UNDERGROUND ECONOMIC ACTIVITIES IN NIGERIA: IMPLICATIONS ON THE TOTAL TAX REVENUE GENERATION (1980-2013)

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Abstract
Substantial and increasing volumes of economic activities take place outside the formal sector of the Nigerian economy and this has economic implications on the government revenue profile. This study examined the impact of underground economic activities on the total tax revenue generation in Nigeria, using microeconomic data for the period 1980 – 2013 extracted from National bureau of statistics and the Central Bank of Nigeria Statistical bulletin. Causal comparative design was adopted and the area of study is Nigeria. The data collected were analyzed using regression model. These data were further subjected to stationarity test using Augmented Dickey Fuller test, as well as Johanson co integration test. The result showed that there is a negative relationship between total tax revenue generation and the size of underground economy. Thus a naira increase in size of underground economy will bring about -1.520810 decrease in total tax revenue. It is therefore recommended that government should create avenue of bringing underground sector activities into the tax net by imposing minimum taxes on all unregistered business that do not pay company income tax irrespective of their actual level of operation. Secondly, there is need for accountability and transparency by the government to avoid public doubt and mistrust which triggers their willingness to go underground.

KEYWORDS: *Underground economy, Economic activities, tax revenue, Tax base, Tax net*

INTRODUCTION

Underground economic activities are concept that is as old as government itself, It springs from human nature that makes man choose between given alternatives since man is under the watchful eyes of government. Guided by ancient notions and prejudices that their rulers are tyrant, when government intervention fails to satisfy him he may seek to avoid the ill effect through circumvention, evasion and escape, He may find his way to the "black market" where economic transactions take place in violation of price control. He may also descend to the "underground" where political edicts are ignored and taxation avoided (Ihendinihu & Ochonma 2010). The emergence of the underground economy is of great implications. One of the major implications is loss of government revenue that would have been used to improve public services. Thus the apiriori expectation is that the larger the underground economy the lower the government revenue. However, if the tax base or tax compliance is eroded governments may respond by raising tax rates and this will invariably encourage a further flight into the underground economy and tax evasion that will further worsen the budget constraints.

Given the above scenario, this study seeks to ascertain the impact of underground activities on the total tax revenue generation in Nigeria. To achieve this objective, a research question was raised

    (i)   To what extent does the size of underground economic activities affect total tax revenue generation in Nigeria within the study period?
           This hypothesis was formulated and tested:

    $H0_1$:   Size of underground economic activities has no significant impact on the total tax revenue generation in Nigeria.

REVIEW OF RELATED LITERATURE
Conceptual Framework
The Concept of Underground Economy
Underground activities are known by various names such as informal, hidden, gray black-market; shadow, parallel, clandestine (Schneider and Enste 2000; Feige, 1990). Although variations exist in the manner scholars have defined underground economy, however, Underground economy can be seen as those who operate outside the purview of government regulations, without, the constraints of behavior prescribed by public authorities. This may include the regulations of prices of inputs, control of entry in the sector, disclosure of production information, safety and health standards though it may have its own internal precepts.

Ihendinihu (2013) opined that both legal and illegal activities can exist underground noting that it is the unregulated nature of a transaction which puts it outside the dragnet of government agencies that is essential in classifying an activity/transaction as underground and not its legality.

Tables 2.1 and 2.2 might be helpful in developing a reasonable consensus definition of the legal and illegal shadow economy.

Table 2.1: A taxonomy of underground economic activities (illegal activities)

Type of Activity	Monetary Transactions	Non Monetary Transactions
Illegal Activities	Trade with stolen goods, drug dealing and manufacturing, Prostitution, Gambling, Smuggling, Fraud etc.	Barter of drugs, stolen goods, smuggling etc., produce or growing drugs for own use, Theft for own use

Source: Taken from Buhn et al (2007) as cited from Lippert and Walker (1997)

Table 2.2: A taxonomy of underground economic activities (legal activities)

	Tax evasion	Tax avoidance	Tax evasion	Tax avoidance
legal Activities	Unreported income from self-employment, Wages, Salaries and assets from unreported work related to legal services and goods	Employee discounts, Fringe benefits	Barter of legal services and goods	All do-it-yourself work and neighbour help

Source: Taken from Buhn et al (2007) as cited from Lippert and Walker (1997)

The concept of Tax Revenue:
Taxation is a compulsory levy imposed on a subject or upon his property by the government to provide security, social amenities and other amenities for the well-being of the society. Taxation as a major fiscal instrument is used by government to raise funds to defray the expenses incurred for the common interest of the country without reference to special benefit conferred. However, given that income serves as a major base upon which taxes are imposed. When activities that generate income are hidden and unreported, tax authorities faces the challenges of assessing and taxing such activities and these eventually leads to loss of government revenue.

According to Feige (1990) the size and growth of unreported income and the implied tax gap affect the size of government deficits, government debt and tax reform policies. Besides, it can have implications for economic planning as the official data will be misleading and make international comparisons of official statistics meaningless.\

Similarly, Nmesirionye & Ihendinihu (2016) noted that the unrealized tax revenue resulting from underground activities has become a major and apparently growing problem in Nigeria. Emphasizing that these have the effect of eroding the tax base with negative consequences on the capacity of government to finance its numerous projects and programmes, as well as in funding other costs of governance

In the same vain, Chiumya (2007), opined that Government are supposed to play roles that are aimed at both supporting the social sector for example the provision of health facilities and education as well as creating an enabling environments for the operation of the economy in general .To achieve these, government raise revenue from taxable economic activities The parallel economy therefore deprives governments of much needed revenue which it can use to carry out these roles. He further pointed out that this loss of revenue can have two major impact; either the government is forced to reduce or stop altogether some of its activities or it decides to raise more revenue by increasing tax rate .The former action has the effect of a reduction in the level of social welfare available to the public, while the later action has the impact of further distorting markets, there by breeding inefficiency. The other side is that for governments that use taxes for income distribution purposes, the parallel economy renders such policies less effective

Theoretical Framework
The theoretical framework introduces and describes the theory which explains why the research problem understudy exists. In other words, it explains the theory driving the work. This study therefore is guided by the tax evasion expected utility theory. This theory predicts that individuals are rational tax evader and as such chooses that magnitude of understatement of income that will maximize his net expected benefit. Again as a rational tax evader, he compares the net expected benefit from underground activities and the net benefit expected from operating in the formal economy before taking a stand. This view is supported by Kahaeman and Tversky,(1984) when they posit that expected utility theory predicts that the better alternative will always be chosen. They further expressed that expected utility theory is based on these fundamental tenets about the process that occur during decisions made under risk and uncertainty:-
- Consistency of preferences for alternatives
- Linearity in assigning of decision weights to alternatives
- Judgment in reference to a fixed asset position

IDENTIFIED GAPS AND THE EXPECTED CONTRIBUTION OF THIS STUDY
Numerous empirical studies have been carried out in Nigeria on estimation of size of the underground economic activities and determinants of factors that influence informality in Nigeria but no empirical study known to the researcher has estimated the impact of these underground economic activities on total tax revenue generation of the Nigerian economy. This study is therefore a pioneer empirical attempt to fill this gap in literature

METHODOLOGY
Research design is the framework that guides the overall plan for collecting and analyzing the data collected for a study. The research design adopted in this study is the causal comparative or ex post facto research design. The choice for this design is because the study tries to assess the effect and relationship between variables which the researcher cannot influence. The area of study is Nigeria. Macro-economic (time series) data were used for the study. These secondary data were extracted from Central Bank of Nigeria Statistical Bulletin, National Bureau of statistics, and World Health Organization Statistical Bulletin. The Data were empirically analyzed using simple regression model, the estimated parameters were evaluated using the student t –statistics test, while the overall stability of the specified empirical model was tested using co-efficient of determination (R^2) and the F-statistics. Durbin Watson Statistics was also used to detect the presence of auto collineality. The variables in the model

were subjected to unit root test using Augmented Dickey Fuller Test, Johansen co integration test to determine the existence of long – run relationship between the dependent variable and its regressor.

Model Specification:

$$LnTTR = \beta_0 + \beta_1 lnSUE_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\ 1$$

Where

TTR   =   Total tax revenue generated within the study period
SUE   =   Size of underground economy
β_0 =   Intercept term/parameter (average value of the   dependent variable when the regressor is set at zero)
β_1 =   regression coefficient
ε_t =   random or Stochastic disturbance term or error term or   unexplained Variable
t   =   the value of the variable at time t

The size of underground economy is estimated as follows:

$$SUE_t = IM_t * V_t = (M_t - LM_t) * V_t \quad\dots\dots\dots\dots\dots\dots\dots(ii)$$

$$M_t = \beta_0 + \beta_1 lnTaxburd_t + \beta_2 lnY_t + \beta_3 lnIntR_t + \beta_4 lnCPI_t + \beta_5 Dlib_t + \beta_6 lnExRt + \varepsilon_t$$

$\dots\dots\dots\dots.(iii)$ (adopted from Nmesirionye, Azubike & Ekwe 2016)

Where :

Mt   =   demand for money
Taxburd   =   the total sum of indirect & direct tax as % of GDP (tax burden)
Y_t =   Income (Real GDP)
IntR   =   interest rate
CPI   =   Consumer price Index
Dlib   =   Dummy variable representing financial Liberalization
ExR   =   Exchange rate
ε_t =   Error term

Note: see appendix

RESULT AND DISCUSSION

Ho: Size of underground economic activities has no significant impact on the total tax revenue in Nigeria.

Table 1:   ADF unit root test result on SUE and TTR

Variables	Critical value at 5%	T statistic	Order of integration
LnTTR	-2.957110	-5.335761	I(1)
LnSUE	-2.957110	-7.967789	1(1)

Source: authors' computation using E-view 8

The result indicates that the data for variables are not stationary. However, they are stationary at first difference implying that they are both I(1) integrated. The Johansen co integration test was applied to test for co integration between variables and the result is shown in Table 2

Table 2: Johansen co integration result on SUE and TTR

No. of CE(s)	Trace statistic	Critical value at 5%	Max-eign statistics	Critical value at 5%
None	7.565068	15.49471	6.733332	14.26460
At most 1	0.831737	3.841466	0.831737	3.841466

Source: Authors' computation using E-view 8

The result of Table 2 shows that the hypothesis of no co integration between the variables was accepted since the values of the trace statistic and max- eign Statistics were not greater than their associated critical values. Hence, the impact of SUE on the total tax revenue was determined using Ordinary Least Square Regression.

Table 3: Assessment of the impact of underground economy on total tax Revenue in Nigeria

Variables	Coefficients	Std error	T –statistic
Constant	-7.870610	0.697006	-11.29203
SUE	-1.520810	0.051381	-29.59844***
R^2	0.964760		
F	876.0675***		
D-W	1.6573		

***denotes significance at 1 % level

Source: authors' computation using E-view 8

The result in table 3 reveals that there is a negative relationship between the dependent variable TTR and independent variable SUE. With this, a naira increase in SUE will cause TTR to decrease by -1.520810. R^2 value of 0.964760 implied that 97% variation in total tax revenue can be accounted for by SUE while leaving the remaining 3% variation to be explained by other variables not included in the model. This also confirms the strong   relationship that exists between the variables. This finding goes along with *apiriori* expectation that there is a negative relationship between total tax revenue and size of underground economy. The value of the F-statistic shows that the equation has a good fit, that is, the explanatory variable (SUE) is a good predictor of changes in tax revenue in Nigeria. Also, the Durbin Watson statistic shows the absence of Autocorrelation among the variables

CONCLUSION/RECOMMENDATIONS

This study examined underground economic activities in Nigeria: Implications on total revenue generation from 1980 - 2013. The result of the study showed that increasing size of underground economy has a significant negative impact on total tax revenue generation. The short fall in the government tax revenue due to tax loss creates a gap between the actual and potential revenue. This therefore has both economic and fiscal implications such as low capacity to finance governance and public infrastructure by the government . This view affirms with the position canvassed by Nmesirionye & Ihendinihu (2016) This study therefore recommend that government should create avenue of bringing underground sector activities into the tax net. This can be partly achieved by imposing minimum taxes on all business activities especially unregistered business that do not pay company tax irrespective of their actual level of operations.

Secondly, there is need for accountability and transparency by the government to avoid public doubt and mistrust which triggers their willingness to go underground

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APPENDIX
Table4:   Estimated size of underground economy in Nigeria (1980 -2013)

Years A	**RGDP (in million) B	*M_t (in million) C	*M_tWT (in million) D	*IM (in million) e(c-d)	*V F	*SUE (in million) g(e*f)	*Growth rate of SUE (%) H
1980	31546.76	19719	10824	8895	2.6607	23668	*
1981	205222.06	34806	26931	7875	14.1814	111673	3.7183
1982	199685.25	30186	23829	6356	12.6489	80403	-0.2800
1983	185598.14	32253	26223	6030	10.4929	63272	-0.2131
1984	183562.95	31823	25262	6561	9.1298	59904	-0.0532
1985	201036.27	44269	33771	10498	7.6505	80312	0.3407
1986	205971.44	47340	37461	9879	7.5200	74291	-0.0750
1987	204806.54	55622	38776	16846	6.0832	102476	0.3794
1988	219875.63	82051	57324	24727	4.8381	119629	0.1674
1989	236729.58	116400	74917	41483	5.0309	208699	0.7446
1990	267549.99	146747	89409	57338	3.8966	223423	0.0706
1991	265379.14	199185	124623	74562	3.0329	226140	0.0122

1992	271365.52	295834	177637	118197	2.1022	248476	0.0988
1993	274833.29	450742	265663	185079	1.3847	256279	0.0314
1994	275450.56	1117974	541037	576937	1.0319	595320	1.3229
1995	281407.40	2179332	920994	1258338	0.8828	1110872	0.8660
1996	293745.38	2896329	1206214	1690115	0.7932	1340585	0.2068
1997	302022.48	3991124	1640015	2351109	0.7028	1652400	0.2326
1998	310890.05	3553144	1525049	2028095	0.5915	1199523	-0.2741
1999	312183.48	8302985	3159488	5143497	0.4461	2294751	0.9131
2000	329178.74	11729105	4002797	7726308	0.3177	2454769	0.0697
2001	356994.26	15063868	5074843	9989025	0.2713	2710015	0.1040
2002	433203.51	15040319	5464517	9575802	0.2708	2593489	-0.0430
2003	477532.98	21448603	7408434	14040169	0.2405	3377328	0.3022
2004	527576.04	28554300	9342500	19211800	0.2331	4477708	0.3258
2005	561931.39	37220396	11607141	25613255	0.1996	5113208	0.1419
2006	595821.61	42230099	13099667	29130432	0.1479	4309078	-0.1573
2007	634251.14	44740969	14164179	30576790	0.1234	3773982	-0.1242
2008	672202.55	55328242	16765114	38563128	0.0837	3228540	-0.1445
2009	718977.33	57019957	18967198	38052758	0.0760	2893156	-0.1039
2010	775525.70	72623632	22828671	49794961	0.0703	3499545	0.2096
2011	834161.83	81201860	27912968	53288892	0.0671	3574189	0.0213
2012	889000.00	90805987	31135075	59670912	0.0632	3768702	0.0544
2013	948935.10	88529446	30891846	57637600	0.0716	4125911	0.0948

Source:* authors' computation based on equations ii

** CBN statistical bulletin various issues