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Depreciation on Trade Balances

Growth of Fintech Unicorns in India

Highlights

Effect of Boko Haram Insurgency

Socioeconomic Activities of Nigeria

Discovering Thoughts, Inventing Future

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Effect of Depreciation on Trade Balances in Selected African Countries

By Lilian Onose Okpeku & Osman Nuri Aras
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Abstract- Balance of trade is a key indicator of the health of any open economy. Therefore, every developing economy strives to achieve this. Currency devaluation (depreciation) is seen as an opportunity for the achievement of trade surplus. This paper aims to examine the impact of depreciation and devaluation on trade balance in Algeria, Tunisia, Gabon, South Africa, Zambia, Nigeria, Morocco, Ghana, Malawi, and Burundi. Dynamic Panel Ordinary Least square (DOLS) method and Toda-Yamamoto for impulse response analysis are employed to predict the effect of depreciation on trade balances as well as the response of trade balances to shocks from depreciation. The results show that depreciation negatively affects the trade balance in the long run and shows that there is no evidence of the J-curve in the selected countries. Moreover, the result for the impulse response function shows that trade balances respond negatively to shocks in exchange rate.

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Effect of Depreciation on Trade Balances in Selected African Countries

Lilian Onose Okpeku [α] & Osman Nuri Aras [σ]

Abstract- Balance of trade is a key indicator of the health of any open economy. Therefore, every developing economy strives to achieve this. Currency devaluation (depreciation) is seen as an opportunity for the achievement of trade surplus. This paper aims to examine the impact of depreciation and devaluation on trade balance in Algeria, Tunisia, Gabon, South Africa, Zambia, Nigeria, Morocco, Ghana, Malawi, and Burundi. Dynamic Panel Ordinary Least square (DOLS) method and Toda-Yamamoto for impulse response analysis are employed to predict the effect of depreciation on trade balances as well as the response of trade balances to shocks from depreciation. The results show that depreciation negatively affects the trade balance in the long run and shows that there is no evidence of the J-curve in the selected countries. Moreover, the result for the impulse response function shows that trade balances respond negatively to shocks in exchange rate.

I. Introduction

The adaptation of a faultless system of exchange rate has been a difficulty that is faced by both developed and developing economies in the world with African countries not being an exception. A fixed exchange rate system is best for developing African countries due to the low level of financial development, high inflation and the fact that majority are small, pen economies (Simwaka 2010; Carbaugh 2014)). The floating exchange rate system has been implemented in several countries such as Mozambique, Malawi, and Sierra Leone while countries such as Cote D'Ivoire, Gabon, and Niger have a pegged system. The selection of an exchange rate regime puts various trade, macroeconomic and developmental factors into consideration. This is because the shocks on these factors affect exchange rates positively or negatively.

The Bretton Woods system of 1973 as well as several economic crises faced by the world has made developing economies face uncertain times which have required them to strengthen monetary and fiscal policies to control the financial activities of different sectors and avoid trade deficits. However, these implementations seemed not to be strong enough as many African countries face currency depreciation and massive effect on global economic shocks.

Various economic concepts state that depreciation can be a way of correcting these trade imbalances when proper macroeconomic and trade policies are put in place. This is because depreciation lowers the prices of exports compared to other currencies. Hence, it increases the competitive advantage of a country by increasing the output of the nation (Kamugisha and Assoua, 2020).

However, the positive impact of depreciation is questionable where depreciation is majorly or solely caused by external factors such as budget deficits, inflation, political instability, recessions, and global market conditions. Being that African countries are not the forerunner of the global market; the global market conditions have a major role to play in the impact of depreciation. Many African countries including some of those studies in this paper are import-dependent and likely to face shocks in time of the global market condition. This implies that most of these countries including Algeria, Tunisia, Nigeria, Morocco, and Ghana have a negative balance of trade.

Consequently, this paper aims to study the depreciation-trade balance nexus in 10 African countries including Algeria, Tunisia, Gabon, South Africa, Zambia, Nigeria, Morocco, Ghana, Malawi, and Burundi to analyse the success of various countries balance of trade under conditions of economic shocks from 1996-2021. This study adds to the existing literature by offering a rigorous study on a mixture of countries with high, medium, and low levels of development in Africa. Section 2 discusses the views and arguments on this relationship while section 3 explains the chosen empirical models, data used, and their sources. Section 4 and 5 confer the results and conclusion.

II. Literature Review

Theoretically, the relationship between depreciation and international trade balances has been seen to be positive under some conditions. The Marshall-Lerner elasticity approach posits that exchange rate depreciation can correct trade imbalance only if the nation's export is elasticity coefficient exceeds 1.0. In extension, the Marshall-Lerner condition theorised the J-curve effect that although the depreciation leads to trade imbalance ab initio due to how long it takes for information on price effects to disseminate, this trade imbalance will improve as time passes. Similarly, Alexander (1952) stated that depreciation will only be positive if the spending behaviour of the domestic economy is less than the output.

Various empirical studies have examined the validity of these theories on the effect of depreciation on

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trade balances. Anoke et al (2019) examined this relationship in Nigeria using VECM and their results stated that the positive effect of depreciation in Nigeria was not seen in the short run because Nigeria was not an export-based region before the depreciation. Contrary to this finding. Using ARDL and ECM, Berhe (2020) found evidence of the absorption approach and elasticity approach in Ethiopia. The results showed that devaluation positively impacts while the monetary measures put in place deteriorated the trade balance.

Several studies have focused on the J-curve phenomenon of depreciation in trade balances. Dongfack and Ouyang (2019) examined the elasticity and J-curve phenomenon and elasticity approach in Cameroon using the Johansen Cointegration and VECM. The results showed that there is evidence of correction trade imbalance in the long run while the depreciation caused more trade imbalance in the short run suggesting the presence of the J-curve phenomenon. Bhat and Bhat (2017) on the other hand, used the nonlinear cointegration approach and found no evidence of it in India. However, the elasticity effect does not hold in Cameroon. In contrast, Thuy and Thuy (2019) using the ARDL bound testing approach found the presence of the J-curve phenomenon in Vietnam. In Albania, Kurtovic (2017) used the VECM and cointegration test and the results showed evidence of the elasticity approach in Albania well as a weak J-curve effect.

Furthermore, researchers have also tested depreciation as a balance of trade adjustment approaches, the monetary and absorption approach in different economies. Bosnjak et al (2018) tested both the monetary and absorption approach on Croatia's current account. Using the Non-linear ARDL, they found that these approaches have been effective in aiding the positive impact of depreciation in Croatia. A study on Ethiopia showed that both approaches are both significant in the trade balance and devaluation explanation (Fassil 2017). Mushendami et al (2017) studied the monetary approach in Namibia using the VECM showed that, and their results showed that the monetary approach is important in Namibia since there is a unidirectional causality between the monetary variables and the trade balance. Another study in Nigeria also acknowledged the monetary approach of depreciation and trade balance in Nigeria using the Two-stage Least Square (TSLS) method (Atoi 2020). Downes and Khemraj (2019) tested the monetary approach in Barbados while considering the external determinants depreciation. The conclusion was that the monetary approach was strongly supported from the analysis.

Additionally, Rajkovic et al. (2020) emphasised relationship between depreciation effect of the economic crises on western Balkan countries. The results showed that the effect reduced during the crisis which limited the ability to use depreciation as an appropriate instrument in reducing trade imbalances. Also, countries with fixed exchange rates showed quicker adjustments after the crisis with their trade balances improve. Similarly, Dzanan and Masih (2017) studied this impact in Norway by using a forecasting technique to test for a long-run correlation. The study that exports did not respond as expected since Norway's major export is petroleum and petroleum goods are known to have low elasticity. Hence, there was no long-run effect detected. Turnaer Vural (2016) also studied this impact in Turkey using cointegration and ECM between Turkey and Germany. Interestingly, the paper found no evidence of a relationship in Turkey. Michael and Emeka (2017) also carried out an empirical analysis on the devaluation impact of trade balance using the VECM approach in Nigeria. The results show that the Marshall-Lerner condition does not apply in Nigeria. Using the ARDL approach in Uganda, Kamugisha and Assoua (2020) found the effect of exchange rate depreciation on trade balances to be positive only in the short run. A panel cointegration and Fully modified least square estimation research by BekeruGenemo (2017) shows that the exchange rate affects trade balance in an inelastic but significant way in major east African countries. Following the Marshall Lerner condition, the inelasticity of devaluation shows that the trade deficit will increase.

Many studies also analyse the impact of exchange rate fluctuation on trade balances. It is also important to understand this relationship since fluctuation determines the shocks of the exchange rate on trade balances. Ikechi and Nwadiubu (2020) tested the exchange rate volatility on international trade in Nigeria. Using the GARCH model and Impulse Response Function, the results showed that there exists a negative relationship between the export and Real Effective Exchange Rate in Nigeria. This is because of the high volatility portrayed in the resulted trade imbalance. Doing the asymmetry analysis, Bahmani-Oskooee and Nouira (2019) tested the impact of exchange rate volatility on Tunisia particularly to 16 of its trading partners. The findings show that in the three largest trading partners, volatility does not affect the trade flows. However, a sign of volatility is found in the long-run symmetry but not in the short run. Bahmani-Oskooee and Gelan (2018) tested the volatility in 12 African countries and found that exchange rate volatility affects trade in the countries only in the short run while the effect was limited to only five countries exports and one country's import. The work was extended by Bahmani-Okooee and Arize (2019) to 13 different African countries using the GARCH model found that in the long run, exchange rate uncertainties significantly affected trade flows in most of the countries, showing an asymmetric effect. A single-country analysis also performed by Iyke and Ho (2017) concluded that the

exchange rate volatility has a non-linear effect on the trade balance in Ghana.

Also, Loermann (2019) also measured the CHF/EUR exchange rate volatility on Swiss trade with the Eurozone using the threshold VAR method. It finds that the high uncertainty was associated with the times of recession and the low uncertainty was associated with a period of expansion. Li and Wang (2019) also found a significant impact of exchange rate fluctuation on the improvement of trade balances in the bilateral trade between China and South Korea. In addition, Njoroge (2020) analysed COMESA's exchange rate volatility on exports with the results showing that both the internal and external COMESA trade is affected by the exchange rate volatility.

III. Empirical Model

This study employs the model specification of Kurtovic (2017) on the relationship between depreciation of exchange rate and trade openness in the single country case scenario. However, the model is modified for a panel study in selected African economies. Based on the postulation of the earlier studies of Goldstein and Kahn (1976) and Rose and Yellen (1989) on trade elasticity, the theoretical underpinning of this study is the imperfect substitute model. This model is hinged on some assumptions. One, domestic goods and international goods are perfect substitutes. Two, there is a difference between domestic and foreign countries. Three, each country engages in the production of a good with a fixed price. This model consists of the demand function for domestic and international country's importation and exportation. For the domestic country, the demand function is a function of price and income level given mathematically below:

$$M_d = M_d(P_{md}, Y) \tag{1}$$

Where M= the import demand function for the home economy, P= relative price of the domestic country's goods and services, and Y= real income of the domestic economy.

$$M_d^I = M_d^I(P_{md}^I, Y^I) \tag{2}$$

Where M^I is the import demand function for the international economy, P^I is the relative price of the international country's goods and services, and Y is the international economy's real income. The export supply function can equally be expressed for both domestic and international countries.

$$E_s = E_s(P_{ed}) \tag{3}$$

Where E_s is the domestic country's export supply function while P_{ed} is the relative price of goods and services exported domestically. The export supply function for the international country is stated as:

$$E_s^I = E_s^I(P_{eI}^I) \tag{4}$$

Similarly, E_s^I is the international country's export supply function, while P_{ed}^I is also the international country's relative price for imported goods. Following from (1) to (4) the domestically produced goods relative price is the coefficient of the domestically and internationally produced goods home and abroad. This is further represented as:

$$P_{md} = \frac{\emptyset P_e^I}{P} = \left(\frac{\emptyset P^I}{P}\right)\left(\frac{P_e^I}{P^I}\right) = \left(\frac{Q P_e^I}{P^I}\right) = Q P_{eI}^I \tag{5}$$

Where $\emptyset$ represents the nominal exchange rate and Q stands for the real exchange rate. The international country's import price is expressed as: $P_{mI}^I = P_{eI}/Q$. Thus the equilibrium condition is the point where the quantity of goods traded and their prices equate.

$$M_d = E_s^I \text{ and } M_d^I = E_s \tag{6}$$

Equation (5) equates the exports and imports of both the home and international country where the price levels, exchange rate and real income are independent determinants. Thus, the trade balance of the domestic country is a function of these determinants. That is,

$$TB = TB(Q, Y, Y^I) \tag{7}$$

Where T.B.= balance of trade of home country and trading partners. Q= the real exchange rate; Y= income of home country and Y^I is the income of the international country. Expressing (7) econometrically in log-linear model, we have;

$$LTB_{it} = \delta_1 + \delta_2 EXR_{it} + \delta_3 LGDP_{it} + \delta_4 LFDI_{it} + \varepsilon_{it} \tag{8}$$

Where $LFDI_{it}$ represents the foreign direct investment, a control variable included in the model. The a priori expectation is given as are $\delta_1 <> 0, \delta_2 > 0, \delta_3 < 0, \delta_4 < 0$

In addition, the Toda-Yamamoto model is used to achieve the other objective of the study to examine the response of trade balances to depreciation using the impulse response function and variance decomposition. Due to the conditional nature of the standard VAR on the stationarity assumption not being met, the co-integration and Toda Yamamoto Model (TY) become more appropriate in examining the relationship among the series. The T.Y. model uses a VAR (p+d) model where d is the maximum integration degree of the variables. Specifically, model (8) is re-expressed into the T.Y. models for the two main variables as stated below:

$$LTB_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} LTB_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{2j} LTB_{t-j} + \sum_{i=1}^{k} \beta_{3i} EXR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{4j} EXR_{t-j} + \sum_{i=1}^{k} \beta_{5i} LGDP_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{6j} LGDP_{t-j} + \sum_{i=1}^{k} \beta_{7i} LFDI_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{8j} LFDI_{t-j} + \varepsilon_{1t} \quad (9)$$

$$EXR_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} EXR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{2j} EXR_{t-j} + \sum_{i=1}^{k} \beta_{3i} LTB_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{4j} LTB_{t-j} + \sum_{i=1}^{k} \beta_{5i} LGDP_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{6j} LGDP_{t-j} + \sum_{i=1}^{k} \beta_{7i} LFDI_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{8j} LFDI_{t-j} + \varepsilon_{1t} \quad (10)$$

K is the optimal lag length determined by the usual information criteria including Schwarz information criterion (SIC) and Akaike information criterion (AIC). d_{max} is the maximum order of integration. ε_{it} is the error term. β_i are the parameters of the models. We reject the null hypothesis and accept the alternative that their explanatory variables granger cause the respective dependent variable in each model.

IV. Data and Sources

The study employed panel data of 10 African countries covering the period 1996-2020. The countries and selected studies are used due to the availability of data. Annual data on trade balance, gross domestic products, foreign direct investment, and exchange rate were sourced from the World Development Indicator (WDI). All the series are measured in the current US$ excluding the exchange rate. the exchange rate on the other hand, is measure in local currency unit against the dollar. The countries include Algeria, Tunisia, Gabon, South Africa, Zambia, Nigeria, Morocco, Ghana, Malawi, and Burundi. The gross domestic product is a measure of economic growth, an essential determinant of balance of trade in domestic countries. The trade balance is the difference between export and import of goods and services and is negative if the importation is greater than exportation and positive if the exportation is greater than the importation. Depreciation is measured as the exchange rate increase, while appreciation is represented by a decrease in the exchange rate. Foreign direct investment is a control variable. Hence, it is an important factor affecting trade balance measured in the current U.S$.

V. Estimation Techniques

The study employed the co-integrating regression to investigate the depreciation effect of the exchange rate on the balance of trade in emerging economies of Africa. More specifically, the Dynamic Panel Ordinary Least square (DOLS) method like the estimation by Bekeru Genemo (2017) and Toda-Yamamoto. These techniques are known for their flexible requirements, which include the mixed order of integration among the series, that is, some series stationary at levels I(0) and others I (1) as opposed to other similar techniques like Vector Error Correction Model and Fully modified Ordinary Least Square model which requires that all the series be stationary at either levels or first difference (Ayad and Belmokaddem, 2017; Yorucu and Kirikkaleli 2017). The procedure for empirical analysis of any multivariate model involves some preliminary diagnostic tests: the normality of the series needs to be established. Then, the stationarity properties of the variables also need to be examined as well as their long-run co-integrating relationship. These are examined through the descriptive statistics of mean, standard deviation, JarqueBera statistics and correlation statistics. At the same time, individual unit root tests of Im, Pesaran and Shin (IPS), ADF-Fisher and PP-Fisher are used to examine the stationarity properties of the series. We further employed Pedroni and Kao co-integration test before applying the DOLS to estimate the co-integrating regressions.

VI. Preliminary Analysis

Tables 1 and 2 present the description of the data to examine their properties and suitability for the study. The investigation of the normality of the data series shows that none of the series are normally distributed at a 5% level of significance. This implies that further examination of the properties of the data through the stationarity test is required. However, gross domestic income (log), trade balance (log), foreign direct investment (log) and exchange rate show a mean value of 24.15, 7.46, 12.93 and 0.013, respectively, and they fall within reasonable range given their standard deviation, minimum and maximum values. Meanwhile, the correlation coefficient indicates that the series is moderately related, removing the problem of collinearity. Furthermore, foreign direct investment (log), increase in the exchange rate and gross domestic product (log) are positively related to trade balance (log).

Table 1: Descriptive Statistics

Variable	Observation	Mean value	Standard deviation	Minimum	Maximum	Jarque-Bera
LGDP	250	24.14616	1.673377	20.48075	27.02712	10.67590***
LTB	250	7.457183	10.43578	0.000000	24.20378	43.36806***
LFDI	250	12.93640	8.359475	0.000000	22.76346	37.93962***
DEP	249	0.013085	0.194426	-0.746542	2.129815	48210.04***

*Source: Author's compilation (EViews 10) *** p-value<1%, ** p-value<5%, * p-value<10%*

Table 2: Correlation matrix

	LGDP	LTB	LFDI	DEP
LGDP	1			
LTB	0.3074	1		
LFDI	0.6919	0.2543	1	
DEP	-0.0117	0.1087	0.0003	1

Source: Author computation (EViews 10)

Another critical test needed for this study is the cross-dependency test. Table 3shows result of the test for cross-dependency. This result indicates that the countries are cross-independent. Two of the three tests of cross-sectional dependency failed to reject the null hypothesis of no cross-sectional dependency at a 10% level of significance.

Table 3: Result of Cross-sectional dependency Tests

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	61.30711	45	0.0532
Pesaran scaled LM	0.664828		0.5062
Pesaran CD	1.017255		0.3090

Source: Authors Compilation (EViews 10).

VII. Unit Root Test

The result of the stationary test is presented in table 4. This test is essential as it helps determine the series' suitability, mean reversion, and constant variance. We employed the IPS, ADF Fisher and PP-Fisher tests. The results show that gross domestic product is stationary at first difference given the three tests. That is, it is integrated at order 1(I).

Similarly, trade balance (log) is stationary at a level based on PP-Fisher. There is no sufficient evidence to show that the series is stationary at levels based on IPS and ADF-Fisher. However, IPS, ADF-Fisher and PP-Fisher show that foreign direct investment (log) and increase in the exchange rate are stationary at levels at 10% level of significance. These results imply that the series exhibit means reversion and constant variance. Therefore, the series is suitable for analysis.

Table 4: Results of Panel unit root tests

Test	IPS		ADF-FISHER		PP-FISHER	
Variable	Constant	Constant + Trend	Constant only	Constant + Trend	Constant only	Constant and Trend
LGDP	1.12635 (0.8700)	2.85748 (0.9979)	10.0544 (0.9382)	7.12624 (0.9963)	9.63375 (0.9743)	4.02649 (1.0000)
LTB	-1.32153 (0.0932) *	-0.96055 (0.1684)	15.5922 (0.1119)	14.1941 (0.1643)	24.3551 (0.0067) ***	21.8529 (0.0159) **
LFDI	-2.08641 (0.0185) **	-0.06836 (0.4727)	35.1054 (0.0196) **	31.1105 (0.0537) *	53.1684 (0.0001) ***	41.0512 (0.0037) ***
DEP	-2.92313 (0.0017) ***	-1.51304 (0.0651) *	47.8280 (0.0004) ***	39.0395 (0.0066) ***	63.3914 (0.0000) ***	51.8664 (0.0001) ***
ΔLGDP	-4.21046 (0.0000) ***	-2.86221 (0.0021) ***	52.3199 (0.0001) ***	37.7188 (0.0096) ***	86.5515 (0.0000) ***	64.3406 (0.0000) ***
ΔLTB	-9.66327 (0.0000) ***	-10.1043 (0.0000) ***	89.5260 (0.0000) ***	139.667 (0.0000) ***	271.340 (0.0000) ***	331.857 (0.0000) ***
ΔLFDI	-9.67841 (0.0000) ***	-8.07164 (0.0000) ***	131.370 (0.0000) ***	109.425 (0.0000) ***	259.830 (0.0000) ***	638.864 (0.0000) ***
ΔDEP	-8.11064 (0.0000) ***	-6.76852 (0.0000) ***	110.876 (0.0000) ***	98.2331 (0.0000) ***	352.166 (0.0000) ***	688.002 (0.0000) ***

Notes: LGDP, LTB, LFDI implies logarithm of GDP, trade balance, and FDI, while DEP is depreciation. Δ is first difference operator. *** p-value<1%, ** p-value<5%, * p-value<10%

Source: Author compilation (EViews 10)

VIII. Test for Cointegration

Using the Pedroni and Kao Residual Co-integration test, which shows within and between statistics. In the model with determinist intercept and trend out of the seven indicators, five statistics show co-integration at a 10% level. At the same time, the other two statistics failed to reject the null hypothesis of no co-integration. Moreover, four out of seven statistics show that co-integration exists among the series without a deterministic trend.

In comparison, the three other statistics accept the alternate hypothesis that there is no cointegration. Kao test, on the other hand, shows that there is no co-integration. Combining these tests, there is sufficient evidence to show that co-integration exists in the study. Table 5 shows the cointegration test result.

Table 5: Results of Panel Co-integration Test

Alternative hypothesis: common A.R. coefficients (within-dimension)				
	Statistics	Probability	Weighted statistics	Probability
Panel v-Statistic	-0.562390	0.9714	-1.240286	0.8926
Panel rho-Statistic	-0.060640	0.0735	0.948203	0.1715
Panel ADF-Statistic	-3.255741	0.0000	-1.534218	0.0625
Panel PP-Statistic	-3.831821	0.0000	-3.200839	0.0007
Alternative hypothesis: individual A.R. coefficients (between-dimension)				
	Statistics	Probability	Weighted statistics	Probability
Group rho-Statistic	-1.240286	0.6048	0.432975	0.7028
Group PP-Statistic	0.948203	0.0000	-1.910481	0.0280
Group ADF-Statistic	-3.200839	0.0000	-0.936837	0.1744

**** p-value<1%, ** p-value<5%, * p-value<10%*

IX. Estimation Results

a) Co-integrating Regression

Table 6 present the DOLS estimation of the model specified. Using a maximum lead and lag of 2, the post estimation test shows no serial correlation since the p-value of the Q stats of the correlograms fails to reject the null hypothesis of no serial correlation. Moreover, the R-Square of 0.924638 denotes that 92% of the variation in the trade balance is explained by the variables put together in the model. More specifically, an increase in the exchange rate (DEP) negatively and significantly affects the trade balance before any improvement can be experienced as expected. This implies that as the exchange rate increases, the trade balance decreases. This result is against a priori expectation based on theory. It suggests that in the countries in consideration, reducing the value of the countries' currency improves the importation and worsen exportation in the long run. More specifically, a 1% increase in depreciation worsens the trade balance by 199% on average, holding other variables constant. This result is contrary to the findings of Kurtovic (2017) in terms of findings but aligns in conclusion. This suggests the absence of J-curve in the countries since the expected positive effect of depreciation on the trade balance in the long run does not exist. Moreover, economic growth measured by the log of GDP impacts trade balance positively and significantly in the countries. A 1% increase in economic growth increase the trade balance by 11% on average, holding other variables constant while foreign direct investment like depreciation also worsens the trade balance.

Table 6: Co-integrating Regression Result

Model: LTB = f (DEP, LFDI, LGDP)				
Panel Dynamic Ordinary Least Square (DOLS)				
Variable	Coefficient	Std. Error	T-Stat	P-value
DEP	-199.3288	65.39761	-3.047953	0.0073***
LFDI	-0.676586	0.233879	-2.892893	0.0101***
LGDP	11.25491	4.010631	2.806268	0.0121**
R-Squared	0.924638			
Total Panel Observation	100			
Q-Stat (-2)	0.234			
Normality	5.475263 (0.064723)			

*Notes: LGDP, LTB, LFDI implies logarithm of gross domestic product, trade balance, and foreign direct investment, while DEP is depreciation. Lead and Lag (max=2), *** p-value<0.01, ** p-value<0.05, * p-value<0.1*

Source: Author computation from the output of EViews 10

To further answer the other research question of the study requires selecting the appropriate lag length and serial correlation test. To select the appropriate lag for the Toda-Yamamoto model, we estimated the VAR Lag Order Selection test. The result is presented in table 8 (see appendix). This lag length is employed in the estimation of the stipulated model. The result shows that most of the test statistics indicate lag lengths of 1 and 2. This study employs the lag length of 2, favouring the Akaike criterion. After the estimation, the study examined the post estimation diagnostic of the model to check if there is evidence of correlation of the residuals in the model. The result indicates that the VAR model is has no autocorrelation (See table 7). From the null hypothesis, we see that there is no serial correlation which shows that no serial correlation exists at the selected lag length at a 10% significance level. This suggests that estimates of the model are reliable and can be used for further analysis. Tables 9 and 10, therefore, presents the estimation of the model through the variance decomposition estimates. The Forecast error variance decomposition (FEVD) is used in measuring the contribution of each type of shock and it tells us the extent to which a change in a variable is caused by itself or other variables. Table 9 presents the variance decomposition for an exchange rate increase. The result allows us to infer the proportion of movements due to own market shock in comparison to shocks from other variables. Reported within the 10 years horizon, results show that 97.85% of the innovation in the foreign exchange market is due to its past values in the short run while 2.15% is due to shocks in the trade balance. In the long run, 79.72% of innovation is due to its shock, while 12.42% is due to the shocks in the gross domestic product, 7.52%is due to shocks in the trade balance, and 0.34% is due to shock in foreign direct investment.

Table 10 presents the variance decomposition for the trade balance. Reported within the 10 years horizon, results show that in the short run, 99.48% of the innovation in the trade balance is due to its past values, and 0.001266% is due to shocks in the exchange rate. Overtime, however, 80.59% of innovation is due to its shock, 10.163% is due to shocks in the gross domestic product, while 8.43% is due to the shocks in exchange rate and 0.82% foreign direct investment.

Table 9: Variance Decomposition of Trade Balance:

Period	S.E.	LTB	DEP	LFDIN	LGDP
1	5.881899	100.0000	0.000000	0.000000	0.000000
2	7.161189	99.47635	0.001266	0.407187	0.115201
3	7.672567	98.78547	0.113235	0.691041	0.410256
4	7.888607	97.84303	0.414224	0.816797	0.925945
5	7.997649	96.47828	0.970465	0.846716	1.704540
6	8.086430	94.56104	1.825317	0.834703	2.778945
7	8.197896	92.01436	3.003624	0.813569	4.168447
8	8.355324	88.81350	4.510183	0.800360	5.875953
9	8.573547	84.98228	6.329431	0.802387	7.885898
10	8.864315	80.59055	8.425248	0.821376	10.16282

Source: EViews, 2021

Table 10: Variance Decomposition of depreciation:

Period	S.E.	LTB	DEP	LFDIN	LGDP
1	0.197759	2.145842	97.85416	0.000000	0.000000
2	0.203526	3.776992	95.68592	0.059720	0.477365
3	0.204881	4.131768	94.72370	0.058949	1.085585
4	0.206586	4.089491	93.91573	0.058984	1.935789
5	0.208864	4.049874	92.85089	0.064899	3.034339
6	0.212101	4.201297	91.31773	0.083884	4.397084
7	0.216544	4.622027	89.22720	0.120311	6.030463
8	0.222429	5.329677	86.56554	0.175536	7.929248
9	0.230003	6.307707	83.37087	0.248655	10.07277
10	0.239541	7.518091	79.72208	0.337222	12.42261

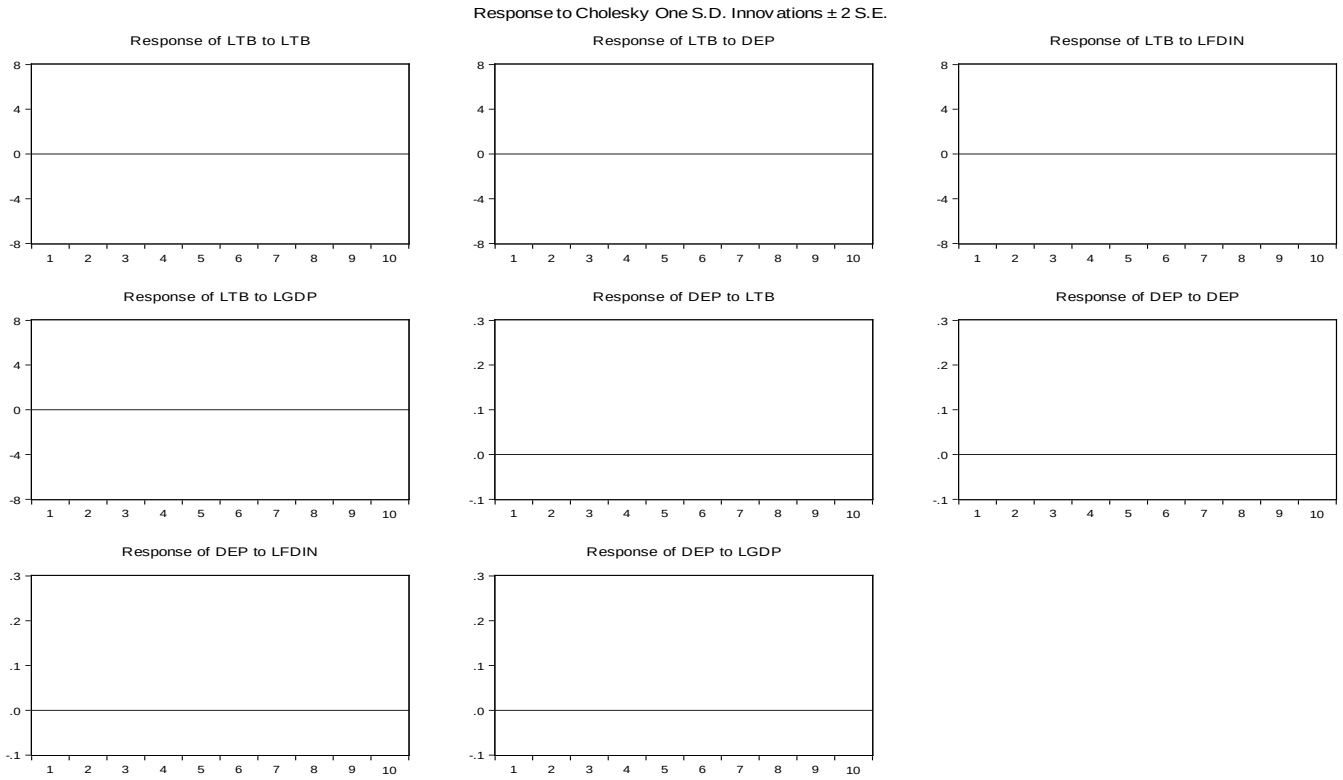
Source: EViews, 2021

b) Impulse Response Function

Impulse response functions (IRFs) show how variables adjust to shocks. It is represented graphically and shows the effects of shocks on present and future changes of different variables The IRFs is presented in figure 1 to explain how the trade balance reacts to shocks from depreciation, foreign direct investment, and gross domestic product. This reveals a negative

response of the trade balance to an increase in the exchange rate in the long run. This does not conform with the J-curve theory. . However, the trade balance responds positively to foreign direct investment but converges to equilibrium overtime.

Interestingly, there is also a negative response of trade balance to the economic growth. This is understandable because when income increases, the capacity to import is boosted, leading to a decreasing trade balance. On the other hand, trade balance initially shows a positive response to the international market, converges to equilibrium after a while then respond negatively afterwards. Similarly, the exchange rate depreciation negatively responds to development within the foreign exchange market and international market. It responds negatively to own shocks and trade balance on the larger part but positively initially.



X. Conclusion and Policy Recommendation

This study aimed toexaminethe impact of the depreciation of the exchange rate on the trade balance in 10 African Economies between 1996-2020. Employing co-integrating regression and Toda-Yamamoto models, the study provides valuable insight into the validity of J-curve in these countries. More specifically, employing the Dynamic Panel Ordinary Least Square method, findings show there is no evidence of the J-curve phenomenon in the countries by implication. The results further show that in the long run, the presence of depreciation negatively affects the trade. This is supported by the impulse response function and is further buttressed by the result of the co-integrating regression. These findings imply that government should formulate policies that would help harness the positive impact of exchange rate depreciation over the long run. This policy could be geared toward boosting the productive capacity and income level of the economy.

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Effect of Boko Haram Insurgency in the North East on the Socioeconomic Activities of Nigeria

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Abstract- The study examined the effect of Boko Haram insurgency in the North East on the socioeconomic activities of Nigeria. Ex-post facto research design as the observations was used in the research to establish the relationship between the variables. The study made use of secondary data covering a period of twenty years; were 10 years were from 1994-2003 before the insurgency and 10 years were from 2004-2013 during the insurgency. The data from this study were obtained from World Bank on agricultural value added percentage of GDP from 1994 to 2013 a period of twenty (20) years to determine the extent of agricultural contributions to Gross Domestic Product (GDP) in Nigeria. It is necessary to use this data that had been generated to show the time series effect. ARIMA statistical method of analysis was adopted with the aid of Statistical Package for Social Sciences (SPSS) to test the hypothesis. It was found out that the sects' activities in the North East had significantly affected the socioeconomic activities. The general conclusion was that Boko Haram insurgency in the North East had effect on socioeconomic activities of Nigeria. This study recommended that the federal government should embrace negotiation with the group since they ready to dialogue with the federal government but this can only be actual if the rebel group within the government cycle, which are ever ready to sabotage the strategy, are fished out, dislodged and prosecuted accordingly.

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Abstract- The study examined the effect of Boko Haram insurgency in the North East on the socioeconomic activities of Nigeria. Ex-post facto research design as the observations was used in the research to establish the relationship between the variables. The study made use of secondary data covering a period of twenty years; were 10 years were from 1994-2003 before the insurgency and 10 years were from 2004-2013 during the insurgency. The data from this study were obtained from World Bank on agricultural value added percentage of GDP from 1994 to 2013 a period of twenty (20) years to determine the extent of agricultural contributions to Gross Domestic Product (GDP) in Nigeria. It is necessary to use this data that had been generated to show the time series effect. ARIMA statistical method of analysis was adopted with the aid of Statistical Package for Social Sciences (SPSS) to test the hypothesis. It was found out that the sects' activities in the North East had significantly affected the socioeconomic activities. The general conclusion was that Boko Haram insurgency in the North East had effect on socioeconomic activities of Nigeria. This study recommended that the federal government should embrace negotiation with the group since they ready to dialogue with the federal government but this can only be actual if the rebel group within the government cycle, which are ever ready to sabotage the strategy, are fished out, dislodged and prosecuted accordingly.

I. Introduction

The advent of terrorist group called Boko Haram insurgency has introduced a guerrilla dimension, hitherto unknown, into the criminal space in the North East of Nigeria. Succession of bombings has been carried out by the sect, as well as captivating hostage of innocent Nigerians. The poor and even the rich countries, terrorism may wield a heavy toll on the nations' economy. It is predictable that terrorism activities would affect socioeconomic in more unsophisticated mono-cultural low-income economies than they would be felt in highly advanced, diversified industrial economies (Adebayo, 2014). The rise activities of this sect in the country, if not properly checked, may result in greater investor apathy for the country and resulting in low socioeconomic flow and would make institutional investors look for other stable economies to invest their money.

The North-east is the epicenter of the insurgency but terrorism activities effect reverberates through the entire country. For example terrorism activities, call it Boko Haram, Fulani Herdsmen, Bandits as reported, are linked to terror groups in the North-East to gangs of terrorists in the North-West and the North-Central regions. As far as their modus operandi is concerned, being it terrorists, cattle rustlings and insurgents are the same (Amalu, 2015). The primary activities of these groups are indiscriminate mass murder, creation of fear and instability, theft, the destabilization of established society and general rapine. Since the beginning of insurgency, over 36,000 deaths are recorded, 300000 persons had being displaced, and food in security has further deteriorated as farmers have fled their farms in fear of being attacked especially in the northern region of the country (Gilbert, 2014).

The insurgency is one of the factors that propel some of the crops farmers produced get perish since they are not consumed on time or marketed at the right time. As consequent from insurgency activities, poor transportation has emanated, high transport cost, displacement of properties and high risk to lives. The crops produced get spoiled and wasted. Some of these crops need to be marketed on time but due to imposed curfew and several restriction of movement; they perished and become unmarketable (Mustapha, 2015). Boko Haram hazard activities are not only felt in Nigeria but in some other Africa countries as well. For example Cameroon that shares border with Nigeria in the North East part is heavily affected. Traders from this country can no longer come to Maiduguri (Nigeria) to buy or sell their products. The Niger Republic is one of the economies affected by the activities, as she shares border with Nigeria and both countries practice goods exchange with one another. This challenges form the basis for which the researcher examines the effect of Boko Haram insurgency in the North East on the socioeconomic activities of Nigeria.

II. Research Objective

The broad objective of this study was to examine the effect of Boko Haram insurgency in the North East on the socioeconomic activities of Nigeria. The specific objective was to:

Examine the effect of Boko Haram insurgency in the North East on the Agricultural Sector Business Environment in Nigeria.

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III. A Brief Caption of Boko Haram

Boko Haram sect is not the foremost Boko Haram sect is not the foremost major group or militia group Nigeria has had, or has faced before; in the 1970s and 1980s, the Maitatsine Fundamentalist sect from the North came on board; in the West, the Odua People's Congress (OPC); in the East, the Bakassi Boys and the Movement of the Actualization of Sovereign State of Biafra (MASSOB), in the South/Niger Delta, the Militants and the Movement for the Emancipation of the Niger Delta (MEND). *Jama'atul Alhul Sunnah Lidda' wati walJihad*, or "people committed to propagating the Prophets's teachings and Jihad", (Abolurin, 2012:261) was established in 2002 in Maiduguri, the capital of Borno state as an Islamic group called Boko Haram. The word 'Boko means book or Western culturein Hausa languageand Haram means sin or forbidden in Arabic language. Hence, interpretation of Boko Haram in Hausa Language is referring to as western education is a sin (Gilbert, 2014).It could be argued that Boko Haram represents the version and mission of a fundamentalist Islamic movement in Nigeriaas a fundamental Islamic sect that intends to supplant government structures that politicized, corrupted and bastardaized proper implementation of Sharia in the north; and to install Islamic regime where Sharia law will be applied (Idowu, 2013, Ebi, 2018).

Thus it was originally known as Jama'atu Ahlis Sunna Lidda Awati Wal-Jihad (Congregation of the people of tradition for proselytism or evangelism and Jihad), also known as BH congregation of the people of tradition for evangelism and Jihad. BH seeks to Islamise Nigeria by whatever means humanly possible at its disposal and this lays bare its adopted tactics of indoctrination, brutality, violent attacks, killing and destruction of property. BH stands for the outright rejection of Western capitalist values, as well as advocating strict adherence to the purest and undiluted form of Islamic tradition. The group remains one of several organizations in Nigeria that called for a restructuring to purge and bring an end to what is regarded as state capture by a few, which has nearly torn the country apart, especially the north, owing to political corruption by a self-serving ruling elite (Ajayi 2013:134) having power and authority over the population by means of indoctrination and violence.

Resources of a nation or country, especially in terms of production and consumption of goods and services in relation to the supply of money are referred as socio-economic development. Socio-economic development is also process of progress measured with indicators such as the gross domestic product (GDP), life expectancy, level of literacy and levels of employment, human rights and civil society participation, which of course are the necessary ingredients to improve the standard of living in society and ensure that the economy is healthy and capable of sustaining the population under its jurisdiction (Ebi, 2018). If the socioeconomic development set goals are achieved for the population, there will be self-sufficient, secure and economically viable through gainful employment and citizenship.

The activities of Boko Haram have fundamentally affected the socioeconomic lives of individuals in the North East. For example, commercial banks have been forced to review their operational hours to begin from 9.00am to 12.00 noon as against the normal operational period of 8.00am to 4.00pm (Mohammed, 2012:2). This development has led bank customers particularly traders, are finding it difficult to deposit their daily earnings in the banks due to the limited hours of banks operational that no longer last. As a result this, the banks total earning will be affected and even countries involved in trading at the Northern part of the country will be affected as well. Under this circumstance, the socioeconomic activities in the north would be affected not just Nigerian but even Niger Republic, Chad and Cameroon among others.

According to Mohammed, this is a part of efforts by the financial institutions to safeguard their business premises. The activities of Boko Haram sect are also threatening the presence of NYSC scheme in the North that is the stared unity of the country. For illustration, 4171 corps members were posted to serve in Adamawa state and later trained for Independent National Electoral Commission (INEC) Adhoc staff to conduct the 2011 for INEC but 1041 of them fled back their states before the general elections, due to insecurity in the North (Ovaga, 2018).The massacre of corps members by Boko Haram in the northern states has resulted to corps members protesting vehemently against posting them to any of the crisis – ridden states in the north until peace is restored. Some of them have even vowed to quit the scheme should they be forcefully posted to such areas only to die in the waiting hands of the sect. Corps members serving in the Northern states provide at least over 65 per cent of the required healthcare delivery and education services at the grassroots level.

IV. Theoretical Framework

The study is anchored on cognitive dissonance theory. The cognitive dissonance theory was propounded by Festinger (1951). This is one of the utmost psychological theories that shed light on terrorist conduct. The assumptions of this theory are that humanity prefers a situation of stability in respect of values, behavior and their environmental conditions (Cunningham 2003). If individuals experience a difference between what they perceive and what they desire (Cognitive dissonance), they seek to reduce this dissonance by reducing this gap through actions,

filtering information or altering perceptions. The reference point here is that cognitive dissonance is experienced whenever there is discrepancy between preferred value and actual value. The situation whereby the tendency to produce hatred, anxiety, fear and desire to hurt or eliminate the source of perceived gap through actions is the position of dissonance theory (Alao, Atere & Alao 2015). The discrepancy could manifest within economic, social, cultural, political and religious spheres as these issues form the micro level of analysis that could be regarded as the structural background conditions operating at individual level (Nkwede, Abah & Nwankwo 2015).

Boko Haram insurgency could thus link to perceived discrepancy between the preferred way of life (to maintain the sanctity of orthodox Islam) and the actual state of their existence (secular state) that influence the dissonance (Alao, Atere & Alao, 2015). Prominently, it should be noted that the voice of few elements that initially reacted to the perceived dissonance is what the issue at stake requires in order to gain popular support and to a large extent, the personal dissonance grows to become group level grievances and discontentment. As a consequence, it transcends from a micro to macro level spectacle. This is supported by Gurr (1970) who referred to as relative deprivation. Fundamentally, the crucial target of Boko Haram is to destabilize Nigeria and make it ungovernable as this could lead to a situation of break-up of the country or imposition of Islamic ways of life. The relevance of cognitive dissonance theory to this study is that, it reflects meaningful philosophy behind the existentiality of Boko Haram sect and to a large extent explains government inability to tame the challenges posed by the sect.

V. Empirical Studies

Adebisi, Oyedeji and Azeez (2020) investigated Boko Haram insurgency activities in Nigeria: defining, addressing and understanding its impacts on the telecommunication industry. The study adopted a descriptive exploration research design to evaluate boko haram insurgency as one of the domestic terror group in Nigeria. The activities of the terrorist group have paralyzed the social- economic activities and damages on the telecom hardware within the north east Nigeria. The study reveals that there no significant difference on the series of attacks carried out by boko haram insurgents and vandalization of telecom basic infrastructure of operators in the north east of Nigeria. However, domestic terrorism and the economic growth of the affected region in Nigeria tend towards the same direction with the first hypothesis. The study concluded that the affected region is not likely to resist or have contrary opinions to heavy presence of Nigeria securities.

Njoku and Nwachukwu (2015) investigated the effects of Boko Haram's insecurity on Nigeria's economy. The study generated data with aid of online questionnaire, using Analysis of Variance. The result exposed that ideology and funding were the significant basic factors that boosted the Boko Haram sect in Nigeria. The Boko Haram disaster poses a significant threat to Nigeria's economy and that the military is the best option and solution in tackling the Boko Haram menace in Nigeria. The study recommended that government should declare war on terrorism and seek support from international communities who had in the time past faced this kind on challenged and were capable to tackle it. Nigerian Military ought to be empowered further with arms to wrestle this insurgency. The government is advised to beef up security in the country to curb the threat of insecurity.

Ugwu and Eme (2019) examined the socio-economic cost of insecurity on the populace in general and the nation's economy in particular. This is because insecurity and its various multifaceted manifestations like bombings, kidnapping/hostage taking, destruction of life and property, creation of fear among others has become a hydra headed monster which security agents in Nigeria appear incapable of addressing. The study revealed that the insecurity challenge is detrimental to general wellbeing of the people with its resultant effects in the area low quality of life, population displacement and even death, the destruction of business, properties and equipment's, relocation and closing down of businesses. The study suggested that the Nigerian government and her security agencies should be pro-active in their responses, improve their intelligence gathering techniques and create more employment opportunities for the unemployed and equip and motivate her security forces better. The grievance theory will serve as our framework of analysis while documentary methods of analysis and content analysis will be used to generate and analyze data.

Adebisi, Azeez and Oyedeji (2016) examined the effect of Boko Haram's insurgency on the agricultural sector of the Nigerian business environment. A time series analysis research method was adopted with descriptive statistics t-test were used to analyze the secondary data before and during the insurgency. The result of the findings showed that agricultural valued added to the GDP was high before Boko Haram disruption and has reduced during the period of insurgency. Based on the findings, the study recommends that Government should take legal and justifiable action to ensure that the ills caused by Boko Haram to the agricultural sector are arrested and farmers encouraged with better incentives to go back to farm.

Nneka (2015) examined the threats of Boko Haram insurgency on human security in Nigeria. The study adopted conceptual clarification. the findings

reveal that insurgency has claimed a lot of lives and property; compounded the food and nutrition insecurity situation in the country; aided the spread of infectious diseases; denied millions of children and youths access to education; increased the number of internally displaced persons with dire need of shelter and has caused people to live in constant fear and anxiety. It was concludes that Boko Haram Insurgency has negative impact on human security. Hence the study recommended that counter-insurgency will be effective only when issues of poverty, corruption and bad governance are effectively addressed.

Ebi (2018) investigated the impact of Boko Haram Muslim terrorist group on the socioeconomic well-being and livelihood of the population in the north-east of Nigeria. To research the social, economic, religious and political impact of attacks leading to the disruption of people in the north-east who fled their homes for the safety of southern refugee camps, the study relies on three research questions and adopted an in-depth qualitative methodology. The findings indicated that the Boko Haram attacks had a negative effect on the livelihood of citizens and displaced persons in refugee camps, as well as on the social cohesion and development of the north-eastern Nigerian state. Conflict resolution and intervention strategies should be implemented to curb the violence. Societal transformation is recommended for infrastructural development and job creation to solve poverty and gainfully cater for educated, unemployed youths, now recruited into the ranks of the Boko Haram Muslim sect.

VI. Research Methodology

The study used ex-post facto research design as the observations used in the research were established before the research. The study made use of secondary data covering a period of twenty years; were 10 years were from 1994-2003 before the insurgency and 10 years were from 2004-2013 during the insurgency. The data from this study were obtained from World Bank on agricultural value added percentage of GDP from 1994 to 2013 a period of twenty (20) years to determine the extent of agricultural contributions to Gross Domestic Product (GDP) in Nigeria. It is necessary to use this data that had been generated to show the time series effect. ARIMA statistical method of analysis was adopted with the aid of Statistical Package for Social Sciences (SPSS) to test the hypothesis. The table 1 presented data from World Bank for twenty (20) years, (1994-2013). This data is presented as shown below.

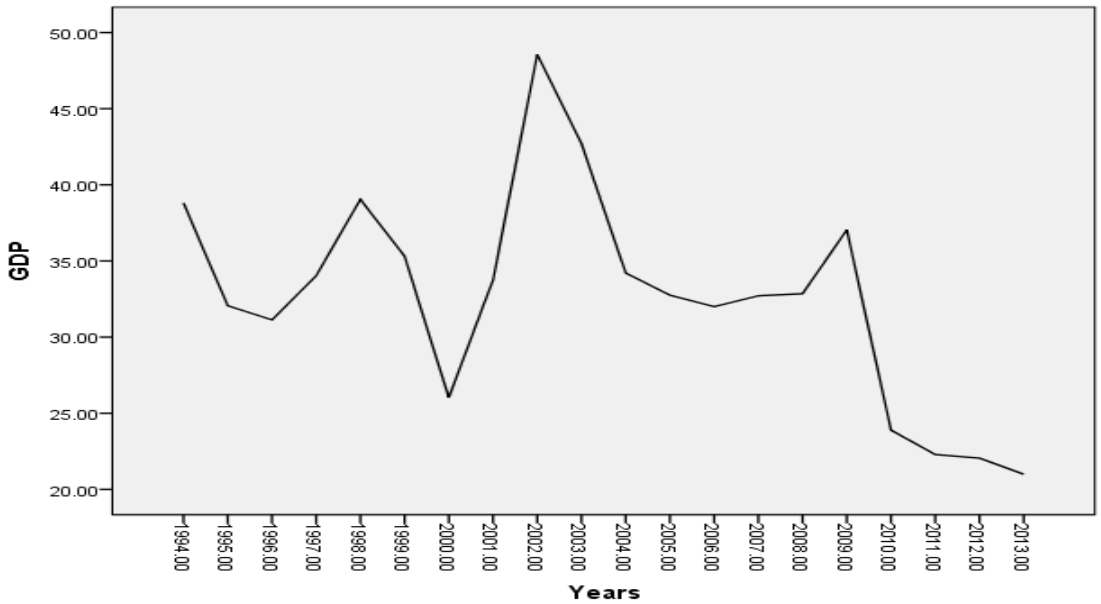
VII. Data Presentation and Analysis

Table 1: Agricultural Output (tones) on yearly basis in Nigeria

10 years before the insurgency	Agricultural Output to Nigeria GDP	10 years during the insurgency	Agricultural output to Nigeria GDP
1994	38.8108824	2004	34.21028658
1995	32.06099353	2005	32.75542177
1996	31.13372236	2006	31.9987955
1997	34.03135991	2007	32.71417898
1998	39.0478495	2008	32.85021918
1999	35.30644453	2009	37.05016484
2000	26.0339777	2010	23.89370408
2001	33.7537884	2011	22.28919858
2002	48.56594018	2012	22.05428761
2003	42.70726998	2013	20.99639753

Source: World Bank, (2016)

Table 2: Graphical Presentation of Analysis



VIII. Discussion of Findings

The table 2 revealed that, the year 1994 was the first year of observation with about 40 million tons of agricultural product as shown in the study. We can observe from the study within the years before the insurgency, there were some fluctuations in agricultural output but not as much as during the years of insurgency. In 2002 and 2003 which were the last two years before we got into the era of Boko Haram sect; these years were the highest in the observation as outputs were grown close to 50 million tons of agricultural. Boko Haram insurgency in Nigeria dated back in 2004, and we can see that there was a sharp fall from the year of insurgency till date. This findings is consistent with Okechukwu (2014) explained that the federal government's effort at augmenting food production at the Chad Basin has come under serious threat from the activities of Boko Haram insurgents in the area. An investigation shows that the several hectares of arable land prepared for the cultivation of rice and other grains in Borno has been abandoned because of the activities of the insurgents. It was gathered that virtually all the farmers involved in rice cultivation and other agriculture-related activities have abandoned the vast expanse of land at the Chad Basin because of the activities of the insurgents.

The study is also in line with the Nigerian poultry farmers under the auspices of the Poultry Association of Nigeria (PAN) have also raised concern over the activities of Boko Haram insurgents stating that it is taking a toll on sales of poultry products in Northern Nigeria. The National President of PAN made this clear during the Second Poultry Summit held at the Lagos State Chamber of Commerce and Industry, Alausa. Oduntan (2014) lamented that the activities of the violent sect had resulted in a daily drop in sales due to non-availability of some raw materials for feeds such as maize and groundnuts which were usually sourced from the affected states. He also revealed that export to neighboring countries had become impossible. Over 1.5 million people have fled their homes and at least 13,000 people mostly farmers have died in these states due to violence killing and gun shots (Mustapha, 2015). Maiduguri, the capital of Borno state had witnessed multiples of bombing explosion making the town very insecure for farmers and other businesses. Major markets in the town have become ghosts' area due to insurgency. It is on record that among the six geo-political zones in Nigeria, the North-east and North-west are the poorest zones and these are the zones where Boko Haram originated from and very active (Council on Foreign Relations 2015).

IX. Conclusion

The study in general concluded that Boko Haram insurgency in the North East had significantly affected the socioeconomic activities of Nigeria. Evidence has shown that the terrorist activities have disrupted the agricultural output, school activities, reading activities and the people living in the Northern states as most inhabitants and farmers have migrated to a better and safer place which we can draw conclusions from both the literature and the result of analysis that insurgency in the North East had effected the socioeconomic activities of Nigeria. The negative effects of such fear induced caution are obvious. Nigeria is badly in need of increased trade and investment, and the increasing reluctance of business organizations to carry out their activities is a significant blow to this laudable aim. No commercial activity can be undertaken

when security cannot be guaranteed; the empty stands at the Kaduna Trade Fair are a worrying signal that the country is enhancing its notoriety as a very risky country to do business in. the unmanned borders in places like Banki only serve to make the country's already-porous borders even easier to penetrate and further facilitate the entry of the undesirable elements and weapons that are fueling insurgency.

X. Recommendations

Based on the findings and the conclusion from this study, the following recommendations were made that:

1. The business activities especially in the north remained closed. Most unfortunately, the people from other part of the country who are the life-wire of economic activities in the north east had relocated in large numbers to their states of origin to avoid physical attacks on their business properties and lives. This study recommended that the federal government should embrace negotiation with the group since they ready to dialogue with the federal government but this can only be actual if the rebel group within the government cycle, which are ever ready to sabotage the strategy, are fished out, dislodged and prosecuted accordingly.
2. The study also recommended that the government should learn from the negative effects of Boko Haram insurgency in the north east and its effect on socioeconomic development and react or take proactive majors to stop acting as an arm chair combatant on grave issues of the Nigerian economic concern that consistently threatens the corporate existence of Nigeria. Institutional mechanism should be employed to address Boko Haram insurgency in Nigeria since they are not insurmountable given an objective analysis of the causative influences.

Suggestion for further Studies

This study is limited to secondary data collection from World Bank on agricultural output in line with Boko Harm insurgency. We therefore recommended that the effect of Boko Haram insurgency in the North East on the socioeconomic activities of Nigeria focusing on primary data and school activities should be cross examined.

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Growth of Fintech Unicorns in India: Recent Trends

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Abstract- Fintech is a multi-billion-dollar industry and it has been growing rapidly in India in the last five years and is expected to grow further in the near future. Due to the current situation of pandemic, Fintech companies are leading the way in a world where digital transactions are at an all-time high. According to the National Investment Promotion and Facilitation Agency- "The Indian Fintech market is currently valued at $31 Bn and is expected to grow to $84 Bn by 2025, at a CAGR of 22%.The current state of the Indian FinTech industry is the result of a unique mix of technical enablers, governmental interventions, and economic prospects, as well as certain additional characteristics exclusive to India. Over 67 percent of India's 2,100+ FinTechs were founded in the last five years. In the quarter of June 2020, 33 new FinTech investment deals worth US$647.5 million were closed in India, compared to US$284.9 million in China. Overall, the FinTech market in India is already worth US$31 billion and is expected to grow to US$84 billion by 2025. By 2023, the value of FinTech transactions is expected to increase to US$138 billion, up from US$66 billion in 2019. In this paper an attempt has been made to explain and analyse the reasons for the growth of Fintech industry, potential challenges and prospects this industry is experiencing in current time period in the Indian context.

Keywords: *indian financial system, financial innovation, financial technology, digital payments, digitalization.*

GJMBR-B Classification: *DDC Code: FIC, LCC Code: PZ7.L5385*

Strictly as per the compliance and regulations of:

Growth of Fintech Unicorns in India: Recent Trends

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Abstract- Fintech is a multi-billion-dollar industry and it has been growing rapidly in India in the last five years and is expected to grow further in the near future. Due to the current situation of pandemic, Fintech companies are leading the way in a world where digital transactions are at an all-time high. According to the National Investment Promotion and Facilitation Agency- "The Indian Fintech market is currently valued at $31 Bn and is expected to grow to $84 Bn by 2025, at a CAGR of 22%.The current state of the Indian FinTech industry is the result of a unique mix of technical enablers, governmental interventions, and economic prospects, as well as certain additional characteristics exclusive to India. Over 67 percent of India's 2,100+ FinTechs were founded in the last five years. In the quarter of June 2020, 33 new FinTech investment deals worth US$647.5 million were closed in India, compared to US$284.9 million in China. Overall, the FinTech market in India is already worth US$31 billion and is expected to grow to US$84 billion by 2025. By 2023, the value of FinTech transactions is expected to increase to US$138 billion, up from US$66 billion in 2019. In this paper an attempt has been made to explain and analyse the reasons for the growth of Fintech industry, potential challenges and prospects this industry is experiencing in current time period in the Indian context.

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I. Introduction

The global financial system took a toll during the financial crisis of 2008. What transpired after that dramatically transformed the banking system, resulting in the development of previously introduced financial institutions known as fintech.

The term 'Fintech' is an abbreviation for Financial Technology. Broadly it includes a huge range of products, technologies, and business models that are changing the financial services by providing additional benefits and achieving high efficiency in financial transactions. In a narrower sense, it refers to all the start-ups that are disrupting the financial industry landscape from cashless payments to asset management to crowd funding platforms to robotic advisors to virtual currencies. There is a huge power of disruption in the industry and the way we innovate this industry is really changing the whole landscape of the financial industry. As a result of advancement in technology and innovation, the landscape of financial services has changed significantly.

Fintech is a multi-billion-dollar industry and it has been growing rapidly in India in the last five years and is expected to grow further in the near future. Due to the current situation of pandemic, Fintech companies are leading the way in a world where digital transactions are at an all-time high. According to the National Investment Promotion and Facilitation Agency- "The Indian Fintech market is currently valued at $31 Bn and is expected to grow to $84 Bn by 2025, at a CAGR of 22%." As the number of Unicorn Start-ups (valuation is more than $1 billion) has crossed 50, Fintech is among the popular sectors with 12 start-ups in the list. Leading Fintech Companies in India include Paytm, Policy bazaar, Mobikwick, Pine Labs Groww etc.

In the light of this background, in this paper an attempt has been made to explain and analyse the growth of Fintech industry, reasons for this growth, potential challenges and growth prospects of this industry in the contemporary time period in the Indian context.

II. Objectives

In current time period Fintech is considered as a financial institution that predominantly use technological innovation to perform multiple business tasks ragging from the creation of digital money to managing accounts. India constitutes a flourishing market for Fintech companies, driven by a deep smartphone penetration surge that has increased from 53 percent in 2014 to 64 percent in 2018, several Fintech start-ups have received considerable market shares in different sub categories of the market. In this paper we attempt

- To analyse the growth of the Fintech industry in India during the pandemic period.
- To explain various incentives/ initiatives started by the government of India in this context.
- To find out potential challenges/threats which can be faced by this industry in the future.

III. Research Methodology

We apply descriptive research design primarily based on secondary data sources. The descriptive research is useful as it is structured in nature and provides a clear direction of information collection.

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(Bajpai, 2018). The secondary data has been collected from reports of RBI, KPMG, MEDICI etc. In addition, the data has also been collected from reputed journals, research articles, newspaper articles. After collecting the data, we analyse it empirically in the form of various tables, charts and graphs.

IV. Growth of Fintech

The Indian financial services sector has stared its digital journey and is coming closer to its global peers such in terms of adoption. Various fintech centres have evolved across the globe, some of them are at U.K, U.S, Israel, Singapore, Sydney, Hong-kong etc. These are acting as a benchmark of fintech evolution for the emerging markets like India. Table-1 provides detailed description about growth of Fintech in different time periods at global level.

Table 1: Evolution of Fintech: Global Context

Period	1866-1987	1987-2008	2008- Current	
Time Frame	Fintech 1.0	Fintech 2.0	Fintech 3.0	Fintech 3.5
Geography	Global/ Developed	Global / Developed	Developed	Emerging/ Developing
Key Elements	Infrastructure/ Computerisation	Traditional/ Internet	Mobile/ Startups/ New entrants	
Shift Origin	Linkages	Digitalization	2008 Finance Crisis/ smartphone	Last mover advantage

Fintech 1.0, which lasted from 1866 to 1987, was the initial stage. The physical [1] underpinnings of contemporary telecommunication infrastructure were constructed across the globe during this time (including important milestones, such as the installation of transatlantic transmission cables). This stage was crucial for the formation of correspondent banking and the expansion of financial institutions' global interconnection. Banks that want to deliver dependable services to their clients still employ this technology. The rich ground for the current age of innovation would not exist without this investment in infrastructure. The second stage, known as Fintech 2.0, began in 1987 and continued until 2008, when the financial crisis began. The traditional financial sector was created at this time. ATMs and other novel financial products and services were produced as banks became increasingly digitised and established large IT infrastructure to support their operations. Central clearing houses, stock exchanges, and foreign correspondent banking all grew in popularity, and regulatory requirements were established. With its branch-focused business models, Fintech 2.0 gave rise to contemporary banking, which is still employed by many banks today. During this period, there was a lot of innovation that was considered disruptive at the time. Banks, on the other hand, were overly reliant on their earlier triumphs, and previously adequate methods became outmoded.

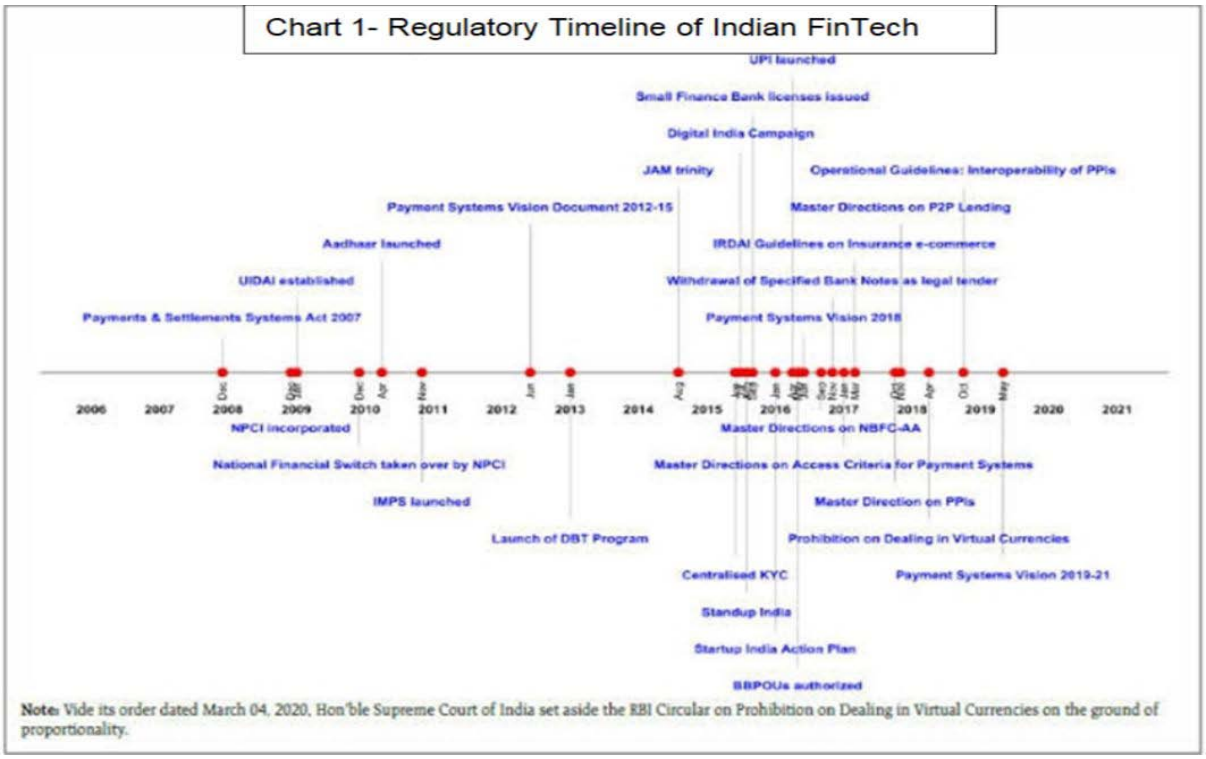
Fintech 3.0 is now in progress, and it includes both new technology-enabled financial service enterprises and existing banking institutions. According to Arner et al., by 2014, around 12 billion USD has been invested in start-ups.This is a big lot of money, but what's more astounding is that the older Fintech 2.0 institutions spent over 197 billion USD on IT during this time, much of it to maintain their non-competitive legacy systems.

a) Evolution of the FinTech Ecosystem in India

The foundations of Indian Fintech can be found in the effort done over the last decade to establish critical enablers. The current state of the Indian FinTech industry is the result of a unique mix of technical enablers, governmental interventions, and economic prospects, as well as certain additional characteristics exclusive to India.The Reserve Bank, as the payment system's regulator, has taken a number of steps to assure increased efficiency and continuous availability of secure, accessible, and inexpensive payment systems, as well as to serve parts of the population that have previously been unserved by payment systems.

A regulatory timeline representing India's favourable policy moves to promote FinTech has been illustrated in Chart 1.

[1] https://www.google.com/url?sa=t&source=web&rct=j&url=https://law.unimelb.edu.au/__data/assets/pdf_file/0011/1978256/D-Arner-FinTech-Evolution-Melbourne-June-2016.pdf&ved=2ahUKEwi6x_upk6TyAhWHumMGHYwRD7oQFnoECCAQAg&usg=AOvVaw3xmGRBIZeMVTqk-YillW2V



Source: (RBSA, Febuary 2021)

V. Growth of Fintech in India

Initially, Fintech was focused solely on loans and payments; but, as the Fintech ecosystem has grown, new Fintech platforms have emerged in a variety of sectors. Payments, Lending, Wealth Technology (WealthTech), Personal Finance Management, Insurance Technology (InsurTech), Regulation Technology (RegTech), and other sub segments make up the Indian Fintech ecosystem. Since 2016, more than $10 billion has been invested in domestic FinTechs. Fintech in India has embraced several key segments, as well as a few business modalities within those segments (Table-2).

Table 2: FinTech Segments and its various Components

No.	Segments	Sub Segments	Business Models	Revenue Modal	Key players
1	Digital payments (electronic payment options that include both remittances and payments made by businesses and merchants)	• Prepaid payment instruments • Payment Aggregators • Payments Bank • P2P & payment solutions	• M-wallets • PPIs • merchant payments • PoS services • international remittance • Trading in crypto currencies.	Earn revenues based on annual percentage rate or a flat fee	Paytm Mobikwick FreeCharge Avenue Razorpay Bharatpur Phone pe Gpay
2.	Financing Options (Alternative Lending)	• Digital lenders • Intermediaries	• Credit scoring • peer-to-peer lending • crowdfunding • loans • online lenders • on-book lending by NBFCs • Credit scoring platforms.	Earn from NIMs	Lendingkart bank bazaar Lazy pay

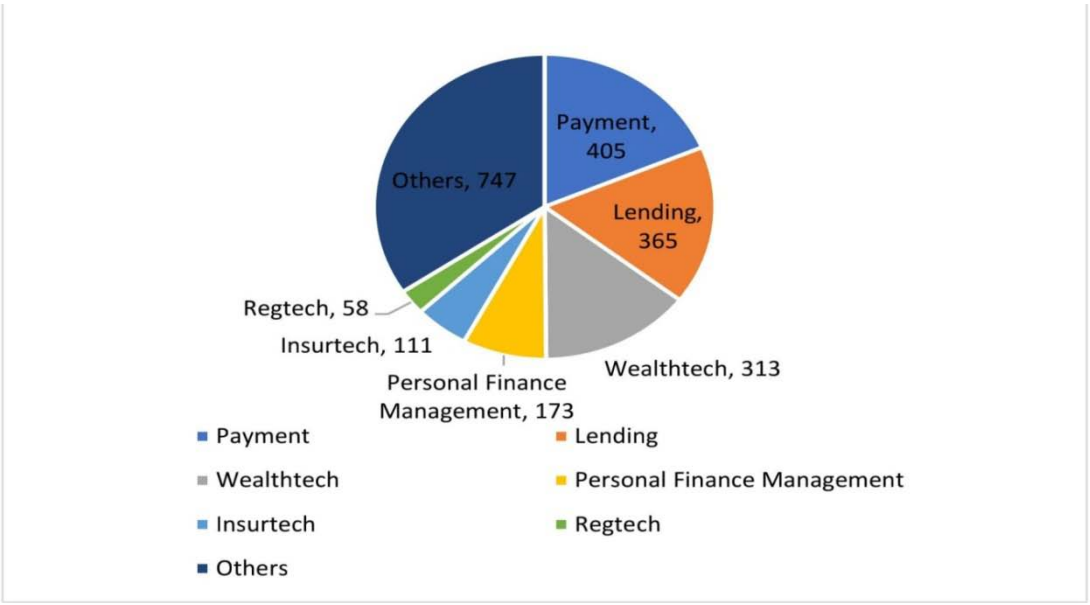
3.	Wealthtech	• Investment Platforms • Robo Advisors • Thematic investing • Discount brokers	• Robo-advisors • discount brokers • online financial advisors • Personal finance management	Earn revenues based on annual percentage rate or a flat fee	Upstok Cred Groww Zerodha
4.	Insurtech	• Digital insurers • Digital insurance Advisors	• Online insurance • Claims management • insurance aggregators • IoT • wearable • kinematics.	Earn premium or service charges	Policy bazar Coverfox.com Turtlemint Acko Sureclaim
5	Neo Banking		• Retails Neobanks • SME Neobanks		Neo Jupiter Finin Niyo
6	Enabling Tech and Regtech	• Accounting • Tax compliances	• B2B Saas (including customer acquisition and services) • E- KYC, AML, fraud and compliances • Account aggregations • Data capture and integration • Risk Management	Earn fees from subscription	Khatabook EasemyGst Clear tax
7	Others	Blockchain, Cryptocurrency AI/Machine Learning, Loyalty/Rewards Coupons, B2B FinTech, Banking tech, BigData Analytics, Crowdfunding, Digital Cards, Remittances, Capital Market Tech and Trade Finance.			

Source: Author's Compilation

India's FinTech market is one of the world's fastest growing. Over 67 percent of India's 2,100+ FinTechs were founded in the last five years. In the quarter of June 2020, 33 new FinTech investment deals worth US$647.5 million were closed in India, compared to US$284.9 million in China.

As stated in FinTech Report 2020 by MEDICI, "In 2014–15, there was a massive uptick in the number of new FinTech start-ups; the numbers grew from 210 in 2014 to 454 in 2015—a 116% increase in growth. The period between 2015 to June end 2020 has seen phenomenal growth in new start-ups across Payments, Lending, Wealth, and others".

Chart 2: Number of Fintech start-ups in India: Segments wise



Source: Medici Report 2020

In the current scenario we are still witnessing phenomenal growth as the number of start-ups funded in H1 2021 (491) is already more than half of the total number of unique start-ups funded in 2020. (746)

In H1 2021, Indian start-up funding touched $10.15 billion, already exceeding the $9.94 billion raised in the whole of last year. This was raised across 543 deals from around 1,020 active investors in the ecosystem.

Table-3provides information about various sectors and their corresponding number of deals with the amount rose in $million.

Table 3: Deals in Various Sectors

Sector	Number of deals	Amount raised (in $million)
Fintech & Financial Services	98	1891
Edtech & Education Services	65	1412
Foodtech	2	1050
Ecommerce	38	879
Healthtech & Healthcare Services	53	700
Enterprise Tech	44	351
Retail/Consumer Brand	43	308
Total	343	6591

Source: Medici Report 202., Author's Compilation

Fintech and Financial services received the maximum funding of $1.89billion across 98 deals, followed by Edtech & education services with $1.42Billion across 65 deals.

Furthermore, in the last several years, the unicorn club(any privately owned start-up company whose valuation is more than $1billion is known as unicorn in the financial world) has experienced amazing development.

Even during the epidemic era, fresh unicorn additions accelerated in 2020 (11) and 2021(15). Out of the 15 unicorns joining the club in H1, 2021, 5 belong to the FinTech sector. This figure is anticipated to rise even faster presently.

Overall, the FinTech market in India is already worth US$31 billion and is expected to grow to US$84 billion by 2025. By 2023, the value of FinTech transactions is expected to increase to US$138 billion, up from US$66 billion in 2019.

a) Impact of Covid-19 Impact on Fintech in India

The Fintech sector saw a large drop in the number of start-ups funded during the early months of the pandemic and the economic slowdown it caused. However, by the end of the year, these figures had begun to rise, and strong traction was being seen across all Fintech areas.

As per Digital Fifth's Fintech Report 2021, big agreements have been few and far between this year, with only two deals worth more than $100 million (excluding the 700 million acquired by PhonePe from Walmart). A large portion of the investments were of a small to medium ticket level. Seed funding has accounted for a large portion of the investments, indicating that investors envision the market rebounding at a quick pace. This demonstrates investors' belief in the founder's vision and ability to execute it.

- The pandemic has raised awareness of the importance of having financial reserves, which has boosted customer and investor interest in savings-based FinTechs.
- Savings and investment-based FinTechs were compelled to adapt their products, engage new consumers, and digitalize their operations as a result of the shift in market behaviour.
- Credit FinTechs faced difficulties in collection due to the moratorium, discouraging investors from investing and adding new credit FinTechs to their portfolios
- Due to the RBI's prohibition, Credit FinTechs faced a cash shortage until October 2020; market sentiments were therefore not supportive to repayments until Q3 FY 21.
- COVID-19 has acted as a catalyst for the next generation of insurance prospecting, selling, and customer experience.
- Following the Pandemic, Insurtech has experienced a significant increase in financing, as the majority of insurance purchases were made online.
- While most FinTech services were hit hard by the COVID-19 pandemic, digital payments have accelerated significantly.
- Consumer adoption of digital payments and use of digital banking services has led to a multi-fold increase in business for FinTechs in the payment sector.

VI. Reasons for Growth of Fintech in India

With one of the world's fastest-growing economies, India has undoubtedly emerged as one of the fastest-growing FinTech hotspots in recent years. Paperless lending, mobile banking, secure payment gateways, mobile wallets, and other concepts are already being adopted in India. Over the last two years, there has been a massive adoption of digital payment systems in India, making it a lot more convenient to go about with basic financial services. This growth and expansion of the FinTech ecosystem in India have been aided by a number of factors, including the growing availability of smartphones, increased internet access, and high-speed connectivity In fact, according to a report by Boston Consulting Group and FICCI, India is well-positioned to achieve a FinTech sector valuation of USD 150-160 billion by 2025, implying a USD 100 billion in incremental value creation potential. To achieve this goal, India's FinTech sector will need investments of $20-25 billion over the next few years. ((Times, 2021). Some of the factors contributing positively to make this sector more attractive are as follows;

a) India Stack

IndiaStack is a set of APIs that allow governments, corporations, entrepreneurs, and developers to use a unique digital infrastructure to tackle India's challenging challenges. It is founded on the core principles that services can be:

Layers	What is it?	What is in it?	Owner
Consent	A modern privacy sharing network	Open personal data store	Reserve Bank of India
Cashless	An electronic interoperable payment network	IMPS,AEPS , APB,UPI	National payment Corporation of India
Paperless	Easily store and retrieve information digitally	Aadhar, e-kyc,e-Sign, Digital Locker	Department of Electronics and information technology
Presence-less	Unique digital Biometric identity with open API access	Aadhar card, Mobile Card	Unique Identification Authority of India

It is the world's most ambitious societal endeavour, with the goal of establishing a public digital infrastructure built on open APIs to support public and private digital initiatives. It was essential in the development and growth of India's digital infrastructure. The most major components of the stack over the years, Aadhaar and UPI, have seen an increase. During the 18 months leading up to June 2020, a number of incremental enhancements were made to various portions of the stack. There have been significant benefits, such as lower transaction costs and business on boarding costs, as well as providing a broad-based, ubiquitous platform and personalised offerings at scale, allowing new businesses, developers, enterprises, and the government to establish digital footprints in the country.

Following India Stack's success, more than 20 nations have expressed interest in studying and adopting a digital identity system based on Aadhaar and the software stack built around it.

b) Government Initiatives

In a heavily regulated financial market, the government is naturally the primary driver of fintech success or failure. Through both financial and promotional activities, the Indian government, along with authorities such as SEBI and RBI, is aggressively supporting the Indian economy's desire to become a cashless digital economy and emerge as a powerful fintech ecosystem.The government programs which played a key role in popping up Fintech are:

Pradhan Mantri Jan Dhan Yojana (PMJDY)[2] *:* It added over 400 million[3] Bank account in banking sector

Aadhar- widespread identity formalization: The use of Aadhar for pensions, provident funds, and the Jan Dhan Yojana has been extended.

Demonetisation: As a result of the liquidity constraint that followed the announcement of demonetization in 2016, India's digital payment ecosystem was transformed.AI, blockchain, and IoTs were introduced, and the Indian fintech market has grown at a rate of about 100 percent since then, from USD 1.8 billion in 2018.

Innovations in Digital Payments: In the previous year, home-grown payment networks (RuPay and UPI) accounted for 65 percent of total digital transactions, demonstrating that their efforts are paying off.

UPI(Unified Payment Interface): The National Payments Corporation of India developed the Unified Payments Interface (UPI), which is a real-time payment system that supports transactions between multiple banks. The RBI-regulated interface works by transferring funds from one bank account to another over a mobile app in real time. The facility was introduced to the market in April 2016 and had an immediate uptick in demand

National Common Mobility Card (NCMC): 'One nation, one card'

It was recently unveiled by the Indian government. Consumers can use this interoperable, contactless transport card to make a variety of purchases, from transportation to tolls and retail shopping, as well as withdraw money.

Tax benefits on surcharges

Tax Holidays ForStart-ups; Exemptions For Investors[4]

Foreign direct investment limit (FDI) from 49% to 74% in insurance companies at the Union Budget 2021.[5] Allocation of INR 15 billion to boost digital payments

Recognition of P2P lenders as NBFCs

It lowers the cost of borrowing as it removes intermediary margin and ensures lower interest rates. It also increases the alternative Supply of Credit. It also offer more options of funding to small businesses.

The RBI's Regulatory Sandbox[6]

Cohort is expected to spark innovations capable of reshaping the cross-border payments market by utilising new technology to suit the needs of a low-cost, secure, simple, and transparent system in a timely manner.

SEBI- Securities and Exchange Board of India

It relaxes the norms[7] for entities to enter the mutual fund business.

SEBI has developed an Innovators Growth Platform (IGP) framework for the listing of start-ups on stock exchange.[8]

Start-up India

It was launched by the Government of India in January 2016. Flagship initiative to build a strong start-up ecosystem

c) Increased Mobile and Internet Access

India's digital economy is accelerating. The number of internet users in India increased by 47 million (+8.2%)

Similarly, over the last two decades, the number of smartphone users in India has exploded. Thanks to the

[2]https://www.pmjdy.gov.in/scheme
[3]https://pmjdy.gov.in/account

[4] infocus/union-budget-2021/union-budget-2021-the-9-major-takeaways-for-startups/amp/
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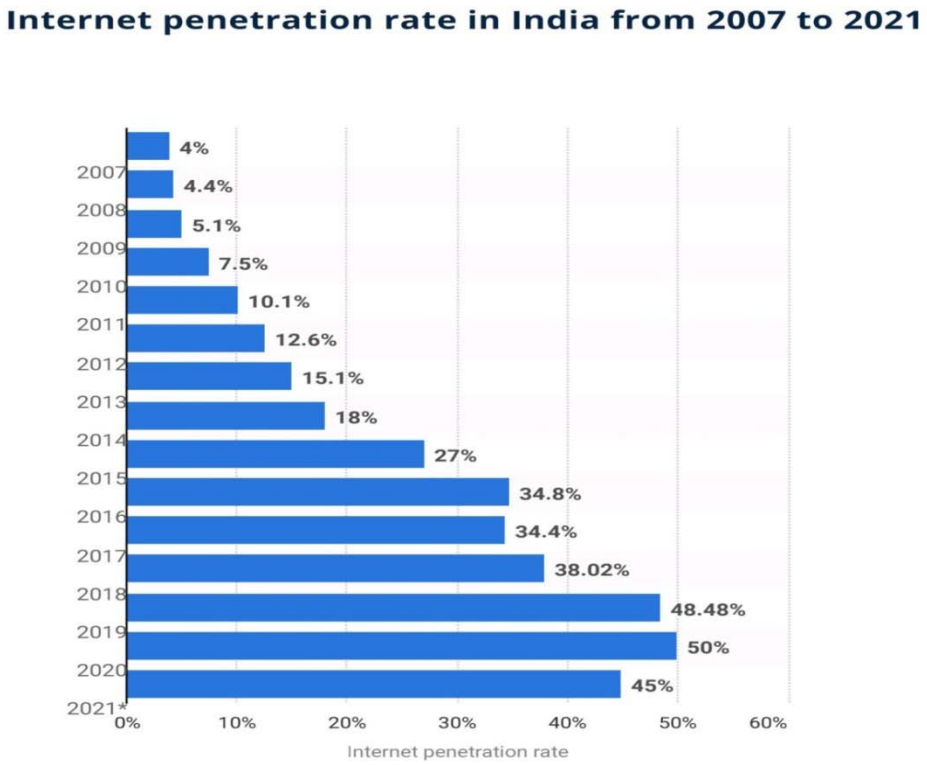
emergence of low-cost and low-cost cell phones, as well as low-cost data plans, There were 1.10 billion mobile connections in India in January 2021. The number of mobile connections in India increased by 23 million (+2.1%) between January 2020 and January 2021.

This deep penetration into the Indian population base offers fintech firms an opportunity to address the legacy issues of low banking penetration (53 per cent) and dormancy (43 per cent) in the Indian Banking sector. Like there were 624.0 million internet users in India in January 2021.

Table 4



Source: Statista 2021

d) Technological advancements

Smartphone usage is on the rise, which is one of the primary drivers driving technological breakthroughs and allowing mass acceptance. The way the banking business operates and provides services is changing as a result of technological advancements. The market as a whole is undergoing a significant transition as a result of new and cutting-edge technologies. Big data and analytics have the potential to help companies better understand their customers' needs, provide personalised products and services, and drive operational cost savings that lead to new business models like Artificial Intelligence and Machine learning. Infrastructure & Transaction cost have also reduced through usage of Cloud services and India stack.

Fintech Companies use technology to onboard customers easily, lowering customer acquisition costs, customer servicing costs, and distribution costs.

Payments Bank, for example, uses technology to grow their customer base while keeping their physical presence to a minimum.

Hence, FinTech's global growth has been fuelled in large part by technological advancements.

e) Investors Participation

According to the MEDICI India Fintech Report, 2020 edition, investments in India Fintech expanded not only in 2019 but also in the first half of 2020. Fintech investments totalled $1.47 billion between January and June this year, up 60 percent from the same period last year. According to research presented at the Global Fintech Festival in July, a large number of them – 68 – were signed during the slow months of March and June.

The report highlights that since 2019, less than 10% of total funding went into early stage (Angel + Seed + Series A) deals. Close to 60% of total funding went to established companies (Series G and beyond). To avoid concentration and ensure even growth of the sector, a greater number of companies with convincing business models need to emerge.Table-5 provides information for the stage-wise breakup of total FinTech Funding.

Table 5: Stage Wise Funding Since 2019- H12020

Stage	Total Number of Deals	Total Funding (Million)
Angel	7	4.55
Seed	97	165.5
Series A	48	330.2
Series B	26	868.8
Series C	18	484.3
Series D	8	180.8
Series E	3	105.3
Series G	3	1818.0
Others	53	1452.5

Source: India Medici Report 2020

Table 6: VC, PE Funding Since 2019

Sectors	Total number of Deals	Total VC/PE Funding (Million)
Payment	48	2453.1
Lending	88	1673.6
Insurtech	19	445.8
Wealthtech	34	213.4
B2B Fintech	18	166.1
Loyalty/Rewards/ Coupons	6	131.9
Neo Digital banks	11	122.0
Banking Tech	5	94.9
Artificial Intelligence/Machine Learning	3	63.1
Others	31	71.2
Total	263	$5.3 BN

Source: India Fintech Report 2020 by Medici

There were 263 deals struck in the 18 months between 2019 and the first half of 2020.Although payments garnered the greatest funding in terms of value, digital lending continued to lead fundraising activities in terms of number of agreements. In the previous 18 months, neo-banking, a new market in India, has seen substantial growth. In India, there are more than 15 neo-banks offering consumer and corporate banking services. In the last 18 months, there has been a surge in interest in Wealthtech. In 2018, the

Wealthtech segment gained over 183 new companies, up from 303 in 2017.

f) Start-ups

A successful fintech environment requires the evolution of start-ups. Consumer desire for digital financial goods, the widespread adoption of linked devices, and venture capitalist assistance have all aided the growth of fintech start-ups. While start-ups use their cutting-edge technical capabilities to reimagine financial services operations, incumbent businesses are following suit and investing extensively in developing new products of their own. The trend is evolving away from start-ups being perceived solely as disruptors and toward them being seen as change catalysts. India's Ambassador to the US Taranjit Singh Sandhu said, "Today India is the third-largest, start-up ecosystem in the world."

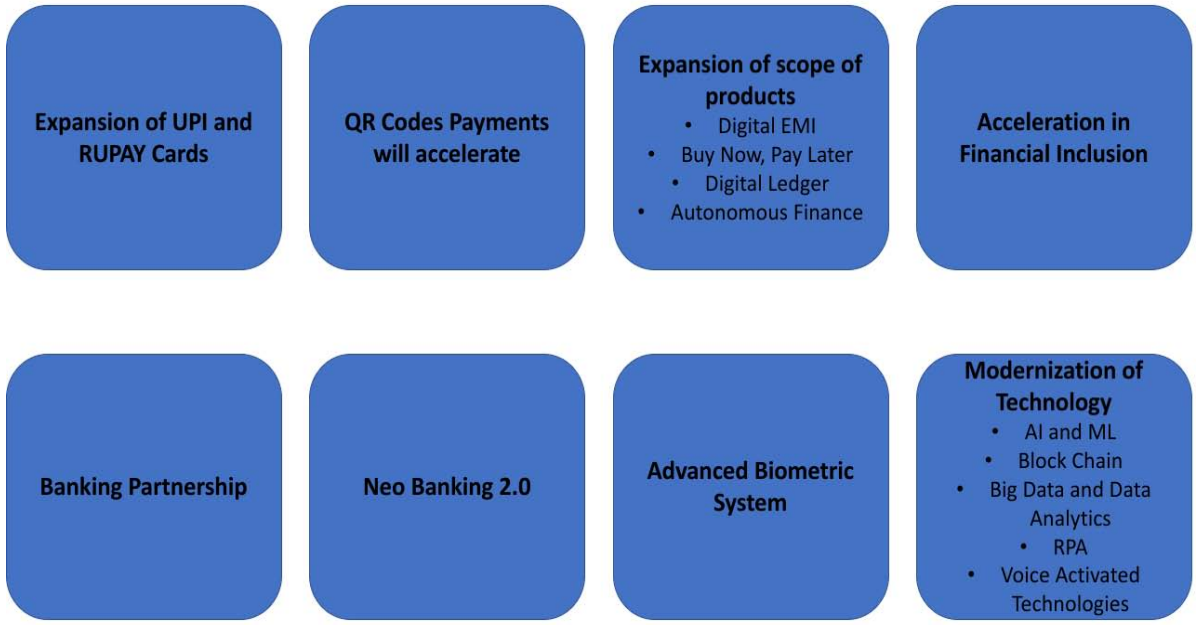
g) Favourable Demographic in India

More than 65% the age of 35 years having apetite for innovative technology. Fintech uptake among Indian clients (both consumers and businesses) has been surprising quick. Years of cash, branch banking, and relationship-driven preferences are quickly being replaced by greater cashless transaction ticket sizes, full-suite mobile banking, and personalised advice and assistance regardless of location, language, or relationship. As of March 2020, India, alongside China, accounted for the highest fintech adoption rate (87%), out of all the emerging markets in the world. (Source: PR Newswire)

h) Covid -19

COVID19 is also regarded as a watershed moment in the fintech industry. It disrupted several FinTech company models in the early covid period, but it has re-ignited digital or contactless payments and neo banks throughout the year. Fintech investments totalled $1.47 billion between January and July 2020, representing a 60% increase over the previous year.

VII. Fintech in India: Recent Trends



a) Expansion of UPI and RUPAY cards on both domestic and international Turf

Payment network platforms such as RuPay and UPI (universal payment interface) are witnessing worldwide presence expansion because of the assistance provided by the National Payment Corporation of India (NPCI). The corporation is in discussions with a number of international entities about expanding into areas such as West Asia, the United States, and Europe. RuPay has already surpassed MasterCard and Visa in terms of card volume in India, capturing more than 60% of the market. The Reserve Bank of India's (RBI) restriction on payments giant MasterCard on-boarding new users, which will take effect on July 22, 2021, has caused banks to hedge their bets by partnering with Visa and home-grown Rupay.

UPI appears to have been the largest winner as a result of the COVID 19 epidemic. According to data from the National Payments Corporation of India (NPCI), payments on the Unified Payments Interface (UPI) reached an all-time high of Rs 1.34 billion in volume in June 2021, with transactions totalling about Rs 2.62 lakh crore. Bhutan was the first country to implement UPI guidelines for QR codes. It is also the second country in

the world to accept Bhim-UPI at merchant locations, following Singapore.

As of May 2021, 224 banks had signed up for India's United Payments Interface (UPI), which had recorded 2.6 billion transactions worth $68 billion, a 15x increase over the same period in 2018.

Introduction of e-Rupi vouchers for a transparent and leakage free delivery with the assistance of QR Code will further increase the digital transactions and DBT in India.

As demand for credit grows, FinTech companies are testing fast loan solutions and increasing the reach of their digital equated monthly instalment (EMI)products at brick-and-mortar locations.

There will be a dramatic rise in BNPL (Buy Now, Pay later) for digital purchases. BNPL is a personalised credit limit delivered by fintech lenders which appears as a payment option while the consumer is shopping online. Example- Paytm's Programme "Paytm Now, Pay later". According to FIS' estimate, the usage of the BNPL option has shot up 570 percent during 2020.

PhonePe has done successful tests with Kiranas and small and medium companies (SMEs) around Khata (digital ledger) and ATM services, and their focus will be on enabling 'hyper-local commerce' for these 100 million Kiranas and SMEs, as well as for the at-home and gig entrepreneur segments.

Autonomous Finance will shape the banking industry. Fintech apps are the fundamental building blocks for autonomous finance. Fintech services use AI and machine learning to manage their customers' money, which is the autonomous component. These programmes utilise algorithms to assess the various options and help the user choose the best ones. Robo-advisors, which deal with software-based financial planning and mutual fund management, were the forerunners of autonomous finance. Later, it has evolved into automatic-saving applications and, eventually, into credit card debt management solutions.

According to the World Bank, about 1.7 billion individuals worldwide, especially in developing countries, are unbanked because they lack access to banking services. These regions, interestingly, have a high mobile phone usage rate, making them ideal locations for FinTech apps and branchless banking. In these areas, many FinTech solutions have been striving to improve financial inclusion.

b) Banking Partnership

Many of the barriers to digital transformation have been lifted as a result of the epidemic, and banks and other traditional financial institutions are cooperating with fintech start-ups to attract new customers and engage with existing clients through new channels. To be competitive and roll out new services, banks will need to discover methods to integrate operations and data swiftly as they engage with innovative start-ups.

c) NEO- BANKING 2.0

Digital payment firms spearheaded the initial wave of financial services disruption, followed by digital lending, wealth management, and InsurTech start-ups. However, Neo banks are leading the second wave, or "FinTech 2.0," which aims to revolutionise customer-centric consumer and business banking experiences. It will decline paper-based banking. Digital-only banks have the advantage of flexibility, and they typically offer innovative services at significantly lower rates than legacy banks.

d) Advanced Biometric Security System

Now that the entire world has gone online, hackers and cybercriminals are more active than ever. As a result, the FinTech industry will most likely develop enhanced security methods to prevent security breaches. Biometrics is the ideal approach to take security to the next level, giving users peace of mind that their information is safe. Its authentication will be able to secure payment transactions of up to 2.5 trillion USD by 2024.(Juniper Research)

e) Modernization of Technology

Artificial Intelligence and Machine Learning are two of the most popular FinTech technologies, with the potential to play a larger role in the finance industry as time goes on. AI algorithms can be used to forecast stock market movements, provide economic insights, and help financial institutions better understand their customers' spending habits.

According to studies, AI will lower operational costs by 22%. As a result, adopting AI can save a bank up to $1 trillion.

Another financial technology that is gaining traction in the financial industry is block-chain technology, which has the ability to securely store transaction records and other sensitive data. When block-chain technology is used, each transaction is encrypted, and the chances of successful cyber-attacks are relatively low. According to a reliable source, 48% of bank executives believe that block-chain technology can make bank transactions more secure. As of January 2021, there have been over 600 million block-chain transactions in total. (Source: Blockchain.com)

f) Big Data and Data Analytics

FinTech organisations place a high importance on data from customers and marketplaces like consumer preferences, purchasing patterns, and investment behaviour etc. Good data insights are critical for finding possibilities and optimising products and services, making handling of all information systematically an important goal for a firm. As a result, FinTech developers will create applications that extract

data quickly and precisely, allowing data processing to be sped up.

g) Robotic Process Automation (RPA)

The financial services industry will increasingly adopt RPA to complete jobs more quickly, save money, and increase organisational efficiencies while freeing up employees to focus on more important duties such as customer support. The data provided by Forrester indicates that RPA demand is expected to top $2.9billion in 2021 compared to $250 million in 2016.

h) Voice activated Technologies

AI-powered voice-activated technology is likely to transform the banking sector's client experience. In the future, voice assistants will be able to authorize payments based on a client's biometric data. However, this might lead to emergence of new security breaches which will pose a threat to a bank's security procedures.

VIII. Potential Challenges

As discussed in the previous section, development in technology will also give a rise to various challenges which the FinTech Companies will have to face. These are as stated below along with already existing challenges:

- Cyber-Attacks: Automation of processes and digitization of data makes Fintech systems vulnerable to attacks from hackers.
- Recent instances of hacks at debit card companies and banks are illustrations of the ease with which hackers can gain access to systems and cause irreparable damage. This has increased the fear in mind of customers, making them hesitant to switching to digital cash entirely.
- Data Privacy Issue: The most important questions for consumers pertain to the responsibility for cyber-attacks as well as misuse of personal information and important financial data.
- Difficulty in Regulation: Regulation is also an existing challenge which has emerged in the world of FinTech. Most trending example will be of cryptocurrencies as in most countries they are unregulated and have become fertile ground for scams and frauds.
- Due to the diversity of offerings in FinTech, it is difficult to formulate a single and comprehensive approach to all the above-mentioned problems.
- Most of the Indian Fintech start-ups are closing due to Monopoly of Foreign companies. Indian Unicorn companies like Paytm are facing a severe fight with foreign FinTechs due to laws and regulations of the Indian government. Due to zero MDR[9], there is a huge fall of Indian Companies in the Digital payment system.

IX. Conclusion

Undoubtedly, Fintech in India has a bright future ahead of it. Collaboration between traditional banking and this dynamic sector, backed by additional government efforts, might provide a big potential for India's fintech industry to develop and thrive. The burgeoning Indian Fintech industry is on track to contribute another USD 100 billion to the market worth in the next five years. FinTechs must bridge the digital gap and promote equitable, broad-based customer involvement across urban and rural locations, as well as the various generating and consuming sectors, in order to create a healthy and sustainable economic ecosystem.

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The Problematic Issues for Starting a Business Faced by Business Graduates

By T.D.S.D Randuwa, Liyanahity L.R.L, Rathnayake E.P, Kovalan.S, Prof. Alles. L & Senevirathne.N

Sri Lanka Institute of Information Technology

Abstract- The objective of this research paper is to investigate the process and obstacles that new business start-ups face. The identification of entry barriers is critical because the removal of these restrictions and the development of small businesses may lead to the development of the country, as small businesses are the lifeblood of our economy. These serve as engines for developing countries such as Sri Lanka, which is now a lower-middle emerging market. The objective of this research is to identify and investigate the most fundamental issues that new businesses encounter.

Our country's government aims to reduce unemployment, with the higher unemployment rate among fresh graduates. For more than three decades, graduate unemployment has been a major issue in Sri Lanka. We investigated the challenges, difficulties, and obstacles that graduating entrepreneurs have faced or would face while launching a startup through this study. For this study, 184 newly graduated business faculty students from private tertiary educational institute provided data.

Keywords: business graduates, entrepreneurialism, start-up barriers, youth unemployment.

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The Problematic Issues for Starting a Business Faced by Business Graduates

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This article focusses on the effects of challenges and issues, graduate motivation, educational support, employability and start-up finance, and government regulations and policies on business start-ups.

Keywords: business graduates, entrepreneurialism, start-up barriers, youth unemployment.

I. Introduction

The younger generation is increasingly interested in starting their own business. It is not easy to start a new business. When starting a new business, entrepreneurs must be aware of the career shocks that can occur. According to the study conducted on behalf of "Understanding Entrepreneurial Intentions: A developed integrated structural model approach", Esfandiar et al. (2019), entrepreneurial goal intention (EGI) is primarily determined by desirability, followed by self-efficacy, feasibility, opportunity, attitude, and group efficiency. Also, they found out some limitations to this study, like how a group of university students and alumni who have not yet launched their own or co-owned businesses has been used as a proxy for the study's external validity. The researchers found that they were more likely to be successful than those who did not launch their businesses.

Furthermore, this research aims to investigate the challenges and obstacles that graduate entrepreneurs have faced so far or will face when starting a company. Previous literature in Sri Lanka has not clearly explained how the education system has a direct effect on business graduates. As such, the present study aims to highlight the impact and assistance that the education system offers to graduates who are keen to start their own business. As a result, this research analysis will look into the effects of Sri Lanka's background in this regard while considering relevant factors.

II. Statement of the Problem

According to the World Bank report (2019), the latest ease of doing business score in Sri Lanka is 61.8, which we can improve by decreasing unemployment rates. Therefore, our study mainly explores why people or business undergraduates are reluctant to run their own business. There is an empirical gap in our study. In the Sri Lankan context, it is hard to find researchers conducting research in this topic.

III. Research Questions

Question 01: What are the most influencing factors that need to be concerned in starting up a new business initially?

Question 02: What are the challenges to be faced by new graduates entering the business market to start up their business idea?

Question 03: How is the support provided by the government is influencing starting a new business?

Question 04: How far has the level of motivation within graduates helped in starting their own business?

Question 05: How far have the skills and knowledge gained as graduates have helped to start a business?

IV. Research Objectives

a) General Objective

To identify the problematic areas and the barriers that are being faced by business graduates when starting their own business.

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b) Sub Objectives

1. To examine the perception of business graduates on entrepreneurship and motivation level.
2. To investigate the impact of higher education on the likelihood of setting up a business for business graduates.
3. To identify the level of support provided by the government with its rules and regulations.
4. To determine the factors that would act as barriers in the initial business start-up.

V. Significance of the Study

In the context of Sri Lanka, it is known that the rate of new graduates' employability directly affects the country. If the government gives attention to the minted graduates who are willing to start a new business, then it will affect the country. Also, governments are incentivizing entrepreneurs to start businesses in underdeveloped areas by providing various concessions and subsidies. Creating entrepreneurship training for universities will aid in the development of their entrepreneurial mindset by providing them with the practical experience and hands-on exposure about how large businesses operate. This study helps the government in policymaking, where recently passed out graduates can get a sound understanding on improving their entrepreneurial skills, and thereby universities can include such skills in their curriculum and training activities.

VI. Literature Review

a) Barriers for graduates

In both developing and developed countries, the youth (newly minted graduates) have faced significant challenges of unemployment. Dagume and Gyekye (2016) Further Fleenor, Taylor and Chappelow (2020) point out that unemployment is when a person who is actively looking for work is unable to find work. In Sri Lanka, the unemployment rate seems higher in 2021 rather than in the previous year. Graduate unemployment has become a serious problem in Sri Lanka over the last few decades because of this situation. One of the long-term solutions to Sri Lanka's unemployment problem is to encourage young people to pursue careers as entrepreneurs. The reality is that in many cases, a qualification alone is insufficient to find work due to a mismatch between demand and supply in the labor market. As a result, some graduates were compelled to work in unrelated jobs for low pay, while others remain unemployed for an extended period, usually until the government provides opportunities. When doing your own business, it is common that some problems will arise. Due to this situation, graduate unemployment has become a serious problem in Sri Lanka over the last few decades. Because of this scenario, governments can give attention to assist fresh graduates to start their own business once they graduate. Here, we pay attention to the question of what the barriers are when starting a new business.

b) Challenges and issues

When analysing the past studies, it shows various possibilities on why the new graduates face multiple difficulties in starting their own business. The graduate students believe that there is no proper mechanism from the Government to appreciate and support the new entrepreneurs, and the respondents disagree that the country's infrastructure of the country is ideal for graduates to join the profession of entrepreneurship. The minimum capital requirement for startups may be a severe barrier because even skillful entrepreneurs may not overcome this without access to assets. Labor market regulations are increasingly becoming more rigid, whereas entrepreneur and entrepreneurship rates are lower. Perceived constraining factors identified are the lack of general business knowledge, contradictory advisory support from external agencies, lack of sector-specific mentors, lack of finance, and experience of familial entrepreneurship. Tariq et al. (2015). We were unable to find many past studies on how all these independent variables affect the business start-ups in the Sri Lankan context. Hence, it is expected that our study will fill the gap and help future entrepreneurs to realise the factors affecting their business entry. In the study of an empirical analysis of experience and education on new venture performance: evidence from Matara district Sri Lanka. Smithand Beasley (2011). Furthermore, Deshani (2019) in her study concluded that education and experience do have a relationship with new business performance. This study supports our variable entrepreneurial education and skills that have an effect on new business creation. Van Weele et al. (2018) emphasised, because of their concentration on linking start-ups to each other and to other actors, incubators can also play a significant role in developing the ecosystem's networks. By lowering the negative effects of unfavorable institutions, incubators assist entrepreneurs in overcoming challenges in the entrepreneurial environment. Incubators accomplish this by providing a "safe haven" for start-ups to escape these institutions, or by bridging institutional gaps between actors or countries. These incubators have the potential to enhance the entire entrepreneurial ecosystem.

Different levels of barriers were identified related to graduate startup businesses in past literature, highlighting the global context. Therefore, to further identify the barriers and challenges faced by business graduates in the Sri Lankan context are examined in this study. This is because the impact of these variables differs with both internal and external influencing factors.

c) Motivation of graduates

Even when knowhow acquired from university educationis not used or put into practice in business,

entrepreneurial skills and attitudes benefit society. Personal qualities associated with entrepreneurship are clearly advantageous to everyone else in their professional and personal lives. As a result, a policy commitment to facilitate entrepreneurship education in the educational system is required at the federal, state, and local levels. Then what is the motivation that impacts newly minted graduates to start a business, Tohidiand Jabbari (2012) delineated the basis like allowing participants to achieve high levels of performance and breaking down the barriers to change. It shows that each country's level of sensitivity to each motivator and deterrent is different. Cultural differences should be considered when developing entrepreneurship education programs. The motivations for growing a new venture differ depending on race, yet the motivations for starting a new venture are the same for blacks and whites. By analyzing past reviews, the differences between male and female graduates in private sectors and how this problem influences them, their entrepreneurial intention, and the relationship between the psychological attributes of the individuals have not been much investigated so far. But, Nishantha (2009) analysed the gender differences in the University of Colombo, with regard to starting a new business. Individuals with a high internal locus of control, high need for achievement, and risk-taking propensity are more likely to have positive attitudes toward entrepreneurship. According to the findings, the most significant challenge for starting a new business is a lack of knowledge-based ventures, followed by bureaucratic and technical barriers. The most frequently mentioned start-up challenge is ignoring knowledge-based innovation; being their own boss is the primary motivation for starting a business; parents and family are the primary motivators for young people to start a business; and financial risk is the most pressing de-motivator to start a business Tariq et al., (2015). Financial and market constraints have a significant negative impact on students' entrepreneurial intentions and motivations. Not only do you need the right motivations, knowledge, and skills, but you also need inspiring entrepreneurship educators who have the same innovative drive as your students (Kuratko, 2011). To successfully overcome economic stagnation, policymakers must simultaneously reduce actual or perceived barriers through appropriate entrepreneurship support measures Sitaridis and Kitsios., (2017). Further, Pinto et al., (2019) study implies that the majority of students are unsure of their long-term objectives. It's been discovered that there's a link between a desire for autonomy, self-determination, realising one's own ideas, thinking creatively, and risk-taking ability, and a proclivity for entrepreneurship. In the meantime, the students lack creative abilities, self-confidence, and business idea. The outcome is that graduates are hesitant to start their own businesses. Through various entrepreneurship-related activities in colleges, it is necessary to inspire them to take on challenges and think creatively.

d) Support from education

Undergraduates may experience career shocks if they are afraid of starting and maintaining a business. Positive career shocks influenced newly graduated entrepreneurs on a professional and personal level, as these impacted the development of the business, the flexibility of the graduate, and led to the verification of their career path in entrepreneurship. Negative career shocks influenced newly graduated entrepreneurs before and after starting their business are associated with frustration of organisational life and personal issues. Rummel et al., (2019). Entrepreneurial education and intentions, as well as support and education, were found to have a good association. In the relationship between support and intentions, education played an essential moderating function. However, structural support did not impact schooling and intentions. Al Issa., (2020).In the Sri Lankan context, previous literature has not described how the education system has a major effect on business graduates, as such in this paper, we try to emphasise the impact and help that the education system provides for graduates who intend to start their own business. To identify whether the knowledge provided by the educational system with various entrepreneurial development has been helpful when starting their own business, has to be addressed as a part of our study. Moreover, numerous researchers have analysed the level of motivation of business graduates in their studies, However, in the sense of Sri Lanka, certain influencing factors primarily force business graduates to develop their intention to perceive on starting their own business, even if they are unaware of the various levels of barriers they may face when entering the business setting. Through conducting this research, the gap of not knowing the key factors that motivate business graduates to start their own business will be filled. Zhou and Xu., (2012). Individuals enrolled in part-time degree programmes were more likely to say they were ready to start their own business; they were much more likely to indicate they had a detailed business plan, knew how much money they required, and where they could obtain it. Organisations that finance and assist businesses must do more to support entrepreneurial activity and collaborate more closely with universities, which naturally stimulate innovation and entrepreneurship. Staniewski et al., (2016).

Because they provide unique habitats for embryonic entrepreneurship, higher education institutions (HEIs) play a crucial part in this learning process. HEIs have developed specific techniques to help business establishment and development in addition to educating about entrepreneurship. Alumni are routinely used in entrepreneurship teaching and

support in many EU nations. However, in eastern Germany, alumni are engaged in entrepreneurship education by fewer than half of HEIs. As noted previously, individuals with higher education are more likely to start their own businesses. It has the potential to be beneficial and is even more crucial for launching a successful, long-term business. Supporting entrepreneurial intention or other relevant business activities throughout traditional university education could be highly advantageous to promoting entrepreneurial intention in the economy. Hunady et al., (2018).

e) Employability and start-up finance

A case study was conducted at the University Sains Islam Malaysia to support universities and the government in their efforts to encourage more students to choose entrepreneurship as a career option. Here, they found that although students come from a non-business background, their attempts at entrepreneurship activities are very high. Bustamam et al., (2015). According to these findings, the most significant issue is not having capital for entrepreneurs for business start-ups. The financial institutions also dislike giving capital resources to students or fresh graduates. This was their main challenge. Furthermore, these studies recommended that alternative funding models should be investigated, utilising the experiences of other countries. Mbuya., (2022) also offered some insights on techniques that can be used to improve student employability. As a result, students will be able to recognise their function in the workplace, the work that needs to be done, and the organisation as a good location to work after graduation. Getting a job will be easier if they use their network to get information. Individuals with social and human capital use both informal and formal networks to get work. When discussing employability in the Sri Lankan context, certain recommendations were identified from past literature reviews. In Sri Lanka, graduates' unemployment has become a major social problem. Weligamage and Siengthai., (2003) examined that there is a gap between employee expectations and job expectations of graduates. Also, they revealed the reason for this gap is demand for labour skills and university education directly impacted graduates' unemployment. According to Saukkonen., (2017), Academic and non-academic entrepreneurship programme designers can learn about the critical drivers and success elements that lead to start-up entrepreneurship and employability. Despite the fact that most start-up research has focussed on the most essential stakeholders, the entrepreneurs, the role of start-up employees should be given more attention and weight in education. The study suggested that the development of an entrepreneur and an employee who is likely to join an entrepreneurial firm is a process that occurs at the crossroads of several approaches. There are stage- and state-based models of new business growth (including concepts like inception, validation, growth, and maturity), stage-based models of individual human growth (including stages like childhood, adolescence, parenting etc), and stage-based models of innovative individual development, the core essence of growth and entrepreneurial opportunity.

f) Government regulations and policies

Entrepreneurs' motivation to start new firms is influenced by regulatory issues. The cost of starting a new business, the procedures for enforcing a contract, and other legal variables all influence the creation of new businesses. Exporting takes time, as does preparing and paying taxes. Minimum paid-in capital, business registration, property registration, and the total tax rate on commercial profits. Variables define how much money an entrepreneur needs to start a firm and how much time the public institution procedures that are required to start a business. Li et al., (2020). More restrictive credit market regulation diminishes entrepreneurial ambition, whereas more stringent labour restrictions limit employment availability and encourage more people to pursue entrepreneurship as a vocation. The legal system and freedom to trade have a statistically significant influence on entrepreneurial intention, although the size of government, sound money, and overall regulation do not. Ghosh., (2017). Our study identifies the main factors that are concerns of graduates and what qualities to be more focussed on or given the priority, level of support provided from the university education system. Tennakoon et al., (2020) In our study we could provide further implications in the changes required on the part of the government to uplift the university education system that matches with the economic situation of the country by emphasising more graduates towards starting their own business; in addition, to gain international contribution towards the country. It is difficult to find the government impact to start a new business-like administrative barrier in registering the business, tax levels, bankruptcy laws, number of places that they have to visit during the registering procedure, and tax regulations. The extent to which certain countries examine their policies in a more uniform manner was investigated in a report. It has demonstrated that countries may be divided into three groups. Cluster analysis has allowed countries to be grouped based on their coherence indexes. It has also enabled them to be segregated into groups based on their vocational, professional, and continuing education systems. Governments may create conditions in their cultures and economies that encourage people to invest in their reputations. Campos et al., (2019).

VII. Methodology

a) Conceptual framework

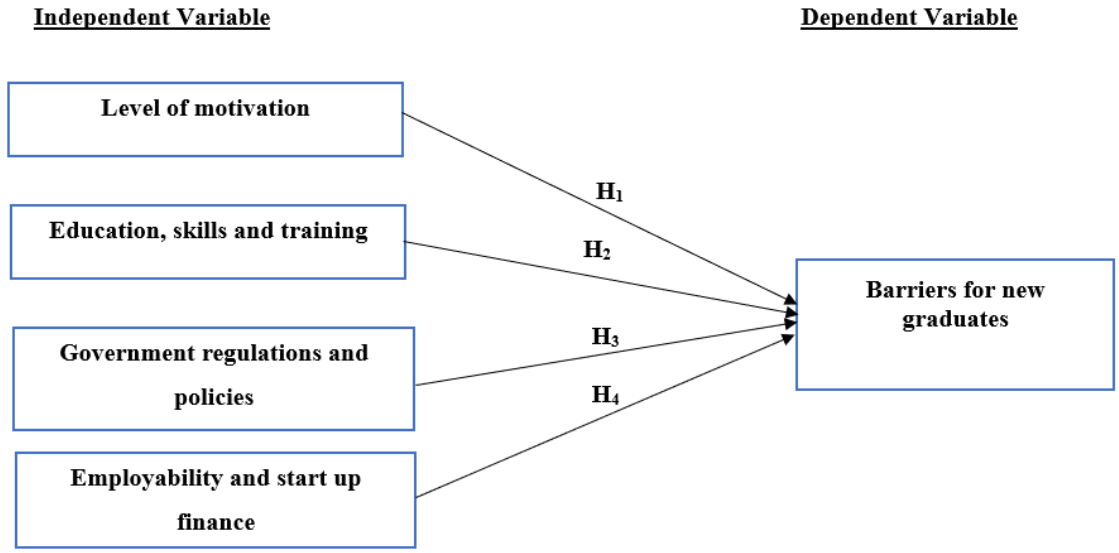

Figure 1: Conceptual framework

b) Hypothesis

H1: Is there a significant relationship between the motivation of new graduates with barriers for new graduates in business start-ups.

H2: Is there a significant relationship between education, skills, and training with barriers for new graduates in business start-ups.

H3: Is there a significant relationship between government regulations and policies with barriers for new graduates in business start-ups.

H4: Is there a significant relationship between employability and start-up finance with barriers for new graduates in business start-ups.

c) Population, sample, and data collection

The population is defined as the totality or sum of all objects, subjects, or members that meet a set of criteria. The study's scope includes why fresh business graduates in Sri Lanka are hesitant to start a new business. Younger generations who have been educated are more open to new and innovative ideas. The sample frame, as defined by Zikmund, Babin, Carr, and Griffin (2013), is a set of elements from which a sample can be drawn; it is also known as the working population. Accordingly, the sample frame for this study is newly graduated business students from private tertiary institutions. The sample is a portion of the entire population, and the goal of inferential statistics is to extrapolate information from the sample to the entire population. Cooper & Schindler, (2006). The sample data set in this study numbered 234 and the number of respondents was 184, with the respondents were chosen from the population using a convenience sampling method. The study is conducted with a 95% confidence level. The data was collected using a self-administered questionnaire between June 2021 and July 2021. As a result, SPSS is used to process the data in this study because the sample size is adequate. There were 103 female respondents or 56 percent, and 81 male respondents, or 44%. The questionnaire is divided into two sections. The first section of the questionnaire was designed to gather demographic information (informants' backgrounds) and entrepreneurial intent, while the second section was developed to implement key variables. Variables are associated with the desire to succeed and the willingness to take risks. Part two is simply a summary of the research objectives and has five sections, one for each independent variable and one for the dependent variable. Each question will include an attribute that will be used to calculate the dependent and independent variables. Direct 'YES' and 'NO' questions as well as Likert scale questions are included in the questionnaire.

VIII. Results and Discussion

a) Results

Table 1: Reliability test

Variable	N of items	Cronbach's alpha
Dependent Variable		
Barriers for graduates	11	0.850
Independent variables		
Motivation of graduates	6	0.711
Government regulations & policies	5	0.780

Source: Survey results (2021).

Cronbach's Alpha value for Graduate Motivation is 0.711, and Government Regulations and Policies is 0.780, according to Table 1. It shows that the construct validity and reliability of the majority of constructs are acceptable. As a result, we move on to testing the hypotheses. The dependent variable, Barriers to setting up a business showed 0.850 Cronbach's Alpha value. By analysing these values, we can conclude that the measurement (questionnaire) is more reliable.

b) Demographics of the sample

Table 2: Demographic factors

	Variables	Number	Percentage (%)
Gender	Male	79	43
	Female	102	56
	Not revealed	2	1
Age	Male		
	20- 24	30	38
	25 - 27	32	41
	28 - 30	10	13
	Over 30	7	9
	Female		
	20- 24	48	47
	25 - 27	49	48
	28 - 30	3	3
	Over 30	2	2
Educational level	Bachelor's Degree	153	85
	Master's degree (MBA)	20	11
	Professional degree (CIMA, ACCA etc.)	7	4
Field of specialization	Accounting and Finance	72	40
	Business Analytics	14	8
	Business Management	28	15
	Human Resource Management	14	8
	Logistics and Supply Chain	12	7
	Management Information Systems	9	5
	Marketing	29	16
	Quality Management	3	2
Current occupation	Employed in private sector firm	122	67
	Employed in state sector institution	16	9
	Not employed	34	19

Duration of being employed	Self employed	11	6
	01 - 02 years	43	27
	03 - 05 years	41	26
	Less than 01 year	57	36
	More than 5 years	18	11

c) Correlation analysis

Correlation analysis indicates that the strength and the relationship between the independent variables on the dependent variable as in Table 3.

Table 3: Correlation analysis

Result of correlation analysis		
Barriers for graduates		
Motivation for graduates	Pearson Correlation	-.082**
	Sig. (2-tailed)	.269
Education skills & training	Pearson Correlation	.102**
	Sig. (2-tailed)	.095
Government regulations support	Pearson Correlation	.211**
	Sig. (2-tailed)	.004

*Notes: N=184, **. Correlation is significant at the 0.05 level (2-tailed).*
Source: Survey results (2021).

Correlation analysis was conducted in this study to identify the strength of the independent variables with the dependent variable, focussing on first three objectives the above correlation coefficients have been derived. There is a negative correlation between barriers for graduates and motivation for graduates, which indicates a weak negative correlation. Barriers for graduates and education skills, the value 0.102 shows that positive weak relationship. Barriers for graduates and government regulations support are positively correlated, indicating that there is a weak positive correlation.

d) Regression analysis

Table 4: Regression analysis table

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Motivation for graduates	-0.165	0.094	-0.130	-1.756	0.081
Education skills & training	0.143	0.074	0.143	1.998	0.048
Government regulations support	0.184	0.101	0.141	1.828	0.069

a. Dependent variable: Barriers for graduates
Source: Survey results (2021)

As per the regression analysis been conducted separately for each variable as per the objectives derived in our study, the significant value for motivation for graduates is 0.081, which is higher than the standard. As a result, graduate motivation is not having a big impact on graduate barriers. As a result, we can accept our null hypothesis, which states that there is no significant relationship between the motivations of graduates with our dependent variable, barriers for new graduates in business startups. The significant value for education support according to the above table is 0.048, which is lower than the standard. As a result, education support is having a significant impact on graduate barriers. The significant value for government regulations, according to the table (Table 4), is 0.069, which is higher than 0.050. As a result, government regulations are not having a significant impact on graduate barriers in this scenario.

Barriers for graduates= -0.165* Motivation for graduates+ 3.734… (4.1)

Barriers for graduates = 0.143* Education support + 2.989…….... (4.2)

Barriers for graduates = 0.184*Government regulations + 2.655… (4.3)

e) Responses analysis

Perceived barriers for graduates

Table 5: Responses analysis

	Strongly disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
Financial risks	4%	10%	24%	36%	26%
Access to finance	5%	11%	19%	40%	26%
Social (protection) risks or costs	8%	21%	34%	31%	7%
Lack of skills	10%	20%	25%	39%	6%
Administrative obstacles	4%	14%	35%	34%	13%
Gender	30%	26%	23%	14%	7%
Stigma associated with failing	13%	27%	27%	25%	8%
Workload	9%	20%	31%	34%	6%
Bribery and Corruption	6%	18%	33%	32%	12%
Competition	6%	16%	32%	37%	10%
Market Demand	3%	17%	26%	36%	18%

All the factors were considered to be influential barriers, but the gender and stigma associated with failure are not considered as highly influential factors as per the perceptions of the business graduates.

f) Factor analysis

Table 6: Factor analysis

Communalities		
	Initial	Extraction
Financial risks	1.000	.733
Access to finance	1.000	.760
Social (protection) risks or costs	1.000	.423
Lack of skills	1.000	.443
Administrative obstacles	1.000	.459
Gender	1.000	.691
Stigma associated with failing	1.000	.644
Workload	1.000	.521
Bribery and Corruption	1.000	.479
Competition	1.000	.473
Market Demand	1.000	.538
Extraction Method: Principal Component Analysis.		

Communalities explain the r2 value, which explains to what extend does the underlying factors affect the variance of all the input variables. If we consider factor 1 which is on financial risk, it explains that from the two components identified, r2is equal to0.733. Similarly, we have to consider that all factors are having commonalities above 0.40, accordingly, the above analysis having all the factors above 0.40 indicates that all these factors contribute to the underlying factors.

g) Education support

Table 7: Education support responses

How helpful were the education, skills, and training experiences	Frequency	% of total
• Not helpful	3	2%
• Somewhat helpful	53	29%
• Very helpful	125	69%
How has your tertiary education influenced the choice of an entrepreneurial career	**Frequency**	**% of total**
• Had a negative influence on an entrepreneurial career	7	4%
• Had no influence on an entrepreneurial career	14	8%
• Impeded an entrepreneurial career	3	2%
• Influenced an entrepreneurial career positively	92	51%
• Strongly supported an entrepreneurial career	66	36%
Kind of educational support	**Frequency**	**% of total**
• Courses	70	38%
• Internship	116	64%
• Company visits	68	37%
• Training programmes	109	60%

Based on the results it could identify that majority of the respondents believe that the education, skills, and training experiences are very helpful. Further, education support has a positive influence being created within business graduates. Most students think that through internship programmes, undergraduates can get huge support for business start-ups.

IX. Discussion

In the analysis of the objective one, to identify how motivation for graduates impacts the startups, the findings show that the motivation for graduates has no significant influence on the barriers for graduates. The correlation between the motivation for graduates and the barrier for graduates is indicated that there is a weak negative correlation. This means that if barriers to start a new business would get decrease, then the motivation for the graduates for that would be increase and they optimistically will move to initialise their business in the economy. By searching out the past reviews some researchers also supported by proving that Motivation for graduates with barriers to startups doesn't have a statistically significant relationship. Nishantha (2009) has continued the exploration into the interaction between personality traits and socio-demographic background of business management undergraduates as they pursue a career as an entrepreneur (self-employment intention). The influence of parents' occupations and self-employment experience on the development of entrepreneurial intent among business students is minimal. Although there is a positive correlation between internal locus of control and entrepreneurial attitude, it is not significant. He discovered that people with an entrepreneur father or mother are less likely to have a positive attitude toward entrepreneurship and that there is no strong link between self-employment experience and entrepreneurial attitude among Sri Lankan business students. According to Thrikawala (2011), academics studying in various fields and at various levels of education in Sri Lanka do not favour entrepreneurship. The study found that the undergraduates' field of study, education level, gender, and family business experience all have a significant impact on their desire to start their own business, while their family's financial ability has no bearing on their business interest. Thrikawala (2011) also suggested holding conferences, workshops, and seminars to promote entrepreneurship and awareness of entrepreneurial opportunities among university students. He also suggested that universities should

upgrade their curriculums to provide students with more exposure to small businesses, such as discussing more real-world cases in class. It will then increase undergraduates' desire to start their own business.

In achieving objective two, which is investigating how education affects starting up a business, study findings revealed that education skills do not much significantly affect the graduates in their startups and however, it has affected entrepreneurship. This finding is supported by previous findings. Afriyie et al., (2014) found that entrepreneurship education can and will promote entrepreneurial culture. The business idea only became a mirage due to lack of support; technical, financial, emotionally, and psychologically. Mehtap et al., (2017) concluded that a strong supportive education system reduces the perception of potential barriers for entrepreneurship. Al Issa H.E., (2020) found that in the relationship between support and intentions, education played an essential moderating function. Rummel et al., (2019) When undergraduates are confused about whether to start and run their own firm, they may face career shocks. Positive career shocks had a personal and professional impact on recently graduated entrepreneurs, as these influenced the success of the firm, the graduate's adaptation, and the reinforcement of their entrepreneurship career path. Graduates also had unpleasant career shocks pre and post establishing their firm, which were associated with organisational life disappointments and individual troubles.

In achieving objective three of this study related to identifying the level of government regulations support, the study provided a descriptive overview of each variable taken into analysis the government regulations support. The findings revealed that all these regulations are being serious barriers for graduates when they initialise their business operations in the economy. Further identified correlation between the government regulation support and the barriers for graduates have indicated that there is a weak positive correlation exists, which indicates that even though the government is being supportive with its policies, rather than that support it is acting as barriers for graduates. Accordingly, past studies also supported by proving that, overall regulation fails to have a statistically significant effect on entrepreneurial intention. Ghosh., (2017) indicates that, any creative ideas that may be executed are demotivated. The time it takes to register a property, the total tax rate on commercial profits, the amount of cash an entrepreneur needs to start a business, and the time it takes to complete the public institution procedures required to start a business are all factors to consider. Trifu., (2016)have become essential factors that need to be concerned by graduates, which would become a huge difficulty for recently passed out graduates to cope up with such regulations in initiation when they are lacking the required amount of capital. Therefore, promoting entrepreneurship development is essential to improving a weak economy. Li et al., (2020). Government bodies and policymakers are advised to provide financial and non-financial support to SMEs which in turn can upsurge economic growth and sustainability. Yang et al., (2018) revealed findings to develop an entrepreneurial culture within the economy with the support of the government.

To accomplish the fourth objective of this study which related to the relationship between employability and start-up finance with barriers for new graduates in business start-ups. The descriptive analysis was conducted to achieve this variable by using various questions and after analysing the responses that received. The findings revealed that all these are serious barriers that graduates faced when they are starting their own businesses. These results can be clearly identified from past researchers. Finance and the lack of business counseling services appear to be the two most significant hurdles to self-employment, according to Owusu., (2012). In a South African study article, the same problem was discovered Mbuya & Mphahlele., (2016). They discovered that access to finance is a more common issue for South African enterprises. Financial institutions are unable to overlook the danger associated with providing money to youth-owned enterprises due to the youth's lack of experience. Akaeze and Akaeze., (2019) discovered that potential small business owners are unable to get medium to long-term loans from formal banks because they lack the necessary collateral. Furthermore, high loan interest rates, bureaucracy, bribery, and corruption raise the cost of borrowing, making it difficult to start a small firm. Qualified youngsters who wish to establish a small business, on the other hand, do not have access to initial start-up financing from banks. The research done by Robertson, et al. (2003), confirmed that finance is the most significant obstacle to a company start-up. Develop core skills and attributes required for entrepreneurship, such as creative problem-solving, diagnostic skills, communication, and project management, and there is a significant relationship between the respondent's entrepreneurship education programmes and the entrepreneurship education programmes of others (Bustamam, et al., 2015). Intellectual capabilities, communication skills, and interpersonal skills are all required when looking for work. To be employable, you'll need computer abilities as well as English communication skills. New graduates are seen to lack the necessary amount and quality of communication, technical, and job-specific abilities in the workplace. Buenviaje et al., (2015.). Entrepreneurs' personal and background traits, such as the ability to identify market demand and restrictions, customer behavior, and knowledge of corporate costs and benefits, are critical in their business management. In addition, prior familiarity with the same firm was cited as a significant impact. As a result, entrepreneurs focussed

on the value of prior experience and technical abilities in running a small firm.

X. Conclusion

This study addressed the problematic issues being faced by business graduates in starting their own start-ups, Moreover, investigating the influence created by the university education system on business graduates, this study helps to fill a gap in the literature about issues faced by business graduates. Furthermore, it highlighted the government regulations support being provided and to which extend it becomes a barrier for graduates. It showed that regulations are to be further supportive, concluding that the government bodies and policymakers are advised to provide financial and non-financial support to entrepreneurs for their business start-ups which in turn can upsurge economic growth and sustainability. The factors that act as barriers in the initial start-up of a business are observed to be the lack of financial capability along with the education and skills gained through the university system. Finally, the study shows that the graduates have the intention to start-ups, but due to the barriers faced as per the study, it implies that further changes are to be made as necessary for the university system and the government regulations. Upcoming streams of research should also deem including in the model education by distinguishing between academic programmes, particularly entrepreneurship-related and non-entrepreneurship-related academic programmes, as well as government vs. private universities. Many demographic variables which should be explored in future research include marital status, as the dichotomy of married/unmarried may have a different impact on entrepreneurial intentions, and employment status, as there may be significant differences in entrepreneurial intentions between employed and unemployed graduates. Specifically, the Sri Lankan government's support is vital for graduates who intend to start their own business, as well as the support from the banking industry concerning financing capital at concessionary rates, flexible conditions on repayments etc., to set up a business. The government can help promote entrepreneurship by enacting long-term policies and programmes that expand and provide opportunities for entrepreneurs (both current and future). The government's policies and programmes must be organised around key focus areas such as job creation, balanced regional development, trade facilitation, and a shift in mind frame from entitlement to merit. Startups and small businesses should be included in the government and entrepreneurship development policy. Entrepreneurship promotes innovation, problem-solving, and risk-taking. It also eliminates the 'free rider' syndrome by reducing reliance on the government for social benefits. Economic empowerment leads to increased psychological well-being and improved family relationships. Additionally, it is vital to collaborate with universities in other countries and regions to gain knowledge from their experiences and establish a knowledge hub and research network. To encourage and figure out the best entrepreneurs, every district can be established an entrepreneurship hub and business incubation center. Within the hub locations, providing the necessary infrastructure for office spaces such as co-working at discounted rates for entrepreneurs as well as initiate start-up boot camps to prepare entrepreneurs to pitch to investors are essential. Analysing the above statements, we can easily help growth the rate of entrepreneurship percentage in Sri Lanka, which in turn, will affect the economic growth.

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Electric Power Availability and Productivity of Industrial Enterprises in Cameroon

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Abstract- The aim of this paper is to analyze the effect of the availability of electrical energy on the productivity of industrials companies in Cameroon. To achieve this, we used firm-level cross-sectional data from the World Bank Enterprise Survey (WBES) for the year 2016, and a two-step econometric approach; The first step estimates total factor productivity through the Cobb-Douglas production function and the second step uses the (IV-2SLS) estimation method to correct both sample selection and endogeneity issues. The results show that poor availability of electrical power does not affect the productivity of Cameroonian industrial companies, because of the continuity of the production during the interruptions of the electric energy, made possible through the use of generators by the company managers. In addition, firm size, access to credit and innovation are factors that improve the productivity of Cameroonian industrial companies. The results suggest that self-generation of electric power is a short-term solution to poor power availability. Therefore, improving domestic electricity generation would be important for improving industrial productivity growth of firms.

Keywords: electricity, availability, industrials companies, Cameroon, model (IV-2SLS).

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Strictly as per the compliance and regulations of:

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Abstract- The aim of this paper is to analyze the effect of the availability of electrical energy on the productivity of industrials companies in Cameroon. To achieve this, we used firm-level cross-sectional data from the World Bank Enterprise Survey (WBES) for the year 2016, and a two-step econometric approach; The first step estimates total factor productivity through the Cobb-Douglas production function and the second step uses the (IV-2SLS) estimation method to correct both sample selection and endogeneity issues. The results show that poor availability of electrical power does not affect the productivity of Cameroonian industrial companies, because of the continuity of the production during the interruptions of the electric energy, made possible through the use of generators by the company managers. In addition, firm size, access to credit and innovation are factors that improve the productivity of Cameroonian industrial companies. The results suggest that self-generation of electric power is a short-term solution to poor power availability. Therefore, improving domestic electricity generation would be important for improving industrial productivity growth of firms.

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I. Introduction

Electricity is seen as an indispensable component of firm performance growth, and the catalyst for the third industrial revolution (Rifking, 2012). Adequate and stable electricity availability is essential to sustain and enhance industrial production, economic growth and development (UNIDO, 2009). This dates back to the 18th century, a period when fossil fuels, particularly coal and oil, laid the foundation for industrial development in Europe and the United States (Sieferle, 2001). Since then, energy has remained a crucial input to industrial production and a key factor in improving people's lives (UNIDO, 2009).

Unfortunately, in many developing countries including Cameroon, the availability of sufficient and reliable electrical service is insufficient and constitutes a major constraint to industrial activities (Amadu and Fambon, 2020). Frequent and prolonged outages characterize service in this part of the world. For example, in Cameroon and Nigeria, power outages last at least 1,000 hours per year (MINEE, 2018; UNCTAD, 2017). Although Cameroon's electricity infrastructure index has improved from 18.20 in 2015 to 20.69 in 2020 (Doing Business Report, 2020), the duration of power outages has only decreased by 8% in Cameroon, with a high frequency of outages (Eneo Report, 2020)[1]. This means that power outages are still a major problem for the efficient operation of businesses that require continuous and reliable availability of electricity.

In addition, the World Bank's Doing Business report in 2020, ranks Cameroon 167th out of a total of 190 countries with a score of 46.1 for the ease of doing business index. On the index "getting electricity", Cameroon is even worse ranked, it occupies the 89th position. On the index of 'reliability of electricity availability and transparency of tariffs', on a scale of 0 to 8, Cameroon scores 3. In addition, 35% of the electricity produced by hydroelectric and gas-fired power plants is lost during transmission (World Bank, 2020).

As a result, about 30% of firms in developing countries including Cameroon own or share a generator, this figure rises to about 50% in South Asia and 35% in Africa (Ukoima and Ekwe, 2019). As a result, industrial firms suffer productivity losses, increases in production costs, decreases in sales and income, etc. (World Bank, 2017; Chamber of Commerce, Industry, Mines and Handicrafts of Cameroon, 2018). The work on the effects of electric deficit on the financial performance (income and costs) of industrial firms leads to a consensus on the negative effects of deficit on the financial performance of firms. On the other hand, the empirical literature on the effects of the electricity deficit on firm productivity yields mitigated results.

For example, Justice (2016) used a quasi-experimental approach and panel data for fifteen Sub-Saharan African countries. It found that a percentage increase in the intensity of power outages results in a reduction in firm-level productivity of 0.6 percent to 1.1 percent. In Cameroon, inadequate and unstable electricity availability has led to an increase in the cost of

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[1] In order to quantify and measure the extent of inequality in the availability of different services, a statistical indicator of inequality was calculated on the values of the African Infrastructure Development Index (AIDI) by country. Indeed, among the statistical indicators in this category is the GINI index, commonly referred to as the concentration index for statistical distributions (a value of 0 indicates perfect equality in the availability of infrastructure services, while a value of 1 indicates extreme inequality).

production for manufacturing firms of about 5 times the original cost of production and a decrease in their income of at least 5% (Tamo et al., 2010; Christopher, 2016).

In contrast, Hardy and McCasland (2019) find that power outages result in a 13% decrease in productivity for Ghanaian firms without workers, and find no effect on productivity for all other firms. Similarly, Firsher-Vanden et al. (2015) examine the effect of the electricity deficit on the performance of Chinese industrial firms and find that due to the electricity deficit, unit production costs increased by 8% but, firms do not experience any productivity loss due to the re-optimization of production inputs by substituting materials for energy (electric and non-electric sources).

These mixed results on the effects of the electricity deficit on productivity in the empirical literature lead us to question the case of Cameroon. Indeed, the power cuts in Cameroon have been going on for 22 years, despite the government's efforts to improve the availability of electricity[2]. Faced with this situation, the majority industrial companies use generators during power cuts. Does the use of generators by companies cancel out the negative effect of the electricity deficit on the productivity of industrial companies in Cameroon?

The aim of this article is to evaluate the effect of the electricity deficit on the productivity of industrial firms in Cameroon. Such an analysis has a double interest. First of all, this paper is in line with the microeconomic analysis of the crucial role of electrical energy on the growth and competitiveness of firms (Asiedu et al., 2021 ; Elliott et al., 2021 Cole et al., 2018). And is a continuation of the work of Thomas et al. (2010) who assessed the economic costs of generator use on the costs of industrial firms in Cameroon. Our study differs from theirs by assessing the effect of the electricity deficit on the productivity of industrial firms.It also contributes to the expansion of the work on the relationship between electricity availability and productivity of industrial enterprises in Cameroon in particular and in developing countries in general, with particular emphasis on the mitigating role of the use of generators in Cameroon.

To achieve this purpose, the rest of the paper is structured as follows: the first section presents the literature review and briefly discusses the crisis in the electricity sector in Cameroon. The second presents the methodology used, the third the results obtained and the economic policy implications.

II. Review of the Literature

The analysis of the effect of fluctuations in the availability of electrical energy on the productivity of economic activities has been the subject of an abundant theoretical and empirical literature, and gained momentum in the mid-19th century. However, interest in the relationship was later fueled by the energy crisis of the1970s that saw the increase in the study of energy costs in the production process and the subsequent effects on industry and the economy as a whole (Jiang et al., 2011). This section presents a review of previous studies that have assessed the effect of electricity availability on industrial productivity.

a) Theoretical Background

The link between the availability of electric power and firm productivity is supported by production and cost theory. Indeed, the output of industrial firms depends on the combination of inputs (capital, labor and other factors) available (Beckamnn, 1974 and Solow ,1974). In production theory, factors of production go beyond capital and labor to include other inputs and technology.

The productive role of the availability of electrical energy on the productivity of industrial enterprises is illustrated through the theory of the role of driving industries. At the basis of this theory is the idea that economic activity results not from the action of agents in a competitive situation, but from the specific action of economic units (firms) which, because of their position and size, can play a dominant role (Perroux, 1950). This dominant position is manifested by the induction role that characterizes the motor industries. The limits of this theory, such as the failure of the services of the driving industries (fluctuation of the availability of electrical energy), leads the theorist Kremer (1993) to formulate the O-RING theory, also called the theory of the "theoretical joint ».

The theoretical framework for analyzing the relationship between the supply of electrical energy and the productivity of industrial firms is also anchored in Michael Kremer's "O-RING" theory. Kremer (1993) emphasizes the complementarity of the factors of production. And presents an economic model in which the function of modern production (in particular in opposition to the traditional artisanal production) presents strong complementarities between the factors of production in such a way that, the failure of one of the factors of production as weak as it is it impacts negatively on the output of the production.

In addition, another channel through which the availability of electricity influences the productivity of industrial enterprises is the institutional channel, through the contribution of the institutional theory of regulation. Coase (1960), in his article entitled the social cost problem, describes the conditions for state intervention to compensate for market failure and proposes to compare the costs of private solutions (transaction costs between private agents, which depend in particular on the characteristics of property rights and

[2]The government has built new electric dams from 2015 (Lom pangar, Memve'ele)

the laws that apply to them) and public solutions (the cost of recourse to public intervention) on a basis of equal realism. Les limites de cette théorie à savoir la non couverture des coûts des entreprises publics, fondent les bases de la nouvelle économie publique de la réglementation (NEPR).

b) Effect of the availability of electrical energy on the productivity of industrial firm's

A number of previous studies show that power outages typically result in firms switching to alternative energy sources, which is usually accompanied by an additional cost to firms (Beenstock et al. 1997; Caves et al. 1992). The decision to invest in energy-related assets can be driven by many non-economic factors, as long as those factors influence the marginal benefits of those investments (Oseni and Pollitt, 2013). Firm size, industry and regional differences, and other organizational factors play an important role as economic factors in explaining firms' lighting investment decisions (Abdisa, 2020).

Abeberese et al. (2021) and Oseni and Pollitt (2013) show that the most common strategies used by companies are: using the generator; making less energy-intensive products; changing production time; choosing the business; choosing the location. To this end, about 30% of companies in developing countries own or share a generator (Amadu and Fambon, 2020), this number can reach approximately 50% in South Asian countries and 35% in Africa (Ukoima and Ekwe, 2019). The results indicate that switching to less electricity-intensive products allows companies to reduce productivity losses from outages.

In the context of the electricity blackout differential faced by firms, Abdisa (2020) studies the role of investment in self-generation by manufacturing firms in 13 Sub-Saharan African countries. The results of the study show that companies' investment in self-generation mitigates the negative effect of outages on company performance. The results of the study further reveal that investing in self-generation reduces production losses by 2 to 24% depending on a company's vulnerability to power outages.

On the other hand, Fisher-Vanden et al. (2015) instead find that, in response to electricity shortages, Chinese manufacturing firms shifted from in-house production of intermediate goods to their purchase and experienced no productivity loss. This behavior of Chinese firms is consistent with that of Ghanaian firms, which, in the face of power cuts, are shifting their mix of products to less electricity-intensive ones (Abeberese et al, 2021). This adaptation strategy may have broader implications for the variety of products available to consumers. Furthermore, the results suggest that one of the most commonly employed strategies worldwide is the use of the generator.

In Cameroon, the purchase of a large number of generators and the increase in self-generation capacities are solutions to the regular power cuts used by businesses to cope with the poor availability of electrical energy (Thomas et al., 2010). 1658 generators were purchased by industrial companies in Cameroon from 2001 to 2008, 53% in the agri-food industries, 22% in the metallurgical and chemical industries, and 25% in other sectors (Thomas et al., 2010).

In addition, four lessons emerge from the work on the availability of electrical energy on the productivity of industrial activities. The first group, consisting of the pioneering studies conducted by Kraft and Kraft (1978), supports the energy conservation thesis[3]. The second group supports a growth thesis, so the unidirectional causality goes from electricity consumption to the productivity of economic activities (Shahbaz et al., 2018 and Mawejje and Mawejje, 2016). The third group supports a feedback hypothesis, i.e., a two-way causality between electricity consumption and productivity growth (Belloumi, 2009; Morimoto and Hope, 2004); and the last group supports a neutrality hypothesis, which assumes an absence of causality between the two variables (Akarca and Long, 1980)[4].

III. Crisis of the Electricity Sector in Cameroon

Cameroon was one of the first economies in sub-Saharan Africa to liberalize its energy sector. The adoption of the 1998 Electricity Sector Law led to the privatization of the vertically integrated, state-owned Société Nationale d'Electricité (SONEL)[5]. Nevertheless, total installed generation capacity remained largely stagnant between 2000 (0.8 gigawatts) and 2012 (1.0 gigawatts)[6]. Given Cameroon's growing energy needs and population growth. As a result, Cameroon is facing a serious deficit in electricity availability, although about half of the population is not connected to the grid[7].

[3] This hypothesis argues that, in fact, the availability of electricity has a positive effect on productivity growth, ranging from energy consumption to productivity.

[4] The two variables are interdependent and are affected by energy and economic policies (feedback hypothesis). This neutrality hypothesis means that energy policies, whether expansionary or conservative in terms of electricity consumption, have no effect on the productivity of economic activities.

[5] In 2001, SONEL was acquired by the U.S. company AES Corporation, which became AES SONEL, and was granted a 20-year monopoly on production, transmission and distribution. In 2014, AES SONEL was acquired by a British group, ACTIS, and renamed ENEO Cameroon.

[6] This data is from the installed capacity of electric power from 1980 to 2012 from the Cameroon Data Portal (database), Yaoundé, Cameroon, http://Cameroon.Opendataforafrica.org/sdjsclb/cameroon-electricity-installedcapacity_1980-2012. accessed on March 18, 2022.

[7] Data on electric power availability are from 2012 and are from the (http://data.worldbank.org/indicateur), World Bank Indicators Database.

Inhabitants of major cities (Douala, Yaoundé, Bafoussam) experienced an average of nearly two hours of power cuts per day in 2015. This has probably had an effect on company behavior, since about 35% of companies in Cameroon own a generator[8].

Cameroon's privatization program has not led to a significant increase in production capacity and has not established a fully competitive market. In addition, 35% of the electricity produced by hydroelectric and gas-fired power plants is lost during transmission. The production of electricity is mainly managed by ENEO, the transmission and distribution of electrical energy is managed by SONATREL (Société National de Transport de l'Electricité). Cameroon depends entirely on national resources, with hydroelectricity accounting for 71% of electricity production, the rest being oil and gas. This heavy reliance on hydroelectricity also means that droughts have led to prolonged power outages throughout the country for several years. ENEO has established a program of rationing of electrical energy throughout the national territory, which began in 2009, and is carried out on average 5 days a week in large cities and 7 days a week in the countryside. These power cuts paralyzed the activities of the port of Douala for several days in 2015.

IV. Methodology and Database

In this paragraph we specify our basic model, and then define the variables of the model.

a) Model specification

To identify the effect of electric power availability on the productivity of industrial firms in Cameroon, we follow the path taken by Moyo (2012) and Allcott et al. (2016). We measure Total Factor Productivity (TFP) at the industry level using a Cobb-Douglas type production function as follows[9] :

$$y_i = \alpha_0 + \alpha_1 L_i + \alpha_2 M_i + \alpha_3 K_i + \varepsilon_i \quad (1)$$

Where y denotes the logarithm of the output of firm i, K is the logarithm of the capital stock, M is the logarithm of production inputs and L is the logarithm of the number of employees in each firm. To calculate TFP, the common approach is to obtain estimates of the elasticities of output with respect to inputs α_1, α_2 et α_3 and treat the TFP as a residual of equation (2.). Thus, we obtain the following TFP:

$$LnTF\hat{P}_i \equiv y_i - \hat{\alpha}_1 L_i - \hat{\alpha}_2 M_i - \hat{\alpha}_3 K_i = \varepsilon_i \quad (2)$$

Using this method, the TFP estimates from equation (2.12) should be regressed using a second-stage model against a set of determinants, such as the power availability quality variables (2.12), which are clearly not random, even though they are included in the random error term ε_i.

Where ε_i ⊔ n.i.d [10] . $(0,\sigma^2)$ is necessary for efficient unbiased estimation.

Newey and McFadden (1999) and Wang and Schmidt (2002) argue that, using the variable $LnTF\hat{P}_i$ obtained in equation (2.) in the second step leads to both inefficient estimates (in the form of inconsistent standard errors and, therefore, t-value determinants of TFP[11]. Thus, Wang and Schmidt (2002) argue that, as this approach results in potentially biased estimates since some factors that determine output have been omitted from equation (2.), the estimates of the estimated elasticities will suffer from an omitted variable problem and thus $LnTF\hat{P}_i$ will be incorrectly measured. On the other hand, two-step approaches are inefficient because they ignore any cross-equation restrictions. Since they do not take into account the correlation of error terms between equations (Harris and Trainor, 2005). In addition, a more serious problem associated with this technique is omitted variable bias. Thus, the regression of the first stage of equation (1) ignores other known determinants of output, and standard econometric theory indicates that the elasticities estimated from equation (1) will be biased accordingly. Thus, the estimates obtained in the second stage of the regression will also be biased, regardless of whether the factors of production and the variables that determine TFP are correlated or not[12]. Wang and Schmidt (2002) show that for two-stage estimates of productive efficiency using the stochastic frontier production approach, the boosts indicate that the bias due to the omitted variable problem is substantial.

The preferred technique is therefore to include the determinants of production and thus of TFP directly in equation (2.), as this avoids any problems of inefficiency and bias and therefore allows direct testing of whether these determinants are statistically significant. Since TFP is defined as any change in output that is not due to changes in inputs, we include these determinants directly in equation (2.) as follows[13]:

[8] Business Survey Database (http://www.entreprisessurveys.org/), World Bank. accessed on March 18, 2022.

[9] We assume here that TFP is a function of firm age, foreign ownership, quality of electrical infrastructure… Therefore, we substitute TFP for these variables and assume that they are linearly related. This approach was used by Harris and Trainor (2005).

[10] n.i.d. $(0,\sigma^2)$ means that the error term is normal and independently distributed with a mean of 0 and a variance of σ^2. This is one of the most important assumptions of classical linear regression, and allows us to test the significance of the model and the parameters using the F-test and t-test.

[11] The t-value is the ratio of the estimated coefficient divided by the standard error and used in a particular regression model. In general, the higher the t-value, the greater the confidence we have in the coefficient as a predictor of the model.

[12] In this case, all the factors that determine production and those that determine TFP are specific to the firm and therefore correlated.

[13] Here we assume that TFP is a function of firm age, foreign ownership, quality of power availability, etc., so we substitute TFP for these variables and assume that they are linearly related. This

$$y_i = \alpha_0 + \alpha_i L_i + M_i + \alpha_3 K_i + \beta_i PINFRA_i + \beta_2 X_i + \varepsilon_{ii} \quad (3)$$

Where $PINFRA_i$ is the measure of the availability of electrical energy and X_i is the vector of variables that contains all other productivity effects, such as age, foreign ownership, size and export status. We include generator usage to verify that the use of the generator minimizes the negative effects of power outages on productivity.

b) Data source and measurement of variables

The data used for the estimation are cross-sectional data. They come mainly from the 2016 World Bank Enterprise Survey (WBES) database, which, based on a sample of 120 industrial firms, provides the inputs and outputs of firms to calculate various productivity measures such as Total Factor Productivity (TFP). The sample has the required properties of representativeness and includes specific information on the commercial and business environment in which Cameroonian industrial enterprises operate, and the internal characteristics of the enterprises.

c) Measurements of variables

Given the theoretical framework thus chosen and in view of the previous theoretical and empirical studies and the available data, three types of empirical variables are used in the estimations. The explained or dependent variable, the variables of interest and the explanatory or independent variables.

The dependent variable in our production function is Total Factor Productivity measured by gross output. Our variable of interest is availability of electrical energy, measured in our study through three alternative methods. The first measure (outage1) is the average number of outages in a month that businesses experience; the second measure (outage2) is the average duration of outages; and the third measure (outage3) is businesses' perception of electricity as a constraint to doing business. It is a binary variable that takes the value 1 if the poor availability of electricity is perceived as an obstacle by the company and 0 otherwise. This variable is constructed from a 5-modality categorical variable listed as: not a barrier; minor barrier; medium barrier; major barrier; very severe barrier. These measures are the primary measures used in the survey methodology.

We also include in the production function the other determinants of productivity that constitute the explanatory variables. We have: age of the company, which is calculated as the difference between the year the company was created and the year the survey was conducted. Company size is captured in this study by the number of permanent employees. Access to credit is also introduced into the analysis to capture the financing constraint in the evaluation of factor productivity. It is captured by a binary variable that takes the value 1 if the firm has access to credit and o in the opposite case.

The exporter status is a binary variable that takes the value 1 if the company exports and 0 otherwise. It measures the degree of participation of the company in foreign trade outside the local market. Gender is also introduced into the analysis to measure the degree of effectiveness of women in corporate management. It is a binary variable that takes the value 1 if the leader of the company is a woman and 0 if the leader is a man. Individual ownership is a binary variable that takes the value 1 if the business is individually owned and 0 other legal forms. Innovation has been recognized in the theoretical literature as a process for improving the performance of companies (Shumpeter, 1942). it is captured in this study by a binary variable that takes the value 1 if the company has introduced new or improved processes and 0 in the opposite case.

d) Estimation method

The method we use to estimate the effect of electric power availability on the productivity of industrial firms will be in two steps: The first step will be to evaluate total factor productivity through the Cobb-Douglas production function approach. And the second stage alternately uses each measure of the determinants of productivity to assess the factors that can vary the productivity of industrial firms using the instrumental variables method. In particular the method of Ordinary Double Least Squares (IV-2SLS). The 2SLS technique is preferred because it captures the potential effects of endogeneity in the relationship between electric power availability and productivity of industrial firms (Mensah, 2016; Allcott et al., 2016).

Indeed, one of the assumptions of Ordinary Least Squares is that there is no correlation between the explanatory variables and the residual in the theoretical model. We speak of endogeneity when this assumption is violated. The literature formally establishes an endogeneity bias related to the correlation between poor availability of electrical energy and productivity. For example, rapid economic growth can lead to increased demand for electricity which leads to shortages or poor institutions can lead to insufficient power supply and also reduce productivity. Performing a simple linear regression (OLS) would lead us to biased results.

e) Econometric results

The econometric results concern on the one hand the results of the first step via the use of the Cobb-Douglas production function and on the other hand the results of the estimation via the method (IV-2SLS). These results are contained in the tables below.

approach was used by Harris and Trainor (2005) and Njikam et al, (2005).

Table 1: Distribution of TFP among industrial companies

Size of the company	Distribution	Mean	Std. dev.	Min	Max
Small firm's (5-19employees)	Total Factors Productivity (TFP)	112.3105	34.34706	27.93128	179.9618
Medium (20-99 employees)	Total Factors Productivity (TFP)	130.0197	44.98602	17.08576	207.9618
Large companies (>100 employees	Total Factors Productivity (TFP)	140.8342	76.97052	5.247084	260.2875

Source: Author based on WBES data, 2016

Table 2: Result of the estimation of the effect of the availability of electrical energy on TFP

VARIABLES	TFP (1)	TFP (2)	TFP (3)
Frequency of power outage	2.384e+08		
	(0.198)		
Severity of the the power outage		6.571e+09	
		(0.197)	
Duration of the interruption			3.201e+06
			(0.202)
Age	2.597e+08	2.241e+08***	2.142e+08**
	(1.532)	(3.011)	(2.134)
Size	3.614e+07***	3.549e+07***	3.706e+07***
	(4.728)	(5.490)	(3.433)
Export	1.560e+09	1.061e+09	1.380e+09
	(0.338)	(0.384)	(0.363)
Gender	2.834e+08	7.647e+08	1.627e+09
	(0.0838)	(0.349)	(0.352)
Access to credit	4.490e+09	5.252e+09**	5.473e+09*
	(1.216)	(2.011)	(1.740)
Innovation	2.551e+09*	3.046e+09	1.856e+09
	(1.717)	(1.095)	(0.477)
Individual ownership	3.653e+09	3.175e+09	1.935e+09
	(0.891)	(1.287)	(0.347)
Constant	-1.203e+10	-1.446e+10	-9.609e+09*
	(-0.695)	(-0.487)	(-1.718)
Prob	0.000	0.000	0.000
Observations	89	89	89
R-squared	0.479	0.470	0.495
Pro> chi2	0.000	0.000	0.000
Sargan	0.314	0.553	0.421

Note: *,**,*** correspond to the significance level at 1%, 2% and 10% the values in brackets correspond to the z-statistics

Source: Author based on WBES data, 2016

V. Interpretation of the Results

Before proceeding to the interpretation of the coefficients associated with the different variables, we will discuss the econometric validity of the model, the validity tests of the instruments and the endogeneity. Thus, from an econometric point of view, our models are overall worthy of interest. The probability prob>chi2 is each time lower than 1%, which allows us to conclude that the model is globally significant. Furthermore, the Sargan over-identification test is recommended and used in several studies to test the validity of the instruments. In our case, our P-value is higher than 5%.

We performed the above estimates, using different measures of the quality of electric power availability in an attempt to test whether our estimates are robust to changes in the specification of the variables. The variable that is of central interest in this study is the poor availability of electrical energy. Our

argument is the following: the industries that do not interrupt their production when there is an interruption or failure of electrical energy, because they self-generate electricity, their productivity is not affected.Moreover, the results of the estimates largely confirm our expectations. Thus, using the number of hours without electricity (duration of the outage), the quality of the electrical infrastructure has no effect on productivity. This is also true when using the severity and frequency of power outages. These results corroborate those found by Firsher-Vanden (2015), Cissokho and Seck (2013).

The most logical explanation given in the literature is that the use of the generator cancels out the negative effect of poor electrical power availability on productivity. Since, when there is an interruption of electrical energy, the industries do not interrupt their production, they continue their production by self-generating electrical energy thanks to the generating set. These results support the argument that companies that can generate their own electricity have the advantage that the continuity of their production does not depend on the availability of electrical energy. In other countries, such as China, industries replace the production of intermediate goods with their purchase (Firsher-Vanden et al., 2015). Instead, this technique increases the unit cost of production by 8%. Similarly, Allcott et al. (2016) in India show that poor availability of electric power does not affect the productivity of Indian manufacturing firms, but reduces the revenue of these firms by 5-10% and the producer surplus.

Beyond the variable of interest, our regression results reveal that other firm-related attributes have a significant effect on productivity. The results suggest that being older and probably more experienced has a positive and significant effect on firm productivity. Therefore, the older a company is, the more it improves its productivity. Our results show that the older the industry, the more it leads to an increase of 2.24% (duration of the cut) and 2.14% (severity of the cut) in TFP respectively. The effect of the age of the industrial firm on TFP is positive due to the learning-by-doing that occurs through the accumulation of experience in the production process. This result is in line with those of Bui and Nguyen (2021) and Moyo (2013).

In addition to age, which is an internal characteristic of the firm, and which has a positive effect on TFP, innovation also has a positive and significant effect of 10% on TFP of industrial firms. Indeed, a 1% increase in innovation increases productivity by 2.55%. The regression results show that innovation is a robust and significant determinant of productivity. These results are in line with those of Cissokho (2020). Similarly, industry size, a variable of the internal characteristics of firms has a positive and significant effect at the 1% level on its TFP, when approximated respectively on the three measures of electrical energy availability. The theoretical rationale for this result is that large and medium-sized companies are easy adopters of technology and easy innovators. These results are in line with those of Bui and Nguyen (2021) and Cissokho (2020).

VI. Conclusion

The objective of this paper was to evaluate the effect of the availability of electrical energy on the productivity of industrial firms in Cameroon. Using World Bank survey data from companies of the year 2016, The results of the econometric estimates from the IV-2sls model show that the poor availability of electrical energy has no significant effect on the productivity of Cameroonian industrial firm's. This insignificance of the poor availability of electricity on the productivity of industrial firms is explained by the continuity of the production process by entrepreneurs during power outages, made possible by the use of generators by Cameroonian manufacturers.

The economic implication of this result is that the poor availability of electric power in Cameroon does not affect the productivity of industrial firms. The strategies adopted by Cameroonian industries to counter the negative effect of power outages are effective in the short term. The use of the generator by Cameroonian industrialists is an effective strategy to counter the negative effect of power outages on the productivity of industrial enterprises in the short term.A future perspective of this study would be to assess the effect of the electricity deficit on the productivity of service firms.

We end by making three recommendations that governments may implement to mitigate the deficit of électricity : First, create MAGZI (Mission d'Aménagement et de Gestion des Zones Industrielles) zones around major hydroelectric infrastructure investment projects to reduce distribution and transmission losses. Secondly, intensify investments in solar, biomass and wind power generation, taking into account the specific energy needs of each region. And finally, reduce import taxes on the main materials used in the production of solar, wind and biomass energy.

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Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for writing a good quality Management Research Paper

Techniques for writing a good quality management and business research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.
Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.

- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

Criterion for Grading a Research Paper (Compilation) by Global Journals

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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