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FOREWORD

Compliment of the season to all our contributors, well-wishers and world of Academia in general. I respectfully appreciate and welcome you all to the volume 3 issue 2 of Federal Polytechnic – Journal of Pure and Applied Sciences (FEPI-JOPAS) which is a peer reviewed multi-disciplinary accredited Journal of International repute. It is imperative to re-affirm that FEPI-JOPAS publishes full length research work, short communications, critical reviews and other review articles. In this issue, readers will find a series of manuscripts of top-rated significance in pure and applied sciences, engineering and built environment. This issue is the last of its kind for 2021 calendar year which features findings from basic and applied researches of high societal impacts from the seasoned authors. These articles have been reviewed and packaged for wider readership through the collective efforts of our managing editor, publishing editors, our valuable reviewers and editorial board members.

In this particular issue, you will find that Ilelaboye and Jesusina evaluated the quality of biscuits and chin-chin made from okara enriched plantain-sorghum flour blends. Ojo and Ebisin utlilized convolutional neural network for gender classification through facial analysis. Omotayo and Fafioye investigated antimalarial potential of ethyl acetate fraction of Phyllanthus niruri while Olubodun and Adetona examined landscaping as a strategy for combating air pollution in Lagos megacity. Buoye and Ojuawo provided imperative dataset on Covid-19 crisis management in Nigeria and Brazil. Obun-Andy and Banjo investigated effective communication as a tool for good governance in Nigeria. Yusuff and co-workers conducted a field survey on fish hatcheries in Yewa South and Yewa North Local Government of Ogun State. Akinlade and co-workers meticulously expatiated on the effect of aqueous blend of three herbs on haemato-biochemical indices of broiler chicken at starter phase. Ajeigbe, Sangosina, Ogunseitan, Lawal, & Yusuff analysed the Effects of Neem Leaves (Azadirachta Indica) and Cassava Peels on the Performance of West African Dware Goat. Abdussalam & Adewole in their paper carefully explained the Formulation of Natural Products Repellents for the Control of Cockroaches (Periplaneta americana). Elesin & Obafunmiso gave as Assessment of Public Toilets Facilities Provision and Management in Tertiary Institutions in Nigeria- An Overview of The Federal Polytechnic, Ilaro, Ogun State.

I would like to deeply appreciate and extend my profound gratitude to my co-editors, editorial board members, reviewers, members of FEPI-JOPAS, especially the Managing Editor, as well as all the contributing authors for making the production and publishing of this volume 3 issue 2 a reality. I will like to appreciate the authors in this issue for allowing their works to be subjected to our thorough and rigorous peer-review processes and for taking all the constructive criticism in good fate. The authors are solely responsible for the information, date and authenticity of data provided in their articles submitted for publication in the Federal Polytechnic Ilaro – Journal of Pure and Applied Sciences (FEPI-JOPAS). I am looking forward to receiving your manuscripts for the subsequent publications.

You can visit our website (https://fepi-jopas.federalpolyilaro.edu.ng) for more information, or contact us via e-mail us at fepi.jopas@federalpolyilaro.edu.ng.

Thank you and best regards.

Prof. Olayinka O. AJANI

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Covid-19 Crisis Management in Nigeria and Brazil

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Abstract
In Nigeria and Brazil after 134 days. Nigeria and Brazil recorded their index cases at the same time, have almost the same population and climatic conditions. Brazil recorded 2,076,635 cases after 134 days while Nigeria recorded 36,663 cases. This high number of confirmed cases in Brazil was the bases for this research. Four independent variables were considered for the evaluation. These variables are; population, number of sample test, temperature and early lockdown policy. Secondary data, which were collected from the website of Nigeria centre for disease control and worldometer were used to analyze the number of covid-19 cases recorded after 134 days in Nigeria and Brazil. After carrying out Correlation and regression analyze on the data, the result showed p = .077 for Brazil and p = .073 for Nigeria which indicate evidence for the null hypothesis that says dependent variable (covid-19 confirmed cases) does not depend on the temperature of the location. Analysis also showed that the ratio of sample test in Brazil to Nigeria was not significant enough (18:1) when compared to what was determined from the bivariate model of the two countries (409:1). Lockdown policy, which is a dummy variable (classification variable), have p = .0001, this is p-value for a one-tailed t-test. This p-value is less than 0.05, the bench mark, and showed a statistically significant difference against the null hypothesis which says dependent variable (covid-19 confirmed cases) does not depend on the lockdown policy of the governments. The paper concluded that early lockdown policy which is a part of integrated coordination in crisis management was responsible for the low confirmed cases of covid-19 recorded in Nigeria.

Keywords: Corona virus, population, Temperature, Government policy, pandemic.

INTRODUCTION

Coronavirus disease (COVID-19) is a newly discovered infectious disease caused by coronavirus, the virus which originated from Wuhan in China at the tail of the year 2019. Most common symptoms exhibited by people infected with this COVID-19 virus is mild to moderate respiratory illness. Serious illness maybe be developed in old people and those that have medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop. COVID-19 was declared as a pandemic in March 2020 by the World Health Organization (WHO).

The first case of coronavirus reported in Nigeria February 27, 2020 from an Italian national as the index case. Likewise, the first confirmed case of coronavirus in Brazil was on the 26th of February, 2020 from a man that returned from Italy. However, Nigeria recorded 36,663 confirmed cases while Brazil recorded 2,076,635 confirmed cases despite the fact that the two countries have relatively the same population and climatic condition. It was as a result of this that the research is conducted to find out the likely reason for the low number of confirmed cases in Nigeria when Brazil was recording millions of confirmed cases.

As mentioned earlier, the first case of coronavirus in Nigeria was reported in February 27, 2020 while the second case, which was a contact of the Italian, the Nigeria index case, was recorded after 11 days. Since this first case, the Nigerian Government (Federal Ministry of health) has been trying, taking different measures to make sure an outbreak is controlled. Despite these measures, Nigeria continued to record cases every day.

The spread of this disease (COVID-19) in Nigeria continues to record significant increase as at June 2nd, 2020, the statistics provided from the website of Nigeria Centre for Disease Control (NCDC) revealed that Nigeria has 33,153 confirmed cases (Oyekanmi. 2020).

President Muhammadu Buhari directed the cessation of all movements in Lagos and the FCT for an initial period of 14 days, which started from 11 pm on Monday, 30th March 2020, a decision taking to control the spread of the pandemic disease (Fidelis, 2020).

There was an extension on the movement restriction through another two-week period after which it was partially put on hold to allow some businesses to commence operations from the 4th of May. An overnight curfew was declared On April 27th, 2020, by President, Muhammadu Buhari starting from 8 pm to 6 am across the country. This is a part of new measures taken to control the spread of this coronavirus by Nigeria's Government.

Lifting of lockdown was done in stages with gradual easing of lockdown measures from FCT including Lagos and Ogun States. This commenced on Saturday, 2nd May 2020.

Movement from state to state outside curfew hours was approved on Monday, 29th June 2020 by the federal government so as to extend the second stage of the eased lockdown through a period of four weeks and with effect from July 1, 2020.

While the Nigeria government ordered lockdown in the three most affected state of Nigeria, Brazil waited till after the 10th week before five days' movement restrictions was announced by authorities in Rio de Janeiro. On Wednesday, 13th of May, lockdown was announced in Rio de Janeiro by the government, the restrictions which was to last 5 days (Wednesday,14th to Monday, 18th of May), as reported by a blogger, (GardaWorld, May, 2020).

BBC News, (2020) reported that even with the up rise in the cases of confirmed coronavirus infection, national lockdown was not in place. Even far-right President Jair Bolsonaro, criticized the stay-at-home orders and other restrictions. He even denounced the order as "dictatorship" and joined anti-lockdown protests in the capital, Brasilia.

Lisandra, (2020) reported that the lockdown order that lasted for five days, (May 11-14) was mandated by a court, but with the support of the governor. This is as a result of the President, Jair Bolsonaro ignoring the danger of the virus and focusing on its economic impact. He (President Bolsonaro) even liken the coronavirus with a little flu.

Therefore, this study is conducted to find out the likely reason for the low number of confirmed cases in Nigeria when Brazil was recording millions of confirmed cases. This is achieved by investigating the effects of population distribution, temperature, numer of tested samples, and early lockdown policy on the number of COVID-19 confirmed cases after 134 days in the two countries

Literature review

This is not the first time Nigeria will experience a pandemic, history have it that in 1918-19, there was a influenza pandemic that claimed about 50 million people worldwide. Ohadike (1991), reported that out of a population of 18 million Nigerian in 1918, influenza pandemic otherwise known as Spanish flu of 1918 killed about 500,000 Nigerians in less than 6 months.

Igho and Daniel (2020), said during the Spanish flu of 1918, the colonial master closed down Churches, Mosques and market to stop the spread. This same measure is also put in place against covid-19 and in six months, Nigeria has just recorded confirmed cases of about 40,000 and death cases is still less than 900. Probably, easier and faster dissemination of information due to social media era is responsible.

Corona virus disease (COVID-19) which is a disease that can be transmitted from people to people is caused by a newly discovered coronavirus, originated from Wuhan in China at the tail of the year 2019. It has symptoms of mild to moderate respiratory illness in most people and will recover without requiring special treatment (WHO, 2020). According to WHO (2020), older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

Pritish (2020), stated that, in March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. The U.S. Centers for Disease Control and Prevention (CDC), WHO and Public health groups, started monitoring the activities and spreading of the pandemic. Health and international bodies saddled themselves with the burden of monitoring and posting updates on their websites. These groups have also issued recommendations for preventing the spread of the virus (Pritish, 2020).

Chineye (2020) described the urgency for Nigeria Government to improve the surveillance

systems as it will go a long way to combat the spreading of the diseases in African region.

According to, Chibuike and Bashar (2020), the duo said that covid-19 virus has infected over six million people and led to the death of 300000 worldwide as at June 2nd, 2020.

Recently, Akshay (July,2020) reported in NBC News that Increasing evidence shows that most people are no longer infectious 10 days after they begin having symptoms of COVID-19. Due to this, the CDC is discouraging people from getting tested a second time after they recover.

Zainab (2021) in their paper concluded that health officials are to increase the use of twitter for wide dissemination of messages about COVID-19.

Abdul (2020) advised that identified potential cases of COVID 19 should be isolated as soon as possible to prevent transmission of infection. The spread of COVID 19 still continues globally with increase in mortality rate but shows some controls in Africa continent when compared to the rest of the world (Shabir, 2020).

MATERIALS AND METHODS

Sources of Data

All the data used for this analysis are secondary data from website, private and government records. Secondary data analysis may save time that would otherwise be spent on collecting data, but it can also be a source of problems because the data obtained may be out of date or inaccurate.

Table 1: Demography of Nigeria and Brazil (20 out of 74 States)

S/N	States	Confirmed Cases in First 134 Days	States Temperature	Early Lockdown	States Population
1	São Paulo (BR)	349715.00	19.30	0	44396484.00
2	Kano (NG)	1303.00	26.1	1	7303924.00
3	Ceará (BR)	131000.00	26.30	0	8904459.00
4	Lagos (NG)	12275.00	27.0	1	12550598.00
5	Rio de Janeiro (BR)	128324.00	23.20	0	16550024.00
6	Kaduna (NG)	978.00	25.2	1	8252366.00
7	Pará (BR)	120731.00	25.90	0	8175113.00
8	Katsina (NG)	655.00	28.0	1	4671695.00
9	Bahia (BR)	98319.00	23.00	0	15203934.00
10	Oyo (NG)	1706.00	26.5	1	7840864.00
11	Maranhão (BR)	95323.00	27.00	0	6904241.00
12	Rivers (NG)	1357.00	26.4	1	13076892.00
13	Amazonas (BR)	81318.00	26.90	0	3938336.00
14	Bauchi (NG)	519.00	25.3	1	6537314.00
15	Pernambuco (BR)	68767.00	25.30	0	9345173.00
16	Jigawa (NG)	321.00	26.5	1	5828163.00
17	Minas Gerais (BR)	66864.00	21.50	0	20869101.00
18	Benue (NG)	121.00	27.2	1	5741815.00
19	Distrito Federal (BR)	65677.00	21.10	0	2914830.00
20	Anambra (NG)	93.00	27.0	1	5527809.00

Data Processing and Analysis

To address the research questions which serve as a guide for the research, the data obtained from website pages on the internet were tabulated and entered into a software, JMP data analysis software, to process the data. A combination of descriptive and inferential statistics, were used to analyses the data to provide results. The data on the demographic characteristics of the respondents were analyzed with the use of linear regression.

Test of Correlation between Nigeria cases and Brazil cases

It is hard to look at the set of random values in table 1 above (full table not shown) and try to make any meaningful inference. A better understanding could be made by using the linear regression. In reality, regression is the best guess one can use on a set of data to make some kind of predictions.

A plot of confirmed cases in Brazil against Nigeria to test if there is any relationship, is shown Figure 1.

From the regression plot (Fig. 1), a positive correlation between the cases in Nigeria and Brazil is evident.; and a correlation of 88.2% (Table 2) exists between the two cases with a significant probability < 0.0001.

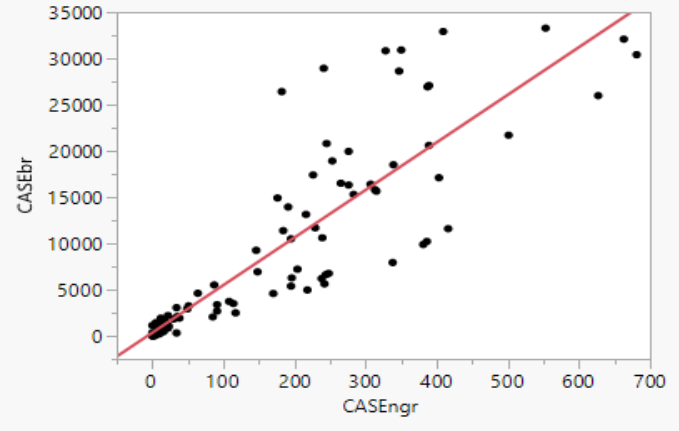

Fig. 1: Graph of confirmed cases in Brazil Vs confirmed cases in Nigeria

Table 2: Correlation between Brazil and Nigeria cases

	Value	Lower 95%	Upper 95%	Sig. Prob
Correlation	0.882178	0.832709	0.917676	<.0001*
Covariance	1434872			
Count	111			

Table 3: The Model Table

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	358.09943	580.209	0.62	0.5384
Ngr_CASE	51.439975	2.630118	19.56	<.0001*

From the analysis, estimated intercept is 358.09943 and coefficient of Ngr_CASE is 51.430075.

Hence, Br CASE and Ngr_CASE can be connected with the equation
Br_CASE = k + mNgr_CASE ----------Eqn. (1)
By substituting the parameters, we have the equation below
Br_CASE = 358.09943 + 51.439975*Ngr_CASE ----------Eqn

The R squared value for this graph is 0.778 (Table 4), showing it is a good model. The model is fairly decent, and we can be fairly confident in our daily confirmed cases of covid-19 prediction.

With this model, it means one can plug in a Ngr_CASE value and get a pretty good estimate of Br_CASE for any day.

Table 4: The Normality Test

Rsquare	0.778238
RsquareAdj	0.776203
Root Mean Square Error	4607.101
Mean of Response	7816.432
Observations (or Sum Wgts)	111

However, the wide gap between the confirmed cases in Brazil (2,076,635) to Nigeria (36,663) (as at July, 19, 2020) is so obvious that one need to wonder what could have been the reason. Hindustan Times Correspondent recorded that as at Sunday, July 19, 2020, Brazil recorded 2,076,635 cases (Hindustan Times, 2020). Nigeria centre for disease control (NCDC) recorded 36, 663 cases (NCDC, 2020).

Table 5 shows that Brazil and Nigeria share much demography in common and Brazil with a better health care ranking, Brazil still has higher number of confirmed covid-19 cases than Nigeria.

Table 5: Demography of Brazil and Nigeria.

Country	Population	Climate (dominant)	Ave. Annual Temperature	World Health Care Index	World Health Care Ranking (Who)	Total Confirmed Cases 19/7/2020
Nigeria	214,028,302	Tropical (Aw)	26.5^0C	50.05%	Number 187	36,663
Brazil	211,715,973	Tropical (Aw)	22-26^0C	56.87 %	Number 125	2,076,635

Research Question One: To investigate the effect of population distribution of the two countries on the number of COVID-19 confirmed cases after 134 days.

Brazil has 27 states and a population of 211,715,973 distributed across the states. Nigeria also has 36 State and population of 214,028,302 (including FCT). The graphs (Figures 2 and 3) show the relationship between confirmed cases in Brazil and Nigeria States and the population in each state of Brazil and Nigeria, respectively.

The value of R (Table 6) shows that we have a relatively nice plot. Figure 2 gave a model for the prediction as Br_comfirmed_cases = 15880.707 + 0.0064906*Br_population

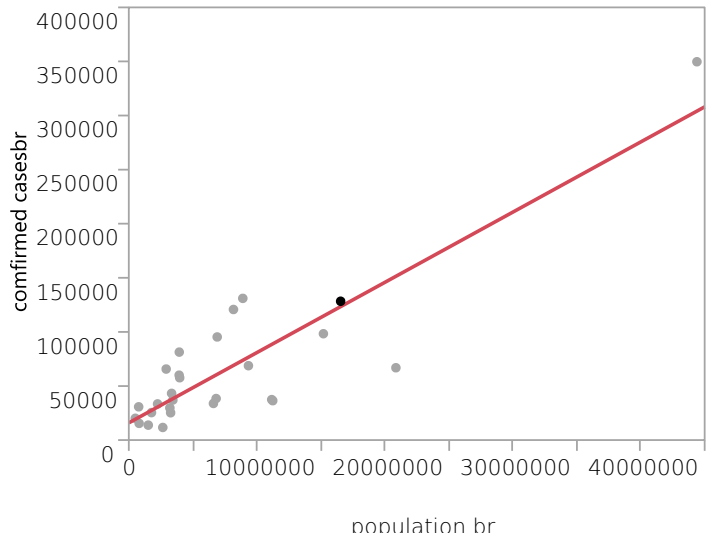

Figure 2: Plot of confirmed cases in Brazil against Population Distribution

Table 6: The Parameter Estimates of Fig. 2

R-square	0.764646
R-squareAdj	0.755232
Root Mean Square Error	33034.91
Mean of Response	65028.85
Observations (or Sum Wgts)	27

Considering the bivariate of confirmed cases in Nigeria to the population distribution in Nigeria, the graph below is given with a negative constant (intercept) and a low value of R (0.350523).

By plotting the residual graph (Fig. 4) of confirmed Ngr_CASE against Ngr_population to determine if the prediction is bias (due to low value of R), the residual has a symmetrical pattern with even spread of value around zero. This shows that the model is not bias and is a relatively a nice plot.

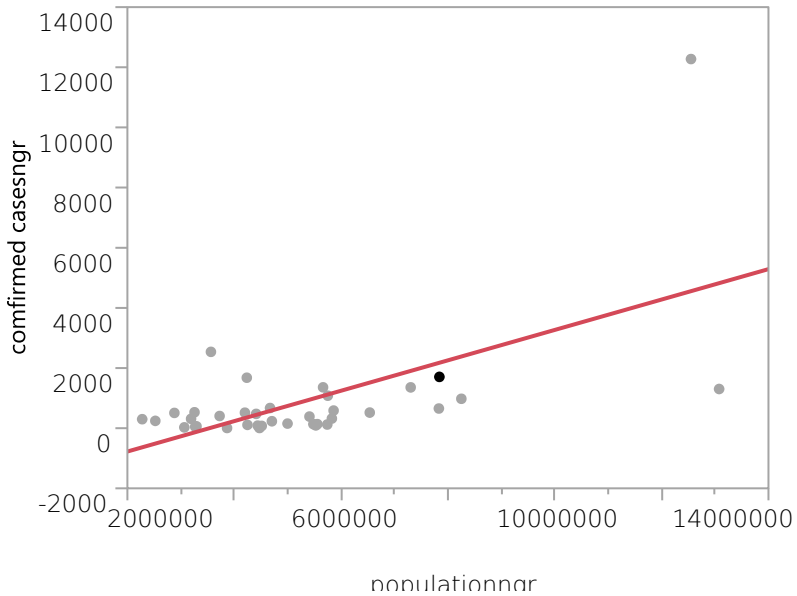

Figure 3: Plot of confirmed cases in Nigeria against Population Distribution

Linear Fit

Ngr_confirm_case = -1785.762 + 0.0005054*ngr_population

Table 7: Summary of Fit of Fig. 3

R-square	0.350523
R-squareAdj	0.331967
Root_Mean_Square_Error	1646.27
Mean_of_Response	864.5135
Observations (or Sum Wgts)	37

Diagnostics Plots

Residual by Predicted Plot

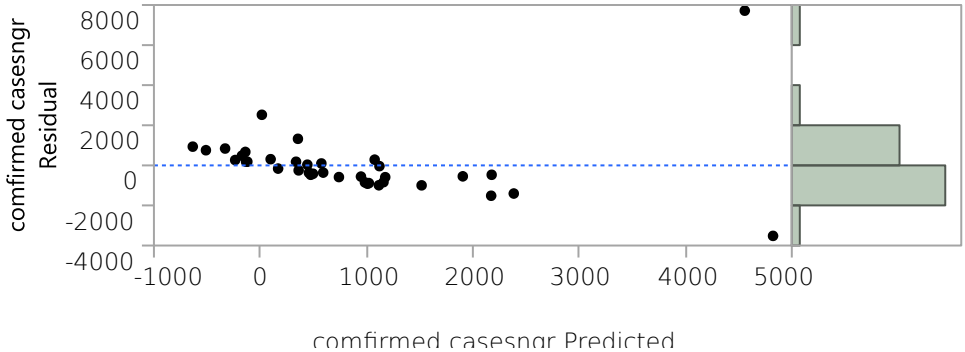

Figure 4: Confirmed cases in Nigeria Residual against Confirmed cases in Nigeria Predicted

To investigate the effect of temperature of the countries on the number of COVID-19 confirmed cases after 134 days.

Nigeria has different climates, but is dominated by Aw, Koppen-Geiger classification, likewise Brazil (CLIMATE-DATA.ORG). Temperature in Brazil shares some commonality with that of Nigeria. The mean temperature of the 27 States of Brazil is 24.2814815 while the mean temperature of the 37 States (including FCT) of Nigeria is 26.37838.

However, the bivariate analysis of the confirmed cases and temperature, both in Nigeria and Brazil, from Table 1, shows the models below.

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	290544.32	122905.3	2.36	0.0262*
Tempbr	-9287.55	5036.298	-1.84	0.0770

Table 8 (a & b): Parameter Estimate for Nigeria and Brazil Temperature Distribution
a.

Parameter Estimates for Brazil

R-square	0.119743
R-squareAdj	0.084532
Root Mean Square Error	63887.73
Mean of Response	65028.85
Observations (or Sum Wgts)	27

a. Nigeria

Linear Fit

Ngr_comfirmed_case = -1236.184 + 79.634025*Ngr_temp

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	306189	306189	0.0735
Error	35	145750467	4164299	**Prob> F**
C. Total	36	146056655		0.7879

Parameter Estimates for Nigeria

R-square	0.002096
R-squareAdj	-0.02642
Root Mean Square Error	2040.661
Mean of Response	864.4324
Observations (or Sum Wgts)	37

The models above showed p = .077 for Brazil and p = .073 for Nigeria which indicate strong evidence for the null hypothesis that says dependent variable (COVID-19 confirmed cases) does not depend on the temperature of the two countries. R squares for the two countries are also very small which shows that there are no signs of statistical correlation.

To investigate the effect of number of sample test on the number of COVID-19 confirmed cases after 134 days.

According to Tarantino (2020), there was underreported cases of COVID-19 in Brazil and low testing rates, due to this, the actual numbers of sample tests are unknown.

However, Nigeria has a relatively accurate record on COVID-19. As from April 12th, 2020, records of daily tested samples are taking. Tarantino (2020) described the rate of sample test in Brazil to be low, given a figure of 871,800 as at May 26th when Nigeria recorded only 48544. This is a ratio 18:1 (Brazil: Nigeria). This implies that, for every x value of sample test in Nigeria, Brazil will have 18x value of sample test. If this assertion is true, the linear regression analysis of confirmed cases in Brazil, CASEbr, and confirmed cases in Nigeria, CASEngr (Fig. 1& Table 3) above shows a larger value of gradient (Eqn. 1) when compared to the value of ratio 18:1.

Br_CASE = 358.09943 + 51.439975*Ngr_CAS
E----------Eqn (1) from above

The gradient (slope) is 51 with intercept of 358. This shows that the value of confirmed cases in Nigeria multiplied by 51 plus 358 gives the value of confirmed cases in Brazil. That is, for every one percent increase in Ngr_CASE, Br_CASE will be 51 times plus 358. The R square and p(f) (Table 9) shows that the relationship is relatively decent.

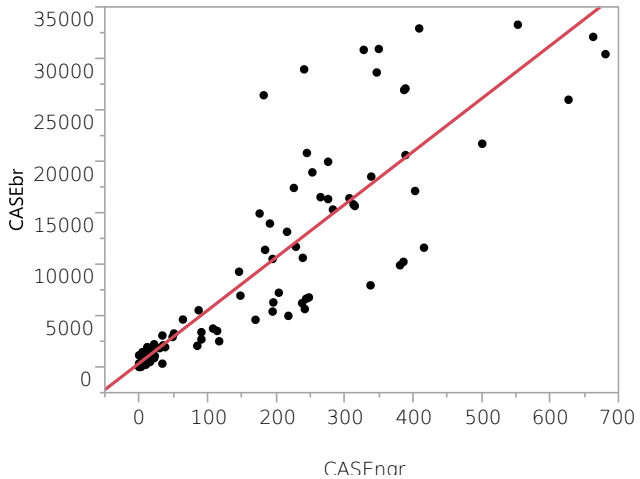

Figure 5: Bivariate graph of Casebr Vs CASEngr

Table 9 showing Parameter Estimates on number of sample test (a and b)

a.

R-Square	0.778238
RSquareAdj	0.776203
Root Mean Square Error	4607.101
Mean of Response	7816.432
Observations (or Sum Wgts)	111

b.

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	358.09943	580.209	0.62	0.5384
CASEngr	51.439975	2.630118	19.56	<.0001*

To investigate the effect of early lockdown policy on the number of COVID-19 confirmed cases after 134 days.

Describing One Categorical and One Continuous Variable Simultaneously

Lockdown variable is a categorical or classification variable. It is also called dummy since its value can be represented with 0 and 1.

Hence, representing early lockdown policy as 1 and no early lockdown policy as 0, Nigeria early lockdown =1, Brazil early lockdown = 0 as shown in Table 1

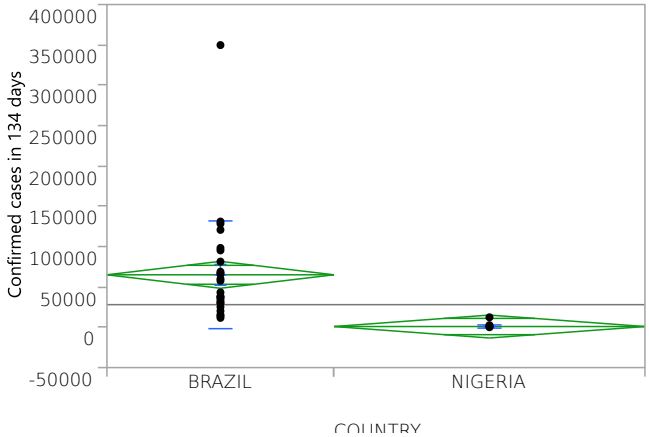

Figure 5: Graph comparing confirmed cases in Nigeria and Brazil

Table 10: Mean and Standard Deviation of Nigeria and Brazil Confirmed Cases

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
BRAZIL	27	65028.852	66772.241	12850.324	38614.633	91443.071
NIGERIA	37	864.64865	2014.1928	331.13126	193.08333	1536.214

Table 11: Results of t-test Assuming Unequal Variances

Difference	-64164	t Ratio	-4.99154
Std_Err_Dif	12855	DF	26.03453
Upper_CL_Dif	-37743	Prob> |t|	<.0001*
Lower_CL_Dif	-90585	Prob> t	1.0000
Confidence	0.95	Prob< t	<.0001*

Certainly, the average confirmed cases for Nigeria is smaller than that of Brazil according to the hypothesis predicted, but the question is, how statistically significant is the difference? By studying the list of p values in the table above, "Prob > t= 0.0001" is the p value for a one-tailed t-test and means that there is a 0.01% probability. With p = .0001, it means a statistically significant difference against the null hypothesis and a null hypothesis which says dependent variable (COVID-19 confirmed cases) does not depend on the lockdown policy of the governments should be dropped.

CONCLUSION

From the analysis of the four research questions above, it is clear that the population does not statistically affect the number of confirmed cases of COVID-19 recorded. Nigeria having a higher population should have higher cases of covid-19 but the reverse is the case. Temperature does not play a significant role in the spreading of coronavirus as it was observed that it has a negative slope in the graph of Brazil number of cases and has a positive slope in the graph of Nigeria. R squares for the two countries are very small which shows that there are no signs of statically correlation. R square for Brazil and Nigeria are 12 and 0.1%, respectively (Table 8). Early lockdown policy, a categorical factor, confirmed statistically (p = .0001), a statistically significant difference against the null hypothesis which says dependent variable (COVID -19 confirmed cases) does not depend on the lockdown policy of the governments.

REFERENCES

Akshay, S. (2020). CDC changes COVID-19 guidance on how long patients need to be isolated. Retrieved July, 24, 2020 from www.nbcnews.com

Ahmad, S., Siddqui, S.A., Ahma, M., Mishra, S.A. Review of COVID 19(Coronavirus Disease-2019) Diagnosis, Treatments and Prevention, EJMO 202:4(2): 116-125.

Chibuike and Bashar (2020), the first 90 days: How has Nigeria responded to the COVID-19 outbreak Retrieved July, 10, 2020 from https://medium.com/@nigeriahealthwatch.

Chineye, O, Adeleye, S B and Tauseef, A. COVID-19 and Nigeria: Putting the realities in Contex, International Journal of Infectious Diseases :95:279-281.

CLIMATE-DATA.ORG (2012). Climate data for cities worldwide. Retrieved July, 10, 2020 from https://en.climate-data.org.

Fidelis M. (2020). Nigeria announces lockdown of major cities to curb Coronavirus. Retrieved July, 23, 2020 from www.aljazeera.com/news.

GardaWorld, (2020). Authorities in Reo de Jeneiro announced lockdown in several areas. Retrieved June, 23, 2020 from www.garda.com/news-alerts

Hindustan Times. (2020). Coronavirus in india: Highest single-day spike of 40k pushes count past 1.1 million. Retrieved July, 20, 2020 from https://m.hindustantimes.com/indian-news

Igho .W & Daniel. S (2020). Coronavirus update:covid-19 global pandemic Vs Spanish flu. Retrieved July, 22, 2020 from www.bbc.com/pidgin.

Shabir, A L and Aijaz, A (2020) COVID 19 pandemic- an Africa perspective, Emerging microbes & infections,9:1,1300-1308.

Lisandra P. (2020). Major Brazilian cities set lockdowns as virus spreads. Retrieved June, 20, 2020 from https://www.reuters.com

NCDC (2020). COVID-19 NIGERIA: Confirmed Cases by state. Retrieved June, 16, 2020 from https://covid19.nddc.gov.ng

BBCNews. (2020). How coronavirus swept through Brazil. Retrieved July, 21, 2020 from www.bbc.co.uk/news.

Ohadike. D.C (1991). Diffusion and physiological responses to the influenza pandemic of 1918-19 in Nigeria. Retrieved on 25/7/2020 from www.pubmed.ncbi.nlm.nih.gov.

Pritish K. T. (2020). What is COVID-19 and how can I protect myself? Retrieved July, 23, 2020 from www.mayoclinic.org

Tarantino. M. (2020). COVID-19 in Brazil: A Pandemic Amid Pandemonium. Retrieved June, 26, 2020 from https://www.medscape.com/viewarticle.

Theodora.com (2020). Countries of the world: people of Nigeria 2020. Retrieved June, 27, 2020 from https://theodora.com/wfb.

Worldometers (2020). Brazil Coronavirus update with statistics and graph. Retrieved June, 16, 2020 from https://www.worldometers.info

World Health Organization (2020). There is a current outbreak of Coronavirus (COVID-19) disease. Retrieved July, 24, 2020 from www.who.int

Zainab T O and Yamnia I C (2021) Impact of COVID 19 : A Text Mining Analysis of Twitter Data in Spanish Language, Hispanic Health care international 1-7

Oyekanmi S. (2020). COVID-19 Update in Nigeria. Retrieved July, 18, 2020 from https://nairametrics.com/2020/07/14/covid-19-update-in-nigeria/