IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Human capital development and economic growth in Nigeria: a structural break perspective.

Oloke, Olufunnso O; Usman, Owolabi A and Adebayo, Moses

Department of Management and Accounting,

Ladoke Akintola University of Technology,

Ogbomoso, Nigeria.

Abstract

The study examined human capital development and economic growth in Nigeria using secondary data obtained from CBN statistical bulletin for the period of forty years between 1981-2020. Agriculture (AGR), Civil-Service (CIVSER), Education (EDU), Health (HLTH), Manufacturing (MANU) and Transportation (TRANSP) sectors of Nigerian economy were used from 1981 to 2020 as proxies for expenditure on human capital development and independent variables for the studies while Gross Domestic Product (GDP) was used as proxy for economic growth and the dependent variable. Structural break analysis was used which shows no structural break occurrence in Nigeria within the period of study. It could also be seen that expenditure on human capital development on civil servants, education, manufacturing and health were found significant with exception of agriculture and transportation that were not significant in the least square results generated with the structural break analysis. Generally, with the R-squared and Adjusted R-squared of 96% and 95% respectively, it could be submitted that for forty years under consideration, there is smooth correlation between human capital development and economic growth in Nigeria. The Structural Adjustment Program (SAP) that was introduced in July 1986 and lasted till June 1998 was not strong enough to influence human capital development and economic growth. This was supported by the structural break graph and cusum graph.

Key words: Structural break, Structural adjustment program, human capital development, economic growth.

Introduction

Structural break is particularly relevant in economic time series and has been defined variously such as an unexpected change over time in the parameters of regression models or a sudden jump or fall in the economic times series which occurs due to change in regime, policy direction and external shocks. Structural break could come

about through an internal or external cause. Also, Structural break is an unexpected disruption that occurs in a system. It is an incidence of any form of change with attendant influence on the existing structure, as applicable. It is usually indicated on the graph by a sudden or sharp bend upward or downward, indicating positive or negative change

Different from structural break is a similar but completely different concept, structural change. Structural change 'refers to changes in the structure of the economy. Structural change can be caused by factors which include technological progress, foreign trade, and demographic transition while with education, the adjustment costs brought about by structural change can be mitigated and individuals can be further empowered to be more adaptive, versatile, and productive Ogbonnaya (2018). He also stated that 'Structural changes occur in times series data for a number of reasons, including economic crises, changes in institutional arrangements, policy changes. Apart from a sudden event or major change in government policy, another factor identified to bring about structural change is war (robyhyndman.com, Accessed Dec. 2022).

Possibly easily identifiable as a cause of structural break in Nigeria is the Structural Adjustment Programme (SAP) which was launched by President Ibrahim Badamosi Babangida of Nigeria in 1986 (with support from the International Monetary Fund (IMF) and the World Bank - WB). SAP was to last till 1998 and be terminated after achieving its objectives. However, in attempting to correct all noticeable mistakes in the drive to achieve the objectives, it was prolonged till 1993 and then terminated due to the need to put certain things right or correct certain mistakes. Some of the objectives of SAP included to restructure and diversify the economy's productive base in order to reduce dependence on oil and imports, achieve medium term fiscal viability and the balance of payment, promote economic growth without inflation, achieve a GDP growth rate of 3-4% in 2 years and reduce inflation to 9% yearly. The policy mechanisms designed to meet the objectives included to expand the supply base of the economy, encourage domestic production and put in place the mechanism for realistic exchange rates (legit.com, Accessed Jan. 2023). Unfortunately, because oil production and export were (and still constitute) the main stay of the Nigerian economy in the 80s, there was access to easy money and when there was a fall in agricultural and mineral exports, the intended effect of the SAP was not felt as there were no changes made. SAP was intended to improve the economic situation in the long-run through short-term solutions that would reduce fiscal in-balance in the society and it was successful for some years as the agricultural sector was booming and farmers and their rural communities benefitted more while Civil-Servants and the middle class lost out with increasing difficult standards of living (legit.com, Accessed Jan 2023). Other negative indices such as the depreciation of the naira against the dollar for as high as 80%, fluctuating rate of inflation to as high as 50% in 1992, insurmountable debt growth to the IMF and WB and government partiality towards its supporters set in (legit.com, Accessed Jan. 2023) and according to Adrianna, S. (2017), 'oil prices plummeted to less than $10 for a barrel. This caused an overall stagnation of the economy. The government had a problem with finding money for the budget'.

Research hypothesis

Null Hypothesis: Structural break does not affect human capital development and economic growth in Nigeria.

Objective

To examine how structural break affects human capital development and economic growth in Nigeria in Nigeria

Empirical Review

Brita and Taran (2021) investigated the role of human capital in structural change and growth in an open economy: Innovative and absorptive capacity effects. They believed that the poor growth that has plagued Europe since the financial crisis of 2008 has been exacerbated by the COVID-19 pandemic. One of the most pressing issues for the next few decades will be fostering economic expansion and making the transition to a knowledge-based industrial structure. Using a dynamic endogenous growth model using Norway as a numerical example, we examine the effect of increased and improved human capital on knowledge accumulation and structural transformation. There are two primary functions of human capital in fostering productivity growth: increasing inventive ability through involvement in R&D, and increasing absorptive capacity in sectors that engage in international commerce and may learn from their counterparts overseas. The sectors of a small, open economy where human capital, R&D, and commerce all interact and permit absorption expand the most quickly, we discover.

Michele, Edinaldo and Marina (2021) studied to determine whether or not human capital is a critical factor in structural change across economic sectors and whether or not it may hasten the pace of such change. This paper makes a contribution to the body of knowledge by conducting an empirical test of the model proposed by Li *et al*. (2019) by employing the generalized method of moments (GMM), which accounts for the endogeneity present in human capital variables, and by employing two proxies for human capital and structural change to ascertain whether or not they have an effect on the variable of interest and to provide robust results. As human capital affects the relative involvement of the sectors on total added value or total employment, it plays an important role in the structural transformation process of the economy. Human capital was also shown to be a possible catalyst for this structural change.

Prodi (2019), using panel data from 38 districts/cities from 2010-2015, this article explores the impact of human capital and structural changes on economic growth in East Java. Health and education as indicators of human capital have a positive and substantial influence on economic growth, as shown by estimate findings using the Generalized Method of Moments (GMM) Arellano-Bond. There is a positive and considerable effect on economic growth from structural changes, as assessed by the percentage of workers in the industrial, construction, and service sectors. Intriguingly, the research showed that structural shifts had a bigger impact than human capital.

Jochen (2010) in response to Baumol's concept of "unbalanced growth," a growing body of research has proposed frameworks for integrating structural shifts with Kaldor's "stylized reality" of steady per-person GDP increase. Another school of thought goes further, saying that the human capital-accumulating character of major'stagnant'

services actually promotes rather than hinders long-term economic growth as a result of budget changes toward Baumol's'stagnant' sector (like health care and education). Using a Granger-causality analysis on a panel of 18 OECD countries, this research provides empirical evidence for a connection between structural change and economic development.

Jagannath Mallick (2017) submitted that many factors have been redistributed due to the profound changes in the mix and structure of developing economies brought about by globalization. This research looks at what drives structural shifts in the labor market and how much of an impact they have on LPG overall, while also taking into account the effects of globalization and different forms of human capital. Human and material resources are both examined and ranked in terms of their importance to LPG. According to the research, shifting consumer demand has the biggest role in redistributing workers in India. Allocating workers in the PRC takes these and technological developments into account. The investigation of the correlation between LPG and structural change, globalization, and human capital verified these findings. India has the potential to become a world leader in economic growth if the right steps are made to improve the country's infrastructure and foster the growth of its human capital and exports.

Wei-Bin (2017) examined structural change in economic development models with mixed-income families. The value of property and savings are set by internal factors. Walrasian general equilibrium theory, Ricardian theory of distribution, and neoclassical growth theory form the basis of our model. The study analyzes how shifts in economic dynamics might affect the distribution of income and wealth as well as the rate of economic expansion. We construct an analytical framework for a broad theory of economic growth based on microfoundations and endogenous accumulation of wealth. The model is being simulated. We identify a single stable equilibrium state. We employ three different types of families to chart economic growth and change. To better understand the nuanced dynamics of economic development and the distribution of wealth and income, we also engage in comparative dynamic studies. We demonstrate, for example, that when the group with the most human capital increases its propensity to save, the wealth levels of the group and the other two groups are temporarily enlarged, leading to negative growth in national output; however, when this trend is maintained over the long term, the wealth levels of the group and the other two groups continue to increase, leading to positive growth in national output. We also show that a rise in the population of the group with the lowest (highest) human capital causes a decline in pay rates, wealth, and consumer product consumption across the board (enhanced).

Fashanu and George (2020) in their studies submitted that both technical progress and structural change have been demonstrated to have an impact on economic growth. The empirical data from Nigeria, however, has shown contradictory findings on the presence and pattern of structural change in her growth process. So, the purpose of this research was to look at the connection between structural shifts and GDP expansion in Nigeria. The study used a retrospective research approach, gathering data in the form of time series and analyzing them with the help of the Growth Decomposition model. The results showed that structural change in Nigeria is really growth promoting,

which runs counter to the findings of some earlier research that suggested the opposite. The research recommended raising government expenditure and instituting new policies to boost aggregate demand, particularly for manufactured goods, both of which rely heavily on the productivity of human labor.

Methodology

The study area was Nigeria with focus on the Agriculture (AGR), Civil-Service (CIVSER), Education (EDU), Health (HLTH), Manufacturing (MANU) and Transportation (TRANSP) sectors from 1981 to 2020. Sector by sector government recurrent expenditure was used as proxy for human capital development, the independent variable while Gross Domestic Product (GDP) was used as proxy for economic growth, the dependent variable. The ex-post facto research design was used because the study being of a times series in nature needed already available data.

Sources of data

The main source of data collection was the Central Bank Nigeria (CBN) Statistical bulletin. Reports and Records from the Federal Bureau of Statistics and the World Bank were also used. In order to collect relevant data on the *GDP* and government recurrent expenditure on *AGR, CIVSER, EDU, HLTH, MANU* and *TRANSP*, a purposeful selection was made from the CBN bulletin from 1981 to 2020.

The Model for Structural break analysis: $GDP = f\ (AGR, CIVSER, EDU, HLTH, MANU, TRANSP + u\ )$

Where

GDP = Gross Domestic Product= Economic Growth (EG)

AGR=Agriculture

CIVSER=Civil Service

EDU=Education

HLTH=Health

MANU=Manufacturing

TRANSP=Transportation

$$GDP_t = \alpha_0 + \sum_{t=1}^{n} \beta_{1i}\, AGR_{t-1} + \sum_{t=1}^{n} \beta_{2i}\, CIVSER_{t=1} + \sum_{t=1}^{n} \beta_{3i}\, EDU_{t=i} + \sum_{t=1}^{n} \beta_{4i} HLTH_{t-1} + \sum_{t=1}^{n} \beta_{5i} MANU_{t-1} + \sum_{t=1}^{n} \beta_{6i} TRANSP_{t-1} + V_t$$

Results and discussions

Structural break is the occurrence of any change having a sudden or sharp influence on any existing system or structure. A structural break is more general than specific as it exposes the whole of a nation's population to whatever the challenge(s) or opportunity (ies) is (are).

When illustrated graphically, the sharp change in structural break may be upward or downward, that is positive or negative.

Structural Break Analysis

The Least Square test shows the p-value of almost all the variables to be < or = 0.05. The R-Square = 0.960027 (96%) and the Adj. R-Square =0.952759 (95%). The variables therefore interacted very well and the results are desirable, indicating that structural change does not affect relationship existing between human capital development and economic growth in Nigeria.

Table 1: Least Square

Variable	Coefficient	Standard error	t-statistic	Probability
C	17960.44	1006.890	17.83775	0.000
AGR	97.65830	72.30752	1.350597	0.1860
CIVSER	29.63984	10.11242	2.911032	0.0061
EDU	-45.20948	8.499311	-5.319194	0.0000
HLTH	192.8531	32.24452	5.980958	0.0000
MANU	-122.9497	50.17196	-2.450567	0.0197
TRANSP	106.3649	53.97085	1.970785	0.0572

Source: E-views 9, 2022

Dependent Variable: GDP

R. Squared	0.960027	Mean dependent var	35573.76
Adjusted R. Squared	0.952759	S.D. dependent var	20742.71
S.E of regression	4508.436	Akaike info criterion	19.82292
Sum squared resid	8.71E + 08	Schwarz criterion	20.11847
Log likehood	-389.4583	Hannan-Quiun criter	19.92978
F.Statistic	132.0918	Durbin-Watson Stat	1.247503
Prob (F-Statistic)	0.000000		

The line in Figure 1 is straight. It has no sudden or sharp bend, hence, no sudden policy change which could alter existing association between human capital development and economic growth in Nigeria.

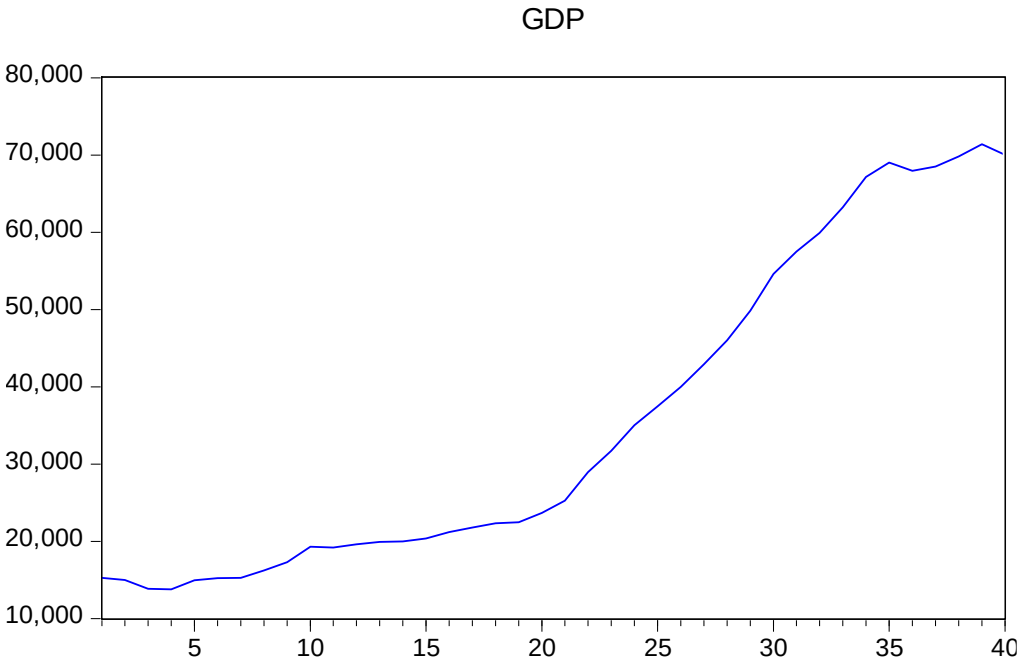

Figure 1:Structural Break Analysis graph a.

Source: E-views 9, 2022

In figure 2, the blue line, representing structural policy or change, did not cross any of the red lines, representing the normal or existing structure or state of the economy, hence, no structural break. In this work, there is no major change or break that affected human capital development and economic growth in Nigeria within the period of study. This explains why the blue line is within the red lines. The flow of the economy maintains itself within the two dotted lines which show the range. The CUSUM test therefore corroborates the structural break graph (a).

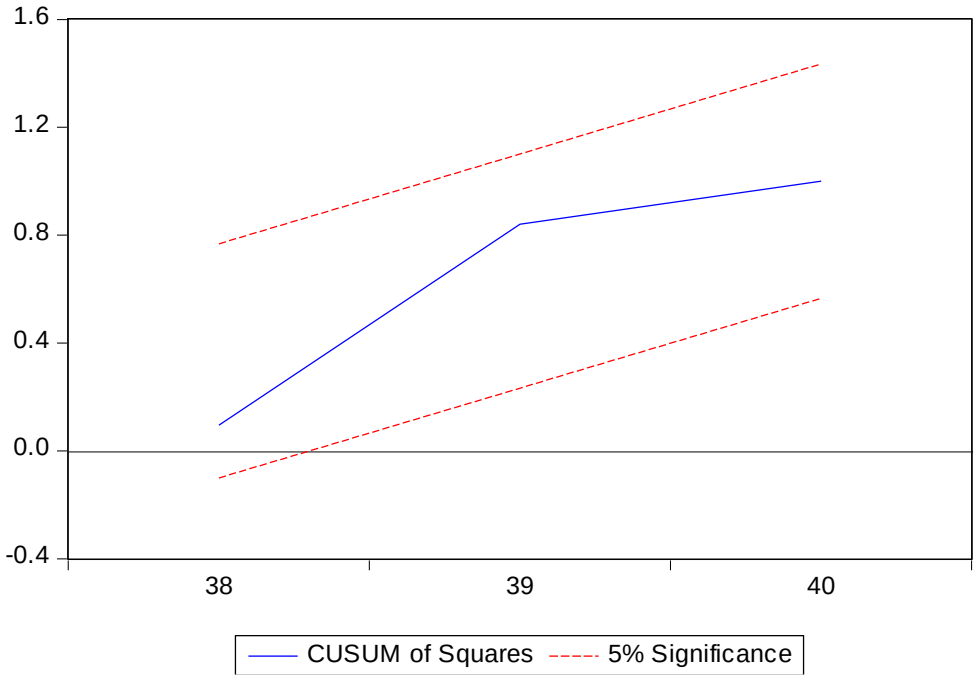

Figure 2: Structural Break Analysis graph b

Source: E-views 9, 2022

How Structural Break affects Human Capital Development and Economic Growth in Nigeria

From this study, it was found that there was no structural break in Nigeria within the period of study. Figure 2 showed no structural break as shown by the blue line not crossing any of the red lines above or below it. The blue line is within the red lines. Since no structural break occurred, there was no effect on human capital development and economic growth during the period of study.

The occurrence of structural break in Nigeria was not identified during the period of this study. The Structural Adjustment Program (SAP) introduced to the system in 1986 and which lasted till 1993 was not strong enough to influence human capital development and economic growth in Nigeria. There was no enduring impact. Anyawu, Adam, Obi and Yelwa (2015) in their study on the impact of human capital development on economic growth found that equilibrium was fully restored for any distortion in the short-run. Anyanwu *et al* (2015) stated further that with the SAP, the country's attempt to bring down fiscal deficits, by reducing public spending across the board, as part of the stabilization and adjustment program, 'resulted in unprecedented economic and social costs as human resources development was neglected with adverse long term development consequences. The goal of economic development which underscored the need to improve the well-being of people was overlooked. The program failed and the system returned to equilibrium.' The structural adjustment program (SAP) was not, therefore, successful in Nigeria because it did not suit nor was appropriate for the Nigerian situation (legit.com, Accessed Jan. 2023). According to Adrianna (2017) the Naira was overvalued, and it was concluded that the 'Structural adjustment program in Nigeria has gone down in history as one of the worst things that happened to Nigeria's economy.'

Null Hypothesis : Structural break does not affect human capital development and economic growth in Nigeria.

The structural break analysis shows no structural break occurrence in Nigeria within the period of study. The Structural Adjustment Program (SAP) that was introduced in July 1986 and lasted till June 1998 was not strong enough to influence human capital development and economic growth. There was no enduring impact. The null hypothesis is therefore accepted.

Conclusion

SAP did not work when examining relationship existing between human capital development and economic growth in Nigeria as normal flow was not affected by the policies formulated in the Nigerian SAP, Therefore, it was not suitable and appropriate in this economic situation. (legit.com, Accessed Jan. 2023). Aside the above, many economic policies were formulated within the period of forty years under examination and it appears through the study that relationship between human capital development and economic growth was so smooth with insignificant obstruction, by this, it could be said that if the policies formulated within those years are as vital, they would have had negative effects on both dependent and independent variables. The Naira was overvalued and Adrianna, (2017) concluded that the 'Structural adjustment program in Nigeria has gone down in history as one of the worst things that happened to Nigeria's economy.

References

Adrianna J. Kezar (2017) Understanding and Facilitating Organizational Change in the 21st Century. *ASHE-ERIC Higher Education Report Volume 28, Number 4*n*Adrianna J. Kezar, Series Editor*

Anyanwu S.O. *et al*. (2015) Human Capital Development and Economic Growth in Nigeria. *Journal of Economics and Sustainable Development Vol.6, No.14, 2015*

Anyanwu J.C. (2020) Factors Affecting Economic Growth in Africa: Are There any Lessons from China? *African Development Review, Vol. 26, No. 3, 2014, 468–493*

Brita B. and Taran F. (2021) The role of human capital in structural change and growth in an open economy: Innovative and absorptive capacity effects. *Brita Bye, Research Department, Statistics Norway, 0131 Oslo, Norway. Email:* Brita.Bye@ssb.no. *The World Economy, Wiley.*

Fashanu A. F., George O. E. (2020) Does Structural Change Have Any Effect on Economic Growth in Nigeria? *IOSR Journal of Economics and Finance .Volume 11, Issue 3 Ser. III (May – June 2020), PP 31-39*

Jagannath M. (2017) Structural Change and Productivity Growth in India and the People's Republic of China. *ADBI Working Paper Series.* No 656

Jochen H. (2010) Testing the growth effects of structural change. *KOF Working Papers, No. 264, ETH Zurich, KOF Swiss Economic Institute, Zurich*

Michele A. N. P., Edinaldo T. and Marina S. C. (2021) The Role of Human Capital in the Structural Change Process. Economics Faculty Journal Articles. Paper 55.

Ogbonnaya, Ikwor O. Otta, Nkama N. (2018) Structural Breaks in Nigeria's Macroeconomic Time Series Data. Journal of Economics and Sustainable Development www.iiste.org Vol.9, No.11, 2018

Prodi E. S. (2019) The Contribution of Human Capital and Structural Change to East Java's Economic Growth: Does The Structural Change Better Than Human Capital? East Java Economic Journal Vol. 3 No. 2 (2019): 168-180

Wei-Bin Z. (2017) Economic Growth And Structural Change – A Synthesis of the Walrasian General Equilibrium, Ricardian Distribution and Neoclassical Growth Theories. *Asian Development Policy Review, Vol. 5, No. 1, 17-36*

Wikipedia.org, Sciencedirect.com. (2022)

Implementconsultinggroup.com (2022)

Robyhndman.com (2022)

Legit.com (2023)