

Impact of Tax Reforms on Revenue Generation in Lagos State: A Time Series Approach

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Abstract
This study assessed the impact of tax reforms on revenue generation in Lagos State of Nigeria using Time Series quarterly data between the period of 1999 and 2012, obtained from the records of Tax Payer Statistics and the Revenue Status Report of Lagos State Internal Revenue Service (LIRS). Data collected were analysed using ordinary least square regression techniques (OLS). The study showed that Lagos State captured more people into the tax net as there was a continuous increase in taxpayers' cumulative growth (more than 20% each year); and found that the primary source of revenue generation in Lagos State was the internally generated revenue (IGR) in which tax revenue constituted about 80%. The result also showed that, on trend, between 1999 and 2005, there was no noticeable increase in revenue generated from tax; but from 2006, there was a sharp, steady and noticeable increase in the tax revenue generated. On the pattern of tax administration in the state, from 2006 the state concentrated more on tax reforms with less dependence on other sources of internal revenue generation. The result further revealed that there was a long run relationship between the tax reforms and revenue generated in Lagos State; thus, the tax reforms had positive and significant effect on the revenue structure of the State. The study concluded that tax reforms had significantly contributed to revenue generation in Lagos State, which had enabled the state to carry her responsibilities to the citizenry with less reliance on the Federal Government.
Keywords: Tax reforms, internally generated revenue, Time Series Analysis, Lagos

1. Introduction

Governments require revenue to augment the spending needs to maintain an adequate level of public investment and social services. Taxes are the main source of raising revenue in both developed and developing countries (Aizenman and Jinjarak, 2008; Saeed and Sheikh, 2011). Nigeria as a developing country has a very low tax to GDP ratio which is attributable to narrow tax base, inelastic tax system, complex tax laws, complex network of exemptions and tax incentives, weak tax administration and weak mobilization of provincial taxes (Aregbeyen and Fasanya, 2013). This situation is being strained by the oil revenue which accounts for about 80 percent of government revenue. The large size of Nigeria's tax gap suggests that increasing the country's tax effort in an equitable and efficient way requires reforms of both tax policy and tax administration.

One of the major objectives of the Administration in Lagos State, in 1999, was to optimise the State's tax potentials by achieving a very substantial, if not total, coverage of its taxpayer base. In simple terms, to bring all taxable persons into the tax net. To actualize this goal, the administration initiated the State's Tax Administration reform process. As part of the re-engineering process the tax payment process was reviewed and all payments to the Board were to be made directly to designated revenue collecting banks by the tax payers.

Payments into the Government coffers were electronically linked to data bases that issued electronic receipt to taxpayers and closely monitored by an independent consultant to the State. Personal electronic tax clearance cards (e-TCC) were introduced for the first time in Nigeria and indeed in Africa. Tax collection was made more transparent to the taxpayers as they could access their records via the internet, and this made tax payments, more convenient and transparent to the taxpaying public.

At the same time the government did comprehensive review of activities and events over the past years to look into the past process and revenue generation activities of the Board. This led to the appointment of new management in November 2005. At the introduction of the new Board, the position of the Chairman was upgraded to that of a Permanent Secretary, reporting directly to the Executive Governor. Some staff of the Board who could not fit into the vision of the new Board were redeployed to other Ministries within the Civil Service.

To catch up with the international trend in the world, the Lagos State Government presented a bill to the Lagos State House of Assembly to make the Board of Internal Revenue autonomous and self-accounting. This bill was passed to law in January 2006. Thereafter, with the passage of the law, other members of staff were given the option to remain with the Board. From staff strength of 1,300, about 70% opted to remain in the Civil Service and were transferred to other Ministries and Departments. Others who are keen to pursue a career in tax administration were offered employment by the autonomous Lagos State Internal Revenue Service (LIRS) and disengaged from the Civil Service. With the new autonomy, LIRS continue to report directly to the Governor.

Since 1999, Lagos State Government has implemented a whole lot of strategies in administering her tax so as to augment the size of revenue generated in the State. These strategies include tax payer education enlightenment, payment process re-engineering, self-assessment scheme, extension of operational units, enforcement strategy, employment procedure, relationship with other ministries, maintenance of data base and essay competition on tax. LIRS staff members are equipped with state of the art facilities and put through a comprehensive training schedule. All these strategies have been the approach of Lagos State in bringing more of its citizenry into the tax net. Thus, this study aimed at assessing the impact of the tax reforms on revenue generation in Lagos state.

2. Historical and Constitutional Background of Tax Reforms in Nigeria

Song (2002) described tax as a compulsory levy imposed by the government authority through its agents on income, consumption and production of goods and services to achieve some developmental goals. Tax reform is therefore the process of changing the way taxes are collected or managed by the government (Helms, 1985). Taxation has always been a means by which communities provided themselves with common social and economic facilities such as roads, water, security, markets and recreation centers even in pre-colonial times. Nigeria officially became a British colony in 1861 and with colonialism came a formal imposition of taxation as an instrument for organized development. Expectedly, there was intense resistance to taxation in pre-independent Nigeria resulting in riots and massacre in several parts of the country.

Nigeria became independent in 1960. With impending independence, the colonial authorities had to prepare the ground for fiscal policies that would address post-colonial developmental challenges. In 1958, the Raisman Fiscal Commission was set up to look into fiscal issues in the country to solve problems of inconsistency and confusion inherent in the existing laws. It was also to examine the jurisdiction and powers of the various tiers of government in Nigeria's post-independence. The Commission came up with a recommendation that there should be harmonization of taxation principles throughout the country. This report formed the basis of the tax system in Nigeria to the present day.

The Commission's recommendations culminated in the enactment of five (5) legislations, namely:

i. The Petroleum Profit Tax (PPTA), 1959 – a Federal law dealing with the taxation of petroleum producing and marketing companies in Nigeria. This was enacted in the light of the discovery at the time of oil in Oloibiri;
ii. The Stamp Duties Act (SDA), 1959 – a Federal law for the assessment and collection of duties on 'instruments' at both Federal and State levels;
iii. The Companies Income Tax Act (CITA), 1961 – a Federal law enacted for the collection of income tax from corporate bodies by the Federal Government through the agency of the Federal Board of Inland Revenue (FBIR);
iv. The Income Tax Management Act (ITMA), 1961 – known as the Principal Act, enacted to bring some uniformity to the taxation of Personal Income in Nigeria as a whole, particularly in the areas of rates of tax, types of reliefs, and quantum of reliefs. The uniformity notwithstanding, this tax was administered by the regions and used to drive development within the region;
v. The Personal Income Tax Lagos Act (PITLA) 1961 which dealt with the taxation of residents of the Federal Territory of Lagos, the Armed Forces, the Police, Officers in the Foreign Service and Non-Residents. However, with the creation of Lagos State in 1967 along with eleven other states, PITLA was simply adopted by the new Lagos State while the Federal Government enacted the Income Tax (Armed Forces and Other Persons) (Special Provisions) Act No. 50 of 1972 to accommodate the categories of people who had been automatically removed from the tax jurisdiction of Lagos as a State. The Federal territory as well as mobile workers had always been treated differently.

Overtime all these legislations were reviewed, fine-tuned and added to such that the subsisting legislations regulating taxation in Nigeria today are:

i. The 1999 Constitution retained the supremacy of the Federal Government on matters of legislation on Taxation but reintroduced some flexibility in administration. Under the concurrent legislative list, a provision was added that the collection of any such tax or duties or the administration of the law imposing it may be delegated to a state or any authority of a state by a law of the National Assembly;
ii. The Companies Income Tax Act (CITA) Cap. 60 Laws of the Federation of Nigeria (LFN) 2004 and the Companies Income Tax Amendment Act 2007- administered by the Federal Inland Revenue Service (FIRS);
iii. The Petroleum Profit Tax (PPTA) LFN 2004;
iv. The Personal Income Tax Act (PITA) LFN 2004 – this codified all personal income tax legislations into one uniform Personal Income Tax Act, with the Joint Tax Board consisting of the Chairman of the Federal Inland Revenue Service as the Chairman of the Joint Tax Board and one member from each State being a person experienced in income tax matters, to amongst others, "use its best endeavours to promote uniformity both in the application of the Act and in the incidence of tax on individuals throughout Nigeria";

v. The Taxes and Levies (Approved List for Collection) Act 1998 - to address the issue of clarifying and delineating responsibilities between the Federal, State and Local Government Authorities;
vi. The VAT Act (VATA) LFN 2004 and the Value Added Tax Amendment Act 2007 – introduced the Value Added Tax and significantly moved the country into the regime of indirect and consumption tax; it also repealed the Sales Tax Act no. 7 of 1986 administered by some States in a move to improve the overall revenue base of the country and achieve improved efficiency in administration – This tax is administered by the Federal Inland Revenue Service;
vii. The Education Tax (ET) Act LFN 2004 – a special tax on corporate income specifically to fund the upgrading of infrastructure and facilities in the education sector;
viii. The Capital Gains Tax Act LFN 2004 – administered by the Federal Inland Revenue Service and the State Internal Revenue Service as specified;
ix. The Stamp Duties Act LFN 2004 – administered by the Federal Inland Revenue Service and the State Internal Revenue Service as specified;
x. The Nigerian Technology Development Agency Act 2007 – introduced a 1% technology taxon selected companies – administered by the Federal Inland Revenue Service; and
xi. The Federal Inland Revenue Service Establishment Act (2007) – laws regulating the administration of the Federal Inland Revenue Service and granting it autonomy.

In all this, the overall premise of tax administration remained – that of creating a harmonized tax administration system even if certain aspects of it would be decentralized.

The dependence on oil revenue by all tiers of government in Nigeria has made the federal government to reform the existing tax laws. According to Alli (2009), the objectives of tax reforms in Nigeria include: to bridge the gap between the National Development needs and the funding of the needs; to ensure taxation, as a fiscal policy instrument, to achieving improved service delivery to the public; to improve on the level of tax derivable from non-oil activities, vis-à-vis revenue from oil activities; efforts at constantly reviewing the tax laws to reduce/ manage tax evasion and avoidance; and to improve the tax administration to make it more responsive, reliable , skillful and taxpayers friendly and to achieve other fiscal objectives.

The Nigerian tax reforms have experienced series of metamorphoses since 1904 to date. The effects of the various reforms in the country is as follows: introduction of income tax in Nigeria between 1904 and 1926; grant of autonomy to the Nigerian Inland Revenue in 1945; the Raisman Fiscal Commission of 1957; formation of the Inland Revenue Board in 1958; the promulgation of the Petroleum Profit Tax Ordinance No. 15 of 1959; the promulgation of Income Tax Management Act 1961; establishment of the Lagos State Inland Revenue Department; the promulgation of the Companies Income Tax Act (CITA) 1979; establishment of the Federal Board of Inland Revenue under CITA 1979; establishment of the Federal Inland Revenue Service Between 1991 and 1992; and tax policy and administration reforms amendment 2001 and 2004.

The government embarked upon the latest tax reform process by instituting Study Group on the Nigerian Tax System, consisting of individuals from business, academia, and the government to study the present tax laws and recommend the appropriate reform in general and their impact to the overall economy. As a result of the reform, nine (9) bills on tax reforms were approved by the Federal Executive Council for the consideration of the National Assembly and subsequently passed as Act. The Acts, are as enumerated as follows: Federal Inland Revenue Service Act 2004; Companies Income Tax Act 2004; Petroleum Profit Tax Act 2004; Personal Income Tax Act 2004; Value Added Tax Act 2004; Education Tax Act 2004; Customs, Excise Tariffs, etc (Consolidation) Act 2004; National Sugar Development Act 2004; and National Automotive Council Act 2004.

The Chartered Institute of Taxation of Nigeria (CITN), established in 1982 and Chartered by Act No. 76 of 1992 to regulate tax practice and administration in the country, and to this extent a major stakeholder in the Nigerian tax system submitted a memorandum on the proposed 2004 amendment. Their memorandum objectives include: to strengthen the powers of the Accountant General of the Federation to monitor the revenue being generated by ministries, extra-ministerial departments and parastatals; to enforce remittance of the revenues collected to the consolidated revenue fund or federation account; to strengthen the oversight functions of the National Assembly in monitoring the revenue generated by ministries, and others; to increase the penalty for under declaration of revenue generated from three to five years.

3. Strategies Adopted for Tax Reforms in Lagos State

i.) Tax Payer Education and Enlightenment: As a major step, Lagos State organized a Taxation Stakeholders' Conference in 2007. The conference was interactive, provided forum for the State's Executive Council to discuss with representatives of the Chambers of Commerce, Professional Groups, Financial Institutions, Traditional Rulers, Trade & Market Associations etc. on the government expectation from them, various means and efforts to radically reform revenue administration in the State. The conference also gave feedback of comment and suggestions on infrastructure/economic developmental efforts of government from participants. In view of its huge success and importance as an interactive medium, the Taxation Stakeholders' Conference is now an annual event of the Lagos State Government.

As part of her Public–Private Sector Partnership, LIRS organized a stakeholders' conference for professionals on the 17th of April 2008. The Conference brought the leadership of professional groups and prominent members of each professional body in the State to meet with the Lagos State Executive Council and the Management of LIRS. During the working session, participants were taken through the contribution of professional associations to the revenue profile of the state, Government's expectation from the professionals, and the process of filing tax returns.

ii.) Payment Process, Transparency and Convenience: Their Revenue Agency continued its policy of making tax payment convenient. In partnership with collecting Banks, taxes are paid directly into Government coffers at any of the over 1,200 bank branches. Automated receipts are issued immediately upon payment. The collecting banks also have resident bank officials in 36 LIRS Tax Stations across the State to facilitate tax payment.

iii.) Self-Assessment System: They also introduce self-assessment scheme, first of its kind in the whole of Africa. The self-assessed individual obtains the assessment form free of charge from LIRS offices and designated banks branches, assesses himself by reference to a table which shows various income brackets, the allowances and tax payable in respect of each and pay his tax at any of the over 1,200 bank branches and 36 LIRS Tax Stations across the State. The tax payer gets his automated receipt immediately and within 48 hours after payment, can pick up his Electronic Tax Card from the branch of the Bank where the tax payment was made

iv.) Tax Payment closer to the People: In line with the State strategy of taking tax payment closer to the people, forty mini tax offices were established and are in operation in the major markets across the State. LIRS Tax Education and Enlightenment Team (TEET), consisting of 40 teams depart from the Head Quarters, in organized fashion every day of the week, including weekends when the need arises, visit markets, companies and business establishments within the State, check for tax compliance, enlighten and educate the tax payers. Regular meetings are also held with Market leaders to resolve issues and ensure compliance.

v.) Creation of New Operational Units: To improve the efficiency of her administrative structures and move closer to her target of total compliance, new operational units manned with well trained staff were created within the LIRS. The Accounts Relationship Management Unit analyses trends in each sector of the Nigerian Economy and for ease of compliance monitoring, an officer is assigned to each sector. Presently, LIRS have officers responsible for Oil & Gas, Aviation, Manufacturing, Banking, Insurance, Other Financial Institutions, Engineering, Health, Professional Services, Public Sector, Trading and Construction. The Informal Sector (Professional) Unit was established to meet the peculiar tax assessments of members of various professional associations (Lawyers, Accountants, Engineers, Architects etc.) who are in private practice.

vi.) Enforcement: The LIRS has the full support of the State Government, Chairman's office and the office of the Governor of Lagos State to implement the Law which includes the power to distrain defaulters as conferred on the Board of LIRS by the Personal Income Tax Act. They ensure that all the required notices are given and it is only when no response is received from the defaulter that they take enforcement action. In the year 2012, LIRS had cause to levy warrant of distrain on a total of 228 companies and establishments in the State. LIRS also started pursuing the criminal provisions of the law with a view to bringing to book individual officers or directors that are responsible for tax default.

vii.) LIRS Collaborations with other Ministries, Departments and Agencies (MDAs): She has in place confirmation of payment on second level for certain revenue generating agencies when individuals approach these agencies for business transactions. LIRS host a bi-monthly meeting with officials of all major revenue generating agencies in the state. At this meeting, revenue performances are critically examined against targets, solutions are found for emerging problems and debates are held on best practices. This new found synergy among the revenue agencies have reflected positively on general performance.

To facilitate the assessment of individuals transacting businesses with other Government Ministries, Departments and Agencies, LIRS has assessment desks in offices of the State's Land Bureau, Lagos State Traffic Management Authority (LASTMA), and the State High and Magistrate Courts. In Lagos State, part of the resolution requirements for traffic offence is evidence of tax payment and individuals that seek to stand as surety in court for any bail able offence must show evidence of tax compliant before such request could be granted by the trial judge.

viii.) Annual Essay Competition on Tax: As parts of efforts aimed at bringing tax knowledge to the younger generation and inculcate taxpaying culture in them, LIRS organizes a yearly essay competition on taxation for secondary schools students. Winners of the LIRS Secondary School Essay Competition on Taxation are recognized and their prizes given during the annual Taxation Stakeholders Conference.

4. Tax Reforms and Revenue Generation

The literature on the connections between tax and revenue generation has been hampered by lack of clear theoretical model on how tax would improve government revenue and which could pin down the empirical specification of the tax-growth relationship (Chin and Lai, 2009). The variations noticed in various tax studies are often occasioned by the peculiarities of their methodologies and choice of variables. For example, Avila and Strauch (2008), Chin and Lai (2009), and Song (2002), in their investigation of the empirical linkage between foreign tax and economic growth, employed the endogenous growth model while Chen (2007), and Floster and Henrekson (2001) involving a similar work, employed the neoclassical growth model. Despite the peculiarities in various tax related studies, however, the use of endogenous growth model has dominated development economics.

The conventional Solow growth (neoclassical) model implies that taxes should have no impact on long-term growth rates. In part, this result occurs by assumption, since productivity growth is assumed to be fixed and unaffected by tax policy. In endogenous growth models, the stable growth rate of the Solow model, stapled down by technology and workforce productivity growth, is replaced by steady-state growth rates which can differ, persistently, because of tax and expenditure policies pursued by the government (Austeri and Constantini, 2004). The endogenous growth framework emphasizes factors such as "spillover" effects and "learning by doing," by which firm-specific decisions to invest in capital or in R&D, or individual investments in human capital, can yield positive external effects that benefit the rest of the economy. In these models, taxes can then have long-term, persistent effects on output growth.

The survey of the theoretical literature allows us to summarize the five ways that taxes might affect output growth:

i. Higher taxes can discourage the investment rate, or the net growth in the capital stock, through high statutory tax rates on corporate and individual income, high effective capital gains tax rates, and low depreciation allowances.
ii. Taxes may attenuate labor supply growth by discouraging labor force participation or hours of work, or by distorting occupational choice or the acquisition of education, skills, and training.
iii. Tax policy has the potential to discourage productivity growth by attenuating research and development (R&D) and the development of venture capital for "high-tech" industries, activities whose spillover effects can potentially enhance the productivity of existing labor and capital.
iv. Tax policy can also influence the marginal productivity of capital by distorting investment from heavily taxed sectors into more lightly taxed sectors with lower overall productivity.
v. Heavy taxation on labor supply can distort the efficient use of human capital by discouraging workers from employment in sectors with high social productivity but a heavy tax burden (Padovano and Galli, 2001).

The philosophy of tax reform has undergone significant changes over the years in keeping with the changing perception of the role of the state. The recent approaches to reform lay emphasis on minimizing distortions in tax policy to keep the economy competitive.

Minimizing distortions implies reducing the marginal rates of both direct and indirect taxes. This also calls for reducing differentiation in tax rates to reduce unintended distortions in relative prices. To achieve this, the approach suggests broadening of the tax bases. Conventional wisdom on tax reforms provides us with at least three different model of tax reform. The optimal tax (OT) model (Chaudhry, 2001) is satisfactory in terms of its theoretical soundness, but has been found to be impractical in its applications. Besides the trade-off between efficiency and equity in tax policy, the information and administrative costs of designing an optimal tax model have been found to be prohibitive and, therefore, as a practical guide to tax policy this has not been useful. A study by Chaudhry (2001) provides a review of optimal tax theory to device an appropriate tax policy for agriculture sector of Pakistan. Under the treatment of optimal tax theories it is expected that buoyancy rates could be high and significant. The author has suggested that if local bodies make responsible for tax collection then the additional cost can be avoided. This means that buoyancy rates can be high.

The Harberger tax model (HT) like the OT model is well grounded in theory. It, however, draws much more on practical experience. According to this, while efficiency (and distribution weights) is clearly desirable in the design of tax policy, administrative capability is equally, if not more, important. The principal concern, according to this approach, is not to design a system that will be optimal, but emphasize the system that will minimize tax-induced distortions and at the same time be administratively feasible and politically acceptable. In fact, Harberger suggests that tax reformers should pay less attention to the economic methodology and more to best practice experiences. The basic HT reform package for developing countries that are price takers in the international market consists of, *inter alia*, a uniform tariff and a broad-based VAT (value-added tax).

The third is the supply-side tax model (SST). This model emphasizes the need to reduce the role of the state. Reduction in the volume of public expenditures has to be achieved by cutting the tax rates, particularly the direct tax rates to minimize disincentives on work, saving and investment. The proponents of this model emphasize the need to broaden the base with minimal exemptions and preferences and to have low marginal tax rates. Again emphasis is on minimizing distortions in relative prices and, therefore, the approach emphasizes less rate differentiation.

The recent reform approaches combine elements of all three models sketched above. This incorporates both theory and past reform experiences and takes into account administrative, political and information constraints in designing and implementing reforms. The thrust of this approach is to enhance the revenue productivity of the tax system while minimizing relative price distortions. The best practice approach has attempted to make the tax systems comprehensive, simple and transparent. As mentioned earlier, the general pattern of these reforms has been to broaden the base of taxes, reduce the tax rates and lower the rate differentiation both in direct and indirect taxes. A broader base requires lower rates to be levied to generate a given amount of revenues. Lower marginal rates not only reduce disincentives to work, save and invest, but also help to improve tax compliance.

Broadening the tax base helps to ensure horizontal equity, is desirable from the political economy point of view as it reduces the influence of special interest groups on tax policy, and reduces administrative costs. In the case of indirect taxation, the reform agenda includes the levy of a broad-based VAT with minimal exemptions and supplemented by a few luxury excises. As regards import duties, quantitative restrictions should be replaced by tariffs, export taxes eliminated, and dispersion in tariffs should be minimized. Personal income tax too is to be levied on all but a small number of persons with income levels less than twice the per capita income of the country. Much of the direct taxes should be collected by withholding, but for the "hard-to-tax" groups, presumptive taxation is to be applied. Emphasis on horizontal equity also implies emphasis on strengthening administration and enforcement of the tax and the development of proper information systems and automation.

5. Methodology

5.1 Study Area and Sources of Data

Lagos State in Nigeria was chosen as the study area. The state is one of the few states in the country that has the capacity to carry out civic responsibilities to her citizenry without unduly depending on allocations from the Federal Government. A total number of registered tax payers were considered and spread across Lagos States. The study covered different taxes reforms in the assessment of the impact on revenue generation because it has been conventionally established that these reforms tends to influence the behaviour of tax payers, hence, determines the amount of revenue to be mobilized by the Lagos State government.

In order to capture the variables of tax reforms and revenue generation, this study made use of secondary data. The data were structured in such a way as to provide sufficient information on how tax reforms have influenced the income behaviour of government in Lagos State. The study utilized quarterly time series data between 1999 and 2012 which were sourced from the records of Tax Payer Statistics and the Revenue Status Report of Lagos State Internal Revenue Service (LIRS), Alausa, Ikeja. The study was based on the use of time series data from 1999 since database-enabled tax policy reform was initiated in that year in Lagos State. According to the LIRS officials consulted during the course of the field work, before the period of 1999 there was no consistent database for tax revenue collected in the state.

5.2 Model Specification

The dependent variable in this study is revenue generation in Lagos State which is measured by the total amount of revenue generated from taxes and other related fines by Lagos State Government. Tax Reform which is the independent variable was measured by number of tax payers and investments in tax education and programmes (Bruce, Fox, and Yang, 2010).

The empirical model for this study is based on the optimal taxation theory. Also incorporated in the model are the different forms of instruments used by the Lagos State Government. The econometric time series model for this study is given by:

$$TGR_t = f(TRF_t) \qquad \text{.......(1)}$$

Where TGR_t represents the total revenue generation and TRF_t is the tax reform both at time *t*. Tax reforms can be defined by the instruments that are used to determine the amount of revenue generated in Lagos State.

$$TGR_t = \beta_0 + \beta_1 TPY_t + \beta_2 TED_t + \varepsilon_t \qquad \text{.......(2)}$$

Where:

TGR = Total Revenue Generated in Lagos State
TPY = Tax Payers
TED = Tax Education and Programmes

This study takes into consideration the problem of non-stationarity that are common when macroeconomic variables are involved. The paper therefore test for stationarity and co-integration to determine the existence of long run relationship between the dependent and independent variables. The stationarity of a time series can be tested directly with a unit root test. The Dickey-Fuller (DF) and the Augmented Dickey-Fuller (ADF) are the most frequently used unit root tests. The DF test estimates the following equation

$$\Delta y_t = c_1 + c_2 t + \omega y_{t-1} + v_t \quad \text{……(3)}$$

In (3), y_t is the relevant time series, Δ is a first difference operator; *t* is a linear trend and v_t is the error term. The error term should satisfy the assumptions of normality, constant error variance and independent (uncorrelated) error terms. If the error terms are not independent in equation, results based on the DF test will be biased. The weakness of the DF test is that it does not take account of possible autocorrelation in the error process of term (v_t). To cater for this shortfall, the ADF can be used. The ADF test corrects for high-order serial correlation by adding a lagged differenced term on the right hand side in the DF equation (4) consequently, the ADF employs he following equation:

$$\Delta y_t = c_1 + c_2 t + \omega y_{t-1} + \sum_{i=1}^{r} d_i \Delta y_{t-i} + v_t \quad \text{……(4)}$$

Both equations (3) and (4) can also be estimated without including a trend term (by deleting the term $c_2 t$ in the equation) and without a constant (by leaving out c_1 in the equation). The null hypothesis is that there exists a unit root in the time series (non-stationary time series), which is Ho: $\omega = 0$ against the alternative hypothesis that the time series is stationary (no unit root) or I(0) which is H_1: $\omega < 0$. In both tests, if the calculated statistic is less (in absolute terms) than the MacKinnon (1996) critical values, the null hypothesis is accepted and will therefore mean that there is a unit root in the series. In other words, it means the time series is not stationary. The opposite is true when the calculated statistic is greater than the MacKinnon critical value.

6. Empirical Results

6.1 Tax Reforms and Sources of Revenue Generation in Lagos State

The objectives of tax reforms in Lagos State include bridging the gap between the State Development needs and the funding of the needs; ensuring taxation as a fiscal policy instrument, achieving improved service delivery to the public, boosting efforts at constantly reviewing the tax laws to reduce/manage tax evasion and avoidance; and improving the tax administration to make it more responsive, reliable, skillful and taxpayers friendly and to achieve other fiscal objectives.

Lagos State tax reforms had experienced unprecedented progress since its initiation in 1999 as depicted in Figure 1. Through the reforms, the State had been able to capture more people into the net as there was continuous increase in taxpayers' cumulative growth. For each year, the growth rate was more than 20%, except in 2005 which the State recorded 10% in taxpayers growth. Interestingly, at the commencement of the reforms there was steep increase of about 40% growth rate in each year for 4 years (from 2000 to 2003). The increase in the number of taxpayers over the years suggest that the process as well as time and payment style has been administered correctly, and which may be attributed to the reason that the public are getting the reward of their money through the provision of social amenities in developing the State.

It was also found in Figure 2 that the chief source of revenue generation in Lagos State is the internally generated revenue (IGR). According to LIRS, tax collected over the years from 1999 till 2012 as covered by this research had been a major bulk of what constitute the internally generated revenue of the State. Thus, tax reforms in Lagos State had positively contributed to revenue generation in the State by increasing the IGR from 14.636 Billion Naira in 1999 to approximately 219.3 Billion Naira in 2013.

6.2 Trend, Pattern and Composition of Tax Revenue Generated in Lagos State

As highlighted in the Figure 3, Lagos State has witnessed phenomenal development in the past years, most of which were and are still being financed with taxes. The payment of taxes on income is a first principle of the social contract between the government and the governed. As that great American Statesman, Franklin D. Roosevelt, puts it, "taxes, after all, are dues that we pay for the privileges of membership in an organized society." It is the price we pay and must continue to pay for a civilized society.

Figure 3 shows the trend, pattern and composition of the tax revenue generated by Lagos state over the period of the reform. It is worth emphasizing that prior to the reform, there was no consistent database for revenue generated. From the chart, the explanation is that the tax collected in the state over the years has significant impact in augmenting the level of government revenue in the state. Considering the trend, between 1999 and 2005, there was no significant increase in revenue generated from tax; but from 2006, there was a sharp, steady and significant increase in the tax revenue generated as shown by the LIRS curve. The pattern of tax administration in the state is applaudable. From 2006, the state began to concentrate on her tax reforms with less dependence on other sources of internal revenue generation.

Also, it can be seen from Figure 3 that the internally generated revenue of the State is made up of two major components. They are revenue generated from tax payments which is received by the Lagos State Internal Revenue Service (LIRS) and others (non-taxable payments). The 'others' constitutes an insignificant proportion of the total internally generated revenue of the state. This further confirmed that the revenue from tax administration in the state is the bulk of the total revenue of Lagos State.

6.4 Effect of Tax Reforms on the Revenue Structure of Lagos State

6.4.1 Stationarity Tests for Time Series Properties

Time series properties of all variables used in estimation were examined in order to obtain reliable results. This was carried out through Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) tests. This development arises from the prevalence of substantial co-movements among most economic time series data, which has been argued in the literature as undermining the policy implications that could be inferred from such modelling constructs (Engel and Granger, 1987). The ADF and PP tests are used to determine the order of integration. That is, the number of times a variable has to be differenced before it becomes stationary.

In this analysis, the model with constant is considered. The null hypothesis in both the ADF and PP tests is that there is the presence of unit root. Table 1 reports the results of ADF and PP tests. The ADF test showed that TGR is stationary at first difference, TPY is also stationary at first difference while TED is stationary at level. The Phillip-Perron test showed that TGR, TPY and TED are all stationary at first difference.

The PP method is adopted for the research where the results show that almost all the variables are found to be stationary at 99 percent significance level in their first difference from with the assumption of constant.

Table 1: Stationarity Tests for the Time Series Properties

Augmented-Dickey Fuller (ADF) Test			
Variables	ADF Values	Mackinnon Critical Values	Order of Integration
TGR	-7.6892	-3.5683	I(1)
TPY	-7.8583	-3.5713	I(1)
TED	-5.9204	-2.9199	1(0)
Phillip-Perron Test (PP) Test			
Variables	PP Values	Mackinnon Critical Values	Order of Integration
TGR	-7.5963	-3.5713	I(1)
TPY	-7.5963	-3.5713	I(1)
TED	-8.0331	-3.5713	1(1)

6.4.2 Co-Integration Analysis

In determining the number of co integrating vectors, trace test and maximum Eigen value test using the more recent critical values of Mackinon-Haug-Michelis (1999) was applied. The assumption of no deterministic trend and restricted constant was for all the variables. The choice was tested using (AIC) and Schwartz Information Criterion (SIC). The result for both trace test and maximum Eigen value for unrestricted co-integration rank test are presented in Table 2.

From Table 2, it is observed that the Trace test statistic indicates one co integrating equation at 5% level of significance, and the Max-Eigen value test also indicates one co integrating equation at 5% level of significance. Based on the evidence above, we can safely reject the null hypothesis (H_0) which says that there is no co-integrating vector and conveniently accept the alternative hypothesis of the presence of co integrating vectors. Thus, it can be concluded that a long run relationship exists among the variables which are TGR, TPY and TED. This result means that in Lagos' case, the hypothesis of no co-integration among the variables should be rejected. Therefore, there exists a long run equilibrium relationship between the revenue generated and tax reforms of Lagos State.

Table 2: Co-integration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.357085	39.04841	23.68717	0.0052
At most 1	0.179556	13.58212	15.67671	0.1135
At most 2	0.056859	2.921732	3.741463	0.0817

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.377085	24.84729	22.13162	0.0201
At most 1	0.188775	10.49109	18.33460	0.0956
At most 2	0.056739	2.973632	3.847561	0.0378

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

6.4.3 Model Estimation on Tax Reforms and Revenue Structure of Lagos State

The analysis on the impact of tax reform on the revenue generation of Lagos State presented in the Table 3. The results obtained from the dynamic model indicated that the overall coefficient of determination (R^2) showed that a high proportion (88.82%) of revenue generation (TGR) of the state is explained by the state's tax reforms (TPY and TED). The adjusted (R^2) of 0.8836 showed that having purge the influence of the explanatory variables, TGR is explained in the equation by 88.36 percent. The Durbin Watson (D.W) statistics of 1.71 as it is approximately 2, showed that there is no serial autocorrelation in the model specification; hence the assumption of linearity is not violated. The result of the Durbin Watson is fortified through the inclusion of AR(1) to correct for element of serial autocorrelation in the model. Therefore, there exists a positive relationship between tax reforms and revenue generation in Lagos State.

In terms of the signs and magnitude of the coefficients which signify the impact of tax reform on revenue generation in Lagos, it can be seen that all the variables concurred with apriori theoretical expectation. The significant coefficients of all exogenous variables clearly state that Lagos State's revenue generation depends on the number of available tax payers as well as the degree of the efficiency of the tax education and programmes in the State. From Table 3, it can be deduced that Lagos State tax reforms had significantly impacted on the revenue structure of the State ($t = 1.983$, $p < 0.05$). To some extent, these results are congruent with those by Refaqat (2002), Hinnosaar (2004), and Jonas and Linda (2007). The main finding of their works was that taxation system is relatively response to changes in GDP and as such when growth recurs, revenue would increase and help to improve the fiscal position.

Table 3: Least Square Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPY	12.07815	6.090125	1.983235	0.0311
TED	65.36678	19.67301	3.295607	0.0019
AR(1)	0.971856	0.073690	13.18851	0.0000
R-squared	0.888285	Mean dependent var		115.5092
Adjusted R-squared	0.883630	S.D. dependent var		109.4516
S.E. of regression	37.33729	Akaike info criterion		10.13488
Sum squared resid	66915.52	Schwarz criterion		10.24852
Log likelihood	-255.4396	Hannan-Quinn criter.		10.17831
Durbin-Watson stat	1.718797			

Dependent Variable: TGR

7. Conclusion and Recommendation

This study showed that tax reforms had experienced unprecedented progress since its initiation in 1999. Through the reforms, Lagos State had been able to capture more people into the net as there was continuous increase in taxpayers' cumulative growth. For each year, the growth rate was more than 20% taxpayer growth. The increase in the number of taxpayers over the years suggest that the process as well as time and payment style has been administered correctly, and which may be attributed to the reason that the public are getting the reward of their money through the provision of social amenities in developing the State. It was also found that the chief source of revenue generation in Lagos State is the internally generated revenue (IGR) in which tax revenue constitute the bulk.

The study concluded that the tax reforms had a positive impact on revenue generation in Lagos State.

Since the primary function of a tax system is to generate revenue, the first goal of tax reform must be to ensure that this function is discharged adequately. Clearly, improving the revenue performance will require a major improvement in tax administration, increase in the level of employment, and reduction in tax exemptions and corruption. Further adjustments in tax rates are not necessary at the moment (or in the medium term). Effort should be directed to improving tax collection and reducing corruption, improving welfare through employment generation and other poverty reduction strategies.

Based on the findings of this study, we therefore recommend that Lagos State Government should put in place measures that could enhance tax collection such as winning public confidence through improved service delivery and government payment (for goods and services); making the tax procedures simple and transparent and improving on taxpayers' education; effective use of automated systems especially in the clearing system and monitoring refund claims; and strengthening tax administration including staff investigative machinery and human resource management capability. Furthermore, the fiscal policy makers in the state should re-evaluate the tax policy reforms and see where the problem arose from so as make room for improvement as there is a gradual decline in the taxpayers growth rate in recent time. Also, other states in Nigeria can borrow a leaf form Lagos State tax reforms as this will enable them to perform their responsibilities to their citizenry with less reliance on the Federal Government.

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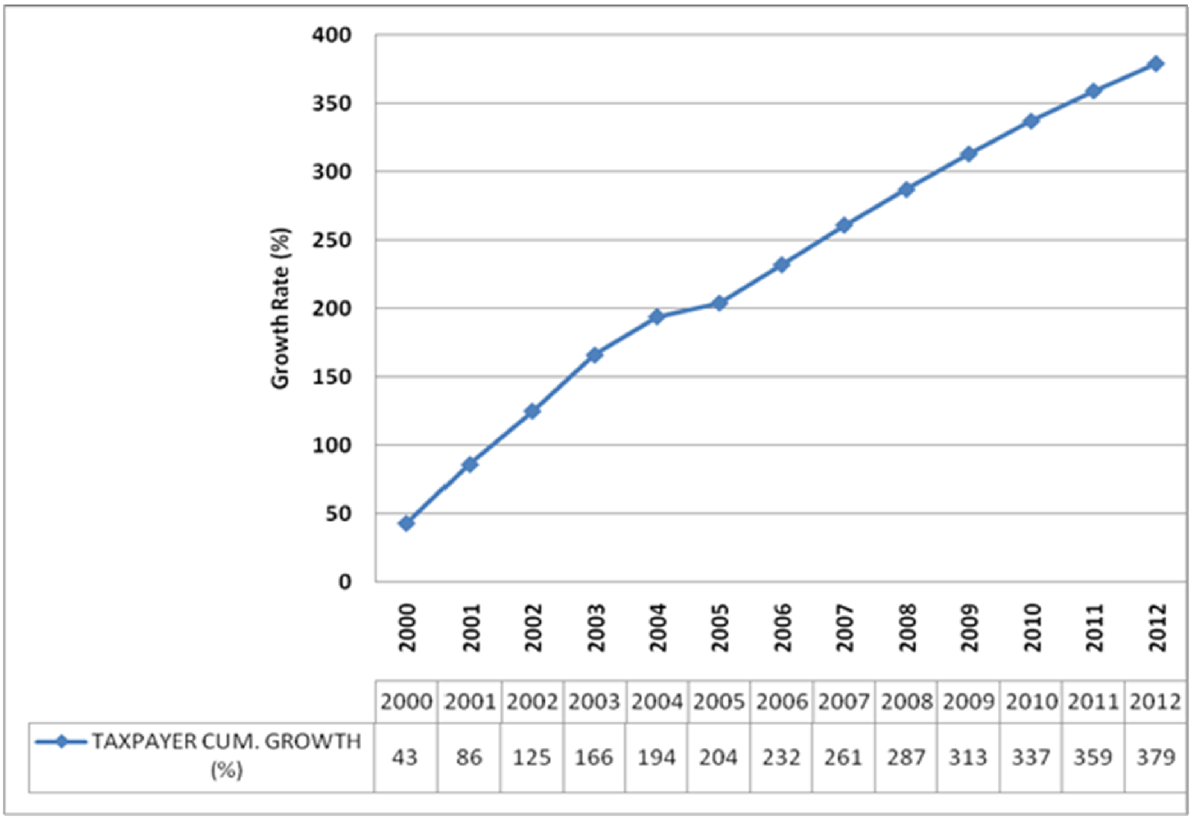

Figure 1: Tax Reforms and Taxpayers Cumulative Growth in Lagos State

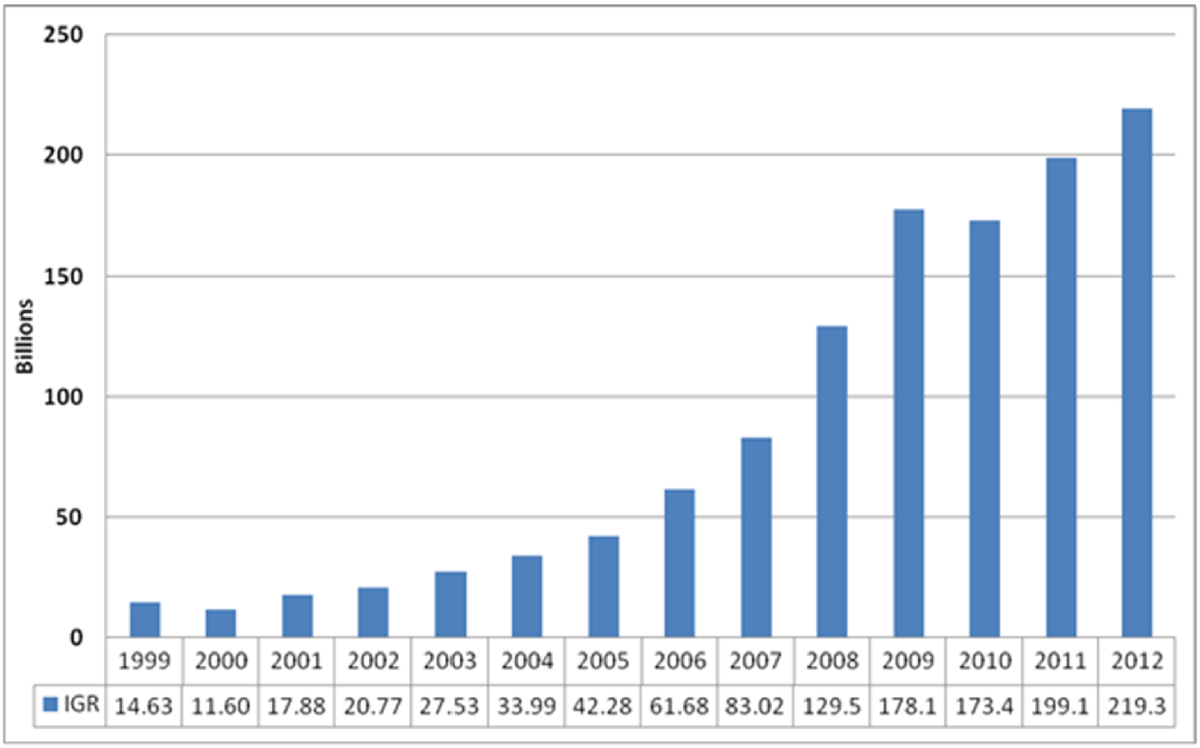

Figure 2: Tax as Major Source of Revenue Generation in Lagos State

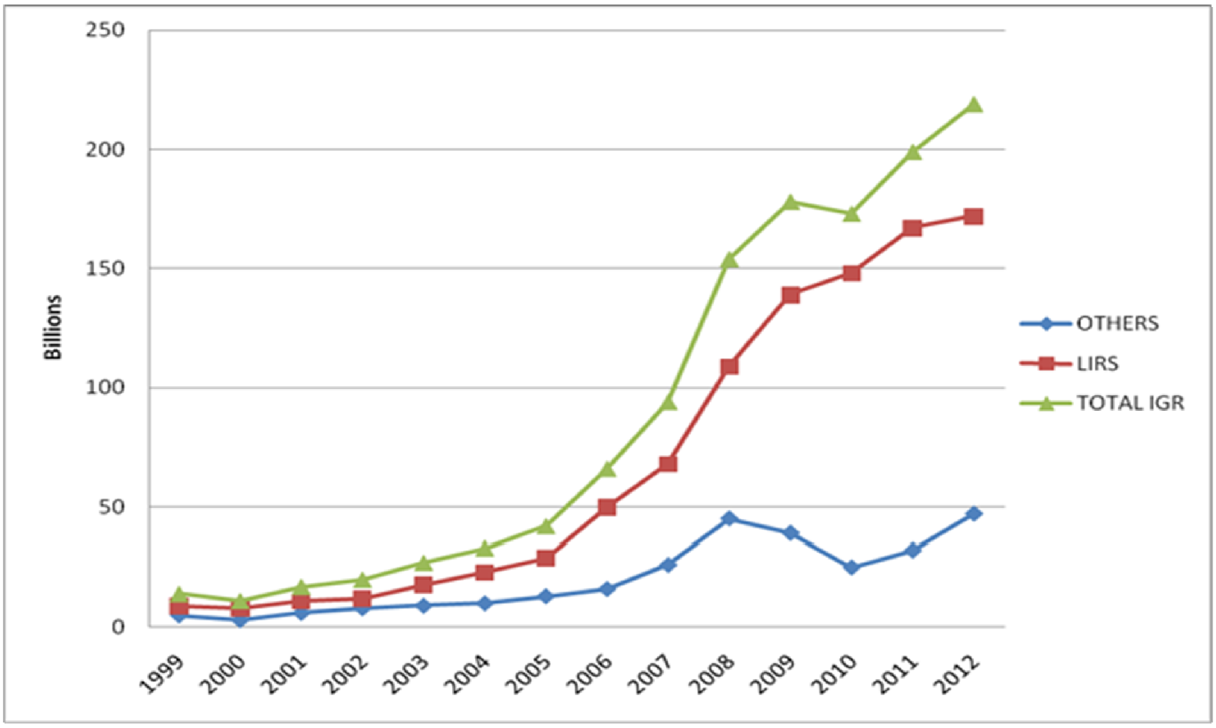

Figure 3: Trend, Pattern and Composition of Internally Generated Revenue of Lagos State