Education Expenditure and Human Capital Development in Nigeria (1981-2018)

By

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Abstract
This study evaluates education expenditure and human capital development in Nigeria using time series data obtained from World and CBN Statistical Bulletin covering a period of 38 years from 1981-2018. The data collected were analyzed using the Vector error correction model (VECM). Augmented Dickey Fuller (ADF) unit root and ARDL Bound tests were all performed. Findings revealed that a proportionate change in government education expenditure and human capital development lead to a more than proportionate change in economic growth of Nigeria. The study recommended that the National Assembly members should review the budget estimate and offer adequate finance the educational sector. Public officers should also consider significant areas of needs encompassed in the United Nations' Sustainable Development Goal, UNSDG, where education is one of the most important priorities and focus areas.

Keywords: *Education Expenditure; Human Capital Development; Economic growth*
Word Counts: *133*

Introduction

Education constitutes the very foundation of meaningful socio-economic, political growth and development of any nation (Nwachukwu, 2014). Education also contributes immensely to technological development both in terms of the acquisition, adaptation, capital widening and deepening (Ejedegba, Olele & Omotor, 2017). There is a need for educational funding in other to enhance economic growth and increase human capital development in Nigeria.

Investment in education is an essential process that must be attained by all nations, most especially developing countries like Nigeria. Oweh (2013) affirms that education sector in Nigeria still faces the problem of inadequate funding with regards to the benchmark advocated by UNESCO that all member countries ought to channel at least 26 percent of their annual budget to education alone.

Ifionu and Nteegah (2013) assert that the budget is a key government tool for the implementation of social, political and economic policies and priorities. Despite its importance, the budgeting process in Nigeria has been characterized by policymakers rather than a participatory approach to goal design and priority

setting (Amakom & Obi, 2007). Despite the humongous size and rapid increase in the annual budget, the allocation to the educational sector has steadily been depreciating over the years.

The United Nations International Children's Emergency Fund, UNICEF, in one of its reports disclosed that Nigeria has the highest number of children out of school in the world with 10.5 million children not being educated. It is very sad that our best University in Nigeria only ranks "401" in the Times Higher Education World University Rankings. (EFA) 2000-2015: Achievements and Challenges', the United Nations Educational Scientific and Cultural Organisation, (UNESCO) recommended that 15 to 20 percent should be allocated to education in the budgets of developing countries. It is proposed that government should spend between four per cent and six per cent of Gross National Product (GNP) on education.

The decline in the Nigerian budgetary allocations for education in the 2020 budget is worrisome as most funds are allocated to security, works and housing. The capital expenditure on education in 2020 is N84bn compare to works and housing N315bn, power N129bn and transport N121bn (BudgiT Report. 2020). Even the 2019 budget for education fell below the 15 to 20 per cent minimum recommended by UNESCO to developing countries. Despite this UNESCO recommendation, the education sector did not reach the 15 to 20 percent benchmark in 2019 with N620.5 billion (about 7.05 percent) of the Federal budget. Over the years, the allocation of Nigeria's education budget has hovered between five percent and seven percent, which is strongly believed to be inadequate to curb the threat of low levels of education, a large percentage of which is insufficient (Saad, 2019).

The main objective of these study is to evaluate the relationship between education expenditure and human capital development in Nigeria from 1981 to 2018, while the specific objectives of the study are to; analyze the effect of education expenditure on human capital development in Nigeria and evaluate the effect of education funding on economic growth in Nigeria. The outcome of this study will serve as a guide to policy makers in the Ministries of Finance, Education and the National Planning Commission as well as other relevant government department and agencies interested in the development of the education sector in particular and the economy in general. It will also serve as a useful reference for future researchers in this field.

Hypotheses of the Study

The following hypotheses were tested in this study.

i. Education expenditure has no significant effect on human capital development in Nigeria.

ii. Education expenditure and human capital development has no significant effect on economic growth in Nigeria.

Scope of the Study

The study is based on data from Nigeria between 1991 and 2018. Government education funding could be measured in various ways: - ratio of education expenditure to total government expenditure; ratio of education expenditure to gross domestic product; per capita expenditure on education; total absolute value of budgetary allocation to education; and proportion of education expenditure devoted to the three levels of education.

Also, the different measures of Human capital development include gross fixed capital formation, enrolment rate, completion rate and average years of schooling. This study adopts gross fixed capital formation and enrolment rate i.e. primary school enrolment and tertiary school enrolment.

Conceptual Literature Review

Sources of funding Education in Nigeria

The performance of a School can be enhanced through proper funding if adequate funding is realised. It will be unfair to leave education funding to the government alone for not all schools are well funded. According to Toluwalope (2016), there are two broad sources of funding educational programs in Nigeria which are Government sources and Non-Governmental sources. However, Government sources contains Capital Grants, Recurrent Grant and special grants, while Non-Governmental sources contains School fees, Proceed from school activities, Community effort and Donations, External aids and Tertiary Education Trust fund (Tet fund).

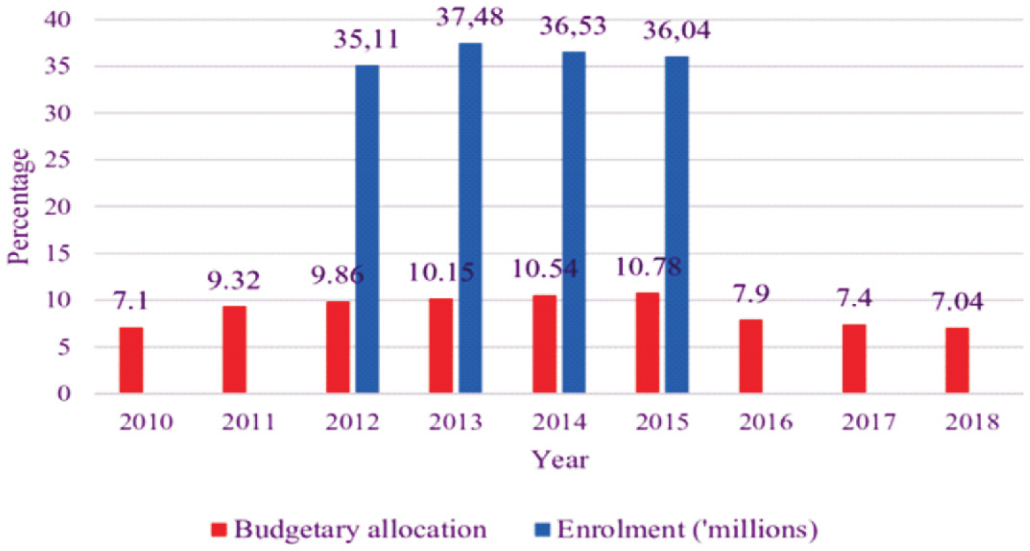
Blue haven (2019) noted that Under international law, Nigeria have the obligation to use the maximum of her available resources to realize the right to education. Even when her resources are very limited, she is obliged to prioritize certain immediate obligations, such as the introduction of free primary education and to guarantee education for all without discrimination. The future of any country lies in the quality of its education. Education remains the major tool for national socio-economic development, individual socio-economic empowerment and poverty reduction.

Unfortunately, one major problem now facing education in Nigeria is the issue of underfunding. Base on BudgiT Report (2020), the percentage budgeted for education has been declining, from 12.28% in 2015, 9.20% in 2016, 7.27% in 2017, 7.14% in 2018, 7.11% in 2019 and 6.48% in 2020. The underlying rational for public funding of education is to equip people with the requisite knowledge, skills and capacity to enhance the quality of life and increase productivity and capacity to gain knowledge of new techniques for production so as to be able to participate evocatively in the development process (Rowell & Money, 2018).

It was disclosed by Nwachukwu (2014) that as important as this sector, one issue that has limited the efficacy in the implementation of educational policies in

Nigeria is poor funding. While it is commonplace to see sound educational policies being formulated, the poor implementation of such policies has never been unconnected with inadequate funding. The financing of education is at the heart of the educational crisis in many countries of the world. In Nigeria, there appears to be a perennial crisis of funding and lack of definite structures and strategies in the education sector (Owan & Ekaette, 2019).

Table I: Percentage of Budget Allocated to Education in Nigeria and No. of School Enrolment from 2010-2018



Source: *Obayelu, Ojo & Oladoyin (2018)*

Human Capital Development in Nigeria

All developing countries were advised to invest in human capital formation of which Nigeria also participated. Nigerian government did not only start training people in schools, but formulated education policies in relation to primary, secondary and tertiary institutions toward making education workable in Nigeria (Adawo, 2011). No nation can develop beyond the quality of its education, as a nation's overall advancement is a direct function of the quality of the educational attainment of its citizens. Quality of education depends on a nation's funding of the sub-sector. Nigeria has laudable constitutional provisions to ensure complete government participation in, and financing of education. Human capacity has become a critical index of competition in the world of knowledge to the extent that the development of such capacities through training has become top priority in designing the strategic plan of business organizations (Tim & Brinkerhoff, 2008). Education is Human Capital Development (HCD), (Olure-Bank & Olayiwola, 2017).

Theoretical Review

Human Capital Theory

Arthur Lewis is said to have begun the field of development economics and consequently the idea of human capital when he wrote in 1954 "Economic Development with Unlimited Supplies of Labour." The term "human capital" was not used due to its negative undertones until it was first discussed by Arthur Cecil Pigou.

First developed by Becker and Mincer (1975), this theory explains both individuals' decisions to invest in human capital (education and training) and the pattern of individuals' lifetime earnings. Human capital theory is a theory of earnings, one of the major determinants of poverty. Individuals' different levels of investment in education and training are explained in terms of their expected returns from the investment. Investments in education and training entail costs both in the form of direct expenses (e.g., tuition) and foregone earnings during the investment period, so only those individuals who will be compensated by sufficiently higher lifetime earnings will choose to invest. People who expect to work less in the labor market and have fewer labor market opportunities, such as women or minorities, are less likely to invest in human capital. As a result, these women and minorities may have lower earnings and may be more likely to be in poverty.

Human capital theory also explains the pattern of individuals' lifetime earnings. In general, the pattern of individuals' earnings is such that they start out low (when the individual is young) and increase with age (Becker 1975), although earnings tend to fall somewhat as individuals near retirement. The human capital theory states that earnings start out low when people are young because younger people are more likely to invest in human capital and will have to forego earnings as they invest. Younger people are more likely to invest in human capital than older people because they have a longer remaining work life to benefit from their investment and their foregone wages—and so costs of investing are lower. Earnings then increase rapidly with age as new skills are acquired. Finally, as workers grow older, the pace of human capital investment and thus productivity slows, leading to slower earnings growth. At the end of a person's working life, skills may have depreciated, as a result of lack of continuous human capital investment and the aging process. This depreciation contributes to the downturn in average earnings near retirement age (Ehrenberg and Smith 1991).

Assumptions

The assumptions of human capital theory revolve around the immeasurable nature of its many forms. Economic capital can be measured by its ability to produce wages, however, an intrinsic value of human capital exists although it is not always measurable. Secondly, human capital may be stored but not fully utilized at all

times therefore making it difficult to observe and study consistently, (Simple Economic Series, 2019).

Glass and Johnson in Hands (1992) relate that the Human Capital Theory inherits the basic metaphysical assumptions from the 'hard core' of the Orthodox Economics Research Programme. These basic assumptions are Individualism, Rationality, Private property rights and Market economy.

Strengths of Human Capital Theory

The key strength of HCT is that it allows policymakers and researchers to analyze the relationships between education and training as inputs and as outputs for economic and social benefits. Another strength of HCT is that it offers a valuable lens to consider how initiatives can be created to promote the investment of individuals in their own education.

HCT can be used to address questions about the optimum levels of individual/ social investment in education, the types of most efficient investment (e.g., quality) and when the best investments are made. It is also useful to address questions about the costs and benefits of individual investments in education and the types of policy measures that reduce the cost of individual investments in education.

Limitations of Human Capital Theory

A limitation of HCT is that it presumes that education improves worker efficiency, resulting in higher individual salaries, but it offers little insight into the mechanisms by which higher wages are converted into education and training. A related limitation is that upper-level applications of HCT (e.g., at the national or state levels) treat education as a relatively homogenous input.

Human capital is central to debates about welfare, education, health care, and retirement, (Wiki, 2020).

Empirical Issues

In the works of Adewumi and Enebe (2019), they investigate the impact of government education - social expenditure (expenditure on education and health) on human capital development in West African countries. The research was conducted with variables from 13 countries in the region, which comprises of Nigeria, Ghana, Togo, Senegal, Niger, Mali, Liberia, Gambia, Guinea, Cote D'Ivoire, Burkina Faso, Guinea-Bissau and Sierra Leone; with variables from 1985 – 2016. The result obtained shows that increase government education and health expenditure have positive and significant impact on primary and secondary school enrolment. The result also shows that there is bidirectional causality between government educational expenditure and secondary school enrolment.

Subsequently, Patel and Annapoorna, (2019) uses descriptive and analytical methods to study the relationship between Public Education expenditure and

Human Resource Development of India by using the secondary data collected through the reliable sources like Ministry of human resource development and Human Development reports published by UNDP (2019). To analyzed the relationship between spending by the Government on education and improvement in quality of Human resource, Granger Causality Test is applied. The results of the study show the influence of Public education expenditure on Human Resource Development in India.

Kester and Blankson (2019) evaluates tertiary school enrolment in Nigeria: Implication for national development. It is equally discovered that while tertiary enrolment is nominally increasing, in real terms, it is abysmally nose-diving. The analyses used for the study include the Ordinary Least Square estimation techniques, unit root test, co-integration test and the variance decomposition test to analyze the empirical model of the study. The findings of the empirical investigation confirm that tertiary enrolment is veritable tools through which appreciable economic growth can be enhanced in Nigeria. The study equally observed that tertiary school enrolment and government recurrent expenditures are statistically significant in explaining growth in the Nigerian economy.

Equally, Ihugba, Ukwunna, and Sandralyn, (2019) investigate the impact of government education expenditure on primary school enrolment in Nigeria by applying the bounds testing (ARDL) approach to cointegration for the period of 1970 to 2017. The model was constructed to identify the relationship between the two variables while also considering the interaction with control variables; per capita income, remittances, investment and population growth. The bounds tests suggest that the variables of interest are bound together in the long-run when primary school enrolment is the dependent variable. Interesting observations were made which are explained by government low spending on education. It was observed that an insignificant relationship exists between government education expenditure on primary school enrolment while a positive relationship exists between remittances and primary school enrolment. Population growth has positive relationship in the short run, but a negative relationship in the long run.

Ekaette et al. (2019), assessed external debts and the financing of education in Nigeria using time series data obtained from World Bank, and CBN Statistical Bulletin covering a period of 31 years from 1988 -2018. The data collected were analysed using the Ordinary Least Squares. Findings revealed a significant long-run relationship between external debts and the financing of education; external debts have a significant effect on the financing of education in Nigeria; external debt stock and external debt service payment have no significant effect on the financing of education; real GDP and Exchange rate have a significant effect on the financing of education in Nigeria respectively.

Lucas and Shobayo (2017) examine the effect of expenditures on education, human capital development on economic growth in Nigeria. The study focuses on

public expenditures on the education with a view to ascertain the relative commitments of the governments to this sector. The study covers the period of 1970-2015, employing an ex-post facto research design using time series data. The data used for the study are obtained mainly from secondary data which is quantitative in nature. The study employs descriptive statistics to assess the contributions of government expenditure on education, government expenditure on health, tertiary school enrolment, secondary school enrollment, primary school enrolment on gross domestic product.

Mallick, Das and Pradhan (2016) investigate the dynamics of expenditure on education and economic growth in selected 14 major Asian countries by using balanced panel data from 1973 to 2012. The co-integration result states the existence of long-run equilibrium relationships between expenditure on education and economic growth in all the countries. The results also revealed a positive and statistical significant impact of education expenditure on economic development of all the 14 Asian countries. The result also showed a positive impact of educational expenditure on economic growth.

Ojewumi and Oladimeji (2016) empirically examined the effect of government funding on the growth of education in Nigeria. In the study, public expenditure on education was classified into two categories (recurrent and capital expenditure). The data used spanned from 1981 to 2013 and were secondary in nature. OLS econometrics technique was used to analyze the data. The major finding showed that the impact of both capital and recurrent expenditure on educational growth were negative in Nigeria for the study period. The study recommended that the high level of corruption prevalent in the educational sector should be checked to ensure that funds meant for education especially capital expenditure in the sector are judiciously appropriated. Also, Government at different levels in Nigeria should also increase both capital and recurrent expenditures to boost educational sector in Nigeria up to the United Nations recommendation.

Yakubu and Akanegbu (2015) analyze empirically the impact of education expenditure on economic growth in Nigeria over the period of 1981-2010. Co-integration and Granger causality tests were used in order to analyze the causal nexus between education expenditure and economic growth. They found that there is Co-integration between real growth rate of gross domestic product, total government expenditure on education, recurrent expenditure on education and Primary school enrolment. The study recommends that the government should improve manpower, the quality of life of ordinary Nigerians and teacher education should be given desired attention in order to check the falling standard of education in the country.

Kaur, Habibullah and Baharom (2014) examined the relationship between education expenditure and economic growth in China and India by employing annual data from 1970 to 2005. This study utilized multi econometric tools

including Co-integration test, OLS method, VECM. The result revealed that there is a long run relationship between income level Gross Domestic Product per capita and education expenditure in both China and India.

Chude and Chude (2013) investigate the effects of public expenditure in education on economic growth in Nigeria over a period from 1977 to 2012, with particular focus on disaggregated and sectorial expenditures analysis. Error Correction Model (ECM) was used. The outcome revealed that in the long run, total expenditure on education is statistically significant and has a positive relationship on economic growth in Nigeria.

Mercan and Sezer (2014) examine the relationship between education expenses and economic growth in Turkey. The study used econometric method as the main analytical tool. The outcome revealed a positive relationship between education expenses and economic growth in the Turkish economy for the period 1970-2012. Meaning that, education expenses in Turkey had a positive effect on economic growth.

Hussin, Muhammad, Hussin and Razak (2012) focus on the long-run relationship and causality between government expenditure in education and economic growth in Malaysian economy from 1970 to 2010. The study used Vector Auto Regression (VAR). The outcome showed that economic growth positively Co-integrated fixed capital formation, labour force participation and government expenditure on education. Moreover, the study proved that human capital such as education variable plays an important role in influencing economic growth.

Methodology

An Ex-post facto research design was adopted for this study, in which the phenomena to be studied have already occurred and no further manipulations can be made. The data for this study were collected from secondary sources including Central Bank of Nigeria Statistical Bulletin (2018), and the World Bank (2018). Econometric approaches such as Augmented Dickey-Fuller (ADF) unit root test, Johansen co-integration, Granger Causality tests, and Ordinary Least Squares regression analysis were used.

Model Specification

The study is set to examine government education funding and school enrolment in Nigeria from 1988 to 2018. The specified model in its functional form is:

RGDP = f (GEE, PSE, TSE, GFCF) ……... i

Where: RGDP = Gross Domestic Product (Proxy for the economic growth)
GEE = Government Education Expenditure (Proxy for the education expenditure)
PSE = Primary School Enrolment.

TSE = Tertiary School Enrolment.
GFCF = Gross Fixed Capital Formation
GFCF, PSE and TSE are both proxy for Human capital development.

The stochastic (explicit) form of the model in equation (i) is expressed as:
$RGDP=\beta0 + \beta_1GEE + \beta_2PSE + \beta_3TSE + \beta_4GFCF + \mu$……ii
Where: μ = Error term Where: $\beta0$ = intercept of relationship in the model.
$\beta1$-$\beta5$ = Coefficients of each variable in the model. μ = the error term.

Estimation techniques

The data collected from 1981 – 2018 (38 years' period) is estimated using Augmented Dickey-Fuller Test (Unit Root) to determine whether the variables are stationary or not; ARDL Bound test was used to check for a long-run relationship among the variables in the model. Vector Error Correction Model was adopted to show the composite and relative effect of the independent variables on the dependent variable. All computations and estimations were aided using E-views v9 econometrics software at 0.05 level of significance. The results of the analysis are presented in the following section.

4. Data Analysis

4.1. Unit Root Test

In the literature, most time series variables are non-stationary and using non-stationary variables in the model might lead to spurious regressions. The first or second differenced terms of most variables will usually be stationary (Rmanathan, 1992). The result of the unit root test based on the Augumented Dickey-Fuller (ADF) methods is presented in table 4.1 below.

Table 4.1: Time Series Unit Root Test Results

Variables	*ADF Statistical with Intercept*	*Probability*	*Order of Integration*
RGDP	- 4.837250	0.0022	I(1)
GEE	- 6.949709	0.0000	I(1)
PSE	- 4.186028	0.0023	I(0)
TSE	- 6.047055	0.0000	I(1)
GFCF	- 3.420602	0.0165	I(0)

Source: Author's Computation, 2020.

The unit root test is carried out with constant and trend specifications for the respective series. The lag-selection was based on the default selection of the Akaike-Information Criterion (AIC). The table contains the ADF test statistic at first difference of the panel series. The numbers in the brackets represent the probability values of the estimate test statistic of the ADF test.

The unit root test result from the ADF methods shows that the order of integrations of the variables is being stationary at first difference at the same time, except PSE and GFCF that is stationary at level. In particular, the stationarity of the general unit root process for the set of time series data for the variables shows that they are all significant at least at the 5 percent level for the first difference and level of all the variables and thus the null hypothesis of unit root in the data cannot be upheld.

4.2.3 ARDL Bound Test

In view of the unit root test result, some empirical investigation on the long-run relationship in the model can be examined. Though the unit root test does not strictly satisfy the condition for embarking on a Bound Test, doing this will help establish if any of the set of variables may be cointegrated. The most prominent and widely used technique for ARDL model in the literature has been that developed by Pesarant (2011).

Table 4.2: ARDL Bound Test Result

ARDL Bounds Test				
Date:12/05/20Time:22:59				
Sample:19812018				
Included observations:38				
Null Hypothesis: Nolong- runrelationships exist				
Test Statistic	Value	K		
F- statistic	7.688742	4		
Critical Value Bounds				
Significance	I0 Bound	I1Bound		
10%	2.45	3.52		
5%	2.86	4.01		
2.5%	3.25	4.49		
1%	3.74	5.06		

Source: Author's Computation, (2020).

From the result, the F statistic value is greater than the bound values at different significance levels. Hence, we reject the null hypothesis of no cointegration among variables in the long run. With this result, Error Correction Model will be employed for general estimation of this model.

4.3. Vector Error Correction Model (VECM)

The ECM coefficient is known as the speed of adjustment factor, it tells how fast the system adjusts to restore equilibrium. It captures the reconciliation of the variables over time from the position of disequilibrium to the period of equilibrium (Ogundipe et al. 2014).

Table 4.3: Vector Error Correction Model (VECM)

Variable	ECM (-2)	T-statistic
D(RGDP)	-0.012971	-0.07293
D(GEE)	0.107940	-1.10987
D(PSE)	-1.440555	-2.32590
D(TSE)	-0.028112	-2.43969
D(GFCF)	-1.202836	-0.96761

Source: Author's Computation, 2020.

The speed of adjustment co-efficient for RGDP is -0.012971. The VECM is correctly signed and in terms of magnitude it lies between 0 and 1. Satisfying these criteria signifies that the model has the capacity to correct errors generated in the immediate periods at it approaches its long run equilibrium path. Precisely the error correction model in this equation means that about 1.297 percent of errors generated between each period are correlated in subsequent periods. Since errors are short lived in the model, it implies that the long run relationship obtained is sustainable and the result of this study is reliable.

5. Conclusion and Recommendation

This research study seeks to evaluate the relationship between education expenditure and human capital development in Nigeria over the periods of 1981 - 2018 using the ARDL Bound test and vector error correction approach. It also considered other factors that can affect human capital development in Nigeria such as school enrolment and gross fixed capital formation. In the model economic growth (RGDP) was the dependent variable and the independent variables were government education expenditure, primary school enrolment, tertiary school enrolment and gross fixed capital formation. After the review of relevant literature and the necessary empirical analyses it was observed that a proportionate change in government education expenditure and human capital development lead to a more than proportionate change in economic growth of Nigeria.

Some policy recommendations are drawn on the basis of the results. Since low school enrolment and increase in school dropout is one of the major factors affecting human capital development in many developing countries like Nigeria, it is

pertinent to urge the National Assembly members to review the budget estimate and offer adequate finance the educational sector. Public officers should also consider significant areas of needs encompassed in the United Nations' Sustainable Development Goal, UNSDG, where education is one of the most important priorities and focus areas. Quality education does not only develop human skills and knowledge of the people or labour force of the country but it is also a source of economic activities that attracts foreign investments as well as foreign investors and students.

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