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IMPLICATIONS OF DIRECT TAX REVENUE ON INFLATION AND UNEMPLOYMENT IN NIGERIA 1970- 2024: VECTOR ERROR CORRECTION MODEL

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Abstract: The goal of the study was to determine the effect of direct taxes on inflation and unemployment in Nigeria for the period 1970 to 2024 using CBN and world bank data publications for Nigeria. Direct taxes were proxied as company tax, petroleum profit tax, education tax and personal income tax while dependent variables are inflation and unemployment. VAR method of vector error correction model was used. Shocks were introduced to consider the period of oil boom, military regime, civilian, covid-19 and depression to account for changes within the period. Granger Causality test was also conducted to establish direction of relationship while post estimation analysis was also done. Education tax, personal income tax and petroleum profit taxes all have significant impact on inflation and price changes in Nigeria. Company income taxes however do not significantly influence inflation in Nigeria. All direct tax components in the study have significant effect on unemployment in Nigeria. However, while education tax, personal income tax and petroleum profit taxes reduce unemployment, company income taxes increase the rate of unemployment in the country. Effects of taxes on unemployment and inflation are more long-term rather than short-term. While the short run effects are mostly insignificant, the long run effects are highly significant. Based on findings we recommend tax system for companies should be designed and implemented in a way that will minimize distortions and tax administration inefficiencies taking into account the constraints that may arise from tax administration. Government should amend tax laws to enhance better micromanagement and regulation of tax systems to mitigate unemployment.

Keywords: *Petroleum Tax, Corporate Tax, Personal Income Tax, Education Tax, Unemployment. Inflation.*

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Introduction

Governments are saddled with the responsibility of economic management. This function involves revenue generation and deployment of the resources to fulfill certain obligations and achieve economic stabilization. The economic management policies of government impact the live of the citizenry. Taxation is one of the revenue sources of government. Governments use tax proceeds to fulfill its responsibilities to the citizenry and ensure social and economic stability (Appah and Eze, 2013. According to Gwangdi and Garba (2015), taxation is used for capacity building, legitimacy, and consent, hence the imposition of taxes on citizens is to enable government to perform its statutory functions. Taxation plays a vital role in public policy because it is one of the main sources of financing various government projects and programs. Governments can implement tax policies as a fiscal policy to regulate the economy fund expenditures and finance investments. Tax policies to be implemented may vary depending on targeted objectives. Tax policies may help individual governments raise higher revenues with the aim of financing public expenditures, reducing the balance of payments or trade balance deficits, or encouraging growth and development by granting incentives. Taxation can be used to curtail inflation by increasing tax rates thereby reducing disposable income or to encourage consumption and increase employment and production by reduction of tax rates. The government can use taxation to steer the economy in a desired direction (Akpakpan, 1999). If the government wishes to stimulate the economy, it could do so by cutting taxes. A tax cut leaves more money in the hands of people to spend. This simple policy prescription of reducing taxes will increase spending, making production to go up and creating employment, tax revenue will also rise. If the government wishes to restrain the economy, it could do so by increasing taxes. By so doing disposable income will fall leading to a fall in spending and production. In this case, a tax increase will shift the consumption function down by the amount of the tax and reduce the level of income by a multiplier effect. A tax cut, on the other hand, raises consumption and exerts a multiplier effect on the level of income (Iniodu, 1996). During a recession (when the economy is deflationary) government can stimulate aggregate demand by cutting taxes, which should bring about more jobs and reduce unemployment rate and deflationary gap in the economy. If the economy is inflationary, to dampen the inflationary pressure, the policy prescription is to contract the economy indirectly by raising taxes to discourage consumption

(Essien ,2007; Iniodu ,1996; McConnell and Brue, 1999; Akpakpan,1999; Anyanwu ,1997; Ukpong and Akpakpan ,1998; Cobham, 1981; Ekpo ,2005)

Economic theory presents taxation as a major tool of macroeconomic management. The idea is that taxation, usually in combination with some other policy tools, can be used to steer the economy in the direction that is desired. It is argued that if, for instance, the economy is experiencing a depression, the government could use tax policy to stimulate the system and cause a recovery. If, on the other hand, the economy is experiencing inflationary pressures, tax policy could be used to reduce the pressures and stabilize the system. These arguments make taxation a particularly important management tool of economic management. Although research on the impact of taxes on unemployment is somehow limited, the existing literature revealed that taxes significantly impact the unemployment rate. In developed nations, the unemployment rate rises when the tax rate on labor is high, according to studies by Disney (2000) and Seward (2008). However, despite the usefulness of taxation as a fiscal policy instrument the effect of direct taxes on inflation and unemployment a social welfare metric has been a subject of debate as no consensus has been reached by scholars studying the subject. Some studies (Nguyen, 2023; Alhaj, 2023) found a negative association of taxation with unemployment while other studies (Olaolu (2023; Enueshike et al ,2021; Ejinkonye et al ,2024) found positive association. Meanwhile some other studies (Nwikina et.al. 2024; Ibrahim, 2023) found no effect. This mixed empirical result creates a lacuna and gap for further studiesFor inflation empirical studies also produced mixed results studies (Cloyne et.al ,2023; Tagkalakis, 2013; Anichebe, 2015; Buzugbe and Owhofasa, 2024; Apinoko, et al.,2024). While some studies (Obaretin and Akhor ,2022; Atsu, et al. 2017) Other studies (Anichebe (2015, Buzugbe and Owhofasa; Apinoko, et al., (2024 found Negative results. These mixed empirical findings on the subject of inflation and unemployment motivates the study to examine direct tax implications on inflation and unemployment in Nigeria.

Literature Review

Theoretical Framework

Theoretically, there is a jig-saw concerning the effect of direct taxes on the economy of countries. Solow (1956), pioneering the neoclassical theory postulated that though taxation (distortionary taxes) can exert influence on incentives to raise investment in both human and physical capital as well as on the equilibrium capital-labor relationship, its influence is irrelevant for long-term growth, as long-run growth is more influenced by exogenous factors such as population growth and rate of technical progress. Thus, by implication, the neoclassical theory is suggesting that taxation does not exert significant effect and not a determinant of growth in the long-run. Conversely, Barro (1990), King and Rebello (1990) and Jones et al. (1993) pioneering the endogenous growth theory postulate that growth is anchored on, determined or driven by endogenous factors which include government policy on taxes, public expenditure.

Furthermore, there is the debate that tax should be progressive according to an individual's income or ability to pay. Tax rate increases should be proportionate to increases in taxable income (Jones and Rhoades, 2011). This will indeed institute an equitable tax system, and people with greater income or wealth who can afford to pay more taxes are taxed at a higher rate and vice versa. The theory is the most equitable tax system also because it has been widely used in industrialized economics. The ability-to-pay approach does not treat government revenue and expenditures jointly and there is no relationship between government expenditure and tax revenue collected. On the other hand, Equal sacrifice theory suggests that income, wealth and transaction should be taxed at a fixed rate. This imply that high income earners should pay more taxes, but not a higher rate of taxes. Supporting proportionate tax, Musgrave & Musgrave, (1989) argue that when taxes are levied in proportion to incomes of the individuals, it will achieve equality of sacrifice. Thus, equal sacrifice can be assessed using the listed criteria: (i) opportunity cost - each taxpayer forgoes the same absolute degree of utility obtained from income, (ii) equal sacrifice - each taxpayer sacrifices the same proportion of utility obtained from income, or (iii) marginal utility of income- each individual gives up the same utility for the last unit of income. The modern economists, however, disagree with this perspective and argues that when income increases, the marginal utility of income decreases and the equality of sacrifice can only be achieved if individual with high incomes are taxed at higher rates and those with low income are taxed at lower rates.

The Benefit theory of Taxation developed by Knut Wicksell (1896) and Erik Lindahl (1919) is a principle based on the notion that those who benefit more from government expenditure or spending should pay more taxes than those that do not. This principle is one that outlines what government expenditure should be tailored at and those that should pay for them. Hence, individuals who are direct consumers of services provided through public financing are expected to pay more taxes than other people. The benefit principle is sometimes compared to prices paid in private transactions because they serve similar purposes. Implementation of this principle would mean that resources allocated for public projects will be based on the response of consumers in terms of payment of taxes. In a typical country arrangement, citizens do not see the need to pay for public services or projects funded by the government. Aside from the fact that the provision of social amenities is what citizens should enjoy, citizens lack the urge or natural tendencies to pay for these services. In fact, in some countries, if citizens are required to pay more taxes for the public services they enjoy, some citizens would prefer to be cut off or excluded from such services. Given the above factors, implementing the benefit principle will be a complex task. However, the benefit principle is affected when road users are required to pay toll fee or highway levies. This however contrast with the economist view of taxation. Economists maintain that the efficiency of a tax system depends on the nature of market economy operating at a particular time. Economic decisions relating to production, consumption and allocation of resources is done by the market or by market factors and this should not be interfered with by the tax system. Hence, economists maintain that taxation should not interfere with means of production, production expenditures and consumption. This is due to the fact that economic decision making and processes are distorted by the Interference of taxation. Excess burden is also created in the economy when there is an unnecessary intervention from the tax system. Under the benefit principle, taxes are seen as serving a function similar to that of prices of private transactions that is, they help determine what activities the government will undertake and who will pay for them. Individual and others may tend to avoid taxes that they don't benefit from, it may lower tax revenue and may encourage saving and investment but it can also lead to an increased government deficit, reducing economic growth through government debt, spending and investment. The **Socio-political theory** propounded by Adolph Wagner advocated that social and political objectives should be the deciding factors in choosing taxes. Accordingly to Wagner, a tax system should not be designed to serve individual members of the society, but should be used to cure the ills of society as a whole. Wagner through this theory suggested welfare approach in evolving and adopting a tax policy soliciting for the use of taxation in reducing income inequities.

Conceptual Framework

i) Companies' income Tax

Companies Income Tax (CIT) is a tax on the profits of registered companies in Nigeria (Resolution Law Firm, 2020). This law has been amended many times and is currently called the Company Income Tax Act 1990 (CITA It also includes the tax on the profits of foreign companies carrying on any business in Nigeria). Company income tax (CIT) was introduced in Nigeria in 1961 (Odusola, 2016). Company income tax also includes the tax on the profits of foreign companies carrying on any business in Nigeria. The CIT is paid by limited liability companies inclusive of the public limited liability companies. Resident companies are liable to corporate income tax (CIT) on their worldwide income while non-residents are subject to CIT on their Nigeria-source income. Operationally, company income tax (CIT) refers to tax billed on the profits of registered companies in Nigeria, both locally and foreign-owned. The tax is based on accounting profits adjusted for tax purposes

ii) Petroleum Profit Tax

Profits Tax Act of 1959, as amended petroleum profit tax means the tax imposed upon the sale of Hydrocarbons under the Petroleum The petroleum profit tax (PPT) is levied upon upstream operations in the oil sector (Adaramola & Ayeni-Agbaje, 2015). It covers rents, royalties, margins and profit-sharing elements associated with oil mining, prospecting and exploration leases. It generates the highest revenue compared to other taxes in Nigeria, contributing 95 and 70 per cent of foreign exchange earnings and government revenue respectively. The PPT covers oil and gas taxation but is complemented with two different contractual relationships not formally covered by tax legislation. The first constitutes joint ventures between international oil companies and the Nigerian National Petroleum Company structured under a joint operating agreement (JOA) as set out in the memorandum of understanding (MOU). Earlier shocks led to the introduction of the MOU in 1986 to provide necessary incentive and has been revised in 1991 and 2000. Second, it introduced measures that relates to deep offshore exploration and development under a production-sharing contract (PSC), which allows an oil company to recover its costs at a pre-established rate and to share in additional revenue according to a pre-determined formula.

iii) Personal Income Tax

Personal Income Tax is a tax collected from individuals and enterprises which is imposed on different sources of income like income from trade, business, professional or vocation, income from employment, pensions, interest and dividends. The benchmark we use refers to the Top Marginal Tax Rate for individuals. Revenues from the Personal Income Tax Rate are important source of income for the government of Nigeria. The methods of collecting this Tax are two (2) namely: PAYE (pay as you earn) and Direct Assessments. Pay As you Earn is basis for which employees taxes are being deducted and collected at sources before their salaries is being paid, the ability to pay depends on how much is earned by an employee the higher the income the higher the tax,

iv) Education Tax

the Tertiary Education Tax (TET) in Nigeria is charged at **3% of the assessable profit** of all companies registered in Nigeria. This tax, managed by the Tertiary Education Trust Fund and is designed to rehabilitate, restore, and consolidate public tertiary education in Nigeria. It is payable by all companies registered in Nigeria. Non-resident companies and small companies (defined as companies with a gross turnover of ₦100 million or less) are exempt from this tax. The present education tax rate is 3% and is collected by Nigeria revenue service

Inflation

Inflation is a continuous rise in prices of goods and services within a geographical boundary. Tomety (2011) defined Inflation as the increase in the general level of prices for goods and services in a country, and is measured as an annual percentage change in prices of good s and services. It is persistent increase in prices evaluated through consumer price index by implicit price deflator for gross national product. This denotes as scenario of higher quantity of currency chasing fewer goods with the resultant lowering of the purchasing power of the currency. The rise in the aggregate level of prices must be continuous for inflation to be said to have occurred. The aggregate price level must show a tendency of a sustained and continuous rise over different time periods. This must be separated from a situation of one-off rise in the price level

Relationship between Inflation and Unemployment

Unemployment and rising inflation are some of the major problems currently being faced in the 21st century. Unemployment is a situation whereby people who are physically fit, capable, qualified and ready to work at any time are without jobs. Unemployment is a macroeconomic factor that shows the rate of unemployment in a country. Unemployment means when the labour demand is higher than the supply of labour. When there is high unemployment rate, organizations hire without having to pay high salaries, since the labour force is abundant. Currently, in developing countries, the problem of unemployment has been increasing as a result of different economic problems facing most countries. The issue of unemployment in most countries has become perennial with adverse impact on the economy and social life such as disloyalty, lack of integrity among people, increase in crime rate (kidnapping, robbery and killing).

Under conditions of inflation, the prices of goods and services rise over time. When there is a rise in inflation there is a fall in value of the currency used as a medium of exchange. Finally, the recent global financial crisis which brought about high rate of unemployment in the world was due to the high costs of operation that many organizations are facing. This led to reduction on labour costs resulting to high rate of unemployment.

The major issue government are facing is how to reduce unemployment rate and at the same time reduce inflation. Some research has been carried out on the relationship between these two key macroeconomic variables. The study of the nexus between inflation and economic growth remain perennial and has given rise to different schools of thought.

The Phil-lips curve analyses short-term movements of unemployment and inflation in macroeconomics. It shows that the higher the unemployment rate, the lower the rate of inflation and low unemployment rate can be achieved by high inflation. It is a different issue in the long run, because at the long run most research study stated that there is little positive significant relationship between inflation and unemployment. Haugand and King (2011) examined the empirical evidence on Inflation and Unemployment in the Long Run provides evidence in accordance with the predictions of Friedman (1977) they found a positive relationship between inflation and unemployment in the medium to long run. There is also the Friedman-Phelps version of the Phillips curve; it is the accelerations Phillips curve. Using the adaptive expectations method, it indicates that in order to keep the unemployment rate below the natural rate of unemployment, what matters is not the inflation rate but its variation. The Phillips curve relates the rate of inflation with the rate of unemployment. The Phillips curve argues that unemployment and inflation are inversely related: as levels of unemployment decrease, inflation increases. The relation-ship, however, is not linear. Graphically, the short-run Phillips curve traces an L-shape when the unemployment rate is on the x-axis and the inflation rate is on the y-axis.

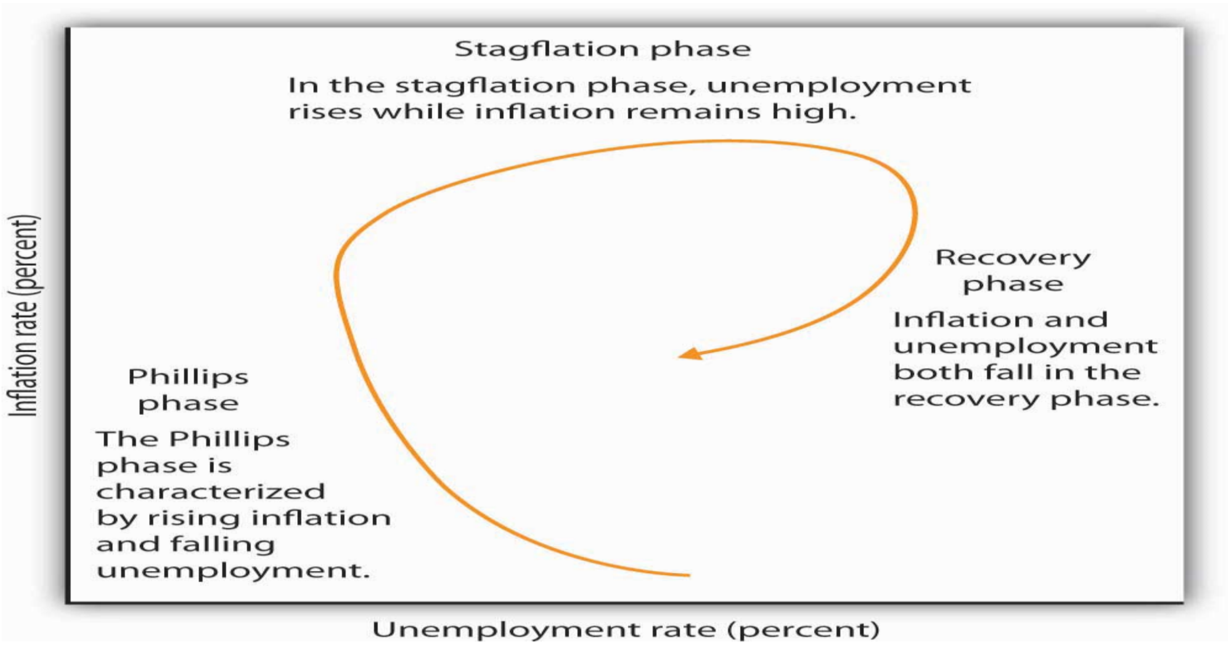


Figure 1. Relationship between Unemployment and Inflation (Phase of Unemployment and Inflation cycle)

Source: Elaboration from Massachusetts Institute of Technology Economist and Nobel Paul Samuelson (1970)

Empirical Review

Nwikina et.al. 2024) study investigates the impact of fiscal policy tools on unemployment rate in Nigeria between 1991 and 2021 using the autoregressive distributed lag model. The study has found the presence of cointegration among the variables. Additionally, taxation was found in the long-run to have no impact on unemployment rate while government spending in the long-run worsens unemployment largely due to unproductive and wasteful spending. In the short run, both taxation and government spending worsen the unemployment situation in Nigeria. Ejinkonye et al (2024) assessed the fiscal policy and unemployment nexus in Nigeria using time series data covering 1990 to 2021. The test results showed that: GCE had a coefficient of 3.84 and a probability of 0.9893; GRE had -0.000481 coefficient and a probability of 0.6365; GED had 0.000584 coefficient and a probability of 0.1292 while GTR had 0.002070 coefficient and a probability of 0.0000. Nguyen (2023) investigated the relationship and impact between corporate income tax and unemployment in Vietnam, China, and South Africa to investigate whether higher corporate income tax contributes to higher unemployment for the period from 2000 to 2020 and the VAR model, cointegration, and impulse response tests were applied to estimate the impact of taxation on the unemployment rates of developed, developing, and underdeveloped The study confirmed decreases in corporate tax rate by 1%, in South Africa decreases unemployment by 10%. Similarly, in Vietnam's when taxation rate decreases by 1% unemployment rate decreased by 1.1%, but China's unemployment increased by 2.9%

Alhaj (2023) investigate the impact of fiscal policy tools on unemployment rates in Jordan during the period 1986-2019. The results for the first model clarified that the increase in aggregate government expenditure causes unemployment rates to decline in the short and long run. On the other hand, the results for the second model showed that the increase in tax revenues increases unemployment rates in the short and long run. Moreover, current government spending has significant negative short and long-run effects on unemployment rates, while capital spending has only a significant negative short-run impact. Ibrahim (2023) investigates the impact of fiscal policy tools on unemployment rate in Nigeria between 1991 and 2021 using the autoregressive distributed lag model. The study has found the presence of cointegration among the variables. Additionally, taxation was found in the long-run to have no impact on unemployment rate while government spending in the long-run worsens unemployment largely due to unproductive and wasteful spending. In the short run, both taxation and government spending worsen the unemployment situation in

Nigeria. Olaolu (2023) study examined the effect of tax revenue on unemployment in Nigeria from the period between 1994 to 2020. Tax revenue was proxied by Corporate Taxes and Value Added Tax (VAT) and Customs and Excise Duties as independent variables and unemployment was proxied as the dependent variables. The study used Co-integration and Error Correction Model (ECM) to analyzed the data. The finding show corporate taxes and Value Added Tax has a positive and significant effect on unemployment in Nigeria, while Customs and Excise Duties have a negative effect and significantly affect unemployment in Nigeria. Enueshike et al (2021) examined the effect of tax revenue on unemployment in Nigeria from the period between 1994 to 2020. The finding show corporate taxes and Value Added Tax has a positive and significant effect on unemployment in Nigeria, while Customs and Excise Duties have a negative effect and significantly affect unemployment in Nigeria.

Apinoko, et al., (2024) examined influence of value added tax, company income tax, custom and excise duty tax and petroleum profit tax on inflation. The study found short run negative impact of corporate tax on inflation while value added tax exhibited strong positive influence on inflation. Buzugbe and Owhofasa (2024) studied effect of tax revenue on inflation rate in Nigeria using autoregressive distributed lag model for the period 1986-2022. The study found long run negative influence of direct tax components on inflation in Nigeria. Okeke (2024) investigates effectiveness of monetary and fiscal policies in controlling inflation in Nigeria from 1993 to 2023. The results revealed increased money supply and government expenditures raises a inflation rate and conversely higher taxes mitigates inflation reduces it. Cloyne et.al (2023) Using narrative-identified US federal tax changes post-World War II and disaggregated sectoral data on consumer and producer price we show that higher average personal income tax rates lower prices across a broad range of sectors, but higher average corporate tax rates do not. There is also significant sectoral heterogeneity in the size of the effects. Finally, only personal tax increases lower inflation expectations, while corporate tax increases lead to persistent declines in stock prices. Obaretin and Akhor (2022) examined the role of taxation as a tool for addressing the challenges of inflation in Nigeria for the period 1994 to 2014. Result revealed that all the variables (companies income tax, value added tax and custom and excise duties had a positive and a non-significant relationship with inflation. Nalyanya, et al. (2020) investigated tax revenue effect on macroeconomic variables for period 2008-2018 in Kenya. Outcome of study confirmed negative significant collaboration between inflation and tax revenue in Kenya. Atsu, et al., (2017) investigated influence of tax income on economic criteria in Nigeria covering 1986 to 2015. The tax revenue components employed for the study include value added tax, petroleum profit tax, company income tax and personal income tax while price stability and employment rate were made as the dependent variables respectively. The study found long run relationship exists between tax components and economic measures. The study could not determine nature of relation between price stability and tax revenue in the long run, short run result however revealed significant positive influence of company income tax on price stability while petroleum profit tax, personal income tax and value added tax exerted negative and significant effect

Methodology

Research Design

The study adopts longitudinal ex-pos facto design with purposive sampling method. Data was obtained from World bank and Central bank of Nigeria annual statistical bulletin for the period 1970 to 2024. The study adopted vector error correction model and Granger causality tests to examine long run effects and direction of causality amongst the variables of study. Shocks were introduced to ascertain necessary effects in each period of the economy reflecting the oil boom, the oil glut. Civilian and military regimes

Variables of the Study

Independent variables

The independent variables used in the study are petroleum profit tax, company income tax Personal income tax and Education tax. These taxes are part of the revenue sources of government in Nigeria

Dependent variable

The dependent variables for this study are inflation and unemployment.

Control variables

The control variable for the study is money supply and public debt. This represents total foreign and domestic debts.

Measurement of Variables summarized on Table 3.1 below:

Independent Variable	Measurement	Expected Sign
Company Income Tax (CIT)	Natural log of total revenue collected from company income tax	Positive
Petroleum Profit Tax (PPT)	Natural log of total revenue from petroleum profit tax	Positive
Personal income tax	Natural log of total revenue collected from taxes paid by individuals	Positive
Education tax	2.5 of profit before tax paid by companies to tax authorities	Positive
Dependent Variable		
Inflation	Changes in prices of goods and services over a certain base year	Negative
Unemployment	+ unemployment rate - total number of Nigerians unable to find job as a percentage of Nigerians of workable age expressed as a percentage of total	Negative

	population	
control Variables:		
Money supply	Total amount of a country's currency in circulation	Negative/Positive
Public debt (PUD)	Total internal debt stock plus total domestic debt stock	Negative/positive
Interest Rate	Average rate of interest rate applicable in a given year	Negative/Positive
Exchange Rate)	The rate of naira compared to other countries in a given year.	Negative/positive

Model specification

$\Delta INF_t = \beta_0 + \sum\beta_1 \Delta \mathit{Log}CIT_{t-1} + \sum\beta_2 \Delta \mathit{Log}PPT_{t-1} + \sum\beta_3 \Delta \mathit{Log}PIT_{t-1} {}_{+\sum\beta4\Delta \mathit{Log}EDTt-1\,+}\, \sum\beta_5 \Delta \mathit{LogP}UD_{t-1} {}_{+\sum\beta6\Delta \mathit{Log}pINTt-1\,+\,\sum\beta7\Delta \mathit{LogEXC}t-1} + \sum\beta_8 \Delta \mathit{Log}pMSU_{t-1+} \alpha_0 + \alpha_1 \Delta \mathit{Log}\ CIT_{t-1} + \alpha_2 \Delta \mathit{Log}\ PPT_{t-1} + \alpha_3 \Delta \mathit{Log}PIT_{t-1} + \alpha_4 \Delta \mathit{Log}EDT_{t-1} + \alpha_5 \Delta \mathit{Log}PUD_{t-1} + \alpha_6 \Delta \mathit{Log}INT_{t-1} \alpha_7 \Delta \mathit{Log}EXC_{t-1} \alpha_8 \Delta \mathit{Log}MSU_{t-1} + U_2$, t ……………. ……………………….(xiii)

$\Delta UNE_t = \beta_0 + \sum\beta_1 \Delta \mathit{Log}CIT_{t-1} + \sum\beta_2 \Delta \mathit{Log}PPT_{t-1} + \sum\beta_3 \Delta \mathit{Log}PIT_{t-1} {}_{+\sum\beta4\Delta \mathit{Log}EDTt-1\,+}\, \sum\beta_5 \Delta \mathit{LogP}UD_{t-1} {}_{+\sum\beta6\Delta \mathit{Log}pINTt-1\,+\,\sum\beta7\Delta \mathit{LogEXC}t-1} + \sum\beta_8 \Delta \mathit{Log}pMSU_{t-1+} \alpha_0 + \alpha_1 \Delta \mathit{Log}\ CIT_{t-1} + \alpha_2 \Delta \mathit{Log}\ PPT_{t-1} + \alpha_3 \Delta \mathit{Log}PIT_{t-1} + \alpha_4 \Delta \mathit{Log}EDT_{t-1} + \alpha_5 \Delta \mathit{Log}PUD_{t-1} + \alpha_6 \Delta \mathit{Log}INT_{t-1} \alpha_7 \Delta \mathit{Log}EXC_{t-1} + \alpha_8 \Delta \mathit{Log}MSU_{t-1} + U_3$, t ……….. (xiv)

The ARDL long-run model is estimated if co-integration is found while the short-run model is estimated if otherwise

$\Delta INF = \beta_0 + \beta_1 \mathit{Log}CIT_{t-1} + \beta_2 \mathit{Log}PPT_{t-1} + \beta_3 \mathit{Log}PIT_{t-1} + \beta_4 \mathit{LogEDT}_{t-1} + \beta_5 \mathit{LogPUD}i_{t-1} + \beta_6 \mathit{LogINT}_{t-1} + \beta_7 \mathit{Log}EXC_{t-1}\, \beta_8 \mathit{LogMSU}_{t-1} + U_2$, t ……. (xvii)

$\Delta UNE == \beta_0 + \beta_1 \mathit{Log}CIT_{t-1} + \beta_2 \mathit{Log}PPT_{t-1} + \beta_3 \mathit{Log}PIT_{t-1} + \beta_4 \mathit{LogEDT}_{t-1} + \beta_5 \mathit{LogPUD}i_{t-1} + \beta_6 \mathit{LogINT}_{t-1} ++ \beta_7 \mathit{Log}EXC_{t-1}\, \beta_8 \mathit{LogMSU}_{t-1} + U_3$, t … (xviii)

$\Delta INF = \alpha_0 + \alpha_1 \sum\Delta \mathit{Log}\ CIT_{t-1} + \alpha_2 \sum\Delta \mathit{Log}\ PPT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}PIT_{t-1} + \alpha_4 \sum\Delta \mathit{Log}EDT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}PUD_{t-1} + \alpha_2 \sum\Delta \mathit{Log}\ INTT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}EXC_{t-1} + \alpha_4 \sum\Delta \mathit{Log}MSU_{t-1}\ ECM + U_2$

$\Delta UNE = \alpha_0 + \alpha_1 \sum\Delta \mathit{Log}\ CIT_{t-1} + \alpha_2 \sum\Delta \mathit{Log}\ PPT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}PIT_{t-1} + \alpha_4 \sum\Delta \mathit{Log}EDT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}PUD_{t-1} + \alpha_2 \sum\Delta \mathit{Log}\ INTT_{t-1} + \alpha_3 \sum\Delta \mathit{Log}EXC_{t-1} + \alpha_4 \sum\Delta \mathit{Log}MSU_{t-1}\ ECM + U_3$

Results

Descriptive Statistics

The descriptive statistics of the time series data for mean and other moment conditions for each of the variables are depicted on table 2

Average inflation rate is 18.51 percent, which is very high and suggests that the problem of inflation has been quite persistent in Nigeria over the years. The standard deviation of 15.28 however suggests that inflation rates varied significantly from the average value over the study period. Maximum inflation rate was 72.8 percent which is essentially a hyper-inflation period. Average unemployment rate is also in double digits at 10.56 percent, with a maximum of 35.0 percent and a minimum of 1.9 percent. The wide discrepancies in the reported unemployment rates can be traced to measurement issues (ILO, 2020) although the standard deviation indicates that high unemployment rates in the country has been rather persistent over the years.

Table 2: Descriptive Statistics

Variable	Mean	Max.	Min.	Std. Dev.	Skew.	Kurt.	J-B	Prob.
INFL	18.51	72.80	3.458	15.28	1.947	6.125	54.033	0.00
UNEMP	10.56	35.00	1.900	8.422	1.385	4.256	20.049	0.00
CITG	20.92	77.82	-37.22	21.94	-0.171	3.904	2.024	0.36
EDTG	11.14	119.43	-47.25	32.03	0.998	4.770	15.414	0.00
PITG	12.91	331.11	-61.23	56.17	3.857	21.73	889.00	0.00
PPTG	20.53	154.94	-128.67	59.12	-0.013	3.048	0.006	0.84
GMS	22.25	72.88	-99.88	23.78	-2.194	14.92	349.30	0.00
GDEBT	17.10	628.73	-259.1	105.81	3.556	23.79	1045.7	0.00
EXRT	100.8	476.1	0.550	123.2	1.435	4.485	22.635	0.00
INTR	19.45	36.09	6.000	8.312	-0.273	1.984	2.880	0.24

For taxes, mean for company income tax is 20.93 percent and corporate tax increased over the year's outstripped growth of other taxes. Education taxes grew at 11.14 % annually and were the least in comparison to other forms of direct taxes. However, Petroleum tax revenue grew at average of 20.53 percent and is impressive. Personal income taxes with a maximum annual growth rate of 331.1 percent and PPT with a maximum rate of 154.94 percent. PPT also had the most rapid decline in terms of growth with -128.67 percent decline in one of the years. Average growth in money supply and public debt stood at 22.25 percent and 17.1 percent respectively, and a standard deviation for money supply and public debt at 23.78 percent and 105.8. However, mean for interest rate was 19.45 percent.

For the probability distribution, Jacque-Bera (J-B) statistic was significant indicating non-normality and dispersed distributional effect. The adoption of VECM helped in overcoming the problem of non-normality.

Correlation Analysis

For robustness, the unconditional correlations among the revenue and tax variables in the study are computed and the results are shown in table 3. It is seen that different forms of correlation exists among inflation and unemployment variables. the correlation indices are not in line with theoretical expectations about inflation and unemployment.

Table 3: Correlation Matrix

	LGDP	INFL	UNEMP	HDI	CIT	EDT	PIT	PPT	DEBT	LMS	EXRT	INTR
LGDP	1											
INFL	-0.17 (0.22)	1										
UNEMP	0.76 (0.00)	-0.25 (0.08)	1									
CIT	0.97 (0.00)	-0.12 (0.41)	0.72 (0.00)	0.92 (0.00)	1							
EDT	0.96 (0.00)	-0.30 (0.03)	0.79 (0.00)	0.81 (0.00)	0.93 (0.00)	1						
PIT	0.87 (0.00)	0.07 (0.60)	0.69 (0.00)	0.86 (0.00)	0.91 (0.00)	0.79 (0.00)	1					
PPT	0.94 (0.00)	-0.12 (0.37)	0.69 (0.00)	0.93 (0.00)	0.98 (0.00)	0.90 (0.00)	0.87 (0.00)	1				
DEBT	0.64 (0.00)	-0.03 (0.85)	0.67 (0.00)	0.56 (0.00)	0.62 (0.00)	0.68 (0.00)	0.63 (0.00)	0.61 (0.00)	1			
LMS	0.76 (0.00)	-0.27 (0.05)	0.62 (0.00)	0.47 (0.00)	0.62 (0.00)	0.76 (0.00)	0.48 (0.00)	0.59 (0.00)	0.51 (0.00)	1		
EXRT	0.88 (0.00)	-0.14 (0.30)	0.89 (0.00)	0.75 (0.00)	0.84 (0.00)	0.88 (0.00)	0.82 (0.00)	0.79 (0.00)	0.76 (0.00)	0.70 (0.00)	1	
INTR	0.71 (0.00)	0.17 (0.22)	0.50 (0.00)	0.82 (0.00)	0.79 (0.00)	0.61 (0.00)	0.89 (0.00)	0.77 (0.00)	0.53 (0.00)	0.24 (0.09)	0.64 (0.00)	1

Note: Probability values in parentheses.

For the direct tax variables, result reported significant positive correlation amongst the variables. From table 3, correlation between EDT and CIT is 93 percent, while the correlation between PIT and CIT is 91 percent and that of PPT with CIT is 98 percent. Thus indicating a rise in one tax component produced a corresponding rise in other tax components. However, from output petroleum profit tax and company tax exhibited high relationship. This high correlation indicates high probability of collinearity although the problem was mitigated by VECM since they are endogenous in the estimates.

Unit Root and Cointegration Analysis

To mitigate the risk of spurious relationship, test for stationary is performed using the indirect and direct tests; the Augmented Dickey Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) procedure. The unit root tests outcome is depicted on table 4. the ADF tests results reported in levels for unemployment and inflation showed inflation is significant while unemployment is insignificant.). Thus, unemployment is non-stationary in levels but the first difference was found to be stationary and is integrated of order one (or I[1]). Conversely inflation is integrated of order zero (or I [0]).

Table 4: Unit Root test for Variables

Variable	ADF Test		KPSS		Order of Integration
	Levels	*First Difference*	*Levels*	*First Difference*	
INFL	-3.569*	-7.403**	0.500**	0.167	I(0)
UNEMP	-0.133	-5.960**	0.758**	0.176	I(1)
CIT	-1.036	-7.622**	0.861**	0.150	I(1)
EDT	0.548	-8.193**	0.771**	0.402	I(1)
PIT	-0.535	-8.694**	0.894**	0.078	I(1)
PPT	-1.831	-6.141**	0.979**	0.235	I(1)
INTR	-1.891	-8.004**	0.754**	0.069	I(1)
DEBT	0.219	-5.890**	0.771**	0.402	I(1)
EXRT	1.111	-4.810**	0.854**	0.359	I(1)
MSU	-1.012	-7.003**	0.512**	0.140	I(1)

*Note: * indicates signifies at 5 percent; 95% critical values are reported in parentheses below each test value*

The result of the KPSS test shown on column three and four of table 3 revealed the series are difference-stationary and variables are I [1]. This result confirmed long run analysis can be executed. However, only inflation I (1) while only one inflation is I (0). Based on unit root result, Johansen cointegration test procedure is employed. The Trace and Max-Eigen statistics are deployed for testing for cointegration. For the inflation, equation result revealed existence of cointegrating vector amongst variables confirming cointegrations exist in data necessitating the application of error correction form of VAR.

Table 5: Johansen Cointegration Test Result

Equation

INFL		*UNEM*	
Hypothesized No. of CE(s)	Trace Statistic	Hypothesized No. of CE(s)	Trace Statistic
None *	91.62	None *	102.67
At most 1 *	49.63	At most 1	57.07
At most 2	26.65	At most 2	33.21
At most 3	7.19	At most 3	15.02
At most 4	0.50	At most 4	5.62
Hypothesized No. of CE(s)	Max-Eigen Statistic	Hypothesized No. of CE(s)	Max-Eigen
None *	41.99	None *	45.60
At most 1	22.98	At most 1	23.85
At most 2	19.45	At most 2	18.19
At most 3	6.69	At most 3	9.40
At most 4	0.50	At most 4	5.51

Lag Length Selection

Given that the collections of variables in the study are assumed to be cointegrated, the lag selection test is also performed to determine the maximum lag that can generate optimum values for VECM relationships. In the lag selection, optimality of the model was determined using both the Akaike Information Criterion (AIC) and Schwarz–Bayesian Criterion (SC. The result is shown in Table 6 and indicates that, for each of the equations the second lag possesses the minimum value. This implies only the first two lags are expected to be retained for the VECM estimation.

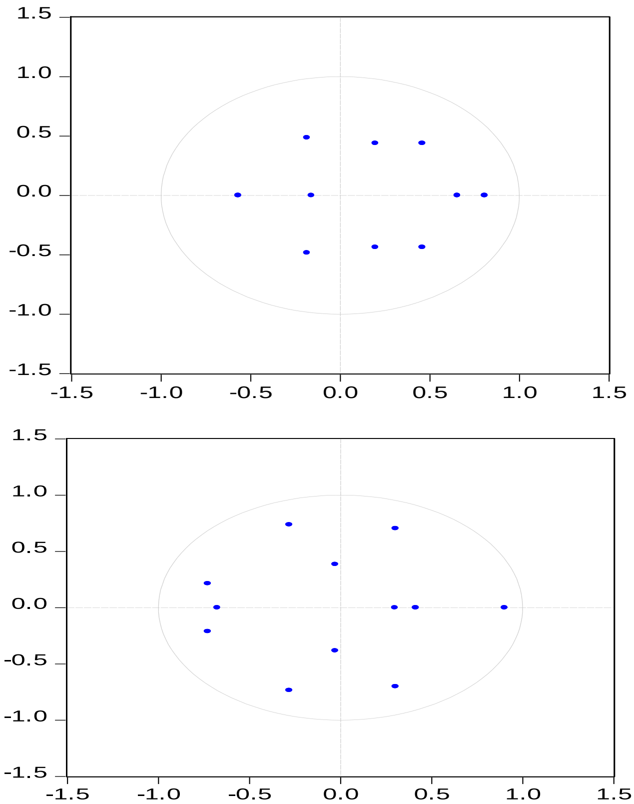
Table 6: Lag Length Selection Criteria

No of Lags	INFL		UNEMP	
	AIC	*SC*	*AIC*	*SC*
0	3.12	1.34	2.42	1.04
1	-1.00	-0.41	-0.98	-1.02
2	-1.89*	-1.52*	-1.93*	-1.56*
3	-1.08	-0.63	-1.34	-1.48
4	-0.63	-0.85	-0.94	-0.04

Note: * indicates selected lag.

In lag selection analysis of ARDL model, the study proposed a one-lag period for the estimation of the dynamic relationship. To further evaluate appropriateness of selected lag structure, the inverse root of the lag length selection is also reported in table 6. Since the roots from the various dots lie within the circumference of the circle, then it is decided the selected lag length for the study is acceptable.

Fig. 6: VAR Test for Lag Selection



Granger Causality Testing

To test patterns of causality among the variable, Granger causality test is conducted to provide background for estimating dynamic relationships. The results of the Granger causality tests are reported in Table 7 below. Note that the causality test is conducted only for the critical variables in the analysis (unemployment, inflation and tax variables). It can be seen that all forms of causality exist among the variables, including unidirectional causality, reverse causality and no causality.

Table 7: Granger Causality Test Result

Null Hypothesis:	Obs	F-Statistic	Prob.
PIT does not Granger Cause INFL	51	2.98	0.06
INFL does not Granger Cause PIT		0.44	0.65
PPT does not Granger Cause INFL	51	0.15	0.87
INFL does not Granger Cause PPT		0.21	0.81
CIT does not Granger Cause INFL	51	0.62	0.54
INFL does not Granger Cause CIT		1.36	0.27
EDT does not Granger Cause UNEMP	51	3.13	0.05
UNEMP does not Granger Cause EDT		0.71	0.50
PIT does not Granger Cause UNEMP	51	1.62	0.21
UNEMP does not Granger Cause PIT		0.10	0.90
PPT does not Granger Cause UNEMP	51	4.97	0.01
UNEMP does not Granger Cause PPT		3.24	0.05
CIT does not Granger Cause UNEMP	51	2.64	0.08
UNEMP does not Granger Cause CIT		0.21	0.81

Note: * and ** indicate rejection of null hypothesis at 5% and 1% respectively

In relation to inflation rate, the Granger causality tests show that no causality was recorded among the variables, indicating that while direct taxes do not directly stimulate inflation rate in Nigeria, inflation rate also does not stimulate direct taxes. Thus, the price level does not appear to effectively generate changes in direct taxes. This outcome is understandable given that the price level is more directly linked with the indirect component of taxes in which case, there is ease of shifting the burden of taxes. The F-statistic for the null hypothesis of causality running from EDT to unemployment is significant at the 5 percent level, which shows that education taxes significantly stimulate changes in unemployment, although the F-statistic for the reverse causality fails the significance test at the 5 percent level. Thus, only a unidirectional relationship exists between education taxes and unemployment. Only PPT and unemployment indicated a reverse causality from the F F-statistic which shows that the null hypothesis of no causality running from PPT to unemployment as well as from unemployment to PPT is rejected. While petroleum profit taxes significant stimulate unemployment changes in Nigeria, the taxes also respond to changes in unemployment.

The Vector Error Correction Mechanism

The existence of cointegration among the variables allows us to implement the Vector Error Correction Modeling technique, which describes the systematic disequilibrium adjustment process and the short-run transmission mechanism. All the variables in the study are treated as endogenous within the VECM analysis. The use of lags is expected to internalize the implications of expectations and dynamic impacts among the variables. Note that the optimal lag length of 2 lags was selected in the study based on the AIC and the SIC criteria.

The Parsimonious VECM Results

The initial estimates of the PVECM are reported in this section – including the cointegrated short and long run results. In Table 8, the cointegrated long run results are presented in terms of the steady state effects of the direct tax components on two co-integration equations. The estimates reveal the long run βcoefficients on the individual variables in the cointegrating equations for the relationships. For each of the equations, the cointegrating vectors are all normalized on the coefficients of each independent variables in order to determine the long run impacts of the variables within a vector. The long run coefficients therefore show the stable relationships between the tax variables and the dependent variables.

Table 8: Vector Error Correction Model Result (long run)

	CIT	EDT	PIT	PPT
Coefficients of cointegrating equation (β) – long run results for Inflation Equation	0.177 (0.06)	6.803** (4.01)	-4.616* (-2.62)	-1.798 (-0.66)
Coefficients of cointegrating equation (β) – long run results for Unemployment Equation	28.36** (4.73)	-10.82** (-3.32)	-10.25** (-3.22)	-18.22** (-3.33)

Note: t-ratios in parentheses.

There is also a significant positive impact of education taxes on inflation in the long run, indicating that higher education taxes intensify inflationary pressure. Conversely coefficient of PIT is negative and significant, which shows personal income taxes significantly reduce inflationary pressure in the long run in Nigeria. All the three direct tax components have significant long run impacts on unemployment since their coefficients are all significant. However, the coefficient of CIT is positive which shows that increasing company income taxes directly leads to higher unemployment in the long run. This outcome confirms theoretical literature that suggests that higher taxes businesses tend to discourage firm activities, which can induce rising unemployment.

Table 9 shows the short run estimates of the VECM relationships which also gives α or speed-of-adjustment coefficients on the long run ECT in the error correction model (ECM) for the equations. The ECT for all the equations (except PIT and PPT) possesses negative signs that indicate long run adjustments after any short run disequilibrium in the system. However, only the ECT for the CIT and EDT equations are significant at the 5 percent level. Given that the ECT terms possess negative signs, there is indication that any short-term shock in either inflation or unemployment, including CIT and EDT will result in a long run adjustment procedure that ensures long run stability. The statistically significant and negative error-correction terms confirm the existence of long run relationships of direct taxes with inflation and unemployment.

Table 9: Vector Error Correction Model Result (Short run)

	ΔLGDP	*ΔINFL*	*ΔUNEMP*	*ΔHDI*	*ΔCIT*	*ΔEDT*	*ΔPIT*	*ΔPPT*
ECM_{t-1}	-0.033	-0.909	-0.348	-0.004	-0.036*	-0.055*	0.054	0.035
$\Delta INFL_{t-1}$	0.003	0.012	0.003	0.000	0.002	0.003	0.004	0.000
$\Delta INFL_{t-2}$	0.004	-0.480**	-0.018	-0.001**	0.000	0.000	0.003	0.000
$\Delta UNEMP_{t-1}$	-0.008	0.812	0.106	0.001	-0.004	-0.024	-0.011	0.033
$\Delta UNEMP_{t-2}$	0.000	0.207	0.084	0.000	0.005	0.023	-0.022	0.021
ΔCIT_{t-1}	0.491*	3.555	2.181	0.050*	-0.128	0.396	0.073	0.957*
ΔCIT_{t-2}	0.592*	-16.788	1.154	0.016	-0.067	0.101	-0.325	0.394
ΔEDT_{t-1}	-0.009	-4.367	-0.732	0.012	0.116	-0.182	-0.357	-0.015
ΔEDT_{t-2}	-0.006	-1.742	-0.190	-0.020	0.112	-0.012	-0.175	-0.573
ΔPIT_{t-1}	0.104	8.821*	1.096	-0.006	-0.042	0.097	-0.079	-0.057
ΔPIT_{t-2}	0.082	-3.401	-0.047	-0.002	-0.117	0.068	0.166	-0.006
ΔPPT_{t-1}	0.089	2.189	-1.681*	-0.008	-0.040	0.269*	0.060	-0.023
ΔPPT_{t-2}	0.109	5.503	0.449	0.003	-0.092	-0.027	0.160	-0.028
R-sq.	0.291	0.512	0.303	0.656	0.299	0.455	0.234	0.295
Adj. R-sq.	0.186	0.253	0.167	0.473	0.174	0.166	0.174	0.180
F-statistic	0.772	1.974	0.819	3.589	0.802	1.574	0.574	0.787

Note: * and * indicate significance at 5% and 1% respectively.

The other aspects of the short run VECM estimates is the direct effects of the lags of the variables on the individual variables, which show short-term transmissions among the variables. The coefficients of all the other variables fail the test. Moreover, only PIT is significant in the INFL model, while only PPT is significant in the unemployment equation. These results therefore indicate that the direct effects of the direct tax components on inflation and unemployment are weak in the short run. Thus, there is evidence that although the long run effects of direct tax components on inflation and unemployment are strong, those of short run effects are weak and mostly insignificant. Among the tax variables, the short run effects of other tax variables are also weak and insignificant. In general, the short run VECM estimates show that the effects of taxes on inflation and unemployment are more long-term rather than short-term. This has implications for policy makers in terms of using taxation to reduction in inflation and unemployment

The Forecast Error Variance Decomposition (FEVD)

The final set of analysis for the dynamic set-up of the VECM is the forecast error variance decomposition (FEVD). The results of the variance decomposition based on the estimated VECM where all variables are considered to be endogenous are reported in this section. As noted in Nguyen (2011), Variance Decomposition “tells how much a given variable changes under the impact of its own shock and the shock of other variables.” Therefore, the variance decomposition defines the relative importance of each random innovation in affecting the variables in the VECM. Table 10 presents the estimated forecast error variance decomposition of key variables in the study.

Table 10: FEVD Results

Period	LGDP	INFL	UNEMP	HDI	EDT	PIT	PPT	CIT
Variance Decomposition of INFL:								
1	0.99	99.01	0.00	0.00	0.00	0.00	0.00	0.00
2	2.74	73.92	1.17	0.28	2.13	18.66	0.95	0.14
4	2.60	54.79	1.46	9.67	1.96	26.20	2.81	0.51
8	3.18	49.23	1.55	13.41	2.47	24.79	3.98	1.39
10	3.11	48.31	1.79	13.84	2.60	24.77	3.94	1.63
Variance Decomposition of UNEMP:								
1	0.01	6.30	93.70	0.00	0.00	0.00	0.00	0.00
2	0.01	4.11	84.35	0.59	0.08	0.30	9.48	1.07
4	0.42	5.33	73.92	0.41	0.34	0.50	18.42	0.66
8	1.24	5.20	69.89	0.69	0.51	0.86	20.76	0.85
10	2.17	5.11	68.45	0.69	0.63	1.30	20.47	1.17

The decomposition of the variances in inflation itself initially contributed significantly to the variances in itself. PIT became stronger, with PIT accounting for 26.2 percent of variances in inflation in the fourth period. This also shows that PIT is a major direct tax factor that explains long term variances in inflationary pressure in Nigeria. The contributions of the other tax variables are limited, although stronger than those of the economic variables. In the decomposition of unemployment, the contribution of PPT is strongest, apart from that of unemployment itself. For instance, PPT contributed over 20 percent of variances in unemployment rate in the eighth and tenth period. This shows that changes in the pattern of unemployment adjust strongly to changes in petroleum taxes in Nigeria.

Test of Hypotheses

Hypothesis Two

There is no significant effect Education tax, personal income tax, company income tax and petroleum profit tax on changes in prices of goods and services in Nigeria

The test of the hypothesis is also based on the long run estimates in Table 4.7. From the results the coefficients of EDT, PIT and PPT all pass the significance test at the 5 percent level, which implies that the null hypothesis is rejected in this case. Thus, is shown that there is a significant effect education tax, personal income tax and petroleum profit tax on changes in prices of goods and services in Nigeria. The effect of company income tax on changes in prices of goods and services in Nigeria is however shown to be insignificant.

Hypothesis Three

There is no significant effect of Education tax, personal income tax, company income tax and petroleum profit tax on unemployment in Nigeria

The test of this hypothesis is also based on the results in Table 4.7. In the result, the coefficients of all the tax variables passed the significance test at the 5 percent level. This implies that the null hypothesis is fully rejected in this case. Thus, there is a significant effect of Education tax, personal income tax, company income tax and petroleum profit tax on unemployment in Nigeria.

Discussion of Results

The goal of the research was to determine the effect of direct taxes on unemployment and inflation in Nigeria. The outcome confirmed education taxes increased inflation; both personal income taxes and petroleum taxes critically reduce inflation in the long run. This result implies that taxes on labor and physical natural resources can be used to stabilize prices in the country. Essentially, while the prices on labor directly contributes in reducing the flow of money in the economy, taxes on natural resources can indirectly contribute to increase in supply of goods and services. Thus, both tax components combine to slow down inflationary pressure in Nigeria. These negative effects of these taxes on inflation are also confirmed by previous studies like Lin and Lin (2023) for China and Adefolake and Omodero (2022) for Nigeria. Although other studies have found that taxes may stimulate inflation (Nguyen & Darsono, 2022) the consideration long run effects in our study has improved on previous data analysis.

The study also found that all tax variables had significant effect on unemployment. Thus, there is evidence that all the direct tax components are important for driving unemployment rates in Nigeria. Just like previous findings by Peterson and Bair (2022), Rahman (2022) and Orisadare and Fasoye (2022), our study has shown that education taxes, personal income taxes and petroleum taxes reduce unemployment rate in Nigeria. This however demonstrated that increasing company income taxes directly leads to higher unemployment in the long run. This outcome confirms theoretical literature that suggests that higher taxes on enterprises tends to discourage the firm activities, which can lead to rising unemployment. This result shows the negative link of company income tax rates to the strife for reducing unemployment in a country. This implies that higher company income tax rates can reduce incentives for firms to engage in productive economic activities like investment (Gomis-Porqueras & Smith, 2020; Kneller & Staringer, 2020; Kose & Terrones, 2021) thereby leading to higher unemployment rates.

Conclusion

Tax income play a crucial role in enhancing the standard of living of citizens as well as being used as fiscal policy measure in government interventions in the management of economy and this directly impact the welfare of citizens. In this study, the effects of direct taxes on unemployment and inflation in Nigeria were examined. Nigeria is at a developmental stage where direct taxes especially taxes related to incomes are expected to yield greater outcomes for fiscal revenues at all levels of government. In the study, price level changes and unemployment rate are examined. Four direct taxes components are considered including company income tax, education tax, personal income tax and petroleum profit taxes. Taxes used covered the period of 1970 to 2024, while e dynamic framework was devised for the analysis. Thus, the vector error correction (VECM) technique was adopted for the analysis. In general, there is evidence from the study that direct taxes are important for driving long run economic growth in Nigeria. The specific conclusions are

a) That education tax, personal income tax and petroleum profit taxes all have significant impact on inflation and price changes in Nigeria. Company income taxes however do no significantly influence inflation in Nigeria.

b) That all direct tax components have significant effect on unemployment in Nigeria. However, while education tax, personal income tax and petroleum profit taxes reduce unemployment, company income taxes increase the rate of unemployment in the country.

Recommendations

The study has shown that company income taxes lead to greater unemployment in Nigeria. This has been linked to the capacity of companies to reduce their activities due to heavy taxation. The recommendation is therefore as follows:

a) Strengthen the administration of taxes in the country in order to ensure that incentives-based tax systems are adopted.

b) All forms of inefficiency in administration that leads to undue burden on the companies needs to be removed and a carrot and stick approach should be used for driving company income taxation in Nigeria.

c) There must also consideration for the realistic extent to which improvement in tax revenue can expected to be achieved in Nigeria, given the level of development of the economy. This is more specific for direct taxes which directly affect welfare and economic performance of agents in the economy.

d) The heavily agricultural and informal character that has characterized the economy renders tax revenue effort quite cumbersome in the country. It is therefore recommended that optimizing tax mobilization and carrying out reforms can be achieved only when there is a strong restructuring of the structure of the economy in Nigeria.

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