

THE IMPLICATIONS OF NIGERIA'S SOVEREIGN WEALTH FUND FOR SUSTAINABLE ECONOMIC GROWTH

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Abstract

Sovereign wealth funds (SWFs) have gained significance in recent times due to their potential impact on economic growth. This study evaluates the impact of Nigeria's sovereign wealth fund on sustainable economic growth using the Nigerian Infrastructural Fund, Future Generation Fund, and Stabilization Fund as substitutes for SWFs. The study employed the ARDL technique of analysis and unit root tests to avoid erroneous regression results. The results of the study reveal a significant relationship between Nigeria's sovereign wealth fund and sustainable economic growth, with the Nigerian Infrastructure Fund, Stabilization Fund, and Future Generation Fund having a considerable impact on GDP. The study also highlights the challenges posed by political and economic pressures on the growth sustainability of the sovereign wealth fund. The findings of this study are significant, as they provide insights into the roles, obligations, and duties of SWFs and evaluate SWFs' impact on Nigeria's sustainable economic growth to fill a research gap.

Introduction

Sovereign wealth funds (SWFs) have become increasingly popular in recent times, providing states with a means of investing their resources efficiently while also guaranteeing long-term development and economic growth. Nigeria is no exception, and its sovereign wealth fund has the potential to play a crucial role in the country's long-term economic prospects. This study evaluates the impact of Nigeria's sovereign wealth fund on sustainable economic growth using the Nigerian Infrastructural Fund, Future Generation Fund, and Stabilization Fund as substitutes for SWFs. While previous studies have examined Nigeria's sovereign wealth fund and economic expansion, this study utilizes the ARDL technique of analysis and unit root tests to avoid erroneous regression results. The research examines the impact of the funds on the Gross Domestic Product (GDP) of Nigeria and explores the challenges posed by political and economic pressures on the growth sustainability of the sovereign wealth fund. This study provides insights into the roles, obligations, and duties of SWFs and evaluates SWFs' impact on Nigeria's sustainable economic growth to fill a research gap. The study's findings have significant

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implications as they demonstrate the considerable impact of the Nigerian Infrastructure Fund, Stabilization Fund, and Future Generation Fund on GDP, highlighting the importance of effective control and monitoring of these funds for long-term economic benefits and the improvement of the lives of Nigerians.

1.1. Concept of Sovereign Wealth Fund

Sovereign wealth funds (SWFs), in Hassan (2009) are government investment entities financed by foreign currency assets that are managed independently of official reserves. Compared to traditional reserves, they may invest in a larger variety of asset types and seek better rates of return. According to Anderson (2010) the main drivers behind the creation of SWFs include central banks' earlier realizations that it is preferable to hold a sizeable sum of money in foreign exchange accounts. They understood that having enough money in easily accessible foreign accounts would be beneficial to the government in times of fiscal crisis, currency devaluation, natural economic calamity, and even political upheaval. Based on the countries' sources of foreign exchange assets, SWFs are typically divided into two categories: commodity funds and non-commodity funds (Barney, 2001).

The Nigeria Investment Authority Act (NIAA), which established the SWF and was passed into law in March 2011, became effective in October 2011. The money saved from the discrepancy between budgeted and actual market oil prices would be invested to produce returns that will benefit Nigerians in the future (Gbogbo, 2013). A \$1 billion USD first founding investment was made in the fund. According to Ujah (2013), the federal, state, and local governments in Nigeria, as well as the municipal council should all contribute to the initial fund that the Nigerian Sovereign Investment Authority will manage, which is the equivalent of \$11 billion USD.

The Act further stipulates that any additional money must be generated from leftover monies in the federation account, provided that the financing does not contain the derivation component of the revenue allocation formula. The three separate funds, referred to as windows, that make up Nigeria's sovereign wealth fund each have distinct investing and development goals. The three windows would each receive 85% of the money, leaving 15% of the \$150 million initially unallocated to be divided among the three funds as needed in the future. The money would be invested in a variety of cross-border securities. The stabilization fund received an initial allocation of 20%, while the future generation and the Nigeria infrastructure funds each received 40%.

1.2. Concept of Economic Growth

Economic growth is the process of escalating but not necessarily linearly growing the size of macroeconomic and national economic indicators, particularly the GDP per capita, with a beneficial impact on the socioeconomic sector. Increasing a country's production capacity and making the best use of its resources are the two main ways to achieve economic growth (Wolla, 2013). Additionally, it makes economic redistribution between the populace and society easier. Gross domestic product growth entails an expansion in the nation's wealth, which includes the production capacity stated in terms of both absolute and relative size per capita. Economic growth is the expansion of a country's ability to generate goods and services over time. It is an essential component for every economy's pursuit of sustainable development. Through the provision of better infrastructure, health, housing, and education services as well as an increase in agricultural output and food security, economic expansion raises people's standards of life (Wolla, 2013).

1.3. Empirical Review

In their study, Oleka et al. (2014) examined Nigeria's sovereign wealth fund and economic expansion. In this study, both primary and secondary data were utilised. Five research objectives served as the study's direction. The target demographic was made up of all 40 employees of the Nigerian Sovereign Investment Authority (NSIA) in the state. Using a purposive sampling technique, 30 establishment employees were chosen for the study. The research topics were addressed using mean scores and standard deviation. The hypothesis was examined using parametric statistics, namely analysis of variance (ANOVA), coefficient of correlation, and simple linear

regression. Using the gross domestic product as a key economic performance measure, we assessed the impact of SWF on economic growth. The analysis discovered a statistically significant, though unfavorable, relationship between SWF and economic growth in Nigeria.

Knill et al. (2012) investigated how investments made by sovereign wealth funds affected the performance of the target companies' return on risk. The performance of the target companies over the five years following the acquisition was examined while taking the level of risk into consideration. The results of their investigation showed that, following investments made by sovereign wealth funds, the target firm's actual returns decreased as the risk increased. This is consistent with the law of financial arson, which holds that the expected return is inversely proportional to the level of risk. However, their findings indicated that investments made by SWFs are linked to a decrease in risk compensation over the five years after the acquisition.

2. Theoretical Framework

2.1. Stewardship Theory

The stewardship theory put out by Davis (1997) is the theoretical framework most appropriate for this investigation. It states that managers will act responsibly as though they are the guardians or custodians of the assets under their stewardship when given the freedom to act independently and without direction or oversight. According to Barney and Hesterly (2009) this idea serves as the fundamental tenet of hedge fund operations, in which investors place complete trust in the management of their assets. Citizens in the country of the SWFs initially look to the government to manage their national wealth; after that, senior management, the central bank, or ministries rely on hired external wealth managers, investment banks, or both, as their trusted guardians of sovereign wealth. This is comparable to a president who is required to lead or direct the national government within the bounds of the constitution established by the nation's legal system. In most nations with successful SWF administration, the central bank and elected officials are in charge of managing sovereign wealth. This is widely regarded as the most effective method for managing SWFs in the literature and in international practices (Bernstein, 2009). The stewardship hypothesis makes the assumption that the principle would be pleased with the agents' individual achievement or that the agents' collective success would reflect in the overall success of the company (Davis, 1997). Therefore, according to the stewardship hypothesis, managers are presumed to be selfmotivated and devoid of vested self-interests like bribery, corruption, and self-enrichment, making them resultoriented. This indicates that the objectives of principals and agents are closely related to one another.

3. Methodology

Ex-post facto design was chosen as the research method for this study. Ex-post facto research design, according to Kerlinger and Howard (2013) is the statistical correlation between dependent and independent variables with the goal of establishing a causal relationship between them. The important goal of this study is to evaluate cause-and-effect linkages, hence the data are time series obtained from the 2015–2021 annual reports and audited financial statements posted on the websites of NSIA and National Bureau of Statistics. The Autoregressive Distributed lag (ARDL), Error Correction Mechanism (ECM), and the co-integration approach were used to analyze the annualized secondary data and evaluate for the long-run effect between the series. The fundamental supposition, in other words, is that all variables are integrated of order 1 or I. (1).

3.1. Model Specification

In this study, the impact of Sovereign Wealth Fund operations on economic growth is compared to those of the Nigeria Infrastructure Fund, Future Generation Fund, and Stabilization Fund. Below are the details for the Unit Root test, descriptive statistics test, and ARDL-ECM utilizing the mathematical specification of the implicit model that represents the connection between sovereign wealth funds and sustainable economic growth:

$$GDP_t = \alpha_0 + \alpha_1 NIF_t + \alpha_2 FGF_t + \alpha_3 SF_t + \nu_t \quad (1)$$

Where:

GDP = Gross Domestic Product.

NIF = Nigerian Infrastructural Fund.

FGF = Future Generation Fund. SF = Stabilization Fund.

ϵ_t = Error term.

$\alpha_1, \alpha_2, \alpha_3$ = The parameter coefficients.

Equation 1 above presents the dependent variable GDP as a function of the specific objectives of the independent variable, given as Nigerian Infrastructural fund, Future generation Fund and Stabilization Fund.

The error correction model (ECM), of Equation 1 which captures the speed of adjustment from the short-run disequilibrium towards the long-run equilibrium is specified as follows:

$$\Delta \log GDP_t = \alpha_0 + \sum_{i=1}^m \alpha_1^i \Delta \log GDP_{t-i} + \sum_{j=0}^n \alpha_2^j \Delta \log NIF_{t-j} + \sum_{k=0}^o \alpha_3^k \Delta \log FGF_{t-k} + \sum_{l=0}^p \alpha_4^l \Delta \log SF_{t-l} + \delta ECT_{t-1} + \epsilon_t \quad (2)$$

Equation 2 depicts or expresses the logging of 1 so as to have a robust result and also test for long-run relationship.

4. Results and Discussion

4.1. Descriptive Statistics Results

Results from the descriptive statistics are captured in Table 1.

Table 1. Descriptive statistics of the variables.

	Log (GDP)	Log (NIF)	Log (FGF)	Log (SF)
Mean	17.0282	19.14273	18.94638	18.32741
Std. dev.	0.176652	0.564147	0.415708	0.510826
Skewness	-0.82366	-0.51796	-0.86108	-0.45125
Kurtosis	3.106681	2.277545	2.411746	2.082176
Jarque-Bera	2.725046	1.59506	3.311908	1.656898
Probability	0.256014	0.45044	0.19091	0.436726
Observations	24	24	24	24

Note: Future generation fund, Nigeria infrastructure fund, Stabilization fund and Gross domestic product.

According to the results of the descriptive statistics, between 2005 and 2020, SF averaged 18.32%, FGF averaged 18.94, and GDP averaged 17.02%, NIF averaged 19.14%, according to Table 1.

All the variables are negatively skewed and have values smaller than zero, which shows that the distribution tails to the left of the mean, according to skewness, a measure of the shape of the distribution.

NIF, FGF, and SF are examples of platykurtic (fat or short-tailed) variables. Conversely, leptokurtic (slim or long-tailed) variables are those with kurtosis values greater than three, and GDP was shown to be leptokurtic.

A statistical test called the Jarque-Bera statistic was used to determine whether the series were normally distributed or not. It was discovered that the variables were all regularly distributed. The assumption behind this is that all probability values were discovered to be higher than 0.05.

4.2. Unit Root Test Result

The unit root test was used to determine the stationary status of the variables using the Augmented Dickey - Fuller (ADF) technique. This was done to make sure that the data for the variables used in the model do not vary excessively and prevent erroneous regression findings. Results from estimating regression using non-stationary

data series can sometimes be erroneous and unreliable. As a result, Table 2 shows the outcomes of the unit root tests:

Table 2. Summary of unit root test results of 1st and 0 order test result of the variables.

Variable	PP test statistics	Critical values	Order of integration
GDP	-4.155252	-3.5620012**	I (0)
NIF	-3.142250	-3.557543**	I (1)
FGF	-3.966352	-3.557759**	I (1)
SF	-4.369988	-4.222571*	I (0)

Note: The tests include intercept and trend; * significant at 1%; ** significant at 5%.

Unit root test was carried out using Phillips Perron (PP) technique to determine the stationary state of the variables in order to make sure that the data for the variables utilized in the model do not fluctuate unnecessarily.

Table 1 lists the outcomes of the unit root testing.

Two of the variables (GDP and SF), according to the PP test, were discovered to be stationary at levels and at 5% and 1% level of significance, respectively. As a result, levels for the two relevant variables were rejected by the unit roots PP test. NIF and FGF, however, were discovered to be stationary at the first difference at the 5% level of significance. The variables pass the requirement for employing the limits approach to the co-integration test because they were all discovered to be stationary at various orders.

4.3. Bounds Cointegration Test

The statistical inference that there is a long-term relationship between economic variables is called cointegration. Thus, using the bound test technique to co-integration, the paper investigates the linear combination of the non-stationary variables discovered in the unit-root test. The outcome is shown in Table 3.

Table 3. Co-integration result showing the bound test.

F-bounds test		Null hypothesis: No levels relationship		
Test statistic	Value	Signif.	I (0)	I (1)
F-statistic	5.055705	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

The outcome showed that there is co-integration between the variables. At the 5% level of significance, the fstatistics value of 5.055705 is bigger than the lower and upper bound values. The presence of a long-run equilibrium link between the sovereign wealth fund and economic development in Nigeria between 2015 and 2020 is therefore sufficiently demonstrated. The outcome consequently demonstrates that the sovereign wealth fund has a long-term impact on economic growth in Nigeria during the study period.

Table 4. Auto-regressive distributive lag-error correction regression result.

ARDL error correction regression

Dependent variable: DLOG(GDP)

Selected model: ARDL (3, 3, 3, 3)

Case 2: Restricted constant and no trend

Date: 08/12/22 Time: 15:38

Sample: 2015Q1 2020Q4

Included observations: 21

ECM regression

Case 2: Restricted constant and no trend

Variable	Coefficient	Std. error	T-statistic	Prob.
DLOG(GDP(-1))	0.007137	0.094780	0.075305	0.9429
DLOG(GDP(-2))	-0.279421	0.107479	-2.599776	0.0483
DLOG(NIF)	0.034460	0.133945	0.257269	0.8072
DLOG(NIF(-1))	-0.302357	0.142037	-2.128728	0.0865
DLOG(NIF(-2))	-0.242821	0.138900	-1.748173	0.1409
DLOG(FGF)	-0.489069	0.169259	-2.889468	0.0342
DLOG(FGF(-1))	1.046799	0.193517	5.409331	0.0029
DLOG(FGF(-2))	1.355017	0.203853	6.647027	0.0012
DLOG(SF)	0.341420	0.143640	2.376917	0.0634
DLOG(SF(-1))	-0.814711	0.167271	-4.870614	0.0046
DLOG(SF(-2))	-0.932262	0.158643	-5.876480	0.0020
CointEq(-1)*	-0.411354	0.060982	-6.745469	0.0011
R-squared	0.934801	Mean dependent var		0.020079
Adjusted R-squared	0.855112	S.D. dependent var		0.135373
S.E. of regression	0.051529	Akaike info criterion		-2.797802
Sum squared resid	0.023897	Schwarz criterion		-2.200932
Log likelihood	41.37693	Hannan-Quinn criter.		-2.668266
Durbin-watson stat	1.688068			

Note: * p-value incompatible with t-Bounds distribution.

Future generation fund, Nigeria infrastructure fund, Stabilization fund, economic growth, gross domestic product -0.411354.

Table 4 presents, which according to expectation in the result, the Error Correction Term (ECT) parameter is negative, smaller than unity, and significant at the 5% level. If there is any disequilibrium in the system, the ECT value of 0.411354 indicates that it takes an average speed of 41.13 percent to return to the long-run.

The coefficient of determination (R-square) was utilized to demonstrate the model's capacity for explanation and the accuracy of the estimates. It shows how the model has a good match for prediction. It revealed that NIF, FGF, and NIF were each responsible for 93.48 percent of changes in economic growth, with the error term accounting for the remaining 6.52 percent of unaccounted variations. The Durbin Watson (DW) statistic of 1.688 provided by the model also suggested that the variables do not autocorrelate (which fell within the acceptable range of 1.5 and 2.4). This demonstrated that the estimations were objective and trustworthy for making policy choices.

4.4. Statistical Test of Hypotheses

The three hypotheses proposed in this study were examined using the Wald F-statistic test and its related p-values because the level of significance for the study was 5% (for the two-tailed test) (probability value). The variable

in question is indicated to be statistically significant at the 5% level if the PV is less than 5% or 0.05 (i.e., PV 0.05); otherwise, it is not significant at that level.

Hypothesis One: H01: Nigerian Infrastructural Fund has no significant effect on Gross Domestic Products in Nigeria.

Table 5. Results of Wald test on Nigerian infrastructural fund and GDP.

Test statistic	F-value	Df	Probability
F-statistic	4.52211	(3, 2)	0.00152
Chi-square	21.98571	3	0.00000

The computed F-value for the Nigerian Infrastructural Fund was 4.52211, and its probability value was 0.00152, according to the Wald-test in Table 5. The initial null hypothesis (H01) was rejected since the probability value is less than 0.05 at the 5% level of significance, which places it in the rejection region. The outcome consequently demonstrates that Nigeria's Gross Domestic Product is significantly impacted by the Nigerian Infrastructural Fund.

Hypothesis Two: H02: Future Generation Fund has no significant effect on Gross Domestic Products in Nigeria.

Table 6. Results of Wald test on future generation fund and GDP.

Test statistic	F-value	Df	Probability
F-statistic	4.669633	(3, 3)	0.00169
Chi-square	24.11477	3	0.00014

Table 6's Wald-test results showed that Future Generation Fund's computed F-value was 4.669633 and its probability value was 0.00169. The analysis rejects the second null hypothesis (H02) and comes to the conclusion that the Future Generation Fund significantly affects Gross Domestic Products in Nigeria since the probability value is also less than 0.05 or the five percent level of significance and fell in the rejection zone. *Hypothesis Three: H03: Stabilization Fund has no significant effect on Gross Domestic Products in Nigeria.*

Table 7. Results of Wald test on stabilization fund and GDP.

Test statistic	F-value	Df	Probability
F-statistic	5.225221	(3, 4)	0.0011
Chi-square	68.02593	3	0.0000

The Wald-test in Table 7, indicated that the F-value for the relationship between Stabilization Fund and GDP was found to be 5.225221 and its probability value is 0.0011. Since the probability value is less than 0.05 or 5percent level of significance, and fell in the rejection region, we reject the third null hypothesis (H03). The study concludes that Stabilization Fund has a significant and positive effect on Gross Domestic Products in Nigeria.

4.5. Robustness Test Results

To determine the reliability of the findings, the article ran a number of post-estimation diagnostic tests. We performed tests for heteroscedasticity, normality, and the serial correlation Lagragian Multiplier test (for higher order autocorrelation). Any one of these diagnostic tests must have a probability-value (p-value) greater than 0.05, or 5% threshold of significance, in order for the null hypothesis to be accepted. The residual test results are therefore presented in Table 5:

Table 8. Robustness (Test) results.

Tests	Outcomes
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		Coefficient	Probability
Breusch-Godfrey-serial-correlation test	F-stat.	1.885522	0.1985
Heteroscedasticity-ARCH test	F-stat.	1.369990	0.2577
Normality test	Jarque-bera	0.566987	0.1258

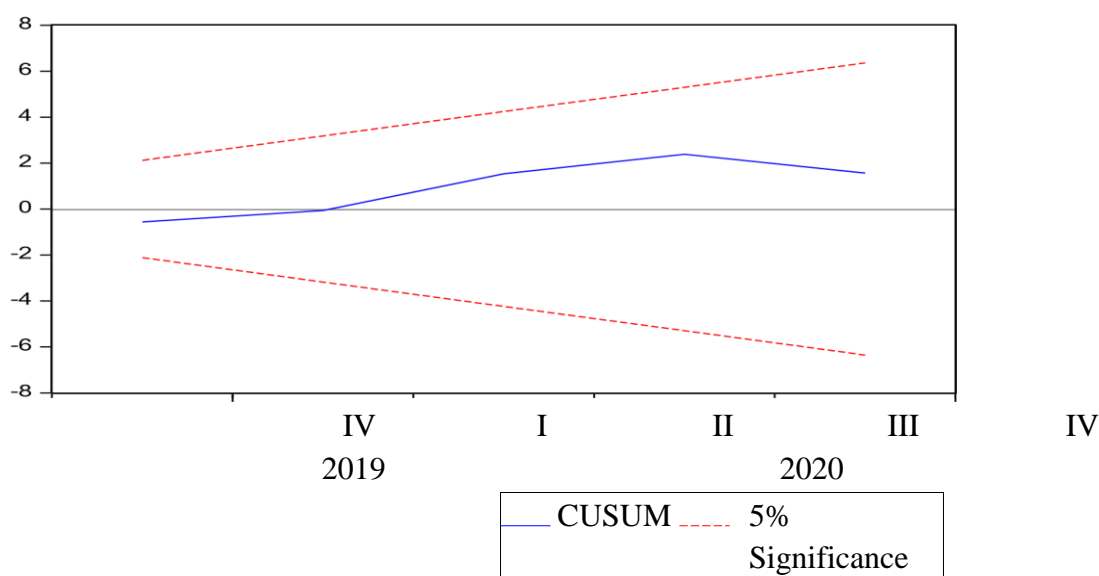


Figure 1. CUSUM stability.

The results of the ARDL model, which are shown in Table 8, showed that there were no indications of serial correlation or heteroskedasticity in the estimated ARDL model, as both of their p-values (0.1985 and 0.2577) were determined to be higher than 0.05 or 5%. According to the Jarque-Bera test for normal distribution, the outcome also attained a normal distribution with a bell-shaped symmetrical distribution at the 5% significance level. This was represented by the Jarque-bera probability value of 0.1258, which was discovered to be greater than 0.05.

The regression equation is correctly defined and the model is stable, according to the Cumulative Sum (CUSUM) stability test in Figure 1, because the plots of the charts are within the critical bounds at the 5% level of significance.

5. Discussion of Findings

According to study results, Nigeria's gross domestic product is significantly impacted by the Nigerian Infrastructural Fund. It was inferred that carefully thought out domestic investment may support economic expansion and diversification away from risky reliance on a single, dominant resource. The results of this analysis contradict those of Oleka et al. (2014) who found a statistically significant but negative relationship between SWF and economic growth in Nigeria. Additionally, the analysis demonstrated that Nigeria's Gross Domestic Product is significantly impacted by the Future Generation Fund. The implication of this finding is that keeping a sovereign wealth fund could help the nation dramatically lessen the culture of careless spending associated with boom-era incomes. This is consistent with the adage that "saving for a rainy day" has been used for ages.

Above all, the study discovered that Nigeria's Gross Domestic Product is significantly impacted by the stability Fund. The findings have important implications for the Nigerian economy, which still depends on a single source of income and is susceptible to declines in resource revenue. The stability fund's presence acts as a safety net against ensuing revenue shortfalls.

6. Conclusion and Recommendations

This analysis showed how the GDP of Nigeria increased from Q1 2015 to Q4 2020 as a result of the Nigerian sovereign wealth fund. The research's theoretical and empirical underpinnings were examined in this publication. The Sovereign Wealth Fund has gained widespread recognition in the contemporary global economy, particularly in developed economies, and is now seen as a legitimate path to economic growth, according to the empirical study. This is consistent with research findings that indicated the Nigerian economy was positively and significantly impacted by the infrastructure fund, future generation fund, and stabilization fund. The analysis comes to the conclusion that Nigeria's sovereign wealth fund has a major impact on the country's ability to sustain economic growth. Because of this, it is crucial that all levels of Nigerian government ensure that the investment is not mismanaged. Only by demanding transparency and responsibility in the management of the fund can this be possible. The following suggestions are made in light of the empirical findings:

- i. If the government wishes to continue the expansion of the economy and the improvement of Nigerians, adequate oversight and monitoring of the infrastructure fund should be required and pursued. This can be accomplished by making sure that its business is managed transparently, exactly like in the world's wealthy nations, and without getting bogged down in politics.
- ii. The public, investors, and Nigerian governments at all levels should support and expedite efforts to catch up with the worldwide movement focused toward realizing the relevance of the future Generation Fund in order to reclaim the lost ground. This will contribute to greater social, economic, and human development as well as increased economic revenue creation.
- iii. To achieve stable and slow economic progress, Nigeria should observe how stabilization funds are managed in wealthy nations. State and local governments should be permitted to establish and manage their own SWFs independently for sustainable economic growth rather than the federal government making it a national concern.

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