

PRODUCTIVITY OF THE NIGERIAN TAX SYSTEM: 1980-2010

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This research paper examines the productivity of the Nigerian tax system for the period 1980-2010. The Ordinary Least Squares (OLS) regression analysis was utilized to evaluate the productivity of the tax system over the stated period. The study reveals that most of the major tax sources recorded low elasticity estimates, which implies that they failed to fully exploit the nation's taxable capacity potential. The paper thus reports an overall unsatisfactory level of productivity of the tax system over the stated period. It advocates for a significant restructuring of the tax system to enhance its efficiency and productivity.

Key words: Productivity, Tax System, GDP

INTRODUCTION

Nigeria's tax system has over the years had to grapple with enormous challenges ranging from an unreliable taxpayer data base and general tax payer apathy to conflicting tax laws and an ill-equipped and inefficient tax administrative bureaucratic set-up (Anyaduba, 2006). To attain optimum tax performance and harness fully the nation's tax revenue potential, the myriad of problems confronting the tax system need to be addressed. The level of the productivity of the tax system serves as a litmus test of progress made in this direction, as it is a reflection of the taxable capacity efforts of the system. Thus, the need for an examination of the productivity of the tax system, which enables us to ascertain its taxable capacity and obtain a reasonably accurate estimation of the nation's tax revenue profile cannot be overemphasized, moreso when the nation has had to contend with a fiscal deficit crises that has lingered on for over three decades. Nigeria has recorded huge unsustainable fiscal deficits over the last thirty years, most of which have exceeded the benchmark set by the World Bank/IMF of 3 per cent of GDP (see Table I). In order to exploit the full potential of the tax-based revenue, the tax system ought to be highly efficient and effective, thereby enhancing its productivity and ensuring the attainment of optimum tax performance.

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In this paper, we shall attempt to provide answers to the following questions:

- (i) How responsive was the tax system to the discretionary and non-discretionary tax measures undertaken over the stated period?
- (ii) What was the relative contribution of each tax source to the aggregate tax yield over the stated period?

On the basis of the foregoing issues, the main objective of the paper is to examine the productivity of the Nigerian tax system for the period 1980-2010.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Tax Productivity Measures

The productivity of a tax system is a reflection of its level of performance, in relation to its taxable capacity and is usually evaluated by elasticity and buoyancy measurement parameters. Various writers have over the years come up with different methods and approaches for deriving the productivity of taxes and tax systems. Notable amongst them are Sahota 1961; Prest 1962; Singer 1968; Mansfield 1972; Khan 1973; Wilford and Wilford 1978; Ehdale 1990; Osoro 1993; Ariyo 1997; Kusi 1998 and Karras and Furceri 2009.

The tax productivity model utilized for the study was in the mould of Prest (1962) as modified by Osoro (1993). It was considered appropriate due to its ability to identify the relative contribution of each tax source to revenue growth, and also its ability to differentiate the discretionary from the non-discretionary tax measures. The model decomposed the income elasticity of each category of tax into two elements namely, tax-to-base and base-to-income, implying that the elasticity of each tax was the product of its elasticity in relation to its base, and invariably the elasticity of the base to income. The tax sources that brought about rapid revenue growth as well as those responsible for sluggish revenue growth were identified. The growth components that were amenable to direct government influence were also identified. Thus, while the tax-to-base was under the direct control of the relevant authorities, the base-to-income was beyond their direct sphere of influence.

According to Mansfield (1972), the tax revenue-to-income elasticity of a system of n taxes is the weighted sum of the individual tax elasticities and is expressed as follows:

Elasticity of total tax revenue to income

$$ET_i^Y = (\Delta T_i / \Delta Y)(Y / T)$$

Elasticity of kth individual tax to income

$$ET_t^Y = (\Delta T_k / \Delta Y)(Y / T_k)$$

Elasticity of kth individual tax to base

$$ET_k B_k = (\Delta T_k / \Delta B_k)(Y / T_k)$$

Elasticity of kth individual base to income

$$ET_k Y = (\Delta B_k / \Delta Y)(Y / B_k)$$

Where:

- T_t = total tax revenue
- T_k = tax revenue from kth tax
- Y = income measured by GDP
- B_k = base of the kth tax
- Δ = discrete change in the variable associated with it

A system of n taxes would thus be expressed as follows:

$$ET_t^Y = \frac{T_1}{T_t} \left[\frac{\Delta T_1}{\Delta Y} \times \frac{Y}{T_1} \right] + \dots + \frac{T_k}{T_t} \left[\frac{\Delta T_k}{\Delta Y} \times \frac{Y}{T_k} \right] + \dots + \frac{T_n}{T_t} \left[\frac{\Delta T_n}{\Delta Y} \times \frac{Y}{T_n} \right] \dots \dots \dots (1)$$

From equation (1), the elasticity of total tax revenue to income is equal to the weighted sum of the individual tax elasticities, where the weights are the fractional distribution to total tax by each individual tax.

The elasticity of an individual tax could thus be decomposed into the product of the elasticity of the tax-to-base and the elasticity of the base-to-income as follows:

$$ET_k^Y = \left[\frac{\Delta T_k}{\Delta B_k} \times \frac{B_k}{T_k} \right] \left[\frac{\Delta B_k}{\Delta Y} \times \frac{Y}{B_k} \right] \dots \dots \dots (2)$$

The combination of equations (1) and (2) would yield equation (3) below:

$$ET_k^Y = \frac{T_1}{T_t} \left[\left(\frac{\Delta T_1}{\Delta B_1} \times \frac{B_1}{T_1} \right) \left(\frac{\Delta B_1}{\Delta Y} \times \frac{Y}{B_1} \right) \right] + \dots + \frac{T_k}{T_t} \left[\left(\frac{\Delta T_k}{\Delta B_k} \times \frac{B_k}{T_k} \right) \left(\frac{\Delta B_k}{\Delta Y} \times \frac{Y}{B_k} \right) \right] + \dots + \frac{T_n}{T_t} \left[\left(\frac{\Delta T_n}{\Delta B_n} \times \frac{B_n}{T_n} \right) \left(\frac{\Delta B_n}{\Delta Y} \times \frac{Y}{B_n} \right) \right] \dots \dots \dots (3)$$

This is thus the elasticity of total revenue to income in a system of n taxes where the elasticity is dependent on the product of the elasticity of the tax-to-base and the elasticity of the base-to-income for each separate tax, weighted by the importance of each tax to the total tax system. Mansfield thus concluded that equation 3 can permit the identification of the sources of revenue growth and the identification of that part of the revenue growth which is directly controlled by policy makers. Generally, the elasticity concept assumes that a high value elasticity estimate (i.e. greater than 1) is a reflection of a high contribution to revenue growth, while a low value elasticity estimate (i.e. less than 1) implies a low contribution to revenue growth.

Our adopted model for the elasticity estimation is thus presented as follows:

$$T_k = a_k Y^{K_{er}}$$

Where:

T_k	=	tax revenue
a_k	=	intercept concept
Y	=	real GDP
K	=	estimate of elasticity for kth tax
e_r	=	error term

It is converted to log-linear form as follows:

$$\text{Log TR} = a_0 + K_1 \log Y + e_r$$

Where:

TR	=	tax revenue
a_0	=	intercept concept
Y	=	real GDP
K_1	=	estimate of elasticity for kth tax
e_r	=	error term

- The elasticity of a tax refers to the degree of its responsiveness to automatic non-discretionary (in-built) measures taken by the authorities, which may increase its yield.
- The buoyancy of a tax refers to the degree of its responsiveness to discretionary measures taken by the authorities which may increase its yield.

Changes in tax yield are usually reflected in the growth of the tax base or coverage which is proxied by GDP changes.

