluding 1997, 1999 and 2001 (USD 1 is equal to 3.51 PGK), Solomon is Solomon Islands.

Fiji had the highest rank for control of corruption (60) and government effectiveness (43.8). PNG had the lowest rank for the control of corruption (18.2) and Solomon Islands had the lowest rank for government effectiveness (15.4). In terms of CV, Vanuatu had the lowest for the control of corruption (13.5%) and PNG had the highest (41.2%). This imply that data associated with Vanuatu is the most precise for the control of corruption. In terms of CV for government effectiveness, PNG had the lowest (22%) and Solomon Islands had the highest (44.8%). This indicates that data associated with PNG is the most precise for government effectiveness.

The influence of selected governance indicators on economic growth

In order to examine the influence of political stability and absence of violence, rule of law, control of corruption and government effectiveness on real GDP per capita of the four countries studied, we estimated four log-log multiple Ordinary Least Squares (OLS) regression models (Table 2). The coefficient of determination (R²) that indicates the fit of the models ranged from 39 percent to 89 percent. This indicates the variability predicted by the regressors used in the study reported in this paper. Of the four countries that was examined, Solomon Islands had the best fit (R² of 89%) and Fiji had the worst fit (R² of 39%).

The coefficient associated with political stability and absence of violence was positive and was statistically significant for all the four models (Table 2). This indicates that an improvement in political stability and absence of violence is associated with an increase in the real GDP per capita in each of the four countries studied. In terms of elasticity (percentage change of real GDP per capita in relation to a percentage change in rank of political stability and absence of violence), PNG had the highest elasticity and Solomon Islands had the lowest. One percent improvement in the political stability and absence of violence rank is associated with 1.39 percent increase in real GDP per capita for PNG. It was 0.93 percent for Fiji, 0.94 percent for Vanuatu and 0.15 percent for Solomon Islands.

Table 2. OLS results on the impact of governance indicators on real GDP per capita

Variable	PNG	FIJI	Vanuatu	Solomon I.
	Coeff.	Coeff.	Coeff.	Coeff.
Constant	3.76** [1.53]	7.83*** [1.32]	-1.72 [4.51]	6.45*** [0.84]
Log(PS)	1.39*** [0.43]	0.93*** [0.32]	0.94* [0.53]	0.15*** [0.03]
Log(RL)	1.16*** [0.26]	0.23 [0.21]	1.42** [0.57]	0.39*** [0.09]
Log(CC)	-0.09 [0.13]	-0.60** [0.27]	0.11 [0.25]	-0.15 [0.24]
Log(GE)	-0.93 [0.20]	-0.39* [0.20]	0.09 [0.17]	-0.06 [0.15]
CC*GE	0.0004* [0.0002]	0.0002* [0.0001]	-0.0001 [0.001]	0.0006 [0.0002]
PS*RL	-0.002*** [0.0004]	-0.0002* [0.0001]	-0.0002* [0.0001]	-0.0004** [0.0002]
R ²	0.60	0.39	0.46	0.89
Adjusted R ²	0.45	0.16	0.24	0.82
No. of obs.	22	22	22	22

*, **, and *** are statistically significant at 10%, 5% and 1%. Dependent variable is log real GDP per capita standard error is in parenthesis.

The coefficient associated with the rule of law was positive for all four models and was statistically significant for three of the models (Table 2). Model associated with Fiji was not significant. This means that an improvement in rule of law is associated with an increase in the real GDP per capita in PNG, Vanuatu and Solomon Islands but does not matter for Fiji.

Vanuatu had the highest elasticity and Solomon Islands had the lowest. An improvement in the rule of law rank is associated with 1.42 percent increase in real GDP per capita for Vanuatu. It was 1.16 percent for PNG, 0.39 percent for Solomon Islands.

The coefficient associated with the control of corruption was negative for PNG, Fiji and Solomon Islands and was positive for Vanuatu. However, only the model associated with Fiji was statistically significant (Table 2). This indicates that an improvement in the control of corruption in Fiji results in a decrease of real GDP per capita by 0.60 percent. However, for PNG, Solomon Islands and Vanuatu, an improvement in the control of corruption does not have a significant effect on real GDP per capita. This means that an improvement in the control of corruption in these countries do not matter in economic growth.

The coefficient associated with government effectiveness in providing public services was negative for PNG, Fiji and Solomon Islands and was positive for Vanuatu. However, only model associated with Fiji was statistically significant. This means that an improvement in government effectiveness in Fiji by one-unit results in a decrease of real GDP per capita by 0.39 percent. However, for PNG, Solomon Islands and Vanuatu, an improvement in government effectiveness does not have a significant effect on real GDP per capita.

In terms of the interaction between control of corruption and government effectiveness, the coefficient was positive for all countries except Vanuatu which was negative. However, the coefficient was statistically significant for only PNG and Fiji. This indicates that a combined improvement in control of corruption and government effectiveness results in an increase in real GDP per capita in PNG and Fiji. The result of elasticity shows that an increase in the combination of control of corruption with government effectiveness increases real GDP per capita by 0.0004 percent for PNG and 0.0002 percent for Fiji. The coefficient does not have significant effect on real GDP per capita for Vanuatu and Solomon Islands.

For the coefficient associated with the interaction between political stability and absence of violence and rule of law, it was negative and statistically significant for all countries studied. This indicates that an improvement in the combination of political stability and absence of violence and rule of law results in a decrease in real GDP per capita. An improvement in the combination yields a decrease in real GDP per capita of 0.002 percent for PNG, 0.0002 percent for Fiji and Vanuatu and 0.0004 percent for Solomon Islands.

Of the six variables that influence real GDP per capita that were explored, coefficient associated with political stability and absence of violence and coefficient associated with the rule of law are the most important. Value of the coefficients range from 0.15 to 1.39 for political stability and absence of violence and rule of law range from 0.39 to 1.42 (note that only statistically significant coefficient was used for drawing the conclusion). If the intention is to increase real GDP per capita in the studied countries, there is a need to improve political stability and absence of violence and rule of law.

Discussion

We found that an improvement in political stability and absence of violence increases real GDP per capita for all the four countries studied. A potential reason for the finding is that political stability in a country can motivate potential investors to invest there. As the country receives more investments, more people will be employed by the jobs created by the investments and consequently the government at all levels get more revenue from income and company tax. This contributes to economic growth by increasing real GDP per capita. Furthermore, as more people are employed in businesses created by investments, it would encourage them to increase consumption of goods and services and the government gets more revenue from Goods and Services Tax (GST). It also contributes to economic growth by increasing GDP of the country and consequently increases real GDP per capita. Our findings are in line with that of several authors on the subject. For example, Uddin et al. (2017) found that political stability is a key determinant of economic growth in a study of political stability and growth in 120 developing countries. Radu (2015) found in a Romanian study of the impact of political stability on growth that political stability is a condition for sustainable economic growth. In an Asia-Pacific study, Rashid et al. (2017) found that political stability increases FDI inflow.

If the intention is to promote sustainable political stability in the countries studied such as PNG, the government should consider improving all economic and political institutions. All impediments to investment and human development should be minimised. For instance, the country should focus on promoting ease of doing business, providing more opportunities for its citizens to access education at all levels, affordable healthcare and employment. Violence associated with elections should be addressed by developing a mechanism that discourages violence and penalising any party implicated in the violence. Government agencies whose activities are associated with conducting elections at all levels of government such as Integrity Political Parties and Candidates Commission and PNG Electoral Commission should be provided adequate funding for acquiring modern facilities, attracting high qualified staff, and in creating awareness on how to improve the conduct of free and fair elections.

In terms of improving human development in PNG, the country can draw lessons from Fiji whose HDI has been above 0.7 since 2018, which has been far better than that of PNG (not exceeding 0.55). For PNG's HDI to go up, there is a need for the Government of PNG (GoPNG) to focus more on increasing the literacy rates of its citizens by providing facilities that increase access to affordable quality basic education such as adequate classrooms, adequate teachers, adequate teaching aids, access to water and sanitation facilities. Provide affordable quality healthcare services by constructing more health centres, provide adequate medicines and logistics for the distribution of the medicines and provide more opportunities for training PNG citizens in medical profession such as nursing, medicine, pharmacy, medical laboratory technology. PNG should invest more in providing trunk infrastructure such as piped-borne water, electricity and sewerage and improved road networks to provide more opportunities for investment, which contributes to creating employment for the teeming population. There is a need to focus more on creating job in the agriculture sector and in the manufacturing sector, which has the potential to employ more people than other sectors. This can be done by promoting Micro, Small and Medium-size Enterprises (MSMEs) through addressing the challenges they face in doing business in the country.

PNG can draw lessons from Vanuatu to improve its political stability, whose democracy has remained intact in the face of vast socio-cultural fragmentations as reported by Veenendaal (2021). Vanuatu has an independent judiciary, which often play a key role in resolving political conflicts. For instance, in 2015 the court convicted 15 members of the parliament for their involvement in bribery and corruption (Forsyth and Batley, 2016). PNG should strengthen its judicial system by increasing the capacity of the system, improving governance institutions and providing an effective incentive mechanism for penalising offenders without fear or favour and people who assist in improving the system rewarded.

We found that an improvement in the rule of law results in an increase in real GDP per capita. The implementation of rule law without fear nor favour has the potential to promote law and order in a country. It can contribute in

reducing transaction costs and improve ease of doing business, proper allocation of property rights and restrict marginalisation of vulnerable people. The finding corresponds to the findings in the literature. For instance, Kaufmann et al. (1999) found that improvement in the rule of law results in two to four-fold increase in per capita income. However, in an Asian-Pacific study, Yerrabati and Hawkes (2015) found that rule of law does not have a significant effect on economic growth. If the intention is to promote rule of law in PNG, efforts should be focused on improving governance institutions. As the measures of rule of law differ in form and appropriateness, precaution should be taken in the development and use of law measures. If the intention is to improve the rule of law, PNG can draw lessons from Vanuatu that has a strong judiciary which is independent from the executive and legislative arms of the government. PNG can improve rule of law by strengthening the judiciary and law enforcement agents so that they can conduct their duties without fear nor favour. Adequate funding for training, purchase of modern facilities and in attracting high qualified staff should be provided to improve effectiveness and efficiency in the law and justice sector.

It was found that the interaction between political stability and rule of law does not necessarily increase real GDP per capita. A possible reason for our finding may be that the level of stability found in all the countries studied may be strongly linked to the endurance of regime types rather than political stability, which is linked to the rule of law. Thus, there is a need for countries such as PNG to invest more in governance institutions to promote political stability. There is also need for more investment in the law and justice sector so that it can be combined with political stability to stimulate economic growth.

It was expected that an improvement in the control of corruption will increase real GDP per capita. However, we found that it had significant negative effect in only Fiji, and it does not have effect in the remaining three countries studied. The results do not confirm with findings of authors such as Cieslik and Goczek (2018) who found that lack of corruption contribute to an increase in real GDP per capita. Graycar and Sidebottom (2012) found that opportunities in the environment contributes to corruption. This suggests that focusing only on the control of corruption alone may not result in economic growth. Other measures such as effective rule of law is needed for the control of corruption to work. Authors such as Asongu (2012) found in his study of determinants of corruption in Africa that government effectiveness and rule of law are important in the control of corruption. Our findings suggest that it appears that some businesses in Fiji are benefiting from bribery and corruption, which means that an improvement in the control of corruption may reduce their output and consequently reduces real GDP per capita.

In PNG, Vanuatu and Solomon Islands, it does not matter whether there is an improvement in the control of corruption or not. This suggests that corruption may be seen as a normal in these countries. If intention of the countries such as PNG is to improve the control of corruption, effective governance institutions and appropriate provisions in the laws and strategies should be provided. Government agencies such as Ombudsman Commission should be strengthened by providing the Commission with appropriate capacity and adequate funding for providing quality services. PNG can draw lessons from Fiji and Vanuatu to improve its performance in the control of corruption. For instance, according to Transparency International (2021), Vanuatu ranked 64 and 75 in CPI in 2019 and 2020 respectively, which is far above PNG rank of 137 and 142 within the same period. PNG has a lot to learn from Vanuatu especially in providing strong independent judiciary system and governance institutions.

The effectiveness of government in providing public goods and services is critical in economic growth because they facilitate investment and promote ease of doing business. However, in our study we found that an improvement in government effectiveness decreases real GDP per capita in Fiji and was not statistically significant in other countries that were studied. This indicates that an improvement in government effectiveness in PNG, Vanuatu and Solomon Islands does not matter in economic growth, while it restricts economic growth in Fiji. Our findings deviate from that of some published papers on the subject such as Alam et al. (2017) who found in their study of the impact of government effectiveness on economic growth that it results in an increase in economic growth. Sacks and Levi (2010) found that the more effective is the government, the higher the level of social welfare is. A possible reason for our findings may be that government effectiveness alone may not stimulate economic growth but that other governance indicators such as control of corruption need to improve for government effectiveness to work in Fiji

and probably in other countries that were studied. This was confirmed by our findings on the interaction between government effectiveness and control of corruption. For instance, the interaction results in an increase in real GDP per capita for PNG and Fiji. It suggests that for government effectiveness to contribute to economic growth in PNG and Fiji, corruption must be controlled.

It may be that some businesses in Fiji benefit from government ineffectiveness in providing public goods and services. Thus, an improvement in government effectiveness may restrict the businesses that thrive on government ineffectiveness, which reduces their revenue and consequently reduce real GDP per capita. If the intention is to improve government effectiveness, there is a need to streamline the responsibilities of the public sector and private sector and they must focus on their responsibilities. All groups that are sabotaging government effectiveness in providing public goods and services must be identified and restricted or penalised from continuing their activities. Incentive mechanism that can discourage the saboteurs from engaging in activities that undermine government effectiveness should be developed and implemented in an effective manner. There is a need for the government to be felt by its citizens in urban and rural areas and in every nook and crannies of the country by providing public services there especially in rural areas where majority of the population in PNG live.

Conclusion

This study aimed to investigate the impact of political stability, rule of law, control of corruption and government effectiveness on economic growth in Fiji, PNG, Solomon Islands and Vanuatu. The findings show that political stability and rule of law are the most important factors to be considered in improving economic growth. Some businesses appear to be benefiting from corruption and ineffectiveness of the government in providing public services. These businesses tend to restrict economic growth when improvement in the control of corruption and improvement in government effectiveness are sought. The improvement in the control of corruption and government effectiveness may not achieve economic growth without considering improvement in the rule of law and political stability. If the intention of a country such as PNG is to stimulate a broad-based growth of the economy, government should consider providing effective and efficient political institutions and effective governance institutions by providing adequate funding to these institutions for training, purchase of modern equipment and to attract high qualified experienced workforce. The judicial branch of the government and law enforcement agents must be independent, and their capacity strengthened so that they can perform their duties in effective manner without fear nor favour. There is a need to streamline the responsibilities of the public sector and that of the private sector in providing services and each of the sectors should focus on their responsibilities. This has the potential of restricting some businesses that benefit from corruption and ineffectiveness of government in providing public services from thriving and sabotaging government's efforts toward the control of corruption and improvement in government effectiveness.

Lessons that can be drawn from Vanuatu includes the independency of the judiciary from the legislative branch of the government, which also contributes to the respect to the rule of law being implemented without fear nor favour as evidenced in the trial of some members of parliament in 2015 (Forsyth and Batley, 2016). Lessons that can be drawn from Fiji is in terms of human development which is needed in building capacity of governance and political institutions and welfare of the citizens. For instance, the country has had HDI of above 0.7 for several years which correspond to a high human development (UNDP, 2021). Fiji's real GDP per capita (ranges from US\$3,892 to US\$5,939 from 1996 to 2020) has been higher than that of other countries that were studied (World Bank, 2021a). This makes Fiji to belong to high medium-income economy compared to PNG, Solomon Islands and Vanuatu that belong to lower medium-income economy. Findings from this study will assist policymakers and planners in identifying potential ways to stimulate a broad-based economic growth by considering how to improve political stability, rule of law, control of corruption and government effectiveness in the delivery of public services.

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