Does Taxation Drive Economic Development in Nigeria?

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Abstract:- This study examined whether taxation drive economic development (Human Development Index) in Nigeria used data spanning from 1985 to 2018 obtained from the Central Bank of Nigeria (CBN) statistical Bulletin, Federal Inland Revenue Service (FIRS) tax reports and Human Development Report by United Nations Development Programme (UNDP) reports. Data collected were analysed using descriptive and inferential statistics involving multiple regression analysis. Findings revealed that an inverse and significant relationship exist between Company Income Tax (CIT) and Human Development Index (HDI) in Nigeria; direct and significant relationship between Value Added Tax (VAT) and HDI direct and insignificant relationship between Personal Income Tax (PIT), Petroleum Profit Tax (PPT) and HDI. It was concluded that taxation has the capacity to cause positive economic development in Nigeria if the tax base is expanded and loopholes in the tax administrative system which causes tax revenue hemorrhage are closed and the strength of taxation framework to make the Nigerian economy tax base economy rather than oil base economy.

Keywords: Human Development Index, Taxation, Oil base economy, tax base economy

I. INTRODUCTION

Revenue generated by an individual, organization or government determines the extent of socio-economic infrastructural provision as well as the living standard of the people. From ancient times, public finance is majorly funded through taxes often imposed on subjects by the government in power. Revenues may be derived from tax and non-tax sources, oil and non-oil, internally and externally generated, among other sources or classification. Whatever the source or classification, taxation revenue are the most potent, reliable and efficient source of revenue to both developed and developing economies (Konrad, 2014).

Taxation in any country is required to serve several purposes some of which include generation of revenue to government, redistribution in income, instrument of social and economic development, fiscal policy tool for correcting balance of payment disequilibrium, protection of indigenous and infant industries, among others. How well these roles are fulfilled and the viability of taxation as instrument of stabilization is a function of the administrative machinery and focus of the central and regional governance. Taxation, ‘as a component of fiscal policy framework in economic theory, thus has implications in the economic growth rate and other micro and macro-economic variables.’ The connection between taxation and economic growth is long been debated in accounting, finance and economic literature. For instance, the United Nations (2005) aver that for developing countries to attain rapid economic growth and development, they must have to increase their domestic revenue through taxation in accordance with the Millennium Development Goals (MDGs).

Many empirical studies such as UN (2005); Popoola (2019), Adegbie and Fakile (2011); Onefeiwu, 2012; Lyndon and Paymaster, 2016; Ogbanna and Appah (2016), and others had tried to associate taxation and economic growth.

In Nigeria, the extent to which taxation affects the economy has remained a subject of debate amongst professionals and even the ordinary people since it is assumed that taxation in practical sense of it does not work in the country as applicable in other nations of the world. The premise for this debate strongly holds water giving the many economic distortions and sorry state of the nation’s infrastructures as well as the level of poverty in the country. It is also documented elsewhere the ineffective administrative machinery and corruption among the tax authority personnel which hampers efficiency in tax administration in the country. Bird (2008) posits “that despite the resulting variety of tax systems and possibilities found in the developing world, all developing countries, Nigeria inclusive, face the same basic tax challenge. One of which is how to meet public spending needs by raising revenue in a way that is conducive to the political survival of those making policy decisions.” Thus, with fiscal imbalances which characterize the Nigerian public sector and the ever increasing public needs, policy thrusts need to be put in place to enhance steady revenue flows to the government (Etim and Nweze, 2015). Generally, therefore, an underlying premise might be that when the government prudently applies tax revenue to the provision of infrastructures and social security, and creates an enabling environment for businesses to thrive through fiscal policies, economic growth and development is enhanced.

Economic development is measured by a prolong and sustained economic growth and an increase in economic performance indicators of any country at a particular period of time. Some studies (Chen, 2007; Fullerton and Heute, 2007; Keshap, 2010; Muraina, 2018; Lyndon and Paymaster, 2016) which have attempted to identify the determinants of the level of taxation, often cite one of the most commonly used
determinants to be per capita income. This is based on the belief that economic growth brings about an increase in demand for public expenditure (Tanzi, 1987) and a larger supply of taxing capacity to meet such demands (Musgrave and Musgrave, 2004; Taxzi and Lee, 2008).

1.1 Statement of the Problem

The Nigerian economy has over the past four decades or more depended on crude oil revenue as the major source of funding public expenditures at all levels of governance (Federal, State and Local) displacing taxation as a major revenue source to the government. But at present, crude oil prices have plummeted following crush at international oil market and the international lock down as a result of COVID’19 which has slump demand for oil putting pressure on government budget implementation, due to revenue shortfalls. This requires a review of the revenue structure of the country with particular attention to taxation.

Also, the ratio of tax revenue to Gross Domestic Product (GDP) for Nigeria as range between 2.9 per cent and 4.8 per cent since 2009 to date compared to countries such as Indonesia and Malaysia with between 13.35 percent and 15.3 percent within the same period. This portray a weak tax revenue profile that might have to be strengthen if the country must take it pride of place among the committee of nations.

From another point of view, most empirical investigation on taxation and economic growth and development relationships, have always been using either nominal or real gross domestic product which in real sense does not actually capture the standard of living of the citizens. Particularly on the long-run. In this study, the researchers used Human Development Index (HDI) which gives a clearer picture of the citizens’ standard of living than the GDP or RGDP.

Therefore, this investigation is an attempt to contributing to the argument “Does taxation drive economic development’ using data from Nigeria with a view to reducing the research gap in this area.

1.3 Objective of the Study

The main objective of this investigation is to examine the relationship between taxation and economic development in Nigeria as a contribution to the age long argument as to whether taxation drive development. Specifically, in the study, we set out to evaluate the effect of Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profits Tax (PPT) on Human Development Index (HDI) in Nigeria.

1.4 Hypothesis of the Study

The hypothesis is the study stated in null form is as follows:

\[ H_0: \] There is no significant relationship between Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT), Petroleum Profits Tax (PPT) and Human Development Index (HDI) in Nigeria.

This study is significant in the sense that gradually the world-over, focus of governments is shifting from oil dependency to tax-based economy by way of broadening the tax net, hence the government and policy makers would find the study relevant in policy formulation and implement with regard to taxation, fiscal policy and public expenditure. The findings would also add to existing literature on the subject for further studies.

The reminder of this paper covers the review of related literature, methodology of the study, results and findings, and conclusion and recommendations.

II. REVIEW OF RELATED LITERATURE

This part of the paper is carried out in three (3) sub-headings of conceptual framework, theoretical framework and empirical literature.

2.1 Conceptual Framework

The main variables of the study are explained under the conceptual review

2.1.1 Concept of Taxation

The term taxation is derived from tax(es) described as a compulsory or mandatory levy charged by any authority or government on individuals or corporate income with a view to generating revenue for the provision of goods, services, and other social development to the citizenry. “Tax is very necessary if government or authorities must embark on the provision of basic amenities and social services through capital projects like; construction of roads, building of bridges, airports, hospitals, construction of seaports, dams, provision of recreational centers, motor-parks, markets, among others. These obligations require huge financial budget and resources by government to be able to undertake and deliver it on time’ (Etim, Nsima and Daniel, 2020). These activities would have to be funded by the government through different sources of funds and financing prominent of which is taxation, which comes in different forms and types.

The National Tax Policy defines tax as “a financial charge or levy imposed upon an individual or legal entity by a state or a legal entity of the state; it is a pecuniary burden laid upon individuals or property to support government expenditure” (NTP, 2010).

On the other hand, taxation is the act of assessing, imposing and collecting the various taxes. It is concerned with the administration of tax policy geared towards the assessment, collection and accounting for the tax revenues to the government by the authority saddled with the responsibility.
2.1.2 Concept of Economic Development

Economic development refers to ‘a policy intervention efforts targeted at the economic and social well-being of people. The focus of economic development is on improvement in the quality of life of people, introduction of new goods and services using modern technological, mitigation of risk and dynamics of innovation and entrepreneurship” (Hadjimichael, Kemeny and Lanadan, 2014).

In general context, economic development is the growth of the standard of living of a nations people from a low-income economy to a high-income economy, moving the poor put of the poverty level. When the local quality of life is improved, there is more economic development. “It is a process whereby the people of a country utilize the available resources in such a way that the per capita income of the country increase”. This implies that the people in a country becoming wealthier, healthier and with a longer average life expectancy following improved productivity, higher literacy rates, and better public education.

In real terms, economic development is measured by the Human Development Index (HDI), which the United Nations Development Programme (UNDP) (2014) described as “a composite measure of long-term progress in three basic areas of human development namely: access to safe and healthy life, access to education and a decent living standard”. “It is a process by which a nation improves the economic, political and social well-being of its people.”

UNDP (2014) went further to explained that HDI “is an index that measures key dimensions of human development which are: A long and healthy life, access to education and a decent living standard”.

The aforementioned measures of economic development and the key features of Human Development Index (HDI) justify the adoption of the variable as proxy for economic development in this study. The implication is that if government faithfully and purposefully channel tax revenues to socio-economic projects, it is transcending to a higher standard of living among the citizens.

2.2 Theoretical Framework

Bhartia (2009) identifies some theories of taxation that may be derived from the assumption that there need not be any relationship between tax paid and benefits received from state activities. In this group, two theories are identified, namely: socio-political theory and expediency theory. The socio-political theory of taxation states that social and political objectives should be the major factors in selecting taxes and formulating tax related policies. The theory advocates that a tax system should not be designed to serve individuals, but should be used to cure the ills of society as a whole. The expediency asserts that every tax proposal must pass the test of practicality to achieve the set goal. The socio-political theory has some dimensions of economic development philosophy behind it, and is thus the anchor upon which this study holds.

2.3 Review of Empirical Studies

Several empirical studies linking taxation to economic growth and development abound, but mostly the focus has always been on economic growth proxy by GDP even with studies conducted in developed economies. The table following is a summarized empirical studies reviewed for the study stating the author(s) and year, country of study, topic, methodology and major findings.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Author(s) and year</th>
<th>Country(ies) of study</th>
<th>Topic</th>
<th>Methodology</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Bleany, Gemmel and Greensaway (1995)</td>
<td>Selected Developed Countries</td>
<td>Tax Revenue and Expenditure</td>
<td>Vector analysis</td>
<td>Government expenditure in line with expected revenues</td>
</tr>
<tr>
<td>3.</td>
<td>Ariyo (1997)</td>
<td>Nigeria</td>
<td>Tax Revenue and Gross Domestic Product</td>
<td>Linear Regression (OLS)</td>
<td>Negative significant relationship between variables studied</td>
</tr>
</tbody>
</table>
The literature reviewed shows that much empirical studies in the subject of taxation and economic growth and development abound, but in almost all cases, the proxy for economic growth is GDP which does not realistically measure economic development as is the case in Nigeria where there is growth without development paradox. This study is designed with a view to improving on existing literature on the subject matter by using Human Development Index (HDI) as a proxy for economic development. HDI from theoretical and practical point of view measures the standard of living level (the poverty level), life expectancy and the quality of life of the citizens over time, hence considered for the purpose of this study as being more realistic proxy for economic development than per capita income (PCI) and GDP. More so, we use four (4) most commonly collected taxes revenue of CIT, PIT, VAT and PPT as independent variables as against most of the studies that made use of one or two taxes revenues in their analysis.

III. METHODOLOGY

The research method adopted in conducting the study are explained under this section. This include the research design, source and method of data collection, model specification and the method of data analysis.

3.1 Research Design

This study involves the adoption of Ex-post facto research design, because it made use of already existing data and cannot be manipulated by the researchers. This design is appropriate because it helps in determining the effects of taxation on economic development in Nigeria.

3.2 Sources and Method of Data Collection

Data for this study are collected from the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS) and Federal Inland Revenue Service (FIRS); making the source of data, secondary.

3.3 Model Specification

The specific model for this study is stated as follows:
HDI = \( f(\text{CIT, PIT, VAT, PPT}) \) …… Equation 3.1

HDI = \( \beta_0 + \beta_1 \text{CIT} + \beta_2 \text{PIT} + \beta_3 \text{VAT} + \beta_4 \text{PPT} + e \) …… Equation 3.2

LogHDI = \( \beta_0 + \beta_1 \log \text{CIT} + \beta_2 \log \text{PIT} + \beta_3 \log \text{VAT} + \beta_4 \log \text{PPT} + e \) …… Equation 3.3

Where;

HDI = Human Development Index of life expectancy, quality of life, education and per capita income indicators in Nigeria.

CIT = Companies Income Tax, being taxes imposed on income of companies

PIT = Personal Income tax, being taxes imposed on sold individuals and others acting in such capacities.

VAT = Value Added Tax on consumption of goods and services that are vatable.

PPT = Petroleum Profit Tax, being taxes imposed on companies engaged at the upstream oil and gas sector.

Log = Logarithm, to ensure stability of time series data.

e = stochastic error term

\( \beta_0 \) = Constant

\( \beta_1, \beta_2, \beta_3, \beta_4 \) = Parameters of the independent variables

A priori expectation; \( \beta_0 - \beta_4 > 0 \).

3.4 Method of Data Analysis

To analyse the data obtained for this study, the descriptive and inferential statistics are used.

IV. RESULT AND FINDINGS

The results and findings of this study is carried out basically under two (2) sub-section of descriptive statistics for the variables and the test of hypothesis using results of the regression analysis.

4.1 Descriptive Statistic and Analysis of Variables

The descriptive analysis of the variables is as presented on Table 4.1. Using descriptive measures of central tendency – mean and media, measures of dispersion – range, standard deviation, and others such as skewness, kurtosis and Jarque-Bera used in the determination of the normality of the data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>HDI</th>
<th>CIT</th>
<th>PIT</th>
<th>VAT</th>
<th>PPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.464276</td>
<td>2354.193</td>
<td>48.57147</td>
<td>351.7685</td>
<td>1150.998</td>
</tr>
<tr>
<td>Median</td>
<td>0.445000</td>
<td>2154.500</td>
<td>36.4000</td>
<td>230.4000</td>
<td>850.5350</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.532000</td>
<td>6330.000</td>
<td>138.1100</td>
<td>1082.209</td>
<td>3070.590</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.411000</td>
<td>172.800</td>
<td>15.8000</td>
<td>7.261000</td>
<td>125.0400</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.041348</td>
<td>1596.443</td>
<td>35.25128</td>
<td>325.5498</td>
<td>806.6721</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.280066</td>
<td>0.765366</td>
<td>1.131194</td>
<td>0.721335</td>
<td>0.916491</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.731193</td>
<td>2.986914</td>
<td>3.023235</td>
<td>2.378815</td>
<td>2.658113</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>2.324372</td>
<td>3.319690</td>
<td>7.251826</td>
<td>2.569964</td>
<td>4.925337</td>
</tr>
<tr>
<td>Probability</td>
<td>0.312802</td>
<td>0.190168</td>
<td>0.026625</td>
<td>0.276656</td>
<td>0.085207</td>
</tr>
<tr>
<td>Sum</td>
<td>13.464000</td>
<td>80042.56</td>
<td>1651.430</td>
<td>8794.214</td>
<td>39133.92</td>
</tr>
<tr>
<td>Sum sq. Dev.</td>
<td>0.047870</td>
<td>84104805</td>
<td>41007.54</td>
<td>2543584</td>
<td>21473755</td>
</tr>
<tr>
<td>Observations</td>
<td>29</td>
<td>34</td>
<td>34</td>
<td>25</td>
<td>34</td>
</tr>
</tbody>
</table>

Source: Researchers’ Compilation 2020 from E-view output

Table 4.1 shows that the mean and median values obtained for Human Development Index (HDI) is 0.4643 and 0.4450 respectively. The standard deviation value of 0.0413 indicate a fair level of variability in the data while a skewness value of 0.2801 indicates that the data is positively skewed. The kurtosis value of 1.7312 suggests that the data on HDI is flatter at the tails and thus signifying the presence of less tails in the data. However, the data turned out to fail the normality test with the Jarque-Bera probability been less than 0.05.

The mean values for the independent variables were Companies Income Tax (CIT) N2354.193 billion, Personal Income Tax (PIT) N48.571 billion, Value Added Tax (VAT) N351.769 billion and Petroleum Profit Tax (PPT) N1150.998 billion respectively. The median values are CIT N2154.50 billion, PIT N36.40 billion, VAT N230.40 billion and PPT N850.535 billion respectively. Also, the skewness values obtained were 0.7654, 1.1312, 0.7213 and 0.9165 respectively which indicates a fairly symmetrical data in all the independent variables in the study. The standard deviation which measures the level of variability in the data set were CIT N2154.50 billion, PIT N36.40 billion, VAT N230.40 billion and PPT N850.535 billion respectively. Kurtosis
which relates to the peakedness of the data distribution, values were 2.9869 for CIT, 3.0232 for PIT, 2.3788 for VAT and 2.6581 for PPT respectively, indicating that the distributions for the variables were Mesokurtic in some cases suggesting that the data series do not have heavy outliers or tails. The Jarque-B value, which is also a test of normality of the data set, are CIT 0.1902, PIT 0.0266, VAT 0.2767 and PPT 0.0852 respectively are adjudged not normal given that these probabilities are greater than 0.05 for CIT, VAT and PPT. However, data series on PIT showed normality with a probability of 0.0266. With failure in normality test, the data set were further transformed using logarithm to help to restore normality of the data series in the variables and ensure that it reflects the changes in measures of economic development and indicators of taxation in the study.

4.2 Test of Hypothesis

The hypothesis of the study is tested using the results obtained from the multiple linear regression technique and ordinary least square method as computed using E-views statistical package 8.0. The logarithm model for testing of the hypothesis is restated as:

\[
\text{LogHDI} = \beta_0 + \beta_1 \text{LogCIT} + \beta_2 \text{LogPIT} + \beta_3 \text{LogVAT} + \beta_4 \text{LogPPT} + \mu_1 \ldots \ldots \ldots \text{Model 3.3.}
\]

The Ordinary Least Square (OLS) multiple regression results that captured the relationship in the multiple regression model is shown on Appendix; the summary of the result and residual statistics is given below:

\[
\text{HDI} = 0.912 - 0.029 \text{CIT} + 0.022 \text{PIT} - 0.031 \text{VAT} + 0.021 \text{PPT}
\]

<table>
<thead>
<tr>
<th>t-stat</th>
<th>S.E</th>
<th>Prob.</th>
<th>t_{\text{tab}}</th>
<th>Durbin-Watson Stat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6.7213</td>
<td>(-1.8550)</td>
<td>(0.0161)</td>
<td>1.699</td>
<td>33.231</td>
</tr>
<tr>
<td>(0.8421)</td>
<td>(0.0264)</td>
<td>(0.4097)</td>
<td>(0.3096)</td>
<td></td>
</tr>
<tr>
<td>(2.6343)</td>
<td>(0.0306)</td>
<td>(0.0159)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1.0426)</td>
<td>(0.0199)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result indicates that Human Development Index (HDI) in Nigeria will decrease by 0.912 units if all the independent variables are hold constant. The independent variables are Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT). This implies that Human Development Index (HDI) will suffer a decline in Nigeria if there is no level of taxes paid at a given period in Nigeria. Similarly, a unit increase in the level of Companies Income Tax collected will lead to a decrease of 0.029 units in Human Development Index; a unit increase in Personal Income Tax will lead to an increase of 0.022 units in HDI in Nigeria; a unit increase in Value Added Tax (VAT) collected will lead to boost in HDI by 0.03 units and a unit increase in the amount of Petroleum Profit Tax (PPT) collected will grow HDI by 0.021 units.

In respect to the degree of relationship between the dependent variable and independent variables, the coefficient of determination (R²) value of 0.8692 and adjusted R² value of 0.8431 indicates a positive correlation between HDI and the independent variables of the study. This also shows that 86.92% or 84.31% variations in HDI is explained by the independent variable of CIT, PIT, VAT and PPT respectively. The remaining 13.08% or 15.7% of the variations were accounted for by other variables which are not considered in this model and are captured by the standard error (S.E) of the regression. This findings contrast Unegbu and Irefin (2011) results.

The Durbin-Watson statistic indicates the presence or absence of autocorrelation in the variables. The D-W statistic value of 1.20, using a rule of thumb, indicates the absence of serial correlation in the variables used in the study. Usually, D-W statistic value of between 1 and 3 is considered free from autocorrelation and the regression results are relevant and not spurious.

In the determination of the statistical significance of the independent variables, the computed t-statistic values of the independent variables is compared to the tabulated or critical value of t-statistics value at 0.05 level of significance and n-k-l degrees of freedom; where n = the number of years covered in the study, k is the number of independent variables in the study. Also, the probability of the t-statistic for the independent variable is expected to the less than 0.05.

From the t-statistic table, the critical value of t-statistic at 0.05 level of significance and 29 degrees of freedom (34-4-1) was obtained as 1.699. The statistical significance of the independent variables with respect to Human Development Index (HDI) is shown on the table follows:
One strong outcome of this study is that VAT is a suitable driver of human development while other classes of taxes – CIT, PIT and PPT are not. This may be attributed to tax collection process which may be ineffective and inefficient and expensive that Nigeria is not a tax economy and cannot stand among committee of nations that drive human development through taxation, or even high level of corruption in the management of tax proceeds on the part of those entrusted with tax functions.

V. CONCLUSION AND RECOMMENDATIONS

The study focused on examination of the relationship between taxation and economic development in Nigeria proxy by Human Development Index (HDI) from 1985 to 2018, using Companies Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profits Tax (PPT) as independent variables. The findings from the analysis show:

i. There is an inverse and significant relationship between Company Income Tax and Human Development Index in Nigeria.

ii. There is a direct and significant relationship between Value Added Tax and Human Development Index in Nigeria.

iii. There is a direct and non-significant relationship between Personal Income Tax, Petroleum profit tax and Human Development Index in Nigeria.

From the outcome of the study, we therefore recommend the following:

i. Value Added Tax (VAT) has shown that it has a veritable capacity to foster Human Development Index (HDI) in Nigeria; government should widen the tax base for VAT not necessarily the rate to increase the revenue generated from this source of tax.

ii. There is need for government to review tax collection and remittance procedures with a view to blocking tax evasion and avoidance, corruption and other administrative flogs that cause revenue shortfalls from various forms of taxes in Nigeria.

iii. The Nigerian governments divert attention from oil sector and strengthen the taxation framework to make the nation a tax economy rather than an oil economy with it attention consequences.

5.1 Suggestion for Further Study

A further research can be conducted on drivers of taxation efficiency and economic development in Nigeria.

REFERENCES


### Appendix

**MULTIPLE REGRESSION (OLS) RESULTS**

**Dependent Variable:** HDI  
**Method:** Least Squares  
**Date:** 04/27/20  
**Time:** 06:08  
**Sample (adjusted):** 1994-2018  
**Included observations:** 25 after adjustments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.446161</td>
<td>0.013257</td>
<td>33.65355</td>
<td>0.0000</td>
</tr>
<tr>
<td>CIT</td>
<td>-3.35E-06</td>
<td>3.12E-06</td>
<td>-1.044558</td>
<td>0.3087</td>
</tr>
<tr>
<td>PIT</td>
<td>-0.000213</td>
<td>0.000464</td>
<td>-0.459000</td>
<td>0.6512</td>
</tr>
<tr>
<td>VAT</td>
<td>0.000105</td>
<td>5.47E-05</td>
<td>1.915697</td>
<td>0.0698</td>
</tr>
<tr>
<td>PPT</td>
<td>8.83E-06</td>
<td>6.86E-06</td>
<td>1.286959</td>
<td>0.2128</td>
</tr>
</tbody>
</table>

**R-squared** 0.827145  
**Adjusted R-squared** 0.792574  
**Mean dependent var** 0.472800  
**S.D. dependent var** 0.038024  
**Akaike info criterion** -5.097316  
**Schwarz criterion** -4.853541  
**F-statistic** 23.92597  
**Prob(F-statistic)** 0.000000

**Dependent Variable:** LOG(HDI)  
**Method:** Least Squares  
**Date:** 04/27/20  
**Time:** 06:10  
**Sample (adjusted):** 1994-2018  
**Included observations:** 25 after adjustments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.912421</td>
<td>0.135750</td>
<td>-6.721313</td>
<td>0.0000</td>
</tr>
<tr>
<td>LOG(CIT)</td>
<td>-0.029850</td>
<td>0.016091</td>
<td>-1.855003</td>
<td>0.0784</td>
</tr>
<tr>
<td>LOG(PIT)</td>
<td>0.022284</td>
<td>0.026462</td>
<td>0.842131</td>
<td>0.4097</td>
</tr>
<tr>
<td>LOG(VAT)</td>
<td>0.031051</td>
<td>0.011787</td>
<td>2.634347</td>
<td>0.0159</td>
</tr>
<tr>
<td>LOG(PPT)</td>
<td>0.020765</td>
<td>0.019917</td>
<td>1.042601</td>
<td>0.3096</td>
</tr>
</tbody>
</table>

**R-squared** 0.869216  
**Adjusted R-squared** 0.843059  
**Mean dependent var** -0.752172  
**S.D. dependent var** 0.080134  
**Akaike info criterion** -3.885263  
**Schwarz criterion** -2.641488  
**Hannan-Quinn criter.** -3.817650  
**Durbin-Watson stat** 1.208906  
**Prob(F-statistic)** 0.000000