

IMPACT OF UNEMPLOYMENT CAUSED BY COVID-19 ON ECONOMIC GROWTH OF NIGERIA

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ABSTRACT

Aims: The research paper aims to determine the impact of unemployment caused by covid-19 on Africa's economic growth. The economy of countries of Africa, such as Nigeria, has remained underdeveloped while there are significant human and natural resources that are not effectively utilized.

Method: The quantitative approach is conducted. As the study is concentrated on Africa, the data is gathered from 20 countries of the continent which represents a sample for the entire countries of Africa. The time frame in which the data is collected is from 1991 and 2020, based on the availability of the dataset. The dataset analysis is conducted through Stata, where the data is determined to be panel data. The OLS regression has been conducted along with testing the issues of autocorrelation and heteroskedasticity along with correlation, descriptive, and regression analysis.

Results: Concerning the findings concerning the correlation results, it can be stated that GDP growth has an inverse connection with unemployment and Covid-19. Along with that, unemployment and GDP growth are found to have significant interconnection, and Covid-19 has also been found to have substantial interconnection with GDP growth, and the inclining rate of Covid-19 would also result in causing the movement of GDP growth to decline.

Keywords: *unemployment, economic growth, COVID-19 pandemic*

INTRODUCTION

Economic growth and unemployment have remained a major field of interest for scholars as it allows the researchers to provide suggestions for implementing the relevant economic policies and strategies that can contribute to the economic growth (Soylu, Çakmak and Okur, 2018; Ramzan, 2021; Uğur and Erkal, 2020). According to Soylu, Çakmak and Okur (2018), the most important priority for developed and developing countries is reducing unemployment and achieving a high economic growth rate. The study of Voßemer et al. (2018); Christiano, Trabandt and Walentin (2021) has defined unemployment as a matter of concern and an area for research to determine various solutions for tackling unemployment. Unemployment is considered involuntary and has significant consequences on a person's health. Moreover, unemployment also has a negative effect on the overall economy as it reduces the production of goods and services and the overall spending. Moreover, Arthur Okun was the leader who examines and evaluated the interconnection between economic growth and unemployment. It has been highlighted in the research study conducted by Abbas, (2014) that as per the views of Arthur Okun if the gross domestic product increases exponentially then the rate of unemployment falls, if the growth of the economy is negative or slow then there will be a rise in the unemployment rate. Moreover, if the growth lines potential then the rates of unemployment remain unchanged.

The research conducted by Mehra (2018) has demonstrated that there are several reasons that results in causing the unemployment level of the country to increase where some of these components are high increase of population, lack of quality education, immobility of workforce and slowing growth of sector. However, pertaining to the study of Mehra (2018), there was another major component that was determined in 2020 for causing a significant increase to the unemployment which was coronavirus pandemic or also recognized as Covid-19.

In respect to the studies conducted by Pompili et al. (2022); Fairlie et al. (2020), the recent statement made by the World Health Organization (WHO) has demonstrated that Covid-19 pandemic has resulted in causing significant challenges to the public health along with the labour market where half of the global labours were at the risk at losing their employment. The pandemic

has drastically affected the global economy along with causing a significant increase to the unemployment along with presenting significant challenges throughout the labour market. Moreover elevating the productivity of the labour is essential for the employment rate as well as for the economic growth, other than that it has been observed that over time the growth of the employment has increased regardless of the sustained existence of labour–market problems. The outbreak of the coronavirus all over the world has instantaneously caused an exceptional decrease in economic and social activities, directing towards unemployment as well as a dropping of earnings. Moreover, the research conducted by Blustein et al. (2020) has demonstrated that at the time of Covid-19, the youth generation was facing job insecurity as there were major job losses and growing level of insecurity towards employment. The Covid-19 pandemic has led to major economic crises as it has led to an increase of unemployment along with drastic increase of completion among workers. Referring to the connection of unemployment and economic growth, the studies of Khalid et al. (2021); Enih and Seraj (2021) has highlighted that unemployment has been regarded as macroeconomic issue of the country along with causing adverse effect to the economic growth. Moreover, unemployment is considered to be the core issue throughout the global economies where the common factors towards unemployment are poor education, labor demand mismatching, and involvement of trade unions, global recession, poor economic performance and lack of improving entrepreneurship. According to the research study conducted by Lanchimba, Bonilla-Bolaños & Díaz-Sánchez, (2020), it has been highlighted that the COVID-19 pandemic also caused a decrease in the demand of the consumers transversely all industrial subdivisions which results in an economic downturn and enormous unemployment rate everywhere not only hourly workforces however also salaried experts lost their works. A variety of factors backed the longitudinal disparity in economic damage containing the part of jobs in businesses bringing non-essential facilities to in-person clients. COVID-19 instigated the speedy rate of alteration in unemployment at the state level stimulating the correct prediction of the monthly rate of unemployment.

Considering the effect of Covid-19 pandemic on the labour market, it is critical to conduct studies in the area of unemployment for providing solutions in tackling the unemployment through developing effective strategies that can support the counties. In this regard, the following research

is particularly aimed to be conducted from the context of Africa. The rationale behind selecting Africa is due to study of Seth, John and Dalhatu (2018) has demonstrated that the unemployment rate in country is rising significant and was identified before Covid-19 pandemic. The economy of countries of Africa such as Nigeria has remained underdeveloped while there are significant human and natural resources that are not effectively utilized. In respect to the Covid-19 pandemic effect, the research of Otache (2020) has examined its effect on the economy of Nigeria where the findings of the research has highlighted that Covid-19 has resulted in causing job loses, a significant decline to the wages of workers, closure of school, steep decline in oil revenues and creating economic uncertainty. Due to Africa's economy being already faced with difficulty even before Covid-19 pandemic, this illustrates an importance on conducting the study towards this specific country for providing empirical evidence. Moreover, there are no specific studies that have been recently conducted towards understanding the labour market of Africa in depth as an effect of Covid-19. Therefore, this study aims to fill the research gap by focusing the study towards investigating the influence of unemployment caused by Covid-19 pandemic on the economic growth of Africa. Moreover, the significance of the research is that it can provide with valuable insights to the policy makers and government of Africa regarding the importance of controlling unemployment at times of pandemic and crises. Furthermore, the study might even play role towards the development of effective strategies and policies for controlling unemployment in the developing country.

LITERATURE REVIEW

According to the research conducted by Claveria (2019), unemployment has remained a major key macroeconomic variable that is crucially required for economic planning. The great recession in the period 2008 and the debt crises in Europe are the common examples of rise in unemployment. In this regard, the research conducted by Onifade et al. (2020) has demonstrated that the global unemployment rate stood at 5% where around 170 million of individuals were unemployed while the 140 million of the people were falling in the category in the same year. The consequences as highlighted from the studies conducted by Khalid et al. (2021); Enih and Seraj (2021) have demonstrated that unemployment has remained a major concern for the economic growth of the

country as its affects are found to be adverse to the economy due to reducing the spending of country, production of goods and services, increasing poverty, promoting social unjust and increase of crime rate. In this basis, there are several studies that have been conducted by other researchers for examining the influence of unemployment on the economic growth of the country (Padder and Mathavan, 2021; Kukaj, 2018; Khalid et al., 2021).

The research study conducted by Farayibi & Asongu (2020) which is based on the economic consequences of the pandemic drawing the evidence from Nigeria, the results of the research study indicate that COVID 19 pandemic rises the level of unemployment in the country along with that the projected rate of unemployment to be around 33.5% in the 2020 year because of the pandemic. This is probable as the Covid-19 pandemic instigated shocks to the demand for labour as well as the supply of labour. Other than that the ministry of productivity and labour placed the total integer of the job losses during the COVID-19 pandemic in Nigeria is about 39.5 million. The structure of employment in Nigeria is subjugated by informality. Henceforth, the maintenance of those intricate in the informal segment of the economy was extremely exaggerated during the lockdown. Additionally, Su, et al, (2021) has undertaken the research that examines the COVID-19 pandemic and dynamics of unemployment in European economies the study incorporates the Fourier causality test for the December-2019 to December-2020 period and the study states that pandemic creates the significant as well as positive variation in the unemployment mainly in UK, Spain and Germany. Moreover the subsequent also highlights that according to the outlook of IMF (international monetary fund) for October 2020, concerning the current economic disturbance of the eruption, the economy of the world is estimated to contract by 4.4 percentage in 2020 other than that it is even forecasted to be worse than the 2008 and 2009 financial crisis. Concurrently, a similar report expected an 8.1 percent recession in the growth rate of GDP, a 0.5% of the inflation rate, along with that an 8% rate of unemployment in 2020 for modern Europe.

Furthermore, the studies in the area of unemployment have drastically increased in the era of Covid-19 pandemic as the level of unemployment has drastically increased in almost every country. In further support of the argument, the research conducted by Lambovska, Sardinha and Belas (2021) has indicated that the unemployment rate has skyrocketed as the businesses were forced to be shut down temporarily due to the strict social distancing efforts, restrictions on

mobility and other process for containing the spread of the virus. Pertaining to the empirical evidence, the research conducted by Padder and Mathavan (2021) was specifically conducted to examine the association of unemployment and economic growth in India. The data of the identified variables was gathered from 1990 till 2020 where the economic growth was measured through GDP. The main techniques for revealing the results were through Granger causality and ordinary least square (OLS) regression. The results in the study has indicated that unemployment has an inverse relationship with economic growth where unemployment exhibited 6% relationship with unemployment while the other 94% of connection with economic growth is related with other factors. Ramzan (2021) has similarly conducted a research on examining the influence of inflation and unemployment on the economic growth of Pakistan. The data was gathered from 1980 till 2018 and the technique that was utilized for revealing the findings was through OLS. The findings of the study have revealed that inflation and unemployment has insignificant influence on economic growth of Pakistan and thus the overall model was insignificant.

Khalid et al. (2021) has conducted a research on investigating the interconnection between unemployment and economic growth in South Africa. The variables used in the following research comprises of GDP, inflation, exchange rate and unemployment where the data was gathered from 1980 – 2018. The main techniques adopted from the research were Granger causality and vector autoregression (VAR). The findings from the Granger causality have revealed that there was no short-run relationship found between unemployment and GDP. Moreover, the VAR results has unemployment rate had significant effect with GDP in the short and long-run which suggested that the government of South Africa should provide training programs, business awareness and technological knowledge to the people that can lead to the overall reduction of unemployment rate. In further supporting the research topic, the Keynesian theory of unemployment in which Keynesian believes that employment is critical for the growth of the economy. Moreover, he has indicated the increase of employment in the country is the result of low wages that is provided to the employees (Anowor, Uwakwe and Chikwendu, 2019).

Moreover, according to the research study conducted by Ginting, Hutasoit, & Peranginangin, (2021) it has been stated that the classical theory specifies that any disruption in an economy will robotically correct the situation over a long period. If the economy of the country has a high

unemployment rate or immobile economic development, the classical economists propose that unemployment will dissolve without utilizing any policy. Other than that the following research also indicates that Harrod–Domar theory proclaims that information on capital is the initial phase of economic development and employment. The theory emphasizes the supply of principal in generating more proceeds through the multiplier consequence, thus enlightening economic development

The research study conducted by Churchill, (2021) emphasises examining the impacts of COVID-19 on the employment rate of the young individuals, who are thought to be the least susceptible set in this COVID-19 pandemic. The research mainly emphasises the young individuals of Australia. The findings state that young individuals are significantly impacted by the pandemic while comparing them with the older people of Australia along with that COVID create a greater impact on the young women having the age over the twenty. Other than that the subsequent study also clarified that programs and initiatives that were implemented to assist the young individuals have assisted the nations to decrease the rate of unemployment as well as supporting the young individuals in finding the jobs and remaining in the labour market place.

METHODOLOGY

Nature of the study and data description

The following research mainly investigates the influence of unemployment caused by Covid-19 on the economic growth of Nigeria. It is critical to define the relevant method and techniques for conducting the research. As per the previous studies, it was carried out through conducting through quantitative analysis where the secondary data was gathered from the relevant sources based on the selected country (Padder and Mathavan, 2021; Kukaj, 2018; Khalid et al., 2021). Therefore, the following study is conducted through similar manner where the quantitative approach is conducted. As the study is concentrated on Africa, therefore, the data is gathered from 20 countries of the continent which represents a sample for the entire countries of Africa. The time frame on which the data is gathered is from 1991 and 2020 based on the availability of the dataset. As the

research main objective was to undertake the Covid-19 period; therefore, the data for 2020 was collected which was the major era of Covid-19.

Variables of the study

The research investigates the impact of unemployment on the economy growth of Africa; therefore, the study adopts the relevant variables that are relevant with the study. The following table represents the variables that are involved in the research along with the sources:

Variables	Description	Source
Unemployment (independent variable)	Unemployment refers to the % of the individuals that are not employed in the country and have no source of income	World Bank
GDP. Growth (Dependent Variable)	GDP growth represents the % of growth that has occurred due the production of goods and services	World Bank
Gross Capital Formation (Dependent Variable)	The gross capital formation is measured by the value of gross capital formation which reflected to the changes of acquisition and inventories	World Bank
Inflation rate (control variable)	The inflation rate reflects to the decline of the purchasing power of the currency over time which can cause the price of the goods and services to increase	World Bank
Exchange Rate (Control variable)	The exchange rate refers to the comparison of the currency where the currency of other countries has been compared with USD	World Bank

Covid-19	The period of Covid-19 has been treated as dummy variable where 0 refers to non-Covid-19 period while 1 reflects to Covid-19 period	Self-developed
Covid-19 * Unemployment	It is moderating variable where the purpose is to measure the moderating effect of Covid-19 with unemployment	Combining Covid-19 with unemployment

Data Analysis

The analysis of the dataset is conducted through the use of Stata where the data is determined to be a panel data as it involves different countries with different period. In respect to the panel data, the OLS regression has been conducted along with testing the issues of autocorrelation and heteroskedacity. The common techniques that are applied for analysing the results are through correlation, descriptive and regression analysis where it represents the main technique for analysing the data. The following models represents the equations for econometric analysis:

$$GDP = a + \beta_1 UE + \beta_2 Inf + \beta_3 ER + \beta_4 Covid19 + \beta_5 Covid19 * UE + \epsilon \text{ ----- } 1$$

$$GCF = a + \beta_1 UE + \beta_2 Inf + \beta_3 ER + \beta_4 Covid19 + \beta_5 Covid19 * UE + \epsilon \text{ ----- } 2$$

RESULTS

Descriptive Statistics

Table 1 represents the descriptive statistics where the purpose of the technique is to summarize the raw data into meaningful and interpretative form for providing relevant input Mishra et al. (2019); Kaliyadan and Kulkarni (2019). As shown in the table, there are total 600 observations made in each variable as the data is identified to be a panel data while the data is gathered from 20 countries of Africa from 1991 till 2020. The mean value of unemployment is computed as 8.781 which reflects that the average level of unemployment throughout Africa is 8.781% while the standard deviation is computed as 7.370 which reflects to the increase of decrease of unemployment. The minimum level of unemployment was 0.320% while the maximum unemployment was 33.290%. The second component is the GDP growth rate where the average GDP growth rate is 3.857%

while the standard deviation is computed as 4.482% which indicates that the dispersion of GDP growth rate is 4.482%.

Further reviewing Table 1, the inflation rate is computed as 29.348% which demonstrates the average level of inflation throughout Africa while the standard deviation of the inflation is 213.23% which demonstrates that there is significant dispersion of inflation based the prices of goods and services. The exchange rate mean value is computed as 263.270 which depict the average value of the currency among the African countries in contrast to USD. The standard deviation of the exchange rate is computed as 535.181 which demonstrate the increase of exchange rate. Lastly, the gross capital formation mean value is computed as 22.820% which demonstrates that there is a average increase of GCF in Africa by 22.82% while the standard deviation is computed as 9.583 which demonstrates the incline or decline of GCF by 9.583%.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
Unemployment	600	8.781	7.370	0.320	33.290
GDP growth	600	3.857	4.482	-23.983	19.675
Inflation rate	600	29.348	213.223	-8.484	4145.106
Exchange Rate	600	263.270	535.181	0.000	2586.890
Gross Capital formation	600	22.820	9.583	0.000	53.988
Covid-19	600	0.033	0.180	0.000	1.000

Correlation Analysis

The correlation analysis is a statistical technique used for investigating the interconnection of the variables such as the movement of one variable would causing to a different variable. The correlation technique measures three aspects which are significant, strength and level. The strength and level are denoted by the coefficient value while the significance is identified by the p-value (below $<0.05 = *$) (Olilingo and Putra, 2020; Miot, 2018). Table 2 represents the results of the correlation technique where the unemployment and GDP growth is found to have significant interconnection while the beta value is computed as -0.1627. This demonstrates that the relationship of GDP growth rate with unemployment is negative. Furthermore, Covid-19 has also been found to have significant interconnection with GDP growth where its coefficient value is -

0.2661. This shows that the inclining rate of Covid-19 would also result in causing the movement of GDP growth to decline by 0.2661. Lastly, the GCF is found to have significant connection with the inflation rate where the coefficient value is computed as 0.1247. Hence, the connection between GCF and inflation is found to be positive. In respect to results of correlation, it can be stated that GDP growth has inverse connection with unemployment and Covid-19.

Table 2: Correlation Analysis

	Unemployment	GDP growth	Inflation rate	Exchange Rate	Gross Capital formation	Covid-19
Unemployment	1					
GDP growth	-0.1627*	1				
Inflation rate	-0.05	0.04	1			
Exchange Rate	-0.3402*	0.04	-0.052	1		
Gross Capital formation	0.01	0.06	0.1247*	-0.0685	1	
Covid-19	-0.005	-0.2661*	-0.014	0.023	0.033	1

HAC T-stats

The term HAC is a short form for heteroskedasticity and autocorrelation and the preliminary tests for the regression analysis technique. The appropriate technique of regression is dependent upon the preliminary testing of the simple regression model. The heteroskedasticity is commonly assed with the modified Walt test where the null hypothesis of the test is that there is not issue of heteroskedasticity (Ye and Sun 2018; Rahman and Alam, 2021). Referring to the results in Table 3, the value of modified Wald test for both GDP growth and GCF model is computed as 0.000 and is below 0.05. Therefore, this leads to the rejection of the null hypothesis of the modified Wald test where there is an issue of heteroskedasticity on the model. Moving to autocorrelation, the Woolridge test is applied on the model where the null hypothesis of the test is that there is not issue of autocorrelation (Torres-Barreto, 2018; Tran et al., 2020). As per the results in the table, the Wooldridge test for GDP growth is computed as $0.120 < 0.05$; therefore, the null hypothesis is accepted while referring the GCF model, the value is $0.000 > 0.05$ which leads to the rejection of null hypothesis in which there is an issue of autocorrelation in the GCF model. In lines with the

study of Koh, Lee and Lee (2020), if there is an issue of autocorrelation or heteroskedasticity in the model, the OLS regression technique is not applicable. On the other hand, the study of Linton and Xiao (2019) has demonstrated that the autocorrelation and heteroskedasticity can be dealt with through applying the generalized least square (GLS) regression technique. Thus, the regression analysis is conducted through GLS that is applied for GDP growth and GCF.

Table 3: HAC T-stats

	GDP growth	GCF
Modified Wald test	0.000	0.000
Wooldridge test	0.120	0.000

Regression Analysis

GLS Regression model for GDP

Table 4 represents the GLS regression for GDP growth where the probability ($\text{Prob}>\chi^2$) is computed as 0.00 and is below 0.05; therefore, the model for GLS regression is significant. Moving to the results, unemployment [$C=-0.084$; $p=0.000$] is found to have significant influence on GDP growth as the p-value is below 0.01. Moreover, the coefficient value is computed as -0.084 which demonstrates that unemployment has negative effect on the GDP growth of Africa. In respect to Covid-19 [$C=-4.263$; $p=0.000$], it is found to have significant and negative influence on GDP growth of Africa. This demonstrates that Covid-19 has negative influence on the overall GDP growth of Africa where one unit increase of Covid-19 would cause a decline of GDP growth by -4.263. Lastly, the unemployment caused by Covid-19 (Covid-19*UE) is found to have significant influence on GDP growth as the p-value is $0.000 < 0.05$. The coefficient value is computed as -0.193 which depicts that an increase of unemployment during the Covid-19 would cause a decrease to GDP growth of Africa by -0.193 units.

Table 4: GLS regression for GDP growth

GDP growth	Coef.	Std.Err.	z	P> z
Unemployment	-0.084***	0.016	-5.410	0.000
Inflation rate	0.000	0.001	0.220	0.827
Exchange Rate	0.000	0.000	0.830	0.405
Covid-19	-4.263***	1.094	-3.900	0.000
Covid-19*UE	-0.193**	0.084	-2.290	0.022

<u>_cons</u>	4.808	0.237	20.290	0.000
Prob > chi2	0.000			

***Significance at 1%; ** Significance at 5%; * Significance at 10%

GLS Regression model for GCF

Table 5 represents the GLS regression for GCF where the probability ($\text{Prob} > \chi^2$) is computed as 0.00 and is below 0.05; therefore, the model for GLS regression is significant. The only variable that is found to have significant influence on GCF is the inflation rate as the p-value is $0.000 > 0.05$. The coefficient value is computed as 0.006 which depicts that inflation rate has positive influence on GCF. This depicts that with the one unit increase of inflation would cause rise to GCF by 0.006. In regards to unemployment, it was found to have insignificant influence on GCF regardless in the period of Covid-19.

Table 5: GLS regression for GCF

Gross Capital formation	Coef.	Std. Err.	z	P> z
Unemployment	-0.032	0.041	-0.800	0.425
Inflation rate	0.006***	0.002	3.820	0.000
Exchange Rate	0.000	0.000	-0.520	0.600
Covid-19	1.543	2.268	0.680	0.496
Covid-19*UE	-0.239	0.204	-1.170	0.242
<u>_cons</u>	21.982	0.522	42.130	0.000
Prob > chi2	0.0035			

***Significance at 1%; ** Significance at 5%; * Significance at 10%

CONCLUSION

It has been concluded from the above discussion that there are a number of factors that contribute to the country's rising unemployment rate, some of which include the large population expansion, inadequate educational attainment, worker immobility, and slow industry growth. The results of the study the average rate of unemployment in Africa is 8.781 percent, with the lowest rate being 0.320 percent and the highest being 33.290 percent. The average GDP growth rate in Africa is

3.857 percent. The correlation technique's findings show a strong correlation between unemployment and GDP growth and a negative link between the two. Additionally, it has been discovered that Covid-19 and GDP growth have a strong relationship. The findings also indicate that a drop in GDP growth would be brought on by a rising Covid-19 rate. Additionally, it is discovered that gross capital information and inflation rate have a strong relationship. The COVID-19 pandemic has had a huge negative impact on public health as well as the labour market, putting half of the world's workforce in danger of losing their jobs. The pandemic has had a large negative impact on the world economy, increased unemployment significantly, and presented significant hurdles across the job market. Additionally, it can be inferred from this evidence that unemployment has a detrimental impact on Africa's GDP growth. It has been determined to have a large and detrimental impact on GDP growth in Africa. This reveals that Covid-19 has a detrimental effect on Africa's overall GDP growth, as one unit rise in Covid-19 would result in a -4.263 reduction in GDP growth. Moreover, despite having tremendous untapped natural and human resources, the economies of African nations like Nigeria have remained underdeveloped. As a result of the businesses being forced to close temporarily as a result of the stringent social distance initiatives, mobility limitations, and other procedures for preventing the virus's transmission, the unemployment rate has risen.

It is recommended to the policymakers and the government of Africa that to decrease the unemployment the government must capitalize its investments into the undertakings which indirectly or explicitly encourage job growth like strategies of infrastructure construction, projects concerning the employment-inducing, schooling and upgraded and better health care facilities. Other than that it is also recommended to provide training concerning the technological knowledge and business awareness to the individuals which leads to enhance to the overall employment rate.

Limitations and Future Implications

This research article was conducted in the African country only which limits the scope of this research paper. Therefore it is recommended to future researchers evaluate the impact of the COVID-19 pandemic that leads to unemployment which further affects the economic growth in the other regions along with that they can also compare the effects that COVID-19 creates on

Africa and the other regions. Other than that for future researchers, it is also suggested to evaluate the effects of unemployment and economic growth in the post-pandemic period and compare that with the pre-COVID pandemic period.

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