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Public Expenditure Pattern and Economic Performance: The Nigerian Analytical Evidence

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ABSTRACT:

Thrust by the gains of counter-cyclical policy inseveral economies but the persistent economic realities in Nigeria, despite the policy;this study looked at how Nigeria's economic performance was affected by patterns in public spending. Econometric model and estimation procedures were employed to analyse the time series data obtained from Central Bank of Nigeria reports (1981-2022). The analytical procedures include: Descriptive statistics to ascertain the normality of the distribution, Unit root tests was conducted with Augmented Dickey Fuller and Phillips-Perron parameters to prove the Stationarity of variables as integrated at first difference; Johansen cointegration model was used to estimate the existence of long run equilibrium relationship between the public expenditure pattern (capital and recurrent) and real gross domestic product (RGDP). The study also employed Parsimonious Error Correction model (PECM) to estimate the drift manner of the real GDP from the long run equilibrium relationship due to change in public expenditure pattern and the speed rate at correctional adjustment. The results indicate the presence of long run equilibrium relationship between the public expenditure dimensions and real gross domestic product. It also revealed appropriate and significant error correction estimation with coefficient (-0.129380) indicating an adjustment speed of the real GDP at disequilibrium back to the relationship as 12.9%. Specifically, the hypothetical test result on capital expenditure and real GDP suggests positive effect but insignificant. Similarly, recurrent expenditure affected real GDP positively but insignificantly. Thefindings portray trend in the short run period and tends to justify the theoretical hypotheses. However, it is concluded that public expenditure pattern has positive but insignificant effect on economic performance in Nigeria. Therefore, it is recommended for policy action of government to implement fiscal expenditures that would achieve infrastructures that impact on the economy through multiplier effect and not invest in spending that only increase aggregate demands of economic units which may cause inflation that deplete economic performance.

KEYWORDS:

Counter-cyclical, Policy, Expenditure, Performance, Economy

Introduction

Fiscal policies are implemented to regulate the performance of the economy. The decision of the economic planners could aim at an expansionary or contractionary trend. Based on it, fiscal expenditure patterns are implemented toexpand or contract aggregate demand, thesectorial volume of economic activities, redistribute income and accelerate thegrowth of economy.According to Aluthge, Jibir, and Abdu (2021), the majority of industrialised and emerging nations currently employ public spending to impact the structure of national income, direct resource allocation in preferred areas, and improve income distribution. During the periods in our study, government spending pattern had consistently increased financial injection in capital and recurrent concerns to the extent of debt financing but the resultant economic performance indices often reveal diverse outcome. The observed trend perhaps justified the views of some economic theorists. According to Rahman, Nath, Siddqu and Hossain (2023), Keynes economic theory portrays economic growth in a country torise as a result of an increase in public sector expenditure. Consequently, Muritala and Taiwo(2012) submit that Keynesians viewsuch spending as intervention toenhance aggregate demand, control inflation, unemployment, balance of trade and stabilize economy. Conversely, other theorists among classical and monetary economists argued differently. Milton Friedman argues on the superior role of monetary policy over fiscal policy that government increased spending stimulates inflation. Similarly, Ezirim, Eniekezimene, Amuzie, and Charles-Anyaogu (2014) confirmed that it has been postulated that there would be pressures on prices resulting from government spending that exceeds the supply of goods and services in the economy. This is based on the notion that additional funds would be added to the system, which would eventually end up in the hands of consumers of both productive inputs and outputs. This would almost certainly lead to an overabundance of demand. Again, some classical economists observed that government intervention spending lead to inefficiencies and crowd out private investment to disrupt normal market competiveness resulting in market failure and reduced economic performance.

For decades, Nigerian government had consistently increased fiscal expenditures. This ought to translate in increased investment in infrastructural facilities, socio-economic amenitiesand social goods to boost agricultural output, manufacturing output, technological outcomeand other sectorial productivity which culminate in multiplier effects to stimulate robust macroeconomic output; such as: food security, enhance employment,income redistribution,inflation control,favourable balance of trade etc. However, the reality points at excessive importation over exportation, unfavourable balance of payment, high unemployment rate, high inflation rate, devaluation of currency, inadequate social goods, high poverty rate, food insecurity, high debt financing, low life expectancyamong other anomalies that imply recession.Spurred by these Nigerian economic realities despite the rising annual fiscal expenditures; the need for our study.

Obviously, some empirical studies had been conducted to ascertain the nature of the relationships between the variables; most of them were focused on expenditure and economic growth which outputs are in short run perspective with diverse conclusions (Ajayi and Nwogu, 2023; Aluthge*et al*., 2021; Ebipre and Eniekezimene, 2020; Ayeni and Omobude, 2018; Abutu and Agbede, 2015; Nworji, Okwu, Obiwuru, and Nworji, 2012; Loizides and Vamvoukas, 2005).To the best of the authors' knowledge, some pertinent research on government spending in the long run evaluated economic development using the experiences of developed nations and a small number of developing nations in Africa. The Nigerian experience is largely recycled around economic growth from contribution to the existing body of empirical literature with conflicting conclusions. These left an empirical gap in

literature which our study filled by examining the short and long run effects of fiscal expenditure and the economic performance based on the Nigerian evidence with robust analytical view with parsimonious error correction model and fully modified least square test.Consequently, the study aim to examine the effects of public expenditure on economic performance in Nigeria. The specific objectives resulted in two hypotheses tested:

$H0_1$: Capital expenditure has no effect on real gross domestic product in Nigeria,

$H0_2$: Recurrent expenditure does not have effect on real gross domestic product in Nigeria.

Literature Review

Conceptual, theoretical and empirical issues ofpublic expenditure and economic performance were reviewed.

Public expenditure is an aspect of government fiscal policy instruments used to manage and regulate the economy towards predetermined macroeconomic objective. Garry and Valdivia (2017) radically argued that government use spending patterns to mitigate the impact of dwindling economic activity, trade and changing patterns of consumption. Agbonkhese and Asekome (2014) affirmed that government expenditures were usually broadly categorized into recurrent and capital expenditures. Government capital expenditure, according to Ezirim et al. (2014), is public spending on investment goods, which implies spending on things that last for a while and may include investments in projects like hospitals, schools, equipment, and roads; on the other hand, government recurrent expenditure is defined as daily spending on recurring items like salaries and wages, stationery, facility maintenance, and consumables in general. The effects of government expenditure on economic performance had been hypothesized by different economic theorists on relative perspectives.Ajayi and Nwogu (2023)observed that the relationship between government expenditure and economic growth dates back to centuries; however, there have been two conflicting schools of thought, namely the Wagner and Keynesian theories.According to Olayiwola, Kum, and Bakare-Aremu (2021) Adolph Wagner hypothesized the effect of increasing public expenditure which cause rise in economic growth. Wagner believes in more industrialized economic activities to revamp economic downturn situation will cause increasing scope of government functions due to wider scope of state activities which funding requires increased public spending as private sector would not be able to provide the required fund for infrastructures as railway, road and other economic activities. These would have multiplier effects to stimulate economic performance.Similarly, Otiwu, Chukwu and Okere (2018) held that Keynes hypothesized increase public expenditure as interventionfiscal stimulus to stimulate a recessed economic in which aggregate demand and firm investment would have decline due to high unemployment rate and high prices of good and service that influence change in consumption and investment. Consequently, such increase in government spending would grow the economic due to multiplier effects.

The economic performance refers tothe efficient and optimal management of the economy. It is measured in terms economic policy objectives and macroeconomic variables such as: Economic growth, unemployment rate, inflation rate, national income, human development index, balance of trade and payment, etc. Although, Seguino (1995) criticized the conventional measures of economic performance as not reflectingthe ways that social values, human welfare, and social justice have changed in tandem with economic realities, it is sufficed in the analytical perspective of this study. The Nigerian economic performance had been assessed in the periods under review by real GDP. In

1981 real GDP was ₦19, 549.56Billion, 1991 real GDP was ₦21, 539.61Billion, 2001 real GDP was ₦26, 658.62Billion, 2011 real GDP was ₦57,511.04, and 2021 real GDP was ₦72,393.67. The direction of performance in series of decade (Tenth year view) indicates positive outcome by succeeding decade outperforming the previous decade.

Theoretical Framework: Two theories stand out among several in empirical literature to explain the relation between public expenditure and economic performance.TheWagner and Keynesian theories of public expenditure explained the relation.According toGhazy, Ghoneim and Paparas (2021), Adolph Wagner in 1883 advanced propositions why the government's activities increased due to expanded state affairs which result in increased government's expenditures. First, the public sector tends to replace the private sector as the economy grows increasingly industrialized and urbanized. Consequently, the economy would require additional regulatory agencies to oversee contracts and maintain law and order. Second, income-elastic expenditures rise with national development. The theorist emphasizes on education and culture expenditures as pivotal, demonstrating that the government would be better at funding and overseeing these initiatives than the private sector. Third, high technological requirements in the manufacturing industry would be large for private enterprises to undertake, as it requires huge capital investments; hence the government handles it with increasing expenditure.Wagners law implies a causal nexus between increasing government expenditure and economy. As the economy expand due to enlarged state functional purview on industrialization and social welfare, government fiscal expenditure increases in share compared to private sector input and it result in positive economic performance.The second theory of Keynesian school of thought projects similar perception. Keynes (1936) hypothesizes the causal link between fiscal expenditure stimuli in recess economy to increase aggregate demand, firm investment and boost Gross national product (GNP). The theorist believes in fiscal measures to intervene in dwindling economic circumstances to stimulate consumption, investment, employment, stabilize rising prices of goods and services by enhanced productivity to achieve multiplier effects of government increased spending which culminates in positive national output. These underpinned theories explained the link between government expenditure and economic performance in the light of need to respond to the economic stimulus and achieve positive output.

Empirical Reviews: Some empirical studies exist in literature which tend to support, opposite or justify the theoretical viewpoints. For instance, Agbonkese and Asekome (2014) assessed the impact of public expenditure on the growth of the Nigerian economy, to ascertain the relationship between gross domestic product and government expenditure using the Ordinary Least Square analytical technique. Nguyen (2019) examined the correlation between public investment, current expenditure and payment for government debt, and economic growth in short-run and long-run estimations with the analytical aid of Autoregressive Distributed Lag (ARDL) for time series. The results indicate that government expenditure has significant effect on economic growth in Nigeria and Vietnam respectively.Ebipre and Eniekezimene (2020)investigated the impact of government expenditure on economic growth in Nigeria for 1981-2016.The Ordinary Least Square (OLS) technique was employed to analyze the time series data. Results showed thatgovernment capital expenditure was inversely related to real GDP both in short run and in the long run. Government recurrent expenditure was positively related to real GDP both in the long run and in the short run.Aluthge*et al*.(2021) studied the impact of Nigerian government expenditure on economic growth using time series data for the period 1970-2019.The researchersemployed Autoregressive Distributed Lag model to analyze the data. The result revealed thatcapital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact

on economic growth both in the short run and long run.Some of the observed results totally agreed with the perspective of Wagner and Keynes in the relations between the variables while others partly supported because of the dimensions of capital or recurrent expenditures partly relates with GDP.

Conversely, some empirical studies merely verified the views or absolutely opposite the hypotheses of Wagner and Keynes. For example: Nworji *et al*. (2012) examined the effect of public expenditure on economic in Nigeria for the period 1970 – 2009. Ordinary Least Square multiple regression model was employed to ascertain the causal relationship between government expenditure and economic growth. The result showed that capital and recurrent expenditure on economic services had insignificant negative effect on economic growth.Ajayi and Nwogu (2023) considered the link between government expenditure and economic growth in Nigeria for1985-2020. Autoregressive Distributed Lag Bounds Cointegration test was used to ascertain the existence of long run relationship between the variables. The results showed that the real gross domestic product and government capital expenditures had no discernible link. Additionally, there is a long-term inverse and negligible link between the real GDP and the rate of inflation. Sharma, Deepali and Ravi (2021) examined Wagner's law validity in India for the period 1980−2020 with income growth from the public expenditure rises. Data were analyzed withco-integration and vector error correction mechanisms. The results indicate a positive elasticity of growth rate in expenditure with respect to the first difference of per-capita GDP; thus, we found support for Wagner's hypothesis.Dogo, Okpanachi, Muhammad, Umolu and Ajayi (2013)attempted an empirical validation of Wagner's law in Nigeria using quarterly data for the period 1982 to 2012. Fully Modified Ordinary Least Square regression technique was used for analysis.The results corroborated the Goffman's version of the Wagner's law in Nigeria. Olayiwola*et al*.(2021)examined the connection between public health expenditure and gross domestic product in Nigeria within the context of Wagner's theory of ever-increasing State activities for 2000-2016. .Causality between public health expenditure and GDP was done with the granger causality test while the co-integration test was used to examine the existence of a long-run. The Granger-causality test results indicated a long-term association between public health spending and GDP, but neither a single-directional nor a bidirectional relationship existed. Wagner's theory was therefore found to be unable to explain Nigeria's link between public health spending and economic growth

The empirical results of studies from different countries' background and periods left largely inconsistent conclusions on the issue. Given this circumstance, the task of further inquiry is inevitable, a gap this study filled.

Methodology

Below is shown the econometric model that gave rise the estimable equations used to examine the relationship variables identified in the hypotheses tested. Data for the study is time series secondary in nature obtained from Central Bank of Nigeria (CBN) for 1981 through 2022.The analytical procedure involves descriptive statistics of the data before the specified model was estimated. Stationary status of the data series was checked by Augmented Dickey Fuller and Phillips Perron statistic tests. These are followed with Johansen Cointegration test to ascertain long-run effects. Also, Parsimonious Error Correction Model (PECM) was done. The estimation results are summarized on tables 1 through 5 and the empirical computations were done usingEviews software.

Model Specification:

The hypothesized relation between economic performance and public expenditure is expressed with a functional equation of the model. From empirical literature, the direction of relation between economic performance (EP) and Total public expenditure (TPE) is expressed. A priori, economic performance is hypothesized to be a positive function of total public expenditure. Therefore,

$EP_t = f(TPE_t)$…….equ.1

The economic performance was redefined as real gross domestic product (RGDP) while total public expenditure was reclassified as public capital expenditure (PCE) and public recurrent expenditure (PRE) which served as proxy for the study. It modified the functional equation as:

$RGDP_t = f(PCE_t, PRE_t)$…….equ.2

The functional equation 2, is expressed in linear regression form as:

$RGDP_t = \beta_0 + \beta_1 PCE_t + \beta_2 PRE_t + e_t$ ……equ.3

Where: $RGDP_t$ = Real GDP, β_0 = intercept, $\beta_{1\text{-}2}$ = Variable coefficients, e_t = Stochastic error term.

It is necessary to recall that some economic and financial relations are not usually linear as assumed above. Given that circumstance, the assumption of linearity as in the expressions above equation (3) may have accommodated the possibility of non-linear situation. Hence,we re-specify and transform equation (3) to expression (4) in a log-linear form following the logarithmic procedure to derive equ.(4) as follows:

$LRGDP_t = \alpha_0 + \alpha_1 LPCE + \alpha_2 LPRE + \mu_t$…….equ.4

Where: $LRGDP_t$ = Log real GDP, α_0 = intercept, $\alpha_{1\text{-}2}$ = variable coefficients, μ_t = Stochastic error term.

Results and Discussion

Descriptive statistics of variables: To ascertain the normality of distribution.

Table 1: Descriptive statistic of variables (RGDP, PRE and PCE)

	RGDP	FRE	FCE
Mean	38516.15	2505.525	852.9710
Median	28331.71	638.0500	336.3500
Maximum	74639.47	15553.55	6335.580
Minimum	16048.31	4.800000	4.100000
Std. Dev.	20878.15	3993.351	1382.741
Skewness	0.534889	2.020467	2.471683
Kurtosis	1.640470	6.114054	8.693635
Jarque-Bera	5.237303	45.54635	99.49511
Probability	0.072901	0.000000	0.000000

Sum	1617678.	105232.1	35824.78
Sum Sq. Dev.	1.79E+10	6.54E+08	78390931
Observations	42	42	42

The results on Table 1, show that real gross domestic product (RGDP) is not normally distributed as Jarque-Bera probability value (0.0729) is higher that 5% level of significance. But recurrent expenditure(PRE) and capital expenditure (PCE) are normally distributed at probability value 0.0000 and 0.0000 respectively which is less than 5% level of significance. It implies that the series do not contain unit root and stationary in nature.

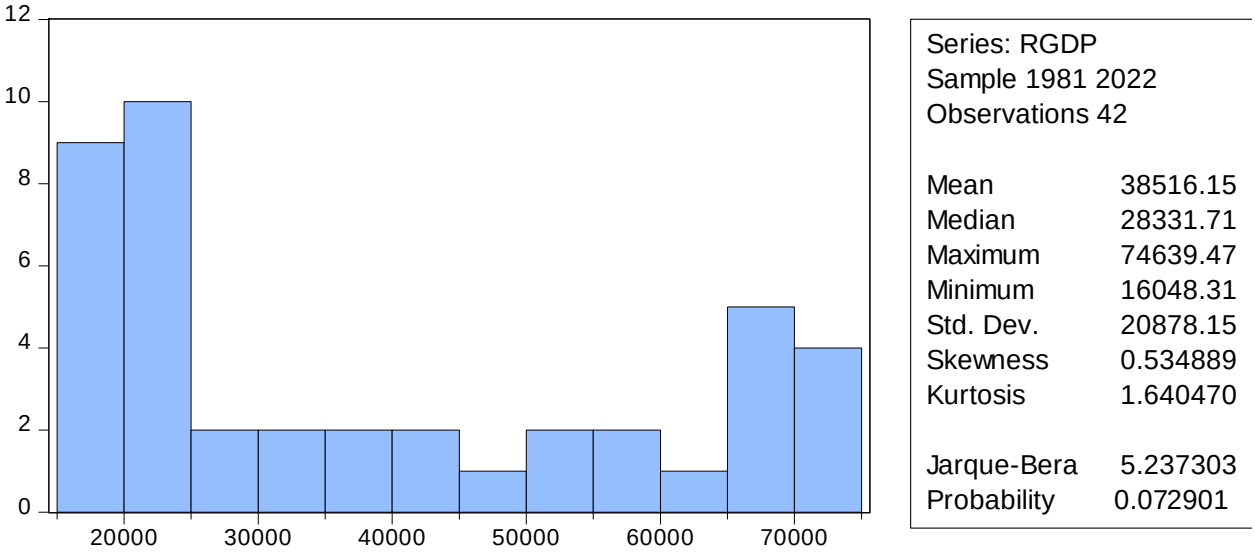

Figure 1: The Histogram of RGDP, PRE and PCE also suggests that RGDP is not normally distributed. But the fiscal recurrent and capital expenditures are normally distributed.

Unit Root test: To ascertain the stationarity status of variables.

Table 2: Unit root test of the logarithmic figures of the variables

Variables	Augmented Dickey Fuller(ADF)			Phillip Perron(PP)		
	Level	1st Diff	2nd Diff	Levels	1st Diff	2nd Diff
LRGDP	0.9919	0.0025	0.0000	0.9820	0.0001	
LPCE	0.8964	0.0000		0.8961	0.0000	
LPRE	0.6612	0.0000		0.6955	0.0000	

Table 2: The result of the unit root test indicated that all variables are integrated of order one or stationary after thefirst difference 1(1), using Phillips-Perron test statistic. Under this circumstance, the Johanson Co-integration test was considered appropriate for long run test.

JohansonCointegrating Test: To check the long-run equilibrium relationship in the model.

Table 3. Johanson Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.448229	23.78488	21.13162	0.0207
At most 1	0.085136	3.559189	14.26460	0.9027
At most 2	0.051449	2.112773	3.841466	0.1461

Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The result with Max-Eigen Statistic indicates one cointegrating equation. Results showed that Max-Eigen Statistics (23.78488) is higher than critical value (21.13162). it is significant at probability value 0.0207 compared to 0.05 level of significance.

Parsimonious Error Correction Model: To ascertain adjustment from disequilibrium.

Table 4: Summary of Parsimonious Error Correction Model

Dependent Variable: D(LRGDP)
Method: Least Squares
Date: 05/29/24 Time: 16:16
Sample (adjusted): 1983 2022
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LRGDP(-1))	0.297743	0.142575	2.088320	0.0439
D(LFCE(-1))	0.020704	0.024666	0.839371	0.4068
D(LFRE(-1))	0.026973	0.030276	0.890903	0.3789
ECM(-1)	-0.129380	0.058404	-2.215260	0.0332

R-squared	0.054878	Mean dependent var	0.035255
Adjusted R-squared	-0.023882	S.D. dependent var	0.049848
S.E. of regression	0.050439	Akaike info criterion	-3.041445
Sum squared resid	0.091589	Schwarz criterion	-2.872557
Log likelihood	64.82890	Hannan-Quinn criter.	-2.980380
Durbin-Watson stat	2.218493		

The result on table 4, indicates that the error correction model coefficient is the expected negative sign (-0.129380) and it is significant at 5percent level compared to the probability value (0.0332). It implies that the drift or disequilibrium of the real GDP in the past periods due to the changes of the independent variables will be adjusted or corrected at the speed rate of 12.94%. The estimated coefficient of determination (R-Square) suggests that about 5.5 per cent (0.054878) of the variations in the real GDP is explained by change in the public capital and recurrent expenditures. The Durbin-

Watson Statistics value 2.2184 suggested there was no serial or Autocorrelation problems with the model estimation.

The estimation results also indicate that public capital expenditure has a positive effect on real GDP by the coefficient value of (0.020704), although the relationship is insignificant with probability value (0.4068) at (0.05) level of significance. The outcome implies that one per cent change in public capital expenditure culminates in (2.07%) change in real GDP ceteris paribus. Similarly, recurrent expenditure impacts positively on real GDP with coefficient of 0.02697 but insignificant at probability value of (0.3879) compared against (0.05) level of significance. The nexus between the variables suggests that every 1% change in recurrent expenditure results in 2.7% change in the behaviour of the real GDP, although insignificant.

Conclusion and Policy Recommendation

The study examined the effects of fiscal expenditure pattern on the economic performance of Nigeria from 1981 through 2022. Econometric model and estimation procedures were employed for empirical analysis.The procedures include: Descriptive statistics to ascertain normality of the distribution by Jarque-Bera test. Also, Stationarity status of variables was checked by Unit root test parameters of Augmented Dickey Fuller(ADF) and Phillip-Perron. The results justified all series to integrate at first difference. Johansen Cointegration estimation was employed to ascertain the existence of long run equilibrium relationship between real GDP and both expenditure pattern.The results indicate that there exist one cointegrating equation and a long run equilibrium relationship between the real GDP and the government expenditure variables. To further verify effects between variables, Parsimonious Error Correction Model estimation was used establish the drift manner of real GDP from equilibrium and the speed of adjustment of any levels of disequilibrium. The results indicate an appropriate and significant error correction model with ECM (-0.129380). It also revealed positive but insignificant effects of public expenditure variables on real GDP.Recall, the first hypothetical proposition was that public capital expenditure has no effect on real gross domestic product in Nigeria. The results reveal that public capital expenditure has positive effect on real gross domestic product in Nigeria but it is insignificant. Similarly, the second hypothetical standpoint has it that recurrent expenditure does not affect the real gross domestic product in Nigeria. The finding showed that recurrent expenditure affect real gross domestic product positively but insignificantly. The direction of findings agrees with the theories of Wagner and Keynes since increase in government spending culminates in positive effect on real GDP. However, the effect on economic performance is relative as it is insignificant. The implication of the findings is that holding other macroeconomic factors constant, increased government expenditures does not impact significantly on the economic performance of Nigeria. In other words, the growth rate of the economy in Nigeria is not stimulated adequately by increased expenditures as driver of economic performance because it may have enhanced aggregate demand and consumption of economic units propelling pressure on prices of goods and services to cause unhealthy inflation which invariably deplete the performance of the economy. Hence, it is recommended that further fiscal policy implementation on capital and recurrent expenditure should be guided with macroeconomic objective to achieve infrastructures that will cause multiplier effects to grow the economy significantly and not to stimulate aggregate demand of economic units.

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