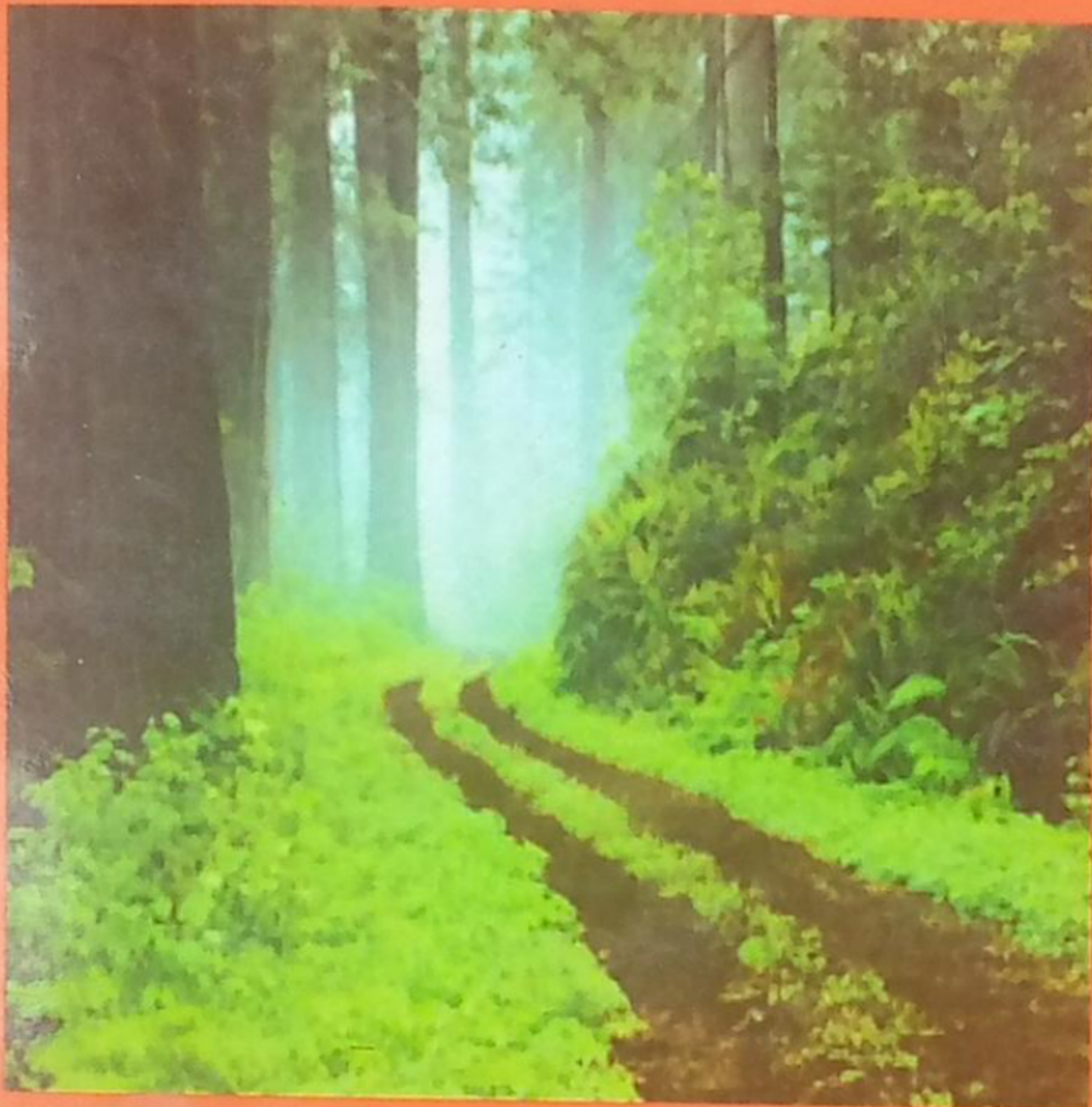# EJESM

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AN EXAMINATION OF THE RELATIONSHIP BETWEEN PROVISIONS OF INFRASTRUCTURAL FACILITIES AND PROPERTY TAX IN IBADAN NORTH LOCAL GOVERNMENT

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Abstract
Local councils have responsibilty to provide infrastructurre for the sustenance of the residents within thier jurisdiction.Thus many local council have resorted to the use of property tax in addition to other sources of revenue. However, there is no correlation between the generation of property tax and the provison of social amenities or key infrastructure that should be sustaining residents. The study adopted secondary data sourced from Ibadan North Local government, that is the amount of property tax generated and the amount of financial allocation to the provision of social amenities from 1999 till 2010. The result from the regression analysis conducted indicated that property tax is responsilble for a statistical variation of 74.2% in the financial allocation to Infrastructure in the study area.The recommendation of the study is that local coucil needs to examine the tax base as well as develop a model that will encourage participation of the residents in property tax administration.

Key Words: Property Tax, Infrastructure/Social Amenities, Local Council, Allocation, Users Participation and Public finance

Introduction
United Nations Center for Human Settlement (1999) reports that the financial consequences of urbanization and the dangers of overinvesting national resources in urban services have two implications. The first is the need for cities as a whole and urban government agency in particular to generate as much as possible the resources they need for investment and current spending. The second is the need for public agencies to make the most effective use of resources, to seek low cost solution to problems wherever possible to spread the benefits of investment as widely as possible and to avoid waste and leakage.

There is a further dimension to these two points. Most large cities have big concentration of poverty as noted by Durrand (2002) and African Development Bank (2007). Wide disparities in standard of living are not unique to cities but they are highly visible and have often been accentuated by past practices in public sector policy and the provision of services. Attempts to generate public revenue should not add disproportionately to the burdens of the poor and priority in public expenditure should be given wherever feasible to those types and methods of service provision which will benefit the poor.

Bird (2004) added that to be globally competitive, cities also need to provide a

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wide range of additional service like - transportation, water, sewers, garbage collection and disposal, police, fire protection, recreation and culture parks, affordable housing and an adequate support system of social assistances to their residents in acceptable qualities, and quantities. To do all these, cities need access to sufficient financial resources, both to build and maintain the necessary infrastructure and to deliver the services needed to make them internationally competitive. Good local governance and financial institutions thus have potentially critical roles to play in enhancing economic potential in any cities as elsewhere.

The institution of urban governance which not only includes government polices at both local and regional levels but also central government regulation and directives with respect to such critical matters as land use, finance and infrastructure shape the physical and social character of city-regions. The financial structure of a country's metropolitan areas affects the quality and quantity of urban services. For example as noted by Dillinger (1988) in a city like Calcutta, India cosmopolitan services are able to be provided probably because of its high revenue source. In this city in 1988, the internally generated revenue was 90% of total expenditure of which property tax was 36% , In Manila, Philippines, the total taxes or internally generated revenue was 70% of the total expenditure of which property tax is 36%.Whereas in Nigeria, according to Olowu et al(1988) Jos in Plateau with a total revenue of 21% had no any contribution from property tax. Ibadan has a total internally generated revenue of 29.7% of its total expenditure of which property tax is just 10%. To this end, the efficiency with which these services are provided, whether costs are shared throughout the region, in a more (or less) fair and efficient way to those who need

the services and those providing it should be of concren to both the user and the provider. Thus, citizen access to local government resources and local government accountability to citizens are major issues of concern.

Whereas, in Nigeria generally there is no correlation between the payment of the property tax and the provision of social amenities upon which property tax is normally charged. In the words of Ekong (2007) "where the property rates are collected there is no evidence of it being used or applied for the provision of social benefits for the community, so also there is no machinery put in place for a proper administration of property tax".

Thus the non correlation between the payments of property tax (as tenement rate) and the provisions of social amenities in many urban areas of Nigeria has left many residents of the residential properties that are ratable indifferent to the payment of the tax where it is being paid and thus everybody provides needed infrastructure within their capacity for themselves.

Public Finance and Taxation

Public finance is the totality of managing the revenue and expenditure resources of any local authority to provide public goods to those it is governing within its jurisdiction. The view of the Kaul and Conceidao (2006) supported this assertion that public finance is expected to help provide public goods and to foster equity. Also Kudrin (2006) opines that public finance lies at the heart of the efforts of each country to ensure stable and favourable conditions for sustainable development and improvement of the welfare of its citizens.

Consequently, public finance can only function effectively when the two components which are the revenue and expenditure tools function efficiently. The focus of this study is on one of the revenue

component of the public finance that is taxation. The importance of taxation theory has been captured by Musgrave, (1969) and cited by Aborishade and Wynne (2006) that there exist a relationship between tax structure and the level of economic growth and development. The Economic and Social Commission for Asia and Pacific (2006) supported this view when it said that specific user taxes, earmarked funds, returned earning, tolls and private sector participation have played an important role in infrastructure development in many countries.

Infrastructural Facilities as a Public Good

Brown (1999) opines that infrastructure could be distinguished in two ways the first being economic infrastructure – which constitute energy faculties, airports, water and communications while the second is the social infrastructure which are school, hospitals and which traditionally has been a public good. Apart from underpinning economic infrastructure it is an indication of the long term prosperity of a region. In other words, social infrastructure is the glue that holds a regional community together.

This view was also share by Allen consulting Group (2003) that infrastructure is viewed as the stock of facilities services and equipment in a community, including roads, schools that are needed for it to function properly. Urban infrastructure is the facilities and services that support the functioning of metropolitan communities. They further opine that infrastructures are public goods and as public goods, those are services or goods where consumption has to be decided by the community as a whole rather than by each individual. This reflects characteristics of non – rivalrious consumptions. One person's use does not deprive others. They are also non – excludable.

Furthermore Frischman (2007) opined that social infrastructure which are traditional and basic to the survival of a community includes (1) transportation system, such as high way and road systems, railway, airline system and ports (2) communication system such as telephone network and postal services (3) governance systems, such as court system and (4) basic public services and facilities such as schools, sewages and water system. it must however be noted that first the government has played and continues to play a significant and widely accepted role in ensuring the provision of many traditional infrastructure second, traditional infrastructure are generally managed in an openly accessible manner, that is they are managed such that the resources are openly accessible to members of a community who wish to use the resources.

Aschauer (1989) argued that public expenditure are quite productive and the slowdown of any productivity is usually related to decrease in public infrastructure investment. Munnell (1990) explored the impact of the stock of public capital on economic activity at the state and regional levels in the United States. She concluded that those states that have invested in infrastructure tend to have greater output, more private investment and higher employment growth. Eisner (1991) pointed out that public infrastructure not only serves as an intermediate good in physical goods production, they can also be final consumption goods, for example, water and sewage systems benefit environment, better than spoliation saves time spent on traveling, public park gives people pleasure etc.

Prosseda (2004) find substantial effects of physical infrastructure on economic growth based on the intermediate data set. Easterly and Robelo (1993) find that public investment in transportation and communication is consistently correlated with economic growth these infrastructures are vital to a nation's prosperity.

Infrastructural Facilities and Taxation

Harchaoui et al. (2003) asserts that public infrastructure capital is a public good and as a result, no market prices can be related to the service it provides. Thus Bird (2004) continues that the basic approach to financing urban development is that cities should be thought of so in effect enterprises that provide services of various sort both to urban resident and to the whole country. As with any enterprises operating in a (globally as well as nationally) competitive environment, success depends on both obtaining sufficient resources and using them in the right combination to produce goods and services that potential customers are willing to pay for. Moreover, for the 'success' of any enterprise whether a private firm or a metropolitan government to mean an improvement in society's welfare, that prices that all relevant decision makers must face must be right in the sense of correctly representing social opportunity cost. The main condition that needs to be satisfied to get urban development right is thus simply that decision makers must face both correct input prices and charge correct prices for their outputs.

To this end, Allen Consulting (2003) found that government has over the years in many countries implemented a host of measures to raise funds to meet the needs of their constituents communities, information on local government revenue in Australia ideally shows that the signatures of three major areas:- (i) Taxation revenue (i.e. rates on property) (ii) Sales of goods and services and (iii) Grants and subsides of these. They continued that property rates constitute the major source of revenue from which infrastructure might be financed. According to Van der Heen et al. (2007) taxation influences people's decision as will also be the case in infrastructure development".

Relationship Between Property Tax And Urban Infrastructure

In the model developed by Glaeser (1995) property taxation provides more funding for improvement in amenity provision or infrastructural facilities. When the government provides amenities, more people want to live (and therefore own land) in the community and property value and hence revenues from property taxes rise. The main result of this model is the condition under which revenue which is neutral switch from lump-sum tax to property taxes. In essense residents and users of amenities are made to pay for benefits that are derivable from the use of Infrastructure and therefore increase the overall level of incentives and fund available to the local governments.

The comparison between the incentive effects of the taxation and the provisions of social amenities hinges on the elasticity of demand for housing. When demand for housing is inelastic, (less than one), improvement in local amenities or infrastructural facilities value show up mainly in higher housing price. When demand for housing is elastic higher amenity levels leads to more inhabitant and smaller lot sizes-land prices change less and the incentive effects of property taxes are weaker. The model is based upon the following assumption.

- An arbitrarily large number (denoted Q) of location of area one
- Each of this location is an independent political jurisdiction with the ability to set its own amenity levels but not its tax levels.
- Total population set at Q as over
- All locations are identical and in symmetric equilibra the population of each location will be one.

There are three layers of optimization in this model. Consumer will choose location and land qualities by given to the tax rates

and the provision of local amenities. Government will choose the level of local amenities that maximize their revenue by given consideration to other local government decision about infrastructure or amenities level, overall tax rate in other local government and consumer's reactions functions to changes in tax and provison of Infrastructural facilities.

The justification for this model is based on the assumptions firstly, that tax rates are easy to monitor by voters who may not re-elect government because of tax payment that is not commensurate with the social amenities provided. Secondly, while one group (the legislative branch) within the government determines the tax rate, another group (the executive branch) determines the infrastructural amenity level. Thus the consumer's problem is to maximize utility. (That is to decide on the best location that will give optimum satisfaction in terms of payment of property tax and the social amenities provided by authority of the council). In essence, having the government level determining the tax rate and the infrastructural level, the consumers is left to determine the location that is most convinient by considering the tax rate and the level of Infrastructure available in order to maximise utility. To this end Gleaser(1999) proposed the following linear equation model

$$U(X, L, A_j) \text{ subject to } I \geq X + P_j, (i + t_j) L + B_j$$

i.e. $U(X, L, A_j)$is a utility function common across consumer.

I represent income to local government

X is a composite commodity with a price of one.

L reflect the consumption of land

i_j reflects the income available to the consumers

P_j the price of land in location j

A_j, reflect the amenity levels in location j

B_j, is the lump sum tax (or equivalent income tax) in location j

t_j, is the property tax in location j (j could be drop for national simplicity since equilibrium is symmetric across locations).

Theoretically, the model of Gleaser (1995) is more helpful to this study as it captures the position of the consumer that pays the property tax within their locality. Such obligation is expected to confer the status of the determinants of the level of infrastructure within their residence on the tax payers. This linear relationship is of interest to this study and further reference will be made to this model.

The Study Area

Ibadan North Local Government is one of the main metropoloitan local governments in Ibadan City. Ibadan city itself lies within latitude 7°23′ N and longitude 3°56′ E. In addition, the city lies in between Lagos and Abuja, respectively the commercial and political nerve centres of the country.

Ibadan city has a long history of property taxation. The most important identifiable property tax is the tenement rate which has been in existence since 1976 as a major source of local government finance. All the local council in Ibadan collects tenement rate on commercial properties as an additional source of finance to the council. The structure and proposal attracted the attention of the World Bank in the year 2001. The World Bank Finance a programmme that set up a comprehensive administrative structure for the implementation of property taxes most especially tenement as a major source of financing Infrastructural Development fund (IDF) Projects in Nigeria. (Tomori,2003)

Methodology

The data required for the study are (i) Records of property tax generated within the last eleven years 1999 – 2010. This was

sourced from the taxing authority within the selected local government. (ii) Records of expenditure and internally generated revenue which was sourced from the selected local government. The data were thereafter analysed using the regression analysis. This is to examine the relationship between property tax and the amount spent on the provision of infrastructure . Thus the independent variable y is the financial allocation to infrastructure in the local government over a period of eleven years while the independent variable x is the amount of property tax generated in the local government over the same period.
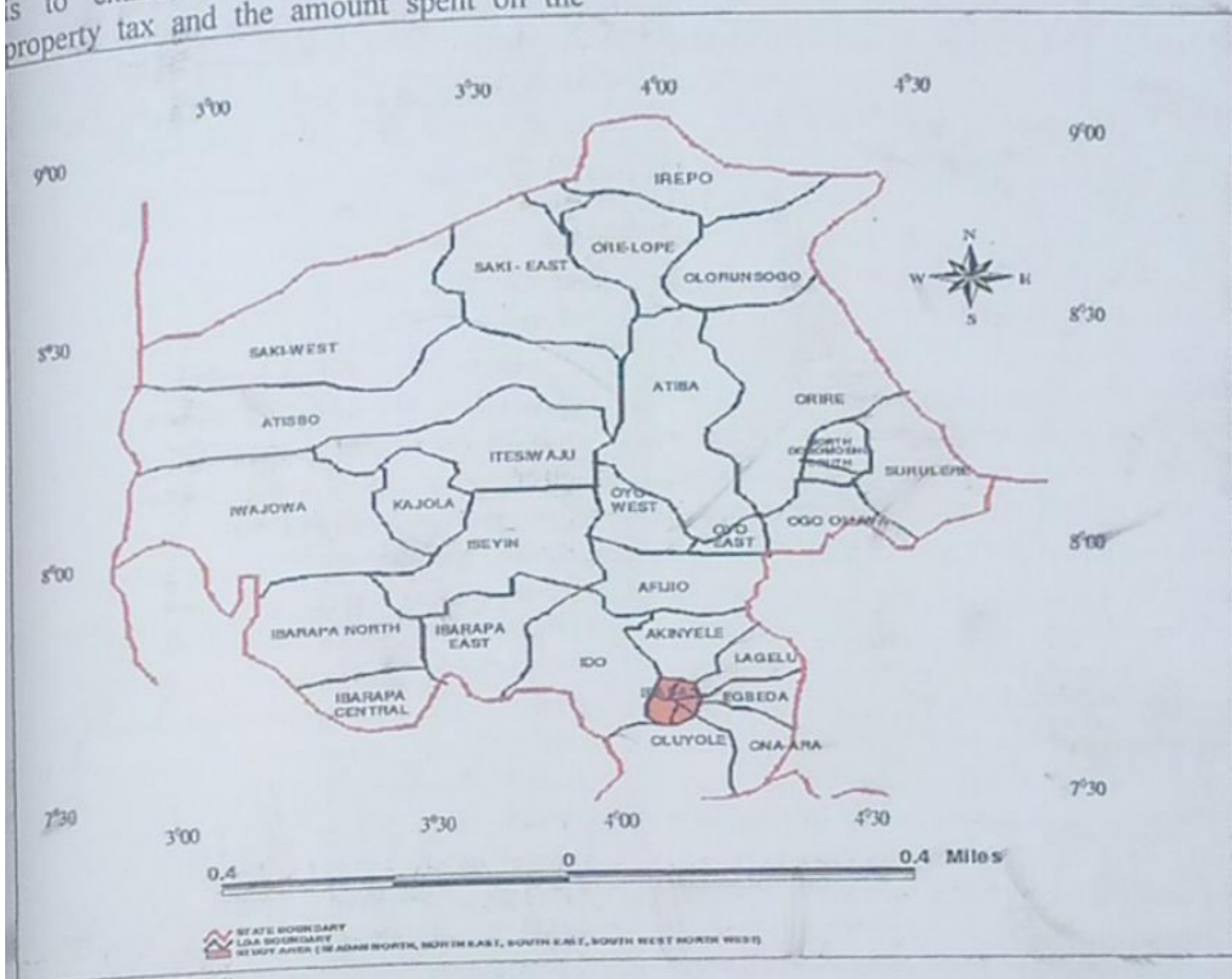
Source: Fabiyi (2006)

Figure 1: Scale Map of the Study Area

The relationship is expressed

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 \qquad (1)$$

Where   y is the dependent variable

x is the independent variable

The transformation of the linear – regression into Quadratic, Exponential and cubic is represented respectively by

$$y = ax_1^2 + b_1x_1 + b \qquad (2)$$
$$y = ax^n \qquad (3)$$
$$y = ax^3 + bx^2 + cx = d \qquad (4)$$

The transformation is required to further identify the multiplier effect the independent variable may have on the dependent variable. This is important to further confirm the degree (in percentages) and nature (wether positive or negative relationship) of the relationship that may exist between the variables under analysis.
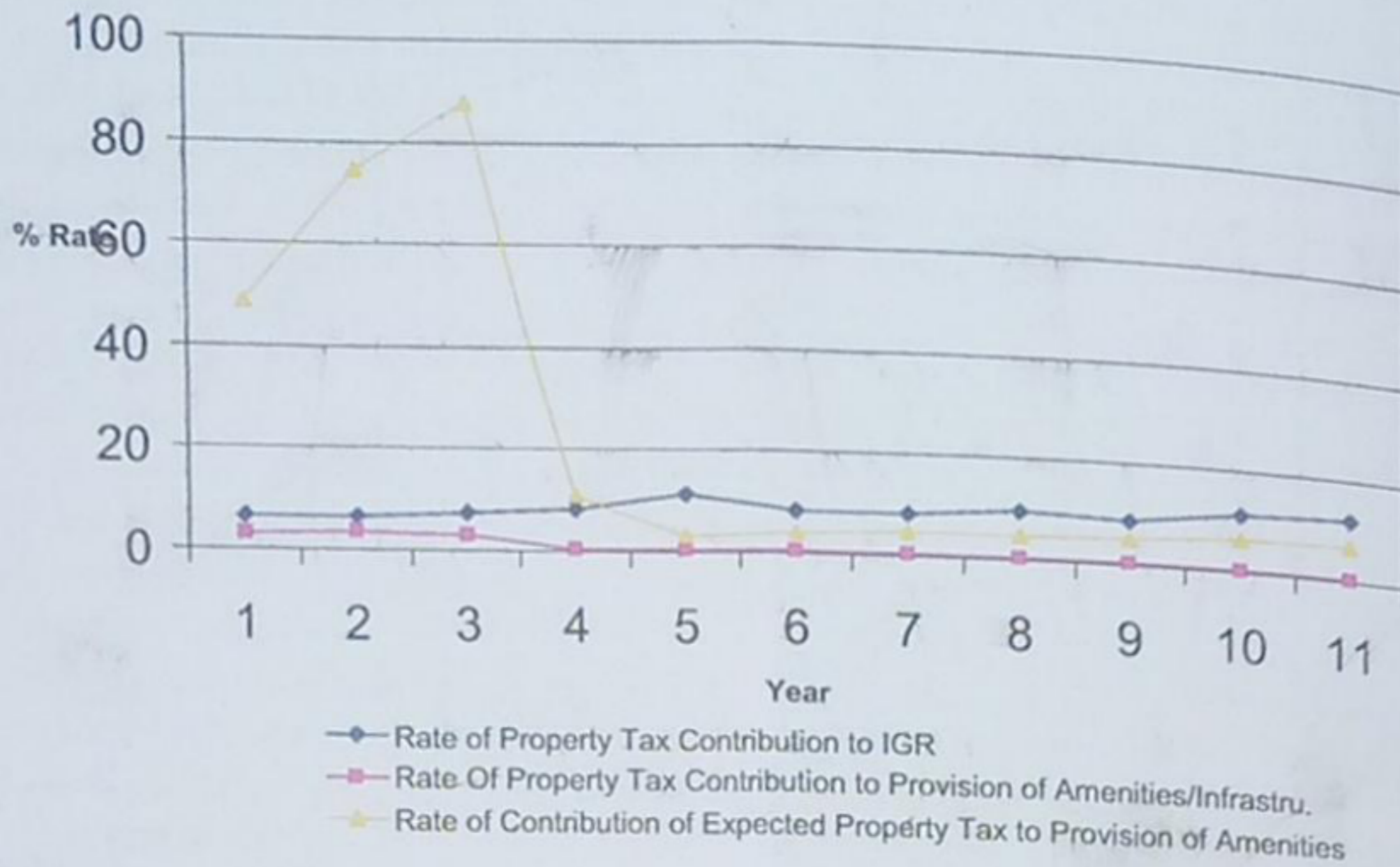
Results

Figure 2: Contribution of Property Tax to Provision of Amenities/ Infrastructure In Ibadan North Local Government.
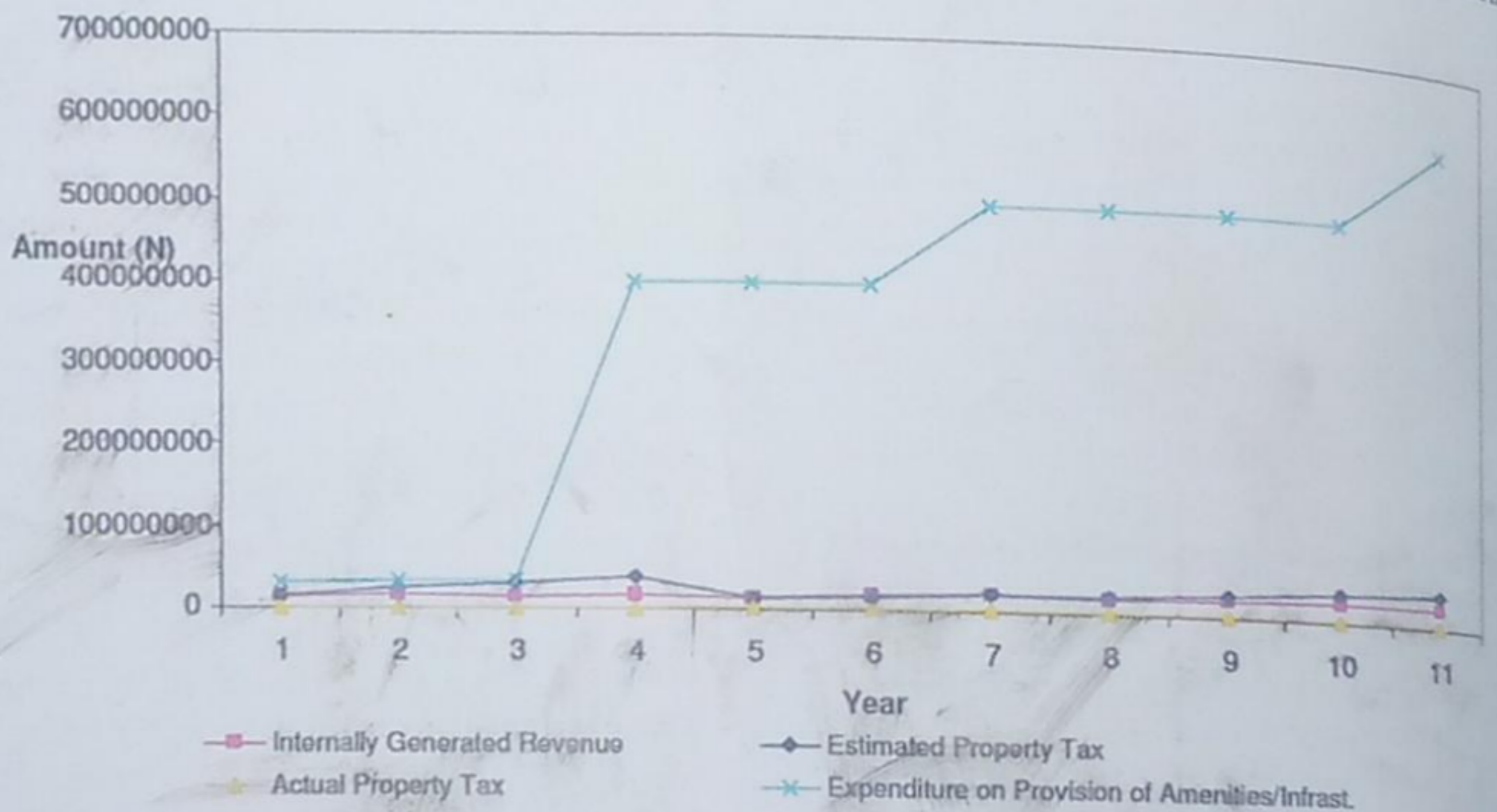

Figure 3: Relationship between IGR, Actual Property Tax Generated, Expected Property Tax and Amount Expended on Provision of Amenities/Infrastructure

Expected (Estimated) property tax is a good source of revenue that can compete favourably with the internally generated revenue and thus contribute significantly to the provision of infrastructure in various locations in the council if effort is made to generate it. However the actual property tax generated indicates a significant shortfall.

The shortfall in the contribution of the expected property tax within this locality is probably due to the inefficient machinery of the local government as identified above and the non responsive attitude of the resident in which property tax expected to be collected are paid.

Table 1: Regressed Equation for Provision of Infrastructure on Y axis and Property Tax Generated In Ibadan North Local Government on X axis

Y axis	X axis	Model	Equation	R^2	Fcal	Ftab	Sig Level	Rmks
Financial Allocation to Provision of Infrast.	Actual Property Tax Paid	Linear	$FinInfra_N = 284.2Apt + E1+008$	74.9	26.8		.001	
		Log	$FinInfraN = Log\ 5E+008AptN - 7E +009$	86.7	58.7		.000	
		Quadratic	$FinInfraN = 93.2\ 0.00AptN3- 1111Apt - 8E+008$	93.2	55.136		.000	
		Cubic	$FinInfraN = 1.85E-010\ AptN3 - 0.001Apt2 + 2983.578Apt - 2E+009$	95.4	48.82		0.000	

The regression result in Table 1 on the linear equation indicates that the actual property tax paid in the local government is responsible for 74.9 % variation in the Financing of Infrastructure. The transformation also reveals similar pattern. The F calculated for all the model equations are all above 3.45 while all the significant levels are well below .05. Thus H_1 is accepted that the actual property tax paid in the council is statistically significant in the financial allocation used to provide infrastructure in the council. However, it must be noted that the linear equation reveal that when the actual property tax is varied positively, financing of infrastructure also increased.

Discussion of Result

The amount of Property tax being generated presently when compare to the amount being spent on the provision of social amenities as presented in figure 1 are increasing at a not too wide gap from each other. However, this is at variance withthe expected amount the local governnemt is target based on the Valuations list prepared for the local government. This amount though falls drastically later. This a project though which may be due to the ability of the local government to administer the property tax or the property tax based was reduced.

However,when the amount of the property tax being generated presently is visualised against the amount being spent on

the provision of social amenities, it forms an insignificant portion of the amount spent on the provision of social amenities. Even the expected property tax if totally collected is of low significant in the amount being spent on providing social amenities. Thus the flow of the amount being uses to provide social amenities from figure 2 reveals that the source of financing the provision of social amenities in Ibadan North local government is not dependent on the internally generated revenue. It suggest therefore that the local government is augmenting its finance from other sources.

The situation is redeemable as the forecast through the regresion analysis indicates that property tax could influence a variation of about 74% in the financial allocation to the provision of infrastructre in Ibadan local government or any other local government with similar revenue base. If the forecast is further adjusted by input of variable relevant to the increase in the property tax(that is considering Log, Cubic and Quadratic equations) property tax could form the basis of public finance of the local government as the situation is in some advance countries where property tax has become an object of urban infrastructre siting and public participation in urban governance.

Conclusion

The findings of this study have infer that though there is a strong positive relationship between the generation of property tax and the provision of social amenities in Ibadan North local government, the generation of property tax in Ibadan North local government is yet to become a veritable soucre of additional revenue towards the provisions of social amenities within the local council. This is however, contrary to the model presented in the developing nation's local council where the use of property tax has become a political tool in raising the

level of infrastructure. The revealation from the study thus suggest that there is high expectaion from property tax that could contribute significantly to the provisions of social amenities. Thus, if effort is made to increase the generation of property tax through the participation of residents within any locality, a reliable source of providng a veritable source of urban infrastructure has been found. It must be noted that in using property tax to finance urban amenities, the participation of residents would have to be well monitored and encourage so as make the financing a sustainable one. In this case resident who are the tax payers must believe that the payment of property tax towards the amenities within there area of residence and in there location of choice for residence is a political tool that can alter the fortune of the governemnent participants within the locality. In essense, the executive and the legistaure in this democracy in any locality will need to cooperate to firstly identify the areas of need to direct the use of property tax payment by residents as a counterpant fund and secondly identify the population of the taxable properties within thier locality in order to have the flexibilty of increasing the amount of property tax without increasing the rate of the property tax to be paid. This gesture is a means of encouraging the locality as locational choice of residence where payment of property tax correlates with the provisions of social amenities.

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